OECD Rural Studies

Enhancing Rural Innovation in Scotland, United Kingdom



OECD

OECD Rural Studies

Enhancing Rural Innovation in Scotland, United Kingdom

OECD
BETTER POLICIES FOR BETTER LIVES

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Note by the Republic of Türkiye
The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union
The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Please cite this publication as:
OECD (2023), *Enhancing Rural Innovation in Scotland, United Kingdom*, OECD Rural Studies, OECD Publishing, Paris, https://doi.org/10.1787/33b8c803-en.

ISBN 978-92-64-41974-2 (print)
ISBN 978-92-64-18267-7 (pdf)
ISBN 978-92-64-83380-7 (HTML)
ISBN 978-92-64-33744-2 (epub)

OECD Rural Studies
ISSN 2707-3416 (print)
ISSN 2707-3424 (online)

Photo credits: Cover .shock © iStock/Getty Images Plus and Jirantanin Chanachaiviriyakul © iStock/Getty Images Plus.

Corrigenda to OECD publications may be found on line at: www.oecd.org/about/publishing/corrigenda.htm.

© OECD 2023

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at https://www.oecd.org/termsandconditions.

Foreword

Innovation is at the top of the policy agenda for the Scottish Government, with the launch of the 2023 Scottish *National Innovation Strategy*. Scotland, United Kingdom, is already a leader in firm-university collaborations and is rapidly adjusting the way it uses innovations for addressing climate change. It has an institutional system for building scientific collaborations that connects firms to researchers and actively encourages innovation and well-being through its support of social innovators.

However, while population decline is more mitigated in Scotland than the OECD average, Scotland is still facing stronger demographic pressures in non-metropolitan regions when compared to the OECD average, with a lower share of youth and a higher share of older workers. At the same time, women's entrepreneurship remains lower than men's. This can also have an impact on the spatial absorption and creation of new products and processes.

While the ingenuity of rural entrepreneurs and social actors is enabling growth, productivity and well-being in rural areas, much of the traditional support schemes for innovation, such as research and development funding, target urban areas where universities are located. This risks exacerbating innovation gaps between urban and rural areas. Regional development partners, such as the country's three enterprise agencies, hold great potential in delivering innovation and entrepreneurship support policies suited to different types of rural areas, including rural areas that are accessible, remote, or island and coastal economies.

With the Scottish innovation strategy released in June 2023, the active involvement of the three enterprise agencies and the adaption of the strategy at the regionalised level can facilitate more equitable access to support mechanisms across all places in Scotland. A focus on challenges for small firms in rural places could deliver significant innovation wins. Such initiatives could include, for example, mechanisms to facilitate access to international markets, enlarging the scope of innovation policies beyond a sectoral approach and further supporting innovation among social entrepreneurs.

This report provides an analysis of policies and programmes for supporting innovation and entrepreneurship across places in Scotland, looking in turn at structural factors, including labour markets that drive spatial differences in innovation and productivity. It also provides an analysis of the context and opportunities for social innovation in rural areas of Scotland.

This work is a part of the series of reports in the OECD Enhancing Rural Innovation project. It supports the implementation of the mandate of the OECD Working Party on Rural Policy and the Regional Development Policy Committee. Chapters 2-4 of the report were approved by written procedure on 15 May 2023 [CFE/RDPC/RUR(2023)8]. The assessment and recommendations (Chapter 1) was approved by written procedure on 10 July 2023 [CFE/RDPC/RUR(2023)8/ANN1].

Acknowledgements

This publication was produced by the OECD Centre for Entrepreneurship, SMEs, Regions and Cities (CFE), led by Lamia Kamal-Chaoui, Director, as part of the programme of work of the Regional Development Policy Committee (RDPC). The OECD would like to thank Scottish Enterprise, Highlands and Islands Enterprise and South of Scotland Enterprise for their generous financial contribution and in-kind support.

This publication was co-ordinated by Michelle Marshalian, Economist and Project Manager, under the supervision of Jose Enrique Garcilazo, Deputy Head, and Dorothee Allain-Dupré, Head of the Regional Development and Multi-level Governance Division of CFE. The report also benefitted from valuable guidance from Nadim Ahmad, Deputy Director of CFE. Chapter 2 was drafted by Michelle Marshalian, with statistical analysis and support from Sara Maioli and Thao Nguyen (Newcastle University). Chapter 3 was drafted by Stefano Barbieri, Michelle Marshalian, Keizo Nonomura (OECD) and Alastair Reid (independent consultant, REID Consulting and EFIS Centre). It received valuable comments from Betty-Ann Bryce. Chapter 4 was authored by Max Bulakovskiy, with support from Melis Aslan.

This report benefitted from valuable comments and inputs from the OECD Enhancing Rural Innovation academic and business expert group and from several consultations with local teams, including substantial input from Amanda Fox, Richard Hastings and Phil Raines (Scottish Government); Robin Clark and Catherine MacNeil (Highlands and Islands Enterprise); Garry Legg and Chris Rigby (South of Scotland Enterprise); Julia Latto and Julian Pace (Scottish Enterprise).

Jeanette Duboys and Leslie Greenhill prepared the manuscript for publication and Pilar Philip co-ordinated the production process. Professional editing services were conducted by Eleonore Morena.

The OECD Secretariat thanks the delegates to the RDPC for their valuable input. The final report was approved by written procedure on 15 May 2023 [CFE/RDPC/RUR(2023)8 and CFE/RDPC/RUR(2023)8/ANN1].

Table of contents

Foreword 3

Acknowledgements 4

Abbreviations and acronyms 8

Executive summary 11

1 Assessment and recommendations 15

2 Understanding innovation in rural Scotland 31

3 Policies and programmes for rural innovation 83

4 Social innovation in rural Scotland 145

Tables

Table 2.1. Scottish national classifications of rural areas 41
Table 2.2. Classification of Scottish administrative units in OECD 5-tier typology of small administrative units (TL3) 46
Table 2.3. Population and land share by threefold category 47
Table 2.4. Share of the population, by country of birth 69
Table 2.5. Share of total firms with new-to-firm or new-to-market innovations 70
Table 2.6. Marginal probability of innovating, 2018 71
Table 3.1. Expenditure by Scottish region, 2020-21 99
Table 3.2. Growth deals and Institutions for delivering enterprise and innovation support in four case study areas of Scotland 100
Table 3.3. Risk capital investments by main Scottish regions, 2016-21 121
Table 3.4. International export by company size, 2019 124
Table 3.5. Main types of innovation support per stage in Scotland 127
Table 4.1. Dimensions and areas of analysis of social innovation 148
Table 4.2. Selected socio-economic indicators focused on rural regions 150

Annex Table 2.A.1. Residence-based median gross annual pay for full-time employees by threefold category, 2020 75

Figures

Figure 2.1. Change in the share of the population, by degree of urbanisation, 2000-15 35
Figure 2.2. Population declines among working-age individuals in non-metropolitan areas 36

Figure 2.3. Average GHG emissions 38
Figure 2.4. Analytical framework for understanding the drivers of innovation in rural regions 40
Figure 2.5. Scottish Government Threefold Urban Rural Classification 42
Figure 2.6. OECD typology for access to cities 44
Figure 2.7. Share of enterprises in Scotland and OECD countries 49
Figure 2.8. Territorial share of firms and labour in Scotland 50
Figure 2.9. Sectoral distribution of firms and labour 52
Figure 2.10. Shares of firms with fewer than 10 workers 54
Figure 2.11. Size distribution of firms, by sixfold Scottish classification 55
Figure 2.12. Firms and labour, by firm age 57
Figure 2.13. Firms and labour, by foreign status, 2018 59
Figure 2.14. Decomposition of productivity growth in Scotland, 2010-18 61
Figure 2.15. Productivity and territorial inequality in Scotland 63
Figure 2.16. Share of firms reporting fair work measures, October 2022 64
Figure 2.17. Demographic and employment distribution of rural areas, by territory, 2019 65
Figure 2.18. Employment rates by gender, 2013-20 66
Figure 2.19. Female-to-male labour force participation rates 67
Figure 2.20. Share of firms reporting being female-led, February 2022 68
Figure 3.1. Main Scottish Government agencies with interventions relevant to rural innovation 89
Figure 3.2. Relevant policy framework for rural innovation 94
Figure 3.3. Progress on apprenticeship and qualification across Scottish councils 105
Figure 3.4. Scottish National Investment Bank Mission 122
Figure 4.1. Ratio of full-time to part-time headcount for social enterprise by regional area classification, 2018 162
Figure 4.2. Share of income source of social enterprises by regional area classification, 2018 163

Annex Figure 2.A.1. Average GHG emissions, 2018 73
Annex Figure 2.A.2. Total GHG emissions, by typology and sector, 2018 74
Annex Figure 2.A.3. Additional firm age demographics graphs by eight-tier Scottish classification 75

Boxes

Box 2.1. Understanding innovation capacity and measuring rural innovation 39
Box 2.2. Territorial and sectoral classifications 43
Box 2.3. Defining innovation from the 4th revision of the Oslo Manual (2018) 48
Box 3.1. Examples of regional and rural innovation councils in OECD countries 91
Box 3.2. Scotland's National Islands Plan (2019) 96
Box 3.3. Rural leaders networks 102
Box 3.4. Mobility and skills for entrepreneurship in rural areas 103
Box 3.5. Strengthening incentives and support for employers 107
Box 3.6. Models for distributed learning in rural areas 110
Box 3.7. Regional ambassadors and brokers within cluster development 112
Box 3.8. Tailored policies and regulations to close connectivity divides in rural and remote areas in G20 countries 114
Box 3.9. Regional approach to cluster development and smart specialisation 117
Box 3.10. University-firm linkages for innovation 118
Box 3.11. Wider spillover benefits of FDI 122
Box 3.12. Access to finance with a rural lens 123
Box 3.13. Encouraging experimentation 128
Box 4.1. The Community and Renewable Energy Scheme 153
Box 4.2. The Scottish self-directed support as a source for social innovation in remote rural areas 158
Box 4.3. Enterprise agencies in Scotland 159
Box 4.4. Examples of local partnerships active in rural areas 164
Box 4.5. Examples of recent public support finance schemes in Scotland 166
Box 4.6. Examples of business services support initiatives in the rural context in Scotland 169
Box 4.7. The Central European Rural Social Innovation (CERUSI) project 171
Box 4.8. Examples of using community assets to address specific needs of local communities 172

Follow OECD Publications on:




http://twitter.com/OECD_Pubs


http://www.facebook.com/OECDPublications


http://www.linkedin.com/groups/OECD-Publications-4645871


http://www.youtube.com/oecdilibrary



http://www.oecd.org/oecddirect/

Abbreviations and acronyms

AI	Artificial intelligence
AR	Augmented reality
ASIC	Australia Securities and Investments Commission
AUB	Employers' Reimbursement Fund, Denmark
BSD	Business Structure Database
BSP	Business Support Partnership
CARES	Community and Renewable Energy Scheme
CED-Q	Canada Economic Development for Quebec Regions
CEIS	Community Enterprise in Scotland
CERUSI	Central European Rural Social Innovation
CIC	Community interest company
CIS	Eurostat Community Innovation Survey
CLLD	Community-led local development
CNC	Computer numerical control
COVID-19	Coronavirus disease 2019
CPP	Community Planning Partnership
DEGURBA	Degree of Urbanisation
DSSB	Digital Scotland Superfast Broadband
DTAS	Development Trusts Association Scotland
EAG	Economy Action Group
EBR	Emergency Budget Review
EC	European Commission
EMEC	European Marine Energy Centre
EnoLL	European Network of Living Lab
ERDF	European Regional Development Fund
ESF	European Social Fund
ESIF	European Structural and Investment Funds
ESSB	Enterprise and Skills Strategic Board
EU	European Union
FDI	Foreign direct investment
FTE	Full-time equivalent
FUA	Functional urban area
GCRF	Global Challenges Research Fund
GDP	Gross domestic product
GEM	Global Entrepreneurship Monitor
GHG	Greenhouse gas
GHSL	Global Human Settlement Layer
GLCAP	Great Lakes Community Action Partnership
GPS	Global Positioning System
GTO	Group training organisation
GVA	Gross value added
HIE	Highlands and Islands Enterprise
ICIA	Island Communities Impact Assessment
IDBR	Inter-Departmental Business Register
ISIC	International Standard Industrial Classification

JRC	Joint Research Centre
KoSDT	Kyle of Sutherland Development Trust
LEADER	*Liaison entre actions de développement de l'économie rurale*
LEED	Local Economic and Employment Development
LUF	UK Levelling Up Fund
MA	Modern Apprenticeship
MR	Metropolitan region
MSME	Micro, small and medium-sized enterprise
MSP	Members of the Scottish Parliament
$MtCO_2e$	Metric tons of CO_2 equivalent
MW	Megawatt
NC	National certificate
NCRA	National Council of Rural Advisers
NESTI	OECD National Experts on Science and Technology Indicators
NIH	Northern Innovation Hub
NPF	National Performance Framework
NRS	National Records of Scotland
NSET	National Strategy for Economic Transformation
OECD	Organisation for Economic Co-operation and Development
ONS	UK Office for National Statistics
OSCR	Office of the Scottish Charity Regulator
PFG	Programme for Government
PPP	Public-private partnership
R&D	Research and development
RDA	Regional development agency
RDPC	Regional Development Policy Committee
REAG	Rural Economy Action Group
REP	Regional Economic Partnership
RIC	Regional innovation capacity
RIS	Regional Innovation System
RSA	Regional Skills Assessment
RSIP	Regional Skills Investment Plan
SBVS	Scottish Broadband Voucher Scheme
SCF	Scottish Co-investment Fund
SCIO	Scottish Charitable Incorporated Organisation
SCVO	Scottish Council for Voluntary Organisation
SDG	Sustainable Development Goals
SDI	Scottish Development International
SDS	Self-directed support
SDS	Skills Development Scotland
SE	Scottish Enterprise
SES	Scenario Exploration System
SFC	Scottish Funding Council
SG	Scottish Government
SGF	Social Growth Fund
SIF	Social Innovation Fund
SIS	Social Investment Scotland
SME	Small and medium-sized enterprise
SNIB	Scottish National Investment Bank
SOSE	South of Scotland Enterprise
SOSEP	South of Scotland Economic Partnership
SRLL	Smart Rural Living Lab
SRLP	Scottish Rural Leadership Programme
SRUC	Scotland's Rural College
STEM	Science, technology, engineering and mathematics
TCDT	Tiree Community Development Trust
TSRF	Third Sector Resilience Fund

UHI	University of the Highlands and Islands
UK	United Kingdom
UKIS	UK Innovation Survey
UKRI	UK Research and Innovation
UKSPF	UK Shared Prosperity Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational education and training
VQ	Vocational qualification
VR	Virtual reality
YEI	Youth Employment Initiative

Executive summary

Innovation, as it is often framed, focuses on high-technology (high-tech) sectors and processes within firms that are typically concentrated in knowledge-intensive services and high-tech manufacturing. However, often, this overlooks broader notions of innovation that reflect the absorption of existing innovations in products and processes in other sectors and new markets, as well as in new firms.

Innovation, through new firm formation and absorption, is critical for rural areas. Despite facing additional challenges in accessing government services, finance and skills as compared to urban areas, Scotland's rural areas are engines of growth and have demonstrated remarkable resilience to the recent COVID-19 crisis. However, more can be done in rural areas to boost innovation in rural areas, including by improving the enabling environment for entrepreneurship.

Labour productivity growth in rural Scotland has outpaced urban areas in recent decades…

Home to a third of firms and about 15% of labour, rural areas of Scotland accounted for most of the firm-level productivity growth in Scotland from 2010 to 2018, prior to the large shock of the COVID-19 pandemic. Remote areas alone accounted for 81.6% of total productivity growth, whereas accessible rural areas contributed 25%. In contrast, urban areas in Scotland made a net negative contribution (-6.6%).

Aggregate labour productivity grew by an annual average of 1.7% in Scottish regions (TL3s) between 2002-20, above the United Kingdom average of regions 1.4%. Growth was even higher in Scottish non-metropolitan regions (1.83%), which also outpaced non-metropolitan OECD TL3 regions (1.39%). Non- metropolitan close to metropolitan regions in Scotland recorded faster growth rates (2.2%) than non-metropolitan remote (1.62%) regions.

…but there is evidence of unequal growth over time and within places…

In 2018, the top 10% of firms in urban areas and accessible rural areas of Scotland had 35 and 37 times the labour productivity of the bottom 10% of firms. In remote rural areas, the top 10% of firms had 30 times the labour productivity of the bottom 10%, significantly higher than the comparable figure in 2010 (10 times more productive).

The COVID-19 crisis had a profound impact in Scottish rural areas but not all types of rural areas faced the same challenges. Although there was an aggregate decrease of firms and labour in accessible and remote rural areas between 2018 to 2022, the decline was not as substantial as in other areas, especially urban areas and accessible small towns. In particular, the agricultural and fisheries sectors were robust to falls in employment, where it continued to hold on to jobs, particularly in accessible rural areas, despite aggregate falls in all other sectors from 2018 to 2022. In rural remote areas, there was neither a loss nor a gain in employment in the agricultural and fisheries sector, which, in comparison to other sectors such as trade and service, is a positive outcome.

There is great potential in the activation of the rural labour force

In line with OECD trends, non-metropolitan regions in Scotland and the United Kingdom are losing their population shares and are ageing faster as compared to metropolitan regions. However, within different types of non-metropolitan areas, Scotland is unique. The share of the population in accessible rural areas grew by 0.84 percentage points from 10.56% of the total population in 2010 to 11.40% of the total population in 2020, against a decline in remote rural areas (-0.18 percentage points). Scotland, with an already larger share of older working-age individuals as compared to the OECD average, is continuing to experience ageing pressures in non-metropolitan regions. Between 2010 and 2020, Scotland observed a 1 percentage point increase in the share of older working-age individuals, 50 to 64 years old (22% in 2020 as compared to 21% in 2010), and a 1 percentage point decrease in the share of younger working-age individuals between 15 and 29 years (16% in 2020 as compared to 17% in 2010). In comparison, on average in the OECD over the same period, there was a 2.9 percentage point increase in the share of older working-age individuals (16.2% in 2010 to 19.13% in 2020) and a 0.2 percentage point decrease in younger working-age individuals (18.7% in 2010 to 18.5% in 2020).

These demographic trends have important implications for policies and programmes focused on innovation and well-being. Without specific consideration for rural demographics, policies risk missing out on intergenerational opportunities for community-building and economic growth. Policies to reinforce access to a skilled labour force for innovation need to take into consideration an older average age of workers in rural areas and the silver economy and focus on building partnerships with public entities to deliver entrepreneurial skills training from an early age (for example, secondary school). In rural areas, delivery of skills or training should prioritise models that focus on high-quality distributed learning, such as those administered by the University of the Highlands and Islands system, or incentives for employers and public entities to deliver aggregated skills training models in low-density areas.

Importantly, Scotland has made substantial progress in promoting the inclusion of women in the labour force. In Scotland, women are as engaged in the rural labour force as men, outperforming the gender equality ratio in the United Kingdom and the OECD average. However, the rate of women's entrepreneurship is still lagging behind the rate of men. Indeed, programmes and practices for encouraging entrepreneurship may not be well suited for the challenges women face in establishing firms and retaining work-life balance, and further research should be undertaken to better understand women's risk-taking behaviours, challenges in upscaling and strategies for networking. In addition, in rural areas, with limited access to social support and government services for family and healthcare, social innovators are a particularly important recourse to encouraging women to remain active in the labour market and further encouraging more female entrepreneurship.

Opportunities and support for innovation in Scotland are abundant…

Productivity is often strongly associated with innovation. Scotland is a country with strong innovation practices and a leader in innovation associated with climate change, encouraging collaborations in scientific publications, in particular, with small and medium-sized enterprises (SMEs). It has 19 universities, some of which are able to reach different remote areas and islands through remote learning techniques and facilitate links between firm research and university research centres. Because of the natural resource opportunities and political support for renewables, it is not surprising that Scotland has become one of the leaders in renewable energy solutions. Nevertheless, increasing population patterns and the recent COVID-19 pandemic bring new challenges and opportunities to enable and facilitate innovation in firms, the public sector and among social actors.

…however, more can be done to support rural entrepreneurs

Innovation occurs across all geographies of Scotland. It is not because firms are in rural areas that determines whether or not they innovate but rather their firm characteristics associated with different levels of innovation. For instance, in rural areas, firms tend to be smaller and often have fewer linkages to international markets. Second, older firms may experience challenges in transformational and disruptive innovation and might need to consider more modern succession practices; in rural areas, the share of older firms is larger than in urban areas in Scotland. Third, in many rural places in Scotland, the highest share of firms tends to operate in the service and agricultural sectors. These firms are more likely to innovate either through changes in service delivery adopted for the rural economy or through hybrid sectoral processes (e.g. the mixing of agricultural and manufacturing sectors). Last, it is widely known that much of the standard innovation literature associates science and technological innovation with the manufacturing sector. While the manufacturing sector is increasingly gaining ground in rural areas, it is not the largest sector of activity in rural areas of Scotland. Services and agriculture are both critical sectors in rural economies.

Social innovation plays an increasingly critical role in delivering services to rural communities

In addition to firm-based innovation, social innovation and innovation that occurs beyond the logic of profit maximisation play an important role in Scottish rural areas, where they thrive with a long history and a thick fabric of community actors. In part, enabling these actors to provide goods and services is particularly important because remote rural areas tend to have more limited access to public services including healthcare and social services. Such innovators actively contribute to raising well-being standards in rural areas.

The lack of public services is particularly disadvantageous for activating women and older workers in the labour market and in driving well-being. Scotland displays one of the strongest systems of support for social entrepreneurs among OECD countries. As such, the challenge of bringing public services to rural areas is in part addressed by local social innovators and entrepreneurs. This could, in part, explain why there has been so much progress for women in non-metropolitan areas of Scotland. Nevertheless, challenges remain for encouraging more social entrepreneurship and innovation, in particular, in accessible rural areas.

Next steps for innovation in Scotland

The (new) innovation strategy released in June 2023 promises to deliver a strategy for innovation tailored to the needs of the Scottish economy. While it suggests that place plays a role and specifically identifies access to finance and skills as a challenge that needs to be understood from a place perspective, it still focuses on high-tech innovation activities. This overlooks other forms of innovation in rural economies in the broader strategy (outside the cluster and smart specialisation angles) such as the programme of action on innovation prioritising science and technology sectors that focus on the energy transition, health and life sciences, data and digital technologies, and advanced manufacturing. While it also identifies opportunities in the blue economy, there is significant potential to boost growth, productivity and innovation in a broader range of services and agricultural activities that still account for a significant share of activity in rural areas, in particular through the development of enabling environments for entrepreneurship.

Key recommendations

Delivering services for innovation and entrepreneurship in rural Scotland

- **Going beyond the science, technology and innovation (STI)-focused support** for rural innovation is a critical element of supporting innovations in rural areas. This could include expanding programmes that:
  - **Support entrepreneurial ecosystems** which prioritise rural well-being through new services, engage with rural stakeholders such as social innovators, build local partnerships with secondary schools and increase support for women entrepreneurs.
  - Improve **access to skills for innovation** focusing on vocational education and training systems and retraining older workers, providing joint apprenticeship opportunities, creating opportunities for early entrepreneurial training for youth, encouraging high quality distributed learning models and engaging with local stakeholders for regular consultations.

Improving delivery of innovation programmes in rural Scotland

- **Promoting innovation and experimentation in the delivery of support services** can support rural areas' transition.
- **Strengthening new firm formation, support for social entrepreneurs and competitiveness of SMEs** can improve delivery of innovation programmes. This could include assessing the user-friendliness of the pre-existing **one-stop shops** for rural businesses, tailoring policies to the **types of firms** in rural areas, and increasing and tailoring how **formal research** funds are targeted and applicable to rural firms.

Co-ordination initiatives to improve innovation systems

- Supporting rural entrepreneurs through **vertical and horizontal co-ordination** is critical to a wholistic approach. This could include adding similar co-ordination initiatives such as the National Strategy for Economic Transformation (NSET) Team Scotland initiative and Civtech Scotland; further co-ordinating specific needs of rural firms in the implementation of **innovation and export strategies;** and encouraging programmes that directly improve rural **access to finance** and supporting access to **physical and digital markets**.
- **Overcoming low economies of scale** for firms in rural areas could be achieved by better utilising **cluster development strategies**, considering the further use of **regional brokers** to build partnerships for development in functional areas and adopting actions to improve rural entrepreneurs' engagement with **international trade partners.**

Social innovation

- **Promoting social innovation** is particularly important for rural communities. This can be facilitated through a variety of mechanisms, such as **regulatory sandboxes**, encouraging **experimentation** with social entrepreneurs and prioritising the use of social innovation as a **complementary approach** to enhance public service delivery.
- Supporting the continued contribution of social entrepreneurs to rural areas is critical to supporting rural communities. This could be facilitated by increasing **awareness and information sharing** of successful examples of social innovation in rural areas, implementing **a monitoring system** of social capital, establishing a **commonly agreed definition** of social innovation, increasing the **engagement of a broad array of actors** and supporting **diversification of revenue streams without reducing the focus of grants** for vulnerable communities.

1 Assessment and recommendations

This chapter provides the overall assessments and recommendations for the case study of Scotland, United Kingdom. The report identifies areas of strengths and bottlenecks to enhance innovation and entrepreneurship in rural Scotland.

Through its 19 universities, 7 national innovation centres, government programmes for entrepreneurs, such as Business Gateway and Interface, and sector-specific innovation programmes, Scotland provides a robust support system for innovators based on creating opportunities for growth, in many cases, through collaboration. In addition to traditional innovation support channels, there is also a strong commitment from three regional economic development agencies in Scotland – Highlands and Islands Enterprise, South of Scotland Enterprise and Scottish Enterprise – to provide support to entrepreneurs and companies looking to innovate across rural regions of Scotland.

With European Union (EU) structural funds for innovation no longer available since the United Kingdom's departure from the union, and with limited fiscal space for governments in the wake of recent economic shocks and slow economic growth, identifying approaches to untap the full potential of rural innovation, in particular, to drive and manage key transitions, has never been more important.

Rural areas are critical for the future of Scotland. In addition to the valuable heritage that they offer, they provide an important economic contribution to Scotland. In the two decades leading up to the COVID-19 crisis, productivity in rural Scotland grew faster than in Scotland as a whole. Furthermore, rural areas of Scotland have had remarkable achievements over the past decade, both in terms of economic growth, social innovation and progress in climate mitigation. For example, some rural areas in Scotland, in particular those that are accessible,[1] are still growing in terms of population, despite the fact that many rural areas in OECD countries on average are currently going through demographic decline and ageing. Second, women are highly active in the labour force as compared to men in non-metropolitan areas and experienced substantial gains in all areas of Scotland over the past decade. Even though further engagement of women in the labour force, such as through entrepreneurship, can be further supported, progress for women in Scotland has outpaced many OECD countries.

National productivity growth was driven by rural areas of Scotland in the last decade prior to COVID-19, in particular because of a higher innovation absorption capacity of rural firms. Nevertheless, barriers to growth of rural firms continue to exist and increasing innovation will require supporting entrepreneurs to create and scale up new businesses and products.

While the innovation environment for Scotland is supported by initiatives to link firms with research institutes and universities, support for innovation and addressing new challenges in rural and non-metropolitan communities could be further re-enforced. Finally, social innovation – that is innovation that goes beyond the logic of profit to provide societal benefits – is a strong tool that can be used to address some of the challenges of rural areas, in particular when it comes to delivering basic and community services where market failures and public service provision are more difficult to ensure in practice.

Assessments

There is potential for greater labour force participation and skills matching in rural areas

Employment in rural Scotland is relatively high as compared to OECD countries. In 2020, the average employment rate[2] was 73% in Scotland, as compared to 68% in OECD countries. Based on the OECD classification of small administrative regions (Territorial Level 3, TL3) [3], in remote rural regions of Scotland, the employment rate is even higher, at 78%, and remains 10 percentage points higher than remote rural regions of OECD countries (68%). In addition, employment rates in rural areas of Scotland were higher than those in metropolitan regions of Scotland (73%).

In Scotland, 36% of the population live in non-metropolitan regions, above the equivalent average in OECD countries (30%). Rural areas in Scotland host about a third of firms but employ only 15% of labour, suggesting that some shares of rural residents are likely to work in non-rural areas, despite high employment rates overall. In addition to creating new opportunities in rural areas, activating older workers

in rural areas to participate in the labour force through reskilling and upskilling programmes is an important part of a holistic approach to the revitalisation of rural areas.

The share of the population in remote rural areas of Scotland is slowly declining, while the share in accessible rural areas is growing…

From 2010 to 2020, the share of the population in non-metropolitan regions of Scotland fell slightly from 36.1% to 35.7% (0.4 percentage points), less than the average fall in OECD countries (31.2% to 30.3%, or 0.9 percentage points).

However, this masks significant differences across types of rural areas. For example, from 2010 to 2020, the share of the population in accessible rural areas grew by 0.84 percentage points, compared to a fall in remote rural areas (-0.18 percentage points). The growth in accessible rural areas was higher even than growth in large urban areas (0.54 percentage points).

The population decline in remote rural areas can bring challenges to the way public services are delivered and firms operate in rural areas. This will necessitate targeting interventions at the right scale to deliver services in places with low density including jointly with nearby communities, making use of digital solutions and increased flexibility for how firms, social partners and non-governmental organisations deliver services to the community.

…and individuals in non-metropolitan regions are older

In Scotland, there are lower shares of young working-age and higher shares of older working-age individuals in non-metropolitan regions. In these regions in 2020, the share of young working-age individuals (15-29 years of age) in the total working-age population stood at 16%, substantially lower than the share of older working-age (50-64 years of age) individuals, which stood at 22%. In contrast, in OECD countries, the share of young working-age individuals in non-metropolitan regions is higher than in Scotland (18.5% in OECD countries versus 16% in Scotland) and the share of older working-age individuals is lower than in Scotland (19% in OECD countries versus 22% in Scotland).

The difference in the structure of age groups across regions also implies that a different focus may be needed for upskilling programmes. For example, engaging youth at an earlier stage to hone potential entrepreneurs is critical in rural areas because of the importance of creating new opportunities for giving young workers incentives to invest in their communities. On the other hand, upskilling and continuous education programmes need to be better targeted to work with older working-age individuals whether they are employed or self-employed. For older workers, the critical role of employers as potential actors through which individuals gain and refresh skills is particularly important, making a skills strategy that is in line with local opportunities and skillsets critical for rural innovation.

Women are as engaged in the active labour force as men in rural areas but have lower employment rates

From 2012 to 2020, some indicators of progress for gender equality in Scotland outperformed progress in OECD countries. In 2020, the ratio of women to men in the active labour force in Scotland was 0.97, or close to parity. It was above the average for the United Kingdom as a whole (0.91) and the OECD average (0.82). Although women's employment rate in non-metropolitan regions in Scotland (71%) was lower than men's employment rate (75%) in 2020, the gap was smaller than the OECD average in non-metropolitan regions (63% for women compared to 73% for men).

Despite these positive figures, challenges remain to fully activate the female potential in rural economic activities in rural Scotland. Only a fifth of Scottish firms in rural areas are led by women. This share is similar to those present in metropolitan regions. However, within rural regions, the share of women-led

firms in accessible rural areas stood at 24%, which was lower than the share of firms run by women in small remote small towns (34%). In terms of the wage gap, over a third of Scottish firms across all areas of Scotland consider that implementing transparency in gender wage gaps is an important factor in increasing inclusiveness for women in the workforce, although this share is highest in urban areas (36%) and smaller in accessible rural (34%) and in remote rural areas (34%). In some cases, challenges for women are due to social norms and access to family services and, in other cases, to financial barriers, strengths and weaknesses of business models of female-led firms and practices in networking.

Labour productivity growth is strong in rural Scotland but there is some evidence of unequal growth

Productivity, strongly linked to innovation, has grown in Scotland over the past two decades. Labour productivity, defined as the ratio of gross domestic product (GDP) per employee, grew by 1.7% per annum on average in small Scottish (TL3) regions, above the United Kingdom average of small (TL3) regions of 1.4% between 2002-20. The rate of growth was even higher in Scottish non-metropolitan regions (1.83%). When compared internationally, non-metropolitan regions in Scotland also grew faster than TL3 regions across the OECD (1.34%) and in non-metropolitan OECD TL3 regions (1.39%). Within the sub-type of non-metropolitan regions, non-metropolitan close to metropolitan regions in Scotland recorded faster growth rates (2.2%) than non-metropolitan remote (1.62%) regions.

Despite these positive trends, labour productivity gains in rural Scotland occurred in parallel to employment losses. Indeed, employment on average in non-metropolitan small (TL3) regions of Scotland contracted by 0.23% annually on average against a gain of 0.39% in metropolitan regions. In fact, only 3 non-metropolitan regions from Scotland recorded positive employment growth rates over 2002-20, these concern notably 2 non-metropolitan regions close to medium-sized cities, Perth and Kinross, and Stirling (0.21%), East Ayrshire and North Ayrshire mainland (0.06%) and 1 region in a non-metropolitan remote rural area, that includes Caithness and Sutherland, and Ross and Cromarty (0.41%).

During the pre-COVID-19 period, almost all change in Scottish productivity growth from 2010 to 2018 was driven by accessible and remote rural areas. Using data from the UK Business Register matched with data from the UK Innovation Survey, the report finds that remote regions accounted for 81.6% of the increase in productivity, with accessible rural regions contributing 25%. Urban areas, on the other hand, made, on average, a negative contribution (-6.6%).

> *Labour productivity growth was primarily driven by a "catching-up" effect, yet also resulted in growing inequalities between firms within rural areas*

Much of the growth in productivity was due to the upgrading of resources in remote rural areas, suggesting that the "catching-up" effect was a strong factor of productivity growth in the region. Over the 2010-18 period, two-thirds of productivity growth in Scotland was due to more efficient use of resources within rural remote areas, associated with higher innovation absorption.

Despite the progress, there are still differences (inequality) between firms that make large gains in productivity and those that make fewer gains in productivity in rural areas. The Gini indicator of productivity in remote rural firms grew from 0.54 to 0.70 from 2010 to 2018 and became more unequally skewed at the tail ends of the productivity distribution. Although inequalities between firms' levels of productivity in remote rural areas were still lower in 2018 than in accessible rural areas (0.81) and urban areas in the rest of Scotland (0.86), they still grew. Unlike in remote rural areas, differences (inequalities) in firm-level productivity fell in other areas (from 0.82 in accessible rural areas and 0.89 in urban areas in 2010).

Firm inequality in terms of productivity is driven by the high share of aggregate productivity captured by the most productive firms. This is particularly strong in accessible rural areas and urban areas. In 2018, the top 10% of firms in urban areas of Scotland were 35 times more productive than the bottom 10% of

firms. In remote rural areas, the top 10% of firms were 30 times more productive than those in the bottom 10% of the productivity distribution, which is significantly higher than the comparable figure in 2010 (10 times more productive). In accessible rural areas, the top 10% of firms were 37 times more productive than the bottom 10% in 2018.

Challenges in innovation still exist in rural areas within Scotland

Whilst geography can create challenges for overall levels of innovation in rural areas, a large part of this is reflected in differences in the structure of firms (sector, size, age and other firm characteristics) and place-based challenges to entrepreneurship and growth (including, for example, access to finance, skills, knowledge, networks and markets). Once we account for these facts, firms in Scottish rural areas report being innovative as often as firms in Scottish metropolitan areas. Unlocking higher innovation in Scottish rural areas, therefore, requires policies to overcome barriers to new firm formation and scaling up.

Indeed, large firms and young firms tend to innovate more, regardless of whether they are located in a rural or urban area. The oldest firms (30 or more years) are least likely to innovate[4] whereas large firms (250 or more employees) have the highest probability to innovate. With the exception of Edinburgh,[5] location does not appear to play a strong role in determining whether a firm participates in formal innovation.

Older firms have a higher share of the rural economy

Accessible rural and remote rural regions tend to have a higher share of old firms than those in urban areas. Old firms (30 or more years) represent 20-25% of all firms in rural areas, whereas they only account for 5-8% of urban areas in 2018.

Likewise, accessible rural and remote rural areas have the lowest shares of new firms, between 0 to 1 years of age (7%). In urban areas in the rest of Scotland, the share of new firms is 14%. Urban areas also tend to have higher shares of young firms (2-5 years of operation) than rural areas (37% versus 21%).

Smaller businesses have a higher share of the rural economy

In the OECD, the average share of firms with less than 10 workers was 98.5% between 2000 and 2018. On average across OECD countries, shares in metropolitan and non-metropolitan regions were similar. However, 15 out of 23 OECD countries (with available data) had higher shares of firms with fewer than 10 workers in non-metropolitan areas.

In Scotland, most firms in rural areas are also small. Small firms with 1-10 employees (i.e. excluding sole-proprietary firms) were the most common type of firm in Scotland in 2022, accounting for 85% of all employer firms in Scotland. In rural areas, firms with fewer than 10 employees accounted for a larger share of firms than those in urban areas. For example, in rural remote areas, 91% of firms had fewer than 10 employees, while in accessible areas, 90% of firms had fewer than 10 employees. In comparison, only 82% of firms had fewer than 10 employees in urban areas.

Small and older firms employ fewer individuals in rural areas

The challenge of the different structures of rural firms is a double-edged sword when it comes to employment opportunities. As such, policies to support rural innovations should consider how to support smaller firms to scale up, encourage new entrepreneurs to undertake risks related to starting a new firm and support owners of older firms to go through a transition.

Older firms in rural areas account for disproportionately smaller shares of workers than in urban areas. For example, in accessible rural areas, firms that are more than 30 years old account for 20% of all firms and 38% of all workers, employing 11 workers per firm on average, while those in remote and very remote rural

areas account for close to a quarter of all firms and around a third of all workers, employing 7 workers per firm on average. In comparison, older firms in urban areas accounting for only 5-8% of the economy employ between 38% and 28% of the labour force respectively. They employ, on average, 71 employees per firm.

Likewise, while smaller firms are the most common form of firms in the rural economy, they tend to employ only 45% of workers in rural remote areas and 27% in accessible rural areas. In comparison, firms with less than 10 employees employ a lower share of the labour force in urban areas where they account for 15% of total labour in large urban areas and 18% of total labour in other urban areas.

Access to international markets can bring more opportunities for smaller and older rural firms

Creating linkages to other countries can be an important source of growth, both for attracting investment from foreign sources and for attaining linkages to foreign export markets. Firms that have foreign owners, or who can access export markets, are more likely to employ more individuals than those that are owned only by national entrepreneurs. This can be a particular challenge for the large share of relatively smaller and older firms that may be either family-run or operate in traditional methods.

In 2018, foreign firms (non-UK) had a small share of the Scottish economy yet tended to employ more workers per firm. In urban areas, they accounted for approximately 7% of firms in 2018. In non-urban areas, they seldom account for more than 5% of firms. Foreign firms in urban areas employed 2 to 5 times more workers than foreign firms in rural areas in 2018.[6] Furthermore, in urban areas of Scotland, foreign firms employ 18 times more workers per firm than national firms, whereas they employ only 10 times more workers than national firms in rural areas of Scotland.

Firms that can reach export markets have increased access to customers, supply chains and ideas for innovation. As a result of the increase in the effective size of the market, such firms also have accrued pressures to innovate and compete. In 2018, small and medium-sized enterprise (SME) exporters were twice as likely as SME non-exporters to have innovated in the previous three years. While 59% of international exports are accounted for by large companies (more than 250 employees), small (less than 50) and medium (50-249) companies held 20% and 21% respectively. Even though there are some support mechanisms to support inward investment and access to export markets, a recent evaluation noted that firms from rural areas found it more costly and difficult to engage with Scottish Development International advisers and participate in export promotion events.

There are opportunities for innovation in rural Scotland

Scotland is a strong innovator when it comes to collaborations for scientific publications with SMEs and social innovation

Among European countries and regions, Scotland is in the top 20% and classified as a strong innovator according to the European Innovation Scoreboard. Scotland's innovation performance is fostered by its strengths in skills, scientific publications and collaborations with SMEs. It benefits from the national programme supporting linkages between firms (and in particular SMEs) to researchers through a programme called Interface. It also benefits from a dedicated one-stop shop for supporting entrepreneurs in the life cycle of the firm as well as conducting research and development (R&D) (Findmybusiness.com). Furthermore, rural innovators are supported by the three enterprise agencies that provide guidance in attaining national programmes and deliver more tailored regional services, in co-ordination with Skills Development Scotland and the Scottish Funding Council.

Despite this strong performance in firm-led innovation, they still face challenges in business product and process innovation, design and trademark applications as well as bringing the sale of innovative products to markets. Nonetheless, Scotland's offer of support for bringing SMEs in contact with universities is exemplary and an important contributor to the advantages of Scottish firms.

Scotland is not only strong in firm or company-led innovation but also in other forms of innovation, such as social innovation. Social innovation is a prominent form of innovation in Scotland. It takes place, especially in its rural areas, where social innovators and entrepreneurs have long benefitted from a legal status and where there is a dense fabric of social entrepreneurs and actors working in traditional and non-traditional sectors. One example of how social innovators have led the path of innovation is through land use. The 2003 Land Reform Scotland Act created a statutory framework of public access rights to most land and provided the enabling legislation for community land purchases. This legislative reform promoted experimentation of land use, encouraged community development-led opportunities, enabled the provision of land for social housing and supported the development of community-owned renewable energy solutions. The reform has also allowed communities to benefit from the financial contributions that renewable energy projects, such as wind turbines, brought them, especially since 2011 under the Community and Renewable Energy Scheme.

Scotland is a leader in the adoption of innovations targeted at mitigating climate change through renewable energy resources

Scotland is an early and rapid adopter of innovations linked to renewable energy solutions. Scotland only narrowly missed its 100% renewable energies target, with 98.8% of gross electricity consumption produced by renewable energy sources in 2020. Furthermore, Scotland is also a leader in reducing production-based greenhouse gas (GHG) emissions. It has consistently reduced its production-based GHG emissions, faster than the average across OECD regions. Since 2000, total GHG emissions have fallen relatively consistently, from 97.513 metric tons of CO_2 ($MtCO_2e$) equivalent emissions to 71.009 in 2018, or 27%. In comparison, GHG emissions in OECD countries only fell by only 6%.

Yet, firms in non-metropolitan regions of Scotland are still stronger contributors to production-based GHG emissions than those in metropolitan regions of Scotland

Progress in the reduction of production-based emissions is slower in non-metropolitan regions of Scotland. In 2018, the national share of emissions in non-metropolitan areas of Scotland was almost double that of metropolitan areas, with 38% from metropolitan regions and 62% from non-metropolitan regions (44.22 $MtCO_2e$ in non-metropolitan regions, and 26.79 $MtCO_2e$ in metropolitan regions) and that share has increased by 4 percentage points since 2010. Contrary to Scotland, on average across OECD countries and in the United Kingdom, the majority of emissions tend to come from metropolitan regions, rather than non-metropolitan regions, with close to two-thirds of GHG emissions from metropolitan areas and one-third from non-metropolitan areas. Over the same period, the share of overall emissions in non-metropolitan areas of OECD countries grew by 1%. In Scotland, much of this challenge in GHG emissions is due to relatively higher GHG emissions in non-metropolitan areas from the transport, industry (manufacturing) and agricultural sectors, which are similar drivers of high emissions in other OECD countries.

Accessible rural areas are distinct from remote rural areas and, as such, have different opportunities and challenges when it comes to innovation and entrepreneurship

Rural accessible areas and those that are more remote have a different set of societal and economic challenges that are tied to unequal growth within geographies and unequal access to government services. As such, a specific lens for understanding challenges and opportunities for accessible rural and remote rural areas is critical in ensuring that direct resources (government services for innovation and

entrepreneurship) or indirect resources (access to markets, digital infrastructure, etc.) can adequately support innovation and entrepreneurship in these areas.

Innovation, whether driven with a social purpose, through the public sector or for profit only, also plays an important role in building the appropriate framework conditions for entrepreneurs, for example by improving the provision of services. For example, while basic social services (such as access to schools and hospitals) are often prioritised, accessing specialised social care can be a different challenge in rural remote versus accessible rural areas. While there may be healthcare centres in accessible rural areas, often these centres do not offer targeted services for elderly care, childcare and, in particular, services to address challenges related to remoteness and isolation. In many rural remote areas, access to such specialised services has been a long-time challenge that social actors have anticipated and worked on addressing actively. As such, in remote areas, enabling social and public actors to innovate in new forms of delivery (either by building scale through community collaborations or using multi-purpose facilities, for example) is an important mechanism to use. In contrast, in accessible rural areas that face fewer challenges of scale but lower levels of dependency on social actors, building partnerships with the private sector for innovation in services delivery could be a more viable form of delivery of services.

Social innovation is an increasingly critical part of delivering services to rural communities

Other forms of innovation, outside of the science and technology type of innovation, exist and are more likely to be tied to different opportunities in rural areas. Where delivery of public services becomes expensive or is limited due to accessibility, social innovation and public sector innovation take a larger role. The Scottish Government has made a long-term commitment to encourage social entrepreneurship and social innovation across Scotland.

Rural areas of Scotland are unique in their early recognition of social innovation as a key factor for improving well-being standards in rural areas, which is increasingly important as ageing trends create more demand for care services. Scotland enjoys a high level of civic engagement, high levels of volunteering and solidarity, as compared to other OECD countries. This is particularly true in remote rural areas, where remoteness and geography drive the development of principles of solidarity. With an active fabric of social enterprises, community, civil society, a large number of charities as well as public and private actors, it benefits from a richness of ideas and abilities to manage and implement social innovations. Specifically, in rural areas, senior citizens, charities and social enterprises tend to be very active. One particularity of Scotland is the active involvement of community development trusts as vehicles and enablers of a large range of community-led and place-based initiatives.

Scotland is well-practised in mechanisms to support rural communities through social innovation, as they work with a long history of social actors and institutions and a substantial social fabric. Amongst people living in rural areas, 71% report a feeling of belonging to their immediate neighbourhood, compared with people living in urban areas (63%). They also seem to have more personal contact and conversations with their neighbours in rural areas (82%) compared with people living in urban areas (72%). Recent research across the Highlands and Islands from 2022 has found that residents are proud of living in island (94%) and remote (92%) rural areas.

Recommendations

Scotland has a lively and thriving market-based system for innovation with strong support from the public sector that helps reduce barriers for entrepreneurs without stifling incentives. While the new Scottish Innovation Strategy[7], released in June of 2023, identified regional differences, most policies and programmes for innovation do not take into consideration how such policies and programmes reach

individuals and firms in rural areas. They can do so, however, by delivering services through partnerships, with the three enterprise agencies (Highlands and Islands Enterprise, Scottish Enterprise and South of Scotland Enterprise). The strategy is well intentioned but its implications towards rural places will need to be further evaluated. For example, the programme of action on innovation clusters prioritises science and technology sectors focusing on the energy transition, health and life sciences, data and digital technologies and advanced manufacturing. This choice of sectors excludes the relatively larger share of service and agricultural sector firms in rural areas and it still measures success using patents and R&D spending, rather than also complementing it with the rate of new companies in rural areas. Scotland's delivery of innovation and entrepreneurial support through the three enterprise agencies that cover different regions of Scotland and its co-ordination with Skills Development Scotland and Scotland Funding Council suggests that there are already strong mechanisms in place through which programmes and policies for innovation could be regionalised and targeted to rural places.

Innovation and entrepreneurship in rural areas of Scotland are increasingly a focus of policy makers in the Scottish Government. This is evident through the **policies and strategies,** such as the National Strategy for Economic Transformation (NSET), used to support rural innovation. Regional development partners and national-level agencies work to deliver on these policies and strategies, with the three enterprise agencies responsible for delivering **direct place-based support** for entrepreneurs. For Scotland as a whole, there are other initiatives providing **support through indirect mechanisms** that are equally critical to rural innovation. The Scottish Government's policy initiatives demonstrate the importance of **collaborative partnerships** and **horizontal and vertical co-ordination** efforts across different agencies, reinforcing a regionalised vision of support for entrepreneurs.

Despite the work on direct and indirect mechanisms for supporting innovators, there are still challenges in delivering ancillary services to rural areas related to access to services for the well-being of communities. These include services such as childcare and elderly care services, housing and physical and digital infrastructure, that help build well-being for rural communities that are increasingly important. In Scotland, the proliferation of **social innovation and entrepreneurship** is being used as a tool to address challenges for rural places that otherwise are left unserved.

Building on the findings of the report, this section outlines key recommendations that may be implemented to support further development of innovation and entrepreneurship in rural areas.

Policy design for delivering services for innovation and entrepreneurship in rural Scotland

While there are support mechanisms to support rural innovators and entrepreneurs in Scotland, it is important to understand how innovation differs in rural areas to better serve rural populations. Rural innovators in Scotland build on local resources and skills, innovate in traditional sectors and are supported by a dense fabric of social entrepreneurs. To encourage rural entrepreneurial ecosystems, it is necessary to go beyond formal innovation systems and develop policies that address the main source of innovation input, such as skills and labour in rural areas and the different challenges faced by rural remote and accessible rural areas. This includes framing programmes to support entrepreneurs and new firms that conduct innovation fit for rural areas,[8] either through the elaboration of programmes to implement the new national innovation strategy or through regional development plans.

Going beyond science and technology-focused support for rural innovation

Support for innovators in rural areas must extend beyond traditional science and technology-based innovation. Whether through in the new national innovation strategy or regional development plans, recommendations to develop a more comprehensive approach to innovation in rural communities include:

- Expanding **entrepreneurial ecosystems** that focus on rural well-being through the development of innovative services, in partnership with rural stakeholders and social innovators. When feasible, the initiatives should take into consideration challenges for women, as compared to men, and support the establishment of business hubs, incubators and accelerators that target specifically rural areas. To do so, the three enterprise agencies should:
  - Increase support to activities conducted by initiatives such as the Kyle of Sutherland[9] Development Trust or the Beith Community Development Trust, that prioritise **rural well-being through new services** focused on a grouping of rural communities. This is particularly relevant in remote rural areas where initiatives should be conducted in collaboration with a group of different community actors that can help build scale.
  - Consider the scope to direct resources towards encouraging **rural stakeholders**, **including social innovators,** to develop entrepreneurial hubs, maker spaces or fab labs[10] that give pre-start-up support and access to mentors to help youth develop leadership and entrepreneurial skills. An example of this can be found in Pine Bluff, Arkansas, where a public-private partnership led by community organisations encourages the development of new firms by youth. Building such initiatives in partnership with local actors managing multi-activity centres will be particularly important in remote places. In accessible rural areas, such initiatives should build on the availability of different services provided by indirect support providers, such as local businesses and schools.
  - Build more **local partnerships with secondary schools** to provide programmes for entrepreneurial training, including challenge-based programmes. An example of this can be found in Columbiana, Ohio, where local companies regularly work with secondary schools to provide challenge-based programmes in entrepreneurial courses, among other initiatives.
  - Increase support for **women entrepreneurs**, for example, the women's entrepreneurship programmes that were newly instated in the programme of work of the South of Scotland Enterprise, or other initiatives to support access to finance, networking and understanding risk strategies of women entrepreneurs in rural areas such as the W-Power project in Shetland in the sparsely populated Northern and Arctic communities. Understanding how work-life support mechanisms may impact women differently in remote and accessible rural areas will be critical to the strategy for supporting women's entrepreneurship.

Improving access to skills for innovation through vertical and horizontal co-ordination

Accessing the right skillset for innovation is a key challenge for rural entrepreneurs. Recommendations to leverage existing regional work carried out by the three enterprise development agencies, Skills Development Scotland, rural universities and vocational training centres are as follows:

- Focus more on increasing **vocational education and training systems** that provide incentives and joint apprenticeship opportunities for employers of micro, small and medium-sized firms, encourage distributed learning and ensure local stakeholders are actively involved to upgrade skills for *younger and older workers* by:
  - Expanding **incentives** such as financial and in-kind contributions that take into account the type of firms and activities taking place in rural areas, such as direct subsidies or grants, criteria-based subsidies or indirect subsidies as in the case of Austria's system that provides

financial incentives for employers offering apprenticeships and training alliance model to support training in companies.

- Providing more **joint apprenticeship opportunities for training initiatives** to achieve economies of scale between several different remote rural communities, such as through collective training organisations in Australia, Norway and Switzerland.
- Encouraging **distributed learning** to overcome barriers of distance for apprenticeship schemes in rural and remote areas, such as the practices for delivering vocational education and training programmes as with the University of the Highlands and Islands system.
- Ensure that **local stakeholders** (firms, educational and vocational training institutions) are included in regular consultation initiatives involving local and distance skills service offers. In cases where rural places are going through *structural change*, ensure that the skills development, enterprise agency and stakeholders are notified at an early stage to quickly address skills needs.

Improving delivery of innovation programmes in rural Scotland

The vision of innovation and entrepreneurship in rural areas recognises that innovation can take many forms. Although some entrepreneurial support programmes (like cluster programmes) tend to favour high-technology innovation, they are not exclusively focused on it. Given the importance in the north and the south of rural Scotland of small firms, policies designed to support these regions should reflect the unique needs of these businesses, encouraging entrepreneurship and focusing on innovation from small, family-run and older firms. To this end, the following section outlines recommendations to support the development of innovation rural areas.

Promoting innovation and experimentation in the delivery of support services

The changing structure of rural firms requires understanding how to deliver more targeted programmes and initiatives for rural areas. This can be done by promoting new ways of delivering public services and encouraging experimentation among entrepreneurs, for example through pilots and encouraging experimentation in the private sector. The three enterprise agencies and other supporting entities and actors should:

- **Promote innovative ways of delivering public services, including more bottom-up approaches**, providing the space to create new ideas and opportunities to address challenges for rural entrepreneurs. One example is the Rural Leaders programme which sought to overcome the challenges of networking. Another is the IMPACT30 programme designed to develop young (under 35) business leaders of the future in the Highlands and Islands. And a third example includes bottom-up initiatives as seen in the case of the Regional Innovation System (RIS) in Switzerland.
- **Encourage experimentation among entrepreneurs** through dedicated programmes, such as Innosuisse's Innovation Booster programme. Such initiatives could include the exploration of innovation sandboxes, which intend to ensure overarching regulatory objectives, in co-ordination with the UK government, increasing allowances for living labs and encouraging challenge-based innovation competitions with a strong local buy-in.

Strengthening new firm formation, social entrepreneurs and the competitiveness of SMEs

Rural areas have a larger share of SMEs and social entrepreneurs than urban areas. To better target support for such firms, more focus should be placed on the user-friendliness of one-stop shops, tailoring policies for the type of firms in rural areas and increasing specific funding for formal research in rural areas. The three enterprise agencies and other supporting entities and actors should:

- Initiate a process of assessment to improve the **user-friendliness of the one-stop shop** for rural business resources to support the formation of new firms, export strategies, SMEs and social entrepreneurs, through co-ordination with Business Gateway, Skills Development Scotland and Scottish Development International.
- Ensure that policies to support rural firms **explicitly tailor policies to the type of firms in rural areas** and new firm formation, considering the size and age of the firm. For example, Scottish Enterprise, as well as the other two enterprise agencies, could further strengthen their support to rural micro-firms and smaller firms, social entrepreneurs and older firms that need succession planning.
- Increase and tailor how **specific funding for formal research** is targeted to rural firms such as through R&D subsidies or tax incentives for innovation, and university or research centre collaboration for innovation, for example by re-enforcing incentives among universities or research centres to work with rural firms and by improving rural entrepreneurs' access resources from Interface.

Co-ordination initiatives can help improve the system of innovation

The responsibility of supporting innovation in rural areas is not only a function of the mandate of a single institution or group of agencies but a more holistic approach requires looking at how indirect support mechanisms can impact the framework conditions for rural innovations. As such, thinking about vertical and horizontal co-ordination as well as the dimension of scale when delivering policies and programmes to rural areas will be critical for its success.

Supporting rural entrepreneurs through vertical and horizontal co-ordination

The following summary provides guidance for action that the Scottish Government and institutional actors such as Scottish Enterprise, Highlands and Islands Enterprise and South of Scotland Enterprise and its close partners can address. The Scottish Government should:

- Build on **vertical and horizontal co-ordination between different government agencies**, such as by:
  - Adding other initiatives, like the NSET Team Scotland co-ordination approach, that streamlines delivery across governments and agencies, or like Civtech Scotland,[11] that encourages a wider service offering and focuses on bringing people from the public, private and third sectors to collaborate on bolstering rural regions and communities.
  - Further co-ordinating specific needs of rural regions within innovation initiatives such as the new Scotland Innovation Strategy, UK Research and Innovation strategy and Scotland export strategies that largely underserve rural regions in Scotland.
  - Further encouraging initiatives to improve access to finance with a rural and SME lens, such as with "pitch" roundtables to help entrepreneurs understand what public and private financing schemes may be suitable for them.
  - Supporting access to physical and digital markets, where connectivity is low, for example by ensuring that current initiatives such as the R100 programme and the Gigabit Broadband Voucher Scheme are not hindered by local regulations such as municipal planning and, to the

furthest extent, are futureproofed so that places do not get left behind if older technologies are rolled out.

Overcoming low economies of scale for firms in rural areas

Best practice in rural policies for entrepreneurship and innovation often takes the form of a better understanding of how challenges of distance and scale are relevant for rural areas. This can include better utilisation of cluster development strategies, the use of regional brokers and further engagement with international trade partners. The three enterprise agencies and other supporting entities and actors should:

- Better utilise existing **cluster development strategies** by increasing focus on local areas of strength and competitive advantage, encouraging bottom-up participation and wider consultation with local stakeholders, building on local assets and bringing small communities the critical mass needed for building an innovation ecosystem. For example, in response to the decommissioning of the nuclear sector and reduction of the offshore oil industry in the Highlands and Islands regions, re-training and re-orientation for many highly skilled and manual workers, in new areas of competitive advantage.
- Increase the use of **regional brokers** to create scale and attract investment, skills, international export partners and tourism, for example, as is done through the Galloway Glens[12] initiative. In Scotland, the role of current regional brokers can be strengthened to also include the attraction of skills and investment in the region or other initiatives, such as those involved in nature-based tourism.
- Adopt actions to improve rural entrepreneurs' engagement with **international trade partners**, such as by facilitating rural entrepreneurs' links to national and regional export facilitation programmes.

Social innovation

Scotland has a conducive environment for social innovation but simplifying access to resources and co-ordinating government services for social entrepreneurs remains a challenge.

To achieve a more systemic impact from social innovation, there is a need to reconfigure public services and partners with a large array of social innovators. Examples of such reconfiguration include the recent land reform agenda that enables experimentation in land use for social entrepreneurs. Rural areas rely heavily on social economy and civil society with the aim to address the market failure and asymmetries of development. By tapping into the social economy potential, national governments and regions could reinforce regional development while also supporting the expansion of the social economy. To further enable the role of social innovators and entrepreneurs in rural areas, the three enterprise agencies and other supporting entities and actors should:

- Create mechanisms to discuss potential **regulatory sandboxes or promote experimentation,** for example in land use regulation, that may support rural social entrepreneurs, while remaining within the rural public's interest.
- **Implement a monitoring system** of social capital which has been decreasing since 2017. This is needed to further understand the impacts with a specific focus on understanding the reasons for this trend.
- Establish a **commonly agreed definition** of social innovation to be used by public authorities, to facilitate policies and programme setting. The definition of social innovation provided by the OECD Recommendation on the Social and Solidarity Economy and Social Innovation[13] could be considered for inspiration or adoption.
- Increase the **engagement of a broad array of actors** in the elaboration of policies and programmes in rural areas, such as through multi-stakeholder, regulation consultation and

partnerships with rural social innovators as community anchors. This builds long-term capacity and buy-in from rural communities.

- Prioritise the use of social innovation as a **complementary approach** to enhance public service delivery, rather than viewing it as a substitute. This can lead to more efficient and effective delivery of services. This is particularly important in remote rural Scottish areas where budget cuts and ageing have led to reduced service availability prompting socially innovative solutions to emerge from necessity.
- Implement measures to support the **diversification of revenue streams without reducing the focus grants** for vulnerable communities. Focusing too much on revenue diversification may cause social innovation actors to overlook the needs of the most vulnerable groups without access to funds. Grants remain important in ensuring that everyone has access to support, especially in remote rural areas where opportunities for support are limited.
- Develop campaigns or consider establishing an entity with a dedicated mandate, to increase **awareness and information sharing** about successful examples of social innovations in rural areas, so to encourage further application of these innovations in rural communities.

Notes

[1] An accessible rural area is defined as an area within a 30-minute drive of a settlement with a population of 10 000 inhabitants or more based on the Scottish Government Urban Rural Classification 2020.

[2] This refers to the percentage of people employed as a share of the total population from 15 to 64 years of age.

[3] The classification of regions is based on the five-tier classification of small administrative units based on density and distance to functional urban areas as further described in Chapter 1.

[4] For clarity, the oldest firms (30 or more years of age) are have a -0.05 lower propensity to innovate as compared to the youngest firms (0-1 years of age), as estimated using propensity regressions on innovation. Large firms (250 or more employees) have a 0.077 higher probability to innovate.

[5] Firms in Edinburgh are more likely (0.09) to report formal innovation than in other places in Scotland.

[6] For example, in large urban areas, foreign firms employ on average over 100 individuals per firm, while in accessible and remote rural areas, the average employment per foreign firm is between 20 to 45 employees.

[7] For more information on the Scottish Innovation Strategy: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/06/scotlands-national-innovation-strategy/documents/scotlands-national-innovation-strategy/scotlands-national-innovation-strategy/govscot%3Adocument/scotlands-national-innovation-strategy.pdf.

[8] Innovation fit for rural areas refers to innovation that takes into account the structure of the rural economy and labour force as well as the local relative (and unique) advantages of different rural areas.

[9] For further information on the Kyle of Sutherland: https://updated.kosdt.com/.

[10] Maker spaces or fab labs refer to local centres, often with access to machinery and/or software materials, where individuals with or without companies may experiment on product and service design at low to no costs.

[11] For more information: https://www.civtech.scot/.

[12] For more information on Galloway Glens: https://gallowayglens.org/.

[13] For more information on OECD Legal Instruments on the Social and Solidarity Economy: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0472.

2 Understanding innovation in rural Scotland

Rural Scotland has an economic structure that is distinct from those of other areas of Scotland, United Kingdom. This chapter sets the scene by providing information on the structure of the rural economy in Scotland, considers how to explore equal opportunities for innovation in rural areas and what firm characteristics are associated with innovation. It finds that, although rural areas often have smaller and older firms, larger and younger firms are more likely to report having engaged in innovative activities.

Key messages

Innovation within the context of rural areas

- Scotland is a strong and growing performer in regional **innovation**, with strengths in skills development and university-firm linkages, and a high capacity to increase productivity through innovation adoption.
- **Demographic change** is not as strong in Scotland as in other OECD countries; nevertheless, the decline is still observable, in particular in remote rural areas. Accessible rural areas, on the other hand, have observed notable growth.
- Among some of its strengths, Scotland is an e**arly and fast adopter of renewable energy innovations**, only narrowly missing its 100% renewable energies target in 2020 and with a reduction in greenhouse gas (GHG) emissions over the past 2 decades. Despite this progress, non-metropolitan regions are lagging in progress in emissions reductions in metropolitan regions.
- Rural Scotland occupies 98% of the country's land mass and is home to **a third of firms but less than a fifth (15%) of workers in 2022**. Between 2013 and 2018, **productivity continued to grow** in rural areas (0.08%), despite slowing down in the rest of Scotland (-0.005%).
- Between 2015 and 2018, rural areas experienced a **growth in firms and workers**. Despite losses in terms of jobs in remote rural areas in the following period, from 2018 to 2022, rural areas did not suffer as large an impact as other urban areas and small towns.
- More largely, rural regions have benefitted from innovation adoption and have the potential to continue to contribute to national productivity growth. In fact, from 2013 to 2018, **most of the growth in productivity was attributed to increases in rural areas** including accessible (25%) and remote rural areas (81.6%).
- Within rural areas, close to two-thirds of overall productivity growth was due to **more efficient use of resources** (closely associated with innovation adoption) and about one-third due to the reallocation of resources in accessible and remote regions. There is still a large margin of opportunity for increased productivity growth through place-based policies that target both the reallocation of capital and resources to rural regions as well as the upgrading of activities and upskilling of labour within firms in rural regions.
- As innovation is creating **opportunities**, there will be winners and losers. Productivity in rural Scotland is becoming more unequal. Over time, the disparity between the high- and low-productive firms grew threefold. In 2010, the top 10% of firms were 10 times more productive than the bottom 10% of firms. In 2018, this ratio climbed to 30, suggesting that the dissemination of productivity gains across the entire ecosystem of firms could still be a target to bring broader benefits to regions.
- Increasingly, the **trade and services sector** is taking a stronger role in rural economies. Using OECD definitions of Scottish territories, non-metropolitan regions, like those across other regions in Scotland, have a strong trade and services component, which is still growing. In 2022, 40% of firms in remote rural areas and 47% of firms in accessible rural areas were in the trade and services sector, accounting for 47% and 46% of jobs respectively. The **agricultural and fisheries sector** remains a strong contributor to the rural economy, whereas it employs more than a third of firms in remote areas and a quarter of firms in accessible rural areas, despite only accounting for 18% and 15% of jobs respectively. The **manufacturing** sector is a small share of rural areas but is a growing sector that continued to observe growth in remote rural areas during the years of the COVID-19 crisis. Last, **public services and works** hold a relatively small share of workers in rural areas. This is relatively challenging for workers who may need social support mechanisms to remain fully engaged in employment or entrepreneurship, in particular for women and older workers.

- **Younger and larger firms tend to innovate more** than older and smaller firms, regardless of location and industry, and this is still reflected in productivity in the region. A firm that is more than 30 years old is 5% less likely to innovate than younger firms. Yet, it is small and old firms that dominate rural areas, accounting for the near totality of all firms in rural regions.
- In rural areas across OECD countries, labour pools tend to be smaller and older. Rural areas of Scotland can further increase access to more labour and skills through actively promoting **age, gender and migration status diversity** in the labour force in rural areas. For example, encouraging employers to recruit older workers (45-64 year-olds) while retaining younger workers can help alleviate the pressure on tight labour markets; building opportunities for women and promoting wage equality may also help reduce the disparity between male and female participation rates; and last, although rural Scotland is good at attracting individuals from other parts of the United Kingdom (UK), there is still room for engaging with UK authorities on attracting new skills from outside the United Kingdom.
- **Well-being** is also an important factor for firms across Scotland. Measures such as the real living wage, flexible work hours, diversity and inclusion and measuring the gender pay gap are used as important mechanisms across all areas to ensure equal opportunities. However, the share of firms participating in such measures tends to be slightly lower in remote rural and accessible rural areas.

Accessibility as a defining characteristic of rural innovation

- Accessible rural areas have **distinct needs** in comparison to rural remote areas. They are characterised as areas that have relative proximity to dense urban areas (a 30-minute drive from a settlement with a population of 10 000 inhabitants or more) and rural characteristics that remain distinct according to the national classifications of territories. Notably, while more rural areas are characterised by a small labour pool and fewer firms, accessible rural areas tend to follow the labour trends of urban areas more closely. This can create challenges and opportunities, notably:
  - From 2001 to 2020, accessible rural areas grew in terms of population shares, while rural remote areas shrunk.
  - Between 2015 and 2018, accessible rural areas observed an increase in the relative and absolute number of firms in the economy, while the number of firms increased to a lower extent in remote areas. Labour also increased to a larger extent in accessible rural areas than in remote rural areas. During the following period, from 2018 to 2022, accessible rural areas did not record a large net loss nor a large net gain in either the number of firms or labour, whereas remote rural areas observed a significant drop in jobs and a marginal increase in the number of firms.
  - In contrast to rural remote areas, accessible towns and rural areas tend to have a larger share of larger and younger firms.
  - In addition to a different firm size and age structure of the economy of accessible rural areas as compared to remote rural areas, accessible rural areas observe similar sectoral shifts, age demographics and shares of foreign-owned firms as urban areas in the rest of Scotland.
  - However, there is also evidence of growing inequality of productivity between firms in accessible rural areas, which can have an impact on competition and innovation. The relative level of productivity for the most productive firms is higher than all other territories. The top 10% of firm performers based on productivity were 37 times more productive than the bottom 10% in accessible rural areas. This ratio was lower in urban areas in the rest of Scotland (35 times) and in rural remote areas (30 times).

A long history of innovation is prevalent in Scotland, where the proactive nature of social innovators and entrepreneurs has shaped the landscape for well-being in Scotland today. Firm-based innovation is growing in Scotland, as is social innovation and entrepreneurs that fundamentally contribute to the well-being of rural places and people. In addition to social innovation and entrepreneurship, Scotland has a strong tradition of university-industry collaborations. It is a hub for applied research and problem-based innovation and can bring foresight on how to apply and adapt innovations to tackle some of the critical challenges for OECD economies, such as climate change.

Rural areas are experiencing fundamental changes to the way people, places and firms work and interact with each other. This is in part due to megatrends in digitalisation, innovation, demographics and the environment. When crises, such as the COVID-19 pandemic, require heavy support in public service delivery and tailored approaches for recovery, rural regions often do not have the same opportunities as more densely populated regions closer to metropolitan areas (OECD, 2020[1]; 2021[2]). Despite these challenges, there are some very innovative approaches that individuals in rural areas have taken to build resilience[1] and several steps towards implementing innovations to address megatrend challenges such as climate change and demographic change.

Introduction to the landscape of innovation and geography in Scotland

Creation, destruction and the proliferation of advances in innovation shape how our societies respond to challenges today and in the future. Subnational governments and regional agencies across OECD countries count on innovation and the diffusion of innovation advances to spread prosperity and opportunities to all places.

With a land mass of 78 000 km^2, or close to 60% of the land mass of neighbouring England, Scotland provides: a support system for innovators with 19 universities and its extension services; 7 innovation centres; Interface, a government programme to link innovative entrepreneurs to university researchers; Business Gateway, a national start-up initiative that helps budding entrepreneurs get their ideas off the ground; a strong commitment from 3 regional development agencies looking to provide support to entrepreneurs and innovators across all regions of Scotland; and additional sector-specific innovation programmes such as in the manufacturing sector.

As compared to European countries, Scotland is classified as a strong innovator, considered among the top 20% of regions and has strengths in skills, scientific publications and collaborations with small and medium-sized enterprises (SMEs). Despite this strong performance, firms still face challenges in business product and process innovation, design and trademark applications as well as bringing the sale of innovative products to markets (EC, 2021[3]).

Firms are increasingly innovating in Scotland but to a lesser extent than other countries in the United Kingdom, suggesting room for improvement. According to statistics from the 2021 UK Innovation Survey (UK BEIS, 2022[4]), the share of firms innovating in Scotland increased between the periods of 2016-18 and 2018-20 by 6.8%. However, the share of firms reporting innovation across the United Kingdom as a whole increased by 7.3%. In 2020, the share of firms in Scotland having reported innovating was 39%, as compared to England at 46%, Wales at 44% and Northern Ireland at 38% (UK BEIS, 2022[4]).

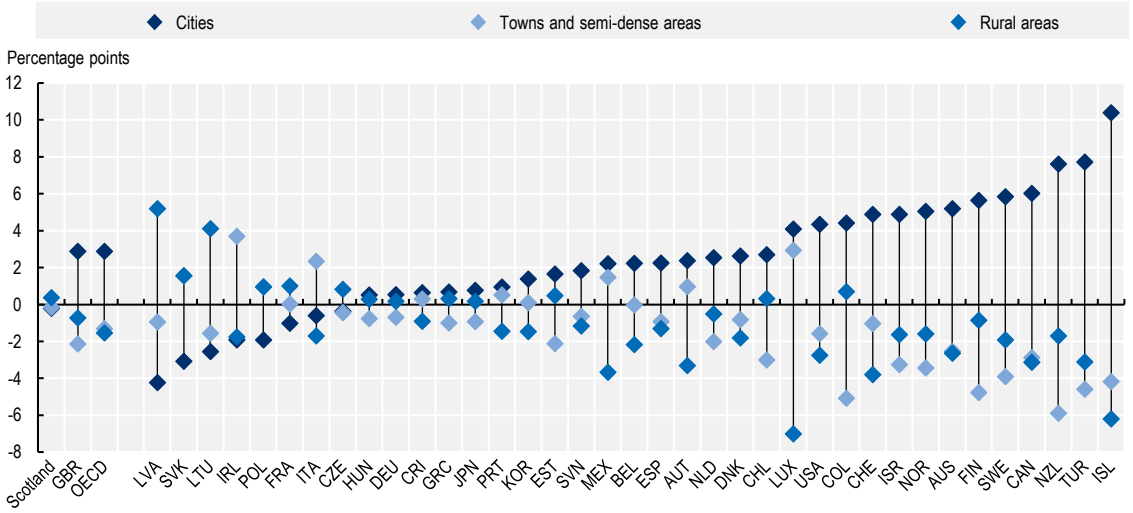
Demographic challenges in non-metropolitan areas

While there is ongoing progress in innovation in Scotland at large, non-metropolitan regions and rural areas still face substantially different challenges from those in metropolitan areas. Trends in population dynamics and age-based demographics across different types of regions create different challenges and opportunities for rural areas of Scotland than for urban areas.

OECD countries in general are observing demographic change across geographies. Yet, the trend in Scotland is more mitigated and nuanced. In OECD countries, there was clear evidence of depopulation. Between 2000 and 2015, the share of the population in rural areas fell by 1.5 percentage points, while it grew by close to double that amount, 2.9 percentage points, in cities in OECD countries (Figure 2.1). In the United Kingdom, the geographical dispersion is more mitigated than on average across all OECD countries. Close to 2.9 percentage points more of the total share of the population lived in cities in 2015 as compared to 2000, while 0.7 percentage points less of the total share of the population lived in rural areas in the United Kingdom. However, Scotland, over the same period of time, observed a growth of 0.37 percentage points in rural areas (aggregate of accessible rural and remote rural areas) and a fall of 0.22 percentage points in cities and urban areas.

The mitigated demographic change in Scottish rural areas is due to increases in accessible rural areas and a fall in remote rural areas. Recent estimates from 2020 suggest that rural areas continued to grow with a 0.66 percentage point increase from 2001 to 2020; nevertheless, on the whole, they account for between 16% to 17% of the population of Scotland (NRS, 2021[5]). This growth in rural areas is primarily due to increases in accessible rural areas (0.84 percentage points), despite a fall in remote rural areas (-0.18 percentage points). The growth in accessible rural areas is substantial. In comparison, in the same period of time, large urban areas grew at a slower pace (0.54 percentage points), despite having higher increases in the overall number of individuals. Demographic change in Scotland is focused in remote and island areas, where depopulation is still a major concern for rural policy makers (see Chapter 3).

Figure 2.1. Change in the share of the population, by degree of urbanisation, 2000-15



Note: Data from Scotland sourced from National Records of Scotland (NRS). Categories are aggregations of the sixfold Scottish Government Urban Rural national classification system. Rural areas refer to accessible rural and remote rural areas. Towns and semi-dense areas refer to remote small towns and accessible small towns. Cities refer to large urban areas and other urban areas. Data for Scotland are from 2001 rather than 2000.

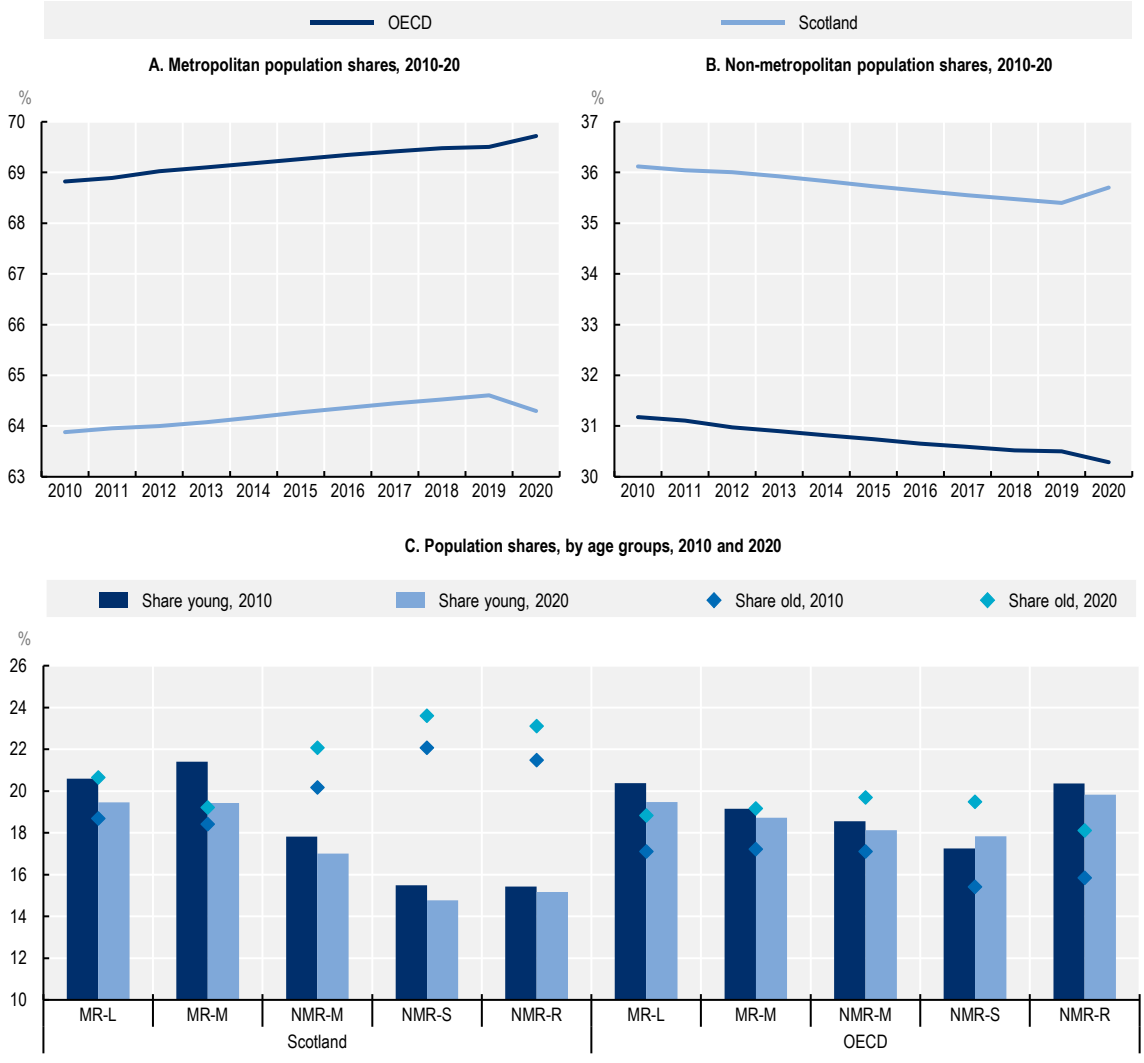
Source: OECD analysis adapted from OECD (2022[6]), *OECD Regions and Cities at a Glance 2022*, https://doi.org/10.1787/14108660-en and NRS (2021[5]), *Population Estimates by 6-fold Urban Rural Classification, 2001-2020*, https://www.nrscotland.gov.uk/files//statistics/population-estimates/special-area-2011-dz/urban-rural/urban-rural-20-tab-1.xlsx.

Scotland has less of a population in metropolitan areas than on average in OECD countries (Figure 2.2, Panel A). On average between 2010 and 2020, there is a lower share of individuals in metropolitan regions and a higher share in non-metropolitan regions. The difference between the share of population in metropolitan regions is 3% less in Scotland than in OECD countries. In non-metropolitan regions, the share of the population is 6% higher in Scotland than in OECD countries.

There is evidence of demographic change in rural areas, with the share of the population in non-metropolitan regions falling over the last decade. From 2010 to 2020, the share of population in non-metropolitan regions of Scotland fell from 36.1% to 35.7%. The decline is relatively small as compared to other OECD countries; however, it nevertheless falls in line with trends in other OECD countries. In comparison, in OECD non-metropolitan regions, the share of population in non-metropolitan regions fell from 31.2% in 2010 to 30.3% (Figure 2.2, Panel B).

Age-based demographic change is also occurring in Scotland. In 2020, the share of working-age individuals in non-metropolitan regions of Scotland is older than in metropolitan regions and grew since 2010. In non-metropolitan regions, the average share of young working-age (15-29 year-old) individuals was 16%, while it was 22% among older working-aged (50-64 year-old) individuals in 2020 (Figure 2.2, Panel C). In comparison, the share of young individuals on average in OECD countries is 18.6% in non-metropolitan regions, while it is 19% in non-metropolitan regions. The share of older individuals on average in OECD countries is close to 19% in both metropolitan and non-metropolitan areas.

Figure 2.2. Population declines among working-age individuals in non-metropolitan areas



Note: Panels A and B use the OECD classification of small (TL3) regions into two large categories, metropolitan regions (MR-L and MR-M) and non-metropolitan regions (NMR-M, NMR-S and NMR-R). The classification is further described in Box 2.2. The share of young individuals includes those aged 15 to 29 years of age. The share of older individuals includes those aged 50 to 64.
Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

The disparity between age-based demographics is growing over time in both Scotland and OECD countries. In 2020, the share of young individuals fell across all areas of Scotland as compared to 2010, with the largest decline in medium-sized metropolitan regions, where the share fell from 21.4% to 19.4% (Figure 2.2, Panel C). In non-metropolitan regions, the greatest fall in the share of young working-age individuals in non-metropolitan regions close to medium-sized cities where the share of younger workers fell from 17.8% to 17.0%. At the same time, the share of older working-aged individuals increased in Scotland from 20% to 22% on average, with the largest growth in non-metropolitan regions close to medium-sized cities, where the shares grew from 21.1% to 22.1% from 2010 to 2020. In comparison, the older OECD population grew similarly in terms of percentage points but from a lower starting point. In OECD countries, the average share of older individuals in non-metropolitan regions grew from 17% to 19%. The growth was the strongest in non-metropolitan regions close to small cities, where the share of older individuals grew from 15.4% to 19.5%.

Leading by example in innovation for climate change

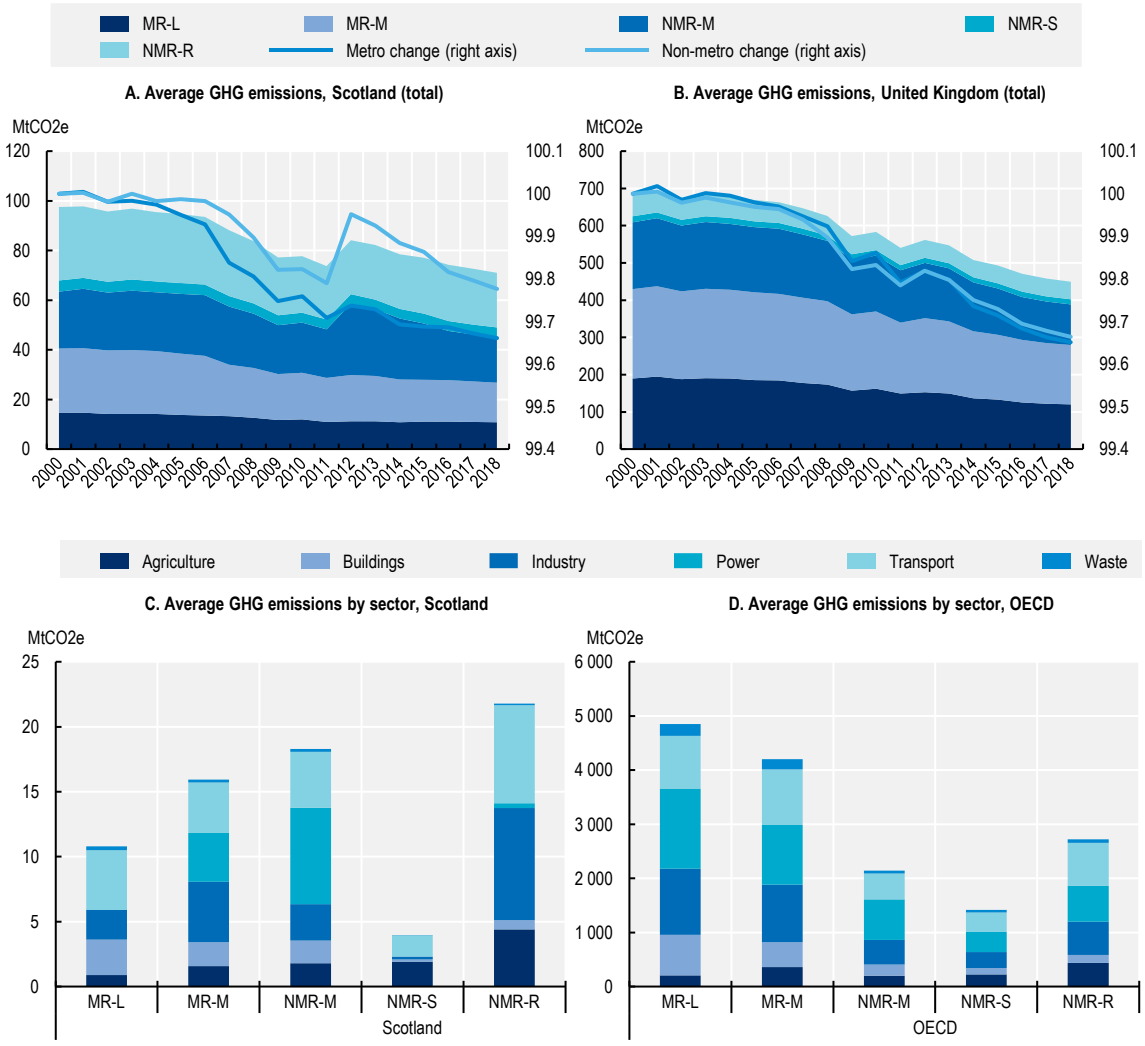
Innovation for climate change is particularly latent across rural areas of Scotland where the strategy to adapt business models to the circular economy, promote research and development (R&D) that harnesses rural environmentally responsible advantages and develop responsible tourism has long been common practice, in line with the OECD Rural Agenda for Climate Action (2021[8]).

Among some of its strengths, Scotland is an early and quick adopter of renewable energy-linked innovations. In the current context of climate change today, the early focus on renewable energy innovations is notable and strongly tied to rural opportunities. Scotland only narrowly missed its 100% renewable energies target, with 98.8% of gross electricity consumption from renewable energy sources in 2020 (Scottish Government, 2020[9]), with its position strongly contributing to the United Kingdom's current renewable energy usage of 50%, serving as a main asset for overall UK renewable energy targets.

Scotland is also a leader among countries and regions in reducing production-based GHG emissions. It has consistently reduced its production-based GHG emissions, faster than the average across OECD regions. Since 2000, total GHG emissions have fallen relatively consistently, with overall emissions falling from 97.513 metric tons of CO_2 equivalent ($MtCO_2e$) emissions to 71.009 (Figure 2.3).

Nevertheless, progress in the reduction of production-based emissions is slower in non-metropolitan regions of Scotland (Figure 2.3), based on the $MtCO_2e$ classification of metropolitan areas as described in Box 2.1. The share of emissions in non-metropolitan areas of Scotland is almost double that of metropolitan areas, with 38% from metropolitan regions and 62% from non-metropolitan regions (44.22 $MtCO_2e$ in non-metropolitan regions, and 26.789 $MtCO_2e$ in metropolitan regions), with the fall in non-metropolitan regions slower than those in metropolitan regions. On average across OECD countries and in the United Kingdom, the majority of emissions tend to come from metropolitan regions, rather than non-metropolitan regions, with close to two-thirds of GHG emissions from metropolitan areas and one-third from non-metropolitan areas. However, much of this challenge is due to relatively higher GHG emissions in non-metropolitan areas from the transport, industry (manufacturing) and agricultural sectors, which are similar drivers of high emissions in other OECD countries (see Annex Figure 2.A.1 and Annex Figure 2.A.2 for more figures on average and total emissions by sector).[2] While there are limitations to what innovation can do, it can help to reduce emissions in both Scotland and other OECD countries and regions.

Figure 2.3. Average GHG emissions



Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

Approaching rural innovation in Scotland through case studies and rural data

Innovation occurs differently across territories of Scotland, where resources vary based on natural attributes and labour supplies. There is also a strong role for rural social entrepreneurs that are able to deliver many of the social and business services that are not currently available otherwise. These entrepreneurs will be further explored in Chapter 4. Understanding how firm-based innovation occurs in these areas is also critical to supporting a place-based approach to regional innovation policies. The OECD (2022[10]) takes a place-based approach to understanding and measuring rural innovation and emphasises a "capacity approach" to policies used to advise rural and regional policy makers as described in Box 2.1.

This analysis is drawn from a series of virtual and physical missions (fieldwork) and statistical analysis. The fieldwork that built the framework around which the chapter was elaborated took place in four case study areas (Caithness and Sutherland, Galloway Glens, Garnock Valley and Outer Hebrides) in the spring of 2022. Examples from the different case study areas are further elaborated in Chapter 3. The statistical analysis, which is the focus of this chapter, came from three main data sets from the Office for National Statistics (ONS), namely the UK Innovation Survey (UKIS)[3] and the Business Structure Database (BSD)[4]

for regression analysis, and the Inter-Departmental Business Register (IDBR) for updated summary statistics on territorial, sector and size distributions. A final bi-annual dataset, the Rural Scotland Business Panel Survey, was used to provide additional information on the firm's approach to promoting diversity and equality.

Most of this analysis in this chapter focuses on firm-related characteristics or characteristics of companies at the level of each firm location (branch offices), rather than using the location of the headquarter as a basis for analysis. Data from the two waves from UKIS – Waves 7 and 10 – are used for regression analysis. Moreover, these two waves are merged into the BSD 2010 and BSD 2018[5] respectively, as the BSD provides additional information about firms' profiles, including legal status, birth date and rural-urban classification. Using these two primary sources of microdata for the regression analysis, this report sets the scene for understanding innovation in rural regions (Chapter 2), providing a scene setting for analysis of policies and programmes to encourage innovation and entrepreneurship (Chapter 3) and understanding social innovation and entrepreneurship (Chapter 4). This chapter of the report explores the economic conditions of rural firms in Scotland, explores trends in the rural labour force and concludes by seeking to understand the drivers of innovation in rural Scotland.

Box 2.1. Understanding innovation capacity and measuring rural innovation

Innovation capacity

Increasing the capacity of people and places to innovate creates the conditions for innovation to occur. While significant literature on innovation capacity has developed in the United States, it has largely focused on innovations by private firms (Hall, 2008[11]). Typically, the literature emphasises the importance of agglomeration effects, the presence of specialised public and private research centres and a large share of workers with advanced science and engineering degrees, and uses patent counts as the main measure of innovation (Hamidi, Zandiatashbar and Bonakdar, 2019[12]; Ferreira, Fernandes and Raposo, 2015[13]).

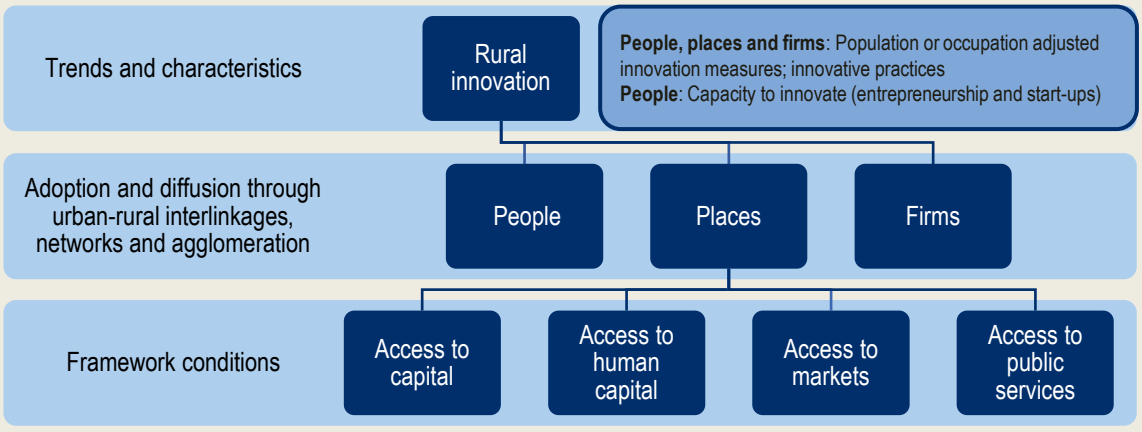
Innovation capacity has two dimensions, the first being the ability to innovate and the second being the ability to successfully commercialise the innovation. Ultimately, innovation is beneficial to a region if it leads to an increase in competitiveness (Audretsch and Peña-Legazkue, 2012[14]). If innovation is to drive economic growth, commercialisation is equally essential. While only some new firms may innovate at the technological frontier, most new firms nonetheless introduce new elements to the market, even if only novel in the local context. Hall (2008[11]) found that most high-technology innovation, as measured by patents, can be attributed to education and access to federal funding.

The OECD approach to understanding drivers of rural innovation

Based on the analysis from related work (OECD, 2022[10]), when we are looking to understand and promote rural innovation, the way we measure innovation matters. Conventional definitions and measures can favour some activities over others. For the most part, several commonly used definitions and measures of innovative activities are better suited for innovations in large firms that: engage in the product rather than process innovation; are focused in the manufacturing or R&D intensive sectors; and depend on heavier capital and resource expenditures. However, a larger share of firms in rural regions are often small and focused on the service or natural resource sectors (Freshwater et al., 2019[15]) where innovation is incremental or is characterised by a strong use of social and human capital (Shearmur, Carrincazeaux and Doloreux, 2016[16]).

This report approaches innovation through the following framework that places a focus on the capacity for people to innovate in non-metropolitan areas.

Figure 2.4. Analytical framework for understanding the drivers of innovation in rural regions



Source (box): Hall, J. (2008[11]), "Adding meaning to measurement: Evaluating trends and differences in innovation capacity among the states", https://doi.org/10.1177/0891242408326467; Hamidi, S., A. Zandiatashbar and A. Bonakdar (2019[12]), "The relationship between regional compactness and regional innovation capacity (RIC): Empirical evidence from a national study", https://doi.org/10.1016/J.TECHFORE.2018.07.026; Ferreira, J., C. Fernandes and M. Raposo (2015[13]), "The effects of location on firm innovation capacity", https://doi.org/10.1007/S13132-015-0281-4; Audretsch, D. and I. Peña-Legazkue (2012[14]), "Entrepreneurial activity and regional competitiveness: An introduction to the special issue", https://doi.org/10.1007/S11187-011-9328-5; OECD (2022[10]), *Unlocking Rural Innovation*, https://doi.org/10.1787/9044a961-en; Freshwater, D. et al. (2019[15]), "Business development and the growth of rural SMEs", Paris, https://doi.org/10.1787/74256611-en; Shearmur, R., C. Carrincazeaux and D. Doloreux (2016[16]), "The geographies of innovations: Beyond one-size-fits-all", https://doi.org/10.4337/9781784710774.00006.

Rural proofing innovation

Overcoming geographical biases when assessing strategies for enhancing innovation in rural areas should start with a clear understanding of: i) the definition of rural; and ii) the definition of innovation. As described by the OECD (2022[10]), how we define rural and how we measure innovation may create biases that do not reflect the reality of all places in Scotland.

This section defines rural areas in Scotland and follows by discussing how measuring innovation in rural areas requires a more nuanced approach. Understanding the importance of geography when seeking to better target policies for innovation and entrepreneurship is an important first step.

Defining rural in Scotland

There are multiple ways to define "rural", including traditional definitions based on density and sectoral attributes. However, each method is associated with different challenges and opportunities. In Scotland, the Scottish national classification approach considers distance and township status as defining traits. It uses settlement patterns with a population of less than 3 000 inhabitants to define rural areas. At its most granular level, the Scottish Government has an eightfold classification as illustrated below in Table 2.1. These categories can be aggregated into different levels of analysis. For this report, and to account for legal privacy concerns when the sample size of data is too small to safely ensure anonymity, the analysis is either aggregated into a threefold definition that includes: i) remote rural; ii) accessible rural; and iii) the

rest of Scotland based on the joining of the eight classification categories under the three main categories of the figure; or the sixfold definition that includes: i) very remote and remote rural areas (jointly); ii) accessible rural areas; iii) very remote and rural small towns (jointly); iv) accessible small towns; v) other urban areas; and vi) large urban areas.

Table 2.1. Scottish national classifications of rural areas

Rest of Scotland	Accessible rural	Remote rural
Large urban area: Settlements of 125 000 inhabitants and over	**Accessible rural**: Thirty-minute drive of a settlement with a population of 10 000 inhabitants or more	**Remote rural**: Areas with a drive time of between 30 and 60 minutes from a settlement with a population of 10 000 inhabitants or more
Other urban area: Settlements of 10 000 to 124 999 inhabitants		**Very remote**: Areas that are more than a 60-minute drive from a settlement with a population of 10 000 inhabitants or more
Accessible small town: Settlements of 3 000 to 9 999 inhabitants, and within a 30-minute drive of a settlement of 10 000 inhabitants or more		
Remote small town: Settlements of 3 000 to 9 999 inhabitants, and with a drive time of over 30 minutes but less than or equal to 60 minutes to a settlement of 10 000 inhabitants or more		
Very remote town: Settlements of 3 000 to 9 999 inhabitants and with a drive time of over 60 minutes to a settlement of 10 000 inhabitants or more		

Source: Scottish Government (2018[17]), *Scottish Government Urban Rural Classification 2016*, https://www.gov.scot/publications/scottish-government-urban-rural-classification-2016/pages/2/#:~:text=Categories%205%20and%206%20are,(6)%20Remote%20Rural%20Areas.

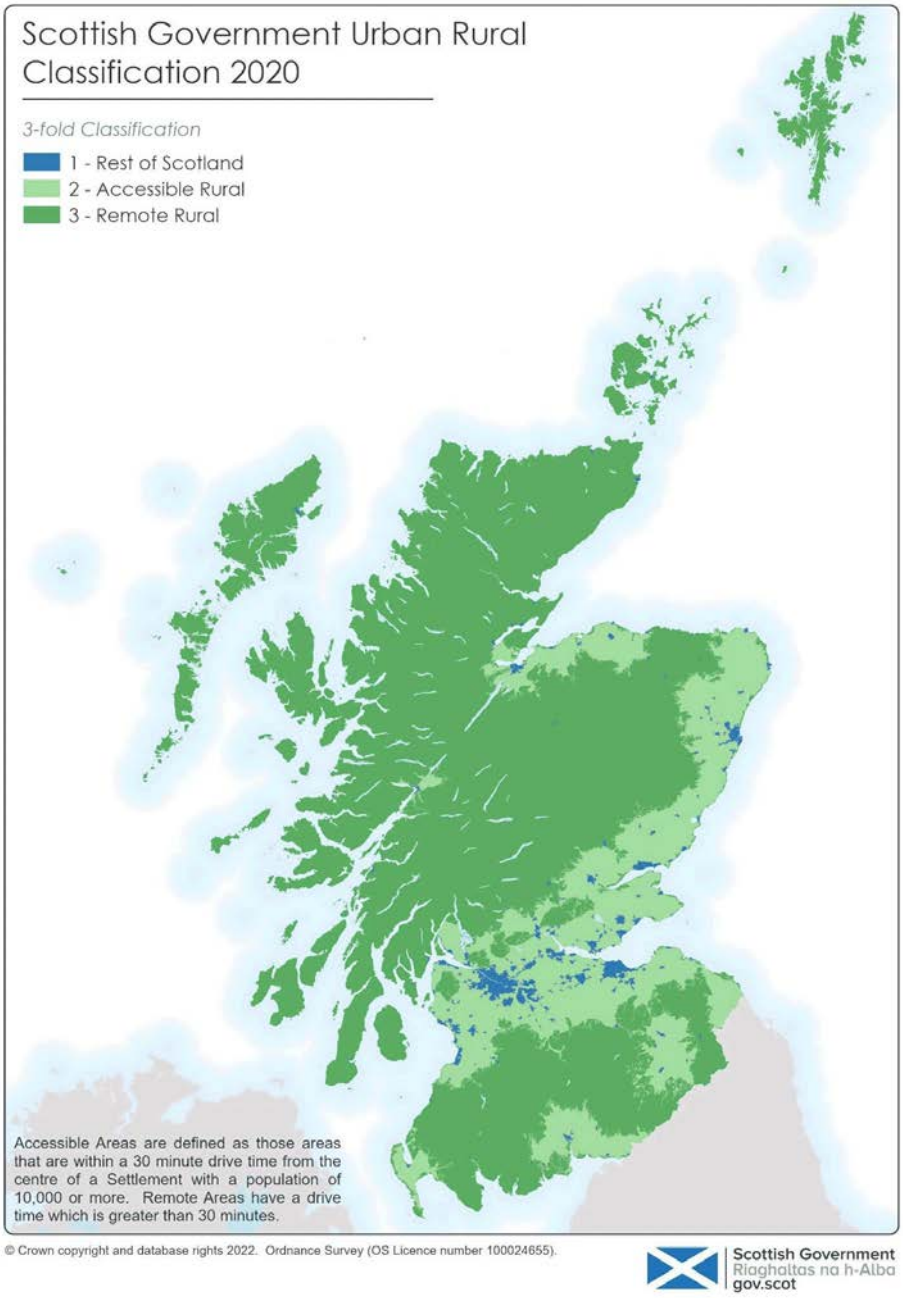
By analysing the drive time to larger settlements, rural Scotland is divided into accessible rural and remote rural. The former includes areas within a 30-minute drive of a settlement with a population of 10 000 inhabitants or more, and the latter includes areas with a drive of between 30 and 60 minutes from a settlement with a population of 10 000 inhabitants or more (Scottish Government, 2018[17]). This classification system is demonstrated geographically in Table 2.1.

Access to data and use of data based on rural classifications are often a challenge for rural policy makers and entrepreneurs. Although the Scottish Government provides many avenues through which access to data is possible, increasing access to information and facilitating the interpretation of data on rural areas can increase the visibility of rural challenges. Such initiatives to increase access to rural data and incorporate its use in the policy process are observed across OECD countries. An example of this is the Rural Observatory of the European Commission (2023[18]).

This report largely follows this national classification system. However, when international comparative statistics are used, as in the previous section, it uses a harmonised OECD classification established to standardise international comparisons (Fadic et al., 2019[19]), with rural classifications based on functional urban areas (FUAs) that consider population density and proximity. The small administrative regions that populate the OECD's definition of rural regions are built on administrative units in countries within the United Kingdom. In the United Kingdom, there are a total of 179 units, with 23 in Scotland. The categorisation of Scottish administrative units within the OECD typology based on a categorisation that

prioritised access to cities, as of March 2023, is elaborated in Table 2.2. Further information on classifications in the OECD and for sectors used in this report is elaborated in Box 2.2.

Figure 2.5. Scottish Government Threefold Urban Rural Classification



Source: Scottish Government (2022[20]), *Scottish Government Urban* Rural *Classification 2020*, https://www.gov.scot/publications/scottish-government-urban-rural-classification-2020/pages/2/.

Box 2.2. Territorial and sectoral classifications

Territorial Levels (TLs) classifications

All OECD governments have national approaches to characterising rural places and many countries have more than one approach. For the purpose of this report, national definitions take precedent; however, when national classifications cannot be used, for instance due to confidentiality or comparative purposes, the analysis reverts to the OECD standardised definitions of small administrative regions (TL3).

Regions within the 38 OECD countries are classified on two territorial levels reflecting the administrative organisation of countries. The 433 OECD large (TL2) regions represent the first administrative tier of subnational government, for example, the Ontario Province in Canada. The 2 414 OECD small (TL3) regions are contained in a TL2 region. For example, the TL2 region of Aragon in Spain encompasses three TL3 regions: Huesca, Teruel and Zaragoza. TL3 regions correspond to administrative regions, with the exception of Australia, Canada, Germany and the United States. All the regions are defined within national borders. In many European countries, this aligns with the same units as the Nomenclature of territorial units (NUTS 3) classifications that refer to small regions in eurostat statistics.

OECD territorial approach to classifying rural areas using density and driving distances

Rural is everywhere and exists as a continuum across geographies. What we commonly understand as rural is implicitly spatial and relative. In practice, governments delineate typologies of territories but there is no clear cut-off between regions or areas. Rural characteristics can exist within more urbanised regions and rural attributes are apparent across the spectrum of territorial characteristics. This continuum of rurality is delineated within the recent OECD publication on rural well-being (OECD, 2020[1]).

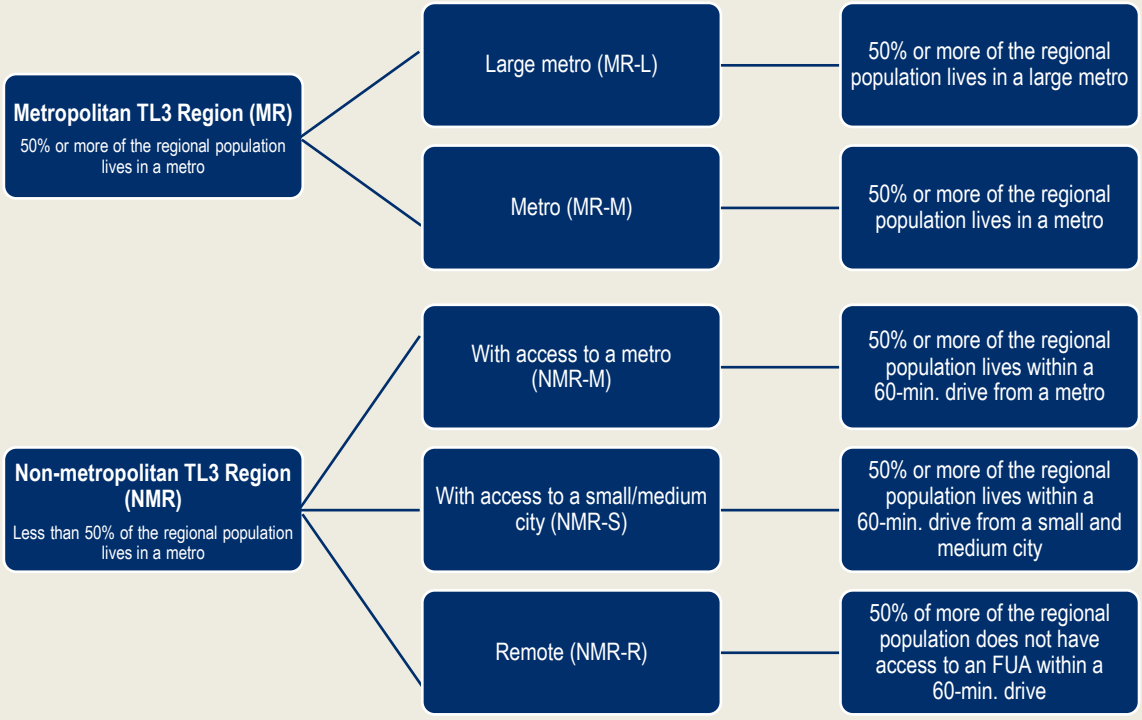
The term rural is often used to describe territories that have relatively low-density human settlement patterns, with relatively large distances to more densely populated areas. Often, rural regions are characterised as regions with activities closely related to natural resource industries such as mining and agriculture. However, this sectoral definition overlooks the variation across rural territories and what this means for political agenda-setting in rural regions. Indeed, a region being identified as “rural” has implications on government finance and wider regional policy making.

In consultation with OECD national governments, the OECD harmonised a set of guidelines for classifying territorial characteristics across countries that avoid the traditional, and sometimes harmful, rural-urban dichotomy. This unified definition of rural provides a basis for analysis across countries within rural economies (OECD, 2020[1]). The most recent definitions of rural regions have benefitted from a reflection on the combination of physical (“first-nature”) and human (“second-nature”) geographies. Rural regions are defined by economic remoteness, with three distinct features related to physical distance to major markets, economic connectedness and sector specialisation. Considering these features, rural regions are physically distant from major markets, with specialisation in niche markets and those linked with natural resources such as agriculture and tourism. The degree of economic connectedness with surrounding areas may vary by relative density, infrastructure availability and complementarities between and within rural regions.

In 2019, the OECD published a new classification that is based on FUAs that incorporates density and the driving estimations for the time it takes to access dense metropolitan areas. To the furthest extent possible, rural is defined according to the OECD as one of three types of small administrative regions (TL3) with less than 50% of the regional population living in metropolitan areas. This includes rural regions inside FUAs (where at least 50% of the population live within a 1-hour driving distance away

from a dense urban area with a population larger than 250 000 inhabitants), rural regions close to small or medium-sized cities of populations smaller or equivalent to 250 000 inhabitants, and remote rural areas.

Figure 2.6. OECD typology for access to cities



Note: Large metro: FUA with a population larger than 1.5 million inhabitants; Metro: FUA with a population larger than 250 000 inhabitants; Small or medium city: FUA with a population smaller or equal to 250 000 inhabitants.

The diverse types of rural regions all have different characteristics and policy needs. Three types of non-metropolitan regions are considered, to various degrees, to share more rural characteristics than urban ones. Non-metropolitan regions are defined as having less than 50% of the population living in an FUA with a population larger than 250 000 inhabitants. The three types of non-metropolitan regions include regions with access to a metropolitan region, non-metropolitan areas with access to a small or medium-sized city and a non-metropolitan region in remote areas.

- Non-**metropolitan regions with access to a metropolitan region**: These regions have 50% or more of the regional population that live within a 60-minute drive of a metropolitan area. This is similar in part to towns and suburbs surrounding the distant periphery of major metropolitan centres. Examples of such regions include Tyrolean Oberland in Austria (AT334), Montmagny in Québec, Canada (CA2418), Jura in France (FRC22) and Nagasaki in Japan (JPJ42). The challenges of such regions are often tied to economies of metropolitan areas, while focusing on industries such as tourism, without some of the infrastructure barriers of less densely populated areas.
- **Non-metropolitan regions with access to small or medium-sized cities**: These regions are regions with 50% or more of the regional population living within a 60-minute drive of a small or medium-sized city. Examples of these types of regions include the administrative district of Neufchâteau in Belgium (BE344), San Antonio in Chile (CL056), South Bohemia in the Czech Republic (CZ031), East Lancashire in the United Kingdom (UKD46) or Springfield in

Illinois, United States (US158). These regions have a strong manufacturing base and linkages to neighbouring economies.

- **Non-metropolitan regions without access to cities (remote)**: These regions are regions with 50% or more of the regional population without access to an FUA (metropolitan) within a 60-minute drive. Examples of such areas include West Estonia in Estonia (EE004), Lapland in Finland (FI1D7), Sonneberg in Germany (DEG0H), and Lesbos in Greece (EL411). Rural remote areas have economies with fewer interlinkages with major cities and often focus on tourism, while rural remote regions, such as those in Canada, Chile, Colombia, Finland, Mexico and the United States often also have an important share of the population with an Indigenous heritage that face distinct challenges.

The schematic breakdown is available in Figure 2.6.

Degree of Urbanisation (DEGURBA) classification

DEGURBA is a simple method of classifying areas that can be applied to every country in the world. The classification relies primarily on population size and density thresholds applied to a population grid with cells of 1 by 1 km. The types of areas classified by DEGURBA include the following:

- **Cities** consist of contiguous grid cells that have a density of at least 1 500 inhabitants per km^2 or are at least 50% built up. They must have a population of at least 50 000.
- **Towns and semi-dense areas** consist of contiguous grid cells with a density of at least 300 inhabitants per km^2 and are at least 3% built up. They must have a total population of at least 5 000.
- **Rural areas** are cells that do not belong to a city or a town or a semi-dense area. Most of these have a density below 300 inhabitants per km^2. The population grid used in this study is the Global Human Settlement Layer (GHSL) provided by the European Commission Joint Research Centre (Pesaresi et al., 2019[21]).

While useful for analysis based on areas that are at a lower unit of analysis than administrative borders, the use of the DEGURBA classification system allows for more direct comparison between attributes of areas, rather than regional or administrative boundaries that are used in the OECD classifications based on administrative units.

Sectoral classifications

The statistics gathered are harmonised with the International Standard Industrial Classification (ISIC 4^{th} revision). For readability, the sectoral classifications are grouped into the following ten major sectoral groups during the analysis:

1. **Agriculture**: Agriculture, forestry and fishing (ISICr4 1-3) or Section A.
2. **Mining**: Mining and quarrying (ISICr4 5-9) or Sections B and D.
3. **Manufacturing**: Manufacturing including food, beverages and tobacco (ISICr4 10-12); Textiles and footwear (ISICr4 13-15); Wood and paper (ISICr4 16-18); Petroleum and chemicals (ISICr4 20-22); Metallics, computers, electrical and motor vehicles (ISICr4 23-30); and Other manufacturing (ISICr4 31-33) or Section C.
4. **Utility and construction**: Electricity, gas, water and waste management (ISICr4 34-39); and Construction (ISICr4 41-43) or Sections E and F.
5. **Wholesale and retail trade, transportation and repair of motor vehicles**: Wholesale and retail trade (ISICr4 45-47); and Transportation and storage (ISICr4 48-53) or Sections G and H.
6. **Hospitality**: Accommodation and services (ISICr4 55-56) or Section I.

7. **Information and communication**: Information and communication (ISICr4 58-63) or Section J.
8. **Financial and real estate**: Financial and insurance activities (ISICr4 64-66); Real estate (ISICr4 68) or Sections K and L.
9. **Professional services**: Professional, scientific and technical activities (ISICr4 69-75); and Administrative and support service activities (ISICr4 76-82, 99) or Sections M and N.
10. **Public and community services**: Public administration and defence (ISICr4 88); Education (ISICr4 85); Human health, residential care and social work (ISICr4 86-88); Arts and other service activities (ISICr4 90-98), or Sections P, Q, R.

For illustration purposes, some categories may be combined. In other cases, for privacy concerns, some sectoral categories had to be combined, or excluded.

Source: OECD (2020[11]), *Rural Well-being: Geography of Opportunities*, https://doi.org/10.1787/d25cef80-en; OECD (2018[22]) , *Regions and Cities at a Glance, https://doi.org/10.1787/reg_cit_glance-2018-en*

Table 2.2. Classification of Scottish administrative units in OECD 5-tier typology of small administrative units (TL3)

Classifications of Regions (TL3) into typologies as of March 2023

OECD region ID (TL3)	Name	Typology access to city
UKM50	Aberdeen City and Aberdeenshire	MR-M
UKM61	Caithness & Sutherland and Ross & Cromarty	NMR-R
UKM62	Inverness & Nairn and Moray, Badenoch & Strathspey	NMR-R
UKM63	Lochaber, Skye & Lochalsh, Arran & Cumbrae and Argyll & Bute	NMR-R
UKM64	Eilean Siar (Western Isles)	NMR-R
UKM65	Orkney Islands	NMR-R
UKM66	Shetland Islands	NMR-R
UKM71	Angus and Dundee City	MR-L
UKM72	Clackmannanshire and Fife	NMR-M
UKM73	East Lothian and Midlothian	MR-M
UKM75	Edinburgh, City of	MR-M
UKM76	Falkirk	NMR-M
UKM77	Perth & Kinross and Stirling	NMR-M
UKM78	West Lothian	MR-M
UKM81	East Dunbartonshire, West Dunbartonshire and Helensburgh & Lomond	MR-L
UKM82	Glasgow City	MR-L
UKM83	Inverclyde, East Renfrewshire and Renfrewshire	MR-L
UKM84	North Lanarkshire	MR-L
UKM91	Scottish Borders	NMR-R
UKM92	Dumfries & Galloway	NMR-S
UKM93	East Ayrshire and North Ayrshire mainland	NMR-M
UKM94	South Ayrshire	NMR-M
UKM95	South Lanarkshire	MR-L

Note: Explanations of regional codes, territorial classifications of small administrative units and typology based on access to cities are further explained in Box 2.2. In the case of Scotland, regional names are established within the same classification system as the rest of the United Kingdom and refer to upper tier authorities, groups of lower tier authorities, groups of unitary authorities, LECs, groups of districts of which there are 179 in the United Kingdom.
Source: OECD (2022[23]), *OECD Territorial Grids*, https://www.oecd.org/cfe/regionaldevelopment/territorial-grid.pdf.

Based on the Scottish rural classification system, over 5.46 million people lived in Scotland in 2019, with over 930 000 of them living in rural areas (Table 2.3). Rural Scotland accounts for 17% of the total population in Scotland (6% in remote rural and 11% in accessible rural) and has consistently done so since 2011. The population has increased in all areas of Scotland between 2011 and 2019 but only very slightly in remote rural where the increase was 0.1% or 221 people, while the greatest increase in population is seen in accessible rural, with an 8% increase between 2011 and 2019, compared to an increase of 3% in the rest of Scotland.

Although close to 1 in 6 individuals live in rural areas, 98% of the land mass is classified as rural in Scotland with 70% in remote rural and 28% in accessible rural. This rural nature of less populated and vast land area creates significant differences in population density. In comparison with the rest of Scotland, the population density of accessible rural is 102 times less and remote rural is 501 times less.

Table 2.3. Population and land share by threefold category

	2011	2019	% change (2011-19)	% of land area	Population density (2019)
Remote rural	315 945	316 166 (6%)	0.1	70	4.06
Accessible rural	573 407	616 536 (11%)	8	28	28.25
Rest of Scotland	4 410 548	4 530 598 (83%)	3	2	2 906.7
Total	5 299 900	5 463 300 (100%)	3	100	

Note: Population density (2019) is calculated based on the total land area of Scotland taken from the Office of National Statistics (2013[24]). Percentages in the 2019 column represent percentages of the total presented in the last row.
Source: Scottish Government (2021[25]), *Rural Scotland Key Facts 2021*, https://www.gov.scot/publications/rural-scotland-key-facts-2021/pages/2/; Office for National Statistics (2013[26]), *Region and Country Profiles*, https://www.data.gov.uk/dataset/0fb6b475-71d8-4085-b4bc-0e93f59a7d10/region-and-country-profiles.

Rural innovation

Innovation, defined by the Oslo Manual (OECD/Eurostat, 2018[27]), refers to the introduction of new or significantly improved products or processes to the firm or market (Box 2.3). It is often considered by governments as high-technology, high-investment innovations that have the possibility to fundamentally change an economy, sector or community. In this context, distance and density can be an attribute of some forms of innovation and a hindrance to others. For example, innovation based on fast interactions and high levels of competition can be driving some forms of innovation, however other forms of innovation flourish in isolation from competitive markets or are tied to local nature-based amenities.

In rural areas of Scotland, the traditional view of innovation, one with a high and fast frequency of exchanges with innovation partners, overlooks the attributes and comparative advantages of rural regions (Mayer, 2020[28]; OECD, 2022[10]). This would suggest that innovation itself, in addition to innovation diffusion and adoption, may be limited in rural regions. However, such an assumption precludes innovation as high-technology, based on quick interactions and firms that race to be first in the market. This overlooks businesses focusing on social purposes or local development, as often observed in rural areas (with social innovation in rural areas further discussed in Chapter 4). When studies have taken a territorial approach, this type of innovation is not as largely observed in rural areas as it is in dense cities. Economic geographers have started conceptualising alternatives, such as what is considered “slow innovation” (Shearmur and Doloreux, 2016[29]), which is the occurrence of innovation based on isolated development and limited but strategic interactions with partners. This leaves room for creativity based on fringe and unconventional ideas, shielded from pressures to deliver fast to markets (Mayer, 2020[28]). “Slow innovation” has the advantage of not being time-dependent, meaning it does not lose value rapidly, with a lower frequency of interactions and a strategic search for knowledge.

Box 2.3. Defining innovation from the 4th revision of the Oslo Manual (2018)

What is the Oslo Manual?

The Oslo Manual is a publication that outlines a commonly agreed-upon approach to measure and report statistics on innovations. Started in the early 1990s, the Oslo Manual was elaborated through the consensus of the OECD Working Party of National Experts on Science and Technology Indicators (NESTI) and has been adopted by over 80 countries. The guidance outlined in the manual is used by major international organisations and researchers worldwide. Its revision was conducted through consultation with both NESTI and Eurostat's Community Innovation Survey (CIS) taskforce.

Defining innovation

The 4th edition of the Oslo Manual distinguishes between innovation as an outcome (an innovation) and the activities by which innovations come about (innovation activities). It defines innovation as "a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)" (OECD/Eurostat, 2018[27]).

The major additions to the previous versions include: measuring innovation not only from businesses but also other organisations and individuals; updates to improve harmonisation between core definitions and taxation; better accounting of globalisation, digitalisation and trends in investment in intangible assets; guidance on measuring internal and external factors influencing business innovation; prioritisation of the measurements of government policies on innovation; expansion on methodological guidelines; guidance on the use of innovation data and a new glossary.

Source: OECD/Eurostat (2018[27]), *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition*, https://doi.org/10.1787/9789264304604-en.

The structure of the rural economy of Scotland

To set the scene for innovation, it is important to understand the relative comparative advantage of rural areas today. The structure of the economy of rural areas is substantially different from the economy of urban areas. The section below illustrates a selection of rural firm characteristics that should be taken into consideration in the context of policy making directed towards firms for innovation in rural regions. The majority of the analysis in this section is based on analysis from three datasets, namely the UK Innovation Survey (UKIS),[6] the Business Structure Database (BSD),[7] with access given to the authors by the ONS, and the Inter-Departmental Business Register (IDBR), for which access to statistics for Scotland was made available through the Business in Scotland report (Scottish Government, 2022[30]). As described in the introduction, the analysis looks at each firm location (branch offices) rather than using the location of the headquarter as a basis for analysis and uses two waves of data from UKIS – Wave 7 and 10. Moreover, these two waves are merged into the BSD 2010 and BSD 2018 respectively, as the BSD provides additional information about firms' profiles, including legal status, birth date and rural-urban classification. An analysis released that can be matched between the BSD and UKIS is released every two years, with a two-year delay. At the time of writing this report, the next year of analysis available from the BSD included data from the year 2020. Because of the substantial impact of the COVID-19 pandemic that caused a major shock to the economy, the inclusion of the year 2020 would bias many results based on a year of crisis. As such, while analysis is included for 2020, all regression results towards the end of the chapter use pre-crisis analysis.

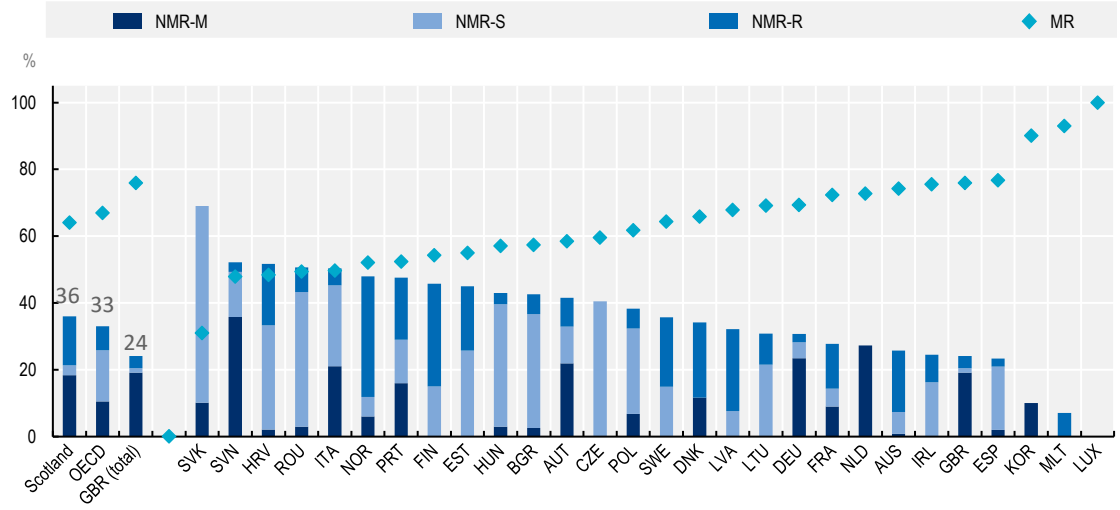
Firms and labour in rural areas of Scotland

In OECD countries, a third of firms are in non-metropolitan areas. The share of firms in non-metropolitan regions close to small-sized cities is close to 15%, while those in non-metropolitan cities with access to metropolitan areas are 11% and those in rural remote regions are 7% (Figure 2.7 and Box 2.2 for OECD definitions). In Scotland, the share of all non-metropolitan regions is slightly higher than the OECD average at 36% but it has a larger share of remote regions (15%) and regions close to metropolitan areas (18%) than on average in OECD countries. Scotland's share of remote rural regions is substantially larger (15%) as compared to 3% in the rest of the United Kingdom. The distribution of firms in non-metropolitan places is closer to those of France, or Austria where the shares of remote regions and those close to metropolitan areas are relatively stronger than regions with access to medium or small-sized cities.[8]

In 2022, there were 50 000 firms (27%) and close to 2 million workers (15%) in rural Scotland, based on the Scottish Government Urban Rural Classification.[9] In 2022, Scotland's accessible and remote rural areas had close to a third of firms and less than a fifth of the total Scottish labour force. The total non-metropolitan (those outside of urban areas) firms and labour were higher. Close to two-fifths of firms and one-fifth of labour were in non-metropolitan areas of Scotland.

Figure 2.7. Share of enterprises in Scotland and OECD countries

Average share of firms in OECD metropolitan and non-metropolitan regions in OECD countries and Scotland, by TL3 regional typology, 2000-18



Note: Metropolitan regions (MR) include both large metropolitan regions (MR-L) and metropolitan regions (MR-M). The categories are further described in Box 2.2.
Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

Accessibility is an important characteristic of rural areas. In 2022, of the 27% of firms in Scotland located in rural areas, more than half (or 16% of the Scottish total) are in accessible rural areas. Likewise, while 15% (283 000 employees) of the total labour share are in non-urban areas of Scotland, two-thirds (10%) of the labour in non-urban Scotland are in accessible rural areas (Figure 2.8, Panel A).

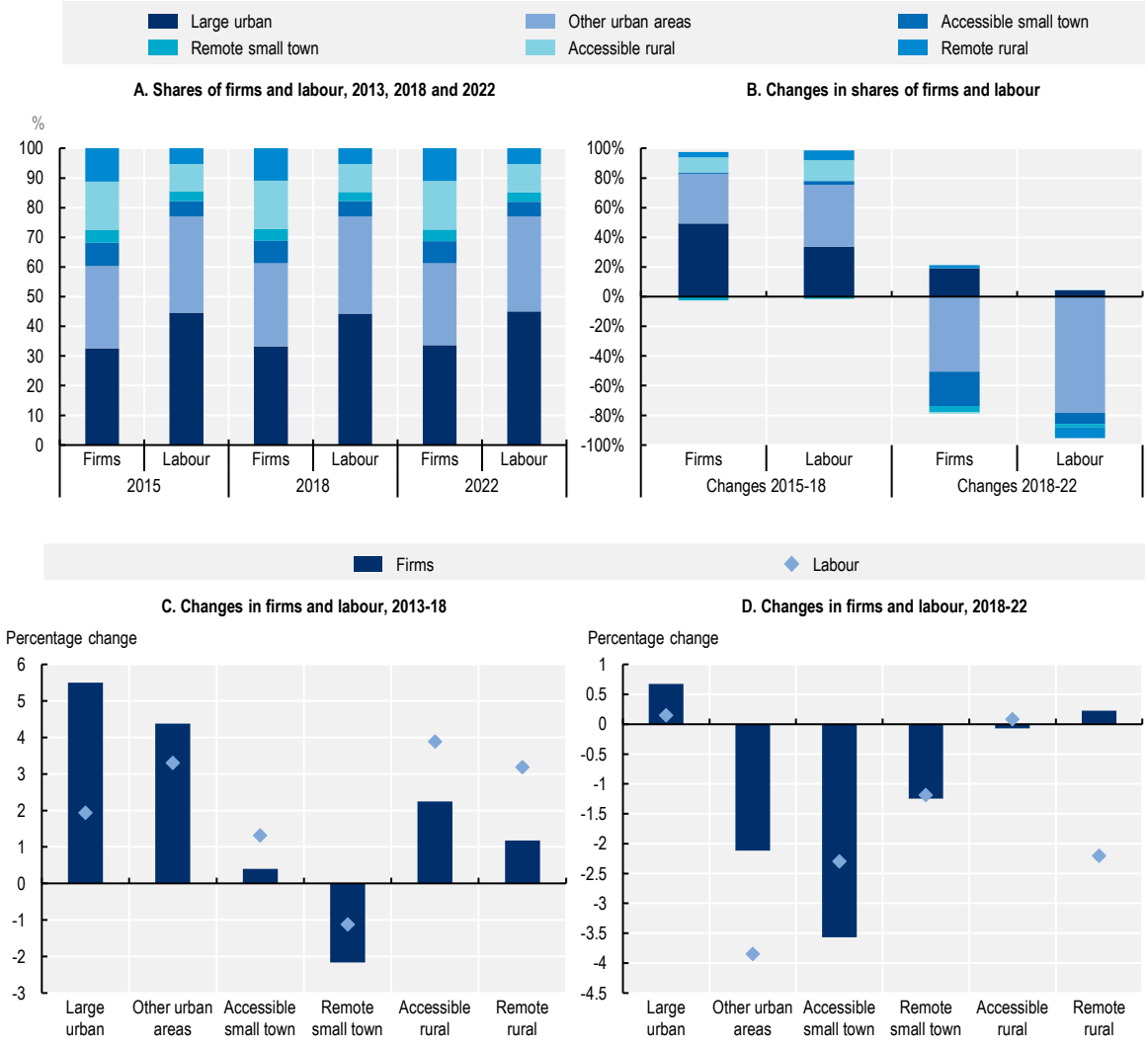
The relatively stable share of firms and labour in accessible and remote rural areas saw a decrease in the period of 2018 to 2022. Despite this change, this relatively slowdown was not as substantial as in other areas. The aggregate changes in the shares of firms and labour in accessible and remote rural areas were

outsized by the fall in the number of firms and labour from losses in other urban areas, and accessible small towns.

From 2015 to 2018, there was low growth in the number of firms in accessible and remote rural areas of Scotland but a relatively higher growth in the number of employees in accessible and remote rural areas (Figure 2.8, Panels C and D).[10] While accessible rural areas and remote rural areas saw an increase in the number of firms in operation, the growth started at lower levels than in urban areas[11] and grew to a lower extent (3.9% and 3.2% respectively).[12]

At the same time, between 2015 and 2018, firms in rural areas were beginning to show signs of scaling up. Labour in accessible and remote rural areas grew faster than those in all types of urban areas. In part, a stronger percentage growth is due to a lower number of workers in 2015;[13] however, even the number of workers per firm increased from 2015 to 2018, from close to 5.68 to 5.79 workers per firm on average in rural areas, where as the number of workers per firm in urban areas fell from 13.79 to 13.46.

Figure 2.8. Territorial share of firms and labour in Scotland



Source: OECD analysis of the Business Structure Database (BSD) and the Inter-Departmental Business Register (IDBR).

Based on the aggregate analysis by geography type, rural firms were able to keep afloat during the period of the COVID-19 crisis but the same could not be said for workers. The percentage growth in the number of firms in the years of the pandemic was small, rural remote areas and accessible rural areas were not as disadvantaged during the time of the crisis as those in accessible or remote small towns. For the period of 2018-22, accessible rural areas saw only a small 0.01% fall in the number of firms, while remote rural areas observed a small (0.02%) but positive growth in firms (Figure 2.8, Panels C and D). However, total labour in remote rural areas fell relatively substantially by -2.2%. In accessible rural areas, labour grew marginally, at the same time as the share of firms fell. This suggests that they were rather insular from the large impacts observed in all other areas outside of the large urban areas. And furthermore, while the number of workers per firm fell in urban areas and on aggregate in rural areas, accessible rural areas saw marginal growth, while most of the loss of the number of workers per firm came from remote rural areas. Further analysis of the survival of firms and their employees can help understand the true impacts of the COVID-19 crisis.

Accessible rural areas demonstrated more dynamism in growth in non-crisis years but suffered more substantially than remote rural areas during the years of the COVID-19 crisis. The differences between accessible rural areas and urban areas suggest that opportunities and challenges may also vary. Accessible rural areas are distinct from remote rural areas in both firm and labour geographical dynamics and tend to generally benefit from proximity to urban areas, where they may more easily draw upon shared resources, such as labour, capital and access to supply and goods markets. For example, while business activity and labour in accessible rural areas were growing more than those in rural remote areas prior to the crisis, during the years of the crisis, firm activity in more accessible areas was more negatively impacted than rural remote areas, while there were more substantial losses in labour in rural remote areas. Likewise, the argument is similar when comparing accessible small towns and remote small towns.

In sum, the analysis in this subsection indicated the following trends:

- Scotland is less urbanised than the average OECD country. Close to a third of firms are in non-metropolitan regions of OECD countries. Using the Scottish Government Urban Rural Classification system, in Scotland, this number is slightly larger at close to 40% of firms. In 2022, Scotland's accessible and remote rural areas had close to a third of firms and less than a fifth of the total Scottish labour force.
- Rural firms were showing signs of scaling up, prior to the 2018-22 period. However, during the COVID-19 period, there was less growth in the number of firms and a fall in the number of workers.
- Accessible rural areas are distinct from rural remote areas. In 2022, there was a larger share of firms and employment in accessible rural areas. While the share of firms grew stronger in normal times, rural remote firms were more insulated. However, labour and shares of firms, in rural remote areas did not withstand the crisisand they experienced a large loss in labour over the period of 2018 to 2022.

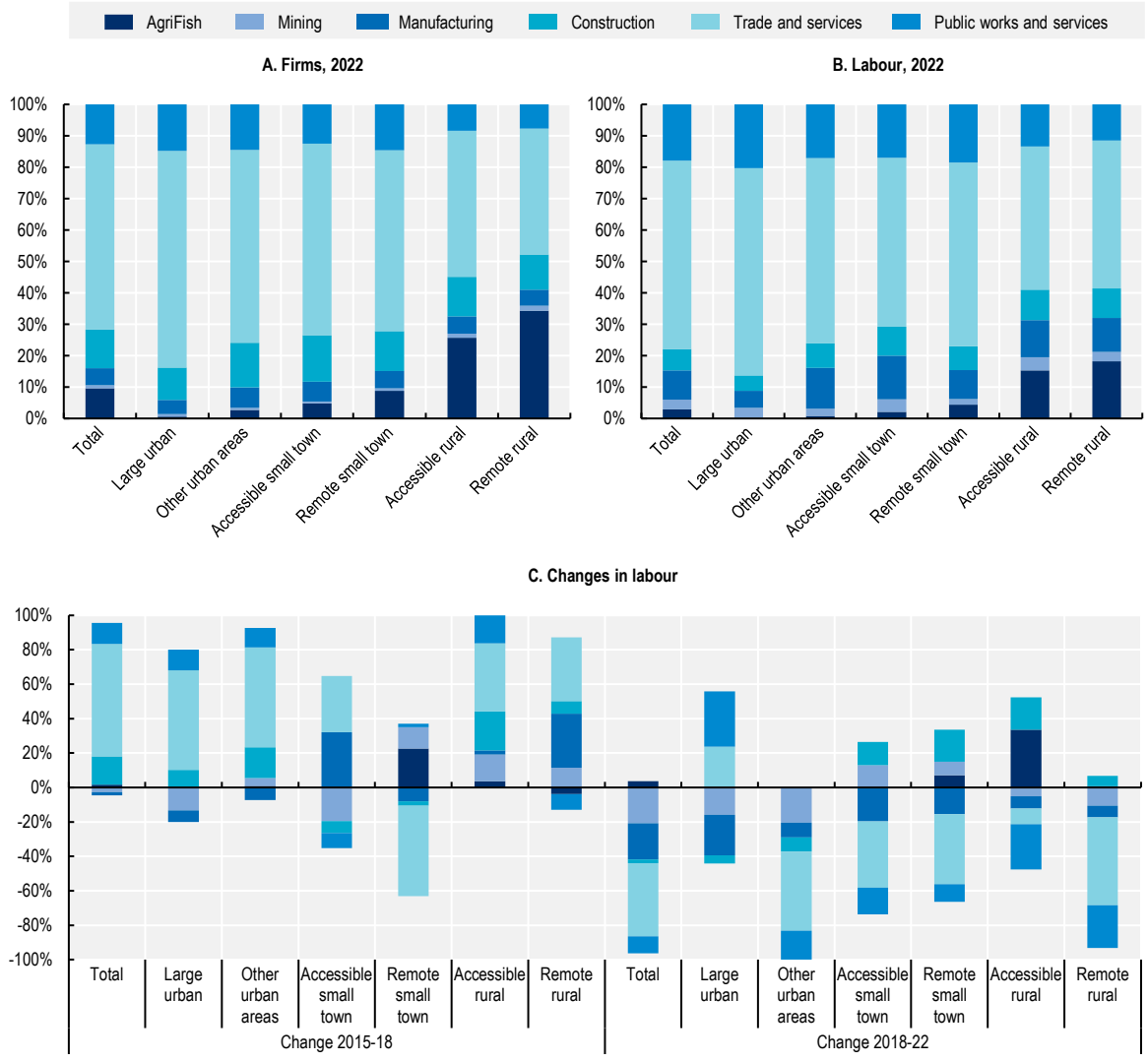
Sectoral composition of non-metropolitan regions of Scotland

The sectoral composition of rural areas can inform policy makers of the importance of local sectors that should be taken into consideration while informing place-based policy making. In many OECD countries, rural regions are characterised by the existence of a strong manufacturing sector, a relatively high share of agricultural and fishery activities as compared to metropolitan regions and an increasing transition to the trade and services sectors (OECD, 2022[31]; forthcoming[32]). The following analysis in this section explores recent trends in sectoral composition in rural and urban areas, using the Scottish classification of areas aggregated to sixfold definitions.

Rural areas, like those across other regions in Scotland, have a strong trade and services[14] component. In 2022, 40% of firms in remote rural areas and 47% of firms in accessible rural areas were in the trade and services sector (Figure 2.9). This sector accounted for 47% and 46% of jobs in remote rural and accessible rural areas. In 2015-18, jobs in trade and services saw a 72% growth in Scotland. While rural remote and accessible remote areas also observed growth in jobs in this sector (50% and 40% respectively), it was to a lesser extent than in other areas. The growth of jobs in this sector was relatively strongest in remote small towns, where it doubled. Despite this previous spell of sectoral growth, during the period of 2018-22, jobs in the trade and services sector in all areas, expect large urban areas, fell.

Figure 2.9. Sectoral distribution of firms and labour

By sector and OECD territorial classification, 2022



Note: The following categories are elaborated as the following: AgriFish includes Agriculture, forestry and fishing (A); Mining includes Mining (B) and quarrying (D), and Utilities (E); Manufacturing includes only the Manufacturing sector (C); Construction includes only construction (F); Trade and services include Wholesale, retail and repair (G), Transportation and storage (H), Information and communication (J), Accommodation and food service activities (I), Financial and insurance activities (K), Real estate activities (L), Professional, scientific and technical activities (M), Administrative and support service activities (N), Arts, entertainment and recreation (R), and Other service activities (S); Public works and services includes Education (P) and Human health and social work activities (Q). Data include private sector-only firms.
Source: Scottish Government analysis of the Office for National Statistics (ONS) and the IDBR.

The second largest sector present in rural areas is the agriculture and fisheries sector. In 2022, more than a third of firms were in the agriculture and fisheries sector in remote rural areas and a quarter of firms were in the same sector in accessible rural areas (in comparison, only 1% and 3% in large and other urban areas). However, the sector did not account for as large a share of jobs. For example, in rural remote areas, the agricultural and fisheries sector accounted for only 18% of jobs. Likewise, in accessible rural areas, while a quarter of firms were in the agricultural and fisheries sector, it only accounted for 15% of all employment. In 2015-18, the agricultural and fisheries sector observed a small growth of jobs in accessible rural areas and a small decline in rural remote areas. The largest employment growth in this sector was observed in remote small towns. However, in the following years, from 2018 to 2022, accessible rural areas saw a substantial increase in the number of individuals employed in the sector, which seems to have been the largest driving force for avoiding going into aggregate loss of employment, followed by growth in construction. On the other hand, the agricultural and fisheries sector (along with the construction sector) only grew marginally, which was a relative advantage given the strong falls in other sectors during the crisis years.

The manufacturing sector brings more jobs to non-metropolitan areas than metropolitan areas. Firms in the manufacturing sector account for between 5% to 7% of firms in all areas of Scotland. Despite the fact that firms in the sector are equally present across all areas of Scotland, it accounts for more jobs in non-urban areas (Figure 2.9). In 2022, manufacturing firms accounted for 11% and 12% of total employment in remote rural and accessible rural areas, higher than the total share of employment in the aggregate sector in Scotland. Accessible small towns and remote small towns tend to also have relatively higher shares of employment in the sector (13% and 14% respectively).

Jobs in the manufacturing sector were growing substantially (40%) in the years 2015-18: this was second only to the growth in the trade and service sector in the same areas. The increase of jobs in this sector is relatively important for remote rural areas but not for accessible rural areas. In the years of the COVID-19 crisis, remote rural areas observed some growth in jobs in the sector, while accessible rural regions experienced a large fall.

Lastly, the public works and services sector is an important aspect of rural Scotland. The sector accounts for 18% of all jobs in Scotland in 2022; however, there is a lower percentage in accessible (13%) and remote rural areas (11%). This is particularly challenging as equitable deliveries of public services often require proportionally more resources in rural areas. It is unclear why public works and services would have experienced such a substantial fall in accessible rural areas during the period of 2018-22. It is a well-documented fact that many rural areas suffer from a lack of public services because of the difficulties in physical distances, however, in many cases, the choice of public service delivery models (public, private or through local civil society partners) impacts the way in which this statistic is observed. While the privatisation of historically publicly assured services can bring cost savings and efficiencies, this is only the case if access to services remains assured and of high quality, is appropriately managed and at the right scale for rural areas. A more equitable distribution of government services is often reflected in a larger share of public sector employees per resident in more remote regions, as argued by the OECD (2021[2]). Where there is no equitable access to public services, the role of civil society (including social enterprises and innovators) becomes increasingly important to help address market failures in the provision of public services, as will be further discussed in Chapter 4.

In sum, the analysis in this subsection indicated the following trends:

- There is a strong trade and service component in rural areas. The share of trade and services is growing in rural areas in terms of numbers of firms and jobs but it is not contributing to as big a growth in jobs in rural areas as it is in urban areas. Rural remote and accessible remote areas observed a growth in jobs in this sector (50% and 40% respectively) but to a lesser extent than in other areas. It also fell substantially during the following period from 2018 to 2022, during the period of the COVID-19 crisis.

- The agricultural and fisheries sector is still an important share of the rural economy but its contribution to jobs is not as sizeable as those in the trade and services sector. Despite this trend of a relatively weak contribution to new employment, the sector was critical for upholding jobs in rural areas during the period 2018-22, as it was the sector that grew most substantially in geographies across Scotland and was primarily responsible for avoiding strong aggregate losses in labour in accessible rural areas. In rural remote areas, there was neither a loss nor a gain in employment in the sector.
- The manufacturing sector is a relatively small share of accessible and remote rural areas but it is increasingly growing. Its contribution to labour in remote rural areas is substantial and increasing.
- There is a relatively low share of public works in rural areas of Scotland as compared to other places and it experienced a sharp fall. In most countries, because of the higher cost of delivery in rural areas, it is often the case that rural public services get left behind. However, this observation is also heavily impacted by the model of public service delivery in each country. Further information on the role of the third sector (civil society) is explored in Chapter 4.

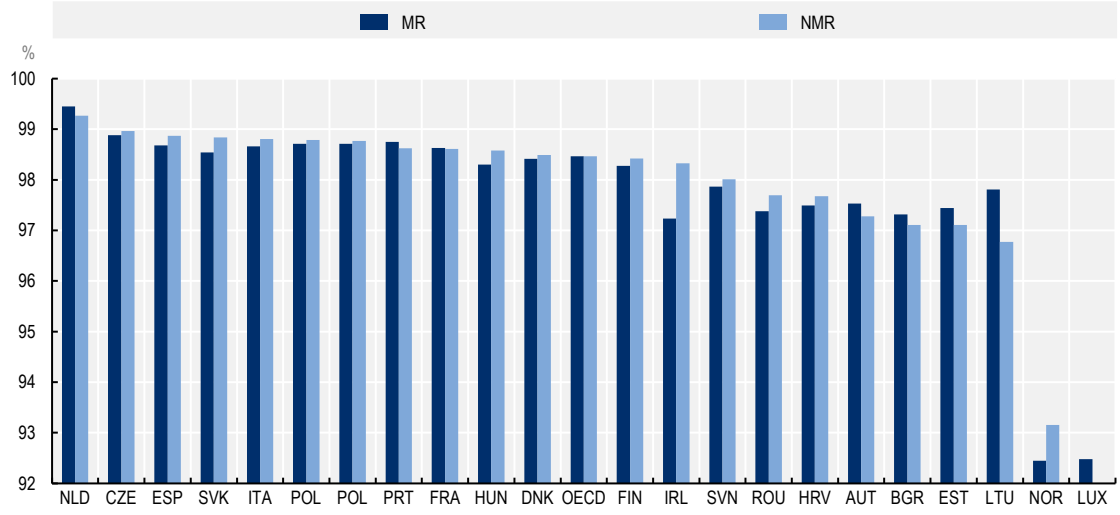
Size-based composition of firms in Scotland

The location of firms has consequences on access to labour market resources and, therefore, their size. Where labour markets are tight, often firms operate with smaller numbers of employees or, if needs are great enough, transfer activities to accessible areas or areas with larger labour markets. The analysis in this section uses the OECD definitions of regions for comparative analysis across countries and the national Scottish definition of rurality for analysis within countries, as described in Box 2.2 and Table 2.1.

In Scotland, the quasi-totality of firms that employ individuals are small, with fewer than ten workers. In the OECD, the average share of firms with fewer than 10 workers was 98.5% of all firms (Figure 2.10). On average across OECD countries, the share is similar in metropolitan and non-metropolitan regions; however, 15 out of the 23 countries with available data had higher shares of firms with fewer than 10 workers in non-metropolitan areas.

Figure 2.10. Shares of firms with fewer than 10 workers

Average share of active employer firms with fewer than 10 workers, 2000 to 2018

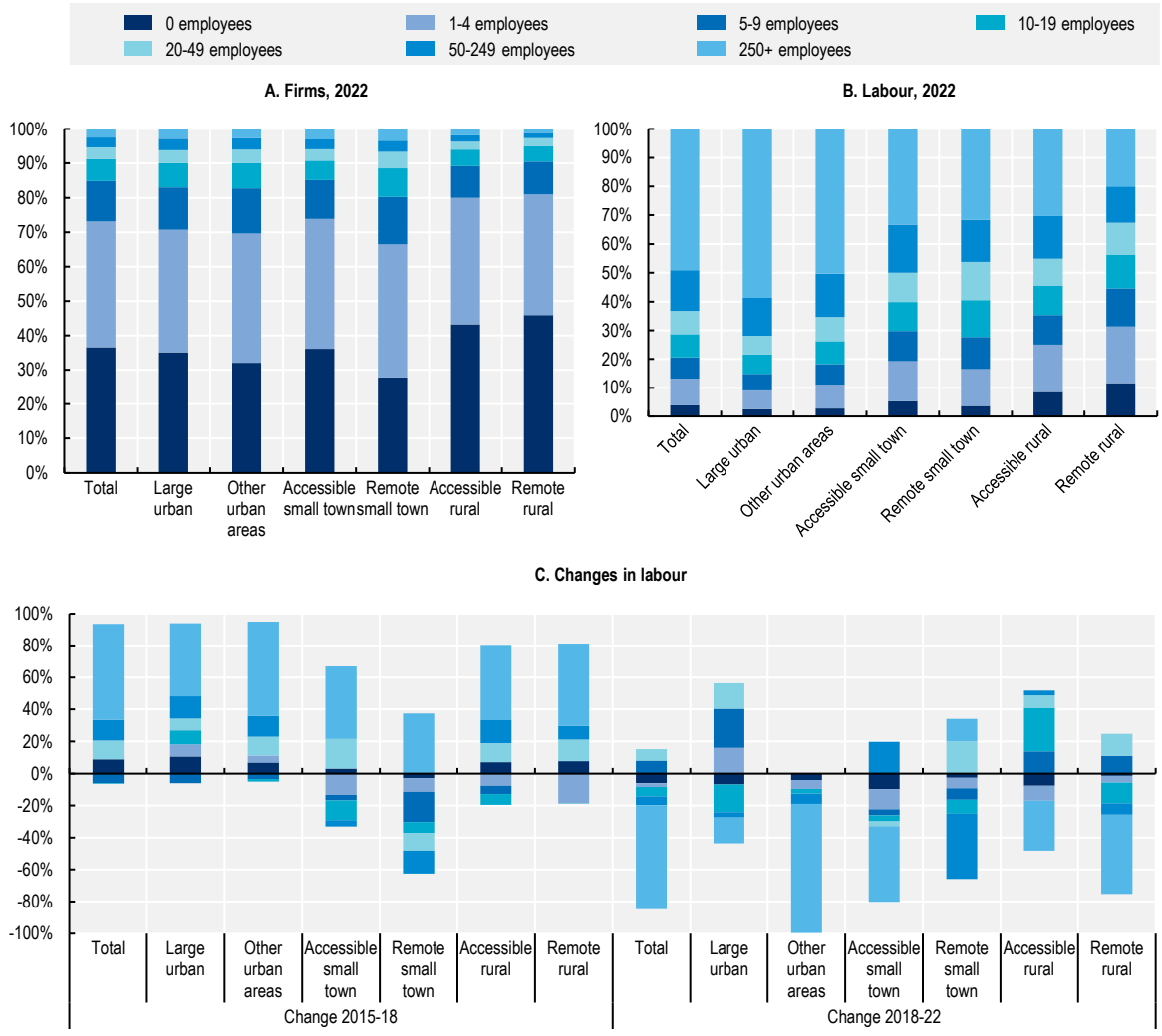


Note: Excludes Australia, Germany, Korea, Latvia, Malta, Sweden and the United Kingdom.
Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

In 2022, small non-employer or micro firms with one to ten employees were the most common type of firms in Scotland (Figure 2.11). They account for 85% of all firms[15] in Scotland. In rural areas, firms with fewer than 10 employees accounted for a larger share of firms. In rural remote areas, 91% of firms had fewer than 10 employees, while in accessible areas, 90% of firms had fewer than 10 employees. In comparison, only 82% of firms had fewer than 10 employees in both types of urban areas.

Figure 2.11. Size distribution of firms, by sixfold Scottish classification

Share of firms and labour, by size and territory



Source: Scottish Government analysis of the Office for National Statistics (ONS) IDBR.

While smaller firms are the most dominant form of firms in the rural economy, larger firms still employ a substantial share of workers. While firms with fewer than 10 employees represent around 90% of all firms in rural areas of Scotland, they only account for close to 45% of the total labour force in remote rural areas and 37% in accessible rural areas. When removing firms that do not employ individuals, this number goes down to 31% and 26% respectively but remains relatively high. On the other hand, despite a relatively low share of total firms, larger firms (those between 50-249 and above 250 workers) still employ a significant share of the labour force (29% in accessible rural and 20% in remote rural areas). In comparison, in urban

areas, firms with fewer than 10 employees employ 15% of the workforce in large urban areas and 18% of the workforce in other urban areas.

Accessibility plays a role in the location of relatively larger firms. Accessible rural areas and towns tend to have relatively larger shares of large firms than remote towns and rural areas. Given relatively easier access to urban regions, there may be advantages to draw on in accessible rural areas and towns that are not necessarily feasible in remote areas. A specific approach to the challenges and opportunities in accessible areas should be considered separately from strategies to support innovation in other non-urban areas.

In sum, the analysis in this subsection indicated the following trends:

- In the OECD, the average share of firms with fewer than 10 workers was 98.5% of all firms. In OECD countries, 15 out of the 23 countries with available data have a higher share of firms in non-metropolitan areas.
- In Scotland, small non-employer or micro firms with 1-10 employees were the most common type of firms in 2022, accounting for 85% of the share of all firms in Scotland. In accessible rural and remote rural areas, the share of small non-employer and micro firms is larger, at between 90% and 91%.
- While smaller firms are the most dominant form of firms in the rural economy, they tend to employ only 45% of workers in rural remote areas and 27% in accessible rural areas. Larger firms still employ a substantial share of workers in both types of rural areas. In comparison, firms with fewer than 10 employees only account for 15% of labour in large urban areas and 18% of labour in other urban areas.

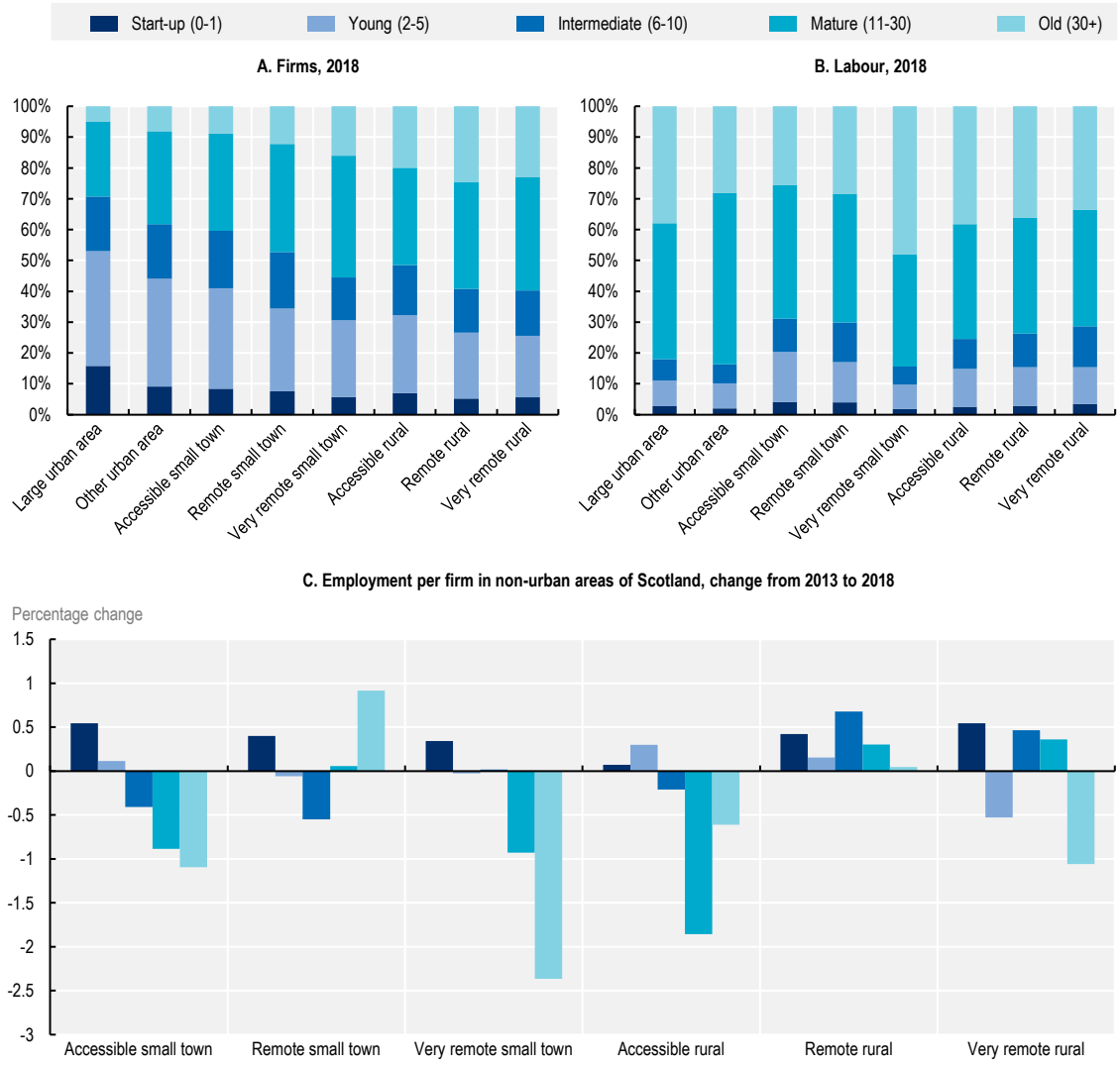
Firm age demography across rural areas of Scotland

In the innovation literature, creative destruction (the turnover of entrants and exiting firms) is an important mechanism for productivity growth and innovation (Aghion, Antonin and Bunel, 2021[33]). New firms tend to demonstrate entrepreneurial and innovative characteristics or push existing firms to become more innovative, in particular when there is a growing service sector (Bosma, Stam and Schutjens, 2009[34]). While age does not preclude firms to innovate, an environment that nurtures and encourages new endeavours can revitalise communities and rural regions (Breschi, Lassébie and Menon, 2018[35]). The analysis in this section uses the eight-tiered Scottish definition of rural areas to establish trends in the age demographic of firms across regions.

There are more new firms in urban and accessible areas of Scotland than in any type of rural area. According to Figure 2.12, the largest share of new firms (0-1 years) is in urban areas in 2018. In large urban areas, the share of young firms is 16%, while in other urban areas, it is lower at 9%. In accessible areas, the share of new firms was not too far from those in urban areas, in 2018. Accessible rural towns had 8% of all firms as start-ups, while accessible rural areas had a start-up share of 7% of all firms. Nevertheless, the places with the lowest shares of new firms are in remote rural areas (5%) and very remote rural areas (6%).

Urban areas also tend to have higher shares of young (2-5 years) firms. In large urban areas, 37% of firms are young, while the share changes only slightly for other urban areas (36%) (Figure 2.12). In very remote rural areas, the share of young firms is 20%, while it is similar in remote rural areas (21%). Young firms make up 33% of accessible small towns, while a quarter of the total firms in accessible rural areas are young.

Figure 2.12. Firms and labour, by firm age



Note: All urban categories were removed from the bottom panel for depiction purposes. They are available for reference in Annex Figure 2.A.3. Data were not available for the year 2022.
Source: ONS (2021[36]), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, https://doi.org/10.5255/UKDA-SN-6697-12.

Rural and remote regions tend to have older firms. While in urban areas, the share of older firms is between 24% to 30%, non-accessible rural areas and remote towns have substantially larger shares of mature firms ranging between 35% and 39% of firms in each area. The relationship between territories and firm demographics is similar when it comes to old firms (30 or more years old), where 5-8% of firms in urban areas are considered old, and old firms (30+) are 20-25% of rural economies (Figure 2.12).

Older firms do not employ as big of a share of workers in rural areas as they do in urban areas. While there may be a higher share of old firms in different types of rural areas than in urban areas, they do not always employ the highest shares of workers. For example, in accessible rural areas, firms that are more than 30 years old account for 20% of all firms and 38% of all workers, and likewise those in remote and very remote rural areas account for close to a quarter of all firms and around a third of all workers. However, older firms in urban areas account for 5-8% of the economy and employ between 38% and 28% of the labour force respectively.

Increasingly, start-ups (0-1 years) are employing more workers on average per firm from 2013 to 2018 (Figure 2.12). Based on shares of employees in start-ups in each geography, in very remote rural and remote rural areas, there is close to one more employee per two firms in a start-up than there was in the past. In comparison, in urban areas, the average number of employees per start-up has fallen (Annex Figure 2.A.3).

The old or traditional firm model in non-metropolitan areas is a common occurrence. However, it also poses a risk to communities that may depend on a small share of firms for jobs. Government officials should be mindful to target policies that can help bring in new entrepreneurs, and incubate and accelerate early-stage firms while providing services for upskilling and succession planning for pre-existing older firms that may need to adapt products or processes to stay competitive in the future.

In sum, the analysis in this subsection indicated the following trends:

- The share of new firms (0-1 years) in various rural areas is less than half of those in urban areas. In large urban areas, the share of new firms is 16%, while it is 8% in accessible rural areas, 5% in remote rural areas and 6% in very remote rural areas.
- Furthermore, there are close to 15-16% fewer young firms (2-5 years) in rural areas, as compared to urban areas. In large urban and other urban areas, between 36% and 37% of firms are young. In very remote rural areas, the share of young firms is 20%, while it is similar in remote rural areas (21%). Nevertheless, in accessible rural areas, the share of young firms is close to those in urban areas, at nearly a third of the economy (in accessible rural areas).
- Increasingly, start-ups (0-1 years) are employing more workers on average per firm across all areas in Scotland. For example, in rural remote areas, there are close to twice as many workers per start-up at the end of the period in 2018 as there were in 2015.
- Rural and remote areas tend to have older firms (30 or more years old) but, unlike the older firms in urban areas, they do not tend to employ the largest shares of workers.
- Trends in new firm formation and shares in the first few years of firm establishment in accessible rural areas, more closely follow trends in urban areas than in remote rural areas.

Foreign status of firms in rural areas

Access to foreign investment and international networks can encourage innovation in direct (R&D investment) and indirect (transference of knowledge) ways. Networks between individuals matter for innovation, in particular for new entrepreneurs (Diemer and Regan, 2022[37]). Foreign owners may provide a diversity of ideas and opportunities to firms that may otherwise be more difficult leading to new innovative products and processes. For example, a study on Spanish manufacturing firms found that multinational firms conduct more product and process innovation (simultaneously adopting new machines and organisational practices) and adopt foreign technologies, leading to higher productivity (Guadalupe, Kuzmina and Thomas, 2012[38]). The following section used the national Scottish classification of territories to overview trends in the ownership of firms across regions.

In 2018, foreign firms (non-UK) have a small share of the Scottish economy yet tend to employ more workers. In urban areas, they account for approximately 7% of firms in 2018. In non-urban areas, they rarely account for more than 5% of firms.[16]

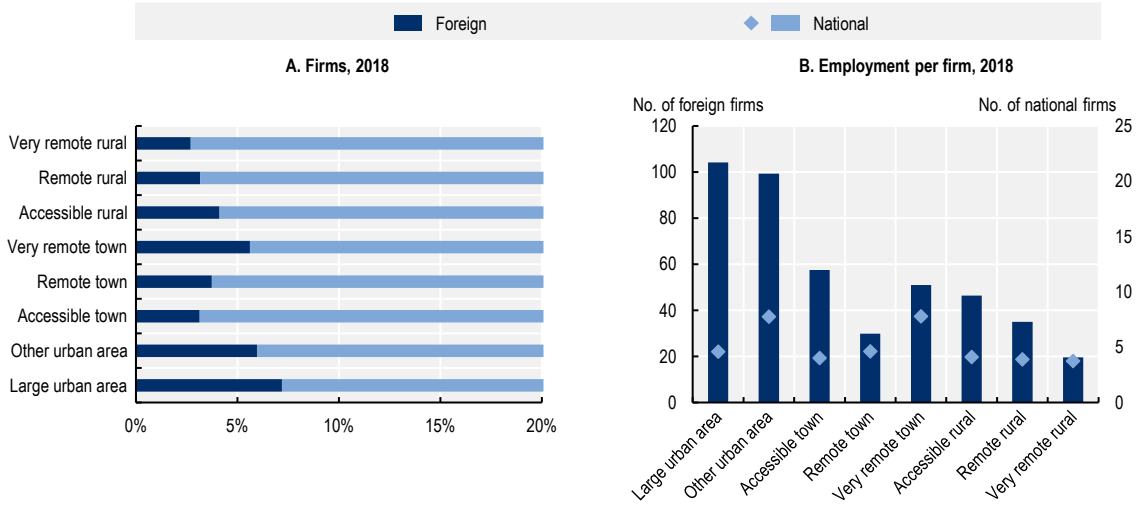
Despite a small share, foreign firms contribute substantially to employment, as compared to national firms. The average number of employees per firm is higher among foreign firms than national firms. For example, in large urban areas, foreign firms employ on average over 100 individuals, while national firms employ on average close to 4.6 individuals per firm (Figure 2.13, Panel B, right-axis for national firms). More generally, foreign firms in urban areas (both large and other urban area categories) employ on average close to 100 individuals per firm, while foreign firms in rural areas (accessible, remote and very remote rural area

categories) employ on average 45 individuals per firm. The national equivalents employ on average close to six workers per firm in urban areas and four workers per firm in rural areas. The foreign-to-national firm ratio in urban areas suggests that foreign firms employ 18 times more individuals than national firms in urban areas, while this ratio is smaller in rural areas at 10 times more employed individuals in foreign firms in rural areas.

The strong performance in employment of foreign firms is not observed to the same magnitude in rural areas as in urban areas. On average, foreign firms in urban areas employ 2.5 times more individuals per firm than in rural areas. For example, in large urban areas, foreign firms employ on average over 100 individuals per firm, while in accessible and remote rural areas, the average employment per foreign firm is between 20 to 45 employees, meaning that foreign firms in urban areas employ 2 to 5 times more individuals per firm than those in rural areas.

While it is not surprising that foreign firms, on average, employ more individuals, the agglomeration of foreign firms in urban areas seems to indicate a relative advantage that urban areas hold over rural regions, which may be due to access to labour, capital or other resources. Inviting foreign investment may be the goal of some regions. An active and targeted strategy to attract foreign investment and diversify the economy is already a strong factor of Scotland's regional enterprise agencies, as described in Chapter 3. Access to regional foreign investment and promotion support could help bring additional opportunities for jobs and innovation through foreign investment.

Figure 2.13. Firms and labour, by foreign status, 2018



Note: Data for 2022 were not available. In Panel B, national firms are depicted on the secondary right-hand axis.
Source: ONS (2021[36]), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, https://doi.org/10.5255/UKDA-SN-6697-12.

In sum, the analysis in this subsection indicated the following trends:

- The share of foreign firms in Scotland is small, at between 6% to 7% in rural areas and between 2% to 5% in rural areas.
- Foreign firms employ 18 times more workers per firm than national firms in urban areas of Scotland, whereas they employ only 10 times more workers than national firms in rural areas of Scotland.
- Foreign firms in urban areas employ 2 to 5 times more workers than foreign firms in rural areas. For example, in large urban areas, foreign firms employ on average over 100 individuals per firm,

while in accessible and remote rural areas, the average employment per foreign firm is between 20 to 45 employees.

Promoting equal opportunities for innovation amid growth in rural Scotland

There has been a productivity slowdown in the UK in many major cities (OECD, 2020[39]). However, over the last 20 years, the economy of Scotland has observed stronger growth in productivity than all other regions in the United Kingdom with an average growth of real output per hour reaching up to 1.5% per annum (Tsoukalas, 2021[40]). While its levels of productivity still remain lower than the national average and below the median of OECD countries (Tsoukalas, 2021[40]), the growth in productivity relative to the rest of the United Kingdom and within Scotland has promising implications for innovation in rural areas.

Regional and territorial considerations are important factors in understanding where there are opportunities for welfare-enhancing growth through innovation and productivity. For example, in the United Kingdom, a recent study found that innovation and productivity spillovers are dependent on geographical and technological proximity to other firms and institutes undertaking research (Aitken et al., 2021[41]).

The following section focuses on three aspects of promoting welfare-enhancing productivity growth. The first section untangles whether productivity changes are due to increased productivity within regions or a reallocation of resources. The second section explores trends in competition between firms. Finally, the last section explores the importance of promoting diversity and equality for innovation. This study uses two datasets, namely UKIS and the BSD. The reasons behind choosing these two sources of data and linking them were, first, to ensure granularity for rural analysis and, second, to avoid biases in innovation measures that are better targeted for large, urban firms such as those measuring inputs (R&D investment or jobs) or outputs (patents) (OECD, 2022[10]).[17]

Growth in productivity across territories

Productivity is often closely linked to innovation and, in many cases, can be considered a measure of innovation adoption. An increase in productivity assumes the reduction in either costs or an increase of production within the firm that are often linked to improvements in the processes or products used in the production or business cycle, which is akin to the Oslo Manual's definition of innovation (see Box 2.3 above).

In the past two decades, Scotland has recorded strong productivity growth (Tsoukalas, 2021[40]); however, the territorial dimension of productivity growth has not adequately been explored. Using data from UKIS matched with the Business Registrar, this analysis similarly observes growth in aggregate productivity over a period of 9 years between 2010 and 2018, reaching close to 0.07% annual productivity growth, in line with the trend that has been observed over the past 2 decades in OECD countries.

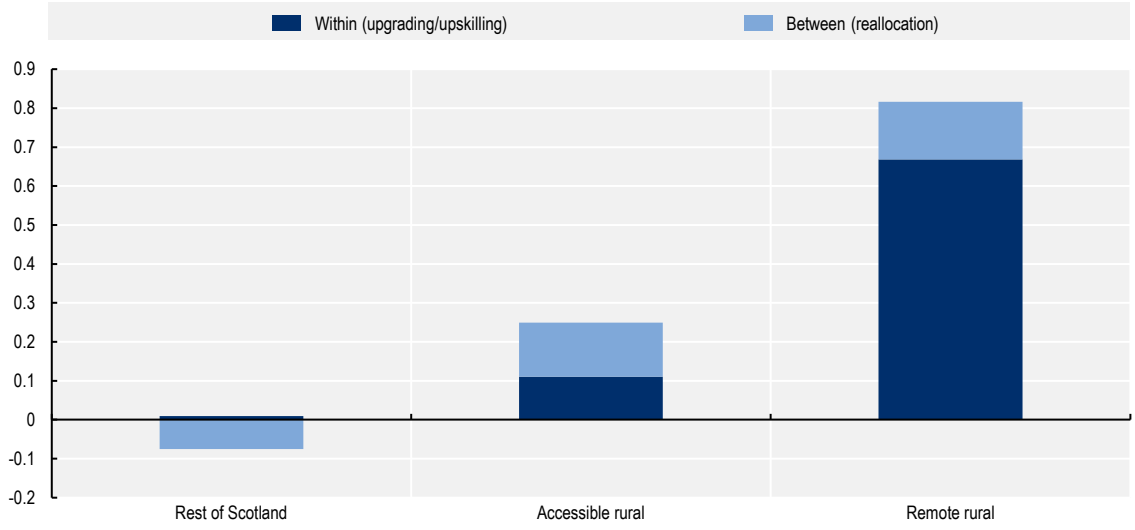
Productivity growth within Scotland is primarily attributed to productivity increases in accessible and remote rural regions (Figure 2.14). Almost all productivity growth in Scotland was due to productivity increases in remote rural regions (81.6% of total productivity growth). Likewise, another quarter (25%) of overall productivity growth was attributed to productivity increases in accessible rural regions. Finally, there is a net negative contribution to productivity growth in urban areas in the rest of Scotland (-6.6%).

Most productivity growth was attributed to the more efficient use of resources within rural remote areas (67% of total productivity growth), suggesting that innovation absorption in remote rural areas has played a substantial role in contributing to aggregate productivity increases. Furthermore, the reallocation of resources into both accessible and remote regions (between effect, 28.7% of total productivity) and the more efficient use of resources (within effect, 77.9% of total productivity) provide a net positive contribution to aggregate growth.

On the other hand, in urban areas in the rest of Scotland, the more efficient uses of resources contributed to 0.9% of aggregate productivity growth, while the reallocation of resources contributed negatively (-7.5%) to aggregate productivity growth. The effect of more efficient use of resources on aggregate productivity growth is much larger in remote rural areas. While at a lower magnitude, increases in the more efficient use of resources in accessible rural areas is lower. This may be explained by accessible rural areas' relative ease of access to other firms at the frontier of innovation or, simply, close access to diversified services often present in accessible rural regions.

The simultaneous productivity growth in rural areas and fall in the rest of Scotland (urban areas and towns) can be characterised as a strong "catching up" effect, whereas the rest of Scotland (including all urban areas) is suffering from a loss of productivity. Importantly this joint observation suggests that there are still opportunities for growth within Scotland's rural areas. Second, a large share of the contribution of productivity that is due to the more efficient use of resources suggests that there is still a margin of opportunity for increased productivity growth through place-based policy making focusing on improving conditions for businesses and communities in accessible and remote rural regions. This can include incentives for the reallocation of resources to rural areas and the development of programmes to support incentives to upgrade products and processes, for example through new firm products or through upskilling the rural labour supply.

Figure 2.14. Decomposition of productivity growth in Scotland, 2010-18



Note: Productivity is calculated as value-added per full-time equivalent employee. The measure of productivity growth due to better use of sources within territorial categories is referred to as the "within" component, while the change in the difference between territorial categories is referred to as the "between" components. The decomposition is weighted by number of employees. It is further explained in Melitz and Polanec (2015[42]).

Source: OECD calculations using ONS North Ireland/DETI/BIS (2021[43]), *UK Innovation Survey, 1994-2018: Secure Access*, https://doi.org/10.5255/UKDA-SN-6699-7; and ONS (2021[36]), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, https://doi.org/10.5255/UKDA-SN-6697-12.

In sum, the analysis in this subsection indicated the following trends:

- Productivity was growing in Scotland prior to the years of the COVID-19 crisis.
- This growth was primarily driven by growth in productivity in accessible and remote rural areas.
- Much of the growth in productivity was due to the upgrading of resources in remote rural areas, suggesting that the "catching up" effect was a strong factor of productivity growth in the region.

The distribution of productivity between firms

Firms operate within a territory and have different access to resources, including labour and capital. When there are no barriers to access (or there are barriers but they are equal barriers to access for all firms), firms can operate in a competitive manner and share all profits (and by inference have the same productivity levels). This is important for innovation yet the relationship between competition, equality of access and innovation is not linear. Competition and innovation have a "U-shaped" relationship (Aghion et al., 2005[44]). Competition encourages innovation in highly competitive "neck-to-neck" markets, while it may discourage slower moving firms. In other cases, some competition can encourage growth, while too much of it can deter innovation (Hall, Graevenitz and Helmers, 2020[45]).

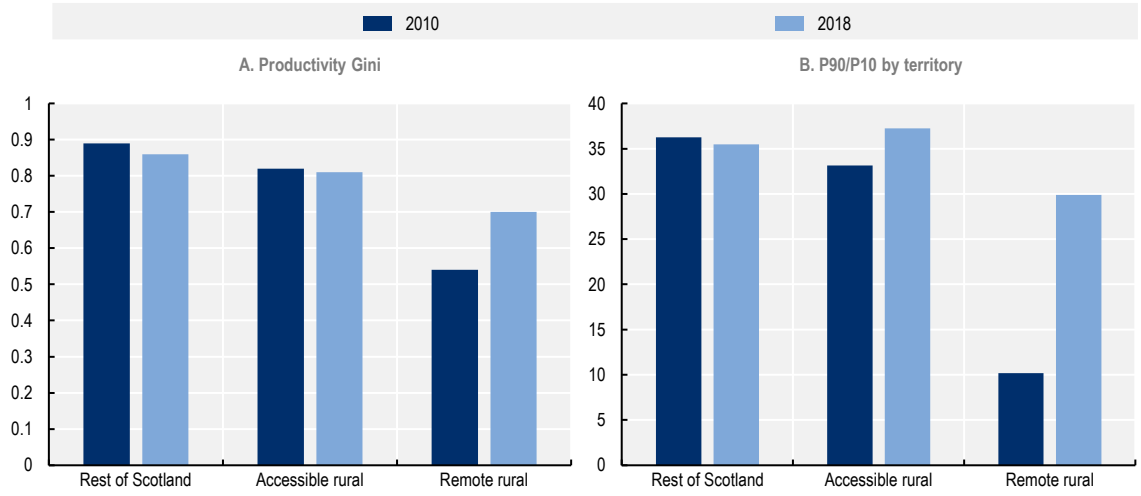
In rural regions, by definition, the low density of the region implies fewer firms and less direct competition within territories. Firms innovate in this space, with low competition and higher demand to innovate in order to overcome barriers to basic services (OECD, 2022[10]). While in some rural areas, industries are specialised, in many cases, the number of firms within a single industry is generally lower or may have lent themselves more easily to mergers and developing a collaborative or co-operative model to overcome challenges of scale. In a high-competition environment, we expect productivity to be equal between firms and firms to compete at the margins. At the same time, too much inequality, for example, when only very few firms are very productive, can stifle growth and productivity among the masses. The U-shaped relationship of competition and innovation still suggests that some inequality is needed for innovation but too much capture of the market by the few can hurt all other competitors.

In Scotland, firms in accessible and remote rural regions tend to be more equal productivity outcomes than firms in urban areas in the rest of Scotland. Using two common measures of inequality, the Gini index and share of top and bottom performers, rural regions of Scotland have more equality in the distribution of productivity between its firms than in urban areas in the rest of Scotland (Figure 2.15, Panels A and B). In accessible and remote rural areas, the Gini indicator for 2018 was 0.81 and 0.70 respectively. The Gini in urban areas in the rest of Scotland was 0.86.

Inequality in productivity and the distribution of productivity across firms can help explain what types of inequality exist within a place. In urban areas in the rest of Scotland, firms differ in productivity (Panel A) and simultaneously have a high level of productivity going to the top 10% of firms (Panel B). The top 10% of firms in urban areas in the rest of Scotland are 35 times more productive than the top 10% of firms. In comparison, rural remote regions have more equality of outcomes for firms than other regions (Panel A) and relatively less (although increasing) disparity between top and bottom performers (Panel B). In rural remote areas, the top 10% of firms are 30 times more productive than those in the bottom 10% of the productivity distribution. More equality in productivity outcomes between firms within each territory and a relatively low capture by the few at the top suggests a more equal share of outcomes for each firm in rural areas of Scotland.

Yet, there is evidence suggesting that productivity between firms is growing unequally. For example, productivity inequality in remote rural firms grew from 0.54 to 0.70 from 2010 to 2018 (Figure 2.15, Panel A). At the same time, the highest productive firms became more productive than those at the lower end. The top 10% of firms in rural remote areas were 10 times more productive than firms at the bottom 10% in 2010, while in 2018, that difference tripled (30 times more productive in 2018). For rural remote areas, the increase is quite substantial and may be influenced by a small share of firms in some of the dominant industries (for example, gas, oil or agriculture) making large gains.

Figure 2.15. Productivity and territorial inequality in Scotland



Note: Productivity refers to value-added over full-time equivalent workers. The territorial Gini of productivity is the Gini indicator calculated based on the productivity of firms within each of the territories in 2010 and 2018. A Gini score of 0 demonstrates perfect equality and that productivity is driven by all firms equally contributing, while a Gini score of 1 indicates perfect inequality and that all productivity is driven by very few firms. The P90/P10 ratio refers to the ratio of the top 10th percentile share of the most productive firms over the bottom 10 share of the least productive firms in 2010 and 2018. There are 12 459 firms in the sample for the rest of Scotland, 1 896 firms in accessible rural areas and 1 412 firms in remote rural areas. Data are not available for analysis in 2022.
Source: ONS North Ireland/DETI/BIS (2021[43]), *UK Innovation Survey, 1994-2018: Secure Access*, https://doi.org/10.5255/UKDA-SN-6699-7; ONS (2021[36]), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, https://doi.org/10.5255/UKDA-SN-6697-12.

In accessible rural areas, a high level of overall inequality in productivity (0.81 in Figure 2.15, Panel A) and a high level of the tail end of productivity dispersion (37 in Figure 2.15, Panel B) suggests that much of the growth inequality is driven by high and low performers. The high levels of productivity in the top 10th percentile of firms as compared to the bottom 10th percentile of firms in accessible rural areas means that while some firms in accessible rural regions may be able to make strong gains from access to urban areas, others are disproportionately disadvantaged.

In sum, the analysis in this subsection indicated the following trends:

- Inequality between highly productive and less productive firms is lower in accessible and remote rural areas of Scotland.
- Despite lower levels of inequality, inequality in productivity between firms grew from 2010 to 2018.

Promoting diversity and inclusion for innovation in rural Scotland

One substantial challenge to a varying degree in many rural areas of Scotland is access to labour. This hinders many firms from pursing innovation and new endeavours. While this challenge is common in many areas, rural areas increasingly suffer from demographic change, both in terms of age-based demographic change and, in some cases, population and labour market shrinkage. Labour and diversity of skills are critical levers for encouraging the development of new firms and an important resource to firms looking to upgrade and grow.

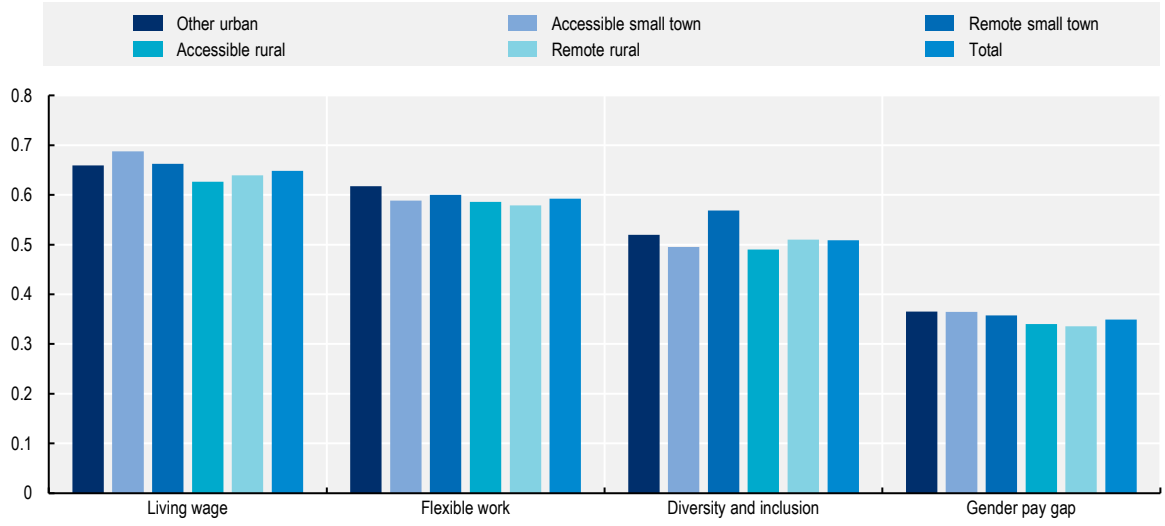
Most Scottish firms report actively working on inclusion measures such as a real living wage, flexible work measures, diversity and inclusion and measuring the gender pay gap. However, the share of firms participating in such measures tends to be slightly lower in remote rural and accessible rural areas (Figure 2.16). For example, two-thirds of all firms in Scotland report paying the real living wage[18] for all staff, yet employers in accessible small towns are more likely to adhere, at 69% of firms versus the average of 65%, while only 63% of employers in accessible rural areas and 64% of those in remote rural areas adhere to the real living wage. Flexible work, diversity and inclusion and gender pay gap measures is also more likely to occur in urban areas than rural areas, although differences are all quite small at between 1% to 2% of firms. For gender diversity, despite the fact that over 30% of firms across different geographies of Scotland have committed to publishing the gender pay gap in firms, the pay gap remains across all areas of Scotland (Annex Table 2.A.1).

Older populations

Rural areas have a disproportionate share of older individuals, as identified in the first section of this chapter. In 2019, there were close to 10% more individuals over the age of 65% in remote rural areas and 4% more in accessible rural areas as compared to the rest of Scotland. The highest share of the population in accessible and remote rural areas is prime to older populations just before retirement (45 to 64 years of age). Less than 30% of those living in remote or accessible rural areas were between the ages of 16 and 44. Similarly, there is a higher share of older populations (65 and over) in remote rural areas. On the other hand, close to 2 out of 5 individuals, or 40% of individuals living in the rest of Scotland, are relatively young (16 to 44 years of age).

Figure 2.16. Share of firms reporting fair work measures, October 2022

Average weighted share of firms reporting participating in fair work measures, October 2022



Note: Large urban areas and firms with more than 250 workers were not included in the original sample. Unknown responses are taken as non-female-led firms. All estimates are weighted averages.
Source: OECD analysis of Scottish Government (2022[30]), *Business in Scotland: 2022*, https://www.gov.scot/publications/businesses-in-scotland-2022/.

Encouraging policies that seek to activate older workers, increase digitalisation or provide other skills upgrading incentives over the life cycle of workers is particularly important in rural areas. In addition, governments can encourage employers to increase incentives for older workers to return to work rather than take early retirement. This could help alleviate and take advantage of the local labour resources to keep the local economy alive. Likewise, supporting initiatives that encourage long-distance learning, on-the-job learning or an early entrepreneurial connection with the local community can help encourage more young individuals to explore opportunities within rural areas. Skills and labour market resources for innovation are further discussed in Chapter 3.

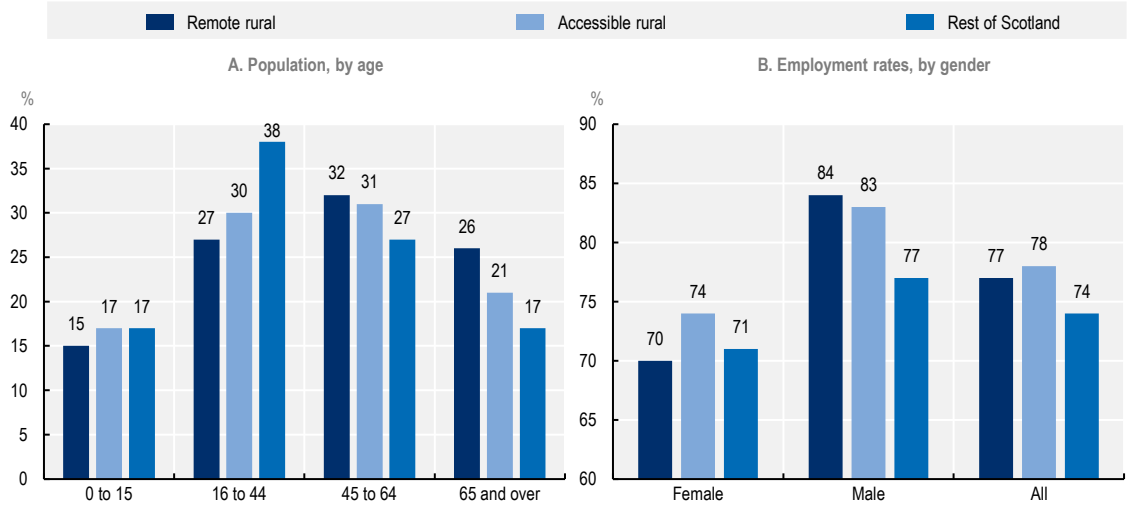
Women in rural areas

In addition to age diversification, gender diversity and inclusion can help bring new ideas, skills and opportunities to regions. However, women often face challenges that are substantially different from the average native-born worker or entrepreneur.

As outlined in Figure 2.17 (Panel B), women are less likely to be employed than men in all areas across Scotland. In addition, in rural areas, women's employment (as well as overall employment) is generally lower than in the rest of Scotland. Women in remote areas only have a 70% employment rate, as compared to males in rural areas (84%). Furthermore, when they are employed, women in remote rural regions on average have a lower median gross annual pay than men in all areas of Scotland (Annex Table 2.A.1). As described in Chapter 3, access to health services such as childcare and elderly care is also a critical factor that impacts women's participation in the labour market.

The employment rate for women in Scotland is substantially better than the average rates in OECD countries, despite still being behind men. In 2020, 71% of women between the ages of 15 and 64 were employed, as compared to 75% of men in Scotland (Figure 2.18). This is much higher than the OECD average, where women's employment rates are at 63% and men's at 73% in non-metropolitan regions.

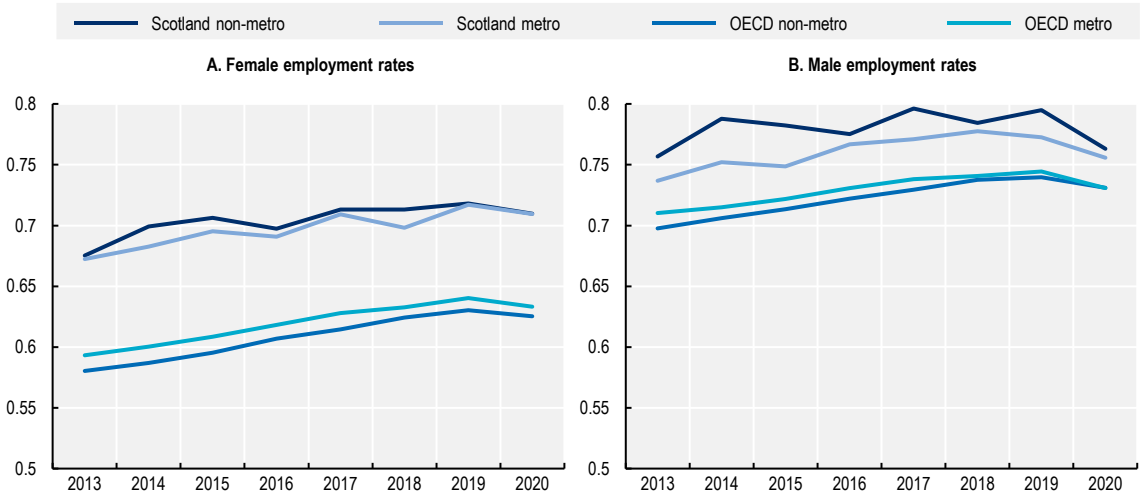
Figure 2.17. Demographic and employment distribution of rural areas, by territory, 2019



Source: Scottish Government (2021[25]), *Rural Scotland Key Facts 2021*, https://www.gov.scot/publications/rural-scotland-key-facts-2021/pages/2/; Annual Population Survey, January to December 2019, ONS (Using Scottish Government Urban Rural Classification 2016).

Figure 2.18. Employment rates by gender, 2013-20

Ratio of employed individuals over working-age population (15-64)



Note: Data include AUS, AUT, CHE, CZE, DEU, ESP, GBR, HUN, IRL, ITA, KOR, LTU, LVA, SVK, SVN and SWE.
Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

There has been substantial progress for gender parity in labour force participation in Scotland.[19] From 2012 to 2020, progress in gender equality in labour force participation rates in Scotland outperformed progress in other OECD countries (Figure 2.19). In 2020, the ratio of women in the active labour force as compared to men was 0.97, or close to parity. This is quite substantial as compared to the United Kingdom as a whole, where the ratio of women to men was close to 0.91, and in OECD countries, where the ratio was even lower at 0.82. This suggests that women are likely to continue to look for work or start their own firms despite the fact that employment shares may be lower.

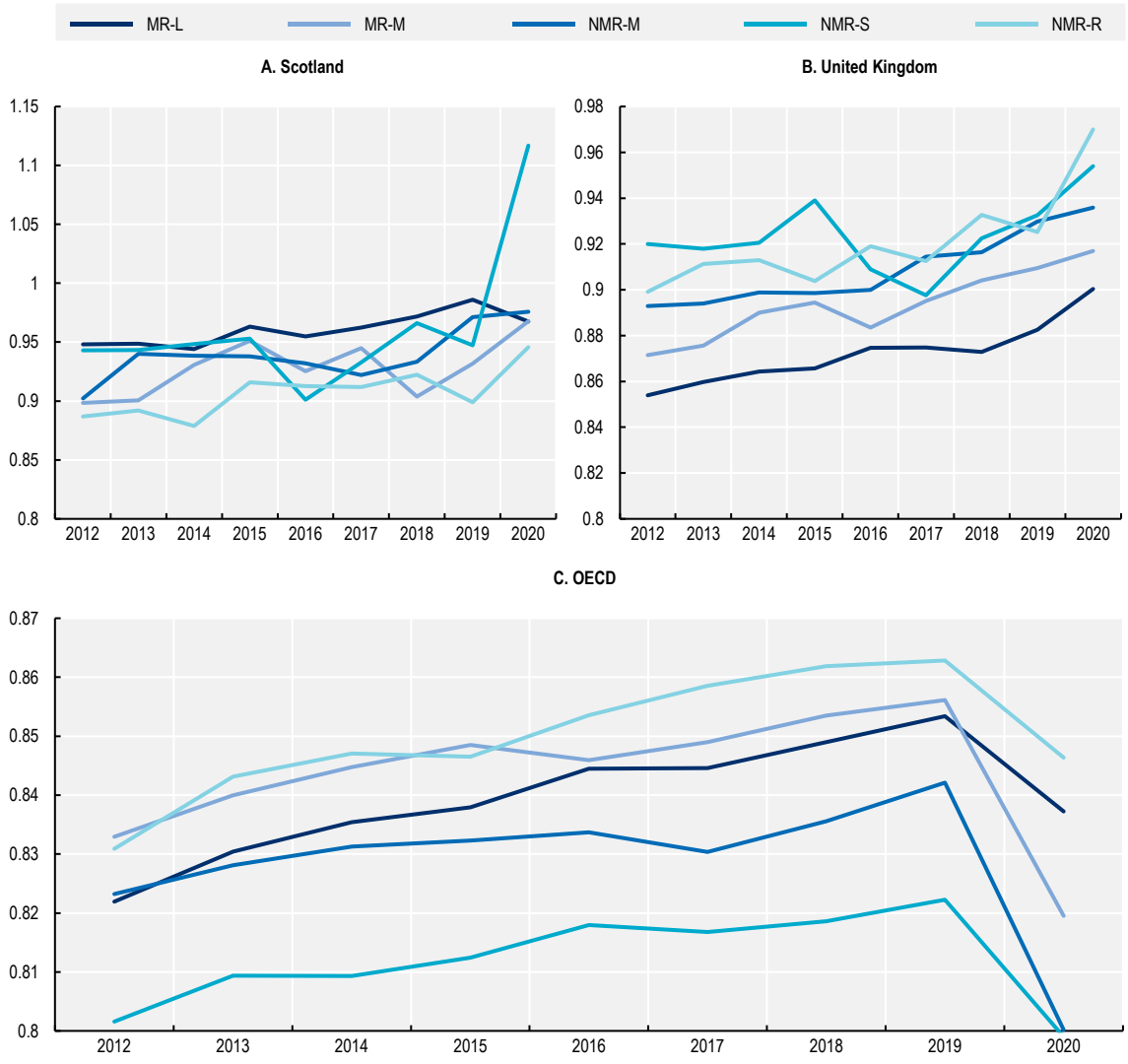
Nevertheless, the ratio of women to men in the active labour force in non-metropolitan regions is still lagging behind those in metropolitan regions. For example, the ratio of female-to-male employment in 2019, prior to the first year of COVID-19, was 0.90 in non-metropolitan rural regions, while it was 0.99 in large metropolitan regions (Figure 2.19).[20] As compared to the OECD, the lowest ratios of women to men in the active labour market were in non-metropolitan regions close to small or medium-sized cities (0.80 for both types of regions). However, this similar territorial trend is not observed in the United Kingdom where the labour force participation rate for women in non-metropolitan regions in the United Kingdom was higher than those in metropolitan regions. For example, in 2019, the ratio of women to men in the active labour market in large metropolitan regions was 0.88, while it was 0.93 in all 3 types of non-metropolitan regions. In 2020, the ratio of women to men in the active labour force in non-metropolitan regions reached 0.97 in non-metropolitan remote regions and 0.94 to 0.95 in other non-metropolitan regions.

There are relatively low levels of female entrepreneurship across all geographies of Scotland, as compared to men. In 2022, the share of female-led firms is only around 20% of firms in Scotland. Nevertheless, women tend to be more active as entrepreneurs in non-urban areas of Scotland (Figure 2.20). In accessible rural areas, close to a quarter of firms are identified as run by women. In remote small towns, the rate of female-led firms is even higher, at a third of all firms. The observation that women's entrepreneurship is an important contributor to rural areas is persistent throughout many contexts. It is in line with findings in Canada and Switzerland (OECD, forthcoming[46]; 2022[31]). In Switzerland, the rate of female entrepreneurship outperformed all other neighbours despite a rural penalty and, in Canada, while women are more likely to start a firm in rural areas as compared to urban areas, they are less likely to apply for

innovation-related tax relief programmes to support investment in formal R&D activities. Nevertheless, women face stronger challenges when it comes to attaining financial investments for scaling up (Guzman and Kacperczyk, 2019[47]), have different networking strategies (Neumeyer et al., 2018[48]) and have different risk profiles than men (Watson and Robinson, 2003[49]). Women in Scotland are more likely to have challenges in access to work-life balance (as primary caregivers), confidence in entrepreneurial capacity, lack of networks and formal support mechanisms, entrepreneurial mindset and access to finance (Stewart and Logan, 2023[50]). Because rural entrepreneurs similarly suffer from challenges in accessing networks and finance, female rural entrepreneurs face an accumulation of challenges. As such, programmes to support innovation and entrepreneurship need to think about how to better target the needs of female rural entrepreneurs.

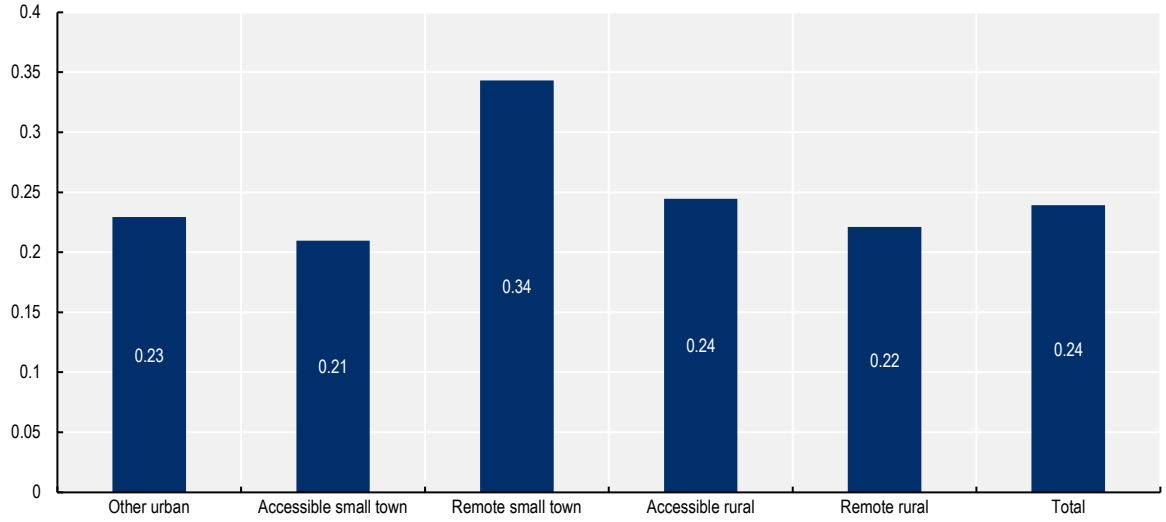
Figure 2.19. Female-to-male labour force participation rates

Ratio of women to men in the labour force



Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

Figure 2.20. Share of firms reporting being female-led, February 2022



Note: Large urban areas and firms with more than 250 workers are not included in the original sample. Unknown responses are taken as non-female-led firms. All estimates are weighted averages.
Source: OECD analysis of Scottish Government (2022[30]), *Business in Scotland: 2022*, https://www.gov.scot/publications/businesses-in-scotland-2022/.

Foreign-born individuals in rural areas

Diversity of national origin and immigrant status is often associated with the exchanging of new ideas and innovation (Akcigit, Grigsby and Nicholas, 2017[51]). Studies in the United States have shown that immigrants have higher rates of innovation and entrepreneurship than natives when comparing those with equivalent levels of education (Hunt, 2011[52]). In the United States, a quarter of high-technology innovation (patents) is attributed to high-skilled workers (Kerr, 2013[53]).Nevertheless, the location of where super-star inventors land varies more substantially based on local (country) taxation laws (Akcigit, Baslandze and Stantcheva, 2015[54]).

The share of the population in Scotland that is foreign-born (outside of Scotland and the United Kingdom) ranges between 5% to 10% of the population depending on where they are located, with the more urban ideas of Scotland having the highest shares (Table 2.4). While exact comparative data are not available for OECD countries, by geography, in 2019, the average share of the foreign-born population is close to 15% in OECD countries and 14% in the United Kingdom (OECD, 2023[55]). In remote rural areas of Scotland, there are 7% fewer international immigrants than in the rest of Scotland and 3% fewer in accessible rural areas (Table 2.4). In comparison, high-innovation cities like London (United Kingdom) are prone to having large shares of foreign-born populations. On the other hand, there is a larger share of migrants from other parts of the United Kingdom in remote rural and accessible rural regions than in urban areas in the rest of Scotland. Focusing on the needs of rural migrants, as is discussed in Chapter 3, is a critical resource of enabling innovation in rural areas.

In sum, the analysis in this subsection indicated the following trends:

- Most Scottish firms report actively working on inclusion measures such as a real living wage, flexible work measures, diversity and inclusion and measuring the gender pay gap. However, the share of firms participating in such measures tends to be slightly lower in remote rural and accessible rural areas.
- More can be done to encourage age diversity in rural areas.

  - Rural areas have a disproportionately larger share of older individuals and a smaller share of younger workers. In 2019, there were close to 10% more individuals over the age of 65% in remote rural areas and 4% more in accessible rural areas as compared to the rest of Scotland. Less than 30% of those living in remote or accessible rural areas were between the ages of 16 and 44, whereas in the rest of Scotland, the share was close to 40%.
- Women are less active in employment in rural areas but are still active in the labour market in rural areas, including through entrepreneurship.
  - In rural areas, the overall employment level and women's employment is generally lower than in the rest of Scotland. Women in remote areas only have a 70% participation rate as compared to males in rural areas (84%).
  - Nevertheless, women are still very active in the labour market in Scotland, with progress over the past decade reaching relative gender equality in labour force participation rates in Scotland. From 2012 to 2020, gender equality in labour force participation rates outperformed the progress on average in other OECD countries, suggesting that women are still looking for work or starting their own firms despite challenges in employment.
  - However, progress for women in labour force participation rates is not equal across regions. The ratio of female-to-male employment in 2019, prior to the first year of COVID-19, was 0.90 in non-metropolitan rural regions, while it was 0.99 in large metropolitan regions.
  - Despite relatively low overall levels of female entrepreneurship, there is a relatively equal rate of women-led firms in other urban and rural areas. In accessible rural areas close to a quarter of firms are identified as run by women. In remote small towns, the rate of female-led firms is even higher, at a third of all firms. The observation that women's entrepreneurship is an important contributor to rural areas is persistent throughout many contexts.
- Rural areas of Scotland are missing out on diversity that comes with a larger inflow of foreign-born individuals.

Table 2.4. Share of the population, by country of birth

By Threefold Urban Rural Classification, 2019

	Remote rural (%)	Accessible rural (%)	Rest of Scotland (%)
Scotland	73	77	80
Rest of United Kingdom	22	17	10
Rest of world	5	5	10
European Union	3	3	5
Non-European Union	2	3	5
Total	**100**	**100**	**100**

Source: Scottish Government (2021[25]), *Rural Scotland Key Facts 2021*, https://www.gov.scot/publications/rural-scotland-key-facts-2021/pages/2/; Annual Population Survey, January to December 2019, ONS (Using Scottish Government Urban Rural Classification 2016).

Innovation in Scotland

Innovation is a precursor of long-term growth, productivity and, in some cases, well-being (Aghion and Howitt, 1990[56]; OECD, 2016[57]; Romer, 1990[58]). Enhancing the creation, adoption and diffusion of innovative products and processes[21] is often a target of policy makers and community leaders alike. While innovation can also be destructive and vary across industries and geographies (Autor, 2014[59]; McCann, 2019[60]), creative destruction in itself is a driver of innovation and resilient economies (Aghion, Antonin

and Bunel, 2021[33]). This report considers that on average, innovation occurs and affects societies differently in rural regions than in urban regions, primarily due to the underlying sectoral, occupational and territorial attributes that characterise low-density areas with longer distances from metropolitan FUAs (OECD, 2020[1]). The characteristics of firms in different geographical areas are relatively important for firm-based innovation in the United Kingdom. A recent study on UKRI support for R&D and innovation grants demonstrated that in what the authors refer to as peripheral areas, such as Northern Ireland, investing in innovation had positive impacts on employment and turnover, in particular for smaller firms (Vanino, Roper and Hewitt-Dundas, 2022[61]).

Following the literature review, our current knowledge of drivers of innovation and rural development tells us that:

- Innovation is a predecessor of growth but not necessarily well-being for all territories (Aghion and Howitt, 1990[56]; OECD, 2016[57]; Romer, 1990[58]; McCann, 2019[60]).
- Framework conditions, such as access to labour, capital, markets and public services, encourage innovation and innovation adoption and diffusion but can be better targeted to satisfy the structure of rural regions (Aghion et al., 2001[62]; Andersson et al., 2009[63]; Bloom, Draca and Van Reenen, 2016[64]; Goos, Manning and Salomons, 2014[65]; Grossman and Helpman, 1990[66]; OECD, 2013[67]; 2020[1]).
- Innovation and its diffusion and adoption occur in networks and can be a source of growth for rural areas if barriers to physical and digital distances can be addressed (Akcigit, Grigsby and Nicholas, 2017[68]; Lengyel et al., 2020[69]; Sorenson, 2018[70]; Ahrend et al., 2017[71]).

Innovation can be driven by many of the aforementioned factors related to firm and labour characteristics. In terms of summary statistics, the rate of self-reported innovation activities in firms in Scotland fell from 2010 to 2018 in rural areas as well as in the rest of Scotland. In rural areas (accessible and remote rural), the share of firms reporting having participated in an innovative activity fell from 16.10% in 2010 to 13.73% in 2018, while a smaller fall occurred in the rest of Scotland (18.55% in 2010 to 17.18% in 2018). However, descriptive statistics are unable to jointly determine the relevance of any one characteristic in determining innovation. In the following section, the analysis uses UKIS and the Business Registrar in 2019 to jointly explore the determinants of self-reported innovation.[22]

Table 2.5. Share of total firms with new-to-firm or new-to-market innovations

Percentage of innovative firms in Scotland, 2010 and 2018

Year	Geography	Innovative firms (new-to-firm or -market) (%)
2010	Urban (rest of Scotland)	18.55
	Rural (accessible and remote rural)	16.10
2018	Urban (rest of Scotland)	17.18
	Rural (accessible and remote rural)	13.73

Note: Percentages are the shares of each category that report having introduced a new innovation to the firm or to the market. For confidentiality purposes, the summary statistics were aggregated into a dichotomous rural-urban category. The urban category refers to the previously identified "rest of Scotland", whereas the rural category is an agglomeration of the accessible and remote rural categories.
Source: ONS North Ireland/DETI/BIS (2021[43]), *UK Innovation Survey, 1994-2018: Secure Access*, https://doi.org/10.5255/UKDA-SN-6699-7; ONS (2021[36]), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, https://doi.org/10.5255/UKDA-SN-6697-12.

Taking into account firm characteristics that vary in different places in Scotland, there is no clear evidence that the location of the firm alone matters for innovation in Scotland. No matter how territories were categorised, no territorial characteristic in itself was associated with a direct penalty on self-reported

innovation but rather characteristics of rural areas that created challenges. For example, as compared to accessible rural areas, both the remote rural and rest of Scotland tend to have higher innovation rates, but the difference is not significant (Table 2.6, column 3).[23] The only time that location mattered for innovation was if the firm was located in Edinburgh: indeed, firms in the university capital are more likely to innovate but not those in the industrial capital of Glasgow. Likewise, while we know that the international literature suggests that the manufacturing sector is relatively innovative in high-technology innovation, in Scotland, the sector of the firm does not have an impact on self-reported innovation.

The size and age of firms have a significant impact on innovation. According to Table 2.6, Column 3, large firms innovate, regardless of where they are located, while the oldest firms are the least likely to innovate.

- Large firms (250 or more employees) have a 0.077 higher probability of innovation than small firms. Medium-large-sized firms (100-250 employees) are 5% more likely to innovate than small firms.
- Younger firms are more likely to innovate than older firms. The oldest firms (30 or more years of age) are 0.05 less likely to innovate than younger firms.

In the first section of this report, the descriptive statistics demonstrated that, in rural regions, firms tend to be smaller, older, more often in trade and services or agriculture and less often have foreign ownership. However, taken together, it is the structure of rural economies that is hindering more innovation and absorption, rather than the region itself. Some of the challenges are specifically related to being able to scale up and better understand the market.

Table 2.6. Marginal probability of innovating, 2018

Linear regression model

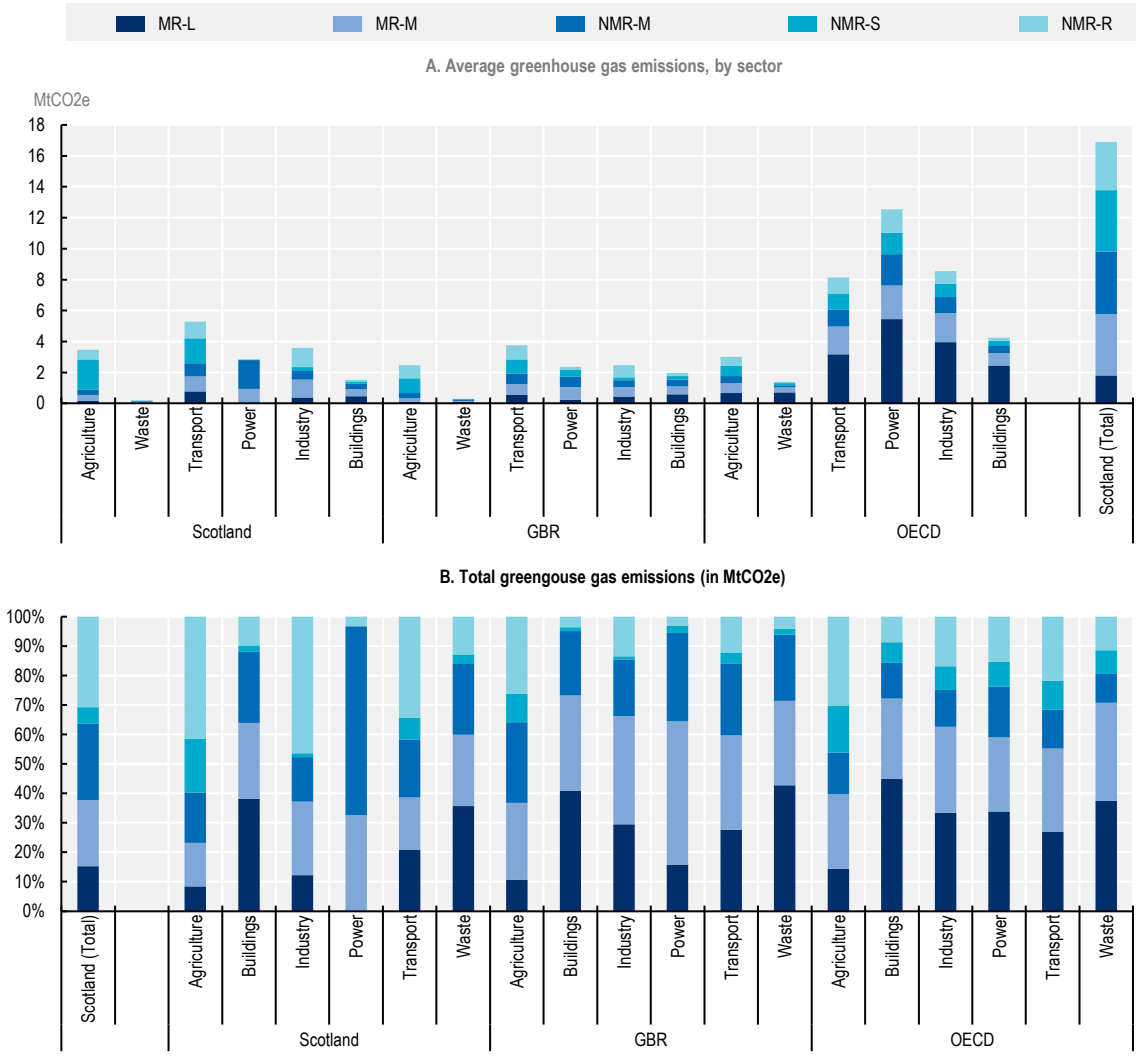
	(1)	(2)	(3)	(4)
Urban		0.00528 (0.0231)		
Remote rural			0.0231 (0.0466)	
Rest of Scotland			0.0128 (0.0258)	
Non-metropolitan				-0.0252 (0.0205)
Medium	0.00531 (0.0224)	0.00528 (0.0224)	0.00582 (0.0224)	0.00379 (0.0223)
Medium-large	0.0481* (0.0263)	0.0477* (0.0263)	0.0484* (0.0263)	0.0462* (0.0262)
Large	0.0763** (0.0319)	0.0759** (0.0319)	0.0769** (0.0319)	0.0729** (0.0318)
Mature	-0.00222 (0.0224)	-0.00223 (0.0224)	-0.00242 (0.0224)	-0.00208 (0.0224)
Old	-0.0471** (0.0232)	-0.0472** (0.0232)	-0.0472** (0.0232)	-0.0467** (0.0232)
Food and beverage	0.155 (0.122)	0.155 (0.122)	0.155 (0.121)	0.163 (0.124)
Textiles	0.0381 (0.122)	0.0383 (0.122)	0.0358 (0.121)	0.0473 (0.126)
Other manufacturing	0.102 (0.0895)	0.101 (0.0894)	0.103 (0.0892)	0.109 (0.0919)
Wholesale retail	-0.0326 (0.0659)	-0.0328 (0.0658)	-0.0322 (0.0657)	-0.0267 (0.068)
Transportation	-0.0833 (0.0622)	-0.0832 (0.0622)	-0.0836 (0.0619)	-0.0774 (0.0638)
Information and communication technology	0.0429	0.0421	0.0425	0.0495

	(1)	(2)	(3)	(4)
	(0.0805)	(0.0803)	(0.0801)	(0.0828)
Financial and insurance	-0.0631 (0.06)	-0.0631 (0.06)	-0.0632 (0.0598)	-0.0589 (0.0622)
Public works and services	-0.0606 (0.0591)	-0.0607 (0.059)	-0.0605 (0.0589)	-0.0563 (0.0609)
Foreign ownership	0.0446 (0.0402)	0.0445 (0.0401)	0.0454 (0.0403)	0.0424 (0.0397)
Edinburgh	0.0961*** (0.0347)	0.0947*** (0.0351)	0.0952*** (0.0352)	0.0797** (0.0361)
Glasgow	-0.0082 (0.0272)	-0.00948 (0.0275)	-0.00926 (0.0275)	-0.0209 (0.028)
Observations	2 493	2 493	2 493	2 493
Year dummies	Yes	Yes	Yes	Yes

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: ONS North Ireland/DETI/BIS (2021[43]), *UK Innovation Survey, 1994-2018: Secure Access*, https://doi.org/10.5255/UKDA-SN-6699-7; ONS (2021[36]), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, https://doi.org/10.5255/UKDA-SN-6697-12.

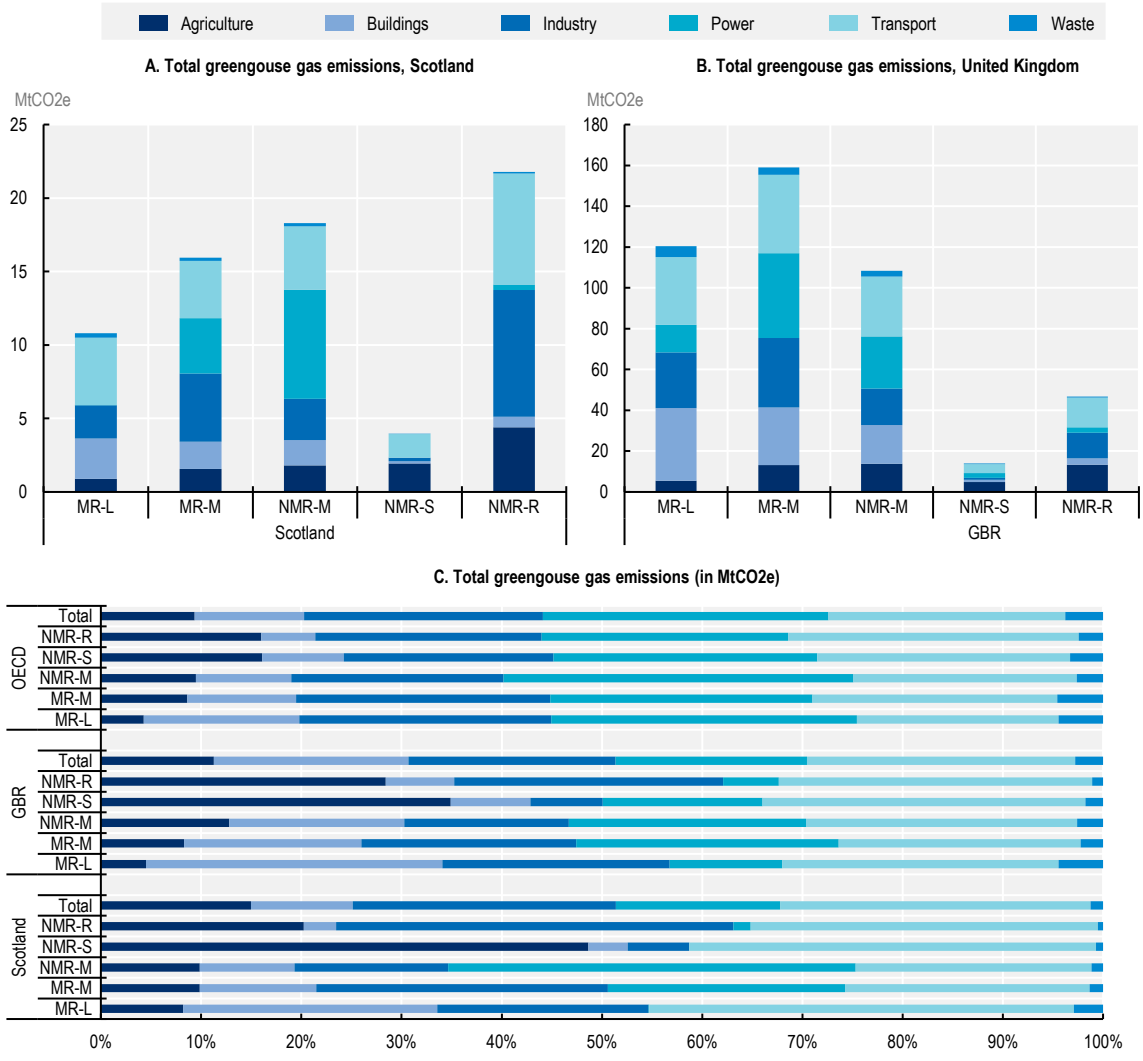
Annex 2.A. Additional statistics and analysis

Annex Figure 2.A.1. Average GHG emissions, 2018



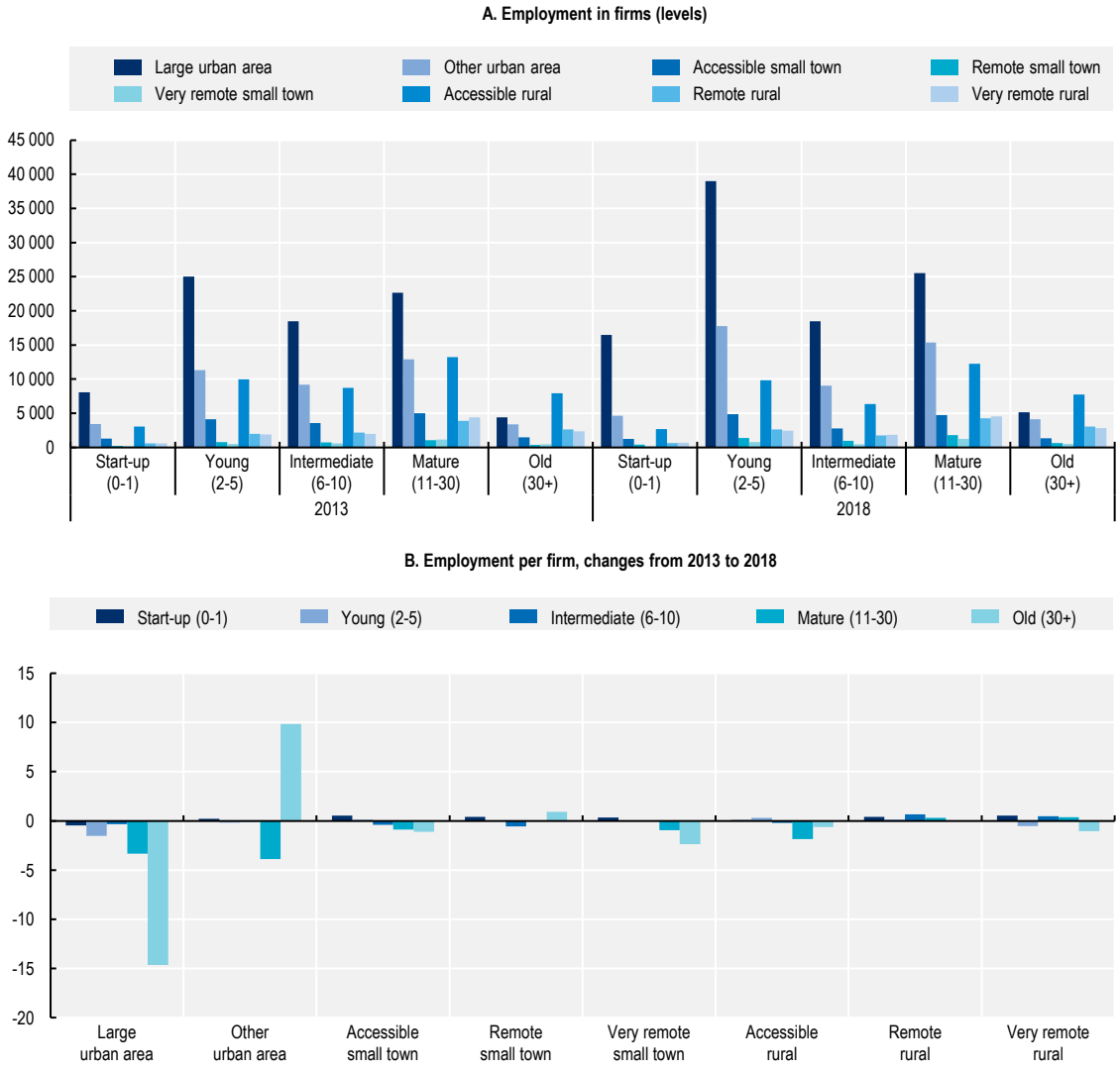
Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

Annex Figure 2.A.2. Total GHG emissions, by typology and sector, 2018



Source: OECD (n.d.[7]), *OECD Regional Database*, https://doi.org/10.1787/region-data-en.

Annex Figure 2.A.3. Additional firm age demographics graphs by eight-tier Scottish classification



Note: Geographical categories are available for reference in Table 2.1.
Source: ONS (2021[36]), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, https://doi.org/10.5255/UKDA-SN-6697-12.

Annex Table 2.A.1. Residence-based median gross annual pay for full-time employees by threefold category, 2020

	Remote rural (GBP)	Accessible rural (GBP)	Rest of Scotland (GBP)
Female	27 231	31 678	28 405
Male	32 021	35 556	34 044
All	29 652	34 311	31 531

Note: Payment is the calculation before taxation and other deductions.
Source: Scottish Government (2021[25]), *Rural Scotland Key Facts 2021*, https://www.gov.scot/publications/rural-scotland-key-facts-2021/pages/2/; Annual Survey of Hours and Earnings, 2016, ONS (Using Scottish Government Urban Rural Classification 2013-14).

References

Aghion, P., C. Antonin and S. Bunel (2021), *The Power of Creative Destruction*, Harvard University Press, https://doi.org/10.4159/9780674258686. [33]

Aghion, P. et al. (2005), "Competition and innovation: An inverted-U Relationship", *The Quarterly Journal of Economics*, Vol. 120/2, pp. 701-728, https://doi.org/10.1093/qje/120.2.701. [44]

Aghion, P. et al. (2001), "Competition, imitation and growth with step-by-step innovation", *Review of Economic Studies*, Vol. 68/3, pp. 467-492, https://doi.org/10.1111/1467-937x.00177. [62]

Aghion, P. and P. Howitt (1990), "A model of growth through creative destruction", No. 3223, National Bureau of Economic Research. [56]

Ahrend, R. et al. (2017), "What makes cities more productive? Evidence from five OECD countries on the role of urban governance", *Journal of Regional Science*, Vol. 57/3, pp. 385-410, https://doi.org/10.1111/jors.12334. [71]

Aitken, A. et al. (2021), "From ideas to growth: Understanding the drivers of innovation and productivity across firms, regions and industries in the UK", https://www.niesr.ac.uk/wp-content/uploads/2021/12/Understanding-the-Drivers-of-Innovation-and-Growth.pdf. [41]

Akcigit, U., S. Baslandze and S. Stantcheva (2015), "Taxation and the international mobility of inventors", No. 21024, National Bureau of Economic Research. [54]

Akcigit, U., J. Grigsby and T. Nicholas (2017), "Immigration and the rise of American ingenuity", *American Economic Review*, Vol. 107/5, pp. 327-331, https://doi.org/10.1257/aer.p20171021. [51]

Akcigit, U., J. Grigsby and T. Nicholas (2017), "The rise of american ingenuity: Innovation and inventors of the golden age", No. 23047, National Bureau of Economic Research. [68]

Andersson, F. et al. (2009), "Reaching for the stars: Who pays for talent in innovative industries?", *The Economic Journal*, Vol. 119/538, pp. F308-F332, https://doi.org/10.1111/j.1468-0297.2009.02277.x. [63]

Audretsch, D. and I. Peña-Legazkue (2012), "Entrepreneurial activity and regional competitiveness: An introduction to the special issue", *Small Business Economics*, Vol. 39/3, pp. 531-537, https://doi.org/10.1007/S11187-011-9328-5. [14]

Autor, D. (2014), "Polanyi's paradox and the shape of employment growth", No. 20485, National Bureau of Economic Research, Cambridge, MA, https://doi.org/10.3386/w20485. [59]

Bloom, N., M. Draca and J. Van Reenen (2016), "Trade induced technical change? The impact of Chinese imports on innovation, IT and productivity", *The Review of Economic Studies*, Vol. 83/1, pp. 87-117. [64]

Bosma, N., E. Stam and V. Schutjens (2009), "Creative destruction and regional productivity growth: Evidence from the Dutch manufacturing and services industries", *Small Business Economics*, Vol. 36/4, pp. 401-418, https://doi.org/10.1007/s11187-009-9257-8. [34]

Breschi, S., J. Lassébie and C. Menon (2018), "A portrait of innovative start-ups across countries", *OECD Science, Technology and Industry Working Papers*, No. 2018/2, OECD Publishing, Paris, https://doi.org/10.1787/f9ff02f4-en. [35]

Diemer, A. and T. Regan (2022), "No inventor is an island: Social connectedness and the geography of knowledge flows in the US", *Research Policy*, Vol. 51/2, p. 104416, https://doi.org/10.1016/j.respol.2021.104416. [37]

EC (2023), "Getting to know EU's regions: The European Commission launches the rural observatory", European Commission, https://agriculture.ec.europa.eu/news/getting-know-eus-regions-european-commission-launches-rural-observatory-2023-01-26_en. [18]

EC (2021), *Regional Innovation Scoreboard 2021*, European Commission, https://data.europa.eu/doi/10.2873/674111. [3]

Fadic, M. et al. (2019), "Classifying small (TL3) regions based on metropolitan population, low density and remoteness", *OECD Regional Development Working Papers*, No. 2019/06, OECD Publishing, Paris, https://doi.org/10.1787/b902cc00-en. [19]

Ferreira, J., C. Fernandes and M. Raposo (2015), "The effects of location on firm innovation capacity", *Journal of the Knowledge Economy*, Vol. 8/1, pp. 77-96, https://doi.org/10.1007/S13132-015-0281-4. [13]

Freshwater, D. et al. (2019), "Business development and the growth of rural SMEs", *OECD Regional Development Working Papers*, No. 2019/07, OECD Publishing, Paris, https://doi.org/10.1787/74256611-en. [15]

Goos, M., A. Manning and A. Salomons (2014), "Explaining job polarization: Routine-biased technological change and offshoring", *American Economic Review*, Vol. 104/8, pp. 2509-2526, https://doi.org/10.1257/aer.104.8.2509. [65]

Grossman, G. and E. Helpman (1990), "Trade, innovation, and Growth", *The American Economic Review*, Vol. 80/2, pp. 86-91, http://www.jstor.org/stable/2006548. [66]

Guadalupe, M., O. Kuzmina and C. Thomas (2012), "Innovation and foreign ownership", *American Economic Review*, Vol. 102/7, pp. 3594-3627, https://doi.org/10.1257/aer.102.7.3594. [38]

Guzman, J. and A. Kacperczyk (2019), "Gender gap in entrepreneurship", *Research Policy*, Vol. 48/7, pp. 1666-1680, https://doi.org/10.1016/j.respol.2019.03.012. [47]

Hall, B., G. Graevenitz and C. Helmers (2020), "Technology entry in the presence of patent thickets", *Oxford Economic Papers*, Vol. 73/2, pp. 903-926, https://doi.org/10.1093/oep/gpaa034. [45]

Hall, J. (2008), "Adding meaning to measurement: Evaluating trends and differences in innovation capacity among the states", *Economic Development Quarterly*, Vol. 23/1, pp. 3-12, https://doi.org/10.1177/0891242408326467. [11]

Hamidi, S., A. Zandiatashbar and A. Bonakdar (2019), "The relationship between regional compactness and regional innovation capacity (RIC): Empirical evidence from a national study", *Technological Forecasting and Social Change*, Vol. 142, pp. 394-402, https://doi.org/10.1016/J.TECHFORE.2018.07.026. [12]

Hunt, J. (2011), "Which immigrants are most innovative and entrepreneurial? Distinctions by entry visa", *Journal of Labor Economics*, Vol. 29/3, pp. 417-457, https://doi.org/10.1086/659409. [52]

Kerr, W. (2013), "US high-skilled immigration, innovation, and entrepreneurship: Empirical approaches and evidence". [53]

Lengyel, B. et al. (2020), "The role of geography in the complex diffusion of innovations", *Scientific Reports*, Vol. 10/1, https://doi.org/10.1038/s41598-020-72137-w. [69]

Mayer, H. (2020), "Slow innovation in Europe's peripheral regions: Innovation beyond acceleration", *ISR-Forschungsberichte*, Vol. 51, pp. 8-21, https://doi.org/10.1553/isr_fb051s8. [28]

McCann, P. (2019), "Perceptions of regional inequality and the geography of discontent: Insights from the UK", *Regional Studies*, Vol. 54/2, pp. 256-267, https://doi.org/10.1080/00343404.2019.1619928. [60]

Melitz, M. and S. Polanec (2015), "Dynamic Olley-Pakes productivity decomposition with entry and exit", *RAND Journal of Economics*, Vol. 46/2, https://doi.org/10.1111/1756-2171.12088. [42]

Neumeyer, X. et al. (2018), "Entrepreneurship ecosystems and women entrepreneurs: A social capital and network approach", *Small Business Economics*, Vol. 53/2, pp. 475-489, https://doi.org/10.1007/s11187-018-9996-5. [48]

NRS (2021), *Population Estimates by 6-fold Urban Rural Classification, 2001-2020*, National Records of Scotland, https://www.nrscotland.gov.uk/files//statistics/population-estimates/special-area-2011-dz/urban-rural/urban-rural-20-tab-1.xlsx. [5]

OECD (2023), "Foreign-born population (indicator)", https://doi.org/10.1787/5a368e1b-en (accessed on 5 April 2023). [55]

OECD (2022), *Enhancing Innovation in Rural Regions of Switzerland*, OECD Rural Studies, OECD Publishing, Paris, https://doi.org/10.1787/307886ff-en. [31]

OECD (2022), *OECD Regions and Cities at a Glance 2022*, OECD Publishing, Paris, https://doi.org/10.1787/14108660-en. [6]

OECD (2022), *OECD Territorial Grids*, OECD Centre for Entrepreneurship, SMEs, Regions and Cities, Paris, https://www.oecd.org/cfe/regionaldevelopment/territorial-grid.pdf. [23]

OECD (2022), *Unlocking Rural Innovation*, OECD Rural Studies, OECD Publishing, Paris, https://doi.org/10.1787/9044a961-en. [10]

OECD (2021), *OECD's Rural Agenda for Climate Action*, OECD Centre for Entrepreneurship, SMEs, Regions and Cities, Paris, https://www.oecd.org/regional/rural-development/Rural-Agenda-for-Climate-Action.pdf. [8]

OECD (2021), *Policies for Present and Future Service Delivery Across Territories*, OECD, Paris. [2]

OECD (2020), *Enhancing Productivity in UK Core Cities: Connecting Local and Regional Growth*, OECD Urban Policy Reviews, OECD Publishing, Paris, https://doi.org/10.1787/9ef55ff7-en. [39]

OECD (2020), *Rural Well-being: Geography of Opportunities*, OECD Rural Studies, OECD Publishing, Paris, https://doi.org/10.1787/d25cef80-en. [1]

OECD (2018), *OECD Regions and Cities at a Glance 2018*, OECD Publishing, Paris, https://doi.org/10.1787/reg_cit_glance-2018-en. [22]

OECD (2016), *OECD Regional Outlook 2016: Productive Regions for Inclusive Societies*, OECD Publishing, Paris, https://doi.org/10.1787/9789264260245-en. [57]

OECD (2013), *Regions and Innovation: Collaborating across Borders*, OECD Reviews of Regional Innovation, OECD Publishing, Paris, https://doi.org/10.1787/9789264205307-en. [67]

OECD (forthcoming), *Enhancing Innovation in Rural Regions of Canada*, OECD Rural Studies, OECD Publishing, Paris. [46]

OECD (forthcoming), *Enhancing Innovation in Rural Regions of the United States*, OECD Rural Studies, OECD, Paris. [32]

OECD (n.d.), *OECD Regional Database*, OECD, Paris, https://doi.org/10.1787/region-data-en. [7]

OECD/Eurostat (2018), *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition*, The Measurement of Scientific, Technological and Innovation Activities, OECD Publishing, Paris/Eurostat, Luxembourg, https://doi.org/10.1787/9789264304604-en. [27]

ONS (2021), *Business Structure Database, 1997-2020: Secure Access [data collection] 12th Edition*, UK Data Service, Office for National Statistics, https://doi.org/10.5255/UKDA-SN-6697-12. [36]

ONS (2013), *Region and Country Profiles*, Office for National Statistics, UK Government, https://www.data.gov.uk/dataset/0fb6b475-71d8-4085-b4bc-0e93f59a7d10/region-and-country-profiles. [26]

ONS (2013), *Region and Country Profiles, Key Statistics, December 2013*, Office for National Statistics, UK Government, https://webarchive.nationalarchives.gov.uk/ukgwa/20151014064946/http://www.ons.gov.uk/ons/rel/regional-trends/region-and-country-profiles/key-statistics--december-2013/index.html. [24]

ONS North Ireland/DETI/BIS (2021), *UK Innovation Survey, 1994-2018: Secure Access*, Office for National Statistics, North Ireland, Department of Enterprise, Trade and Investment, Department for Business, Innovation and Skills, https://doi.org/10.5255/UKDA-SN-6699-7. [43]

Pesaresi, M. et al. (2019), *GHS-SMOD R2019A - GHS settlement layers, updated and refined REGIO model 2014 in application to GHS-BUILT R2018A and GHS-POP R2019A, multitemporal (1975-1990-2000-2015) - OBSOLETE RELEASE.*, https://doi.org/10.2905/42E8BE89-54FF-464E-BE7B-BF9E64DA5218. [21]

Romer, P. (1990), "Endogenous technological change", *Journal of Political Economy*, Vol. 98/5, part 2, pp. S71-S102, https://www.jstor.org/stable/2937632. [58]

Scottish Government (2022), *Business in Scotland: 2022*, Scottish Government, https://www.gov.scot/publications/businesses-in-scotland-2022/. [30]

Scottish Government (2022), *Scottish Government Urban Rural Classification 2020*, https://www.gov.scot/publications/scottish-government-urban-rural-classification-2020/pages/2/. [20]

Scottish Government (2021), *Rural Scotland Key Facts 2021*, https://www.gov.scot/publications/rural-scotland-key-facts-2021/pages/2/. [25]

Scottish Government (2020), *Scottish Energy Statistics Hub*, https://scotland.shinyapps.io/sg-energy/?Section=Other&Chart=TargetTracker. [9]

Scottish Government (2018), *Scottish Government Urban Rural Classification 2016*, https://www.gov.scot/publications/scottish-government-urban-rural-classification-2016/pages/2/#:~:text=Categories%205%20and%206%20are,(6)%20Remote%20Rural%20Areas. [17]

Shearmur, R., C. Carrincazeaux and D. Doloreux (2016), "The geographies of innovations: Beyond one-size-fits-all", in *Handbook on the Geographies of Innovation*, Edward Elgar Publishing, https://doi.org/10.4337/9781784710774.00006. [16]

Shearmur, R. and D. Doloreux (2016), "How open innovation processes vary between urban and remote environments: Slow innovators, market-sourced information and frequency of interaction", *Entrepreneurship & Regional Development*, Vol. 28/5-6, pp. 337-357, https://doi.org/10.1080/08985626.2016.1154984. [29]

Sorenson, O. (2018), "Innovation policy in a networked world", *Innovation Policy and the Economy*, Vol. 18, pp. 53-77, https://doi.org/10.1086/694407. [70]

Stewart, A. and M. Logan (2023), *Pathways: A New Approach for Women in Entrepreneurship*, https://www.gov.scot/publications/pathways-new-approach-women-entrepreneurship/ (accessed on 10 April 2023). [50]

Tsoukalas, J. (2021), "Scotland's productivity challenge: Exploring the issues", *Productivity Insights Paper*, No. 006, The Productivity Institute, https://www.productivity.ac.uk/wp-content/uploads/2021/11/PIP006-Scotlands-Productivity-Challenge-FINAL-011221.pdf. [40]

UK BEIS (2022), *UK Innovation Survey 2021: Report Covering the Survey Period 2018 to 2020*, UK Department for Business, Energy and Industrial Strategy, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1074069/UK_Innovation_Survey_2021_Report.pdf. [4]

Vanino, E., S. Roper and N. Hewitt-Dundas (2022), "Assessing the business growth and productivity effects of Invest NI and UKRI grant support for R&D and innovation". [61]

Watson, J. and S. Robinson (2003), "Adjusting for risk in comparing the performances of male- and female-controlled SMEs", *Journal of Business Venturing*, Vol. 18/6, pp. 773-788, https://doi.org/10.1016/s0883-9026(02)00128-3. [49]

Notes

[1] For example, one entrepreneur from a food and beverages company in the north of Scotland grew substantially through the period of COVID-19 lockdowns by creating a circular model of product delivery that involved co-ordination with public sector services (postal) and a subscription-based model that simplified access to their products, with the opportunity to return the remaining packaging for reuse or recycling.

[2] Given the economic structure of rural areas, this production-based analysis of GHG emissions can only provide part of the picture on progress towards reaching climate change goals.

[3] See Office for National Statistics North Ireland/DETI/BIS (2021[43]).

[4] Office for National Statistics (2021), *Business Structure Database, 1997-2020: Secure Access (data collection), 12th Edition*, UK Data Service, http://doi.org/10.5255/UKDA-SN-6697-12.

[5] Because of lag times in release of UKIS and the BSD, the only additional year available was in 2020. Because this contained a crisis year (COVID-19), the use of this additional year of data would bias overarching messages that would overly focus on non-standard periods of time.

[6] See Office for National Statistics North Ireland/DETI/BIS (2021[43]).

[7] Office for National Statistics (2021), *Business Structure Database, 1997-2020: Secure Access (data collection), 12th Edition*, UK Data Service, http://doi.org/10.5255/UKDA-SN-6697-12.

[8] In fact, only in the last 2021 update to OECD territorial classifications, released recently, did Scotland have any TL3 region that was classified as a non-metropolitan region with access to small-sized cities.

[9] Rural here is defined as belonging to one of the accessible or remote rural categories in the six-tiered classification system described in Table 2.1. Firms do not include public enterprises.

[10] In comparison, in large urban areas, over the period of 2015-18, there was a 5.5% increase in the number of firms in large urban areas and a 4.4% increase in other types of rural areas.

[11] There were 48 300 firms in rural and remote areas and 105 700 firms in large and other urban areas in 2015.

[12] Accessible and remote small towns were the worse off in the years between 2015 and 2018, where growth in the number of firms was lowest or negative (Figure 2.8, Panel B).

[13] There were 27 500 workers in rural and remote areas and 1.5 million workers in urban areas in 2015.

[14] This refers to firms operating in the following categories of sectoral activities: Wholesale, retail and repair (G); Transportation and storage (H); Information and communication (J); Accommodation and food service activities (I); Financial and insurance activities (K); Real estate activities (L); Professional, scientific and technical activities (M); Administrative and support service activities (N); Arts, entertainment and recreation (R); and Other service activities (S).

[15] This includes non-employee firms. If we exclude non-employee firms, the total share goes down to 76% but the relative trend between places remains the same.

[16] In comparison, Canada, a country in which foreign ownership status is determined as a majority foreign-owned firm, the rate of foreign firm ownership is even lower, at less than 1%. In rural Canada, a very small share of firms is owned by foreigners and the share is larger in urban areas than in rural areas. The share of foreign ownership in urban areas is 0.48%, while it almost a fifth of the size, 0.11% in rural areas. While in part, this may be due to the cluster of firms near the border with the United States where most urban

areas are located, it does suggest that international networks may be more difficult for equal access to international markets for rural firms (OECD, forthcoming[46]).

[17] A recent review of survey data collection methodologies in the United Kingdom suggests that standard business and enterprise research and development (BERD) figures in Scotland and the United Kingdom under-report R&D carried out by small businesses, whereas data from the HM Revenue & Customs on R&D tax credits suggest that small businesses have accounted for a growing amount of R&D activity.

[18] The real living wage is independently calculated based on what employees and their families need to live and therefore varies from the minimum wage. Providing the real living wage is non-mandatory. It is calculated once a year.

[19] The labour force participation rate refers to those employed and those unemployed but looking for work.

[20] The impact of COVID-19 was different for women across regions. In 2020, while progress was hindered for women in large metropolitan regions, more women per men were employed in non-metropolitan regions close to small cities. This may be related to the territorial dimension of access to services for women and in particular the loss of jobs among the male population.

[21] This includes management and marketing practices.

[22] As a rule of thumb, self-reported innovation overcomes some of the challenges with proxies for innovation such as patents or R&D but also does not harmonise what substantial increase to the previous product or process across firms. This decision was deliberately made to avoid meticulous determination of what may be considered as an improvement on products or processes within the firm.

[23] Likewise, using the classification of the OECD metropolitan areas based on access to cities, non-metropolitan regions are less innovative than metropolitan regions but the difference between them is spurious.

3 Policies and programmes for rural innovation

Scotland, United Kingdom, has several institutions in place to directly promote entrepreneurship and innovation, and a policy that enables access to skills, markets and networks for rural entrepreneurs. This chapter explores the types of policies that Scotland has in place to support rural entrepreneurs and innovation. It finds that, although there are several mechanisms in place, further work on diffusing good practices across territories, better focusing innovation and skills strategies to rural regions and enabling local communities to build scale can build a stronger supporting environment for rural entrepreneurs.

Key messages

Scotland has a lively and thriving market-based system for innovation with strong support from the public sector that helps reduce barriers for entrepreneurs without stifling incentives. In the new national innovation strategy, it is not yet clear whether policies and programmes for innovation take into consideration how such policies and programmes reach individuals and firms in rural areas. The recent initiative to establish a national innovation strategy is well intentioned, including various public consultations; however, the **importance of rural areas and their comparative advantages in the innovation space** needs to be recognised within the vision for driving and strengthening innovation across Scotland as a whole. Scotland's delivery of innovation through entrepreneurship programmes suggests that there are already strong mechanisms in place through which programmes and policies for innovation could be more regionalised and place-based. However, a number of elements should be taken into consideration to make innovation a natural fit for rural areas.

Co-ordination

While many framework conditions can play a decisive role in encouraging rural innovation, the following summary provides guidance on key areas of action which the Scottish Government and institutional actors such as Scottish Enterprise (SE), Highlands and Islands Enterprise (HIE) and South of Scotland Enterprise (SOSE) and its close partners can address.

- Several successful initiatives which improve **horizontal co-ordination between different government agencies**, are already in place at a high level of government. This includes, for example, the National Strategy for Economic Transformation (NSET) Team Scotland co-ordination approach, which streamlines delivery across governments and agencies. Others that have worked in the past include the National Council of Rural Advisers (NCRA) and the Enterprise and Skills Strategic Board (ESSB), now replaced by the NSET Delivery Board. The ESSB undertook a review of the innovation landscape in Scotland to develop and implement an approach to evaluating innovation activities. For the implementation of the innovation strategy, Scotland should continue with this approach.
    - The three enterprise agencies should further co-ordinate the specific needs of rural regions within innovation initiatives, such as the new innovation strategy and the UK Research and Innovation (UKRI) initiatives, that largely underserve rural regions. The current measures do not take into account any subnational concerns related to the implementation and distribution of funds for research and innovation. Adjusting to a place-based approach may lead to better bottom-up initiatives and better-tailored policies for the diverse rural regions of Scotland, including those rural areas in accessible, remote and islands regions.
    - Likewise, initiatives to increase access to finance through a regional and small and medium-sized enterprise (SME) lens should be further encouraged, e.g. through the support of the three enterprise agencies in conjunction with the Scottish National Investment Bank. One way to start this process is by creating finance or "pitch" roundtables to help entrepreneurs understand what public schemes may be suitable for them. The impetus for further co-ordination and collaboration could follow the model of co-ordination put into place by Scottish Enterprise's Preparing to Export programme.
- There is a good level of **vertical co-ordination between enterprise agencies and local stakeholders** for rural development, entrepreneurship and innovation. Increasingly, there is a high-level understanding of the importance of consultative methods for building trust and buy-in at all levels of government.

- Nevertheless, there are areas where co-ordination and stakeholder engagement can be improved. For example, enterprise agencies co-ordinate on apprenticeship schemes with Skills Development Scotland (SDS) and regional and local governments through regular consultation mechanisms at the national level and conduct ad hoc consultations at the subnational level. Because it provides access to skills, including through apprenticeships, and is a critical area of focus for rural innovation, enterprise agencies could take a stronger role in helping SDS build local stakeholder and enterprise engagement, as this was already identified as a challenge (OECD, 2022[1]).

Policy design: Innovation fit for rural areas

The vision of innovation and entrepreneurship in rural areas is that innovation comes in many forms. Entrepreneurial support programmes are not strictly focused on high-technology (high-tech) innovation, even if in some instances (such as in cluster programmes) high-tech innovation is favoured. In many cases in the north and south of rural Scotland, the role of small firms and entrepreneurs in shaping the landscape of opportunities in rural regions is key. Building on this focus, the design of policies that are fit for rural regions can further benefit from a reflection of what is needed specifically for encouraging entrepreneurship, whilst equally focusing on innovation from small, family-run and older firms.

Promoting experimentation through the creation of programmes and public service delivery specific to rural innovation

- Enterprise agencies in Scotland have several programmes to encourage experimentation and entrepreneurship in rural regions of Scotland. The Rural Leaders programme is a fine example of how earmarked funds for new initiatives can be used for **experimentation in the public sector**, providing the space to create new ideas and opportunities to address challenges for rural entrepreneurs (in this case, the challenge of networking). Another example is the IMPACT30 programme designed to develop young (under 35) business leaders of the future in the Highlands and Islands. To further encourage more public sector innovation, the three main enterprise agencies could furthermore consider taking a bottom-up proposal from various joint or individual communities which come up with innovative solutions to public service delivery, as evidenced in the case of the Regional Innovation System (RIS) in Switzerland.
- **Experimentation among entrepreneurs** can be encouraged through specific programmes that allow for the flexible use of resources which can more adequately fit the needs of rural entrepreneurs. Critically, it is important to partner with local anchor organisations and community initiatives, which can help build local buy-in for enhancing new programmes and opportunities. Such initiatives could include the exploration of innovation sandboxes, which intend to ensure overarching regulatory objectives, increasing allowances for Living Labs and encouraging challenge-based innovation competitions with a strong local buy-in and strategic fit for the area.

Policy design: Strengthening the competitiveness of SMEs

- Scotland's Business Support Partnership (BSP), formed by SE, HIE, SOSE, Business Gateway and SDS, provide ample resources through **a user-friendly one-stop shop for business resources**. This is particularly helpful for SMEs that may not have the resources to understand how to find and access the most appropriate business support programmes. Scotland clearly identifies the particular challenges related to rural and island areas within the national framework and understands the importance of specifically focusing on SMEs by way of addressing the challenge. This is evidenced by the strong level of **programmes and support mechanisms for rural SMEs**. SE could further strengthen its support to rural micro firms and smaller firms, including older firms that need succession planning.

Policy design: Expanding research and development (R&D) to rural firms

- There is a strong focus on **R&D and university research funding** for innovation in Scotland. This tends to target traditional science-, technology- and innovation-based industries and urban areas. Consequently, such funding opportunities do not always reach rural firms. Only 16% of national R&D funds (UKRI) are allocated to regions that do not have one of the two major cities, while 20% of devolved R&D funds are allocated to the same regions. It is important to consider the delivery of such programmes through a rural lens to ensure that project funding is equally accessible for all of Scotland. For rural regions, more access to innovation support for firm-based innovation and increased linkages between rural firms and universities, through promoting and raising awareness of Interface, the Scottish programme to link firms with researchers, for example, could help close the gap.

Policy design: Improving access to skills through co-ordination with SDS and rural universities and vocational training centres

- A well-developed **vocational education and training (VET) system** can provide opportunities to upgrade skills for younger and older workers**.** While the system is well developed, a recent review highlighted that the three Scottish enterprise agencies (SE, HIE and SOSE) could improve access to apprenticeships for employers of micro firms and SMEs by:
  - Increasing **incentives** in the form of both financial and in-kind contributions.
  - Providing **joint apprenticeship opportunities for training initiatives to** achieve economies of scale.
  - Encouraging **distributed learning** to overcome barriers of distance for apprenticeship schemes.
  - Ensuring that **local stakeholders** (firms, education and vocational training institutions) are included in consultation initiatives involving local skills service offers.
- There are several successful initiatives to promote access to education and upgrading opportunities for workers and students, including quality **distance learning**. This is the case in the Highlands and Islands, where distance learning has been practised long before the COVID-19 pandemic. After the pandemic, remote learning was augmented to a larger scale. The South of Scotland could likewise promote a similar partnership with universities and apprenticeship programmes.

Overcoming low economies of scale for firms in rural areas

In addition to designing policies for rural areas, best practice in rural policies for entrepreneurship and innovation often takes the form of a better understanding of how challenges of distance and scale are relevant for rural areas. The following section summarises a few key messages and initiatives that can help overcome the challenges of low economies of scale for firms in rural areas.

- Some **cluster development strategies** exist in Scotland. However, more can be done to ensure that cluster development can have a larger impact on regional development and innovation. Cluster development strategies should focus on local areas of strength and competitive advantage, encouraging bottom-up participation and wider consultation with local stakeholders, building on local assets and delivering to small communities the critical mass needed for building an innovation ecosystem. For example, in response to the decommissioning of the nuclear sector and reduction of the offshore oil industry in the Highlands and Islands regions, re-training and re-orientation for many high skilled and manual workers, in new areas

of competitive advantage, e.g. renewable energy or green jobs, and in consultation with local stakeholders, could help transition the region.

- Physical and digital distances between places in rural regions may hinder innovation and access to goods and services. While City Region and Growth Deals exist to promote cohesion between areas, initiatives to focus on building scale among rural regions are less systematically distributed.
  - The use of **regional brokers** could be one of the mechanisms through which rural regions can create scale and attract investment and resources to encourage the creation of new firms and community services. In Scotland, the role of current regional brokers could be strengthened to include the attraction of skills and investment into the region or other initiatives, such as those involved in tourism.
- Improving access to physical and **digital markets** is critical for entrepreneurship and innovation. In accessible rural areas, the ease of access to urban regions reduces some barriers that remote rural areas face. For remote rural areas and islands, supporting full access to digital infrastructure and digital skills development is critical. Regional and rural governments should proactively work on ensuring that current initiatives such as the R100 programme and the Gigabit Broadband Voucher Scheme are not hindered by local regulations such as municipal planning and, to the furthest extent, are futureproof so that places do not get left behind with older technology rolling out.
- The three Scottish enterprise agencies provide **export** support for rural firms. Yet, most firms and SMEs in rural areas still face challenges in accessing foreign markets. Entrepreneurs in rural areas find it more costly and difficult to engage with export advisers and participate in events. Providing support mechanisms through enterprise agencies and other local partners who link national export facilitation programmes to regional export promotion can help SMEs begin to export goods beyond the local market.

Introduction

Approximately 14% of Scotland's business turnover comes from rural areas (GBP 37 billion in 2022). In comparison, urban areas accounted for 79% of total business turnover, while small towns generated close to 7% of total business turnover (Scottish Government, 2022[2]). While rural areas contribute substantially to the national economy, the structure of rural and urban economies in Scotland is distinctively different, with variations within different rural areas such as those on the mainland and those in island regions. Such facts underline the need for differentiated economic development and innovation policies. Despite this, the national policy framework, with a few exceptions, is largely designed to respond to the needs of the economic structure and "innovation system" prevalent in the "central belt" (the area in the middle of Scotland including Edinburgh and Glasgow) and other urban areas of Scotland. While there are several institutions, policies and mechanisms in place to support rural areas, further work is needed to diffuse good practices across territories, better focus innovation and skills strategies in rural regions, and enable local communities to build scale.

This chapter draws on findings from Chapter 2, desk research, the Scottish response to an OECD questionnaire, a virtual mission with Scottish stakeholders in 2021 and a fact-finding mission to four case study areas (Caithness and Sutherland, Outer Hebrides, Galloway Glens and Garnock Valley) in the spring of 2022. It provides an overview of the institutional and policy framework that supports rural innovation and entrepreneurship in Scotland and highlights the critical role of regional enterprise agencies, along with other national agencies and intermediaries, in adapting the national policy mix to the realities of rural, remote rural and island regions, and engaging rural areas by developing tailored policies and interventions. The chapter also identifies key drivers of rural innovation and entrepreneurship, such as the provision of skills, the development of networks and digital connections, access to finance and internationalisation, and initiatives to support capacity building and encourage experimentation in rural SMEs. To conclude, the chapter emphasises the importance of tailored place-based policies that take into account the unique features of rural areas in Scotland and highlights the need for differentiated innovation policies which can enable rural areas to thrive.

Institutional setting and co-ordination mechanisms

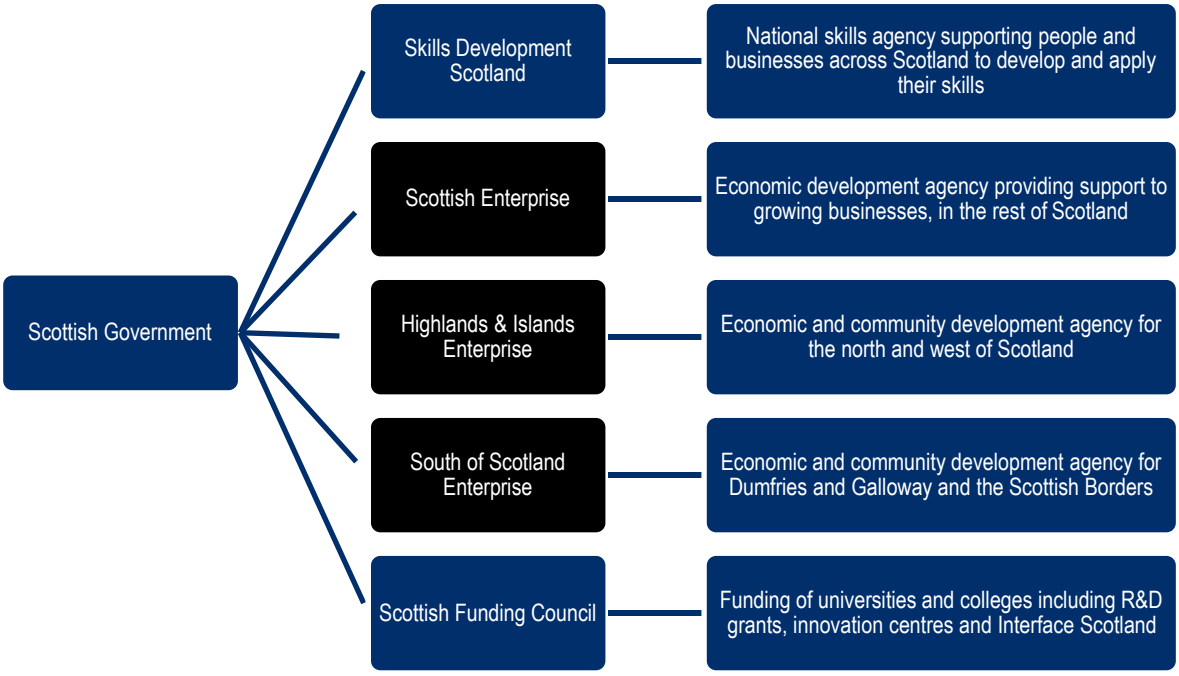
Core implementing agencies for regional and rural innovation

Five main organisations provide direct financial and non-financial support to economic development, skills and innovation across Scotland or in specific regions of Scotland, to deliver the mandate of the policy framework for innovation and entrepreneurship, as illustrated in Figure 3.1. The three main regional enterprise entities include Highlands and Islands Enterprise (HIE), South of Scotland Enterprise (SOSE) and Scottish Enterprise (SE), which are arm's length institutions (non-governmental but responding to government) that tend to have their own areas and some overlapping mandates. For example, SE covers the parts of Scotland that HIE and SOSE do not. Nevertheless, all three organisations could potentially have a national remit in some areas of delivery. An example of this is how HIE delivers the Scottish Land Fund for the whole of Scotland or Community Broadband Scotland, which was a national programme led by HIE before it was replaced by the Scottish Government's R100 programme for broadband infrastructure. In addition to these three regional entities, Business Gateway provides the services of a national one-stop shop for entrepreneurs.

All organisations identified in Figure 3.1 are executive non-departmental public bodies[1] of the Scottish Government. Their operations, in pursuit of their defined mission, are framed by strategic guidance letters from their respective Scottish Government minister, their multiannual strategy and an annual operating plan. In 2017, an Enterprise and Skills Strategic Board (ESSB) was created to drive alignment and

co-ordinate activities across Scotland's enterprise and skills agencies: SE, HIE, SDS and the Scottish Funding Council (SFC). SOSE joined its inception on 1 April 2020. In 2022, to ensure the successful implementation of the National Strategy for Economic Transformation (NSET), the ESSB was replaced by the NSET Delivery Board (Scottish Government, 2022[3]).

Figure 3.1. Main Scottish Government agencies with interventions relevant to rural innovation



Moreover, international trade services and inward investment support are provided by Scottish Development International, the international arm of the three enterprise and economic development agencies. Another key policy instrument is the Scottish National Investment Bank, launched in November 2020 as a development investment bank, with the aim to deliver "patient, mission impact investment" to the Scottish economy.

In addition to the national and regional enterprise agencies, the Business Gateway network, operated at the level of the 32 local authorities, offers a range of professional resources, support and tools to help entrepreneurs learn new skills, create new opportunities and develop sustainable strategies for growth (Business Gateway, n.d.[4]). Business Gateway provides support for start-ups and businesses that are seeking to develop or solve issues (e.g. rising cost support, digital boost) but not necessarily grow beyond the local area/scale. For the latter, Business Gateway is expected to direct the company towards the enterprise agencies, Skills Development Scotland, Interface and other innovation partners.

Vertical and horizontal co-ordination

The Scottish Government, subnational and local initiatives for enabling entrepreneurship and innovation in rural areas jointly work together to create an enabling environment for rural innovation. With several levels of horizontal and vertical government agencies and initiatives, it is important to provide adequate co-ordination mechanisms and build on knowledge from the bottom up. For these purposes, several OECD governments have put in place co-ordination mechanisms, advisory committees and ad hoc consultations to ensure co-ordination and relevance for rural entrepreneurs. One of the mechanisms through which this co-ordination can occur is through "rural councils" that focus on horizontal co-ordination from the centre of government, as further described in Box 3.1. Rural councils at the centre of government are capable of

supporting horizontal co-ordination efforts, while vertical co-ordination mechanisms are more often placed-based initiatives that involve different levels of government and local stakeholders. In some cases, these centres of government councils can have an impact on strategic planning that incorporates a forward-looking approach to anticipate challenges for the future of rural regions.

In Scotland, co-ordination on rural affairs including entrepreneurship and innovation is within the mandate of the Cabinet Secretary for Rural Affairs and Islands[2] and wider programmes for innovation and entrepreneurship sit in the mandate of the Cabinet Secretary for Finance and Economy. In addition, several horizontal (across ministries and public authorities) councils and initiatives are put in place to ensure that agencies and ministries are jointly addressing challenges. Furthermore, initiatives such as City Region Deals and the associated Regional Growth Deals work, in practice, as unofficial horizontal co-ordination mechanisms.

An independent National Council of Rural Advisers (NCRA) was launched in the summer of 2017 by the then Minister for Rural Economy and Connectivity. The council has mainly two remits: one is to provide evidence-based advice to Scottish ministers on the implications of Scotland leaving the European Union (EU) and the other is to recommend future actions that could sustain a vibrant and flourishing rural economy. The council met regularly, every 4-6 weeks, until it delivered a final report in September 2018. It was formed by 2 co-chairs and brought together a further 12 independent members from across Scotland, with expertise ranging from agriculture, forestry and microbusiness to social enterprise and financial services (Scottish Government, n.d.[5]).

The NCRA final report *A New Blueprint for Scotland's Rural Economy* argued that "a vibrant, sustainable and inclusive rural economy can only be achieved by recognising its strategic importance, and effectively mainstreaming the rural economy in policy and decision-making processes" (Scottish Government, 2018[6]). The NCRA disbanded following the delivery of their final report. However, a Rural Economy Action Group (REAG) was established, for two years, meeting six times, to take forward the implementation of the NCRA recommendations. The group primarily focuses on implementing change and achieving outcomes so that the rural economy's full potential can be realised. Members explored key challenges and where government interventions can have the biggest positive impact on the Scottish economy, rural businesses, communities and the environment (Scottish Government, n.d.[7]). The purpose of the group was to:

- Monitor and ensure implementation of actions arising from NCRA and other rural development research.
- Identify barriers and facilitators to progress and work to influence policy and priorities in light of these.
- Propose a suite of indicators (qualitative and quantitative) that will enable the value of the rural economy to be captured and monitored.
- Establish reporting mechanisms that build an understanding of the contribution of the rural economy to achieving the purpose and outcomes in the National Performance Framework.

Similar initiatives take place across OECD countries. In the United States, the White House Rural Council works on co-ordinating across different agencies and with stakeholders. In Korea, the Population Policy Task Force creates opportunities to engage with different government agencies and monitor progress in rural areas focusing on aspects of rural well-being (Box 3.1).

Recently, subnational initiatives to engage with local stakeholders provide additional mechanisms to encourage vertical and horizontal co-ordination.

Box 3.1. Examples of regional and rural innovation councils in OECD countries

The White House Rural Council, United States

Under an executive order of the Obama-Biden Administration, the United States undertook a mission to bring the concerns of rural areas into the centre of government. The initiative, to improve the voice of rural constitutes in the policy-making process, worked to reinforce co-ordination on a wide range of issues across government at different levels and within different agencies. The objective of the council was to focus on job creation and economic development by focusing on: i) opportunity: increasing the flow of capital to rural areas, job creation and workforce development; ii) innovation: including the expansion of telecommunications, renewable energy and new markets for rural communities; iii) quality of life: including access to quality healthcare, education and housing, and particularly in persistent poverty counties and tribal areas; iv) conservation: including expansion of outdoor opportunities and economic growth.

The council carried this out through three core functions which included: i) streamlining and improving the effectiveness of federal programmes serving rural America; ii) engaging stakeholders, including farmers, ranchers and local citizens, on issues and solutions in rural communities; iii) promoting and co-ordinating private sector partnerships.

The Rural Council members were chaired by the Secretary of Agriculture and included 30 government bodies, including the United States Departments of Commerce, of Labor, of Education and of the Treasury, the Office of Science and Technology Policy, the Small Business Administration, the Council of Economic Advisers and regional authorities such as the Delta Regional Authority and the Appalachian Regional Commission.

Anticipating demographic change through a pan-government approach: The Population Policy Task Force, Korea

Demographic change has been a major consideration for the Korean government over the past decades but anticipation and foresight on measures to address how changing would impact society started to take a more central role in co-ordination of several related government institutions, only towards the end of the 2010s. The initiative to address changes started with a cross-agency commission to measure, plan and take actions to ensure the well-being of individuals across territories. The Korean Presidential Committee on Ageing Society and Population Policy was launched in 2019 to address demographic challenges. As a pan-government initiative, the taskforce helped provide evidence to promote a co-ordinated approach to strengthen the entire society's adaptive capacity to change. The issues in the current taskforce, set up in January 2021, address four major strategies around demographic change and sustainability. They include initiatives on: i) absorbing labour shortage shocks caused by demographic change; ii) responding to the shrinking society; iii) taking pre-emptive action against possible local extinction; and iv) improving the sustainability of the entire society. The strategies target improving opportunities for populations such as women, the elderly, as well as local citizens and the wider public.

Source: Based on Korean Ministry of Land, Infrastructure and Transport and OECD Territorial Review of Korea; Strategic Foresight from OECD (2020[8]) Adapted from OECD (2019[9]), using methodology from Wilkinson (2017[10]); (European Commission, 2021[11]);

Subnational and local initiatives

Recently, the Scottish Government has put into place Regional Economic Partnerships (REPs) that work as horizontal and vertical co-ordination mechanisms that seek to engage and create collaborations between local governments, the private sector, education and skills providers, enterprise and skills agencies and the third sector. A REP works to identify shared goals that focus on place-based well-being through combined interests of the public, private and third sectors and of those with academic interests. This platform delivers City Region and Growth Deals (further elaborated in the sections below) with the exception of the Highland and Islands and South of Scotland REPs. They help broaden regional development strategies.

City Region Deals

Under the Scotland Act (1999), the vast majority of legislative and financial powers relevant to rural development and innovation (e.g. economic development, education and training, transport) are the prerogative of the Scottish Parliament and Scottish Government, with only limited scope for the UK government to legislate or intervene directly on matters pertaining to socio-economic development (Scottish Parliament, n.d.[12]).[3] Nevertheless, the UK-level City Region Deals provide a planning framework for joint investment by the UK and Scottish governments and other public bodies (e.g. local authorities).

City Region Deals are packages of long-term funding, agreed between the Scottish Government, the UK government and local partners. They are designed to bring about long-term strategic approaches to improving regional economies, aiming to help harness additional investment, create new jobs and accelerate inclusive economic growth (Scottish Government, n.d.[13]). City Region Deals are implemented by regional partners and overseen by the Scottish City Region and Growth Deal Delivery Board. Each deal is tailored to its region, reflecting its individual economic strengths and weaknesses, and comprises a programme of interventions to support positive, transformative change.

As of 2022, there are six City Region Deals in Scotland: Glasgow City Region; Aberdeen and Aberdeenshire; Inverness and Highland; Edinburgh and South-East Scotland; Stirling and Clackmannanshire; Tay Cities. Most of these deals cover a mix of urban and rural areas with varying degrees of emphasis on improving urban-rural linkages. Flagship actions focusing on both the major cities and across the associated region are common. In the case of the Inverness and Highland deal, several of the projects are "'Pan Highland"[4] including extending digital coverage, the Science Skills Academy, the Northern Innovation Hub, FIT House (innovative assisted living schemes) and affordable housing. Additionally, the renovation of Inverness Castle intends to diversify tourism benefits and revenue investment across the wider Highland region (Highland Council, n.d.[14]).

Regional growth deals

In order to extend the coverage of the City Region Deals to the rest of Scotland, six regional growth deals are either in delivery or development. Regional Growth Deals, like the City Region Deals, are agreements between the Scottish Government, the UK government and the local government, designed to bring about long-term strategic approaches to improving regional economies. Every Scottish region now has a commitment to an agreed investment and funding package. The deals cover Ayrshire, Borderlands, Falkirk, Moray, Argyll and Bute, and the Islands (Orkney, Shetland and the Outer Hebrides). Some examples of growth deals with a primary focus on rural innovation are outlined below.

- The **Borderlands Inclusive Growth Deal** promotes inclusive economic growth in the South of Scotland and North of England (United Kingdom). The partnership comprises five local authorities, two from Scotland (Dumfries and Galloway and the Scottish Borders) and three from England (Carlisle City, Cumbria, Northumberland). Signed in March 2021, the deal confirms Scottish Government investment of up to GBP 85 million over a 10-year period with up to GBP 65 million

over 10 years from the UK government for the Scottish part of the deal (plus a further GBP 200 million for England components of the deal over 15 years). The priority themes for investment are: i) enabling infrastructure; ii) improving places; iii) supporting business, innovation and skills; and iv) encouraging green growth. The GBP 13 million joint government investment in innovation in the south of Scotland will support 3 projects: i) the Dairy Nexus; ii) the Mountain Bike Innovation Centre; and iii) the Natural Capital innovation programme; all of which aim to drive growth through harnessing the potential of the region's natural assets (Borderlands Growth, n.d.[15]).

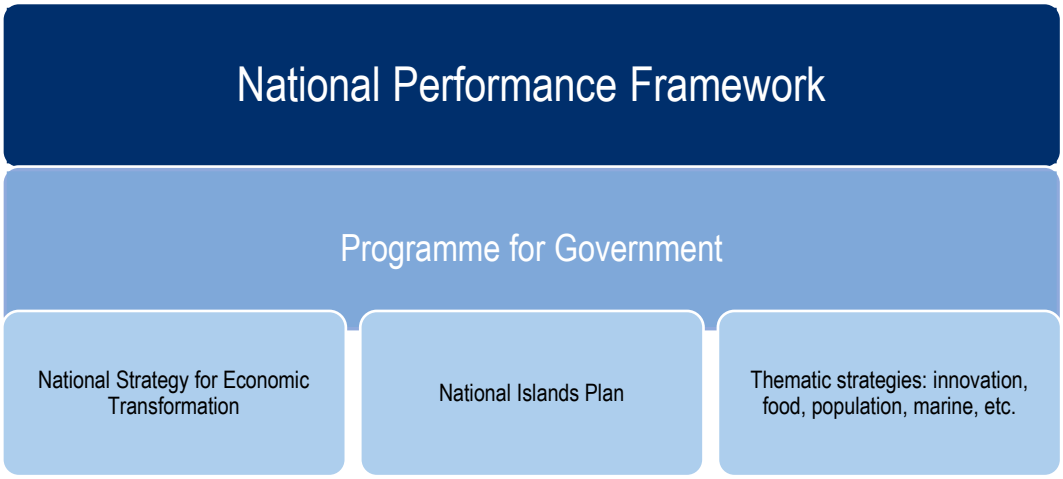
- The **Moray Growth Deal**, which has been in delivery since 20 December 2021, will build on Moray's existing regional strengths in areas such as culture, tourism, health, skills, transport, manufacturing and aerospace through an investment of GBP 32.5 million each from both the Scottish and UK governments. This investment, combined with GBP 35.8 million of investment from regional partners resulting in a deal worth over GBP 100 million, will help to unlock further investment and drive inclusive and sustainable economic growth across the area. The vision for the deal is built on four pillars: i) connections; ii) business support, skills and employability; iii) Moray the place/brand; and iv) Moray's priority business sectors. The deal has a strong focus on innovation within its suite of eight projects such as the Manufacturing Innovation Centre for Moray which, with its links to the National Manufacturing Institute Scotland, will support a cultural shift through innovation and modernisation across technologies and sectors, leading to improved production outcomes.
- The **Islands Growth Deal** was signed on 17 March 2021 highlighting specific projects to be funded, with the Scottish and UK government's each investing GBP 50 million in the deal over a 10-year period. The 3 island authorities and their regional partners have committed a further GBP 235 million to the deal, bringing the total investment package to GBP 335 million. Projects include single island-specific initiatives such as the Orkney Community Vertical Farm, the Outer Hebrides Energy Hub and Shell-volution in Shetland, as well as investment in joint-island innovation-focused proposals in the areas of low-carbon technologies, creative industries and well-being, skills and talent attraction harnessing the natural strengths and assets of the islands to deliver sustainable economic growth.
- The **Argyll and Bute Rural Growth Deal**[5] adopts a partnership approach to rural economic development, which will deliver up to GBP 25 million of investment each from the Scottish and UK governments (over a 10-year period). Regional partners have also committed to investing a minimum of GBP 20 million, bringing the overall deal investment value to GBP 70 million. The heads of terms were signed on 11 February 2021 and both governments, the Argyll and Bute Council along with key stakeholder partners are now working to agree on the full deal. Innovation-focused investment is expected to support a low-carbon energy plan to address challenges for the island community of Islay, as well as a range of innovation and research projects to drive forward the region's aquaculture and marine tourism industries (Argyll and Bute Council, n.d.[16]).

A recent review from the Scottish Government's Regional Economic Policy Advisory Group found that City Region Deals and Regional Growth Deals, alongside the agenda of the NSET, should focus on enhancing regional autonomy and policy co-ordination, build capacity within the REPs, examining funding alignment with REPs skills, a much stronger place-based policy alignment and co-ordination including joint funding decisions, using the pre-existing structures to deliver services while raising the profile of policies with a regional dimension, and establish Regional Intelligence Hubs (which also conduct foresight analysis and focus on well-being ambitions, among other recommendations) (Scottish Government, 2022[17]).

Scottish framework programmes for promoting entrepreneurship and innovation in rural areas

Scottish entrepreneurship and innovation policies are framed at the national level by the National Performance Framework (NPF), the Scottish Government's Programme for Government (PFG), the NSET and the National Islands Plan, as well as by a number of thematic or geographic-specific strategies and policy plans (Figure 3.2). This framework creates direct and indirect mechanisms for encouraging rural innovation and entrepreneurship. In addition to this framework, many resources that support rural innovation are indirect (such as national policies on education or finance) or ancillary (such as physical and digital infrastructure) support mechanisms. While these are important for rural innovation, the power to adapt such policies lies in co-ordination mechanisms on horizontal and vertical levels, rather than direct funding or programmatic support.

Figure 3.2. Relevant policy framework for rural innovation



The challenges faced by businesses and stakeholders in rural and island areas in seeking to harness and optimise the potential for innovation as a driver of development are relatively well understood. However, in contrast, a rural, place-based dimension is still almost largely absent from national (Scotland-wide) policy statements and the instruments deployed tend to either target a limited set of (mainly technology start-ups and urban manufacturing or knowledge-intensive service) businesses with (high-) growth and export potential or delivered through sectoral and technological focused initiatives. However, there seems to be a shift to a more place-based approach since the mid-2010s, reflected in a number of Scottish and UK policy plans and investments (e.g. City Region and Growth Deals) as well as the need for a post-Brexit reconfiguration of policy aimed at ensuring areas faced by specific challenges continue to be supported in the absence of EU regional funds. While not immune from criticism, the City Region and Growth Deals, as well as interventions such as Regional Skills Investment Plans, have helped shape a dialogue and a process of strategic prioritisation structure around regional-economic partnerships.

National Performance Framework (NPF)

The NPF is structured around a set of desired outcomes and related economic, social and environmental indicators which measure Scotland's progress towards meeting the national outcomes (Scottish Government, 2022[18]). The NPF is elaborated by the Scottish Government and accountability is distributed between agencies. Each agency reports to their respective ministers (cabinet secretaries) and ultimately the Scottish Parliament as well as various committees composed of Members of the Scottish Parliament (MSPs) that oversee policy areas. Various key performance indicators within the NPF have different

deadlines and, therefore, there is no specific overarching deadline for the NPF. Responsibility for issues related to challenges in rural areas and islands belongs to the Cabinet Secretary for Rural Affairs and Islands, which includes responsibility for cross-government co-ordination on islands, Island Communities Impact Assessments (ICIAs) and investment in the National Islands Plan[6] and Carbon Neutral Islands, the food and drink supply chain, the Food Standards Scotland agriculture, fisheries and aquaculture, animal welfare and crofting (Scottish Government, n.d.[19]).

National objectives are monitored on a set of key performance indicators tied to the NPF. There are 81 national indicators to track performance towards achieving such goals, with assessments provided by senior analysts within the Scottish Government and decisions on performances evaluated independently of Scottish Government ministers (Scottish Government, 2022[18]). Key objectives include performance indicators related to human rights, culture, environment, health, fair work and business, education, children, economy, international, poverty and communities.

The Scottish Government's Programme for Government (PFG)

The NPF's objectives are achieved through the annual PFG. The PFG, among other functions, identifies framework conditions that are targeted at promoting innovation and entrepreneurship, as well as creating an environment that removes barriers for rural entrepreneurs and communities.

The 2021-22 PFG (adopted in September 2021) sets out the objective of "building a wellbeing economy which secures sustainable, inclusive growth for everyone, in all parts of Scotland". The specific challenges faced by (remote) rural and island areas are addressed at various points in the PFG including goals to:

- Tackle an ageing and declining population.[7]
- Encourage inward migration, and increase population growth in rural areas (e.g. Rural Visa Pilot proposal and the Population Programme).
- Land use and (community) ownership of land.
- Entrepreneurship (implementation of a national network of "tech scalers") and the launch of a GBP 20 million Rural Entrepreneur Fund).
- Investment of over GBP 6 million annually in the Rural Tourism Infrastructure Fund, helping tourist attractions and their communities deal with the impact of increased visitor numbers on the local infrastructure.
- Action to improve access to housing, with a specific target of 11 000 new energy-efficient, affordable homes by 2032 in remote, rural and island communities.

The most recent PFG (2022-23) turns its focus on the costs of the COVID-19 crisis, youth and children, public services, transforming the economy, tackling climate change, restoring the environment, supporting communities and Scotland's place in the world (Scottish Government, 2022[20]). It also: highlights the importance of access to digital infrastructure, for example through the Reaching 100% (R100) initiative and urging the UK government to extend gigabit and mobile networks to rural communities; supports new crofting opportunities through a National Development Plan for Crofting; continues to move forward on the Remote, Rural and Islands Housing Action Plan; and is working on delivering a Land Reform Bill.

The National Strategy for Economic Transformation (NSET)

To respond to the PFG, the Scottish Government, led by the Cabinet Secretary for Finance and the Economy, has put into place the NSET (March 2022). The NSET is a 10-year plan with a framework for policy structured in five programmes for action: entrepreneurial people and culture; new market opportunities; productive businesses and regions; a skilled workforce; and a fairer and more equal society. A sixth "programme for delivery" seeks to introduce a new streamlined delivery model building on the Team Scotland approach across government and agencies.

The strategy points out that whilst "many parts of Scotland are performing well, there are deep-seated regional inequalities, with post-industrial areas performing less well" (Scottish Government, 2022[21]). The NSET introduces an emphasis on strategic clusters as drivers of "new market development" and highlights several rural-focused initiatives but does not develop a distinctive policy agenda for rural and island areas. The main rural-focused initiatives mentioned in the NSET include the Skills Action Plan for Rural Scotland and the introduction of legislation to expand community wealth building. Islands include many fragile areas, characterised by factors such as declining population, scarcity of economic opportunities, proportionately fewer young people, geographical and transport challenges, and below-average income levels (Scottish Government, 2014[22]; Scottish Government, 2022[21]; Scottish Parliament, 2022[23]).

The National Islands Plan

The Scottish Government adopted the Islands (Scotland) Act[8] in 2018 and the National Islands Plan in 2019. The responsibility and implementation of the plan lie under the portfolio of the Cabinet Secretary for Rural Affairs and Islands (see Box 3.2 for more information). Building on the challenges associated with islands, several strategic objectives have been put into action including how to: i) address population decline; ii) promote sustainable economic development; iii) improve transport; iv) improve housing; v) promote health, social care and well-being; vi) promote biosecurity and contribute to climate change mitigation and adaptation (including by promoting clean, affordable and secure energy); vi) empower diverse communities and support arts, culture and languages; and vii) promote and improve lifelong education (Scottish Government, 2019[24]).

Box 3.2. Scotland's National Islands Plan (2019)

Scotland's 93 inhabited islands are naturally amongst the most rural and isolated parts of the country and account for some 2% of the national population. There were 93 inhabited islands in Scotland at the time of the 2011 Census with a total population of 103 700, which was 2% of the population of Scotland. More recent estimates suggest that there has been an increase of 2.6% over the period 2001-20; however, Scotland's population as a whole grew at a significantly faster rate of 7.9%. Moreover, some islands have faced significant depopulation over the last two decades.

Following a campaign from island communities and local authorities, the unique nature of the advantages and challenges facing islands was recognised in the 2018 Islands (Scotland) Act. The 2019 National Islands Plan provides a framework for action in order to meaningfully improve living conditions for island communities. The plan set out 13 strategic objectives and over 100 commitments, to be delivered over a 5-year period.

The **Islands Programme** is investing GBP 25.8 million of Infrastructure Investment Plan capital funding over the period of this parliament to ensure delivery of the National Islands Plan. As part of this, in September 2023, the Scottish Government announced a GBP 4.45 million Islands Programme funding package for 2022/23 to help improve infrastructure on Scotland's islands. Previous investment included the GBP 2.5 million Island Communities Fund, offering grants of up to GBP 150 000 to support employment and community resilience and help enhance activities linked to commitments within the National Islands Plan. The GBP 1.3 million Healthy Islands Fund also helped to improve mental well-being post pandemic and enabled participation in healthy lifestyles and physical activities across islands. The Emergency Budget Review (EBR) for 2022-23 confirmed funding for a new GBP 1.4 million Island Cost Crisis Emergency Fund to help island households manage higher energy costs.

Source: Based on Scottish Government (2022[25]), *National Islands Plan: Annual Report 2021*, https://www.gov.scot/publications/national-islands-plan-annual-report-2021/; Scottish Parliament (2022[23]), *Population Growth and Decline on Scotland's Islands – 2001 to 2020*, https://spice-spotlight.scot/2022/03/24/population-growth-and-decline-on-scotlands-islands-2001-to-2020/.

The National Population Strategy

The 2021 National Population Strategy, the first of its kind in Scotland, identifies the importance of a population strategy that prioritises family, health, attractiveness of places (migration) and a rural-urban balance. The strategy identifies 14 local authorities primarily in rural regions in the west and south-west that are expected to experience population decline in the next 10 years. The plan is associated with a list of actions in consultation with stakeholders that include, among others, the use of technological and digital tools to support an ageing population and address critical barriers to entrepreneurs in rural areas such as housing, health and family planning services (Scottish Government, 2021[26]).

The (new) innovation strategy

As of the drafting of this report, a new overarching innovation strategy for Scotland was released. After an open call for inputs and consultation with several experts, the strategy was released in June 2023. The new innovation strategy should adopt a suitably differentiated approach, a "rural lens" that takes account of the diverse forms of the innovation process and the need to improve linkages between rural innovators and sources of knowledge, expertise and investment located in urban areas.

Scotland's National Innovation Strategy (Scottish Government, 2023[27]), released in June of 2023, is well intentioned with a focus on the relative comparative advantages of regions. However, its implications towards rural places will need to be further evaluated. For example, the programme of action on innovation clusters prioritises science and technology sectors focusing on the energy transition, health and life sciences, data and digital technologies and advanced manufacturing. This choice of sectors excludes the relatively larger share of service and agricultural sector firms in rural areas and it still measures success using patents and R&D spending, rather than also complementing it with the rate of new companies in rural areas. Scotland's delivery of innovation and entrepreneurial support through the three enterprise agencies that cover different regions of Scotland and its co-ordination with Skills Development Scotland and the Scottish Funding Council suggests that there are already strong mechanisms in place through which programmes and policies for innovation could be regionalised and targeted to rural places.

EU and UK policy and financing frameworks within Brexit

European Structural and Investment Funds (ESIF) and UK investment programmes

In the decades prior to Brexit, a major influence on policy orientations and a significant source of funding was provided by the ESIF, which were a particularly important source of support for entrepreneurship and innovation support in Scottish rural and island regions. During the EU programming period 2014-20, the ESIF programmes for Scotland mobilised over EUR 24.1 billion in funding, of which EUR 12.3 billion came from the EU budget. Of the total funding allocated to Scotland, EUR 7.8 billion was spent through the European Regional Development Fund (ERDF) programme covering all of Scotland, close to EUR 7 billion through the European Social Fund (ESF) and Youth Employment Initiative (YEI) programmes and EUR 9.3 billion through the Scottish Rural Development Programme. At the current time, the funding under the ESIF programmes agreed for the period 2014-20 is being wrapped up (expenditure is eligible for EU co-financing until 31 December 2023) (Scottish Government, 2021[28]).

With a view to (partly) replacing the EU ESIF funding, the UK government has launched four new investment programmes to support communities right across the country in collaboration with local partners (UK Government, 2023[29]). These investment programmes include the following:

- The GBP 220 million **UK Community Renewal Fund** provides funding to help places across the UK prepare for the introduction of the UK Shared Prosperity Fund. Twenty-two Scottish local authorities were awarded funding in 2021 of close to GBP 18.5 million. Of the Scottish total,

three of the local authorities in the Highlands and Islands area were awarded 13% of the total; while the two local authorities in the south of Scotland were awarded 15%. The projects funded in these rural areas are wide-ranging in topics, from science, technology, engineering and mathematics (STEM) education, a Seaweed Academy, harbour redevelopment or tourist infrastructure and services such as mountain biking in the South of Scotland (UK Government, 2021[30]).

- The GBP 4.8 billion **Levelling Up Fund** (LUF) contributes to the levelling up agenda by investing in infrastructure that improves everyday life across the United Kingdom, including regenerating town centres and high streets, upgrading local transport and investing in cultural and heritage assets. Under the first round of the LUF, 8 Scottish local authorities were awarded GBP 172 million in funding (10% of the total funding of GBP 1.7 billion) and none of the projects funded were in rural areas. The methodology used to develop an index of priority places for the LUF was contested by many Scottish local authorities as, unlike for England, the Scottish prioritisation did not perversely include an indicator of the need for improved transport connectivity (which was seen as favouring urban over rural local authorities in the prioritisation ranking) (Scottish Parliament, 2021[31]).
- The **Community Ownership Fund**. The UK government is providing GBP 150 million over 4 years to support community groups in England, Northern Ireland, Scotland and Wales to take ownership of assets and amenities at risk of being lost. In the first-round call launched in October 2021, six Scottish projects were awarded funding including, for example, the New Galloway Town Hall in the Glenkens area of Dumfries and Galloway. The 6 Scottish projects received a total of GBP 1 196 190 or just under 12% of the total funding awarded under the first-round call (8 calls are planned in total).
- The **UK Shared Prosperity Fund** (UKSPF) seeks to "spread opportunity and reverse the country's geographical disparities" (UK Government, 2022[32]). In Scotland, the UKSPF supports delivery through the eight Regional Economic Partnerships (REPs),[9] the establishment of which was recommended by the Scottish Government's Enterprise and Skills Review in 2017 and which align with the City Region and Growth Deal partnerships. A total of GBP 212 million in funding has been allocated by the UK government to the UKSPF for Scotland for the 3-year period 2022-25. The fund was launched in April 2022 with investment plans submitted by 1 August 2022 (Scottish Government, 2017[33]). Although the UK government claims that "funding will match what was previously spent in Scotland", even if the GBP 212 million is doubled for another 3 years it would be less than the ESIF funding for 2014-20 (UK Government, 2022[32]). The question remains as to what extent this funding is additional to the agreed UK government contribution to City Region Deal projects (SPICe Spotlight, 2022[34]).

The Scottish Government is funding Community Led Local Development (CLLD) domestically to replace the European Commission's LEADER programme, which would have previously been funded under ESIF. All UK Shared Prosperity Funding is currently directed through local authorities, although there is concern that this does not always reach those at grass roots level in rural and island communities. Often, even the best-willed, most effective public agencies have local issues that require capacity building, local determinism and participation to deliver a bottom-up delivery approach to national strategy.

EU Horizon 2020 and UK Research and Innovation

The EU research and technology framework programme Horizon 2020 (covering the period 2014-20) also provided significant funds (over EUR 876 million during the period) for research and innovation projects involving Scottish organisations (universities, businesses, etc.). This included funding to support innovation in rural areas, e.g. in support of the development of wave and tidal energies in Orkney and the Caithness region in the far north of Scotland. The Highlands and Islands received over EUR 50 million under Horizon 2020 of which EUR 30 million alone went to organisations based in Orkney, largely for marine power and

related green hydrogen technologies.[10] However, no organisations based in the south of Scotland region (Dumfries and Galloway and Scottish Borders local authorities) received funding under this competitive programme pointing to the absence of significant research and innovation players in that area. Looking to the future, the exclusion of Scottish organisations from the EU's Horizon Europe framework programme (2021-27) will be detrimental in terms of access to funding and expertise networks for innovative projects. Furthermore, programme funding like the EU's Interreg has provided opportunities for collaboration through which innovations are more likely to occur. These funds address larger challenges in the pursuit of addressing rural depopulation, remote service delivery and women entrepreneurship.

At the UK level, UK Research and Innovation (UKRI) funds academic and industrial research across the United Kingdom via domain-specific research councils and Innovate UK.[11] Data for 2020-21 on spending by the Scottish region underline the strong concentration of R&D funding in the two "central belt" regions, both in absolute and relative to gross value added (GVA) and per capita (as described in the table below).

Table 3.1. Expenditure by Scottish region, 2020-21

	Spending (GBP million)	Spending as % of local GVA	Spending per capita (GBP)	Largest city
	UKRI spending			
Scotland (Total)	396	0.28	79	Edinburgh
Eastern Scotland	233	0.40	116	Edinburgh
West-Central Scotland	137	0.38	88	Glasgow
North-Eastern Scotland	14	0.07	28	Aberdeen
Highlands and Islands	9	0.07	20	Inverness
Southern Scotland	3	0.02	3	Dumfries/Ayr
	Devolved administration spending			
Scotland (Total)	423	0.30	85	Edinburgh
Eastern Scotland	200	0.34	100	Edinburgh
West-Central Scotland	184	0.52	119	Glasgow
North-Eastern Scotland	38	0.19	28	Aberdeen
Highlands and Islands	1	0.01	2	Inverness
	Combined			
Scotland (Total)	819	0.59	164	Edinburgh
Eastern Scotland	433	0.90	216	Edinburgh
West-Central Scotland	321	0.74	207	Glasgow
North-Eastern Scotland	52	0.26	105	Aberdeen
Highlands and Islands	10	0.08	22	Inverness
Southern Scotland	3	0.02	3	Dumfries/Ayr

Note: Largest cities are determined by population in 2020. Dumfries and Ayr are both located in Southern Scotland and have similar populations.
Source: UKRI (n.d.[35]), *Geographical Distribution of Funding*, https://www.ukri.org/what-we-offer/what-we-have-funded/regional-distribution-of-funding/.

The proximity to universities is an important factor in determining innovative practices, in particular, for high-tech and science and technology fields that require investment in R&D machinery and infrastructure for innovation. For example, Heriot Watt University's Orkney Campus operates the International Centre for Island Technology. It is located close to innovations in renewable energy including wave and tidal energy. More broadly, the University of the Highlands and Islands model is associated with research centres focusing on innovation in marine science (e.g. the Scottish Association for Marine Science) and the environment (the Environmental Research Institute). Universities often participate in R&D close to their locations,[12] whether it is for inhouse research or in partnership with firms looking to experiment. R&D-type

investment tends to have an effect on radical or disruptive innovation, however, mostly in highly specialised regions.

The data concerning the funding by "devolved administrations" (i.e. from the Scottish Government budget) only concern funding allocated by the Scottish Funding Council (SFC) for specific instruments: the Global Challenges Research Fund (GCRF) and grants for research and innovation and additional research (capital funding) to universities. Southern Scotland is not included as no university is headquartered in the region, although some of the spending allocated to universities may be distributed to a department or campus in the region. The amount allocated to the Highlands and Islands seems to be very low and some caution should be applied in interpreting these data. For instance, data from the SFC suggest that the University of the Highlands and Islands was awarded GBP 2.26 million in financial year 2020/21 by the GCRF and GBP 3.7 million for grants for research and innovation, hence considerably more than the GBP 1 million indicated. In addition, UKRI does provide several dedicated funding initiatives that focus on local impacts, such as the Strength in Places Fund and Local Acceleration Fund (SFC, 2020[36]; 2021[37]).

Overall, the concentration of funding provided by UKRI (and the SFC) appears to be strongly driven by the presence of universities thereby favouring urban regions over more rural ones.[13] Comparative analysis from Canada and the United States has demonstrated that the role of universities with strong linkages to rural firms are critical to encouraging innovation in rural regions. This is the case in particular when there are extension universities that are connected to local communities or universities whose main campuses are in rural communities such as land-grant universities in the United States (OECD, forthcoming[38]; forthcoming[39]; Maloney and Valencia Caicedo, 2022[40]; Lyons, Miller and Mann, 2018[41]).

In sum, there are a variety of overlapping policies and institutions that are relevant for promoting innovation and entrepreneurship in Scotland. These include growth deals, regional partnerships and initiatives from local authorities and enterprise agencies. Table 3.2 provides a list of the economic development planning framework, using the four case study areas as a basis for understanding territorial variations in relevant policy frameworks, partnerships and government bodies.

Table 3.2. Growth deals and Institutions for delivering enterprise and innovation support in four case study areas of Scotland

Case study area	Growth deals	Regional economic partnership	Local authority	Enterprise agency
Garnock Valley	Ayrshire Growth Deal	Ayrshire Regional Economic Partnership	North Ayrshire Council	Scottish Enterprise
Caithness and Sutherland	Inverness and Highlands Growth Deal	Highlands and Islands Regional Economic Partnership	Highlands Council	Highlands and Islands Enterprise
Na h-Eileanan Siar (Outer Hebrides)	Islands Growth Deal	Highlands and Islands Regional Economic Partnership	Comhairle Nan Eilean Siar (Western Isles Council)	Highlands and Islands Enterprise
Galloway Glens	Borderlands Inclusive Growth Deal	South of Scotland Regional Economic Partnership	Dumfries and Galloway Council	South of Scotland Enterprise

Policy intervention to foster innovation in rural areas

This section identifies and discusses selected policies and actions to foster innovation in rural areas by strengthening access to skills and training in rural communities, developing networks and local community-led initiatives for innovation, promoting digital infrastructure, facilitating access to finance, fostering internationalisation of rural firms, supporting capacity building and encouraging experimentation in rural SMEs.

Population and access to skills in rural communities

Despite a mitigated decline in the share of the rural population as compared to other OECD countries (see Chapter 2), population decline in rural areas is still a concern. The 2021 National Population Strategy commits the Scottish Government to take a "place-based approach to demography" and identified three main challenges facing Scotland in countering population decline and notably the importance of "maintaining a sustainable spatial balance of our population across Scotland's urban, rural, and remote locations" (Scottish Government, 2021[26]). The document noted that the west coast authorities and those in rural and remote areas are facing depopulation as people move to larger towns and cities for employment and education opportunities. The strategy also highlighted that while rural and remote areas tend to have higher fertility rates, access to high-quality and affordable childcare is a barrier to encouraging young families to move to or stay in rural areas. Third, restricted immigration (e.g. of EU citizens post-Brexit) is particularly disruptive for rural and remote areas of Scotland, where the older age structure[14] means that in-migration is a key means of countering depopulation. HIE carried out the study focused on changing attitudes and aspirations of young people aged 15-30 in relation to the Highlands and Islands of Scotland in the years 2015 and 2018. The 2018 study revealed that, since 2015, an increasing number of young people want to live and work in the Highlands and Islands (HIE, 2018[42]).

This attitudinal shift creates the right conditions but challenges remain for youth in rural areas, including housing and jobs which are critical factors enabling them to stay. Access to and retaining skilled people in rural areas is highlighted as a concern in Scotland. The 2022 Rural Scotland Business Panel Survey (Scottish Government, 2022[43]) found that access to a skilled workforce was seen as a key factor in helping businesses achieve their plans. Almost two-thirds of employers (65%) were experiencing workforce-related challenges. The most common challenge was the cost of labour (38%), followed by skills gaps (28%), unfilled vacancies (23%) and staff absences (22%). The main issues contributing to workforce-related challenges were a lack of candidates (51%) and difficulties accessing specific skillsets (46%). The top actions employers reported they were taking were upskilling or reskilling the current workforce (50%) and investing in new technology (39%). Remote rural and island businesses were more likely to experience a range of issues related to their workforce, including poor transport connections, unattractive working hours or conditions, and a lack of accommodation, childcare or opportunities for partners (Scottish Government, 2022[43]).

The Scottish policy response to such challenges is varied, ranging from efforts to reinforce university education in rural areas (or on courses relevant to rural priorities), increasing rural entrepreneurship training and mentoring, skills gap assessments and investment plans, improving access to lifelong learning (e.g. through digital delivery channels), encouraging rural employers to invest in apprenticeships, vocational training and work placements, and measures to support people to stay in or move to (remote) rural areas to work (access to housing, childcare, distance learning, improved transport links, etc.).

A Skills Action Plan for Rural Scotland has driven forward a partnership approach to developing the skills and talent needed to make sure that Scotland's rural economy and communities flourish and grow. It was published in 2019 and is being evaluated. It set out five priority areas for action:

- Better understand the skills rural employers need and align provisions to support this.
- Provide individuals with accessible education and skills provision to secure, sustain and progress in their careers in rural areas.
- Develop the current workforce in rural areas through upskilling and reskilling.
- Build a secure pipeline for the future.
- Take a co-ordinated, strategic approach to tackling skills in rural areas.

On the first priority, Skills Development Scotland (SDS) leads (in partnership with the enterprise agencies, the SFC, local authorities, etc.) the preparation of Regional Skills Assessments (RSAs) that seek to provide an evidence base to inform future investment in skills. RSAs have been developed for local authority areas

(e.g. Dumfries and Galloway), city regions (e.g. Inverness and the Highlands), Growth Deal areas (e.g. the Islands Growth Deal) and for rural Scotland (2022) as a whole (SDS, n.d.[44]).

The RSAs are used as a basis for developing Regional Skills Investment Plans (RSIPs) which take account of the particular challenges, opportunities and drivers at the regional level and present a partnership response to these. In a rural context, RSIPs have been notably developed for the Highlands and Islands (2019-23) and South of Scotland (2019-22) regions (SDS, n.d.[45]).

Increasing the supply of digital and entrepreneurial skills in rural regions

Digital skills are a core element of improving rural connectivity and business development. Evidence from digital skills surveys suggests that digital maturity in rural areas is broadly lower than in the rest of Scotland (urban areas), with a higher share of respondents indicating minimal or basic skills, particularly in the Highlands and Islands of Scotland (HIE, 2021[46]). To help improve Scotland's digital productivity, the Scottish Government introduced a Digital Development Loan scheme which provides loans to SMEs (trading for at least six months) wishing to improve their digital capabilities and capacity (including digital skills). Digital Development Loans are interest-free and enable eligible businesses in Scotland to borrow anything from GBP 5 000 to GBP 100 000. Loans are interest-free, have no setup costs, can be repaid over any period of up to five years and do not penalise you for early repayment. No director guarantees are required. Furthermore, a new programme to provide expert advice from a creative industries network for businesses in the Highland council area called XpoNorth Digital has started operating to support the digital transition for businesses (HIE, 2023[47]). It is delivered through the Northern Innovation Hub as a service funded through the Inverness and Highland City Region Deal.

Encouraging rural entrepreneurship is viewed as a key factor in diversifying the rural economies in the four case study regions visited. Initiatives such as the Scottish Rural Leadership Programme (SRLP) aim to develop and reinforce the entrepreneurial skills of rural business leaders and develop a form of community of practice encouraging exchange and networking between participants to the programme (further described in Box 3.3). The programme itself is developed through public sector experimentation, with unearmarked funds.

Box 3.3. Rural leaders networks

Scottish Rural Leadership Programme

The SRLP focuses on self-development and self-awareness to empower business leaders to effectively respond to the challenges and complexities of running a business and to enact positive change in the wider rural economy. It encourages participants to push on boundaries and adopt an entrepreneurial mindset, build resilience, cultivate collaborative opportunities and create trusted links with industry and government.

In its 16th year in 202/23, the programme has over 700 graduates and runs from October to March with participants divided into 4 regional groups, each with 15 participants. Led by key experts in their field, the programme is predominately in-person workshops focusing on leadership (including one-on-one coaching), strategy, communications, global connections, innovation and a learning journey to Scottish and Westminster parliaments. The SRLP is delivered by Scottish Enterprise, in partnership with HIE and SOSE.

Source: Scottish Enterprise (n.d.[48]), "Helping businesses to transform Scotland's economy", https://www.scottish-enterprise.com/ (accessed on 5 April 2023).

Another example is the IMPACT30 programme, part of the Northern Innovation Hub initiative, which is designed to develop young (under 35) business leaders of the future (the business should be less than 3 years old) in the Highlands and Islands (HIE, n.d.[49]). The programme seeks to support businesses to develop at the national or international levels and help business leaders put new ideas into practice to effect positive change and growth (HIE, n.d.[50]).

In line with the Population Programme and recognising the unique needs of rural and island areas (EAG on Migration and Population, 2019[51]), the Scottish Government has proposed to develop a Rural Visa Pilot proposal, to support people to move to and work in rural communities (from abroad). As migration policy is a reserved power, the Scottish Government submitted a proposal to the UK government in January 2022 (Scottish Government, 2022[52]). The request underlined that the salary threshold for the UK's immigration system and the Shortage Occupation List is not enough to attract working-age people to rural areas and that the current UK immigration system does not meet Scotland's migration needs. The letter also proposed to create a "remote and rural partnership scheme", modelled on the Canadian Atlantic Immigration Program pilot scheme (Box 3.4).

Skills attraction to areas with a labour shortage is a main component of policies in rural areas across the OECD. In Canada, the initiative targeted towards bringing international workers to the Atlantic provinces (primarily rural) seems to have succeeded in attracting workers only when housing and basic services are available. For instance, in the Gaspé Peninsula of Québec, legal migrants are provided single-occupancy housing to work in the manufacturing sector, sponsored by their employers. Without housing, language training (in some cases) and support from the company and local authorities to receive a "soft landing", such programmes would have less success. Similar findings were concluded for start-up visas in Italy that targeted attracting foreign entrepreneurs, although without a specific regional target (OECD, 2021[53]).

Box 3.4. Mobility and skills for entrepreneurship in rural areas

Canada Atlantic Immigration Program

After a successful pilot programme, the Atlantic Immigration Program was an immigration programme focused on bringing talented workers to various regions in Atlantic Canada's four provinces: New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. With the exception of Halifax and Hants in Nova Scotia, these provinces contain primarily rural census divisions (sub-provincial level).

The Atlantic Immigration Program is a pathway to permanent residence for skilled foreign workers and international graduates from a Canadian University. The programme helps employers hire qualified candidates for jobs they have not been able to fill locally. Potential employers can hire qualified candidates from those living overseas or in Canada as temporary residents.

In several areas of Canada, there are similar programmes to attract migrants. However, some of the main challenges include operationalising this support mechanism for entrepreneurs, in particular for SMEs, in rural regions. In particular, this includes support in finding housing, education and social services for immigrants that larger employers can support more easily.

Ireland's Our Rural Future's approach to remote workers

As part of the overarching policy for rural development, the government of Ireland has established a five-year plan for rural areas entitled *Our Rural Future: Rural Development Policy (2021-2025)* (Government of Ireland, 2021[54]). The policy provides a framework through which the government attempts to address the challenges facing rural areas.

One pillar of the policy identifies key deliverables on how to optimise digital connectivity for attracting the skills of remote workers. They include accelerating the rollout of the National Broadband Plan, investing in remote working infrastructure, providing local authorities with financial support to use vacant properties as remote working hubs and using remote working facilities to retain and attract skilled people and mobile talent to rural areas, among other initiatives. The policy document estimates up to 400 remote working hubs to be formed as part of a national network, and simultaneously used to build the entrepreneurial ecosystem that encourages start-ups and collaboration between entrepreneurs.

Source: Government of Canada (2022[55]), *Atlantic Immigration Program*, https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/atlantic-immigration.html; Government of Ireland (2021[54]), "Supporting employment and careers in rural areas", in *Our Rural Future - Rural Development Policy 2021-2025*, https://www.gov.ie/pdf/?file=https://assets.gov.ie/132413/433aebac-f12a-4640-8cac-9faf52e5ea1f.pdf#page=41.

Fostering apprenticeship training and employer-led opportunities

Regional disparities in the share of individuals that start apprenticeships and overall qualifications are persistent (Figure 3.3). In some of the rural areas studied more in-depth in this report, such as the Scottish Borders, the Islands and South Lanarkshire, an increased importance of those entering (modern) apprenticeship schemes can be observed. At the same time, rural areas such as Dumfries and Galloway, East Ayrshire and North Ayrshire observe low to negative changes in the share of individuals in apprenticeship schemes and an increase share of those with medium to high levels of qualifications.

Apprenticeships and collaboration with colleges in rural areas to tailor vocational training courses to business needs and the latest technologies are important drivers of innovation within existing firms and for new employers. Local targeted vocational training is a particular priority for firms in rural regions. One of the actions foreseen under the Skills Action Plan for Rural Scotland was the development of guidance for rural employers on apprenticeships, training and placement support. A Rural Employers' Toolkit has been published, which provides information on how to recruit apprentices, student placements and ongoing training, including practical steps and costs. Additionally, the Network Support Unit of the Scottish Government supports the Scottish Rural Network, which encourages rural development by sharing information, ideas and good practice (SDS, n.d.[56]). The aims of the network are mainly to:

- Get more people from rural communities, businesses and the wider public involved in policy developments that affect them.
- Help improve the delivery of the Scottish Rural Development Programme.
- Inform farmers, rural businesses and communities about policy and funding opportunities.
- Encourage innovation in agriculture, food production, forestry and rural areas.

Increasing the take up of apprenticeships by rural employers has been an identified target of past and current skills investment plans. In a recent report, while the level of employer engagement in Scotland (16%) is generally similar to countries within the United Kingdom (England 19%, Wales 16%, Northern Ireland 12%), it is lower than in leading apprenticeship countries such as Germany (21%) and Switzerland (24%) (OECD, 2022[1]). This is in part due to the small size of firms in Scotland, where close to one-third of firms (20%) that do not offer apprenticeships report that it is because it is not suitable for their size. Based on analysis from Chapter 2 on the relatively larger distribution of small firms in rural Scotland, the issue of scale for apprenticeships is greater for rural areas.

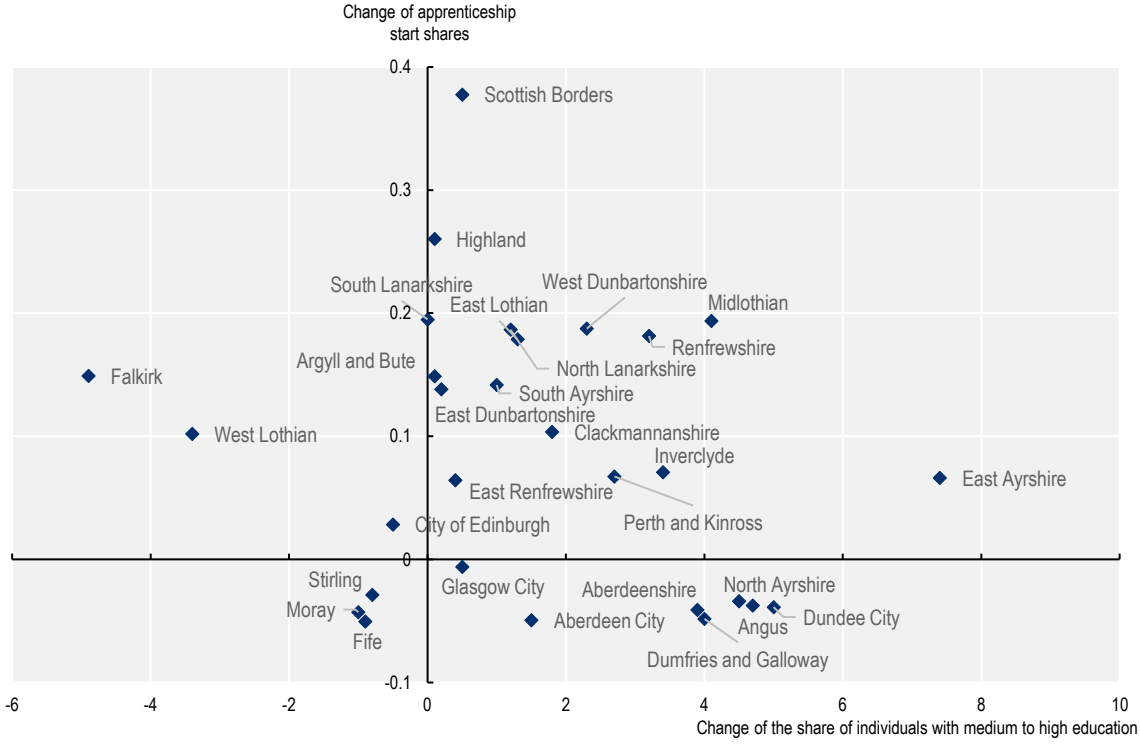
There are three types of apprenticeships supported in Scotland:

- **Foundation Apprenticeships**: Secondary school pupils (Third to Sixth Year) can choose this qualification as part of their subject choices and get the chance to work with employers.

- **Modern Apprenticeships** (MA): Primarily aimed at people who are 16 to 24, although there is no upper age limit. An modern apprentice is employed and works towards a qualification with a college or learning provider.
- **Graduate Apprenticeships**: For anyone 16 or above with no upper age limit. A graduate apprentice is employed and works full time while gaining an honours or master's degree.

Figure 3.3. Progress on apprenticeship and qualification across Scottish councils

Percentage point difference between 2013 and 2019 in apprenticeship starts and overall qualification level, by council area



Note: Progress in apprenticeship refers to the difference between 2019 and 2013 in the percentage of Modern Apprenticeships (MA) starts relative to the working-age population (16-64 year-olds) in each council area. Progress in overall qualification refers to the difference between 2019 and 2013 in the share of the working-age population with medium to high education qualifications (i.e. above Scottish Credit and Qualifications Framework Level 4/ International Standard Classification of Education Level 2) in each council area.
Source: Adapted from OECD (2022[1]), *Strengthening Apprenticeship in Scotland, United Kingdom*, https://doi.org/10.1787/2db395dd-en; Scottish Government (n.d.[57]), *Adults (16-64 years) with Low or No Qualifications*,https://statistics.gov.scot/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fadults-16-64-years-with-low-or-no-qualifications; ONS (n.d.[58]), *Estimates of the Population for the UK, England and Wales, Scotland and Northern Ireland*, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland.

The MA programme is particularly relevant for rural employers and, for instance, the Highlands and Islands Skills Investment Plan for 2014-18 sought to expand the number of apprenticeships in growth sectors surpassing the target by 10% in 2017-18. In 2017, the Scottish Government recognised that employers and trainers can incur additional costs when delivering MAs in more remote areas and introduced a rural supplement to the funding available to learning providers; however, this appears to have been discontinued.

Given the distance from main urban areas where universities and education and training centres are mainly located and the challenge of retaining young people in rural areas, apprenticeship training is an important tool to use to bring the skills needed for innovation to rural firms. Many companies invest considerable time and money in apprenticeships as a means of recruiting and training young staff in the required skills. This is particularly important as the specialised skills in fields ranging from engineering, energy technologies, forestry, food and food supplements, drinks, cosmetics, etc. are not readily gained from standard curricula.

Some companies in rural areas are continuing to provide apprenticeship training for young workers. For instance, Jas P Wilson, a medium-large sized enterprise that specialises in forestry tractors and equipment in the Galloway Glens area has a policy of working with apprentices due to the difficulties in recruiting staff. They have recruited a dedicated Learning and Development Manager who oversees apprentices, liaises with local further education colleges and also hosts groups of school children to encourage early engagement with engineering careers. As part of a recent expansion, Jas P Wilson has invested in bespoke training facilities: this includes two classrooms fitted out with smartboards, an adjacent work area that can be used for training and an outdoor training area for machine operations.

While some firms are able to create dedicated learning and development positions, small-scale employers may not have the resources to do so. Engaging with stakeholders and providing incentives and support for employers to engage in apprenticeship schemes are therefore particularly important for smaller firms that account for the majority of firms in rural areas. In rural regions with a larger proportion of small firms and further distances to training centres, several instruments could be used to tackle the main barriers to providing apprenticeships, as elaborated by the OECD (2022[1]) and described below:

- Some employers could be given **financial support** to compensate for the costs incurred by taking on and training apprentices. It is important to note that the evidence on the effectiveness of financial incentives for employers is mixed and thus they should be well targeted to minimise deadweight loss and piloted and evaluated to assess costs and benefits. They should also be combined with assistance for micro, small and medium-sized enterprises (MSMEs) that may lack the capacity to access and effectively use such financial incentives. SDS, Scotland's national skills body, contributes to the costs of training and assessing Modern Apprentices, making enhanced funding contributions for those who are disabled and care experienced, up to and including age 29.
- **Intermediary agencies** could facilitate the process of starting and managing apprenticeships, alleviating some of the administrative burdens that fall on employers who take on apprentices.
- Employers can be encouraged to **set up joint networks** to provide the comprehensive training standards and frameworks require. Sharing or rotating apprentices can increase employers' capacity to train apprentices, while also making their training more relevant.
- **Guidance and tailored advice** can be offered by various stakeholders, including the Scottish Government, SDS, awarding bodies and learning providers, to better inform employers about apprenticeships and their benefits. Training can also be provided to help employers effectively manage and deliver apprenticeships.

At the graduate level, HIE has been running the ScotsGrad graduate placement programme in the Highlands and Islands region since 2013 (part-funded by the ERDF) (HIE, n.d.[59]). This has proved an effective way of retaining or attracting (back) young graduates. For instance, the Isle of Harris Distillery, which the mission visited, was able to recruit the first apprentice distiller in the Outer Hebrides using the ScotsGrad scheme for a period of 12 months, in partnership with the University of the Highlands and Islands (UHI) Lewis College.

Another relevant initiative is Developing the Young Workforce. DYW is the Scottish Government's youth employment strategy to better prepare young people for the world of work. The employer-led DYW Regional Groups set up across Scotland seek to connect employers with education at the school and college levels (DYW, n.d.[60]). For instance, in the Outer Hebrides, the regional group has organised career fairs helping to match young people with employers (DYW Outer Hebrides, n.d.[61]).

Various actions have been taken to improve STEM education at the school level. The Science Skills Academy is developing a network of Newton Rooms, working with schools, employers and families to provide exciting and stimulating activities that engage young people and make them aware of new opportunities. A Newton Room offers education in science, technology, engineering and mathematics. The teaching plans of Newton Rooms are called Newton modules. The curriculum-based teaching is varied and focuses on learning through practical activities. Four Newton Rooms have been opened in Dingwall, Fort William, Inverness and Thurso and the Pop-Up Newtown room is touring highland communities with its catchment areas including Badenoch and Strathspey, Gairloch, Kinlochbervie, Skye and Lochalsh and Ullapool.

Additional examples of initiatives and incentive schemes to support employers in the OECD are included in the box below.

Box 3.5. Strengthening incentives and support for employers

Incentives for employers

Austria: Financial incentives for training employers

Austria provides financial incentives for employers offering apprenticeships:

- **Direct subsidies and grants**: Since 2016, every company offering apprenticeships gets a direct public subsidy for each apprentice. This basic subsidy is linked to the apprenticeship wage and is gradually reduced over time in line with the increasing productivity of apprentices.
- **Criteria-based subsidies** are intended to increase quality (e.g. coaching, building training alliances or providing extra preparation for trainers' final examinations or qualifications) and/or foster provision for specific target groups (e.g. by employing apprentices from supra-company schemes). Companies must apply at their local apprenticeship office, provide proof of expenses and are partly reimbursed up to a set amount.
- **Indirect subsidies**: Employers' social security contributions for apprentices for sickness, unemployment and insurance are waived. Tax deductions enable employers to write off training expenditures.

Denmark: Employers' Reimbursement Fund (AUB)

The AUB is a collective structure that establishes a common fund to spread the cost and benefits of apprenticeship training among its members. All employers in Denmark make a contribution to this fund for each full-time employee. The fund is then used to reimburse employers when their apprentices attend a vocational school.

The Netherlands: Subsidies for training employers

Subsidies are paid to accredited companies that provide apprenticeships, to a maximum of EUR 2 700 per year per apprentice. There must be a valid contract between the education and training institution, the apprentice and the company. Companies apply for this subsidy to compensate for the cost of work-based training. There are also subsidies at the sectoral level. In addition, companies are also eligible for a EUR 1 000 contribution to the training costs of their apprenticeship supervisors/mentors.

Estonia and Norway: Transfer of resources to firms to compensate for workplace training costs

In Estonia, depending on the apprenticeship contract between the education and training provider (a school in the case of Estonia), the company and the student, the provider can transfer up to 50% of the cost of each study place to the enterprise to cover the salary cost of workplace supervisors.

In Norway, apprenticeships are part of upper secondary VET (which starts for most learners at age 16). They are typically organised on a 2+2 basis, with learners spending the first 2 years in full-time school-based education and the last 2 years in full-time work-based learning. As such, these programmes are one year longer than most other upper secondary programmes (which last three years). However, public funding for the apprenticeship programme is in line with other three-year programmes: the state funds the two years of school-based education and provides grants to employers who train apprentices for an amount approximately equivalent to one year of school-based education. Therefore, this model allocates resources from schools to firms without increasing the total cost of provision and is a special type of subsidy based on the cost of VET student education.

Support for MSMEs

Austria: Training alliance model to support training companies

In Austria, companies that have difficulty in meeting certain standards – for example, because they are too small or too specialised to provide their apprentices with the training required – may form training alliances. These alliances are supervised at the state level by the Apprenticeship Offices appointed by Economic Chambers. The Economic Chambers help to find partners for firms willing to create new training alliances.

Moreover, social partners and educational researchers recently designed a new training alliance model to support training companies severely affected by the COVID-19 pandemic, in particular those from the hotel and restaurant sector in Vienna (supplementing the support offered at the federal level, such as short-time work and apprentice bonuses for newly concluded apprenticeships). Under this special alliance model, company-based training can be temporarily taken over by supra-company training providers, with the costs of the training alliance and training allowance covered by the public sector. The model was developed by the Economic Chamber, the Chamber of Labour, the public employment service (AMS Vienna) and the Vienna Employment Promotion Fund (*Wiener Arbeiterinnen Förderungsfonds*, waff), with conceptual support from research institutes. The outsourced training is conducted in two-month-long modules. A maximum of two modules can be taken per apprenticeship year. The modules cover selected content related to the job profile of the relevant apprenticeship year, which can be individually adapted. The training is recorded in a co-operation agreement (between the company and the apprentice) which, in legal terms, is a supplement to the apprenticeship contract. The training costs are covered jointly by waff and AMS Vienna during the co-operation measure.

Australia, Norway and Switzerland: Group/collective training organisations for MSMEs

Collective training offices are organisations that mediate between employers, apprentices and the government. The precise structure differs across apprenticeship systems but their common feature is that they shift the bureaucratic and administrative burden of engaging with the apprenticeship system away from employers. This enables more employers to engage with the system.

In Australia, group training organisations (GTOs) are not-for-profit enterprises that receive government funding. GTOs employ apprentices and allocate them to host employers, who pay a fee to the GTOs. In addition to recruiting apprentices, GTOs also support enterprises in administration, management of on- and off-the-job training and the rotation of apprentices among participating employers to ensure that apprentices acquire the full range of experience.

In Norway, collective training offices are owned by employers and are usually related to specific trades. They sign apprenticeship contracts with the government on behalf of groups of small firms that offer training places. This shifts the legal obligation for off-the-job training to the collective organisations, which are then able to use economies of scale to provide a full range of training services to apprentices. They aim to facilitate apprenticeships by identifying potential training companies and supporting employers and the staff involved in apprenticeships. This is particularly useful for smaller firms which

would not otherwise be able to meet the national minimum standards for training apprentices and helps uphold the quality of apprenticeship programmes.

In Switzerland, enterprises group together in host company networks to share responsibility for apprentice training. This arrangement is aimed at maximising the training potential of MSMEs and/or those companies that are too specialised to cover all of the competencies specified in a defined VET curriculum on their own but may be able to offer the full spectrum by joining forces as a group. Usually, one enterprise takes the role of co-ordinator and organises the coaching, training and rotation of apprentices between other companies during their apprenticeship.

Germany: Meeting the needs of SMEs by customising apprenticeship placements

In 2007, the German Federal Ministry for Economic Affairs and Energy developed a programme to strengthen the SME sector by customising apprenticeship placements. Intermediaries that help place apprentices into suitable positions are common in Germany and come in different forms such as: i) a lead enterprise with overall responsibility for training to partner with other enterprises to co-deliver it; ii) several small enterprises working together to take on trainees; and iii) individual enterprises establishing an organisation for the purpose of training, which takes over organisational and administrative tasks while the lead enterprises offer the training. The PV programme provides funding to agencies such as intermediate training placement companies and chambers of commerce, which then match candidates with businesses.

The programme helped to make apprenticeships more attractive among SMEs. The majority of targeted SMEs found that they received accurate and appropriate apprentices for the apprenticeship vacancies available and the programme allowed them to save 40-50% of apprenticeship recruitment costs. Similarly, around 90% of apprenticeship applicants found the mediation services “largely helpful”.

Source: Based on OECD (2022[1]), *Strengthening Apprenticeship in Scotland, United Kingdom*, https://doi.org/10.1787/2db395dd-en.

Strengthening university hubs for skills upgrading

In the South of Scotland, GBP 6.6 million funding, from the South of Scotland Economic Partnership (SOSEP) is being used by Dumfries and Galloway College and Borders College to develop a network of STEM Hubs across different locations including Dumfries, Galashiels, Hawick and Stranraer that will focus on the digitalisation of learning in care, engineering and renewables, and sustainability and construction. The hubs seek to address immediate skills gaps in areas such as energy and engineering, construction and care. These will be accessible to school and college students and employers wishing to try the latest technologies or upskill their current workforce. In addition, within the framework of the Dark Sky Park in the Galloway Forest area, a Dark Space Planetarium has been opened in a former school building in Kirkcudbright. As well as adding a new tourist attraction to the town, the planetarium offers school visits and educational tours.

Over the last couple of decades, the University of the Highlands and Islands has become a recognised driver of economic development and skills development in the region. The university operates on a unique mix of tertiary learning courses covering the full range of further and higher education qualifications and operates as a distributed place of learning with 70 learning centres and 13 colleges and research centres across the region (see Box 3.6).

While the South of Scotland does not have its own university, there has been considerable investment into developing access to further and higher education in the region, including the Learning and Skills Network (including the STEM Hubs and partnership with Digiskill Scotland that will enable the two regional colleges to grow their online flexible learning provision over the next five years) and the Crichton campus. The campus site hosts education and training activities of Dumfries and Galloway College, the University of

Glasgow, the University of the West of Scotland, the Open University in Scotland and Scotland's Rural College (SRUC) providing access for students from rural areas to leading further and higher education institutes.

Critically, university networks for upskilling and apprenticeship training in some cases are well integrated to local economies with strong stakeholder engagement. This in the case in the Highlands and Islands region with UHI and, to some extent, in partnership with Scotland's Rural College (SRUC). However, initiatives can be taken to improve and diffuse access to universities to support upskilling and better targeting of local skills training to local skills demand in the labour market through more distributed models of learning, in particular in the south of Scotland.

Box 3.6. Models for distributed learning in rural areas

University of the Highlands and Islands (UHI), Scotland

UHI was awarded university status in 2011, following 20 years of preparatory work, investment and official designation as a higher education institution in 2001. The university is composed of 13 colleges and research institutions located in the Highlands and Islands, Moray and Perthshire. In 2021-22, UHI had 11 210 higher education students (6 410 full-time, 4 800 part-time) and 19 779 further education students. UHI offers students the choice of studying at one of their colleges or research centres, at over 70 local learning centres across the region or on line. It is the only tertiary education provider in Scotland offering and able to offer qualifications at every level from national certificates (NCs) and vocational qualifications (VQs) up to masters' and doctoral research degrees (PhDs).

A 2020 Economic Impact Assessment found that UHI is a "technology-rich organisation, built around connecting the region". Its virtual learning environment was considered to be ahead of its time when it was designed, allowing the networked delivery of courses across an area which is equal to the size of Belgium, yet much less densely populated. Simultaneously, this makes courses viable for the organisation and expands the curriculum offering for students in all parts of the region. Its networked delivery has brought about a step change in the range of options available, particularly so for the most remote and rural parts of the region. According to the study, UHI contributes GBP 560 million annually to the region, indirectly supporting 6 200 jobs. As a multiplier effect, the university puts back GBP 4 for every GBP 1 spent into the economies of the Highlands and Islands, Moray and Perthshire.

Land-grant colleges and universities, United States

Built as a partnership with the National Institute for Food and Agriculture, within the United States Department of Agriculture, land-grant colleges and universities are university partners located in rural areas that work collaboratively with governments in addressing challenges in rural regions related to agriculture and skills training. Land-grant colleges were established by the Morrill Acts of 1862 and 1890 and brought equal access opportunities, in particular for African Americans and Native Americans, focusing on farming and mechanical skills. Today, they provide research-based programmes for residents of the state and, critically, many are placed within rural areas with strong ties to local communities but also include some of the largest universities such as Cornell, MIT, Ohio State, Penn State, Rutgers, Texas A&M, the University of California and West Virginia.

Source: Based on NIFA (n.d.[62]), *Land-Grant Colleges and Universities*, https://www.nifa.usda.gov/about-nifa/how-we-work/partnerships/land-grant-colleges-universities; USU Extension (2022[63]) "The purpose and benefit of land-grant (extension) universities", https://extension.usu.edu/news/purpose-and-benefit-of-land-grant-extension-universities ; OSU (2018[64]), "America's land-grant universities: Who are they? Where are they?" https://u.osu.edu/gavazzi.1/2018/05/11/americas-land-grant-universities-who-are-they-where-are-they/.

Networks and linkages for innovation

Rural innovation, generally, is influenced by the local market structure. In many rural areas, the tendency is towards a fragmented market structure of SMEs that are associated with niche markets. SMEs in rural regions can benefit from policies that improve various types of networks – transportation, business, professional and telecommunications – since these help to reduce the penalties of distance and low density, thereby increasing access to external markets (Freshwater et al., 2019[65]).

Better networked firms build strong social capital which access to a variety of resources – financial, technological and human (Moreno and Casillas, 2007[66]) – that facilitate rapid growth and which are easier to obtain in urban regions (Freshwater et al., 2019[65]). Networks ideally include several different actors and generate interactions to work as promoters of development. Once critical mass is achieved, networks can act as sources of information and learning. They can promote new opportunities and be potential creators of new ideas and projects as well as collaborations or joint ventures, and support change by promoting socio-political legitimacy. In the context of rural innovation, local and global networks across rural and urban areas are key. Rural-urban networks link individuals and institutions with more central and cosmopolitan regions (OECD, 2014[67]). Because individual SMEs in a rural region have few local peers in the same industry, local governments need to support opportunities for firms in specific industries to build professional networks through meetings and digital means (Freshwater et al., 2019[65]). The economic exploitation of territorial complementarities between urban and rural areas is an advantage of co-operation because rural areas cannot innovate if they are isolated and are not connected to the market (OECD, 2013[68]).

For rural innovation, networking is crucial and is often created within the range of geographic proximity. Geographical proximity creates density and clustering effects, which reduce production costs. Geographic proximity means that there is a high probability of interaction and synergy between economic agents. Although proximity seems to happen in the context of physical distances, it is accompanied by socio-economic conditions as well. The understanding that increasing connectivity is disrupting long-established spatial hierarchies of interaction is not, of course, peculiar to the discussion of geographically defined rural-urban linkages. Some have argued that organised proximity and relational space are becoming more important than geographical proximity and Euclidean space (OECD, 2014[67]). However, due to the specifics of the general economic environment, these proximity effects can be rarely found and developed in lagging regions. In order to apply the proximity effect to those lagging regions, Camagni (1995[69]) points out four elements:

- Integrating policy interventions addressing different aspects of the local environment (entrepreneurship, infrastructure, training, etc.).
- Selectivity in terms of sites.
- Targeting the enhancement to local existing know-how, to local productive “vocation” (“turn specificities into assets”).
- Establishing co-operation agreements and partnerships with external firms or public institutions, in order to capture a flow of external energy, mainly in the form of technological and organisational know-how to the benefit of the local production system.

Critically, there are therefore some ways to increase the proximity effect in rural and remote regions:

1. Building networks that set an appropriate scale for intervention.
2. Reducing distances between places via digital and physical infrastructure and access to intermediaries in markets.
3. Developing innovation networks through clusters and smart specialisation.
4. Sustaining university networks for innovation.

Local community-led initiatives that make use of community benefit funding (from renewable energy, etc.) and government grants (for social enterprises, etc.) help incubate initiatives that make rural areas attractive for (young) skilled people to study, live and work in. Retaining and/or attracting back young people is a key challenge and is dependent on both the quality of infrastructure (digital networks, transport links, housing, etc.) as well as the perceived dynamism and social fabric of local communities.

The appropriate scale of intervention is important for entrepreneurship support. Programmes to support entrepreneurs which have an aspect of reducing distances between places should be an important aspect of policy design. Entrepreneurs can benefit from incentives for joint projects or projects that support a cluster of rural cities and towns but take advantage from networking opportunities. One example of such an initiative is in Galloway Glens, which groups together several areas to provide one comprehensive regional marketing strategy. This type of initiative can be a good example of further integration in different rural areas of Scotland and can help co-ordinate attracting investment and people in view of helping rural entrepreneurs. There may also be scope for further development of this initiative to the status of "regional broker", whose role is to attract labour, investment and firms, and promote tourism for clusters of firms and communities as described in Box 3.7.

Box 3.7. Regional ambassadors and brokers within cluster development

Brainport Development, Eindhoven and South Holland Region, Netherlands

Brainport Development is a cluster collaboration platform that is directly incorporated into a regional development agency. It carries several independent networks that specialise in different activities such as sports, high technology, health technology, automobile industry, food technology, safety programmes and a designer programme and currently increasing clusters to include the High Tech Software cluster, augmented reality and virtual reality cluster and integrated photonics. Brainport Development focuses on stimulating new projects, investing in start-ups and scale-ups, attracting foreign companies and helping local companies go abroad. In recent years, the initiative also includes a human capital programme, including a talent programme.

There are a few characteristics that make Brainport Development stand out among other cluster specialisation initiatives, which include:

- Strong attachment to **partnership** in the public sector, private sector and universities, which includes a board that is composed of the mayor of Eindhoven (location of headquarters), mayors of other participating municipalities, private sector representatives from local businesses and university members.
- A **bottom-up approach** and a lack of pre-determination when using existing regional assets, starting from companies that jointly partner up to determine priorities in requesting cluster initiatives, that are then accommodated by a project-based approach.
- The use of **regional ambassadors as brokers, or "match-makers"** to attract activities from national and international resources to the region and to build local buy-in, which contributes to a large part of the annual budget, and annual business investment into start-ups on site.
- The **financial participation** of all partners (central, regional, local, universities and private sector) in the elaboration of the services offered for the cluster strategy.

A few years after the success of Brainport, a new initiative to bring a similar model to South Holland but to the Western part of the Netherlands was initiated. This region is characterised as a region with two big cities, some smaller ones and rural surroundings. The structure of the model in South Holland included

several similar characteristics to the original Brainport Development. It was directed by the Economic Board South Holland, a high-level council that brings together industry, institutions and governments, in combination with the regional development agency InnnovationQuarter and therefore had a strong engagement with the private sector, local partners and universities that builds trust and buy-in from local communities. However, it also faced different challenges and opportunities from the original Brainport Development. They included the following:

- A more diversified mix of chairpersons, industry leaders and local leaders on the board, as a result of a more diversified economic structure and a larger geographical area with more municipalities.
- Difficulties to formulate a joint strategy and common goals due to the diversified economic structure and lack of strong regional cohesion.
- More participation from regional development agencies, creating opportunities to mobilise more executive power for regional strategy.
- Many hidden champions with a good market position and a short, local supply chain, initially not well connected to regional ecosystems.
- Less informal networks that create barriers, with more transparent rules for entry into the market as compared to the Brainport region.

Source: Author interview; Brainport Development (n.d.[70]), *Brainport Eindhoven*, https://brainporteindhoven.com/int/; OECD (2022[71]), *Enhancing Innovation in Rural Regions of Switzerland*, https://doi.org/10.1787/307886ff-en.

The need for economic development policies that channel advice and investment towards businesses operating in more remote (from main markets, etc.) locations is recognised but not always fully acted on. As was noted in the response to the OECD questionnaire, support provision for such businesses typically requires more intensive public support packages because, in rural areas, they tend to lack the peer support that public interventions build on in more urban locations.

Rural entrepreneurship is supported through several interventions, existing and planned, which help foster such peer-learning and networks of rural innovators. The role of agencies such as HIE (and SOSE, although the early-stage nature of this agency means that it has not yet deployed significant initiatives) in developing support services tailored to the realities of rural businesses is important. They can in part address challenges of scale and territory, by acting as a mechanism through which services and networks can be aggregated. Similarly, the deployment of Scotland-wide initiatives and networks in rural areas (Interface, the new “tech scalers”, innovation centre hubs, etc.) provide rural businesses and innovators with opportunities to link up with sources of knowledge and expertise on a larger scale. There remains scope for further tailoring interventions to the realities of operating in rural, remote and island areas.

Promoting digital infrastructure and connectivity

Infrastructure and connectivity are critical factors for regional growth. These include investments in internal transport infrastructure, connecting relatively closed and isolated regions to external markets, and ensuring that transport infrastructure capitalises on privileged geographic positions (OECD, 2012[72]). The Scottish Government published the *Infrastructure Investment Plan for Scotland 2021-22 to 2025-26* on 4 February 2021 (Scottish Government, 2021[73]). A long-term vision of infrastructure in Scotland is set out, which supports an inclusive, net-zero carbon economy and includes details on over GBP 26 billion of major projects and large programmes. The Scottish Government also published the *National Planning Framework 4* (NPF4) on 13 February 2023, which is a long-term plan for Scotland up to 2045 and works as a national spatial strategy for Scotland, setting out spatial principles, regional priorities, national developments and national planning policy. The new investment in mobile connectivity from the

United Kingdom and its four service providers is creating coverage through competition amongst providers. However, older infrastructure may not be able to accommodate higher speeds and, in some rural areas, deployment is being held up by challenges associated with planning by local authorities.

To strengthen digital connectivity, the R100 programme – consisting of three strands of activity: the GBP 600 million R100 contracts, the Scottish Broadband Voucher Scheme (SBVS) and commercial viability – was launched. The Scottish Government has committed to providing superfast broadband access – speeds of at least 30 megabits per second (Mbps) – to every home and business in Scotland. Unique in the United Kingdom, the R100 programme builds upon the success of the Digital Scotland Superfast Broadband (DSSB) programme and will ensure universal superfast broadband access. R100 has delivered new subsea connections and brought resilient, future-proofed connectivity to many island communities, providing speeds similar to those experienced in cities. The vast majority of the R100 contract build will be full fibre connections, capable of download speeds of up to 1 gigabit (1 000 Mbps) – more than 30 times greater than the initial superfast commitment. Digital skills can be as important an issue as digital connectivity. The Scottish Government (2021[74]) declared it would ensure Scotland is a fully digitally inclusive nation in which the benefits of technology are available to all. In this strategy, digital education and skills are one of the main actions of the strategy and digital education for children and young people are the main target of the strategy. Other related initiatives such as the Gigabit Broadband Voucher Scheme are providing help for covering the costs of installation to individuals and firms.

Digital connectivity is a frequent and major challenge for entrepreneurs and companies across the regions of rural Scotland. While specific policies for broadband deployment are being targeted by various national-level programmes such as R100, increasing quality access to rural and remote areas is a challenge in most countries and often requires multiple efforts that overcome the barrier for delivering speed at the last mile. Futureproofing not only requires the capacity for high-connection such as installing fibre instead of copper but could also benefit from speed targets in both levels and maximum disparities between rural and urban areas. In addition to the commitment to bring superfast broadband access, rural areas of Scotland might benefit from initiatives that can reduce the market-based incentives challenge to bringing Internet to rural regions, as discussed in Box 3.8.

Box 3.8. Tailored policies and regulations to close connectivity divides in rural and remote areas in G20 countries

While policies to promote competition and private investment, as well as independent and evidence-based regulation, have been very effective in extending broadband coverage in G20 countries, including in rural and remote areas, some gaps may remain. In areas where market forces have not proven to be able to fulfil policy objectives (i.e. in terms of broadband coverage or service quality), additional interventions by governments may be necessary.

G20 countries have deployed a range of tailored approaches in response to these situations which can be found at all levels of government. While some governments have established minimum service targets, for example minimum download speeds, that they wish to see universally available, broadly speaking, the policy priority should be on delivering high-quality broadband services at symmetric speeds across the entire territory. This is necessary to enable the delivery of essential services (such as online learning), to support the local business environment in rural and remote areas and to support a level playing field for these businesses with regard to those in urban areas. Some of the tailored initiatives to bridge connectivity divides in rural and/or remote areas, in addition to promoting market forces and reducing deployment costs, include:

- Demand aggregation models to ensure the financial viability of projects.

- Public-private partnership (PPP) initiatives.
- Public funding to expand connectivity in rural/remote areas, often making use of market mechanisms, such as reverse auctions, to provide funding to market players to deploy their networks in rural and remote areas.
- Bottom-up approaches: open access municipal and community-led networks.
- Addressing particular "the last mile" challenges in rural and remote areas, and coverage obligations in spectrum auctions (for wireless networks).

Source: Adapted from OECD (2021[75]), *Bridging Digital Divides in G20 Countries*, https://doi.org/10.1787/35c1d850-en.

Developing innovation networks through clusters and smart specialisation

During the past decade, there was no fully-fledged innovation or smart specialisation strategy[15] in Scotland. However, the Scotland Can Do initiative provided a framework that guided a set of policy interventions. Launched in 2013 by the Scottish Government and partners across the public, private and third sectors, Scotland Can Do was a "national endeavour to accelerate entrepreneurship and innovation". In 2017, an innovation action plan was published based on the first phase of an Enterprise and Skills Review. This plan included four priority actions including the priority to "Support innovation across sectors and places"; however, the strategy document was rather succinct and made no reference to rural areas (Scottish Government, 2017[76]).

At the time of writing, a new innovation strategy is being developed and an evidence paper has been drafted to inform a stakeholder consultation. The paper provides a general overview of the innovation performance and policies in Scotland but makes no distinction between rural and urban areas and their specific innovation capacities and potential (Scottish Government, 2022[77]). However, anecdotal evidence suggested that while there was a huge amount of support for innovation ranging from innovation centres, advanced manufacturing support, R&D funding, etc., there remains a view that this has not fed through into enhanced productivity growth and emerging new clusters of activity to the extent expected (NMIS, n.d.[78]). Moreover, the importance of a place-based dimension has only recently been given higher prominence again after a number of years where innovation was supported on a cross-cutting basis as one element of business development via a large number of services and products.

While there is a good understanding in the Scottish policy system of the importance of a broad-based approach to innovation, the focus of national policy efforts has been on high-tech innovation, developing advanced manufacturing capacities and innovation centres/hubs in specific sectors/technology fields. A traditionally strong emphasis has been placed on the start-up/spin-off ecosystem linked to the, often, world-leading research being carried out at the main Scottish universities. A 2020 review (Scottish Government, 2020[79]) of Scotland's technology ecosystem[16] commissioned by the Scottish Government set out a series of recommendations around five main themes: creating a "tech scaler" national network, improvement in education to create a talent pipeline, "social infrastructure" (networking, peer-to-peer, etc.), integrated ecosystem grant funding and investment funding (Logan, 2020[80]).

The Scottish Government committed to implementing the key recommendations from the 2020 review, backed by over GBP 45 million in funding (Logan, 2020[80]). This includes support for the next generation of Scottish start-ups through a national network of "tech scalers". These are expected to provide world-class training and mentoring for tech entrepreneurs and opportunities to network and share ideas. As part of their work, all training and education offered will be accessible virtually, ensuring access for businesses in rural areas. In July 2022, it was announced that a GBP 42 million contract for implementing tech scaler support had been awarded to CodeBase, which already runs an incubator in Edinburgh. They

will establish seven tech scaler hubs in Aberdeen, Dumfries, Dundee, Edinburgh, Glasgow, Inverness and Stirling (Scottish Government, 2022[81]).

In the past decade, work has been done on cluster mapping both for SE and HIE. In the HIE area, a 2017 study assessed existing and emerging clusters in the Highlands and Islands compared to the European average and selected benchmark regions using the data, methodology and definitions of the European Cluster Observatory (ECO) (HIE, 2017[82]). This analysis was supplemented by an exploration of investment, R&D and innovation activity driving key sectors and clusters, as well as the international linkages characterising the regional economy.[17] The research identified three classes of clusters, namely clusters of distinction, of competency and of opportunity. The three clusters of distinction identified were: wave and tidal energy; aquaculture and marine products; and engineering services for harsh environments. For example, the wave and tidal energy cluster, geographically concentrated in the Orkney-Caithness area, draws its comparative advantage from the unique natural resources of the region (25% of the wave and tidal potential in Europe) twinned with world-leading know-how and technology demonstration sites, notably the European Marine Energy Centre (EMEC). The cluster has attracted significant UK, Scottish and international (notably EU before Brexit) funds into the region. The wave and tidal energy cluster is well structured in terms of sectoral associations, energy research and demonstration facilities and innovative funding mechanisms like Wave Energy Scotland.

Other specific opportunities for rural clusters include the dairy and forestry industries and the tourism sector in the south of Scotland. An example of an emerging cluster is the space sector in Caithness/Sutherland and Shetland linked to the proposed creation of launch sites for satellites. Work is underway to create a commercial spaceport in Sutherland to launch small communications satellites into Earth orbit. Up to 12 launches a year are planned. The site will include a launch pad, control centre and associated infrastructure for the transport and preparation of launch vehicles, with the ambition for Space Hub Sutherland to be the world's greenest spaceport.

An economic assessment published in February 2020 concluded that the launch facility will support around 250 well-paid jobs in the Highlands and Islands, including 61 in Caithness and Sutherland (44 at Space Hub Sutherland itself). Interviewees underlined the potential for creating a cluster and supply chain in the wider HIE region. In particular, HIE's current launch partner is Orbex, which intends to use vehicles designed and manufactured in the Highlands and Islands at its plant in Forres, Moray. The UK Space Agency awarded grant funding of GBP 2.5 million to HIE to support the development and HIE has confirmed funding in principle for the project totalling GBP 17.3 million (including the GBP 2.5 million from the UK Space Agency and GBP 9.8 million from HIE) subject to conditions. HIE will develop the infrastructure required – access roads, buildings and a launch pad – and a commercial operator is to build and operate the first vertical launch site for satellites on the UK mainland. Orbex has also been awarded funding from the UK Space Agency to support the development of launch vehicles.

While there is room for improvement in incorporating place-based considerations for R&D investment and university-based research, the cluster model for innovation in Scotland is moving towards the direction of best practice. Building on local skills resources is the first step. Providing additional mechanisms for bottom-up cluster development may be of interest to policy makers. This includes co-ordination with the public sector, private sector, academics and civil society on what opportunities may be available in planning the future of rural regions. Such examples of pre-existing cluster development policies that are strongly focused on regional co-ordination and stakeholder engagement are further explained in Box 3.9.

Box 3.9. Regional approach to cluster development and smart specialisation

Cluster policies and smart specialisation strategies

By promoting smart specialisation strategies, national governments and regional authorities are attempting to enhance the competitiveness of firms and clusters. Clusters are a geographic concentration of firms, higher education and research institutions, and other public and private entities that facilitate collaboration on complementary economic activities. The main rationale for public policies to promote clusters is to increase knowledge spillovers among actors in clusters and generate a collective pool of knowledge (OECD, 2014[83]).

Smart specialisation serves an evidence-based policy framework that uses indicators, technology foresight and other priority-setting tools to help entrepreneurs and firms strengthen existing scientific, technological and industrial specialisation patterns while identifying and encouraging the emergence of new domains of economic and technological activity (OECD, 2014[83]; 2013[84]).

The genesis of the concept can be traced back to an EU expert group advancing that governments should focus their knowledge investments in activities – not in sectors *per se* – that reflect areas where a region or country has some comparative advantage (specialisation) or emerging areas where entrepreneurs could develop new activities (diversification) (Foray, David and Hall, 2009[85]; Foray, Eichler and Keller, 2020[86]). This connection between specialisation and technological diversification in the context of regional development has been highly influential and demonstrated that smart specialisation as a policy framework is well suited to dealing with the problems of place-based growth (McCann and Ortega-Argilés, 2011[87]).

The smart specialisation concept has been promoted at the EU level through the establishment of the S3 Platform to assist regions and member states to develop regional strategies and identify the high-value-added activities that offer the best chances of strengthening their competitiveness. The principles behind smart specialisation became a central element of the Europe 2020 Strategy and smart specialisation strategies have been incorporated as an *ex ante* condition to access the ERDF (OECD, 2014[67]). The same principles are also an enabling condition to be fulfilled by regions for mobilising the resources of the 2021-27 Cohesion Policy.

Key policies to support smart specialisation strategies include (OECD, 2020[8]; 2013[84]):

- **Policies for entrepreneurial discovery**: e.g. incentives for entrepreneurs, inter-regional linkages, new mechanisms to detect novel ideas and encourage experimentation ("self-discovery" process) and educational programmes. Smart specialisation calls for an "entrepreneurial selection" of market opportunities through a bottom-up approach.
- **Promoting general-purpose technology platforms and networks**: e.g. technology platforms involving public and private actors, as well as standard-setting organisations.
- **A policy intelligence and monitoring and evaluation system**: e.g. diagnostic tools, strategic analysis, mutual learning practices or participatory foresight and a sound monitoring and evaluation infrastructure, which could also involve external expertise and pilot exercises.
- **Strategic governance for smart specialisation**: e.g. the development of local capabilities to: identify local strengths and bring the results obtained from the "self-discovery" process into prioritisation; align policy actions with objectives; achieve strategic co-ordination, develop a vision and implementing action.

Source: Adapted from OECD (2022[88]), *Strengthening FDI and SME Linkages in Portugal*, https://doi.org/10.1787/d718823d-en; Foray, D., M. Eichler and M. Keller (2020[86]), "Smart specialization strategies - Insights gained from a unique European policy experiment on innovation and industrial policy design", https://doi.org/10.1007/s43253-020-00026-z; McCann, P. and R. Ortega-Argilés (2011[87]), "Smart

specialisation, regional growth and applications to EU cohesion policy", https://doi.org/10.1080/00343404.2013.799769; OECD (2013[84]), *Innovation-driven Growth in Regions: The Role of Smart Specialisation*, https://www.oecd.org/sti/inno/smart-specialisation.pdf (accessed on 23 September 2022); OECD (2014[83]), *OECD Science, Technology and Industry Outlook 2014*, https://doi.org/10.1787/sti_outlook-2014-en; OECD (2020[8]), *Rural Well-being: Geography of Opportunities*, https://doi.org/10.1787/d25cef80-en; Brainport Development (n.d.[70]), *Brainport Eindhoven*, https://brainporteindhoven.com/int/; OECD (2014[67]), *Innovation and Modernising the Rural Economy*, https://doi.org/10.1787/9789264205390-en.

Sustaining university networks for innovation

As a part of cluster policies, or as a stand-alone initiative, the link between universities and firms can be a strong enabler for rural innovation. Inverness Campus, developed by HIE, opened in 2015 to help businesses, researchers and academic institutions connect and grow, and serves as a location for those operating in the life sciences and technology sectors, based in the Highlands and Islands of Scotland. In OECD countries, regions that contain an important share of research universities or laboratories often more easily build connections and generate benefits from spillovers. Governments tend to support these types of linkages through a variety of tools that include subsidies for joint endeavours, networking events or other kinds of in-kind and programme support.

For university-firm linkages to provide fruitful, the firms must be motivated to innovate and conduct experiments. Evidence from a recent study in Norway found that many successful initiatives are often determined by the characteristics of firms, rather than initiatives from university researchers (Atta-Owusu, Fitjar and Rodríguez-Pose, 2021[89]). When firms are open to collaboration, they are more likely to collaborate with universities that are nearby. However, incentives for universities are not always aligned. Universities may not necessarily gain as much from collaboration and, as they grow in success, they tend to weaken links with local and national firms. In Scotland, Interface, with 16 years of operation, is a strong mechanism for encouraging this type of linkage. The initiative is used to connect firms to researchers but if often more successful in areas that have close linkages to universities. Other examples of initiatives that build an approach for encouraging university-firm linkages are further elaborated in Box 3.10.

In the South of Scotland, GBP 6.6 million funding from SOSEP is being used by Dumfries and Galloway College and Borders College to develop a network of STEM Hubs across different locations including Dumfries, Galashiels, Hawick and Stranraer that will focus on digitalisation of learning in care, engineering and renewables, and sustainability and construction. The hubs seek to address immediate skills gaps in areas such as energy and engineering, construction and care. These will be accessible to school and college students and employers wishing to try the latest technologies or upskill their current workforce. In addition, within the framework of the Dark Sky Park in the Galloway Forest area, a Dark Space Planetarium has been opened in a former school building in Kirkcudbright (Darkspace Planetarium, n.d.[90]). As well as adding a new tourist attraction to the town, the planetarium offers school visits and educational tours.

Box 3.10. University-firm linkages for innovation

Interface, Scotland, United Kingdom

Established in 2005, Interface, the knowledge connection for business, is a central hub connecting organisations from a wide variety of national and international industries to all of Scotland's universities, research institutes and colleges. Based regionally throughout Scotland, Interface works with businesses of all sizes, in all sectors, to match them to Scotland's academic expertise to help them grow. With connections to all Scottish universities, research institutes and colleges, Interface has established an efficient processes that will help save time and money in finding and accessing academic expertise, research, technologies, specialist facilities and funding. The central hub also seeks to facilitate clusters

of businesses and academics working together to tackle industry sector challenges leading to transformational outcomes and impacts.

In addition to the proactive matchmaking advice provided by the Interface team (with regionally located specialists across Scotland), Interface is able to provide funding through 3 types of innovation vouchers: Standard Innovation Vouchers of up to GBP 5 000 of funding aimed at encouraging first-time partnerships between a company and a university or further education college; Student Placement Innovation Vouchers, up to GBP 5 000 to fund a PhD or master's student to work within a business on a clearly defined project and continue the development of a Standard Innovation Voucher award; and Advanced Innovation Vouchers, up to GBP 20 000 of match funding to either encourage sustained relationships with academia and enable existing partnerships to continue the development of a project or for those companies which are beginning their collaborative journey with an HEI/further education college partner. The company must provide a mix of in-kind and cash contributions.

Now in its 17th year of operating, Interface's success story is reflected in the following: 6 261 business-led expertise searches sent to academic partners and 3 399 business-academic discussions facilitated. A 2020 evaluation estimated that the contribution to the Scottish economy from R&D projects between businesses and academics enabled by Interface was GBP 88.9 million GVA, which supported 1 595 jobs, with expectations to reach GBP 222.3 million GVA and 3 193 jobs. The Interface website presents a set of case studies from across Scotland, including rural areas, of how this support has helped transform businesses.

Institute for Systems and Computer Engineering, Technology and Science (INESC TEC), Portugal

As one of the most influential research centres in Portugal, INESC TEC brings academics and companies together to contribute to the competitiveness of the Portuguese economy, while improving local societal impacts. INESC TEC has 13 R&D centres in several locations around the northern region in Braga, Porto and Vila Real and focuses on bringing university and academic knowledge to businesses. Presently, its main sites are in the cities of Braga, Porto and Vila Real. The institute has 4 R&D clusters that include power and energy; industry and innovation; networked intelligent systems; and computer science. The institute provides: management and organisational services, including legal support and human resource management help; business development services, through industry partnerships, technology licensing, funding opportunities and international outreach; and technical support including communications and business informatics. In 2017, INESC TEC was composed of 725 researchers and received 33% of funding from international sources.

Academy for Smart Specialisation, Karlstad University and Region Värmland, Sweden

The regional government of Värmland, Sweden, leverages university-industries ties through its regional development and smart specialisation strategies, that now place the initiative within a local university (OECD, 2020[91]).

As part of a regional smart specialisation strategy, the regional government integrated the Academy for Smart Specialisation, an applied research facility with tailored training programmes and an interdisciplinary platform, into its region's Research and Innovation Strategy for Smart Specialisation 2015-2020. The initiative promotes new specialisation and skills in forest-based bioeconomy, information and communication technology, care, Industry 4.0 and tourism, with an approach reflecting the sustainability, inclusive growth and well-being goals of the regional development strategy.

While the success of smart specialisation in Värmland is attributed to the institutional "mobilisation" of regional actors, political agencies and place-based leadership, it also faced several challenges due to changes in regional governance, a lack of funding and business engagement. To address some of

these issues, the region of Värmland is now working on mainstreaming the academy within the local higher education institution at Karlstad University.

Source: Interface (n.d.[92]), *Homepage*, https://interface-online.org.uk/. Accessed : 15 March, 2023; INESC TEC (n.d.[93]), *Homepage*, https://www.inesctec.pt/en. Accessed: 15 March, 2023; OECD (2020[91]), *The Geography of Higher Education: Evaluation of the Academy for Smart Specialisation*, https://www.oecd.org/cfe/smes/Evaluation_Academy_Smart_Specialisation.pdf.

Investing in innovation and internationalisation

Facilitating access to finance

The latest report on Scotland's risk capital market highlights that, in 2021, Scotland attracted GBP 690 million in risk capital investment, over a third more than the GBP 509 million recorded in 2020, with a total of 396 deals (Table 3.3). The value of investment in Scotland in 2021 made up 3% of the UK total and 6% of deals, similar to the position in 2020. There has been a strong growth in the number of deals and amounts raised since 2016 with, however, important regional differences and with fluctuating annual performance for the Highlands and Islands and South of Scotland (the latter accounting for the lowest number of deals and investments of the six regions).

Public funding and support for access to finance for firms and entrepreneurs is broadly speaking available on a similar basis across Scotland, with only a few limited dedicated rural incentives. Traditionally, SE has operated the main financial (equity and grant) funding schemes both for investment and R&D and innovation. This has been done in partnership with HIE, and more recently SOSE, which identify entrepreneurs and start-ups and growth companies in their regions and orientate them towards specialists at SE and investment firms.

The investment function within E supports Scotland's SME funding market to improve access to early-stage growth capital. The early stage is defined as the pipeline of pre-start-up, start-up, growing and expanding businesses, frequently technology-based, that have the potential to achieve high growth. Two long-standing equity-based instruments operated by SE but available to companies from the HIE and SOSE areas as well, are:

- The Scottish Co-investment Fund (SCF), which is designed to address financing gaps in co-operation with accredited co-investment partners. Investment can be made in companies from start-up, early-stage to expanding businesses seeking to develop products and/or markets. Through this fund, SE can: match accredited investment partners up to a maximum of 50% of the total funding package on a commercial basis; provide from GBP 10 000 up to GBP 2 million, as part of a total deal size typically ranging from GBP 20 000 up to GBP 10 million.
- The Scottish Venture Fund, which invests in start-ups, early-stage and expanding businesses seeking funding to develop products and/or markets. This fund can invest alongside private sector investors on equal terms, up to a maximum of 50% of the total funding package on a commercial basis. In this case, SE is a "gap" funder, so companies should seek to maximise private sector investment first. SE can provide from GBP 10 000 up to GBP 2 million, as part of a total deal size typically ranging from GBP 20 000 to GBP 10 million.

Table 3.3. Risk capital investments by main Scottish regions, 2016-21

Scottish regions by number of deals and amounts raised, 2016-21 (in millions of GBP)

		2016	2017	2018	2019	2020	2021
Aberdeen	Deals	14	32	39	54	43	35
	Amounts	26.2	520.9	100.5	122.7	123.4	56.5
East of Scotland	Deals	124	193	177	203	222	188
	Amounts	205.3	151.2	164.3	235.4	218.0	325.2
Highlands and Islands	Deals	18	14	19	16	25	13
	Amounts	5.3	1.8	37.8	17.7	48.8	11.8
South of Scotland	Deals	7	11	6	8	4	7
	Amounts	1.7	5.5	7.9	6.9	3.2	20.5
Tayside	Deals	34	32	33	46	44	51
	Amounts	26.1	10.4	14.8	21.2	34.1	106.9
West of Scotland	Deals	84	116	99	111	119	102
	Amounts	59.9	83.9	68.8	80.1	81.7	169.7
Total	Deals	281	398	373	438	457	396
	Amounts	325.6	773.6	394.2	484.0	508.2	689.6

Source: Scottish Enterprise (2021[94]), *Investing in Ambition Scotland's Risk Capital Market in Context*, https://www.scottish-enterprise.com/media/4012/investing-in-ambition-risk-capital-market-report-2021.pdf.

In 2020, the Scottish Government also funded an Early Stage Growth Challenge Fund, delivered by SE, and grant and investment funding of almost GBP 25 million was committed to 90 innovative, early-stage businesses in Scotland whose growth ambitions were impacted by the onset of the COVID-19 pandemic.

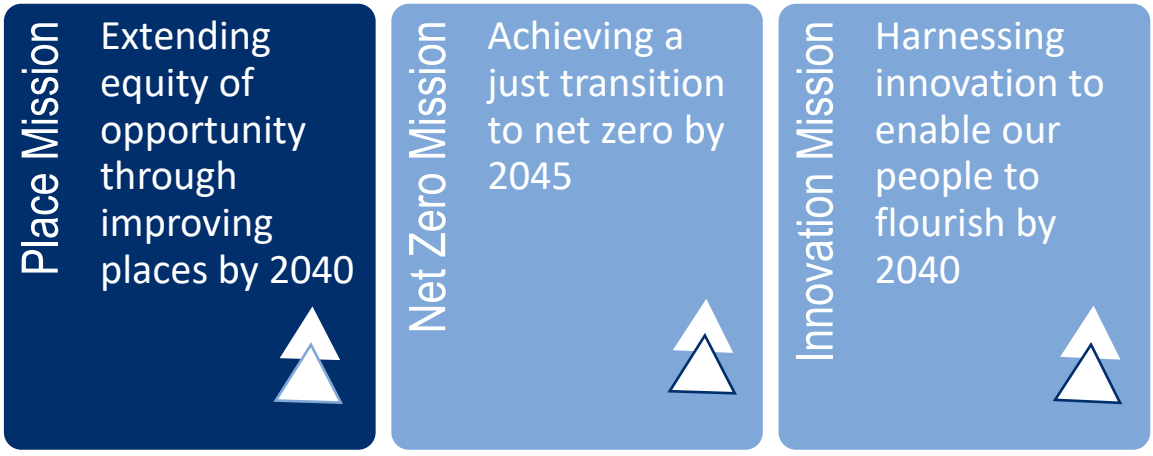
Another main instrument is the Scottish Growth Scheme, launched in 2016, which sought to provide up to GBP 500 million of financial support to help businesses grow. The scheme is delivered, across Scotland, through by a portfolio of five funds offering microfinance, loan and equity support to businesses:

- DSL Business Finance (microfinance) provides loans of up to GBP 25 000 to start-ups and small businesses.
- Business Loans Scotland (loans) provides loans in the range of GBP 25 000 to GBP 250 000 for SMEs with growth ambitions.
- UMi Debt Finance Scotland (loans) provides loans in the range of GBP 25 000 to GBP 250 000 for SMEs with growth ambitions.
- Foresight (equity) provides equity investment of up to GBP 2 million within a deal ceiling of GBP 10 million for SMEs with high growth potential.
- Techstart Ventures (equity) provides equity investment of up to GBP 2 million within a deal ceiling of GBP 10 million for high-growth start-ups and young, innovative SMEs.

From 30 April 2021 to 31 March 2022, the Scottish Growth Scheme unlocked a total investment of some GBP 171 million for 148 businesses, with an average payment of GBP 1.15 million.

The Scottish National Investment Bank (SNIB) is expected to have an expanding role as a key source of investment across Scotland, including in rural areas. The Scottish Government expects the SNIB to invest GBP 2 billion of public capital over the bank's first ten years (2021-30) with GBP 800 million of public capital to be committed to investment by the end of the 2024/25 financial year. The bank has adopted a mission-driven approach with a focus on three core missions as summarised in Figure 3.4.

Figure 3.4. Scottish National Investment Bank Mission



Source: Based on information fromhttps://www.thebank.scot/ .

Foreign direct investment (FDI) is making a positive and significant impact on Scotland's economy (Scottish Government, 2020[95]). Inward investors constitute 3% of Scotland's businesses yet are responsible for 34% of employment (624 000 jobs), 46% of Scottish GVA (GBP 41.7 billion), 50% of turnover in Scotland (GBP 119.6 billion), 63% of business R&D spending (GBP 782 million), 77% of Scottish exports (GBP 24.2 billion), with 86% of Scotland's top 100 exporters being foreign or UK-owned. Firms that have access to FDI are more likely to also create spillover effects for other firms in the economy (Box 3.11), operate in export sectors and have a higher proportion of spending on R&D and innovation.

Box 3.11. Wider spillover benefits of FDI

LifeScan (Inverness) has grown to become the largest private sector employer in the Highlands and Islands currently employing over 1 000 people in the design and manufacture of diabetes and glucose testing kits. From its roots as the start-up Inverness Medical (1995), through its takeover by Johnson and Johnson (2001) and subsequent sale to Platinum Equity (2019), the company has been helped at every stage in its growth by HIE in partnership with many other local stakeholders.

Coupled with engagement with the local community, the firm has worked closely with all relevant organisations and there is now a true partnership approach in the local area which extends to academia, notably the close working with HIE in the creation of the Highlands Diabetes Institute at the University of the Highlands and Islands.

An accredited Living Wage Employer, LifeScan has now embedded itself in the local skills market, nurturing and supporting local talent through a partnership with schools, via its Bridge to Employment initiative and STEM Ambassadors, and with Inverness College as a delivery partner in its training academy.

LifeScan has been an engine for growth in the life sciences cluster in the Highlands, with direct employment as well as staff who were previously employed. These staff have created their own spinout firms, some of which are now themselves receiving significant equity investment and achieving growth.

Source: Adapted from Scottish Government (2020[95]), *Scotland's Inward Investment Plan: Shaping Scotland's Economy*.

The Place Mission referenced in Figure 3.4 is particularly relevant for rural areas although there is no distinction made in the documents explaining the missions between rural and urban "places". The aim is to extend equality of opportunity through improving places by 2040. The SNIB will seek to invest in places and regeneration to reduce inequality and improve opportunities and outcomes for people and communities. The Innovation Mission seeks to address Scotland's demographic challenges (including age, health profile and rural depopulation). And the bank expects to focus its business investment activity on those businesses that are in their scale-up phase, demonstrating commercial progress and seeking debt or equity investment in excess of GBP 1 million to support their growth.

In addition to investing in businesses, the SNIB is also tasked with providing investment support for communities and the third sector in order to create local sustainable economies. Such investments may include: businesses, clean energy projects, circular economy waste reduction and recycling initiatives, local affordable or social housing developments and local regeneration projects. It is expected that the bank will invest in commercially viable mission-impact community and charitable investment opportunities requiring debt or equity investment in excess of GBP 1 million.

While investment support is offered for SMEs in rural regions of Scotland, their lack of a rural lens may hinder the equal participation of entrepreneurs across all regions of Scotland.[18] Recent work on SME financing through FDI in Portugal found similar challenges in access to finance (OECD, 2022[88]). In some OECD countries, there are specific measures to reduce the gap in access to finance for investment (see Box 3.12) and create a more tailored approach to understanding the risk profile and needs of rural entrepreneurs.

Box 3.12. Access to finance with a rural lens

Investment "Pitch" Roundtable, Québec, Canada

There are several financial support mechanisms for rural entrepreneurs in Canada. Among them are those delivered by regional development agencies that may come in the form of start-up grants or other forms of early-stage investment. Most regional development agencies (RDAs) also offer a form of loan or a loan guarantee programme to support entrepreneurs.

In addition to what is offered by the different RDAs, there is a strong level of support from national and provincial initiatives. To support the facilitation of access to information on resources available for entrepreneurs, Canada Economic Development for Quebec Regions (CED-Q) offers a service that centralises contacts from different funding agencies within the federal, provincial and private sector resources. An interested entrepreneur prepares a pitch and presents it to a roundtable of different officers competent in delivering support.

Community Reinvestment Act, United States

In addition to specific programmes targeting equity in opportunities and access to finance, in the United States, banking institutions play an important role in small communities. The Community Reinvestment Act, which became law in 1977, promotes financial inclusion and community engagement by incentivising banks that have branches in small communities to reinvest into the community by meeting

the credit needs of communities in which they do business including low-income and moderate-income areas. It does so by enabling Federal Research and other financial institutions to evaluate bank performance across the varied activities they conduct and communities in which they operate. The act incentivises the use of smaller-value loans and investments that can have a high impact and be more responsive to the needs of communities.

Among different ways to reinvest in the community, these rural banks offer finance options for rural entrepreneurs that may be more lenient regarding requirements for collateral and risk assessment. Banks at the forefront of reinvestment in the communities work with local entrepreneurs and development initiatives to encourage community revitalisation. In some cases, banks that are actively participating in community revitalisation: i) hire locals to develop community reinvestment opportunities; and ii) provide business support opportunities or networks for rural entrepreneurs.

Source: Based on case studies.

Supporting internationalisation and export markets

To turn local resources into economic assets, networking is critical in providing SMEs with the know-how and technologies necessary to identify and utilise untapped local resources. To perform well in the external market, rural areas need to identify their "territorial linkage" (OECD, 1995[96]) or "selectivity in terms of site" (Camagni, 1995[69]) to build their niche market strategy. While geographical remoteness may allow rural areas to establish a distinguished territorial image, an external perspective is indispensable in making their way in an external market. Hence, networking is critical for rural innovation to better connect rural SMEs with external markets.

Since Scotland is a trading nation with a long and prominent exporting history, driving the internationalisation of the Scottish economy and ramping up the value of exports is important (Scottish Government, 2019[97]). Evidence from the *Small Business Survey Scotland* (Scottish Government, 2018[98]) shows that, in 2017, SME exporters were twice as likely as SME non-exporters to have innovated in the previous three years. Table 3.4 shows that, while 59% of international exports are accounted for by large companies (more than 250 employees), small (less than 50) and medium (50-249) companies hold 20% and 21% respectively. The benefits relating to exporting are particularly relevant to SMEs, which employ the majority of the labour force in Scotland. Smaller businesses typically have less access to learning opportunities than large businesses do. Engaging in international trade, however, gives SMEs greater access and knowledge of different markets and production technologies.

Table 3.4. International export by company size, 2019

Company size	2019 total (GBP billion)	% of total
Small	6.9	20
Medium	7.4	21
Large	20.8	59
Total	35.1	100

Note: Company size based on employment of company in Scotland. Small: fewer than 50 employees; Medium: 50-249 employees; Large: more than 250 employees.
Source: Scottish Government (2021[99]), *Export Statistics Scotland 2019*, https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2021/10/export-statistics-scotland-2019/documents/export-statistics-scotland-2019---publication/export-statistics-scotland-2019---publication/govscot%3Adocument/Export%2BStati.

To promote export at the UK level, the UK government set out Race to a Trillion to lift its exports to GBP 1 trillion each year, which is projected to reach this level of exports in the mid-2030s (UK Government, 2021[100]). UK export strategy embodies a 12-point plan for exports that will be the joint framework for business and government to accelerate the Race to a Trillion. To support exporters across all parts of the UK, new offices have been opened in Scotland as well as in Northern Ireland and Wales, to level up export growth and support jobs. In addition, the UK Export Academy was established to offer bespoke training programmes and digital tools to help businesses navigate the technicalities of exporting and find opportunities overseas.

Regarding Scottish export, its ambitious target is to increase overseas export from 20% of gross domestic product (GDP), at the current level, to 40% of GDP (Scottish Government, 2019[97]). As the first step, the initial target so far is to increase it up to 25% of GDP by 2029. The leading agents of export promotion are Scottish Development International, which is responsible for providing in-depth export support to Scottish businesses, and the Scottish Chambers of Commerce, through its network of 26 member chambers, which represents 11 000 businesses across Scotland. The main support available for exporters are business-to-business mentoring, wider business support, export finance and digital support.

Business-to-business mentoring is to provide new or inexperienced exporters with advice and support on issues and challenges they face from their peers, who are experienced exporters and interested in sharing their experiences and knowledge. Wider business support is to improve the range and quality of products that Scottish businesses produce. This is supported through the investment in increasing innovation, improved business practices and linking closely with Scottish higher education institutions and colleges. Export finance gives insurance against risks of non-payment by customers, in particular markets or working capital to support the potentially lengthy processes of supply to international markets. Digital support, by stimulating interest, raising awareness and building capacity, helps equip Scottish businesses with the skills and knowledge they will need to seize global opportunities via trading digitally.

There has been a strong emphasis on the field of the difficulties they faced in exporting from a rural base (including availability and cost of transport, market awareness, etc.) and that this had been compounded by the impact of Brexit on existing European markets. Support for internationalisation and export-oriented growth has been traditionally focused on those companies with the greatest export potential/business. These “top” firms are estimated to number 1 200 companies and, according to the data provided by the Scottish authorities (response to OECD questionnaire), “few are located in rural areas”. Scottish Development International (SDI) has a mandate for both inward investment in Scotland and supporting trade with Scottish firms by helping foreign companies identify suppliers of Scottish products and services or seeking innovative solutions. A 2017 strategic evaluation of SDI international activities noted that firms from rural areas found it more costly and difficult to engage with SDI advisers and participate in events.

Partly in response to the difficulties identified in the evaluation, a team of 17 export advisers were contracted by SDI to work with businesses interested in starting to export. These advisers work with Business Gateway to provide two levels of support to businesses: two or three days to explore their interest in exporting; and then working through an action plan with bootcamps, advice from GlobalScot, market information and, potentially, overseas visits.

In practice, the first line of support for smaller businesses seeking to export is provided by the three enterprise agencies (SE, HIE and SOSE) for businesses located in their respective areas. SE co-ordinates a Preparing to Export programme that provides advisory support and training resources to create a comprehensive plan for businesses seeking to export for the first time. Export advisers also operate through the Business Gateway network providing advice through workshops and one-on-one “surgeries” with companies from the areas.

Creating initiatives to support capacity building and encouraging experimentation in rural SMEs

The Business Support Partnership (BSP) has developed a single point of access for entrepreneurs and companies. The platform Find Business Support gives an overview of all funding and services offered by (over 90) public sector organisations across Scotland. Users can search by local authority, sector or type of funding/support (e.g. innovation, trade, digital, etc.). For instance, searching for innovation/R&D funding for industrial manufacturing in the Outer Hebrides generated 16 funding/support services suggestions in the spring of 2022.

A 2022 innovation strategy evidence paper mapped out, based on work by the ESSB, the main types of innovation support per stage (see Table 3.5). Analysis from the report found strong support for ensuring infrastructure costs primarily from the SFC and the Scottish Government as well as organisations for innovation support, while enterprise agencies were primarily delivering initiatives and activities that supported the commercialisation and conversion stages of innovation.

In the HIE area, there are a number of initiatives taken to support businesses in their innovation journey that reflect some of the main opportunities identified for the region (e.g. food and drink). These include, in mid-2022, the Co-innovate Programme, the Northern Innovation Hub, the Food and Drink TechHUB and the Data Lab Inverness Hub as well as access to innovation advice through events and HIE advisers.

Innovation advisory support provided by HIE is available for businesses from any sector and any part of the region at an early stage in innovation. Businesses can benefit from up to two days of intensive time with an innovation specialist to help them progress their project. Support can take the form of innovation strategy review, product and process development, business model options and workplace innovation diagnostic, amongst others. HIE helps part-fund innovation projects with grants of between GBP 25 000 and GBP 100 000. Co-innovate, the initiative funded by the Interreg VA Cross-Border Programme for Territorial Co-operation 2014-2020, aims to stimulate and support innovation in the Argyll and the Islands, Innse Gall, Lochaber, Lochalsh and Skye areas. With partners in Ireland, Northern Ireland (United Kingdom) and SE in the South West of Scotland, the 85% EU funding has enabled HIE to put 2 additional full-time equivalent (FTE) Innovation Programme Managers into these geographic areas and work intensively to generate an additional 180 innovation active businesses over 5 years. Designed to directly benefit early-stage businesses, it raises awareness of innovation and increases the capability to do so. The programme is delivered over five strands, beginning with workshops and going through to academic placements and R&D grants.

The delivery of the Northern Innovation Hub (NIH) is part of HIE's involvement in the Inverness and Highland City Region Deal. The NIH focuses on specific sectoral opportunities to build a global competitive advantage. It is not a physical hub: instead, it is dispersed and designed to benefit small and emerging enterprises, reflecting the geography and business makeup of the city region. The NIH is built around three key themes: young people; enhanced growth capacity; and sectors and place. It will focus on subsectors of life sciences, tourism, food and drink, and creative industries, where the city region has competitive advantages and where targeted projects can make an impact.

The Food and Drink TechHUB Business Support Service is a fully funded programme of activity designed to help food and drink producers and supply chain businesses in the Highland Council area grow and reach their potential. The support is open to any food and drink or supply chain business that is based in the Highland Council area. The project is also open to entrepreneurs and individuals with plans for setting up a new food and drink-related business. The programme delivers specialist support tailored to participants' needs.

Table 3.5. Main types of innovation support per stage in Scotland

		Infrastructure	Activities	Organisations
Commercialise	SFC	University Innovation Fund		
	SG	Medicines Manufacturing Innovation Centre Oil & Gas Technology Centre	Unlocking Ambition CAN DO Innovation Challenge Fund Edge	Wave Energy Scotland Hydro Nation Water Innovation Service Scotland Can Do Innovation Challenge Fund
	SE		Scaling Accounts HGV Advisor Support High-Growth Spinout Programme Enabling Grants Scottish Co-investment Fund	
	HIE		Small Innovation Grant Innovate Your Business (Advisor Support)	
Convert	SFC	Innovation Centre Programme University Innovation Fund	Industry-Academia Links Innovation Voucher Scheme	Interface
	SG	Fraunhofer Lightweight Manufacturing Centre Medicines Manufacturing Innovation Centre Oil & Gas Technology Centre	Edge CivTech Unlocking Ambition	Wave Energy Scotland
	SE		SMART	
	HIE		HIE Business Funding Innovate Your Business (Advisor Support) Northern Innovation Hub ScotsGrad Innovation Support	
Concept	SFC	Research Postgraduate Grant Research Excellence Grant Innovation Centre Programme University Innovation Fund	Industry-Academia Links Innovation Voucher Scheme Research Pools Strategic Funds KE	Interface
	SG	Research Institutes Funding Fraunhofer CAP Medicines Manufacturing Innovation Centre Oil & Gas Technology Centre	Broadcast Content Fund Charging Points Knowledge Transfer Partnerships EXPO Fund – festivals Innovation COIG Route Development Production Growth Fund	
	SE			
	HIE		ScotsGrad –Graduate Placement	

Note: SFC: Scottish Funding Council; SG: Scottish Government; SE: Scottish Enterprise; HIE: Highlands and Islands Enterprise. South of Scotland Enterprise (SOSE) was only recently established by the time of this review.
Source: Scottish Government (2022[77]), *Innovation Strategy – Call for Evidence*, https://consult.gov.scot/economic-development/d987c83c/.

The Data Lab is Scotland's innovation centre for data and artificial intelligence (AI). With hubs in Aberdeen, Edinburgh, Glasgow and Inverness, the Data Lab aims to foster innovation that will help Scotland maximise value from data. The Inverness hub opened in April 2019 and is located within An Lòchran on Inverness Campus. It provides the Highlands and Islands with a dedicated centre for data and AI to help build momentum and create further growth and opportunities in the technology sector. The Inverness hub is at the centre of a support programme for businesses in the Highlands and Islands, looking to innovate through data science to solve real-world business problems. It provides access to specialist advice, support and training, and runs events on topics such as data innovation, featuring businesses that are applying machine learning and AI to create value. Over 2 500 businesses across the region are expected to benefit from the programme over a 3-year period.

SE, HIE and SOSE support Scotland's Open Innovation Marketplace, which matches Scottish and global companies to help them solve challenges and make business growth a reality. Support and funding are also available to encourage collaboration between businesses to develop new ideas and services. Businesses based in Scotland are eligible for the support; they benefit from access to an extensive network of businesses interested in innovation and an opportunity to discover wider funding and support options.

Scotland offers many programmes to encourage experimentation and SME capacity building for innovation. Among notable ones, the integrated Find Business Support one-stop shop is an example of a co-ordination mechanism that can help provide entrepreneurs with information and reduce the costs of searching for support. This is particularly important in rural areas where access to information and services may be more difficult. The forthcoming innovation strategy, while not yet currently released, is working on incorporating regional innovation angles that can provide more tailored support for rural entrepreneurs. Further diffusion of good practices from more established programmes in the HIE region and Co-innovate should be supported. Additional ideas for promoting innovation may be considered outside of the region, for example, via the Swiss model for innovation boosters (hackathons), the Dutch models for cluster innovation at Eindhoven and for promoting experimentation through living labs and regulatory sandboxes[19] as described in Box 3.13.

Box 3.13. Encouraging experimentation

Regulatory innovation sandboxes

In 2016, the first regulatory innovation sandbox allowed experimentation in the financial technology (fintech) industry. According to a recent study, since then, 73 fintech sandboxes have been established in 57 countries, more than half of them between 2018 and 2019 (World Bank, 2020[101]). An innovation sandbox is a type of regulatory sandbox that encourages innovation, holding several regulatory requirements on pause while innovators experiment on whether outcomes of innovations may develop useful innovations that may solve greater issues or prove whether regulations may be needed. Regulators across the globe are using regulatory sandboxes to provide a safe environment for emerging technologies to test regulatory boundaries.

A recent report showed that they tended to serve as a base to test the necessity of regulations, facilitate firm start-up entrepreneurship and foster new partnerships. A few examples include a fintech sandbox in Australia and a digital sandbox in the United Kingdom. Additionally, initiatives in the agri-tourism sector of the Jura region of Switzerland fit a similar definition.

The circular economy in Glasgow

Since 2015, the Glasgow Chamber of Commerce hosts Circular Glasgow and is responsible for delivering this initiative alongside Zero Waste Scotland, Glasgow City Council and key stakeholders. Circular Glasgow aims to build best practices and capacity on the circular economy across Glasgow

businesses, helping them identify opportunities to support and implement circular ideas. This is done through: workshops and events – a series of knowledge-sharing business-to-business networking events; Circle Assessment – a tool which helps businesses understand opportunities to become more circular; and the Circle Lab – an online hackathon event to find a circular solution to local challenges. The Circle Lab sought solutions to make Glasgow's event industry more circular. From over 200 contributions, the 3 winning ideas include a deposit-based reuse system for food and drink containers, circular designs for event marketing and branding, and a scheme that will repurpose organic waste into energy and fertilisers. Ways to turn these ideas into pilot projects are now being explored. The city is currently developing a circular economy roadmap.

Fintech sandbox in Australia

The Australian government established an Australian Licensing Exemption Scheme through the Australia Securities and Investments Commission (ASIC) that allowed exceptions for eligible fintech companies on certain products and services for up to 12 months without a license. This allowed firms to begin operating quickly, with low barriers to starting a new fintech company through lower compliance costs. The firm is required to notify the ASIC of its plans but remains momentarily free to experiment with the product and services offered.

Digital sandboxes in the United Kingdom

Starting with the beginning of the global COVID-19 pandemic in May 2020, the Financial Conduct Authority in the UK began piloting a "digital sandbox". The initiative is currently in its initial stages that attempt to provide guided support for firms looking for a digital testing environment with the aim of addressing some of the challenges of the pandemic. The initiative has a specific goal and is administered through a call for applicants who are given the right to participate based on whether they aim to accomplish one of the targets of the administration, which includes preventing fraud, improving the financial resilience of consumers and improving access to finance for SMEs.

Regulatory exemptions in tourism for the region of the Jura, Switzerland

While not directly marketed as such, two examples of regulatory sandboxes with the specific target of developing the tourism sector are found in the mountainous region of the Jura in Switzerland. Both initiatives were driven from the bottom up and included the co-ordination efforts of the regional innovation system (RIS) agencies. The first was built in collaboration with TalentisLAB, which requested an exemption from environmental protection legislation that limited activities associated with ecotourism. After an application for exemption and a call for proposals, a new initiative to encourage eco-responsible tourism and provide housing in camping sites is being put in place.

Second, exemptions from previous restrictions visiting publicly protected places, through an initiative that provides access to a "secret route" (*circuit secret*) to groups of tourists who have acquired digital keys. The community of Porrentruy, jointly with the RIS's agency services, worked on reducing regulations on access to public places that may be of interest to increasing tourism in areas. This has allowed the town of Porrentruy to gain visibility and attractiveness after suffering significant business losses due to COVID-19.

Innovation labs

Another increasingly popular way to encourage innovation that has taken flight are Living Labs, "fab labs" and similar initiatives to bring previously inaccessible tools for budding innovators. The Interreg Europe Policy Learning Platform is one of the programmes supporting the increased use of such tools that create a place to learn, experiment and enjoy the process of innovation. While the different labs

vary, they generally provide a mix of services such as skills, materials and advanced tools to participants that can include university-industry collaborations and provide prototyping services for SMEs.

Living Labs, Portugal

The experience of implementing Living Labs in Portugal dates back to the 1990s. Since then, they have been of crucial importance for the economic, social and business development of the country. To date, 18 projects have been developed, some of which are part of the European Network of Living Labs (EnoLL). There are diverse types – local, sectoral and thematic – organised in regional, national and transnational networks. Sectoral and thematic living labs include labs for energy, well-being and health, e-government and digital participation, sustainable environment, mobility, rural and territorial development, and industry and logistics.

The Smart Rural Living Lab (SRLL) was founded at the end of 2007 and is located in Penela in central Portugal. It aims to develop new methods and technologies to identify the weaknesses and strengths of rural areas, find references for sustainable rural development, export the acquired knowledge to other rural areas and collaborate with citizens to promote rural areas. Key local issues are related to an ageing population and the weak development of the economic fabric. The goal of the SRLL is to promote innovation and development in the exploration of innovative technologies, methods and applications to achieve better integrate rural areas into the global supply chain, create new services/systems/products and business opportunities, and promote citizen participation.

The SRLL has established itself as a centre for innovation, best practices and sustainable development of rural areas where the agri-food and forestry sectors are strong. For example, to solve the problem of the lack of shepherds to take care of sheep needed for local Rabaçal cheese production (protected designation of origin), a Smart Farm called the FarmReal concept was tested. This involves investment into a community herd via crowdfunding and the adoption of individual animals by investors who would then survey their physical activity and milk production digitally via specific sensors. Users become “virtual shepherds” of real goats and can follow the day-to-day life of the adopted goats, monitoring their behaviour and socialisation through updated photos and videos, their Global Positioning System (GPS) location as well as the area and amount of vegetation used by the herd.

e-Health Living Lab and smart energy grids, Eindhoven, Netherlands

As part of the Brainport Development cluster, Eindhoven also houses an example of a Living Lab that focuses on the development of time-limited trial runs for new products and services. Brainport Development works with local stakeholders, higher education institutes, the government and a consortium of private sector parties to focus on experimenting with new solutions to pre-existing issues. Through Living Labs, individuals are given a license to test out a new initiative in a short time frame to get rapid feedback and determine the feasibility, benefit and scalability of such a project. For example, e-Health Living Lab provides elderly people the opportunity to try out new medical and healthcare services and a smart energy grids project provides new energy solutions for social housing.

The Center for Innovation and Entrepreneurship in Cal Poly, United States

As a service to students led by students, California Polytechnical State University (Cal Poly) creates a space for budding entrepreneurs to use materials involved in developing new products and services in a variety of sectors including but not limited to manufacturing, farming and services. This initiative provides some of the more advanced and often more expensive tools to experiment with innovative ideas. Some of the materials available for students to use include vinyl cutting, three-dimensional (3D) printing, virtual reality, computer numerical control (CNC) routing and laser-cutting resources.

The student-run organisation also offers workshops for learning engineering and artistic skills, as well as small grants that facilitate the development and startup of new student-run projects. Funds for grants are targeted towards bringing ideas from the innovation sandbox to entrepreneurial fruition.

Experimenting in the public sector

The use of "serious games" to support governments and make various options for courses of action visible through systems thinking and futurism has been increasing in the policy arena. This can be a good option to replace conventional brainstorming sessions with sticky notes and drawings on a board.

The European Commission (EC) Joint Research Centre (JRC) has worked with experts in these types of games at the Hawaii Research Center for Future Studies to create the Scenario Exploration System (SES). Participants explore their long-term objectives against scenarios and consider various stakeholders. By creating a realistic journey towards the future, the SES generates a safe space to uncover perspectives and thinking, with a view to simulating possible responses linked to issues of interest to the participants.

The SES is available under a Creative Commons licence, which allows anyone to freely use and modify the game, as long as they share the results of their adaptation under the same conditions. The OECD has made freely available for download details and instructions (https://oe.cd/ses).

Augmented reality in policy making

Governments are also realising the potential of augmented reality (AR) and virtual reality (VR) for the public good. Similar to gamification, governments and their partners are using these technologies as tools to bring previously invisible insights.

For example, in the United States, the New York City suburb of New Rochelle was recently named a 2018 Bloomberg Mayor's Challenge champion city for its pioneering use of AR and VR to engage residents in plans for new buildings and public spaces in the city. Through this innovative project, residents can use AR applications on their smartphones to envision what a new park might look like, employ interactive software to design streets and use VR headsets to review different options for buildings and provide their opinions.

Innosuisse Innovation Booster, Switzerland

The Innovation Booster programme powered by Innosuisse is designed to specifically support radical ideas in a culture of open innovation. Supporting the primary stage of an open innovation process, they provide the impulse for innovative ideas and help them to get off the ground into the market.

The main mission of the programme includes:

- Bringing together all interested players from research, business and society on various innovation topics.
- Promoting knowledge transfer and encouraging co-operation with partners along the entire value chain of a topic. Each booster has its own 131rganization and leading house.
- Using design thinking methods and other user-centred methods, the Innovation Boosters support companies, start-ups and other organisations to identify and explore problems in interdisciplinary teams and develop new and radical solutions from scratch.
- Providing an apt funding amount to finance and support the testing and verification of promising ideas and assisting teams in getting follow-up support to further develop or implement their idea.
- Fostering a culture of open innovation, to create sustainable competitive advantages for innovative Swiss organisations and SMEs.

Innosuisse selects Innovation Boosters with regular calls for proposals and for a four-year period. The selection is based on a range of criteria which include:

- The current and future importance of the innovation topic.
- The likelihood that it will give rise to future innovation projects.
- The appropriateness of the methods and mechanisms used to promote the transfer of knowledge and technology.
- The competency to address the innovation topic and to involve the relevant actors on a national scale.
- The plausibility of the budget and cost-benefit ratio, the degree of own-funding and the contribution of third-party funds.
- The contribution to the sustainable development of society, the economy and the environment.
- Measures to ensure appropriate gender representation in the organisation and at activities.

Key performance indicators on gender are supposed to motivate initiatives to proactively increase the percentage of women on their boards as well as among their speakers and participants. This is especially interesting in some fields, which are historically unbalanced with respect to the participation of men and women.

Innovation Boosters are selected under a complementarity principle: Innosuisse supports initiatives that would not easily be supported by the private sector only, because of inherent risk, lack of resources or private investments, or unclear economic return. They should all have the potential to involve actors from all over the national territory.

The above criteria should allow Innosuisse to select Innovation Boosters that will create an impact in Switzerland. This includes societal impacts such as an increase in quality of life, addressing major societal challenges, better population health or economic impacts such as job creation, increase in revenues, etc.

Source: Adapted from OECD (2022[71]), *Enhancing Innovation in Rural Regions of Switzerland*, https://doi.org/10.1787/307886ff-en.

Rural innovation is influenced by the local market structure, which may be fragmented, segmented or involve niche markets. While most rural firms are SMEs, they may still need a larger market than is available locally to reach a minimum efficient scale. Even without an export market, they may be able to survive if they have a local spatial monopoly but only by being able to pass high production costs onto a captive market (OECD, 2014[67]). Besides that, in order to compete against price competition, it is important for SMEs, which have little capital and human resources, to produce high-value products that could overcome the geographical disadvantage of rural areas so as not to make distance merely an additional production cost. A niche market strategy can be essential for rural SMEs if they intend to grow their businesses (OECD, 1995[96]).

SE provides the SMART: SCOTLAND grant, which is one of its R&D grants that aim to support high-risk, highly ambitious projects. It covers conducting feasibility studies. It is only available to SMEs based in Scotland and supports activities that have a commercial endpoint. Grants can support up to 70% of the eligible costs for a small enterprise and up to 60% of the eligible costs for a medium enterprise. These grants are discretionary and match funding must come from private sources.

The Scottish Government provides rural payments and services targeted at agricultural sectors and, among those, several programmes are to encourage innovation. The Knowledge Transfer and Innovation Fund is designed with knowledge transfer components and innovation components. The first is to promote skills development and knowledge transfer in the primary agricultural sector, which will be achieved

through providing funding to organisations to deliver vocational training, coaching, workshops, courses and farm visits. The second aim is to deliver innovative on-the-ground improvements in agricultural competitiveness, resource efficiency, environmental performance and sustainability. This will be achieved by meeting the running costs of operational groups seeking to implement innovative projects in these areas.

The other programme is Food Processing, Marketing and Co-operation, which provides grant funding to businesses within the Scottish food and drink sector. The scheme accepts applications for start-up grants for a new food processing business and development grants for an existing food processing business (Scottish Government, 2021[102])

Conclusions

The institutional setting and co-ordination mechanisms in Scotland demonstrate the government's commitment to supporting rural innovation and entrepreneurship. The co-ordinated approach provides financial and non-financial assistance, including various resources and tools, to help entrepreneurs acquire new skills and create new opportunities. The government's effort to focus on effective co-ordination and knowledge-sharing through horizontal and vertical co-ordination mechanisms is commendable. The Cabinet Secretary for Rural Affairs and Islands, Land Reform and Islands oversees co-ordination on rural affairs, entrepreneurship and innovation, which is crucial for the successful implementation of initiatives such as the Rural Economy Action Group (REAG) and City Region Deals. The REAG identifies barriers and facilitators to progress and proposes indicators that enable the value of the rural economy to be captured and monitored. The group's focus on establishing reporting mechanisms that build an understanding of the contribution of the rural economy to achieving the National Performance Framework (NPF)'s purpose and outcomes is crucial for monitoring progress and ensuring the sustainability of rural economic growth.

Over recent years, the Scottish Government has established a range of policies and strategies aimed at promoting entrepreneurship and innovation in rural areas. These policies are guided by the NPF, the Programme for Government (PFG), the National Strategy for Economic Transformation (NSET) and the Islands (Scotland) Act 2018, which provide a framework for addressing specific challenges facing rural areas, such as ageing and declining populations, land use and ownership, entrepreneurship, rural tourism infrastructure and access to housing. To achieve these goals, the government is investing in digital infrastructure, crofting opportunities and land reform and has developed a ten-year plan outlined in the NSET. This plan is focused on promoting entrepreneurship, new market opportunities, productive businesses and regions, a skilled workforce and a fairer and more equal society. The aim of these policies is to create an environment that removes barriers for rural entrepreneurs and communities and encourage sustainable, inclusive growth for everyone in Scotland. At the subnational level, City Region Deals and Regional Growth Deals are key policy initiatives aimed at improving regional economies, with a focus on inclusive economic growth, job creation and investment. These deals are developed and implemented through joint investment by the Scottish Government, the UK government and local partners, including local authorities.

The loss of ESIF due to Brexit has had significant implications for the policy and financing frameworks that support entrepreneurship and innovation in Scotland's rural and island regions. The UK government has launched several new investment programmes, including the UK Community Renewal Fund, the Levelling Up Fund, the Community Ownership Fund and the UK Shared Prosperity Fund. However, concerns have been raised about the adequacy of these programmes in meeting the needs of Scotland's rural and island communities. Overall, the Scottish Government's policy initiatives demonstrate the importance of collaborative partnerships between governments, local authorities and other stakeholders to promote economic growth and innovation in both urban and rural areas. The government's efforts to fund

Community Led Local Development (CLLD) initiatives domestically and address capacity-building issues in rural areas are critical to support investments in local community development in rural Scotland to emerge from the difficulties caused by Brexit, the COVID-19 pandemic and ongoing cost crises.

Scotland is facing depopulation in its rural and remote areas due to people moving to larger towns and cities for employment and education opportunities, although to less of an extent than those in other OECD countries (see Chapter 2). To address this challenge, the Scottish Government has committed to taking a place-based approach to demography and has identified three main challenges facing Scotland in countering population decline. The first challenge is to maintain a sustainable spatial balance of the population across urban, rural and remote locations. To this effect, the Scottish Government should consider introducing policies to encourage businesses to invest in rural areas, such as tax breaks or financial incentives. The government could also work with businesses to improve transport links and infrastructure to make it easier for people to live and work in rural areas.

There are also challenges related to depopulation that go beyond the direct challenges for rural innovation. For the most part, many of these challenges are not necessarily within the direct mandate of the enterprise agencies, however, a more holistic approach to promoting innovations for rural well-being could provide some support for rural entrepreneurs and families. For example, a second challenge would be to consider the promotion of care services in rural areas. In particular, it would be helpful to consider strategies to support innovation in personal healthcare (early life, elderly, childcare, psychological, etc.) sectors for rural families. This can be part of a strategy that aims to support social entrepreneurs, or more directly for for-profit firms to come up with solutions to tackle rural challenges to well-being. In many cases, across OECD countries, it is important to provide high-quality and affordable childcare to encourage young families and a more active female labour force to move to or stay in rural areas. A more holistic approach to rural innovation would be for the Scottish Government to consider investing in rural childcare facilities and making childcare more affordable for low-income families and mothers. The government could also work with employers to introduce flexible working arrangements to help parents balance work and childcare responsibilities. A third challenge, also beyond the complete control of enterprise agencies and the Scottish Government, is to counter depopulation in rural and remote areas through in-migration. The Scottish Government should continue working with the UK government on the Rural Visa Pilot while better targeting the needs of employers and communities through the Remote and Rural Partnership scheme.

To address the issue of access to skilled workers in rural areas, the Scottish Government has implemented various policies. These policies include reinforcing university education in rural areas, increasing rural entrepreneurship training and mentoring, skills gap assessments and investment plans, improving access to lifelong learning through digital delivery channels, encouraging rural employers to invest in apprenticeships, vocational training and work placements, and supporting people to stay in or move to remote rural areas to work through measures such as access to housing, childcare, distance learning and improved transport links. The Scottish Government should continue to promote apprenticeships and collaboration with colleges tailored to business needs and the latest technologies in rural areas. The government could consider providing financial support for employers to engage in apprenticeship schemes, targeted to minimise deadweight loss and evaluated to assess costs and benefits. The Rural Employers' Toolkit is an excellent resource for rural employers to understand the practical steps and costs associated with recruiting apprentices, student placements and ongoing training. The Scottish Government should prioritise the development of vocational training courses in rural areas that are tailored to business needs and the latest technologies. It should also consider increasing investment in distributed models of learning and expanding access to universities in rural areas. This could involve the development of new partnerships between universities and local stakeholders, including employers and industry organisations, to ensure that training programmes are tailored to the specific needs of the local economy. Additionally, efforts could be made to improve access to flexible online learning opportunities, particularly for students in rural areas.

To sum up, initiatives related to population and skills, the Scottish Government should introduce policies to encourage businesses to invest in rural areas, improve living conditions for families, attract skilled workers to rural areas and provide vocational training courses tailored to business needs. The government should also promote apprenticeships and collaboration with colleges and invest in distributed models of learning to address immediate skills gaps, and create a more dynamic and adaptable workforce, which is critical for sustainable economic growth in rural areas.

The development of innovation networks and linkages is another crucial aspect for promoting rural innovation, particularly in areas where the market structure is fragmented and there are few local peers in the same industry. To support this, policies should be put in place that improve various types of networks, including through the business supply chain and via the circulation of professionals. This can help reduce the penalties of distance and low density, thereby increasing access to external markets. To increase the proximity effect in rural and remote regions, policy interventions should aim to integrate different aspects of the local environment, target enhancement to local existing know-how and productive “vocation” and establish co-operation agreements and partnerships with external firms or public institutions to adopt innovations in the form of technological and organisational know-how for the benefit of the local production system. Investments in digital and physical infrastructure and access to intermediaries in markets should be a policy priority to reduce distances between places. Innovation networks through clusters and smart specialisation should also be promoted, with a focus on support for SMEs in specific industries and the development of place-based innovation ecosystems. Digital infrastructure and connectivity are crucial for regional and rural growth, and policies and investments should be put in place to ensure universal access, promote sustainability and improve digital skills.

Access to finance for innovation and internationalisation are key drivers of economic growth. The Scottish Government has implemented various policies and funding schemes aimed at increasing access to finance for businesses, supporting innovation and R&D, attracting FDI and promoting internationalisation and export markets. To support investment and R&D in innovative businesses, Scottish Enterprise operates long-standing equity-based instruments such as the Scottish Co-investment Fund and the Scottish Venture Fund, The Scottish Growth Scheme provides financial support to help businesses grow, delivered through a portfolio of five funds offering microfinance, loan and equity support. The SNIB is expected to have an expanding role as a key source of investment across Scotland, including in rural areas over 2021-30. The promotion of internationalisation and export markets is also crucial for SMEs in rural areas. In Scotland, the government has set an ambitious target of increasing overseas exports from 20% to 40% of GDP. To achieve this, Scottish Development International and the Scottish Chambers of Commerce play a crucial role in providing in-depth export support to Scottish businesses. Challenges faced by SMEs in rural areas, including the availability and cost of transport and market awareness, are compounded by the impact of Brexit on existing European markets. Governments should prioritise the provision of networking opportunities to SMEs to enhance their know-how and access to technology to identify and exploit untapped local resources. Additionally, rural areas should develop a niche market strategy that leverages their territorial linkage and unique features to compete effectively in external markets.

Finally, Scotland has implemented a range of policies and initiatives aimed at supporting rural SMEs to build their capacity and encourage experimentation. These policies are focused on promoting innovation, increasing access to funding and services, and fostering collaboration between businesses. One key element is the Business Support Partnership (BSP), which provides a centralised platform for entrepreneurs and companies to access funding and services offered by over 90 public sector organisations. This policy is designed to make it easier for rural SMEs to find the support they need to grow and innovate. Another significant pillar is the forthcoming innovation strategy, which aims to provide more tailored support for rural entrepreneurs at different stages of innovation. The strategy will focus on supporting SMEs with infrastructure costs and providing initiatives to support the commercialisation and conversion stages of innovation. The HIE area has also implemented several initiatives, including the Co-innovate Programme, the Northern Innovation Hub, the FoodTech Hub and the Data Lab Inverness

Hub. They offer specialised support, such as innovation advisory services, workshops, training and grants for innovation projects. In addition, Scotland supports the Open Innovation Marketplace, which aims to match Scottish and global companies to help them solve challenges and develop new ideas and services. This policy encourages collaboration between businesses, which is crucial for driving innovation and growth in rural areas. Overall, these initiatives are critical in supporting rural businesses in their innovation journey and they can provide a model for other regions to follow.

In conclusion, the innovation ecosystem in Scotland is thriving, with strong support from the public sector for reducing barriers for entrepreneurs. Although there is no overarching innovation strategy, most policies for rural innovation are aligned with entrepreneurship programmes. The initiative to establish a new national innovation strategy is well intentioned but its implications for rural areas need to be evaluated further. The design of policies that are fit for rural regions can further benefit from a reflection of what is needed specifically for encouraging entrepreneurship, also focusing on innovation from small, family-run and older firms. It is important to consider the delivery of funding programmes through a rural lens to ensure that project funding is equally accessible for all of Scotland. For rural regions, more access to innovation support for firm-based innovation and increases in linkages between rural firms and universities could help close the gap.

References

Argyll and Bute Council (n.d.), *Rural Growth Deal*, https://www.argyll-bute.gov.uk/rgd. [16]

Atta-Owusu, K., R. Fitjar and A. Rodríguez-Pose (2021), "What drives university-industry collaboration? Research excellence or firm collaboration strategy?", *Technological Forecasting and Social Change*, Vol. 173, p. 121084, https://doi.org/10.1016/j.techfore.2021.121084. [89]

Borderlands Growth (n.d.), *A Sustainable and Inclusive Future for the Borderlands*, https://www.borderlandsgrowth.com/ (accessed on 5 April 2023). [15]

Brainport Development (n.d.), *Brainport Eindhoven*, https://brainporteindhoven.com/int/. [70]

Business Gateway (n.d.), *Homepage*, https://www.bgateway.com/. [4]

Camagni, R. (1995), "The concept of innovative milieu and its relevance for public policies in European lagging regions", *Papers in Regional Science*, Vol. 74/4, pp. 317-340, https://doi.org/10.1111/j.1435-5597.1995.tb00644.x. [69]

Darkspace Planetarium (n.d.), *Homepage*, https://www.darkspaceplanetarium.org/ (accessed on 5 April 2023). [90]

DYW (n.d.), *Homepage*, https://www.dyw.scot/ (accessed on 5 April 2023). [60]

DYW Outer Hebrides (n.d.), *Developing the Young Workforce Outer Hebrides*, https://www.dywouterhebrides.com/ (accessed on 5 April 2023). [61]

EAG on Migration and Population (2019), *Immigration Policy and Demographic Change in Scotland: Learning from Australia, Canada and Continental Europe*, Expert Advisory Group on Migration and Population, https://www.gov.scot/publications/immigration-policy-demographic-change-scotland-learning-australia-canada-continental-europe/pages/5/ (accessed on 4 April 2023). [51]

European Commission (2021), *Long-term vision for rural areas: for stronger, connected, resilient, prosperous EU rural areas*, https://ec.europa.eu/regional_policy/en/newsroom/news/2021/06/30-06-2021-long-term-vision-for-rural-areas-for-stronger-connected-resilient-prosperous-eu-rural-areas (accessed on 15 March 2023). [11]

Foray, D., P. David and B. Hall (2009), "Smart specialisation – The concept". [85]

Foray, D., M. Eichler and M. Keller (2020), "Smart specialization strategies - Insights gained from a unique European policy experiment on innovation and industrial policy design", *Review of Evolutionary Political Economy*, Vol. 2/1, pp. 83-103, https://doi.org/10.1007/s43253-020-00026-z. [86]

Freshwater, D. et al. (2019), "Business development and the growth of rural SMEs", *OECD Regional Development Working Papers*, No. 2019/07, OECD Publishing, Paris, https://doi.org/10.1787/74256611-en. [65]

Government of Canada (2022), *Atlantic Immigration Program*, https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/atlantic-immigration.html. [55]

Government of Ireland (2021), "Supporting employment and careers in rural areas", in *Our Rural Future - Rural Development Policy 2021-2025*, https://www.gov.ie/pdf/?file=https://assets.gov.ie/132413/433aebac-f12a-4640-8cac-9faf52e5ea1f.pdf#page=41. [54]

HIE (2023), *XpoNorth Digital*, Highlands and Islands Enterprise, https://www.hie.co.uk/support/browse-all-support-services/xponorthdigital/ (accessed on 4 April 2023). [47]

HIE (2021), *Digital Economy Business Survey 2021*, Highlands and Islands Enterprise. [46]

HIE (2018), *Young People and the Highlands and Islands*, Highlands and Islands Enterprise. [42]

HIE (2017), *Business Cluster Specialisation in the Highlands and Islands*, Highlands and Islands Enterprise, https://www.hie.co.uk/research-and-reports/our-reports/2017/november/01/business-cluster-specialisation-in-the-highlands-and-islands/. [82]

HIE (n.d.), *Impact30*, Highlands and Islands Enterprise, https://www.hie.co.uk/support/browse-all-support-services/impact30/. [50]

HIE (n.d.), *Northern Innovation Hub*, Highlands and Islands Enterprise, https://www.hie.co.uk/our-region/regional-projects/nih/. [49]

HIE (n.d.), *ScotsGrad*, Highlands and Islands Enterprise. [59]

Highland Council (n.d.), *Inverness and Highland City-Region Deal*, https://www.highland.gov.uk/cityregiondeal. [14]

INESC TEC (n.d.), *Homepage*, https://www.inesctec.pt/en. [93]

Interface (n.d.), *Homepage*, https://interface-online.org.uk/. [92]

Logan, M. (2020), *Scottish Technology Ecosystem: Review*, https://www.gov.scot/publications/scottish-technology-ecosystem-review/documents/. [80]

Lyons, T., S. Miller and J. Mann (2018), "A new role for land grant universities in the rural innovation ecosystem?", *Journal of Regional Analysis & Policy*, Vol. 48/2, p. 3775. [41]

Maloney, W. and F. Valencia Caicedo (2022), "Engineering growth", *Journal of the European Economic Association*, https://doi.org/10.1093/jeea/jvac014. [40]

McCann, P. and R. Ortega-Argilés (2011), "Smart specialisation, regional growth and applications to EU cohesion policy", *Regional Studies*, Vol. 49/8, https://doi.org/10.1080/00343404.2013.799769. [87]

Moreno, A. and J. Casillas (2007), "High-growth SMEs versus non-high-growth SMEs: A discriminant analysis", *Entrepreneurship & Regional Development*, Vol. 19/1, pp. 69-88, https://doi.org/10.1080/08985620601002162. [66]

NIFA (n.d.), *Land-Grant Colleges and Universities*, National Institute of Food and Agriculture, https://www.nifa.usda.gov/about-nifa/how-we-work/partnerships/land-grant-colleges-universities. [62]

NMIS (n.d.), *The Future of Manufacturing in Scotland*, https://www.nmis.scot/ (accessed on 5 April 2023). [78]

OECD (2022), *Enhancing Innovation in Rural Regions of Switzerland*, OECD Rural Studies, OECD Publishing, Paris, https://doi.org/10.1787/307886ff-en. [71]

OECD (2022), *Strengthening Apprenticeship in Scotland, United Kingdom*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, https://doi.org/10.1787/2db395dd-en. [1]

OECD (2022), *Strengthening FDI and SME Linkages in Portugal*, OECD Publishing, Paris, https://doi.org/10.1787/d718823d-en. [88]

OECD (2021), *Bridging Digital Divides in G20 Countries*, OECD Publishing, Paris, https://doi.org/10.1787/35c1d850-en. [75]

OECD (2021), "Enhancing the impact of Italy's start-up visa: What can be learnt from international practice?", *OECD Local Economic and Employment Development (LEED) Papers*, No. 2021/10, OECD Publishing, Paris, https://doi.org/10.1787/bd898bca-en. [53]

OECD (2020), *Rural Well-being: Geography of Opportunities*, OECD Rural Studies, OECD Publishing, Paris, https://doi.org/10.1787/d25cef80-en. [8]

OECD (2020), *The Geography of Higher Education: Evaluation of the Academy for Smart Specialisation*, OECD, Paris, https://www.oecd.org/cfe/smes/Evaluation_Academy_Smart_Specialisation.pdf. [91]

OECD (2019), *OECD Regional Outlook 2019: Leveraging Megatrends for Cities and Rural Areas*, OECD Publishing, Paris, https://doi.org/10.1787/9789264312838-en. [9]

OECD (2014), *Innovation and Modernising the Rural Economy*, OECD Rural Policy Reviews, OECD Publishing, Paris, https://doi.org/10.1787/9789264205390-en. [67]

OECD (2014), *OECD Science, Technology and Industry Outlook 2014*, OECD Publishing, Paris, https://doi.org/10.1787/sti_outlook-2014-en. [83]

OECD (2013), *Innovation-driven Growth in Regions: The Role of Smart Specialisation*, OECD, Paris, https://www.oecd.org/sti/inno/smart-specialisation.pdf (accessed on 23 September 2022). [84]

OECD (2013), *Rural-Urban Partnerships: An Integrated Approach to Economic Development*, OECD Rural Policy Reviews, OECD Publishing, Paris, https://doi.org/10.1787/9789264204812-en. [68]

OECD (2012), *Promoting Growth in All Regions*, OECD Regional Development Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264174634-en. [72]

OECD (1995), *Niche Markets as a Rural Development Strategy*, OECD, Paris. [96]

OECD (forthcoming), *Enhancing Rural Innovation in Canada*, OECD Rural Studies, OECD Publishing, Paris. [39]

OECD (forthcoming), *Enhancing Rural Innovation in the United States*, OECD Rural Studies, OECD Publishing, Paris. [38]

ONS (n.d.), *Estimates of the Population for the UK, England and Wales, Scotland and Northern Ireland*, Office for National Statistics, UK Government, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland. [58]

OSU (2018), "America's land-grant universities: Who are they? Where are they?", Ohio State University, https://u.osu.edu/gavazzi.1/2018/05/11/americas-land-grant-universities-who-are-they-where-are-they/. [64]

Scottish Enterprise (2021), *Investing in Ambition Scotland's Risk Capital Market in Context*, https://www.scottish-enterprise.com/media/4012/investing-in-ambition-risk-capital-market-report-2021.pdf. [94]

Scottish Enterprise (n.d.), "Helping businesses to transform Scotland's economy", https://www.scottish-enterprise.com/ (accessed on 5 April 2023). [48]

Scottish Government (2023), *Scotland's National Innovation Strategy*, https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/06/scotlands-national-innovation-strategy/documents/scotlands-national-innovation-strategy/scotlands-national-innovation-strategy/govscot%3Adocument/scotlands-national (accessed on 12 June 2023). [27]

Scottish Government (2022), *A Stronger and More Resilient Scotland*, https://www.gov.scot/publications/stronger-more-resilient-scotland-programme-government-2022-23/. [20]

Scottish Government (2022), *Business in Scotland 2022*, https://www.gov.scot/publications/businesses-in-scotland-2022/. [2]

Scottish Government (2022), *Delivering Economic Prosperity - Scotland's National Strategy for Economic Transformation*, https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/03/scotlands-national-strategy-economic-transformation/documents/delivering-economic-prosperity/delivering-economic-prosperity/govscot%3Adocument/delivering-economic-p. [21]

Scottish Government (2022), "Economic delivery board announced: Experts to implement the National Strategy for Economic Transformation", https://www.gov.scot/news/economic-delivery-board-announced/. [3]

Scottish Government (2022), *Innovation Strategy - Call for Evidence*, https://consult.gov.scot/economic-development/d987c83c/. [77]

Scottish Government (2022), "Inspiring a new generation of tech entrepreneurs", https://www.gov.scot/news/inspiring-a-new-generation-of-tech-entrepreneurs/. [81]

Scottish Government (2022), *National Islands Plan: Annual Report 2021*, https://www.gov.scot/publications/national-islands-plan-annual-report-2021/. [25]

Scottish Government (2022), *National Performance Framework*, https://nationalperformance.gov.scot (accessed on 12 October 2022). [18]

Scottish Government (2022), "Regional economic policy review: Summary and recommendations", https://www.gov.scot/publications/regional-economic-policy-review-paper-4-summary-recommendations/documents/ (accessed on 28 April 2023). [17]

Scottish Government (2022), *Rural Scotland Business Panel Survey*, https://www.gov.scot/publications/rural-scotland-business-panel-survey-2/. [43]

Scottish Government (2022), *Rural Visa Pilot Scheme: Letter to Minister for Safe and Legal Migration*, https://www.gov.scot/publications/rural-visa-pilot-scheme-letter-to-minister-for-safe-and-legal-migration/. [52]

Scottish Government (2021), *A Changing Nation: How Scotland will Thrive in a Digital World*, https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2021/03/a-changing-nation-how-scotland-will-thrive-in-a-digital-world/documents/a-changing-nation-pdf-version/a-changing-nation-pdf-version/govscot%3Adocument/DigiStrategy. [74]

Scottish Government (2021), *A Scotland for the Future: The Opportunities and Challenges of Scotland's Changing Population*, https://www.gov.scot/publications/scotland-future-opportunities-challenges-scotlands-changing-population/documents/. [26]

Scottish Government (2021), *Export Statistics Scotland 2019*, https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2021/10/export-statistics-scotland-2019/documents/export-statistics-scotland-2019---publication/export-statistics-scotland-2019---publication/govscot%3Adocument/Export%2BStati. [99]

Scottish Government (2021), *Infrastructure Investment Plan for Scotland 2021-22 to 2025-26*, http://www.spokes.org.uk/wp-content/uploads/2021/02/2102-IIP-final-national-mission-local-impact-infrastructure-investment-plan-scotland-2021-22-2025-26.pdf. [73]

Scottish Government (2021), *Making Scotland More Competitive in Business*, https://www.gov.scot/policies/european-structural-funds/competitive-in-business/. [102]

Scottish Government (2021), *Scottish Rural Development Programme*, https://www.mygov.scot/scottish-rural-development. [28]

Scottish Government (2020), *Scotland's Inward Investment Plan: Shaping Scotland's Economy*. [95]

Scottish Government (2020), *Scottish Technology Ecosystem: Review*, https://www.gov.scot/publications/scottish-technology-ecosystem-review/. [79]

Scottish Government (2019), *A Trading Nation - A Plan for Growing Scotland's Exports*, https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2019/05/scotland-a-trading-nation/documents/scotland-a-trading-nation/scotland-a-trading-nation/govscot%3Adocument/498601_SCT0720815048-001%25284%252920200703104759.pdf. [97]

Scottish Government (2019), *The National Plan for Scotland's Islands*, https://www.gov.scot/publications/national-plan-scotlands-islands/. [24]

Scottish Government (2018), *A New Blueprint for Scotland's Rural Economy: Recommendations to Scottish Ministers*, https://www.gov.scot/publications/new-blueprint-scotlands-rural-economy-recommendations-scottish-ministers/. [6]

Scottish Government (2018), *Small Business Survey Scotland 2017*, https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2018/07/small-business-survey-scotland-2017/documents/00537782-pdf/00537782-pdf/govscot%3Adocument/00537782.pdf. [98]

Scottish Government (2017), *Enterprise and Skills Review Report on Phase 2: Regional Partnerships*, https://www.gov.scot/publications/enterprise-skills-review-report-phase-2-regional-partnerships/documents/. [33]

Scottish Government (2017), *Scotland CAN DO: An Innovation Action Plan for Scotland*, https://www.gov.scot/publications/scotland-innovation-action-plan-scotland/. [76]

Scottish Government (2014), "Empowering Scotland's island communities", Island Areas Ministerial Working Group Paper. [22]

Scottish Government (n.d.), *Adults (16-64 years) with low or no qualifications*, https://statistics.gov.scot/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fadults-16-64-years-with-low-or-no-qualifications. [57]

Scottish Government (n.d.), *Cabinet Secretary for Rural Affairs and Islands*, https://www.gov.scot/about/who-runs-government/cabinet-and-ministers/cabinet-secretary-for-rural-affairs-and-islands/. [19]

Scottish Government (n.d.), *Cities and Regions*, https://www.gov.scot/policies/cities-regions/ (accessed on 12 October 2022). [13]

Scottish Government (n.d.), *National Council of Rural Advisers (NCRA)*, https://webarchive.nrscotland.gov.uk/20210415133122/http://www.gov.scot/groups/national-council-of-rural-advisers/. [5]

Scottish Government (n.d.), *Rural Economy Action Group*, https://www.gov.scot/groups/rural-economy-action-group/. [7]

Scottish Parliament (2022), *Population Growth and Decline on Scotland's Islands – 2001 to 2020*, SPICe Spotlight, https://spice-spotlight.scot/2022/03/24/population-growth-and-decline-on-scotlands-islands-2001-to-2020/. [23]

Scottish Parliament (2021), *Replacing EU Structural Funds in Scotland*, https://www.parliament.scot/-/media/files/committees/finance-and-public-administration-committee/replacingeustructuralfunds_spicesummaryofevidence.pdf. [31]

Scottish Parliament (n.d.), *Devolved and Reserved Powers*, https://www.parliament.scot/about/how-parliament-works/devolved-and-reserved-powers. [12]

SDS (n.d.), *Regional Skills Assessments*, Skills Development Scotland, https://www.skillsdevelopmentscotland.co.uk/what-we-do/skills-planning/regional-skills-assessments/ (accessed on 5 April 2023). [44]

SDS (n.d.), *Rural Employers' Toolkit*, Skills Development Scotland, https://www.skillsdevelopmentscotland.co.uk/media/48375/_final_lantra_rural_toolkit_merged-1.pdf (accessed on 5 April 2023). [56]

SDS (n.d.), *Skills Investment Plans*, Skills Development Scotland, https://www.skillsdevelopmentscotland.co.uk/what-we-do/skills-planning/skills-investment-plans/ (accessed on 5 April 2023). [45]

SFC (2021), *University Final Funding Allocations AY 2021-22*, Scottish Funding Council, https://www.sfc.ac.uk/publications-statistics/announcements/2021/SFCAN202021.aspx (accessed on 5 April 2023). [37]

SFC (2020), *Global Challenges Research Funding Allocations FY 2020-21*, Scottish Funding Council, https://www.sfc.ac.uk/publications-statistics/announcements/2020/SFCAN182020.aspx (accessed on 5 April 2023). [36]

Skills Development Scotland (2022), *Regional Skills Assessment : Scottish Borders*, https://www.skillsdevelopmentscotland.co.uk/media/49085/rsa-regional-report-scottish-borders.pdf (accessed on March 15 2023). [104]

SPICe Spotlight (2022), "The UK Shared Prosperity Fund: Competing claims", https://spice-spotlight.scot/2022/05/17/the-uk-shared-prosperity-fund-competing-claims/amp/. [34]

UK Government (2023), *New Levelling Up and Community Investments*, https://www.gov.uk/government/collections/new-levelling-up-and-community-investments. [29]

UK Government (2022), "Communities in Scotland handed control of £212 million levelling up funding", https://www.gov.uk/government/news/communities-in-scotland-handed-control-of-212-million-levelling-up-funding (accessed on 5 April 2023). [32]

UK Government (2022), *UK Shared Prosperity Fund: Prospectus*, https://www.gov.uk/government/publications/uk-shared-prosperity-fund-prospectus/uk-shared-prosperity-fund-prospectus. [103]

UK Government (2021), *Made in the UK, Sold to the World*, Department for International Trade, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033912/made-in-the-uk-sold-to-the-world.pdf. [100]

UK Government (2021), *UK Community Renewal Fund: Successful and Unsuccessful Bids*, https://www.gov.uk/government/publications/uk-community-renewal-fund-successful-bids. [30]

UKRI (n.d.), *Geographical Distribution of Funding*, UK Research and Innovation, https://www.ukri.org/what-we-offer/what-we-have-funded/regional-distribution-of-funding/. [35]

USU Extension (2022), "The purpose and benefit of land-grant (extension) universities", Utah State University, https://extension.usu.edu/news/purpose-and-benefit-of-land-grant-extension-universities. [63]

Wilkinson, A. (2017), *Strategic Foresight Primer*, European Political Strategy Centre. [10]

World Bank (2020), *Global Experiences from Regulatory Sandboxes*, https://openknowledge.worldbank.org/handle/10986/34789 (accessed on 15 March 2023). [101]

Notes

[1] Executive non departmental public bodies (NDPBs) carry out work on behalf of the government but do not form part of it, nor are they directly accountable to parliament. They operate within a framework of governance and accountability set by ministers; often this is defined in specific legislation setting up each body. They employ their own staff, who are not civil servants.

[2] Wider innovation and entrepreneurship mandates also sit within the responsibilities of the Cabinet Secretary for Finance and Economy.

[3] The reserved powers which most directly impact rural Scotland include telecommunications/broadband and energy.

[4] Pan Highland is often used to mean the Highlands and Islands geography minus the three island local authority areas.

[5] See https://www.argyll-bute.gov.uk/rgd.

[6] For more information, see https://www.gov.scot/publications/national-plan-scotlands-islands/.

[7] Scotland as a whole has a projected population fall from 2028 onwards and is the only country in the UK where the population is projected to fall during the next 25 years.

[8] The legislation itself is not a policy framework but an enabling mechanism making provision for the plan, imposing particular duties.

[9] Aberdeen City Region, Ayrshire, Edinburgh and South East Scotland, Forth Valley, Glasgow City Region, Highlands and Islands, South of Scotland, Tay Cities Region.

[10] The source for the data is the Horizon 2020 Dashboard https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-dashboard (accessed 15 March, 2023).

[11] Launched in April 2018, UKRI is a non-departmental public body sponsored by the Department for Business, Energy and Industrial Strategy (BEIS). The organisation brings together the seven disciplinary research councils, Research England, which is responsible for supporting research and knowledge exchange at higher education institutions in England, and the UK's innovation agency, Innovate UK.

Funding is provided to researchers, businesses, universities, National Health Service bodies, charities, non-governmental organisations (NGOs) and other institutions.

[12] In addition, some programmes have satellite locations. For example, the James Hutton Institute has Living Labs on the West Coast even though it is based on the East Coast.

[13] Again, this conclusion should be treated with caution since the researchers or projects funded may be carrying out research on topics relevant for rural economies or in rural areas. A more fine-grained analysis of funding would be required to identify the real spatial and thematic pattern and assess potential impact on rural innovation.

[14] Based on population projections, Rural Scotland's dependency ratio will be 74% by 2043, compared to Scotland's 60% (Skills Development Scotland, 2022[104]).

[15] The smart specialisation sectors notified to the European Commission for the 2014-20 ESIF funding period were the same as those identified in the previous national economic strategy, namely: creative industries, energy, financial services, food and drink, life sciences and tourism.

[16] The system, in its widest sense, that supports and nurtures technology businesses in Scotland, from the early start-up phase through to fully scaled maturity.

[17] This study was done through an analysis of official statistics, open data on public funding, analysis of internal HIE management information and consultations with sectoral staff in HIE.

[18] According to the SNIB annual report 2021, the first two investments were made in a technology start-up and a fund working to help deliver affordable, quality rental homes, both located in central (urban) Scotland.

[19] European Marine Energy Centre (EMEC) has raised the potential role of a regulatory sandbox in exploring the role of green hydrogen in transport decarbonisation.

4 Social innovation in rural Scotland

This chapter looks at the advancement of Scotland and especially its rural regions in creating a social innovation ecosystem. Over the years, the Government of Scotland, United Kingdom, has put in place a number of initiatives to promote social innovation and empower local communities. This is why Scotland represents a particularly interesting case for analysis. This chapter looks at the social innovation ecosystem, based on the social innovation framework for local development developed by the OECD and approved during the 80th Local Economic and Employment Development (LEED) Directing Committee session on 21 April 2022. It looks at the socio-cultural context and behaviours, legal frameworks, institutional set up and policy frameworks, local actors and resources available. Finally, the chapter closes with an overview of the main strengths, opportunities, challenges and threats of rural Scotland.

Key messages

- Scotland, and in particular its rural areas, faces a number of societal challenges linked to the challenges for the government to effectively deliver public services to remote locations. Accessible rural regions suffer from larger social and economic inequalities within the regions compared to remote rural regions, which might lack access to basic government services.
- Social innovation has proven particularly important in rural contexts worldwide to address spatial differences in access to services. It proved to be effective in identifying, designing and implementing new solutions to address market failures and social and environmental problems. In many rural areas, social innovation brings the missing social services to the community.
- Scotland has good socio-cultural preconditions to engage with social innovation. The Scottish population has relatively high levels of social capital, civil engagement and volunteering; however, the levels of social capital have been decreasing over the last several years. Scots benefit from the United Kingdom's highest perceived social support network and have strong considerations for the environment. Over seven out of ten people living in a rural area report strong feelings of belonging to their geographical area. All of these are supporting factors for engagement in social innovation.
- For over a decade, the Scottish Government has been working on the creation of a complex ecosystem, which includes enabling legislation, a set of policies and support instruments for the social innovation actors. The Scottish Government has put in place a number of legislative packages to support local communities better deal with the challenges and better enable communities to act. It has also promoted land use legislative reform, allowing for experimentation and enabling communities to benefit from its use.
- The local government in Scotland has benefitted from increased welfare competencies and responsibilities, which allowed taking more actions around the social and environmental agenda. This goes hand in hand with the community empowerment reform and social enterprise promotion strategy, which aimed to empower local actors to take more action locally to help themselves. The Community Planning Partnerships across Scotland have created a link between the councils, which represent the local government, and the local communities. This is a social innovation-enabling factor as long as it does not abdicate the responsibility of public service delivery in rural regions.
- Scotland has a long-established reputation for engaging with its rural communities in an inclusive and enabling way. This includes working closely with the rural community and local entrepreneurs' networks as well as the application of good policy practice initiatives, such as the LEADER local action group structure. Another enabling factor for social innovation has been the promotion of community welfare building and land ownership reform allowing for experimentation and engaging local communities.
- Scotland enjoys a diversified fabric of social innovation actors that includes social enterprises, civil society and charities as well as public and private entities. Social enterprises, charities and senior citizens play an active role in engaging in social innovation.
    - One-third of Scottish social enterprises are located in rural areas, a much larger percentage per inhabitant compared to the whole of Scotland. In a rural context, they are smaller in terms of the number of members and income generated, compared to those located in an urban context. They also depend more on grants.

- In 2021/23, GBP 3 million of funding was made available direct to rural and island community groups as apart of community-led local development (CLLD) to test new approaches to CLLD and inform future policy and delivery of GBP 11.6 million.
- There is a larger density of charities per inhabitant in rural regions. They tend to be more heavily reliant on volunteering, compared to the rest of Scotland.
- Rural Scotland has one of the highest median ages of the population compared to the rural regions in the rest of the United Kingdom, which is particularly true for the age range of 65 and over in remote rural areas.

- Scottish social innovators can benefit from a range of resources:
  - Across Scotland, a network of public and private organisations offers grants and financial support directly to local social enterprises and community initiatives. Yet, rural social innovators face more barriers in getting access to finance and require adjusted financial products. Grant remains the most popular form of financing social enterprises and charities.
  - There is a lack of physical business development infrastructure in rural regions but a number of innovative approaches to service delivery are being explored. This builds on a wide offer of business support services provided by the government and private sector actors.
  - Scotland has a positive track record in experimenting with land use and local assets, which is critical in rural regions to enable social innovation.
- While it is important to support social innovation actors in becoming more competitive, there is a risk that further focuses on diversification of revenue streams could fail to respond to the demands of the most vulnerable groups who might be penalised because of their lack of access to funds. Policy makers should understand that not all actors can have revenue streams and that grants are still important in ensuring that everyone has access to support, especially in remote rural areas where opportunities for support are limited.

In recent decades, OECD countries and regions have faced a number of structural transformations affecting their development trajectories. Globalisation and digitalisation are not new to rural contexts and have already been part of the economic landscape of rural economies for a long period of time. More recently, the shocks of the global financial crisis and the COVID-19 crisis have created a number of new social challenges for local communities. Today, social innovation is seen as a way to empower societies to take action to enable them to make a positive change in the places they live and has never been so relevant.

Social innovation seeks new and cost-effective answers to social and societal problems and refers to new solutions that aim primarily to improve the quality of life of individuals and communities by increasing their well-being as well as their social and economic inclusion. These solutions can be new services, new products and new relationships with stakeholders (OECD, 2000[1]; 2022[2]). All regions across Scotland face a variety of challenges, with accessible rural regions suffering from larger social and economic inequalities than remote rural regions, and remote rural regions suffering from lack of access to basic government services.

The territorial dimension plays an important role in defining the types of social innovation as well as defining its specific drivers at different geographic scales. Social innovation takes place on any territorial scale (national, regional and local); however, the needs and the drivers for it might vary considerably depending on the geographical and territorial context. This would also require different policy interventions at different territorial scales and that is why it is important to distinguish policy actions at the national, regional and local levels. There are also specific challenges relating to rural and urban contexts, which should be distinguished.

Social innovation has proven particularly important in a rural context. It is effective in identifying, designing and implementing new solutions to social and environmental problems. It can provide a response to a variety of rural challenges and a variety of market failures; it brings actors together locally to deliver necessary products or services. Moreover, social innovation promotes the application of more sustainable and resilient models, which is why it is an important driver for rural resilience (OECD, forthcoming[3]).

Scotland provides an interesting case for exploring social innovation. Facing a number of social and environmental challenges especially related to rural areas, the Scottish Government has put in place a number of reforms supporting social innovation. These reforms have helped to spark some interesting examples of social innovation in recent years, linked to community empowerment and allowing the purchase by the local resident population of substantial areas of land under land reform legislation.

This chapter analyses the Scottish social innovation ecosystem based on the social innovation framework for local development developed by the OECD and approved by the LEED Directing Committee. It has a particular focus on rural communities and aims to look at situations with social innovation around them. The following sections will look at the socio-cultural context and behaviours, legal frameworks, institutional set up and policy frameworks, local actors and, finally, resources available to engage with social innovation (Table 4.1). This framework was approved at the 80th OECD LEED Directing Committee proposing a framework for analysis of social innovation in rural context (OECD, forthcoming[3]).

Table 4.1. Dimensions and areas of analysis of social innovation

Dimensions	Areas of analysis
A. Culture and behaviours	• Social capital • Entrepreneurial activity • Collaboration tradition • Environmental concerns • Gender

Dimensions	Areas of analysis
B. Laws and regulations	• Definition • Public procurement • Special legal regimes
C. Policy framework	• Policy • Institutions • Co-ordination mechanism • Policy implementation
D. Actors community	• Actors • Actors platform
E. Resources available	• Financial resources • Infrastructure • Support • Land and community assets

Source: OECD (forthcoming[3]), *Measuring the Capacity to Engage with Social Innovation in Rural Areas*, OECD, Paris.

Socio-cultural context and behaviours

Scotland faces a number of distinctive challenges that make social innovation relevant especially in rural areas

Scotland's rural areas as a whole display good socio-economic indicators as compared to urban and intermediate areas but should be carefully analysed. Rural areas have been performing relatively well compared to the other parts of Scotland in the area of education, health, employment and even income generation (Table 4.2). For example, the level of employment in remote rural (77%) and accessible rural (78%) areas is high compared to the rest of Scotland (74%). However, these indicators are only available for the situation prior to the COVID-19 pandemic and they still indicate a gap between remote and accessible rural areas. The cost of living in rural, remote and island areas is often substantially higher than in towns and cities, partly because of the distance to services and larger shopping centres (with lower prices) but also because of the costs of heating homes, which are often off-grid and less well insulated (Shucksmith et al., 2021[4]). Fuel poverty in rural areas is therefore more prevalent compared to urban areas. Some of this data might not necessarily be present in the official comparative data. There is also a large discrepancy among many remote rural regions, particularly in the periphery and islands which lag behind on several social indicators (see Table 4.2).

Local government has to ensure services of general interest across large geographical areas; however, it is often a challenge to bring them to remote rural areas. Local government in Scotland is organised through 32 councils that represent some 5.4 million residents. The councils are responsible for providing crucial services to residents such as education, social services, waste collection and recycling, local infrastructure maintenance and others. In comparison with some other counties, the councils have often larger geographical and population scope. Managing large territories with relatively limited resources could add difficulty to ensuring the delivery of services of general interest across the entire council's area.

Rural services in Scotland have been affected in recent decades by a combination of "rationalisation" overlain by austerity (Copus et al., 2017[5]). In periods of slimmer budget space, the government has to rationalise the way the funds are spent, which can affect rural areas. Remote and sparsely populated areas in particular have faced challenges to maintain acceptable levels of well-being for residents. At the same time, this has created a multiplicity of innovative community solutions, many of which are social innovations.

Table 4.2. Selected socio-economic indicators focused on rural regions

Indicators	Year	Remote rural	Accessible rural	Rest of Scotland
Education				
Highest qualifications held by population aged 16 to 64:				
No qualifications (%)	2019	7	7	11
Higher/A-level or equivalent (%)	2019	26	22	22
Health				
Life expectancy at birth (female)	2017-19	83.1	82.9	80.7
Life expectancy at birth (male)	2017-19	79.4	79.7	76.6
Employment				
In employment (%)	2019	77	78	74
Unemployed (%)	2019	3	2	4
Annual net income of highest income householder:				
Percentage of the population who are income deprived	2020	8	7	13
Percentage of the population with an income lower than GBP 10 000	2019	8	8	10
Percentage of the population with an income higher than GBP 40 000	2019	23	32	23

Note: Based on the Scottish Government Urban Rural Classification. Latest data available.
Source: Scottish Government (2021[6]), *Rural Scotland Key Facts 2021*, https://www.gov.scot/publications/rural-scotland-key-facts-2021/documents/.

Scotland has good socio-cultural preconditions for thriving social innovation

A number of elements indicate that there is a reason for social innovation to be a particularly good fit for Scotland. The rural areas of Scotland face issues related to geographical remoteness, less developed infrastructure in terms of roads and public services, increasing depopulation and demographic changes as well as challenges for the government to ensure the delivery of all of its services. This geographical remoteness and tough climate have translated over centuries into the characteristics and behavioural patterns of the local community. They have formed the features of the local population building on the local traditions of solidarity, and behavioural and societal attitudes of the population and stakeholders. These characteristics are important enablers for collaboration and social innovation (OECD, forthcoming[3]).

Scotland is not new to social innovation and has seen a large number of successful initiatives over the last several hundreds of years. Scotland was the pioneer of applying mutual life insurance for marginalised communities and benefitted from founding the first mutual savings bank back in 1810 (Neal, 2015[7]). The philanthropic social experiments were tested in Scotland in the early 19th century by Robert Owen at New Lanark.[1] Since that time, Scotland has showcased a tradition of community support, equality of opportunity and access to education. Social innovation could build on these values and is increasingly gaining ground in Scotland thanks to government support in exploring ways to make social innovation take place. For example, the Social Care (Self-directed Support) (Scotland) Act 2013 (Scottish Government, 2013[8]) allowed to supplement the state's provision of welfare services involving social enterprises and social innovators. This was also one of the ways to spark innovation in the sector and explore new solutions developed involving various actors.

Another relevant example showcasing an important civic movement is the fact that it is the only part of the United Kingdom that hosts a democratic assembly like the Scottish Rural Parliament. The most recent Virtual Scottish Rural Parliament hosted a democratic assembly of over 600 participants from across rural Scotland. This new trend promoting all voices being heard, including the ones from the rural areas could be able to effect policy change.

The Scottish population has relatively high levels of social capital, which is a supporting factor for social innovation. Social capital (i.e. the sum of trust, networks and norms) is an important precondition favouring the emergence of social innovation. Scotland counts as the top United Kingdom (UK) region for perceived social support networks, with 96% of respondents confirming that they can rely on someone once in trouble (OECD, 2014[9]). Scotland enjoys a high level of civic engagement (measured by the voter turnout in general elections) at 71.1% (OECD, 2015[10]) and a relatively high level of volunteering at 64% (in the pre-COVID-19 period, it was also relatively high standing at 48%) of the population, including 26% who have volunteered formally (SCVO, 2020[11]). The same source also confirms the level of formal volunteering is much higher in remote rural areas (38%) compared with large urban areas (25%). Scottish small and medium-sized enterprises (SMEs) also tend to confirm more concern about environmental, civic and community engagements compared to peers in the United Kingdom. For example, a third (33%) of SME employers said offering solutions to environmental problems was of great importance to them, higher than the United Kingdom as a whole (24%) (Scottish Government, 2020[12]). The level of solidarity is high in Scotland with a strong tradition of supporting charities, particularly in rural areas. The majority of people in Scotland give to charity at least once a month and, in rural areas, this number (65%) is slightly higher compared to those in urban areas (62%) (Scottish Government, 2021[6]), which is a relatively high number compared to most OECD countries.

The high levels of social capital in Scotland should not be taken for granted as, over the last several years, the numbers have been decreasing. The Social Capital Index[2] in 2019 was at 93 index points, 7 points lower than the 2013 baseline (100) and the index score for 2018 (95). This change between 2018 and 2019 was statistically significant and indicates worsening performance around areas of getting support from the neighbourhood and volunteering (Scottish Government, 2019[13]). It is likely that the trend of worsening could have continued during the COVID-19 outbreak and especially affected the most vulnerable communities. This is also aligned with the rising wealth inequality in households across Scotland as measured by the Gini coefficient,[3] which has been worsening. It was at 64% in 2018-20, compared to 62% in 2016-18 and 60% in 2014-16.

Scotland performs well on the United Nations Sustainable Development Goals (SDGs) and has been particularly successful in its considerations for the environment. On most sub-indicators, in particular the social and environmental ones, Scotland has been performing better than the rest of the United Kingdom. It performs particularly well in SDG 13 “Climate action”, SDG 15 “Life on land” and SDG 8 “Decent work and economic growth”. At the same time, SDG 3 “Good Healthy and well-being” could be further improved and is likely to be affected by the remoteness of some regions. The good performance on the environmental indicators by Scotland suggests consideration for the environment by the population.

Entrepreneurial activity in Scotland is at the middle-range level compared to European peers and is comparable to the general UK level. However, unlike in other places, the most deprived tend to have the same opportunities to start a business. Scotland’s entrepreneurial activity is important for transforming an idea into a concrete concept and for scaling this idea. The Global Entrepreneurship Monitor (GEM) survey estimates that 7.3%[4] of the Scottish population were actively engaged in setting up a business or already running an enterprise established in the last 3.5 years, which is comparable to the UK national average of 7.5% (Mwaura et al., 2021[14]). Across Scotland, the highest rate of entrepreneurial activity was observed in the Highland and Islands region (8.7%), followed by South Western Scotland (7.4%), Eastern Scotland (6.9%) and North Eastern Scotland (6.5%) (Mwaura et al., 2021[14]). Another GEM finding in Scotland is that the most deprived 20% were thus just as likely to start a business as the wealthiest 20% in Scotland in 2020 (Mwaura et al., 2021[14]), which is another supporting factor for social innovation. Furthermore, women in rural areas tend to have more substantial challenges in starting firms as argued in Chapter 2.

In Scotland, the status of women is legally recognised: however, women still have challenges, especially in rural areas where a lack of childcare solutions could create barriers to their full engagement in economic activities. Even if in Scotland women take an active role in the economy, they often work part-time and typically have a higher representation in community groups and social enterprises. Women in Scotland

tend to become entrepreneurs out of necessity and lead most of the social enterprises (OECD, forthcoming[3]). According to the GEM study, some 14% of SMEs employers were women-led (Mwaura et al., 2021[14]), while this number goes up to 65% of social enterprises led by women in Scotland according to the Social Enterprise Census (CEIS, 2019[15]). This could indicate that, in Scotland, women are particularly conscious of social and environmental issues. The recent GEM study for Scotland confirmed that there is a significant difference between male and female motives with regard to "earn[ing] a living because jobs are scarce", with 76.4% of females highlighting this motive compared to 57.3% of males (Mwaura et al., 2021[14]). Studies also confirm that employees in remote rural areas, particularly women, are more likely to have a second job than in accessible rural areas or the rest of Scotland (Scottish Government, 2021[6]). Gender equality is a good indicator of the openness of the local population. It is correlated to high levels of social innovation (OECD, forthcoming[3]).

People living in rural areas of Scotland have a strong sense of belonging to their areas and their communities. Strong attachment to community and area can be a positive factor for social innovation, as it can create a desire for change and for action to make it a better place. Based on the Scottish Household Survey 2019 (SCVO, 2020[11]), a higher proportion of residents of rural Scotland, compared to the rest of Scotland, rate their neighbourhood as a "very good" place to live. Moreover, more people living in rural areas (71%) report a feeling of belonging to their immediate neighbourhood, compared with people living in urban areas (63%). They also seem to have more personal contacts and conversations with their neighbours in rural areas (82%) compared with people living in urban areas (72%) (Scottish Government, 2021[6]). The 2022 research across the Highlands and Islands has found that residents are proud of living on an island (94%) and remote rural areas (92%) (Ipsos/HIE, 2022[16]).

In summary, the existing local traditions and behaviours in Scotland and especially in its rural areas, are supportive of social innovation. The Scottish population has a strong sense of solidarity, a high level of social capital and sense of belonging to the local area, a sense of justice and high environmental concerns. However, the data show that the Social Capital Index has been decreasing since 2017, which should raise the concerns of policy makers. In Scotland, the status of women is recognised and they take an active role in economic activity. These characteristics are supportive of social innovation and can create the prerequisites for policy makers to support social innovation in Scotland. The next sections will highlight the legal and institutional settings that policy makers have created in order to enable social innovation and raise awareness around it.

The legal framework around social innovation

Social Innovation is a known term but its interpretation might vary across Scotland

Having a common definition and understanding of social innovation is important for policy makers. In this respect, the legal framework plays an important role in creating and ensuring an enabling environment for social innovation. It serves as a reference point for eligibility to public support schemes, notably regarding access to public procurement, and financial and non-financial assistance and benefits. It is particularly important to identify whether any barriers prevent social innovations from developing and growing. The legislative framework in Scotland empowers communities to take action.

The Scottish Government strives to ensure sustainable inclusive economic growth, for which involvement and stakeholders' buy-in is crucial. Following years of increasing social needs and budget austerity, the Scottish Government has put in place a number of legislative packages to help local communities better deal with the challenges and better enable communities to act. Scotland does not have a legal or single commonly accepted definition of social innovation; however, legislation covers many of the elements of social innovation and supports community-led economic solutions to social challenges.

A major piece of legislation is the Community Empowerment Act Scotland 2015 (Scottish Government, 2015[17]), which enhances community empowerment as a way to deliver the planned outcomes. Its objective is to work with local communities to take action to improve their quality of life and well-being. This legislation builds on other legislations in a variety of fields, enacted in Scotland as part of the overall trend over the last decades to promote a partnership approach, especially in rural development strategies. The act covers 11 different topics including land reform, community planning and asset transfer amongst others, which are relevant to social innovation too and which empower communities to take action. It builds on the legislation mentioned below. In many areas, the 2015 act goes one step further in reinforcing local communities' powers. It allows communities to act by creating scope for community asset transfer and increases the scope for community land purchase. It also gives powers to local communities to express their opinions through participatory budgeting voting.

Land use legislative reform allowed for ground-breaking development, promoting experimentation and is very relevant to social innovation, particularly in a rural context. The 2003 Land Reform (Scotland) Act (Scottish Government, 2003[18]) allowed the establishment of a statutory framework of public access rights to most land and provided the enabling legislation for community land purchases.[5] This has enabled the provision of land for social housing and the development of community-owned renewable energy developments. This has also allowed communities to benefit from the financial contributions that renewable energy projects and especially wind turbines brought them, especially since 2011 under the Community and Renewable Energy Scheme (Box 4.1). Moreover, it allowed using land for experimentation purposes, for highlighting new ways of doing things and it has been an important element for the promotion of social innovation in rural areas of Scotland. To further build on this success and address the issue of highly concentrated land ownership, the Scottish Government gathers proposals for its new Land Reform Bill, which will be introduced by the end of 2023 (Scottish Government, 2022[19]). The act has the potential to create new opportunities for community-led social innovation and wealth building through increased access to land. It also has the potential to identify opportunities for community-led initiatives and create a more level playing field for social enterprises and other community-based businesses.

Box 4.1. The Community and Renewable Energy Scheme

Example of enabling an initiative particularly relevant to rural social innovation

The Scottish Government's Community and Renewable Energy Scheme (CARES) was launched so that communities across Scotland engage, participate in and benefit from the energy transition to net zero. CARES encourages and supports local and community ownership of renewable energy projects across Scotland. It also provides a range of financial support – enablement grants, development funding, capital funding, etc. – and advice to community groups, organisations and businesses to develop local energy projects and help maximise the benefits of renewable energy systems.

CARES is run by Local Energy Scotland, a consortium of non-governmental organisations which acts as a one-stop shop for all local, renewable energy needs. Such bodies help reduce transaction costs, create a network of informed actors within the sector and thus build confidence among community groups. CARES indeed has a network of development officers across Scotland to provide free, expert and impartial advice and support to community groups, charities, rural enterprises and other eligible organisations seeking to explore their renewable energy options.

Since 2010, CARES has provided more than GBP 54 million in funding to applicants, has supported more than 600 projects and provided advice to more than 900 organisations. Those local and community-based projects and organisations then contribute to rural development by reallocating funds in order to support groups, businesses and individuals' projects that present a clear benefit for the community. It helped to finance certain health services, provide education and training grants, etc. in

rural areas of Scotland. A study published in 2021 found that community-owned wind farms paid their communities 34 times more than commercial wind farms. The former's returns average GBP 170 000 per installed megawatt (MW) per annum, which largely exceeds the benefit payment industry standard of GBP 5 000 per installed MW per annum.

To illustrate the reallocation of funds into the community, the report takes the example of a community-owned wind farm on the island of Tiree in the Hebrides, owned by the Tiree Community Development Trust (TCDT) and operated by Tiree Renewable Energy Ltd. (TREL). After having paid loan repayments, profits are gift aided by TREL to the TCDT. The Tiree Community Windfall Fund is tasked with the distribution of 80% of those profits, the remaining 20% being for development maintenance and insurance costs. Funding allocations are split into various categories, for instance:

- The Community Support Fund: community groups, businesses and individuals who have a project which provides a clear benefit to Tiree are eligible to receive funding up to GBP 1 000.
- The Comfort Fund: aims at providing support to Tiree's residents who have to go to the mainland for hospital appointments.
- The Community-Owned Buildings, to which a sum is allocated each year to support their maintenance.

As of 2018, TREL had donated over GBP 1.25 million to the TCDT.

Source: Slee, B. (2020[20]), "Social innovation in community energy in Scotland: Institutional form and sustainability outcomes", https://doi.org/10.1016/j.glt.2020.07.001; Scottish Government (n.d.[21]), *Renewable and Low Carbon Energy*, https://www.gov.scot/policies/renewable-and-low-carbon-energy/local-and-small-scale-renewables/; Local Energy Scotland (n.d.[22]), *Homepage*, https://localenergy.scot/; Community Energy Scotland (n.d.[23]), "Community wind power more rewarding than commercial wind", https://communityenergyscotland.org.uk/uncategorized/community-wind-power-more-rewarding-than-commercial-wind/.

Scottish social care legislation allows supplementing the state's provision of welfare services involving social enterprises and social innovators. The Social Care (Self-directed Support) (Scotland) Act 2013 (Scottish Government, 2013[8]) makes legislative provisions relating to the arranging of care and support, community care services and children's services to provide a range of choices to people for how they are provided with support. This creates an opportunity for social sector organisations and social innovators to develop projects where other care providers are failing to deliver effective service.

Scottish public procurement is a good fit for the promotion of social innovation but more progress is needed in its implementation. The Procurement Reform (Scotland) Act 2014 (Scottish Government, 2014[24]) defines the sustainable procurement duty of the government. It obliges the contracting authority to consider how, in conducting the procurement process, it can improve the economic, social and environmental well-being of the authority's area as well as promote innovation. Moreover, the 2014 act places an obligation on public sector bodies for the systematic delivery and reporting of social value in the Scottish public sector. Based on the latest data available, only around 35% of procurement bodies involved the third sector bodies in contracts awarded in 2018-19. This is confirmed by the data that only one in five social enterprises participated in public procurement and additional support with skills and awareness raising is needed (Scottish Government, 2020[25]).

Social innovation can be fostered through a variety of legal entity forms in Scotland

Social innovations take a variety of legal entity forms; in Scotland, one can distinguish several forms more commonly present locally. There is a wide range of institutional forms and social practices that can be considered potentially innovative. The recent academic paper by Bill Slee (2019[26]) looked into the fields in which social innovation has occurred in Scotland and identified several forms it tends to take. There

does not seem to be evidence that existing laws and regulations could prevent some social innovation actors from benefitting from public support.

The Community Development Trust is the dominant legal entity form for a range of community-led, place-based development entities. Mostly, development trusts are community-led organisations which are owned and managed by the local community. The Development Trusts Association Scotland (DTAS) counts over 300 members (DTAS, 2022[27]). Development trusts are involved in a very wide range of activities such as health, economy, energy, sustainable use of resources, etc. Often, they act as support agencies and help the communities to define and develop their projects. Development trusts are typically incorporated and are constituted as a company limited by guarantee, the Scottish Charitable Incorporated Organisation or Community Benefit Societies (DTAS, 2022[27]).

Partnership is another common legal entity form in Scotland, often used with the objective to tackle a specific issue involving civil society as well as other actors. Typically, this legal entity form builds around bringing together several stakeholders and partners with a common defined objective, making it relevant for social innovation. Public sector, private sector, civil society or social economy actors can all be members of such partnerships. An example of this form would be the Kirkcudbright Red Squirrel Group, formed to preserve and improve the habitat for the endangered red squirrel population. These groups or partnerships could operate with a formal structure, especially if they are delivery agencies for specific policies, but they can also have an informal setting. Many of these partnerships rely on volunteering and youth and seniors tend to be active in them.

Social enterprise is another important vehicle for the delivery of social innovation in Scotland. Social enterprises are entities which trade goods and services that fulfil a societal (social and environmental) objective and whose main purpose is not the maximisation of profit for the owners but its reinvestment for the continued attainment of its societal goals (OECD, 2022[2]). In addressing unmet needs, social enterprises often adopt social innovative approaches. There is no single legal form nor a process of the registration of social enterprise in Scotland. There is a broad spectrum of legal options for social enterprise legal entities in Scotland including limited companies, charities, Scottish Charitable Incorporated Organisations (SCIOs),[6] co-operatives, community interest companies (CICs)[7] or sole traders or business partnerships. Scotland's Social Enterprise Census (CEIS, 2019[15]) highlighted that three-quarters of social enterprises are incorporated under the law. While about 42% of social enterprises hold limited company forms (limited by guarantee, not shares), the CIC or hybrid form is becoming more popular and its popularity is growing rapidly. Most social enterprises hold a charitable status and the majority are registered with the Office of the Scottish Charity Regulator (OSCR) (CEIS, 2019[15]).

The charity is a particularly popular legal entity form in rural areas, where there is a higher concentration of charities per head of population. There is a long tradition of charity and philanthropy in Scotland and the charity sector has a relatively high profile and public visibility for such a relatively small legal jurisdiction. This emphasises the role that smaller charities play in the country generally, including village halls, social clubs and recreational organisations. The terms of being classified as a charity are set out in the Charities and Trustee Investment (Scotland) Act 2005 (Scottish Government, 2005[28]). In Scotland, an organisation can only call itself a charity if it is part of the Scottish Charity Register, published and maintained by the OSCR. Even if generally, the charity is not a legal structure, in Scotland, there is also a special legal form of SCIO unique to Scottish charities allowing the latter to be legal entities also reporting to the OSCR.

In summary, the legislative framework in Scotland is supportive of social innovation. It empowers communities to take action and allows for socially innovative actions in supplementing the state's provision of welfare services. Since 2003, land use legislative reform allowed for ground-breaking development, promoting experimentation and allowing for the transfer of community assets to relevant actors. A variety of legal entities are active in social innovation in Scotland, with the Community Development Trust being a popular form for a range of community-led entities. Other common forms also include social enterprises, partnerships and charities. Social enterprises enjoy a broad spectrum of legal options for their legal form

in Scotland. This could also enhance the uptake of the application of local public procurement supporting local social innovations.

Policy framework around social innovation

There is a wide range of policies that support social innovation in Scotland

The policy framework and institutional setup shape the scope and efficacy of interventions relevant to social innovation. Both the policy context and institutional architectures for community engagement have changed rapidly in Scotland over the last decade and have enabled more social innovation.

Even though Scotland does not have a dedicated social innovation framework and policy, there are a number of relevant policy frameworks that are in place in order to support social innovation development and growth. The Scottish Government's approach is explicitly connected to social innovation as a means of delivering a communitarian policy agenda. It offers a range of policies focused on empowering communities to help themselves. Over the last decade, local government in Scotland has benefitted from increased welfare powers and responsibilities devolved from the central government, which has provided an opportunity for local agents to engage with new forms of provision and experimentation. Scottish political commitment to community-led social innovation has been implemented through a clear vision and a number of relevant approaches developed over the last years. Moreover, the Scottish Government continues to build on the successful examples of community-led initiatives, such as the European LEADER[8] local action group structure even after leaving the European Union. In 2022, 23 rural community-led development progrects and programmes will benefit from the funding of over GBP 7 million to promote LEADER-type initiatives.

The Scottish National Outcomes set an overarching purpose for Scotland and addresses issues of inclusiveness and addressing inequalities among other themes. The national outcomes are the Scottish Government's broad policy aiming to provide a vision for Scotland with which every policy must align. There are 11 national outcomes which are monitored through the set of indicators to each outcome. The vision is monitored through the National Performance Framework (Scottish Government, 2007[29]). This strategy allows mainstreaming the mutually reinforcing themes of environment, inclusive economic growth and addressing inequalities. This frames every policy developed in Scotland so all sectors and all of Scotland's key actors must pay attention to how they contribute to this overall purpose and the national outcomes. For example, the indicator of the number of assets in community ownership measured by the framework indicates a steady growth from 452 to 612 over the last 7 years. At the same time, the indicator measuring the quality-of-care experience has been slowly decreasing over the same period of time. Local authorities must prepare Local Outcome Agreements, in conjunction with their Community Planning Partners. These local outcomes must align with the national outcomes, detailing how these will be delivered at the local level.

The Scottish Wellbeing Economy Monitor (Scottish Government, 2022[30]) is a valuable tool for promoting social innovation in Scotland by providing a framework for understanding the links between social, economic and environmental factors and their impact on well-being. It is an initiative led by the Scottish Government to monitor Scotland's progress towards a well-being economy. The monitor provides a comprehensive set of indicators to track progress across a range of areas related to well-being, including social, economic and environmental factors. Even if the latest data give us a mixed picture, this initiative indicates the importance the government gives to well-being and helps provide an evidence-based approach to tackle areas which have been underperforming. It highlights the importance of social and environmental considerations in shaping Scotland's future.

Land reform has been crucial for the growing number of Scottish community buy-outs, especially in rural areas. The reform managed to engage a number of bottom-up social innovations, especially in rural areas, generating new socio-economic opportunities for communities. It has also been a source of revenue generation for some communities which again empowered communities to continue other actions (Box 4.1).

The community empowerment reform has led civil society to have its say at the local level. The Community Empowerment Act has allowed many communities to transfer community assets, unused buildings to new initiatives, allowing them to test their efficiency and empowering the local citizens to initiate action. This has also led to the uptake of participatory budgeting, allowing communities to take control of some aspects of local government spending (Henderson et al., 2019[31]). This community empowerment is further strengthened by the recent ten-year National Strategy for Economic Transformation (2022-32), which aims at a fairer and more equal society. The strategy promotes the well-being of economic objectives and recognises the importance of the community wealth-building approach to economic development as a way to move ahead in Scotland (Scottish Government, 2023[32]).

Another relevant policy tool is the Social Enterprise Strategy, which recognised the important role social enterprises could play in localised regional responses to social challenges and hence is relevant to social innovation. In 2016, the Scottish Government published a ten-year Social Enterprise Strategy. It was co-developed with the sector itself and was translated into action plans covering three-year periods each. Since the beginning, the government has invested over GBP 30 million into Scotland's social enterprise sector and provided a wide range of support mechanisms for the start-up, development and internationalisation of social enterprises in Scotland. The latest Social Enterprise Action Plan (2021-24) confirms the Scottish Government's long-term vision and furthermore builds on the opportunities internationalisation can bring to social enterprises.

Implementation of social innovation policies in Scotland tends to be decentralised and not a single institution has a specific mandate to deal with social innovation

There is not a single implementation agency which has a unique mandate to deal with social innovation in Scotland; its implementation is decentralised. There is no clearly defined approach to the way social innovation implementation is operationalised at the local level. Indeed, social innovation implementation is seen as a horizontal area where a number of institutions could be relevant, especially the three enterprise agencies (see Box 4.3). Some of the agencies deal with it based on their geographical scope while others handle it based on their subject area. The sections below summarise some of the most relevant institutions.

The councils have a unique position in enhancing social innovation implementation locally due to their access to resources and proximity to local stakeholders. Scotland counts 32 councils which are very close to the local setting and are well aware of the issues, actors and possible solutions. Even if councils do not have a formal mandate, they deal with issues of education, waste collection, social services and other relevant services to social innovation. Even if economic development is mostly the responsibility of specialist agencies (see below), councils can be instrumental, especially in more rural areas where they have stronger competencies (Copus et al., 2017[5]). This has especially been demonstrated in the self-care industry (Box 4.2).

Councils have been collaborating with local communities to capture and realise local ambition through the creation of Community Planning Partnerships (CPPs). There are 32 CPPs with 1 for each local authority area. Each CPP is responsible for developing and delivering a plan for its council area. The CPP provides an example of how public bodies can work with each other and local communities to gather information about the needs, realise local ambition and help them take action. There is wide variation in the size and membership of CPPs. Even if not all CPPs might be as effective as some other ones, it is seen as a way to empower local communities to work closer with the councils, for example through participatory

budgeting.[9] It can also be a useful tool for sharing information with the community of stakeholders. The social economy and civil society usually have a role to play in the CPP.

Box 4.2. The Scottish self-directed support as a source for social innovation in remote rural areas

Self-directed support (SDS) was initiated by the Scottish Government as a way to ensure an optimal approach to delivering care services across the territory. Scottish SDS policy empowers budget holders to direct their own care, giving them a choice and control over how they spend their SDS budget, including what they spend it on and from whom.

Even though, in the majority of cases, a more "traditional" approach to care services was still applied, it allowed the creation of new opportunities for social innovation in social care. This was especially the case in some rural regions, driven by the emergence of a thriving socially innovative subculture of organisations, often small enterprises, offering socially innovative social care services (e.g. herbal medicine, walking, life coaching). The qualitative study of stakeholders in 2019 found that this has been more the case in some remote rural Scottish areas where socially innovative solutions have emerged from necessity as budget cuts, combined with increased pressure from the ageing Scottish population, have reduced service availability.

However, the study also demonstrated that these socially innovative initiatives were highly dependent on the interpretation of the policy at the local authority level. In other Scottish regions where local authorities have interpreted SDS policy to maintain the status quo, insisting SDS budgets must only be spent on traditional home care services, this has inhibited the development of social innovations.

Source: Henderson, F. et al. (2019[31]), "Social enterprise, social innovation and self-directed care: Lessons from Scotland", *Social Enterprise Journal*, Vol. 15/4.

From an economic development perspective, the social innovation ideas could be supported by the three enterprise agencies in Scotland. The pattern of responsibility for economic development is relatively complex in Scotland, involving regional but also to some extent council and a number of national, regional and local institutions. However, the three enterprise agencies are likely to play the most important role as implementation agencies for a sizeable part of social innovations (Box 4.3). The agencies include the Highlands and Islands Enterprise (HIE) regional agency (for northern parts and islands), the Scottish Enterprise (SE) national agency (for central parts of Scotland) and the South of Scotland Enterprise (SOSE) regional agency (for southern parts). These agencies would be the right agencies to provide business support. Moreover, both SOSE and HIE have a particular focus on inclusive growth in their visions and are in the process of integrating it into the implementation of activities on the ground. The agencies put in place specific activities focused on local communities and social enterprises.

Box 4.3. Enterprise agencies in Scotland

Scotland has three enterprise agencies that could have a national remit in specific areas of delivery and have equal standing. The agencies have a dedicated social remit closely linked to their role in the funding landscape in Scotland. By providing support and funding to local communities and businesses, they aim to promote economic growth and improve quality of life for people living in these regions.

The Scottish Enterprise (SE) agency

SE is Scotland's national economic development agency operating since 1991. The agency has been active for many years, supporting businesses across Scotland. SE helps companies to grow and scale through innovation, investment and internationalisation. It has put in place specific packages to support sustainable business practices. SE covers the parts of Scotland that other agencies do not cover. It recognises the importance of social innovation as a driver of economic growth and social change and works with a range of partners to support social innovation initiatives in Scotland. For example, it has supported the development of social enterprises through funding and business support services and has worked with organisations such as Social Enterprise Scotland and the Social Enterprise Academy to promote the growth of the social enterprise sector in Scotland.

The Highlands and Islands Enterprise (HIE) regional agency

HIE is an economic and community development agency for the North and West of Scotland. Its role is to "help build a prosperous, sustainable and inclusive economy across the Highlands and Islands, attracting more people to live, work, study, invest and visit". Its social remit is to support the sustainable economic and social development of the region, with a focus on improving the quality of life for local communities. Inclusive growth has been at the core of the activities of HIE, and its strategic direction for 2022-23 along with the economic promotion of the region make clear reference to the support of alternative business models such as co-operatives, social enterprises and community-owned businesses as well as promoting well-being. HIE has a dedicated community account management model to encourage an entrepreneurial and innovative spirit in the community and social enterprise sector, with a large offer of support services. HIE also promotes increased connections between local businesses, public agencies and community organisations, which could result in social innovations.

The South of Scotland Enterprise (SOSE) regional agency

SOSE is the economic and community development agency launched in 2020 to promote Dumfries and Galloway and the Scottish Borders. It was set up to address the distinct situation of this mainly rural area. SOSE's social remit is to drive inclusive economic growth in the region by supporting business growth, creating new jobs and attracting investment. Much the same way as other agencies, SOSE's support can include training, advice, specialist expertise and funding through grants and loans. From the very beginning, it has a legislated aim to further support the social development of the South of Scotland. This translates into specific support programmes focused on communities, social enterprises as well as social innovation promotion. SOSE has several grant and loan funds to help businesses and enterprising communities with business improvement or innovation.

Source: SE (n.d.[33]), *Homepage*, www.scottish-enterprise.com (accessed: 15 March 2023) .; HIE (n.d.[34]), *Homepage*, https://www.hie.co.uk/ (accessed : 15 March 2023); SOSE (n.d.[35]), *Homepage*, https://www.southofscotlandenterprise.com/ (accessed : 15 March 2023).

Community Planning Partnership network could play a role as a feedback mechanism around policy implementation in Scotland

There is no formal co-ordination mechanism among stakeholders dealing with social innovation in Scotland but there is a dialogue among a variety of relevant mechanisms such as CPPs. A co-ordination mechanism in policy development and policy implementation could be helpful in order to share experiences and ensure non-replication, get feedback from stakeholders, as well as ensure a more co-ordinated approach. A network of CPPs with a holistic approach to the way they are operating across the areas is a good base for the provision of feedback and exchange of experience among stakeholders. A more co-ordinated approach could also contribute to discussing the bespoke needs of different communities and ways to address them.

The lack of a centralised point of information around social innovation could hinder some opportunities and growth potential

Currently, there is not a single official information portal where users can get information about social innovation in Scotland. This could be a missed opportunity to engage some of the innovators. Availability of information can help new social innovations get inspiration and guide them to the relevant contacts for additional information or help. Even if initiatives such as Find Business Support exist, they are only focused on some actors helping them to locate available public support. Several years back, a portal and social innovation centre, Social Innovation Scotland, was established. However, its activities were discontinued. An information portal could also provide a link to the relevant initiatives, institutions and actors which could provide additional information. At the same time, Scotland has active independent initiatives and organisations, which bring together relevant stakeholders, such as the Scottish Community Development Centre which is the lead body for community development or other initiatives such as Social Enterprise Scotland or the Social Enterprise Academy, which also play a role in information sharing. Just Enterprise, a multi-million (GBP) programme, delivered by local and national actors, does play an important role in some areas. Its delivery mechanism is built around consortia of actors who act as networker and signposting organisations (see Box 4.5).

In summary, over the last decade, both the policy context and institutional architecture around social innovation have had a positive change benefitting the emergence of social innovations. The local government in Scotland has benefitted from increased welfare competencies and responsibilities devolved from the central government, which has provided an opportunity to local agents with opportunities to engage with new forms of provision and experimentation including around the environment, inclusive economic growth and addressing inequalities. A number of relevant policies have been put in place, many of which focused on empowering communities to help themselves and supporting the creation of social enterprises. The enterprise development agencies along the councils are the major public implementation actors and have access to resources and proximity with local stakeholders which should be further enhanced. Yet, there is no co-ordination mechanism around social innovation policies and regional implementation practices. At the level of implementation, this could create replication and a lack of knowledge of what is done by the actors. Better co-ordination between the councils and the three enterprise development agencies (SE, HIE and SOSE) could ensure a more consistent approach. The lack of an official information portal around social innovation might make it challenging for newcomers to find relevant information and is a missed opportunity to link the relevant stakeholders and promote good initiatives and policy practices. The local government could also benefit from dedicated capacity building on how to practically apply public procurement in order to further promote community wealth-building efforts, support experimentation and ensure socially and environmentally sustainable outcomes. Another area to explore is the ways for the government to monitor advancement in social innovation and ways to measure the social impact. Scotland's Procurement Reform Act 2014 already incorporates an element for the social contribution of procurement activities by requiring public entities to set out in their procurement strategies

how they will contribute to compliance with the duty to deliver social impact. The Wellbeing Economy Monitor is another excellent start and work on the exploration of the relevant indicators should be continued (OECD, forthcoming[3]). Social impact measurement has been gaining significant traction and policy makers are increasingly looking at ways to promote its uptake through different mechanisms including improving the policy framework, providing guidance, building evidence and supporting capacity (OECD, 2023[36]).

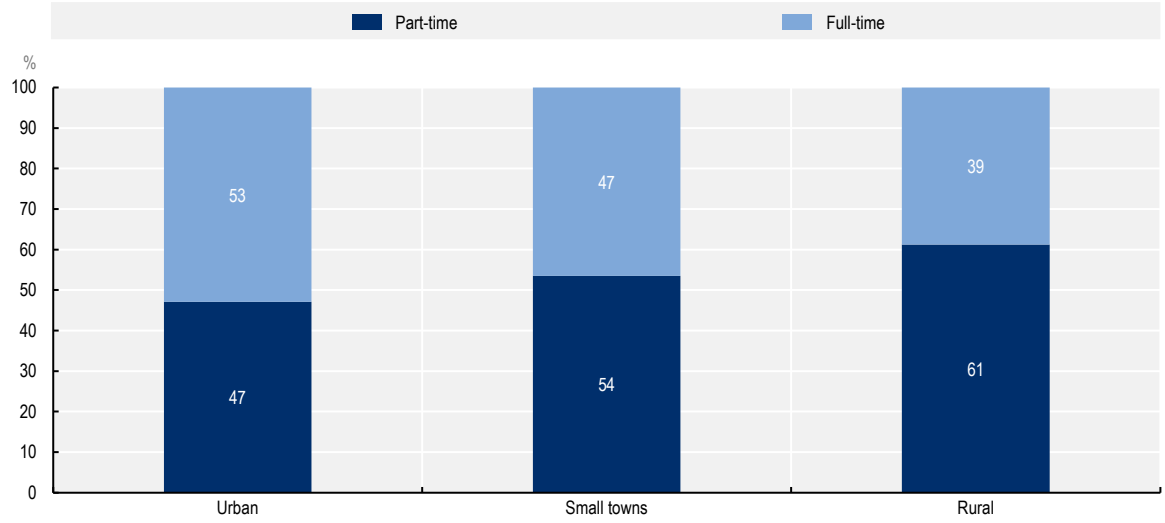
Social innovation actors are present across Scotland and especially in remote rural areas

Social innovation brings together private, public and non-profit actors, together with citizens to develop innovative solutions to emerging societal challenges. The quality and diversity of the community of actors define the richness of ideas and abilities to manage and implement innovations.

Scotland enjoys a diversified fabric of social innovators that include social enterprises, civil society, charities as well as private and public entities. Compared to many territories in continental Europe, Scotland has a number of similarities in relation to the actors with an active participation of senior citizens and social enterprises in rural areas. What might distinguish Scotland's rural areas from some of the continental territories is the active involvement of charities, which often rely heavily on volunteers. Social movements have arguably played an important role in Scotland in promoting some rural social innovations.

Social enterprise is an important player in rural social innovation in Scotland. It has received substantial attention from the government in terms of visibility and financial support. The latest Social Enterprise Census (CEIS, 2019[15]) identified 6 025 social enterprises operating in Scotland, of which one-third are located in rural regions. There is a larger number of social enterprises per 10 000 inhabitants in remote rural areas compared to accessible rural areas by a significant factor. The main sectors of trading activity for entities located in accessible and remote rural areas relate to areas where they address social needs and include: i) education, training and employment; ii) health and social care; iii) early learning and childcare; and iv) community centres and halls. Social enterprises in rural areas are smaller compared to the enterprises in metropolitan settings; they have a lower turnover and hire fewer people. Prior to COVID-19, rural social enterprises had an average headcount of 23, below the urban social enterprises which counted 46 staff, but slightly higher than the average of small-town social enterprises (19). Moreover, in rural areas on average, the majority of staff work part-time, much more compared to the urban setting or small-town setting (Figure 4.1).

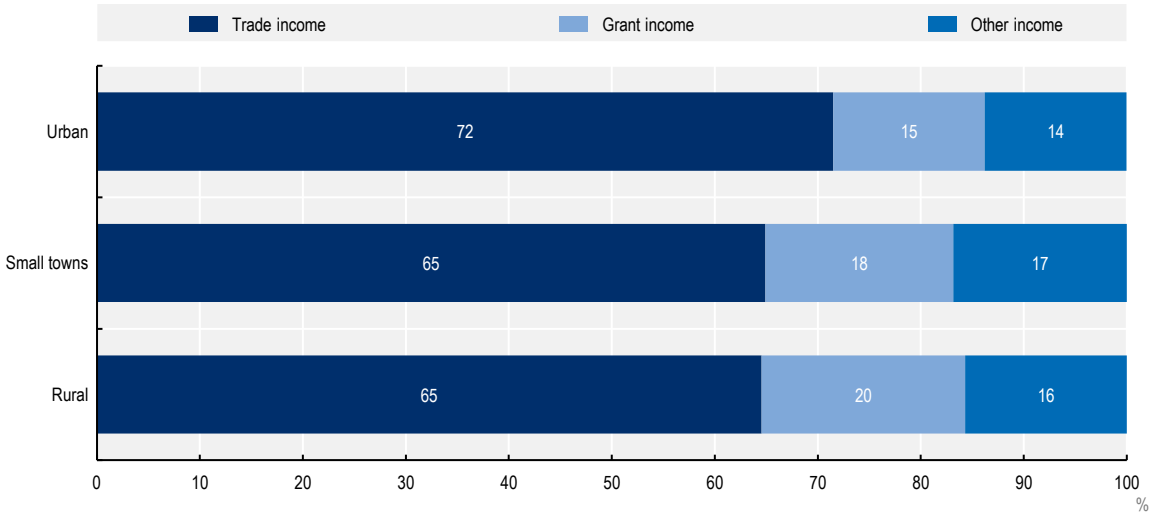
Figure 4.1. Ratio of full-time to part-time headcount for social enterprise by regional area classification, 2018



Note: Calculated based on the six-level classification of the Scotland Social Enterprise Census Dataset 2019, which was regrouped into three-tiered regional classification: urban (large urban areas and other urban areas), small towns (accessible small towns and remote small towns) and rural (accessible rural and remote rural).
Source: Calculated based on data from CEIS (2019[15]), *Social Enterprise in Scotland Census*, https://socialenterprisecensus.org.uk/ (accessed: 15 March 2023).

Social enterprises in Scotland in rural areas had a much lower income and mean grant income compared to the social enterprises in urban areas and small towns. Looking at the sources of income, data also confirm that the share of grants presented a larger share of income compared to peers in urban areas and small towns (Figure 4.2). Urban social enterprises had an average grant income of GBP 156 633, while rural social enterprises and small-town social enterprises had GBP 47 922 and GBP 70 380 respectively, which means that social enterprises located in rural areas had a mean grant income of only 30.5% of the ones based in urban areas.[10] Data also indicate that, especially for entities located in remote rural regions, they have slimmer chances to bid for and win a public sector contract (CEIS, 2019[15]).

Figure 4.2. Share of income source of social enterprises by regional area classification, 2018



Note: Calculated based on the six-level classification of the Scotland Social Enterprise Census Dataset 2019, which was regrouped into three-tiered regional classification: urban (large urban areas and other urban areas), small towns (accessible small towns and remote small towns) and rural (accessible rural and remote rural).
Source: Calculated based on data from CEIS (2019[15]), *Social Enterprise in Scotland Census*, https://socialenterprisecensus.org.uk/ (accessed: 15 March 2023).

There is a long tradition of charity and philanthropy in Scotland and the charity sector has a relatively high profile and public visibility for a legal jurisdiction of the size of Scotland. There were over 25 000 charities in Scotland in 2021 (OSCR, 2021[37]) which rely greatly on volunteering, with 68% of organisations reporting that they are run entirely by volunteers. Charities are also focused on operating locally: 40% of charities operate locally based on a local point, community or neighbourhood, with a further 22% operating within 1 local authority area. There is a larger density of charities (number of charities per 10 000 inhabitants) in rural and especially remote rural areas (OSCR, 2021[37]).

Charities in Scotland are heavily reliant on volunteering, which is reported higher in rural and remote rural areas compared to the rest of Scotland. Around a third of people in rural Scotland give up time to work as a volunteer compared to a quarter in the rest of Scotland (Scottish Government, 2021[6]). For charities located in remote rural areas, the most frequently reported "primary area of work" was the local community or neighbourhood groups (28.7%), youth and children (16.7%) and religion (16.7%). In accessible rural areas however, the case is markedly different, with religion being the primary area of work (32.5%), followed by youth/children (19.3%) and then local community or neighbourhood groups (15.7%) (Woolvin and Rutherford, 2013[38]).

Civil society has been active in rural areas and has been an active enabler of social innovation across the world. As a subset of the population, elderly or early-retired citizens tend to be very active actors in social innovation in rural areas across the world. This might be explained by the fact that when people get to retirement age, they are more likely to live in rural areas and also have more time as they are no longer working. One particularly important feature of Scotland's rural areas is the demographic trends of these communities. Rural Scotland has some of the highest median ages of the population of any part of the United Kingdom. Rural areas in Scotland have a lower proportion of the population in the age range of 16 to 44 but a higher proportion of people aged 45 and over. This is particularly true for the age range of 65 and over in remote rural areas (Scottish Government, 2021[6]). Data comparing the members of the Impact Hub Inverness based in the rural region also showed a much higher prevalence of members over 55 years

old, at least double or triple compared to other analysed Impact Hub locations in Europe (Impact Hub, 2019[39]).

Actors engage locally through a variety of platforms, from development trusts to community partnerships

Actor engagement platforms are physical or virtual touch points where actors meet, exchange information and resources and co-create value and new initiatives. The presence and number of these platforms locally would arguably correlate positively with the number of interactions that actors could have among themselves. Community partnerships play an important role in supporting social innovation in Scotland through collaboration among different stakeholders. Increasing the number of collaborations among various actors could increase the quality and depth of social innovations. In Scotland, Community Planning Partnerships have been put in place for a long period of time and have empowered communities to take a more active role and allowed collaboration opportunities among various stakeholders. Recently, the communities have played an important role in addressing the consequences of the COVID-19 pandemic and allowed various stakeholders to have a voice in supporting their communities.

In Scotland, community energy is largely driven by community development trusts or community partnerships. These community-led initiatives could play a role as actor engagement platforms are often owned and managed by the local community. They allow citizens to present and support the development of socially innovative projects. Moreover, they allow citizens to be engaged in their implementation as well as their management through involvement in the board. Information about existing partnership initiatives, such as the Galloway Glens Landscape Partnership (Box 4.4), is available. Other examples can be found in other countries where community partnerships play an important role in ensuring that local rural communities have access to the services needed and where local communities have to take an active role in ensuring the service.

Box 4.4. Examples of local partnerships active in rural areas

The Galloway Glens Landscape Partnership, Scotland

The Galloway Glens Landscape Partnership is a five-year initiative promoting local projects and activities taking place in Dumfries and Galloways between 2018 and 2023. It covers the river catchment in the Ken/Dee Valley and connects the people living and working in the area with its heritage and landscape. With an approved grant of GBP 2.7 million for project funding, the partnership managed to secure a total investment of GBP 5 million. The partnership is mainly funded by the National Lottery Heritage Fund Scotland with additional support from a range of partners including Dumfries and Galloway Council and the Galloway and Southern Ayrshire United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere. The partnership initiated 35 headline projects in these rural areas across 6 themes designed to boost economic activity for a sustainable future. These projects are inspired by local social innovators who want to develop a local project and build it in collaboration with other actors.

One of the projects is the Threave Landscape Restoration Project. It focuses on the repurposing and sustainable management of a former 81-hectare dairy farm in intensive agriculture into a fully restored woodland-wetland ecosystem, self-sustaining and self-adapting to Scotland's changing climate. This project includes several initiatives around sustainable farming, heritage and information sharing and is an area of experimentation and inspiration for other local farmers. One of the experimentation activities is the application of Global Positioning System (GPS) collars on cattle to pinpoint locations and avoid building physical fences allowing cattle to move from one area to the other thanks to the digitally defined

limits of the territory where cattle can go. Through this project, Threave will become an established centre of excellence in landscape restoration, providing visitors, other land managers and the National Trust for Scotland with best practice methods and approaches.

The Great Lakes Community Action Partnership (GLCAP), Ohio, United States

The GLCAP has been serving the northwest Ohio area for more than 50 years. It enables the creation of a number of local partnerships and opportunities to help individuals, families and communities thrive. It has supported the development of partnerships around the area of youth education, entrepreneurship but also in tackling local infrastructure needs around water and the environment. For example, the partnership has been particularly active in the development of no-cost and low-cost childcare and pre-school options as well as free afterschool programmes for youth. In 2020 alone, it supported education activities for 1 503 children through Early Head Start and Head Start programmes. After-school programmes also served 112 Fremont high school and Clyde middle school youths. It also provided educational and workforce development opportunities for 386 youth and young adults in Erie, Ottawa, Sandusky and Seneca counties.

Source: Galloway Glens (n.d.[40]), Homepage, https://gallowayglens.org/ (accessed: 15 March 2023); NTS (2021[41]), "Threave Landscape Restoration Project: Our 100-year vision", https://www.nts.org.uk/stories/threave-landscape-restoration-project-our-100-year-vision (accessed: 15 March 2023).; Great Lakes Community Action Partnership (n.d.[42]), *About*, https://www.glcap.org/about/ (accessed: 15 March 2023).

Actor engagement organisations have supported social movements to contribute to the uptake of social innovations especially in rural areas of Scotland. Social movements could be social innovations as such but they can also create an environment where social innovations can be nourished (Smith, 2014[43]). Even if social movements are not essential precursors of social innovation, there is often a profound and important link. One example of community forestry in Scotland is presented by Slee (2019[26]), in which social movements represented by organisations such as Reforesting Scotland succeeded in making a shift. Acting collectively, the movement has successfully promoted collective forestry and new ways of land use across Scotland. In most rural areas in Scotland, a community forest could be seen as a social innovation but its roots lie in social movement.

The Scottish Rural Network plays an important role in connecting with individuals living in rural areas, communities, organisations and businesses across rural Scotland and beyond. The network allowed us to gather inspiring stories also relevant to social innovation and support major policy change in a variety of sectors. For many years, it helped to ensure an outward focus and exchange of relevant inspirational examples of social innovation with rural community policy at the European level. For example, it has been promoting work around smart villages.

Another sector engagement platform has been the Scottish Council for Voluntary Organisations (SCVO), which has united over 3 500 organisations including charities, social enterprises and voluntary groups from the voluntary sector. Its mission is to support, promote and develop the voluntary sector across Scotland. The SCVO provides a whole set of support services for the voluntary sector including advice, tools and peer support. Importantly, it also gathers important data on the sector which is published regularly.

In summary, Scotland enjoys a diversified fabric of social innovation actors such as social enterprises, civil society, charities as well as private and public entities. Many of these actors are based in rural areas and are smaller, have less income, a lower headcount and have slimmer chances of benefitting from the public sector contracts compared to their urban counterparts. At the same time, many of the social innovators are heavily reliant on grants and even if revenue-generating models have been increasing, relatively few of the actors are financially sustainable. There is a great reliance on volunteering and the involvement of senior citizens, especially in remote rural areas. The community energy is largely driven by community

development trusts, community partnerships and, generally, actor engagement organisations. Development of local partnerships with financial support such as demonstrated by the Galloway Glens scheme could empower social innovators to take action.

Available resources

The available resources section looks at the availability of financial public and private resources, as well as physical infrastructure and support programmes in rural areas.

Public and private finance is available, yet it is difficult for early-stage social innovations to get initial funding support

Across Scotland, a network of public and private organisations offers grants and financial support directly to local social enterprises and community initiatives. Access to finance is seen as critical to developing successful social innovations. Such finance can come from public support programmes for social innovation and innovations in public procurement but also from an emergent field of impact-oriented financing or impact investing. In the pre-COVID-19 period, some 17% of social enterprises reported access to finance as a barrier in Scotland (CEIS, 2019[15]). The government (Scottish Enterprise) also runs an online portal Find Business Support (Scottish Government, 2022[44]) which provides a range of information and resources to support businesses in Scotland and help them locate public sector support. Grants remain the most popular form of financing social enterprises, alongside charities in Scotland. Even if there is a whole range of repayable forms of finance available in Scotland, which has been evolving over the last several years, only one in ten social enterprises applied for a loan in the last year (CEIS, 2019[15]). A grant is an important source of funding of social enterprises, charities and community initiatives.

Public sector support comes from the UK government, the Scottish Government, HIE and SOSE (Box 4.5) as well as the number of council-led initiatives adjusted to local needs. The funding support mainly covered the growth phase for social innovations and in a more limited way the start-up phase. Examples of public funding mechanisms are described below (Box 4.5). Local councils also provide direct financial assistance, mainly in the form of grants to selected social innovations that deliver a range of services to different segments of the population (elderly, young unemployed, homeless, persons with disabilities, etc.).

Box 4.5. Examples of recent public support finance schemes in Scotland

The Scottish Social Growth Fund (SGF)

The Scottish Government, Big Society Capital and the University of Edinburgh launched the Scottish SGF in March 2019, which is managed by Social Investment Scotland. Phase 2 of the SGF has a GBP 17 million commitment providing loans from GBP 100 000 to GBP 1.7 million. The SGF provides flexible social investment products of GBP 100 000 to GBP 1 million, with repayment periods of up to 15 years and fixed interest rates.

The Third Sector Resilience Fund (TSRF)

The TSRF is a Scottish Government-backed fund, launched in 2020 in response to the implications of COVID-19. The fund provided over GBP 22 million in grants (and GBP 3 million in interest-free loans) to over 1 300 community-led organisations and social enterprises to respond to pandemic-related challenges and ensure working capital requirements as well as an ability to respond to unforeseen emergencies.

The Social Innovation Fund (SIF)

The Scottish Government launched the SIF in 2017. It enabled social economy organisations to work in collaboration with research institutions and the public and private sectors to develop, test and scale up new ideas and solutions to tackle poverty and disadvantage among other areas. The available funding included grant support from GBP 30 000 to GBP 250 000 available through a three-stage approach providing seed funding to help develop (Stage 1), test (Stage 2) and scale and sustain (Stage 3) interventions. The SIF supported 62 collaboration projects including at least 1 social economy organisation and 1 academic/research institution.

Source: BigSocietyCapital (2022[45]), *Scottish Social Growth Fund*, https://bigsocietycapital.com/portfolio/scottish-social-growth-fund/; Scottish Government (2020[46]), *Third Sector Resilience Fund*, https://www.gov.scot/publications/third-sector-resilience-fund-tsrf-analysis-applications-awards/; Scottish Government (2018[47]), *Social Innovation Fund*, https://www.gov.scot/publications/social-innovation-fund-approved-projects/.

Public sector financial support and especially venture capital funding is a positive element in the Scottish ecosystem supporting social innovators but it might not be the approach that fits all social innovators. Public financial support schemes (Box 4.5) have a place in supporting the inducement, scaling and development of social innovations. The growth component of many of these initiatives presumes that their financial sustainability would be achieved through social innovation scaling (Vanderhoven et al., 2020[48]). However, it is not always the case and many, especially in rural areas, prefer to remain small and local, others facing difficulty even when they have a financially sustainable business model. These programmes also tend to be limited in time and might create a vacuum once one phase is finalised or funding is discontinued. Scaling through growth might require considering innovative financial support mechanisms, potentially in collaboration with private sector actors for example, through the creation of partnerships.

Social ventures in rural contexts still lack financial support and require financial products adjusted to their needs. Unlike social ventures in a more urban context which have easier access to finance and a larger opportunity to scale, social ventures in rural regions are often multi-faceted, operating in areas where there is a need but limited potential for financial returns. This does not allow many social ventures, especially in rural contexts to benefit from mainstream finance. They often need special products, which have adjusted repayment terms, the provision of flexible terms and often require back-up by the government to at least partially absorb the risk of the loan to the early-stage entities.

Private finance initiatives exist and cover rural Scotland, and they are often also supported by the Scottish Government. Scotland is home to several privately led initiatives, which are tailored to the specific needs of the social economy and social innovation community. Social Investment Scotland (SIS) is a social enterprise and charity which provides loan funding to social enterprises, charities and community groups looking to make a positive societal impact. SIS's ambition is to reach all 32 of Scotland's local authority areas and, since 2001, it has invested over GBP 101 million in 460 organisations across Scotland (SIS, 2021[49]). Inspiring Scotland is another venture philanthropy organisation with a desire for social change and specifically focused on Scotland's charities. It provides long-term investment to the Scottish voluntary sector. For example, Inspiring Scotland runs the Rural Communities Ideas into Action Fund supported by the Scottish Government to encourage and support innovative approaches to community-led local development in rural communities across Scotland. The fund promoted 120 initiatives through small grants for projects up to GBP 3 000 and large grants of up to GBP 50 000 (Inspiring Scotland, 2022[50]). The Social Entrepreneurs' Fund, managed by Firstport thanks to government support, provides grants of up to GBP 25 000 to individuals or to early-stage social enterprises to test or develop their social business case idea (Firstport, 2022[51]). Power Up Scotland develops early-stage social businesses through investment, business support and cross-sector partnerships. Each venture benefits not only from access to social finance but also from a 3-month mentorship focused on becoming investment-ready (Krlev et al., 2021[52]).

Social innovation can benefit from improved physical infrastructure covering rural areas

Scotland benefits from a relatively wide range of innovation centres, business incubators and accelerators: however, only a few are based in rural areas. Each of the several innovation centres have a focus on a specific innovation area, for example the Fife Renewables Innovation Centre, where social innovators can find an office, support and inspirational environment. The lack of population and demand for services due to scarcely populated territories makes it difficult to establish traditional incubators or accelerators in rural areas since they are mainly present in cities or larger towns. This contributes to the lack of awareness about the need and importance of incubation and business support. That is why raising awareness of the work of organisations thanks to programmes such as Just Enterprise has been so important, especially in rural areas around the need for leadership and skills upgrading support (Box 4.6). Organisations such as the Social Enterprise Academy also contribute to developing capacity building around these subjects.

Incubators and coworking spaces in rural areas have to explore the operational models in order to be able to provide services to rural communities. An example of such incubation support would be Impact Hub Inverness, which has innovated its operational model, providing space and consulting services for social enterprises and community groups. Impact Hub Inverness collaborates with the Highlands and Islands Coworking Association in order to allow coworking solutions across several physical locations in rural areas. These initiatives are important not only for business development support but also as a source of networking and capacity building delivered locally.

The lack of business physical infrastructure in rural and especially remote rural areas is partially compensated by relatively good digital connectivity to other remote rural areas in other countries (which still argues for its further improvement as per Chapter 3). Building on the extensive areas of 4G connectivity and the latest fibre optic broadband technology, Scotland enjoys relatively good Internet coverage. Improved Internet connection also allows the establishment of small coworking spaces linked with limited often-administrative support services across urban areas. This also allows social innovators to benefit from a number of capacity-building initiatives and advice services offered by various capacity-building institutions.

Social innovators can benefit from a range of public support programmes to support business development

The government aims to provide services covering the entire lifecycle of a venture at the national but also local levels. Scotland's Social Enterprise Strategy has committed a considerable budget to support various stages of development of ventures and put in place a whole range of support mechanisms. Support is provided at the level of Scotland as well as through the three economic development agencies (Box 4.3) and at the local level through council support.

Scotland enjoys a complex fabric of organisations supporting business development for social ventures but is mainly focused on the urban areas. The business support available ranges from general business development to which social enterprises can get access to specialist provisions targeting social enterprises. There are many agencies tasked with providing business support across Scotland, mainly through Business Gateway, a publicly funded body that provides services to people starting or growing their businesses.

Local economic development agencies play an important role in the provision of a range of support services not only to general enterprises but also specifically to social innovators. Both HIE and SOSE provide not only traditional business support and support in aligning to net zero, Fair Work and community wealth-building initiatives but could also offer customised support to community organisations or social enterprises. For example, SOSE provides enterprise advice, training and resources that support social enterprises. It is also possible to benefit from the support tailored to specific needs such as business planning, asset development or peer review. HIE also provides a range of services ranging from project

development (e.g. community engagement and planning, development of strategic plans) to financial support (e.g. securing investment, development of funding applications) or procurement (e.g. undertaking and supporting procurement exercises, including use of appropriate advertising routes and portals) and many others.

In some locations, dedicated services are provided specifically to social enterprises through service agreements. For example, the Fife Council through Business Gateway supports the setting up of social enterprises and provides support to the existing ones. Another example is in North Ayrshire: the local authority has a dedicated social enterprise network manager and a development officer to provide support to local social enterprises and grow the sector. Even if, on the surface, the social enterprise support structures in Scotland seem comprehensive, one of the criticisms of the recent study specifically looking at the support provided to social enterprises found that support could be better co-ordinated and more efficient (Mazzei and Steiner, 2021[53]).

Even if there is a large offer of organisations proposing learning and development skills, their focus on rural areas is uncommon and innovative approaches should be tested. Scotland has created a complex state-led ecosystem with several dozens of actors, most of whom are funded at least in part by the Scottish Government. These agencies, institutions and organisations provide new and existing social enterprises with development advice, skills training, funding and networking. Individuals and social enterprises can benefit from skills upgrading and learning opportunities through a variety of organisations including Social Enterprise Scotland, the Social Enterprise Academy, Firstport, Social Firms Scotland, the Development Trusts Association Scotland, the Community Business Network for Scotland, Community Enterprise in Scotland, Social Value Lab and Co-operative Development Scotland, among some other institutions.

The number of organisations indicates the scale of financial and political investment and the present offer, even if many of these organisations have relatively few operations in rural areas. Firstport, Scotland's agency for start-up social enterprise provides one-to-one and/or group advice, as well as training and workshops to new and emerging social enterprises. Only a few organisations are exclusively focused on rural areas: an interesting example is the charitable enterprise Inspiralba (2022[54]) based in Campbeltown (Box 4.6). It provides business support, training opportunities and advocacy to rural-based social enterprises. Another example is the Impact Hub Inverness (Impact Hub Inverness, 2022[55]) providing business support services to the areas around the whole of the Highlands and Islands.

Box 4.6. Examples of business services support initiatives in the rural context in Scotland

Just Enterprise

Started in 2011 with Scottish Government support, Just Enterprise is delivered across Scotland by a partnership of several organisations such as Community Enterprise in Scotland (CEIS), Impact Hub Inverness, the Social Enterprise Academy, Firstport, Forth Sector Development, Community Enterprise Ltd., CEMVO, Lanarkshire Enterprise Services Ltd., Inspiralba and Social Value Lab. Just Enterprise offers targeted and tailored support to complement and enhance the advice available to social impact initiatives locally supporting the design and delivery of commercial and social aims. It provides fully funded business support to a variety of social economy actors.

Just Enterprise offers one-to-one business advice sessions to social enterprises and enterprising charities led by specialist advisers, who are themselves working in social enterprises. Workshops and webinars are organised to gather groups of social entrepreneurs to share experiences in a supportive learning environment and learn new business skills. Over 5 000 organisations were supported through the Just Enterprise programme, such as Jura Community Business Ltd., through the assistance of Inspiralba, which helped to develop a dual business model adding a new business workshop space to

the existing fuel sales businesses on the island. This allowed the community to secure fuelling stations that risked closure.

Example of Inspiralba and the Rural Social Enterprise Hub

Since 2009, Inspiralba, a Scottish charity, has been providing business support, learning and research and advocacy around rural social ventures. It has participated in a number of relevant projects around rural social enterprises such as the Village Social Enterprise Network (ViSEnet), which is a European Union-funded Erasmus+ project which aims to promote social enterprise in rural areas through learning materials, guidance and networking.

Since 2019, Inspiralba has been leading the Rural Social Enterprise Hub created with the financial support of the Scottish Government. The hub is the focal point for research and development activity on rural social enterprise. It gathers research and information relevant to rural social enterprises and provides free online access to learning resources as well as peer-to-peer learning and engagement with local ventures as well as internationally.

The particularity of the hub is that it builds the knowledge base on rural social enterprise and the unique characteristics that allow rural areas to develop enterprising solutions to the challenges they face.

Source: Just Enterprise (2022[56]), *Homepage*, https://justenterprise.org/ (accessed 15 March, 2023).; Inspiralba (2022[54]), *Homepage*, https://www.inspiralba.org.uk/ (accessed 15 March, 2023); Rural SE Hub (n.d.[57]), *Welcome to the Rural Social Enterprise Hub*, https://ruralsehub.net/ (accessed 15 March, 2023); Rural SE Hub (n.d.[58]), *ViSEnet Online Learning Resources*, https://ruralsehub.net/visenet-overview/ (accessed 15 March, 2023).

Rural regions cannot adopt the same approach to business support services as urban areas; this approach should integrate the specific needs of the actors and explore new ways of delivering services. Social innovation actors need to get access to specific services, which should include support with measurement of the societal impact and help to adjust their operational and business models. It is difficult to get this expertise in rural Scotland. Digitalisation can help to address the issue by integrating online training modules, digital tools and digital support services. It also requires public support to integrate new ways of delivery of public support services and ways to operationalise business support reaching everyone. The specific needs of the social innovation actors should also be taken into account. For example, the South Ayrshire Council enterprise and development programme supports social enterprises and rural communities with the development of entrepreneurship and leadership capabilities. Local government can also put in place a system of mobile support services. There are a number of interesting examples of how mobile units and mobile business support services (Box 4.7) could reach rural regions.

The Just Enterprise programme, which receives public funding, allows providing business support services in rural areas through the network of support organisations and ensures a more co-ordinated approach. Just Enterprise (Just Enterprise, 2022[56]) has been operational in Scotland for over 10 years and is delivered by a consortium of social enterprise support organisations including local ones such as Inspiralba or Impact Hub Inverness (Box 4.6).

Box 4.7. The Central European Rural Social Innovation (CERUSI) project

Example of mobile service delivery through social innovation lab caravans

Social innovators in remote rural areas have difficulty realising their potential, often because of the lack of support structures and without moving away. The European Union-funded project CERUSI aimed to tackle this challenge by delivering a mobile business support service delivery to remote locations to promote social innovators.

Partners from seven central European countries led by the Austrian Centre for Social Innovation co-operated together with local action groups, regional development and business support organisations, non-governmental organisations and local communities to create an environment where potential can thrive.

With the caravans, citizens got an opportunity to discuss the entrepreneurial challenges of their communities and their existing business ideas directly in their hometowns. They could also participate in Rural Social Innovation Labs to work on their ideas and find solutions with the support of experts, or connect with possible business partners, sponsors and donors. This innovative support framework enabled partnerships between local actors that are interested in bringing their region forward and in exchanging experiences to make their dream ideas come true.

The project developed seven deliverables, including a brochure with advice to policy makers on how to set up a caravan business support initiative in a rural area.

Source: Interreg (n.d.[59]), *CERUSI*, https://www.interreg-central.eu/Content.Node/CERUSI.html; Interreg (2021[60]), *The Joy of Rural Social Innovation*, https://drive.google.com/file/d/11ZrmjQ6PPHB1PnNRScqsFPf6obBvKAhe/view.

Some institutional actors in Scotland have been active in connecting and engaging local actors around social innovation. Specifically, in promoting innovation, the Interface programme (2022[61]) works with individuals, social enterprises and organisations of all sizes and in all sectors to match them to Scotland's leading academic expertise with the aim to help them diversify and innovate. The Interface team provides services for free and helps to explore possible funding options that support academic collaboration partnerships.

Academic presence helped to create knowledge, awareness and analyse the existing ecosystem around social innovation

There is a pocket of academic excellence around social innovation in Scotland which should be seen as a resource. Even though not specifically focused on rural Scotland, the presence of academics has considerably contributed to the creation of relevant information about the social innovation ecosystem and its analysis. These actors include academic actors, such as Glasgow Caledonian University, the James Hutton Institute and the University of Edinburgh among others. This presence of academic excellence around social innovation allowed the creation of research projects developing studies looking at successes and areas for improvement many of which were focused on Scotland (Henderson et al., 2019[31]; Mazzei and Steiner, 2021[53]; Mwaura et al., 2021[14]; Slee, 2019[26]).

Scotland has a track record in experimenting with community wealth building, local assets and land use, which is crucial in rural areas to enable social innovations

Social innovation in Scotland builds on years of experimentation with the community wealth-building approach that aims to create sustainable and inclusive economies by shifting ownership and control of local assets and resources to communities. It also benefits from the land reform and seeks to transform land ownership patterns to ensure that land is used in the public interest and benefits local communities.

The National Strategy for Economic Transformation specifically promotes community wealth building along a fairer and more equal society. A number of local authorities have put in place concrete examples of how they can implement relevant community wealth-building initiatives using local assets. Examples include community-based initiatives that create affordable housing and shared facilities which enable new households to remain, return and settle (Rural Housing Scotland, 2023[62]), as well as initiatives buying community land from the government, allowing to experiment around income-generating activities such as wind turbines, residential and commercial properties that benefit the local community (Galson Trust, 2023[63]; Harris Trust, 2023[64]).

Rural communities benefit from a number of assets such as village halls, donated properties or lands. In many cases, these assets have been underused or not used for many years and are often in need of refurbishment (OECD, forthcoming[3]). At the same time, they might be a useful asset for social innovators. By 2019, communities owned 472 community assets in accessible rural and remote rural regions compared to just 118 in the rest of Scotland (Scottish Government, 2021[6]). It has been an important resource, especially in remote rural areas, allowing social innovators to experiment with the assets or renovate/redevelop them to meet community needs which can include office, arts or specific needs of the senior citizens or parents with young children. One of the well-known examples is the Men's Shed network, which was able to benefit from various community assets (Box 4.8) across rural regions in Scotland. Another example is the More than a Pub programme, which helped the community to own some 67 pubs across England (United Kingdom) and provided business development support and funding to enable the local community control of pubs in both rural and urban areas, especially where they play a central role for community to meet (Plunkett Foundation, 2022[65]). Building on this need, HIE has initiated a dedicated Maximising Community Assets programme, helping community organisations acquire and manage land or assets locally and providing them with assistance on the subject, as well as with the management of the land or asset. This can also include funding and support for project development.

Box 4.8. Examples of using community assets to address specific needs of local communities

Scottish Men's Sheds as an example of local social innovation, Scotland

Rural communities have a larger number of elderly people. It is a valuable resource with life experience and knowledge which could be beneficial for many areas including social innovation. Social isolation and loneliness are known to be associated with increased morbidity and mortality. Therefore, reducing social isolation and loneliness may improve such outcomes. In relation to men's health, Men's Sheds have been shown as one mechanism to achieve this. Initiated in Australia, the concept of the Men's Shed is a worldwide network dedicated to improving well-being through the provision of recreational facilities and activities. The concept of women's sheds is currently being explored.

Since 2009, the Men's Shed concept has been tested in various locations in Scotland and, as of 2022, the Scottish Men's Sheds Association counts over 135 members mainly across rural Scotland. The Men's Shed typically offers a location with a well-equipped workshop, men of all ages, backgrounds, interests and skills working next to each other on personal and community projects. It is also a place where men can learn to play a musical instrument and get skills in woodworking, construction and, for

example, scale model building. The model of Men's Sheds also helps to pass skills from one generation to another. More importantly, it is a place which allows us to explore developing new projects together, also those from which the wider community could benefit.

Typically, Men's Sheds are incorporated as a Scottish charity ran by a board and run thanks to volunteers and donations, grants and small-scale revenue-generating activities. The crucial element of any shed is the location and the place they are based in, which is often a community asset, such as a meeting hall or unused technical building. In the case of the Garnock Valley Men's Shed, the council provided the space at a very modest lease for 25 years, under the condition that the building would be renovated. In another example, the Alford and District Men's Shed was given the right to take on part of the old school site and land around it as part of a community asset transfer.

Men's Sheds have shown a positive impact on local communities. The places support building collective self-confidence and help men of any age and background have a safe space to talk, connect, share their thoughts, be creative, help and look out for one another in the community and look forward with hope and a positive outlook. The Men's Shed, therefore, as a community project has the potential to have a positive impact on health welfare by focusing on the social aspects of life. However, another study has also shown that a reliance on ageing and retired volunteers to undertake operational tasks and generate income to fund activities affected the ability of sheds to sustain and develop in the long run.

The Main Street Theatre, Columbiana, Ohio, United States

An initiative to save a public space (local theatre) and provide community activities for children with special needs was established with the support of a local community development organisation, in Columbiana, Ohio. The theatre is an example of social innovation and has brought affordable, family-friendly entertainment to Columbiana and the surrounding region. It is all part of a local vision to enrich the community through the arts.

Main Street Theatre is a member of Theatre Communications Group, the national service organisation for not-for-profit theatres, a world theatre network of theatre for children and young people and a founding member of Houston Arts Partners. The theatre is funded in part by grants from the city of Houston through the Houston Arts Alliance and the Texas Commission on the Arts.

This initiative highlights not only the importance of arts and culture in rural contexts but also that it can play an important role in local rehabilitation and development. Similar examples could be found in many rural areas: for example in Scotland, the Glenkens Community and Arts Trust not only managed to transform the building but managed to scale it considerably.

The Kyle of Sutherland Development Trust, Scotland

Kyle of Sutherland Development Trust (KoSDT) was established in 2011 to serve the remote rural districts of Ardgay and Creich in East Sutherland. The KoSDT was set up to counteract the economic decline that had occurred in the area following the opening of the Dornoch Bridge in the early 1990s, which had diverted traffic away from the area and resulted in the closure of local businesses. The KoSDT worked on several projects to valorise asset management of the local community. This included, for example, the Bonar Bridge post office and adjoining house to secure the post office in the village. The trust purchased the building in May 2014 at a time when the trend was for closing post office branches across Sutherland. The community consultation supported this action as important to secure an essential service for the village. This activity also allowed the community to retain two jobs and create four additional postal delivery jobs. The success of this redevelopment project served as an example for the development of other transformational change projects, such as the Ardgay

Regeneration Project, which also brought new economic activity to Ardgay and helped to create local employment opportunities.

Source: Foster, E., S. Munoz and S. Leslie (2018[66]), "The personal and community impact of a Scottish Men's Shed", https://doi.org/10.1111/hsc.12560; Kelly, D. et al. (2021[67]), "Men's Sheds in Scotland: The potential for improving the health of men", https://doi.org/10.1057/s41271-020-00268-5; SMSA (n.d.[68]), *Scottish Men's Shed Association*, https://scottishmsa.org.uk/# (accessed: 15 March 2023); ADMS (n.d.[69]), *Alford and District Men's Shed*, http://www.alfordmensshed.org.uk (accessed: 15 March 2023); KoSDT (n.d.[70]), *About Us*, https://kosdt.com/index.php/about-us/ (accessed: 15 March 2023).; KoSDT (n.d.[71]), *The Ardgay Regeneration Project*, https://kosdt.com/index.php/ardgay-regeneration-project/#next (accessed: 15 March 2023).; GCAT (n.d.[72]), *Homepage*, https://gcat.scot/ (accessed: 15 March 2023).

In summary, the Scottish ecosystem proposes a wide range of resources to promote social innovation. There are financial instruments to support social innovations at different phases of the lifecycle, including at initiation, development and scaling. These financial resources are mainly driven by government support but there are also private sector initiatives. Yet, finance is still one of the main barriers to social innovation especially in rural areas and the need for additional support especially at the early stages of social innovation development was highlighted by the stakeholders. Another point to highlight is that since the government provides funding through a wide range of actors delivering at different levels within different geographies, there is a risk of duplication of efforts. There is a large number of organisations providing support and this might also be confusing for the actors seeking support.

In terms of infrastructure and especially in public assets transfer, Scotland is advanced compared to many of the OECD countries. However, in rural areas, there is still a need to work on creating an understanding of the advantages of business development and mentoring support and development of specialised programmes, which could be delivered in scarcely populated rural areas. Programmes such as Just Enterprise enable the network of local partners and support organisations to reach out to social innovators in rural areas. Digitalisation and new operational models of delivery of business support services should be further explored. In terms of the overall focus for social innovation support, many of the programmes emphasise scaling while it might not necessarily be a focus of many social innovations, especially in a rural context. Many of these innovations were initiated with a specific objective to tackle a local challenge and did not have a vocation to scale. Policy makers might consider adjusting the support mechanisms to support local social innovation initiatives aimed at improving their financial sustainability and impact measurement support, at the same time keeping the focus on high-potential and scalable initiatives.

Annex 4.A. Summary

This section provides a synthetic overview of the main strengths, challenges, policy issues and recommendations for Scotland.

Strengths

- **Scotland has good socio-cultural preconditions to engage with social innovation.** A number of elements indicate that Scotland has a particularly good fit for engaging with social innovation due to high levels of social capital, consideration for the environment by the population and a strong sense of belonging to the local communities. Indeed, Scotland enjoys a high level of civic engagement, high levels of volunteering and solidarity. This is particularly true in remote rural areas, where remoteness and weather conditions drove the development of principles of solidarity.
- **Government long-term commitment encourages social entrepreneurship and elements around social innovation across Scotland.** The government has developed an advanced legal framework around social innovation with the Community Empowerment (Scotland) Act 2015, the Land Reform (Scotland) Act 2016, the Social Care Act 2014, the Procurement Reform (Scotland) Act 2014 and other elements to facilitate co-operation and the creation of partnerships tackling societal issues and promoting experimentation. Social innovation actors can choose from various legal entity forms. This builds on the solid policy framework for various elements around social innovation, which enables local actors to have more control and engage a bottom-up approach.
- **Scotland benefits from a diversified fabric of social innovation community of actors.** With an active social enterprise community, civil society, large number of charities as well as public and private actors, the country benefits from a richness of ideas and abilities to manage and implement social innovations. Specifically in rural areas, senior citizens, charities and social enterprises tend to be very active. The particularity of Scotland is the active involvement of the community development trusts as vehicles and enablers of a large range of community-led and place-based initiatives.
- **Scotland has arguably one of the most advanced ecosystems to support social innovation and social entrepreneurship in the world**. There has been a continuous effort by public and private actors to develop mechanisms that support local innovation. This includes a variety of financial support schemes at different phases of the social innovation lifecycle as well as business support building efforts and a wide range of business support infrastructure, including in rural areas.
- **Scotland has put in place a land reform agenda enabling experimentation, which is particularly important for social innovation in rural regions.** Over the last decades, Scotland has been pursuing the land reform agenda that has enabled the growing number of community land purchases and experimentation with the community assets. This is of particular importance to rural areas, where land allowed the creation of new experimentation zones, new concepts and initiatives. The reform helped to optimise the shortage of rural social infrastructure and the increasing demand for rural space for multiple uses by directly tackling the land ownership issue, allowing the sustainable development of rural communities. It also allowed to showcase the implementation of sustainable farming, new methods of fertilisation and ways to grow cattle. Finally, this reform has been also important in helping local communities benefit from their land and financial contributions coming from the renewable energy project.

Challenges

- **There are several levels of policy implementation that are involved around the UK-level initiatives, Scottish initiatives and local government initiatives.** In the situation where there is not a single agency with a clear mandate for social innovation, this can create a risk of replication and asymmetry of information. There is a need for a co-ordination mechanism among different levels of government.
- **The recent decentralisation reforms have empowered the local level to take decisions.** Even if, often, local authorities have a good understanding of the local needs and know local actors better, there is a risk that some of the operational models might be too conservative. Local policy makers might be conservative in trusting innovative approaches to social innovation. Generally, local authorities tend to be risk averse in the devolution of responsibility to organisations perceived as unproven or unsustainable.
- **There is a lack of centralised public points of information on social innovation in Scotland.** It might be challenging for local actors, especially those living in remote rural areas to get access to information and know about support initiatives. Information gathering is subject to access to personal contacts, relevant networks and support initiatives across Scotland. The lack of a public portal around social innovation could be seen as a missed opportunity in sharing information about government initiatives at a local level and getting inspiration from what is done elsewhere.
- **Rural areas, and especially remote rural areas, still face challenges related to access to the resources necessary for social innovation such as infrastructure, finance, knowledge and skills.** It is a challenge for the government to deliver these services and ensure that there is a local demand by increasing awareness around the benefits these resources can bring. Rural areas and remote rural areas have different options for resources compared to their urban peers; these options create an opportunity for supporting actors in rural regions differently. For example, this argues for the exploration of novel ways of supporting social innovation actors using the advantages digitalisation can bring and exploring peer-learning opportunities.
- **Even though financing is present in Scotland, for many social innovations, access to funding remains the main obstacle.** This is particularly true for social innovations in a rural context and at the early stages of the life cycle of social innovation. There are a variety of financial instruments giving access to a small amount of a few thousand GBPs but it is relatively difficult for social innovations to get access to amounts slightly greater than that. There is also a need for more public finance to support the initiatives given that they are delivering key public services in many cases.
- **Social innovation actors in Scotland tend to have a large dependence on grants.** There is a need to promote the development of operational and business models integrating revenue-generating activities, especially among traditional social economy actors. At the same time, there is a need for grants since, in a remote rural community with limited customers, it can be very difficult to generate revenue, while some services and products are crucial and government support will still be needed.
- **There is a need for further diversification of support services.** Even with the given continuous effort and the wealth of support available across Scotland, some gaps remain and practitioners still face challenges at various stages of entrepreneurial development. Many of the support programmes in Scotland supporting social innovation either focus on not-for-profit organisations providing support with filing the grant applications and providing basic support or, alternatively, more on social enterprise, helping them grow, scale and internationalise. While both approaches are useful, many of the social innovations, especially in rural areas, were copied with the idea of tackling a very local challenge and do not have an objective to scale or grow. What they need is business development support, helping them to diversify their business model, develop revenue-

generating activities, and help with the development of the necessary skills to better manage and develop it.

Policy issues

- **The territorial dimension plays an important role in defining the types of social innovation as well as its specific drivers at different geographic scales.** All regions face different issues with accessible rural regions suffering from larger social and economic inequalities than remote rural regions, and remote rural regions suffering from lack of access to basic government services hindering further opportunities for innovation in the region. Drivers for social innovation in rural and remote rural areas are different and policy makers need different approaches to tackling it. Scotland offers an interesting example where funding comes from different territorial scales including the UK level, the Scottish Government as well as decentralised initiatives. Each of these levels would have different expectations from the social innovation and argues for a more co-ordinated approach, also for a better understanding of the impacts and better information sharing.
- **To have a more systemic impact from social innovation, there is a need to reconfigure the way public services are organised and how government can make a shift in the provision of its public services in partnership with a large array of social innovators.** Supporting individual social innovation is beneficial and some of them can grow but it is likely insufficient in order to have a substantial impact or systemic shift. That is why the government should help to create the conditions for this systemic shift and ensure that there is a direction for social innovation and an enabling environment supporting their creation and development.
- **Levels of social capital have been decreasing since 2017, which should be closely monitored by policy makers.** The pandemic has likely worsened levels of many of the social capital areas and affected the most vulnerable communities and territories. There is a need to further understand the impacts, with a specific focus on understanding the reasons for this trend.
- **Scotland does not have a legal or single commonly accepted definition of social innovation; however, the concept is not unknown.** A commonly agreed definition of social innovation is used by public authorities and, although not indispensable, it could facilitate policy settings. Even without a formal definition, policy documents refer to elements around social innovation and legislation covers many of the elements that support community-led economic solutions to social challenges.
- **Effective rural policies involve the engagement of a broad array of actors and multilevel governance mechanisms.** A pooling of resources and capabilities across entities creates the ability to collectively accomplish what no individual actor can achieve independently. This requires the collaboration and engagement of government at multiple levels and the involvement of the private sector and third sector. Building capacity underpins the implementation of rural policy. Long-term capacity building makes rural communities more engaged in processes of development and more resilient to shocks.
- **Rural areas rely heavily on social economy and civil society with the aim to address the market failure and asymmetries of development.** By tapping into the social economy potential, national governments and regions could reinforce regional development while also supporting the expansion of the social economy.
- **It is important that social innovation is not seen as an abdication of responsibility for public service delivery and a replacement for the provision of services of general interest by the state.** This is particularly the case in some remote rural Scottish areas where socially innovative solutions have emerged from necessity as budget cuts, combined with increased pressure from the ageing Scottish demographic, have reduced service availability.

- **There is a risk that further focus on diversification of the revenue streams of some social innovation actors could result in a failure to respond to the demands of the most vulnerable groups who might be punished because of their lack of access to funds.** Policy makers should understand that not all actors can have revenue streams and that grants are still important in ensuring that everyone has access to support, especially in remote rural areas where opportunities for support are limited.
- **While there is a large number of examples of social innovation in Scotland, many of these innovations are replications of already existing examples in a local context.** While there are likely to be some social innovations that are distinctive to Scotland, many are likely to be replicated in other locations. This demonstrates the need to share successful examples widely as they can inspire and inform others on elements which can further improve understanding of social innovation and their application locally. This might also argue for the need to give a dedicated mandate to one of the institutions in Scotland to help facilitate social innovation awareness and information sharing.

References

ADMS (n.d.), *Alford and District Men's Shed*, http://www.alfordmensshed.org.uk (accessed on 15 March 2023). [69]

BigSocietyCapital (2022), *Scottish Social Growth Fund*, https://bigsocietycapital.com/portfolio/scottish-social-growth-fund/. [45]

CEIS (2019), *Social Enterprise in Scotland Census*, Community Enterprise in Scotland, https://socialenterprisecensus.org.uk/ (accessed on 15 March 2023). [15]

Community Energy Scotland (n.d.), "Community wind power more rewarding than commercial wind", https://communityenergyscotland.org.uk/uncategorized/community-wind-power-more-rewarding-than-commercial-wind/. [23]

Copus, A. et al. (2017), "Social innovation in local development: Lessons from the Nordic countries and Scotland", No. 2017:2, Nordregio Working Paper, https://bsi.aeidl.eu/wp-content/uploads/2020/01/nordregio.pdf. [5]

DTAS (2022), *About DTAS*, Development Trusts Association Scotland, https://dtascot.org.uk/about-dtas/about-dtas. [27]

Firstport (2022), *Social Entrepreneurs' Fund*, https://www.firstport.org.uk/funding/. [51]

Foster, E., S. Munoz and S. Leslie (2018), "The personal and community impact of a Scottish Men's Shed", *Health & Social Care in the Community*, Vol. 26/4, pp. 527-537, https://doi.org/10.1111/hsc.12560. [66]

Galloway Glens (n.d.), *Homepage*, https://gallowayglens.org/ (accessed on 15 March 2023). [40]

Galson Trust (2023), *Homepage*, https://www.galsontrust.com/. [63]

GCAT (n.d.), *Homepage*, Glenkens Community and Arts Trust, https://gcat.scot/ (accessed on 15 March 2023). [72]

Great Lakes Community Action Partnership (n.d.), *About*, https://www.glcap.org/about/ (accessed on 15 March 2023). [42]

Harris Trust (2023), *Economic/Economaigeach*, https://www.thewestharristrust.org/copy-of-what-we-do. [64]

Henderson, F. et al. (2019), "Social enterprise, social innovation and self-directed care: Lessons from Scotland", *Social Enterprise Journal*, Vol. 15/4. [31]

HIE (n.d.), *Homepage*, Highlands and Islands Enterprise, https://www.hie.co.uk/ (accessed on 15 March 2023). [34]

Impact Hub (2019), *Impact Hub Internal Monitoring Report*. [39]

Impact Hub Inverness (2022), *Homepage*, https://inverness.impacthub.net/. [55]

Inspiralba (2022), *Homepage*, https://www.inspiralba.org.uk/ (accessed on 15 March 2023). [54]

Inspiring Scotland (2022), *Rural Communities Ideas into Action Fund*, https://www.inspiringscotland.org.uk/rural-communities-ideas-into-action-fund/. [50]

Interface (2022), *About Us*, https://interface-online.org.uk/about-us. [61]

Interreg (2021), *The Joy of Rural Social Innovation*, https://drive.google.com/file/d/11ZrmjQ6PPHB1PnNRScqsFPf6obBvKAhe/view. [60]

Interreg (n.d.), *CERUSI*, https://www.interreg-central.eu/Content.Node/CERUSI.html. [59]

Ipsos/HIE (2022), *My Life in the Highlands and Islands Research*, https://www.hie.co.uk/media/13028/my-life-in-the-highlands-and-islands-report-correction-18-nov.pdf. [16]

Just Enterprise (2022), *Homepage*, https://justenterprise.org/ (accessed on 15 March 2023). [56]

Kelly, D. et al. (2021), "Men's Sheds in Scotland: The potential for improving the health of men", *Journal of Public Health Policy*, Vol. 42/2, pp. 258-270, https://doi.org/10.1057/s41271-020-00268-5. [67]

KoSDT (n.d.), *About Us*, Kyle of Sutherland Development Trust, https://kosdt.com/index.php/about-us/ (accessed on 15 March 2023). [70]

KoSDT (n.d.), *The Ardgay Regeneration Project*, Kyle of Sutherland Development Trust, https://kosdt.com/index.php/ardgay-regeneration-project/#next (accessed on 15 March 2023). [71]

Krlev, G. et al. (2021), *Financing Social Innovation - International Evidence*, https://www.send-ev.de/wp-content/uploads/2022/01/Financing_Social_Innovation.pdf. [52]

Local Energy Scotland (n.d.), *Homepage*, https://localenergy.scot/. [22]

Mazzei, M. and A. Steiner (2021), "What about efficiency? Exploring perceptions of current social enterprise support provision in Scotland", *Geoforum*, Vol. 118, pp. 38-46, https://doi.org/10.1016/j.geoforum.2020.12.002. [53]

Mwaura, S. et al. (2021), *Global Entrepreneurship Monitor: Scotland 2020*. [14]

Neal, L. (2015), *A Concise History of International Finance*, Cambridge University Press, Cambridge, https://doi.org/10.1017/cbo9781139524858. [7]

NTS (2021), "Threave Landscape Restoration Project: Our 100-year vision", National Trust for Scotland, https://www.nts.org.uk/stories/threave-landscape-restoration-project-our-100-year-vision (accessed on 15 March 2023). [41]

OECD (2023), *Policy Guide on Social Impact Measurement for the Social and Solidarity Economy*, Local Economic and Employment Development (LEED), OECD Publishing, Paris, https://doi.org/10.1787/270c7194-en. [36]

OECD (2022), *Recommendation of the Council on the Social and Solidarity Economy and Social Innovation*, OECD, Paris, https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0472. [2]

OECD (2015), *Voters Turnout in Regions*, Regional Social and Environmental Indicators, OECD, Paris. [10]

OECD (2014), *OECD Regional Well-Being - Scotland*, OECD, Paris, http://www.oecdregionalwellbeing.org/UKM.html. [9]

OECD (2000), *LEED Forum on Social Innovations*, OECD, Paris, https://www.oecd.org/fr/cfe/leed/forum-social-innovations.htm#Definition. [1]

OECD (forthcoming), *Measuring the Capacity to Engage with Social Innovation in Rural Areas*, OECD, Paris. [3]

OSCR (2021), *Scottish Charities 2021*, Scottish Charity Regulator, https://www.oscr.org.uk/media/4280/599187_sct0421394204-001_oscr_sector-overview-report_final.pdf. [37]

Plunkett Foundation (2022), *More than a Pub*, https://plunkett.co.uk/more-than-a-pub/. [65]

Rural Housing Scotland (2023), *Smart Clachan*, https://ruralhousingscotland.org/smart-clachan. [62]

Rural SE Hub (n.d.), *ViSEnet Online Learning Resources*, https://ruralsehub.net/visenet-overview/ (accessed on 15 March 2023). [58]

Rural SE Hub (n.d.), *Welcome to the Rural Social Enterprise Hub*, https://ruralsehub.net/ (accessed on 15 March 2023). [57]

Scottish Government (2023), *Community Wellbeing*, https://www.gov.scot/policies/cities-regions/community-wealth-building/. [32]

Scottish Government (2022), "Ambitious proposals for land reform", https://www.gov.scot/news/ambitious-proposals-for-land-reform/. [19]

Scottish Government (2022), *Find Business Support*, https://findbusinesssupport.gov.scot/. [44]

Scottish Government (2022), *The Wellbeing Economy Monitor*, https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2022/06/wellbeing-economy-monitor/documents/wellbeing-economy-monitor/wellbeing-economy-monitor/govscot%3Adocument/wellbeing-economy-monitor.pdf. [30]

Scottish Government (2021), *Rural Scotland Key Facts 2021*, https://www.gov.scot/publications/rural-scotland-key-facts-2021/documents/. [6]

Scottish Government (2020), *Analysis of the Impact and Value of the Sustainable Procurement Duty in Procurement: Final Report*, https://www.gov.scot/socialresearch. [25]

Scottish Government (2020), *Small Business Survey Scotland 2019: SME Employers – Key Findings*, https://www.gov.uk/government/statistics/small-business-survey-2019-businesses-with-employees. [12]

Scottish Government (2020), *Third Sector Resilience Fund*, https://www.gov.scot/publications/third-sector-resilience-fund-tsrf-analysis-applications-awards/. [46]

Scottish Government (2019), *National Indicator Performance*, https://nationalperformance.gov.scot/measuring-progress/national-indicator-performance. [13]

Scottish Government (2018), *Social Innovation Fund*, https://www.gov.scot/publications/social-innovation-fund-approved-projects/. [47]

Scottish Government (2015), *Community Empowerment Act Scotland 2015*, https://www.gov.scot/publications/community-empowerment-act-easy-read-guidance/. [17]

Scottish Government (2014), *Procurement Reform (Scotland) Act*, https://www.gov.scot/policies/public-sector-procurement/community-benefits-in-procurement/. [24]

Scottish Government (2013), *Social Care (Self-directed Support) (Scotland) Act 2013*, https://www.legislation.gov.uk/asp/2013/1/contents/enacted. [8]

Scottish Government (2007), *Scotland's National Performance Framework*, https://nationalperformance.gov.scot/. [29]

Scottish Government (2005), *Charities and Trustee Investment (Scotland) Act*. [28]

Scottish Government (2003), *Land Reform (Scotland) Act 2003*, https://www.legislation.gov.uk/asp/2003/2. [18]

Scottish Government (n.d.), *Renewable and Low Carbon Energy*, https://www.gov.scot/policies/renewable-and-low-carbon-energy/local-and-small-scale-renewables/. [21]

SCVO (2020), *Scottish Household Survey 2020 - Volunteering*, Scottish Council for Voluntary Organisations, https://scvo.scot/policy/research/evidence-library/2022-scottish-household-survey-2020-volunteering. [11]

SE (n.d.), *Homepage*, Scottish Enterprise, http://www.scottish-enterprise.com (accessed on 15 March 2023). [33]

Shucksmith, M. et al. (2021), *Rural Lives: Understanding Financial Hardship and Vulnerability in Rural Areas*, https://www.rurallives.co.uk/uploads/1/2/7/3/127324359/453540_rural_poverty_report_2021_8.3.2021_optimised.pdf. [4]

SIS (2021), *Impact Report: Building an Impact Economy*, Social Investment Scotland, https://www.socialinvestmentscotland.com/impact/. [49]

Slee, B. (2020), "Social innovation in community energy in Scotland: Institutional form and sustainability outcomes", *Global Transitions*, Vol. 2, pp. 157-166, https://doi.org/10.1016/j.glt.2020.07.001. [20]

Slee, B. (2019), "An inductive classification of types of social innovation", *Scottish Affairs*, Vol. 28/2, pp. 152-176, https://doi.org/10.3366/scot.2019.0275. [26]

Smith, A. (2014), "Considering social innovation from a social movement perspective", http://www.transitsocialinnovation.eu/blog/considering-social-innovation-from-a-social-movement-perspective. [43]

SMSA (n.d.), *Scottish Men's Shed Association*, https://scottishmsa.org.uk/# (accessed on 15 March 2023). [68]

SOSE (n.d.), *Homepage*, South of Scotland Enterprise, https://www.southofscotlandenterprise.com/ (accessed on 15 March 2023). [35]

Vanderhoven, E. et al. (2020), "Can public venture capital support sustainability in the social economy? Evidence from a social innovation fund", *Journal of Business Venturing Insights*, Vol. 13, p. e00166, https://doi.org/10.1016/j.jbvi.2020.e00166. [48]

Woolvin, M. and A. Rutherford (2013), *Volunteering and Public Service Reform in Rural Scotland*, Scotland's Rural College Rural Policy Centre, Edinburgh, https://www.researchgate.net/publication/271766652_Woolvin_M_Rutherford_A_2013_Volunteering_and_public_service_reform_in_rural_Scotland_Research_Report_Edinburgh_SRUC_Rural_Policy_Centre. [38]

Notes

[1] New Lanark is a village where Robert Owen integrated social and welfare programmes around his industrial site of cotton mills, creating decent living conditions for the workers and schooling facilities for their children.

[2] The Social Capital Index monitors aggregate changes in the resource of social networks, community cohesion, social participation, trust and empowerment in levels of social capital since 2013. It is based on the Scottish Household Survey.

[3] The Gini coefficient is a measure of inequality where 0% expresses perfect equality (every household has the same wealth) and 100% expresses maximal inequality (one household has all the wealth and all others have none).

[4] Total Early-Stage Entrepreneurial Activity (TEA) calculated as the sum of the nascent entrepreneurship rate and the new business owner-manager rate – without double counting.

[5] Scotland's particularity to land use has historical roots. In rural areas, the Highland clearances, combined with the lack of land redistribution in favour of smallholders, had resulted in an unequal class system of large landlords and small farmers that made it difficult to engage farmers' common interests. The situation has been changing recently.

[6] The SCIO is a corporate body which is a legal entity and is able to enter into contracts, employ staff, incur debts, own property, sue and be sued.

[7] A community interest company is a special type of limited company that aims to benefit the community rather than private shareholders. It includes a "community interest statement" and creates an "asset lock" or a legal promise stating that the company's assets will only be used for its social objectives and setting limits paid to shareholders.

[8] The acronym LEADER derives from the French phrase ""*Liaison entre actions de développement de l'économie rurale*", which means "Links between activities for the development of the rural economy"economy".

[9] Participatory budgeting is a democratic process in which citizens decide directly how to spend part of a public budget. Typically, it is characterised by the dispersal of relatively small amounts of public money within a community (small grants) or, increasingly, by deciding where larger sums of public money are invested in pure public services and infrastructure.

[10] Calculated based on the six-level classification of the Scotland Social Enterprise Census Dataset 2019, which was regrouped into three-tiered regional classification: urban (large urban areas and other urban areas), small towns (accessible small towns and remote small towns) and rural (accessible rural and remote rural).

OECD Rural Studies

Enhancing Rural Innovation in Scotland, United Kingdom

Scotland (UK) is a strong innovator, ranking among the top 20% of economies among European regions, with strengths in university-firm collaborations and skills for innovation. With close to two-thirds of all growth in productivity from 2010 to 2018 coming from better use of resources in remote rural areas, rural areas are critical to economic prosperity.

In addition to the valuable heritage that they offer, rural areas in Scotland have had remarkable achievements over the past decade in terms of economic growth, social innovation and progress for climate mitigation. Unlike the demographic decline perceived in OECD countries, the decline in rural areas of Scotland is much slower. In the case of accessible rural areas, the population is still growing. In part, much of the progress of ensuring well-being in rural areas, is supported by mechanisms to link entrepreneurs with researchers, regional support for entrepreneurs and an established system of social entrepreneurship.

This report sets the scene, reviews main policies and programmes impacting rural innovation, and explores the importance of social innovation in rural areas. It provides recommendations to reinforce some of the good practices in Scotland, which is particularly important, as the government implements the new Scotland Innovation Strategy.

PRINT ISBN 978-92-64-41974-2
PDF ISBN 978-92-64-18267-7