



Addressing Inequality in Budgeting

LESSONS FROM RECENT COUNTRY EXPERIENCE



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Foreword

Increasing inequalities have received strong attention as part of policy debates in recent years, prompting many countries to pay greater attention to the redistributive implications of their policy choices. In public finances, the conversation surrounding inequality usually focuses on redistribution through a taxation angle. However, the redistributive impact of public expenditure in reducing inequality is even greater than that of taxation. Going some way to recognising this, many countries have increased their focus on the redistributive impact of public spending. Given this increased interest, this report aims to shed light on how evidence related to distributional issues can be integrated into policy making through the budget process. This area has seen many innovative practices emerge in recent years. Countries have been developing results-based budgeting approaches that can help integrate broader social and distributional goals into the budget process. Many have also introduced distributional impact analysis as part of the budget formulation process.

In order to better understand how best to incorporate distributional concerns into the budget process, this study focuses on eight countries with especially noteworthy practices in this area – Canada, France, Ireland, Italy, Korea, the Netherlands, New Zealand, and Sweden. The analysis draws upon a workshop organised with the full co-operation and support of the Korea Institute of Public Finance (KIPF), as part of fully collaborative work. The report provides a set of detailed country case studies on how budgeting procedures to address inequality. The report addresses the tools, frameworks and underlying quantitative underpinnings that are necessary for such distributional analysis to be conducted. From this research, the report draws seven key lessons that aim to assist budget and policy analysts who are looking to implement similar practices. These lessons will also help promote understanding on how best to mobilise some of the modelling tools and underlying data infrastructures to ensure evidence informed policy making.

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Executive summary

Recent years have seen countries increasingly use their budgeting frameworks to achieve broader social and economic outcomes. Such cross-cutting challenges affecting various groups in society mean that an understanding of the underlying distributive implications of budgets is critical to ensuring that expenditure can be targeted and mobilised in the most effective way to achieve economic and social goals simultaneously in a context of severe fiscal constraints.

While the current report does not seek to analyse income inequality as such, it does try to address its implications from a public expenditure standpoint. As inequality has been increasing, many countries have been experimenting with budgeting approaches to address the implications of such an increase for public expenditure. This is also particularly important at a time when countries are considering moving away from untargeted fiscal support to ensure that expenditure is as effectively focused as possible.

As the evidence points to a greater role of transfers than taxes in impacting disposable income inequality, there is a compelling need to understand the distributional implications of public expenditure. This report reviews how distributional considerations are incorporated into the public results-based budgeting frameworks of eight countries, namely Canada, France, Ireland, Italy, Korea, Netherlands, New Zealand and Sweden. The report offers a general overview followed by in-depth case studies. These offer a brief overview of country-specific trends in inequality, before examining how distributional considerations are integrated into budgeting systems, and what tools and data resources are used to do so.

In many of the countries in the sample, the budget office in the Ministry of Finance (or equivalent), is responsible for distributional impact analysis work. However, whether this involves budget offices carrying out the analytical work themselves or co-ordinating the analysis of other units within government varies. In many cases, several organisations carry out supplementary distributional impact analysis. While in some cases this analysis is conducted in tandem with the budget process, in other cases it is done on a more ad-hoc basis.

Many of the countries carry out their work at multiple stages during the budget process. At the beginning, this involves estimating the impacts of proposed policies to aid in decisions on budget allocations. Some countries also provide a formal statement of the budget's redistributive implications. This is often complemented by *ex post* evaluative measures, ad-hoc studies on significant policy measures, and independent analyses conducted by Parliamentary research services, statistical or other research institutions.

Countries employ two types of approach to addressing distributional concerns in the budget process – use of microsimulation models and use of results-based budgeting frameworks (and in many cases, both). While all almost all countries use microsimulation models to consider distributional issues, the extent to which these models are used to inform the budget process varies, ranging from being the basis of any distributional impact analysis conducted to being more ad-hoc. In a few cases, macroeconomic and labour modelling is used alongside microsimulation modelling to examine second-round effects, particularly in terms of labour supply. Ownership of microsimulation models also varies – in some countries, their

development and management lie with a statistical institution or independent analytical body, while in others different models are owned and managed by different ministries.

Countries that use results-based budgeting frameworks as the basis for conducting distributional impact analysis tend to take a multidimensional approach to this analysis, highlighting the fact the inequality can take many forms beyond income. In most cases, these frameworks serve as an aid to those formulating policy proposals for the budget, allowing them to ensure that the predicted impacts of their proposals are in line with the overall aims of the government. The indicators used for the frameworks tend to be developed by the countries' statistics institution. While many of these are specific to the country in question and thus vary, most frameworks include measures on income inequality, education, sex and gender, health and wellbeing.

The underlying data used for distributional impact analysis is generally a mix of tax and expenditure administrative data, as well as survey data. Tax and expenditure administrative data is collected from across government and combined when technical circumstances allow, while survey data tends to be collected by the country's statistics institution. Both types of data are mobilised to address the complex policy issues at hand. The extent to which these data, and the models they are used for, are available to the public varies – in some countries they tend to be completely publicly available, in others only certain portions are available, and in others still they are only available to those within government. The extent of data disaggregation also differs – while all countries tend to disaggregate data by different income segments, gender and age, only a few provide data on other social characteristics such as race, disability and sexual orientation. The capacity to access and link data across surveys and administrative data is a prerequisite for sophisticated modelling approaches.

The seven best practices below are drawn from the experiences of the case study countries and are further elaborated in this report. They can assist countries in improving their capacity to address distributional issues in government spending:

1. Conduct distributional impact analysis as early as possible to inform the choice of spending decisions and policy options.
2. Encourage integration of distributional impact analysis or of broader considerations of inequality into the budget process.
3. Ensure transparency in the distributional impact analysis process and its underlying data to maintain confidence in spending decisions.
4. Maintain independence in the development of analytical models.
5. Ensure that results-based budgeting frameworks and microsimulations models are complementary and promote co-ordinated approaches.
6. Complement microsimulation modelling approaches with economic models that help to take into account the effects on labour supply.
7. Make full use of administrative data as a complement to survey data to inform distributional analysis and disaggregate data by socioeconomic characteristics as fully as is possible while ensuring data confidentiality.

1

Using budgeting to address inequality: Overview of findings

This chapter provides an overview of the how the eight countries included in this project use results-based budgeting frameworks to address issues of inequality. It first highlights the rationale for addressing inequality in spending decisions, before looking at what tools and methods are available for countries to do so. It then discusses the practices currently in place in the countries, how they are set up in the countries' budgeting frameworks, and how they are supported at the technical level, through the range of models and data tools that are utilised in policy practice.

1.1. Opportunities and rationale for action

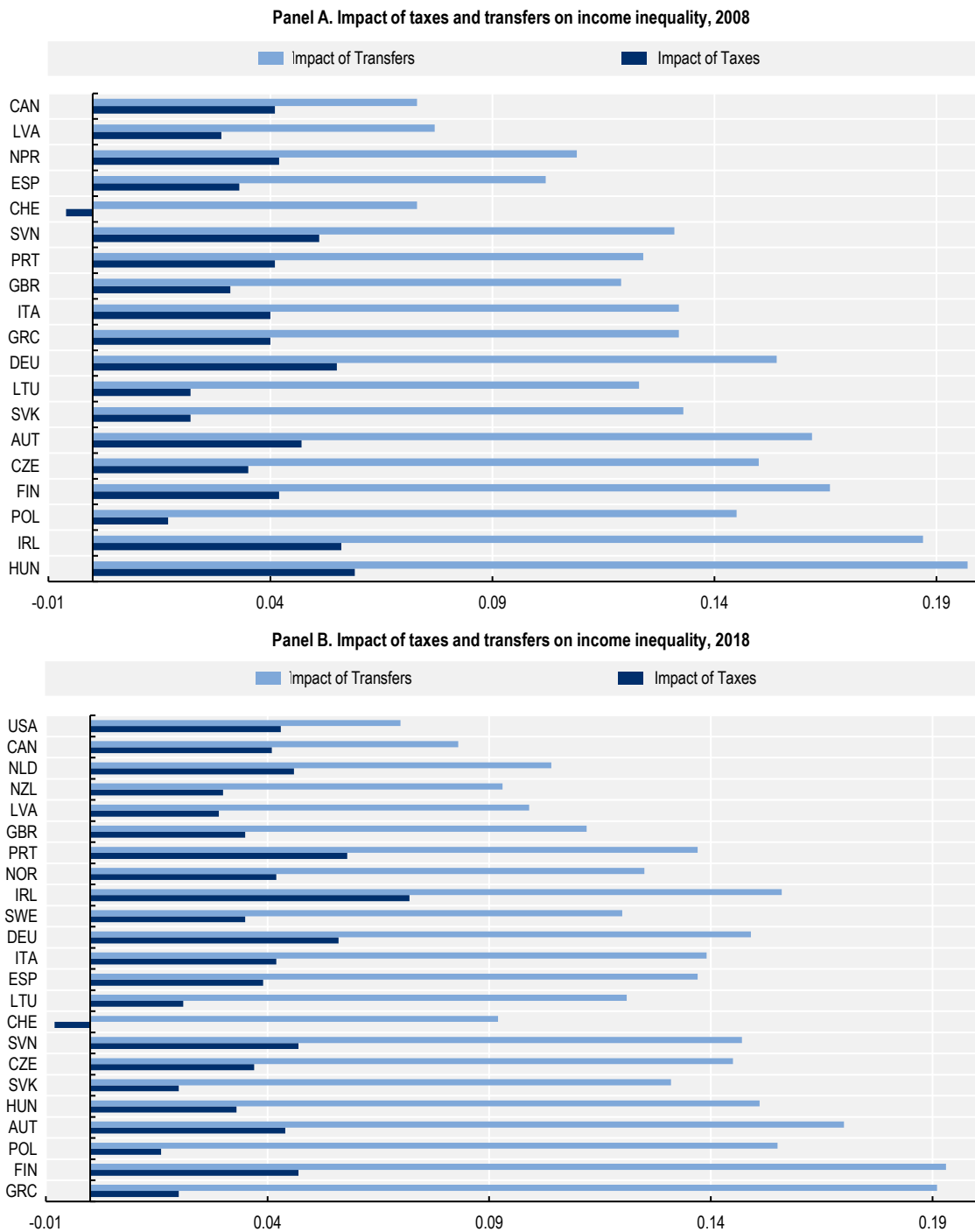
1.1.1. *Why do countries need to address inequalities in public expenditure?*

Results-based budgeting frameworks require strong budget institutions and attention to core budgeting processes. Over the years, countries have built an array of mechanisms to ensure that budgets are able to provide reliable frameworks and maximise allocative efficiency in terms of value for money. Aside from providing clear and transparent fiscal benchmarks and developing innovative tools for ensuring fiscal space, there has been increased attention and recognition of the role of budgeting as a tool for achieving social outcomes. From a public finance perspective, taxation and the revenue side have been the traditional tools used by governments in the first instance to achieve redistributive policy goals. However, attention has been increasingly given to how results-based budgeting frameworks can support welfare perspectives, given the strong impact of public expenditure and transfers to alleviate inequalities. This has led to the development of frameworks addressing multi-dimensional living standards and wellbeing, which are intended to address the distributional aspects of public spending, together with a variety of cross-cutting challenges.

All these analyses must pay attention to the redistributive implications of policy choices at a time when income inequalities have been increasing in a majority of countries.

Addressing such challenges as part of the budget process can help governments ensure that their efforts are well distributed and focused. Furthermore, as has long been recognised, the redistributive impact of public expenditure in reducing inequality is even greater than that of taxation (Joumard, Pisu M. and Bloch D., 2012^[1]). Therefore, ensuring that such expenditure is carried out effectively can have significant distributional effects.

Figure 1.1. Public expenditure, including transfers, plays a major role in reducing income inequality



Source: OECD Income and Wealth Distribution Database.

The focus on distributional impact analysis is also informed by the lessons of the 2008-2011 Global Financial Crisis, where countries had to develop significant adjustment programmes. Such fiscal adjustment could impact inequalities and it was recognised that increased information on such impacts was desirable. Therefore, sharing and developing the approaches to assess and understand such impacts is a timely endeavour. Most recently, distributional impact analysis has received greater attention in the context of designing support packages to help households and businesses with the 2022 energy crisis. There is therefore a need for future fiscal management efforts to be well informed in terms of potential redistributive implications, and therefore facilitate greater targeting of public expenditure to address social issues while maintaining the long-term sustainability of public finances (OECD, 2023^[2]).

However, information on how and when consideration of these distributional aspects should take place is not well understood. The study in this paper, undertaken in co-operation with the Korean Institute of Public Finance, is intended to fill this gap, reviewing the governance implications of addressing inequality using results-based budgeting frameworks.

1.1.2. The implications of recent trends in inequality for public expenditure

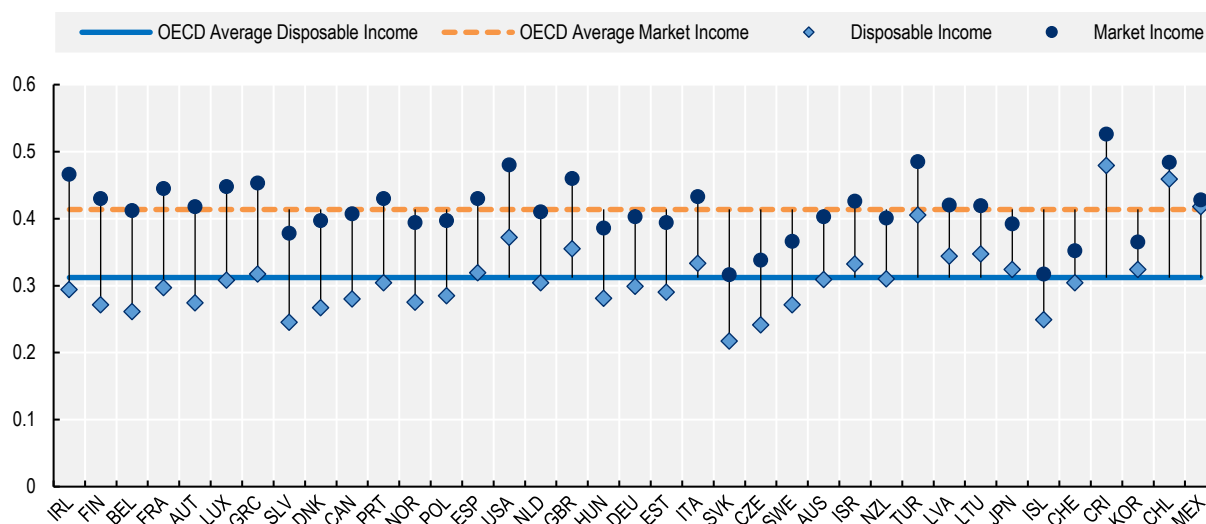
Recent trends in inequality have underlined the need for paying greater attention to the distributional implications of public expenditure. While the current report does not seek to compare or understand the levels of inequality across OECD countries, it is important to understand their implications for public spending. Inequality has wide cultural, socioeconomic and welfare implications that are addressed in other core OECD publications (OECD, 2011^[3]; OECD, 2015^[4]).

The fact that over the past three decades, income inequality, at least in terms of market incomes, saw a net increase in the majority of OECD countries is well documented. In fact, since the 1980s and 1990s, many OECD countries have seen an increase in net income inequality (i.e. inequality after taxes and transfers). In the mid-1980s, the disposable income Gini coefficient of OECD countries stood at an average of 0.29, while today it stands at an average of 0.31. Part of this increase in inequality has been due to the greater integration of OECD countries into the global economy, combined with rapid technological progress. In both these cases, labour demand shifted in favour of skilled workers (OECD, 2011^[1]). This has led to a rise in job polarisation in many OECD countries, as the proportions of workers in both high- and low-skill jobs increase while the share of workers in the middle proportion decreases (OECD, 2019^[5]). Another reason, linked to the increase in low-skilled labour, is the increase in non-standard work – including temporary, part-time, and self-employed work – which accounts for about a third of employment in OECD countries (OECD, 2015^[4]). These workers tend to receive lower earnings, as well as reduced job security and reduced access to training, thus limiting their capacity to develop human capital. As a large portion of social security is often linked to an individual's employer, non-standard work can also reduce access to the social safety net. The dual functioning of some countries' labour markets has therefore also had negative implications for the capacity of some of the traditional earnings-related benefits to address increases in inequality (OECD, 2023^[6]). Finally, as mentioned above, the responses to the Global Financial crisis, particularly with regards to fiscal adjustment, had some implications for long term inequality.

Since the 1990s, many tax and transfer systems have become less effective at reducing inequality. While this has partially been a result of tax reductions for high earners, it has also been due to increasing use of flat rate and even regressive eligibility criteria for benefits, often reducing the impact of spending on inequality, even in countries where spending has increased (OECD, 2011^[3]). Even the countries that have seen reductions in inequality are yet, on the most part, to reach pre-1980s levels.

Figure 1.2. Transfers and taxes reduce income inequality to a varying degree in all OECD countries

Impact of taxes and transfers on the Gini coefficient in OECD countries, 2018



Notes: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, Iceland and South Africa (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg and South Africa. Earlier data for Brazil, Chile, Estonia, Sweden and the United States are from 2013.

Source: OECD Income Distribution Database.

1.1.3. Taking advantage of advanced tools and data quantification techniques

Inequality has come to the forefront of some policy debates, and tools that can help to understand and analyse it have made much progress. Countries have been increasingly able to mobilise administrative datasets and link various socio-economic surveys with core population and tax registries. This has provided a strong quantitative underpinning to further develop and refine microsimulation models – that is, computer models which use individual level data to model economic and social outcomes, allowing the person doing the modelling to identify impacts of an external factor. These individual level outcomes can then be aggregated to look at the impacts on a population as a whole, or examine different sub-groups of the population. While such models can and are used in a variety of settings, including health (Schofield et al., 2017^[7]) and transport (Torrise, Ignaccolo and Inturri, 2022^[8]), they have also been used extensively by governments to assess and understand the operation of proposed government programmes on samples representative of the population (Central Planning Bureau, 2016^[9]) (Conti et al., 2023^[10]) (Statistics Sweden, 2021^[11]) (Amoureux, Benoteau and Naouas, 2018^[12]) (Keane et al., 2023^[13]) (Statistics Canada, 2022^[14]) (New Zealand Treasury, 2018^[15]). These models were traditionally used to address the redistributive impacts of various taxes or social contributions, but have increasingly been used to assess and understand the redistributive implications of social benefits and various expenditure packages. Outside of government, such models have been used by various research centres, as highlighted throughout the case studies of the report. Beyond the countries included in the case studies the Institute for Fiscal Studies in the United Kingdom (Institute for Fiscal Studies, 2017^[16]) and the CEQ Institute in the United States (Lustig, 2022^[17]), among several others, all have strong histories of using microsimulation modelling to analyse the impact of public policies on public expenditure and income distribution.¹

The development of these more sophisticated approaches allows for an opportunity to greater understand how countries have invested in mobilising data and developing such models and how they are able to take

advantage of these models to ensure consideration of redistributive impacts is included as part of the policymaking process. Such efforts indicate a clear example of how recent advances in modelling and data management have also helped to strengthen capacity in Evidence Informed Policy Making, where policy debates, Ministers and high-level political figures could have clear information about the potential implications of policy and budget decisions.

1.1.4. Methods for the current study

The study includes a set of eight case studies, namely Canada, France, Ireland, Italy, Korea, the Netherlands, New Zealand and Sweden. Each case study includes a short framing section, providing an overview of trends for both income inequality and social inequalities. The case studies then provide analysis of the governance of results-based budgeting frameworks as they relate to inequality and wellbeing. This analysis gauges the extent to which considerations of inequality are formally integrated into budgeting systems, budget laws, and discussions in parliament, and at what stages in the budget process distributional impact analysis is performed. This case studies also examine the existing tools present in the case study countries and how they are used for distributional impact analysis. Finally, the case studies discuss the data and information infrastructures that are related to such analysis.

The work on the case studies was carried out in several steps. After elaborating a conceptual framework, a network of relevant country contacts was established drawing on the relevant focal points in Ministries of Finance, mainly through established contacts for the OECD Committee of Senior Budget Officials. These country contacts facilitated the collection of information. An expert meeting was organised in November 2022 to establish a common ground for the study, and open a collective discussion and understanding of the issues. Each of the participating countries were invited to offer a preliminary sharing of their domestic situation with regards to the various dimensions of the study.

In the next phase, an initial draft was produced drawing on existing materials and information shared by country contacts. A set of qualitative semi-structured interviews were then conducted with the various contacts in the countries to ensure that all of the information corresponding to the case study framework could be collected appropriately. These interviews led to amended versions of the drafts that were subsequently shared to clarify any remaining issues. This method was used for the European countries, Canada and New Zealand, while the work for Korea was conducted under the responsibility of the KIPF with feedback from the Secretariat.

1.2. How can budgeting address inequality?

1.2.1. What are the available options for addressing inequality in budgeting and expenditure management?

The participating countries have implemented a range of practices to ensure increased efficiency and value of fund use, while also recognising the distributional implications. These practices fall into two main categories:

- *A first relies on practices that are related to “results-based budgeting”*

This reflects a practice where governments use performance, results and outcome information to inform and prioritise budget allocations. Performance or “results” in this sense can be understood from a variety of perspectives. One approach is to examine whether value for money is being addressed and whether a spending review – a tool involving a review of whether current expenditure is having its intended effects – is underway. Spending reviews are increasingly used by countries – as of 2016, 23 OECD countries conducted spending reviews as compared to 16 countries in 2011. These countries have also increased the probability of consequences for poor performance being triggered, which can vary from allocating more

staff to a programme to cutting it entirely (OECD, 2016^[18]). Furthermore, several countries have created specialised units within finance ministries to co-ordinate spending reviews, and have established a variety of governance practices which have been codified into a set of best practices by the OECD (Tryggvadottir, 2022^[19]). Such practices help governments identify which programmes are effective and ensure they have enough funding to continue succeeding, as well as examine what causes less successful programmes to underperform, ultimately allowing the government to obtain better results with the same or even less funding. These practices have been expanding and comparative analysis has led to establishing best practices in this area.

Results can also be understood with gender equality in mind, and indeed a variety of jurisdictions have mobilised budgeting tools to support the achievement of gender-related goals. A number of countries use gender budgeting, where governments identify budget measures that support gender equality. Gender budgeting can help address gender biases from key government processes and tools as well as identify ways to meaningfully advance gender equality and facilitate greater participation of women in labour markets and other social activities. This can in turn potentially lead to greater economic growth and higher productivity (Nicol, 2022^[20]). The use of gender budgeting has increased across the OECD as a whole, with the OECD Survey on Gender Budgeting showing that 23 OECD countries have introduced gender budgeting-related measures as of 2022, compared to 17 in 2018 and 12 in 2016 (OECD, 2023^[21]; OECD, 2023^[22]). Importantly, to be fully effective, this approach needs to allocate adequate capacity, skills and resources across the public administration.

Results based budgeting can also take a wider approach, supporting the integration of social and distributional goals into the budget process. These include Canada's "Gender-based Analysis Plus", which provides a means to assess how various groups in the population may experience policies differently. The New Zealand Treasury's Living Standards Framework, was used in the budgeting process between 2019 and 2023, including to prompt agencies to think broadly about the potential impacts of their proposed initiatives (Box 1.1).

Box 1.1. New Zealand's "Living Standards Framework" and its use in budgeting

The New Zealand Treasury developed the Living Standards Framework (LSF) to support the quality of its advice. It supports Treasury analysts by providing a framework to consider the broader impacts of policy advice in a systematic and evidenced way.

The framework is based on the OECD's "How's Life/Better Life" model. However, the Treasury has adapted the framework in a version released in 2021 to better capture the distinctive nature of wellbeing in New Zealand, including culture and child wellbeing. The framework has three levels, "Our Individual and Collective Wellbeing", "Our Institutions and Governance" and "The Wealth of Aotearoa New Zealand", as well as four Analytical Prompts (distribution, resilience, productivity, and sustainability), and Culture as underpinning the other aspects of the framework. Subjective wellbeing is included as a wellbeing domain. The Treasury also uses He Ara Waiora alongside the LSF, as a framework that helps the Treasury to understand Māori perspectives on wellbeing and living standards (New Zealand Treasury, 2021^[23]).

The sixth Labour Government drew on the Treasury's LSF, and on He Ara Waiora, to support its wellbeing approach to budgeting. The frameworks were used across the budget process, including in the budget templates and guidance, asking agencies to identify the key benefits with reference to the relevant wellbeing domain(s) from the LSF and the principles of He Ara Waiora.

- *A second practice is to integrate Distributional Impact Analysis into the budget process.*

The use of Distributional Impact Analysis (DIA) within the budget process can allow governments to ensure that policies have positive redistributive effects even if their primary aim is not redistribution, helping reduce inequality in a more efficient manner. Instead of measuring how a policy impacts its target population, as performance budgeting may do, DIA breaks down the target population into different income groups, different demographic groups, or both, and examines the variation in the impact of the policy across these groups. Through identifying the groups within the population in need of particular attention, DIA can also streamline any policy work by helping to identify key stakeholders of the policy in question, as well as what resources and expertise are needed to achieve it. While DIA can be conducted for social transfers, it is not restricted to this, and indeed DIA is often undertaken on budgetary measures linked to a wide range of policy goals (Bazoli et al., 2021^[24]).

DIA is already fairly prevalent across OECD members. Countries use quantitative analysis via micro-simulation modelling to analyse, *ex ante*, the impact of potential policies. However, a detailed look at the practices, beyond a simple comparative overview, shows that the analysis carried out by these countries has several limitations. Many do not use DIA in a consistent manner, often carrying out such analysis only once every few years, and only for some parts of government. Furthermore, there is often not a collaborative approach to DIA, where different teams use different analytical techniques, thus making it difficult to have a whole-of-government approach to inequality reduction. Data availability also varies greatly, with large portions of data collected by government agencies not adequately disaggregated, making it difficult to examine the impacts of a policy on different sub-groups of the population.

The European Commission also mandates the member states of the EU that are Eurozone members to carry out DIA as part of their budget processes whenever possible (Regulation No. 473/2013, Article 6(3)(d)), and in 2022 released a communication highlighting the key components of a good quality DIA and emphasising its willingness to support member states in setting up DIA practices (European Commission, 2022^[25]). It has also commissioned comparative overviews of the use of DIA in the draft budgetary plans in some of the Member States (Bazoli et al., 2021^[24]). The European Commission also convenes Mutual Learning Events to provide a forum for exchange between representatives of EU Member States who are actively involved in conducting DIA in national administrations as well as those who intend to carry out such analysis in the future.

Having now introduced the issue of income inequality and the use of DIA, this chapter offers a synthesis and comparative analysis of the practices in the seven countries covered by the case studies, looking in particular at any organisational structures and processes related to distributional impact analysis as well as the tools and data utilised. This comparative analysis will be useful to derive broader insights and to suggest good practices.

1.2.2. Organisational structures and budget processes

This section will analyse how governments consider distributional issues as they relate to the budget process, how this responsibility is shared out, and any processes followed. The focus of DIA takes different forms among the different case study countries. In the Netherlands and Sweden, economic impacts are the dominant focus, while in Canada and New Zealand, social inequalities tend to receive more attention. In Ireland, Italy, and Sweden, both types of inequality are examined, although it is worth noting that in Sweden these two focal points are spearheaded by the same entity, located within the Ministry of Finance, while in Ireland and Italy different departments are responsible for analysis concerning economic and social distributional issues. In Ireland, the Parliamentary Budget Office and the ESRI, an independent research institute, also undertake such analysis. France focuses on economic analysis, but incorporates more social information into this analysis than the Netherlands.

In a significant share of the case study countries (Table 1), the main actor concerned with organising the budget in the Ministry of Finance (or equivalent), is the same actor principally responsible for DIA. In Sweden, the International and Economic Affairs Department, which includes the Division for Economic Policy and Distribution analysis, has responsibility for conducting DIA, and integrating it into the budget. Such a system is also present in France, where the French Treasury conducts DIA of the measures proposed in its budgetary plan. In Italy, such function is performed by the relevant sub-unit of the Ministry of Economy and Finance, however, as it is part of the Department of Finance, the main focus still remains on the impacts of tax revenue and on the distributional impacts of fiscal policies, even if some analysis of specific spending measures can occasionally be conducted. In Canada, and to some degree Ireland,² the Ministry of Finance, Department of Public Expenditure and Reform, NDP Delivery and Reform (DPENDR) and Department of Finance are primary responsible, although unlike Sweden, these teams' roles are more concerned with co-ordination. Most analytical responsibility in these countries falls instead onto the line departments, which are expected to undertake this analysis and submit it to the main organisation concerned with the budget as part of any policy proposals. In Ireland, line departments can rely on the technical support of the IGEES evaluation unit in DPENDR to conduct DIAs and the Ministry of Finance also conducts Social Impact Assessments of current expenditures to complement the DIA and spending reviews.

As made evident above, in the majority of case study countries the main organisation within the budget process is also responsible for either carrying out or organising DIA. A departure from this system is evident in the Netherlands – the Ministry of Social Affairs and Employment conducts budget-related distributional impact analysis, although it does so mostly to evaluate different policy variants, in order to give politicians more information when choosing their preferred variant. The figures published with the budget are instead analysed and provided by the CPB Netherlands Bureau for Economic Policy Analysis, an independent entity responsible for not only the figures on distributional impact, but all figures related to macroeconomic effects.

While the Netherlands has two organisations that both carry out distributional analyses for budget purposes, many countries have organisations that will aid in or supplement the work done by the main team concerned with distributional impact analysis. This is the case in Ireland, where the Department of Finance works alongside the Department of Public Expenditure, NDP Delivery and Reform, informed by engagement with line ministries and the ESRI. In addition, the ESRI and Parliamentary Budget Office supplement this work with their own DIA publications. In New Zealand, the Manatū Wāhine Ministry for Women worked with the Treasury on a Gender Budgeting Pilot over the last couple of budgets and the analysis was used to inform budget decisions. Te Manatu Whakahioto Ora, the Ministry of Social Development reports on income distribution in terms of disposable income for those receiving various kinds of social support. This is also the case in France, where the analytical branches of social Ministries and large social funds conduct DIA of measures included in the previous budget, and in Sweden, where the Ministry of Finance shares information with the Ministries of Health and Social Affairs and Employment for its economic inequality analysis, and with the Ministry of Employment for its gender economic inequality analysis.

Furthermore, in Sweden, Canada, Ireland and Italy, Parliament has its own independent team, either in the Parliamentary Budget Office, or in the special research service of the Parliament that can provide such analysis. In France, a tool helps the parliament assess the distributional impact of key tax and welfare policies. These teams provide relevant information to further facilitate debate in Parliament on policies within the budget, and as such they will conduct analysis on any topics requested of them, not just distributional issues – although some of the independent Parliament teams in all three countries have had several instances in the past where analysis of such issues has been requested of them.

In all case study countries, the national statistics office is responsible for the provision of a large proportion, if not all, of the data used to conduct distributional analyses, including both administrative data and survey data. In some cases, these statistics agencies produce reports, such as in the case of the “Social Portrait”

publication by the French Statistical Institute or the report on equitable and sustainable wellbeing by the national statistics institute in Italy.

In some cases, the analysis can also be spread across different organisations within government, depending on where expertise is best located. For example, in Italy, the Department of Treasury, the Department of Finance, the Italian National Social Security Institute and the Ministry of Labour's policy analysis body all have well-developed tools that allow them to conduct research on the distributional effects of policies. In New Zealand several departments, including the Treasury and the Ministry of Social Development, have mechanisms for measuring distributional impacts that are used for decision making by Ministers. This includes for the Treasury an assessment of impacts of changes across the income distribution through the Tax and Welfare analysis model, as well as explicit consideration of the impacts on measured child poverty. The Ministry of Social Development also assesses gains and losses for different families for different initiatives, while the Ministry for Women conducts a gender assessment of the final Budget package, all of which is factored into decision making. Beyond those, the Social Wellbeing Agency, Te Puni Kokiri, the Ministry of Māori development, and Oranga Tamariki, the Ministry for Children, also play a role in their respective areas of competence and jurisdiction.

Sweden's Division for Economic Policy and Distribution Analysis in the Ministry of Finance also undertakes some ad-hoc DIA work. In this case, the information produced may well be used to inform budget decisions. It is important to note that in Sweden and the Netherlands all analysis relies on a single model, maintained by a single entity, which provides an integrated technical underpinning (see subsequent section). Alongside its annual analysis of budget measures, Ireland also conducts ad hoc distributional impact analysis during the year to inform policy developments that are related to major spending decisions, either at the level of the Ministry of Finance, the line Ministries or the Department of Public Expenditure, NDP Delivery and Reform.

In France, the analysis is conducted not only by the Treasury, Social Ministries and related social funds, but also by independent well equipped academic organisations, such as the Institute of Public Policies and the French Economic Observatory both publishing annual assessments of the redistributive impact of reforms. Unfortunately, some of these organisations rely on different models, therefore introducing some potential heterogeneity in approaches and results which can complicate the public debate. A comparative review by the Government Council of Economic Advisers has sought to analyse and narrow such differences across models. In Ireland, an independent research institute conducts DIAs and also maintains the tax-benefit microsimulation model used by government departments.

1.2.3. Distributional impact analysis and budget processes

Centralised vs decentralised forms of organisation

Both centralised and decentralised forms of organising distributional impact analysis within budget processes have their advantages and pitfalls. Usually such analysis is developed when measures impacting households' expenses are being proposed. Centralised systems, where one or a few institutions conduct the bulk of the analytical work, are more likely to benefit from a homogenous approach to analysis, and therefore less likely to see discrepancies in results. Decentralised forms of organisation, where analysis is conducted across government, benefit from a greater variation in approaches to the same set of problems, which can lead to richer analyses. While the risk of fragmentation is greater in these decentralised systems, the risk can be mitigated through use of the same or similar models across different entities, as well as use of templates and other guiding documents in order to ensure consistent output across different parts of government. However, if such decentralisation is not adequately managed, it can lead to incompatible approaches and even an ignoring of guidelines, greatly reducing the impact of such analysis.

In Sweden, the Netherlands and – to a lesser extent – France, the key players in distributional impact analysis are involved throughout the budget formulation process. Sweden's Division for Economic Policy and Distribution Analysis provides a general basis for the Ministry of Finance's prioritisation at an early stage, helping to provide estimates in the draft budget of the impact of suggested changes by the various ministries. It publishes two annual documents, one as an annex on income inequality to the Spring Budget Bill, which contains guidelines for the formulation of budget policies, and the other as an annex on economic gender equality to the Budget itself in September. In the Netherlands, the Bureau for Economic Policy Analysis starts the process by updating the main model used for distributional impact analysis with a new economic forecast, after which the ministries are able to update the income effects in the lists of policy variants they have produced. Decision makers then use this information to see if additional redistribution is needed, and send any proposals back to the Bureau, which will calculate the economic impact of these suggestions. France also sees DIA carried out throughout the budget process, although different organisations within government take the helm at different periods – the French Treasury tends to provide official *ex ante* estimates for the upcoming budgetary year, while the analytical branches of the social Ministries, which often conduct internal analysis to support the budgeting process ahead of the budget submission by the social Ministries, also tend to conduct and publish *ex post* assessments of any measures included in the previous budget.

Table 1.1. Integration of distributional impact assessment and related analysis in spending and budgeting decisions

	<i>Ex ante</i> distributional and related analysis in sectoral ministries	<i>Ex ante</i> distributional and related analysis in Ministry of Finance/Treasury	Distributional and related analysis published with the budget submission	Parliament is involved in DIA (either through discussion of results or alternative simulations)	<i>Ex post</i> distributional and related analysis in government	<i>Ex post</i> distributional and related analysis in academia
Canada	✓	✗	✓	✓	✗	✓
France	✗	✓	✓	✓	✓	✓
Ireland	✓	✓	✓	✓	✓	✓
Italy	✗	✓	✗	✓	✓	✓
Korea	✗	✗	✗	✗	✓	✓
Netherlands	✓	✓	✓	✓	✗	✓
New Zealand	✓	✓	✓	✓	✓	✓
Sweden	✓	✓	✓	✓	✗	✓

Note: A tick indicates that at least one example of the relevant practice is carried out in the country. for more detail on the exact extent of these practices, please see the case studies.

Source: OECD Secretariat. Comparative country case studies conducted in co-ordination with national administrations.

Canada and New Zealand have more decentralised systems, although the central budget organisation still play a strong guiding role at multiple stages in the budget process:

- In Canada, the line departments design policies for the budget with the government's framework for distributional impact analysis in mind, and will have to redesign any policies identified to have negative impacts on gender equality, as well as other diversity impacts that are considered within Canada's "Gender-based Analysis Plus" framework. This analysis then goes to a gender focal point within the department, who is responsible for ensuring gender and other social issues are considered effectively, before the respective minister approves it. It is only then that the policy goes to the Ministry of Finance, which compiles the proposals and publish them in an annex to the budget.

- In New Zealand, agencies have been required to use the Living Standard Framework and He Ara Waiora to identify the impacts of their budget initiative proposals, which are then reviewed by the Treasury. Agencies are also asked to identify distributional impacts of their proposed initiatives on different population groups.

Despite these more decentralised systems, in both Canada and New Zealand it is the Ministry of Finance and the Treasury respectively that initiate the budget process. The Canadian Ministry of Finance does this by holding pre-budget consultations receiving input from civil society, industry and members of the public in order to ascertain what the budget's priorities should be. The New Zealand Government is required by law to start the budget process by releasing a document outlining the overarching policy goals and wellbeing objectives intended to guide Budget decisions. This reflects the determination of priorities at a high political level, which sets the scene for what policies in the budget should look like.

In Ireland, the level of decentralisation depends on what kind of DIA is being conducted. In the case of its work on social inequalities, Ireland's organisational structure is similar to that of Canada and New Zealand, in that line ministries use Ireland's framework for equality budgeting to help design its policies, which are then reviewed by the Department of Public Expenditure, NDP Delivery and Reform. Analysis of income inequality, on the other hand, is done predominantly by the Departments of Finance, Public Expenditure, NDP Delivery and Reform, and Social Protection, with this analytical work directly integrated into the budget process as part of the budget documents and indirectly through other reports during the year.

Decentralisation of DIA is also evident in Italy. There are several departments that conduct distributional impact analysis on economic issues, they do so on an ad-hoc basis, and none of them has it as a main focus. The [Directorate for Economic and Fiscal Studies and Research](#), within the Department of Finance in the Ministry of Economy and Finance, focuses on tax issues, and conducts DIA³ on spending measures only if there is an expected impact on taxes. In addition, the Italian National Institute for Public Policy Analysis (within the Ministry of Labour) conducts DIA only as it concerns social expenditure, which can affect the labour market. Still, the Department of Treasury co-ordinates and writes the two key reports examining the budget: one published in February analysing the effects of the last government budget (*ex-post*) and the effects of this budget over the three-year programming period, and the other analysing (*ex-ante*) the effects of the government's indications for its next budget, which is attached to the government's overall economic and financial planning document (DEF) due each year in April. These reports make use of its wellbeing framework ("Equitable and Sustainable Wellbeing" indicators framework). However, while the Accounting Department in the MEF encourages departments to use this framework in the policy design process, it is not obligatory, and in practice, very few departments do so. As such, the policies within the budget documents will often not indicate any distributional impacts. The distributional impact analysis is not reflected in the budget document as such, even though, it is very developed upstream and was surely brought to bear as part of the decision-making process.

Addressing distributional consequences in Parliamentary discussions

Parliament has an active role in almost all case study countries, which are all fully functional democracies. In the Netherlands, Parliament asks hundreds of detailed questions on the budget, including several on distributional impacts, which the Ministry of Finance is expected to address. In Italy and New Zealand a similar process occurs, where Parliament's role is to hold government accountable for analysis on the budget. Similarly, in Ireland, the Committee on Budgetary Oversight was set up to enhance the role of the Parliament in the budget formation process, and so reviews and holds regular meetings on macroeconomic and fiscal issues that form part of budget considerations.

As previously mentioned, in some countries, the Parliaments also have their own research services which are used to help inform the debate on the budget. In Sweden, while the analysis of the Parliament Research service and that of the Ministry of Finance is completely separate, the two teams use the same tools and data and have some exchange of staff. They also collaborate to resolve any technical issues, in order to

help the Parliamentary debate focus on the policies themselves. In Canada, Parliament also holds pre-budget consultations to help inform the debate, and has its own research service, the Parliamentary Budget Office, which provides independent economic analysis. In Ireland, the Parliamentary Budget Office produces its own DIA to inform the budgetary process and post-budget analysis.

1.3. Which tools, frameworks and data are countries using?

Integrating distributional consideration into budget processes is a complex task and requires strong analytical and quantitative underpinning. Such underpinnings will be discussed in this section, which looks at what tools and frameworks are used, how they work, and how data is used to inform them.

1.3.1. Use of multidimensional results-based budgeting frameworks and related data

A first point of consideration is the type of conceptual results-based budgeting frameworks that have been developed to frame any distributional impact analysis and collect the related data. Many of these frameworks are multidimensional, highlighting the fact that much of the thinking on inequality and distributional impact analysis has been integrated into strategic considerations of wellbeing.

There is variation in the frequency of use of multidimensional results-based budgeting frameworks across the case study countries, with some countries utilising them as their central tool for guiding the use of DIA, while others use them on a more informal basis. Canada and New Zealand are leaders in this particular sense, with well-developed frameworks that are well-integrated into the policy design process and have undergone several iterations over the years. Italy also has a well-developed framework, although its use is less well-established and more sporadic. While France also has some results-based budgeting frameworks and indicators, they are not directly related to distributional impact analysis. Sweden, the Netherlands and France tend to focus on microsimulation analysis, with a strong focus on income distributions, though with different levels of granularity, ranging from quintiles to deciles and even centiles of income distribution, depending on the country.

In Canada, Ireland and New Zealand, use of the main results-based budgeting framework(s) is prevalent, although only Canada legally mandates its use as part of the budget process. In 2023, Ireland established a Child Poverty and Well-Being Programme Office in the Department of the Taoiseach, developed a Programme Plan and produced a report on Breaking the Cycle: New Measures in Budget 2024 to Reduce Child Poverty and Promote Well-being. The New Zealand budget process currently uses the Treasury's Living Standards Framework, which has changed over time. While, unlike Canada's framework, it is not legally mandated, it was used in the budget process, alongside He Ara Waiora, a framework that supports understanding of a Māori perspective on wellbeing between, 2019 and 2023. A Child Poverty Report is also published alongside the Budget, which is required by New Zealand legislation.

The use of Canada's Gender-based Analysis Plus framework, which considers both gender and other intersecting factors, has been obligatory since 2018. Under the framework, each department must highlight what demographics will be directly or indirectly affected by any policy it proposes, any income distribution impacts, and which groups are expected to be negatively affected, as well as any data sources for the analysis. Ireland's Equality Budgeting framework, spearheaded by the Department of Public Expenditure, National Development Plan Delivery and Reform, recommends that departments undertake a similar type of analysis for proposed policies, although unlike the Canadian Treasury, which simply collates the analyses it receives, the Department also conducts its own DIA on the budget as a whole. Ireland has developed a Well-being Framework and is integrating this work into its budgetary cycle. The Department of Public Expenditure, NDP Delivery & Reform published a working paper, as part of *Budget 2024*, outlining how a well-being perspective can be developed within the context of the budgetary process, and, in

particular, support the development of a cross-governmental description of resource allocation decisions as a complement to the existing approach to presenting such information.

Many of the areas or categories used in these results-based budgeting frameworks are common across the case study countries. Almost all frameworks ask policymakers to evaluate how their suggested policies impact income, education, gender, culture, environment, safety, and wellbeing. Other areas tend to be more specific, adapted to the case of a particular country – for example, Canada also reports on the wellbeing of its indigenous population, and Italy reports on the rate of unauthorised building. In most cases, the calculations for these indicators are done by the country's respective statistics organisations and are thus publicly available on the organisation's website. For the 12 key well-being indicators representing eight different domains of wellbeing, starting from the national statistics institute estimates for the most recent year (normally t-1 or t), the Treasury publishes the forecast for the following three or four years, providing ex-post evaluations of the impact of government policies on wellbeing with respect to the last budget law and ex-ante evaluations in the context of the government's economic and financial planning document (DEF). The Treasury elaborates forecasts or impact assessments over the horizon of the Budget Law (3 years) and the DEF (the current year and the following 3 years), with the exception of the forecast of income inequality given by the S80/S20 ratio, which is provided by the Department of Finance. The 12 wellbeing indicators with their dynamics are embedded in the "Equitable and Sustainable Wellbeing" Report submitted to the Parliament every year as well as in the yearly attachment to the Document of Economy and Finance as part of the budgetary process.

It is worth noting that just because an area doesn't exist for a country doesn't mean they don't report on it – in many cases, the information is presented through disaggregation of the data for another area. For example, while the Living Standards Framework doesn't have explicit gender-related domains, spheres or categories like the other case study countries do, it breaks down a large portion of its data by gender through dozens of gender-related indicators and its Distribution prompt encourages analysts to consider the distributional impacts of policies across time, place, and groups of people. Furthermore, the Ministry for Women regularly reports on gender pay gaps using data from Statistics New Zealand. New Zealand also breaks down much of its data by different ethnic communities, disability, and age, although it is worth noting that not every indicator can be disaggregated in this way, depending on the design of the underlying surveys or inadequate sample sizes, so it is done routinely only where possible. The Gender Pay Gap Information Act 2021 in Ireland requires organisations to report on their hourly gender pay gap across a range of metrics. Organisations with over 250 employees were asked to report on their Gender Pay Gap for the first time in 2022. A similar issue, where data is not disaggregated on a systematic basis, is also evident in Canada, although in the 2021 budget it was announced that Statistics Canada would start increasing disaggregation levels, after receiving specific additional funding, and as such this can be expected to change in the coming years. In Italy, the 12 well-being indicators are normally not disaggregated by sub-groups in the ESW Report for brevity reason. However, the indicators estimated using micro-data, such as the absolute poverty, or a microsimulation model (i.e., the disposable income inequality indicator) can be always disaggregated by socio-demographic characteristics: for instance, some of the last EWS Reports included estimates of absolute poverty by geographic area. Similarly, the Department of Finance models are suitable to produce DIAs looking at policies heterogeneous effects by gender, family composition, age, education, and territorial level, as well as by main source of income, sector, and type of occupation, and more. Furthermore, since 2009 Italy has introduced the "Gender Budgeting Framework" analysing the gender gap, the new measures introduced to reduce it, and the socio-economic effects by gender of the relevant tax-benefit policies. Ireland disaggregates data by gender and age routinely but does so to a far lesser extent for disability and race. In France, the policy framework for official statistics means that data cannot be presented or disaggregated by race. However, a wealth of distributional impact analysis, by gender, age is routinely published in the "Social Outlook/Portrait social" published by French National Institute of Statistics and Economic Studies, which implicitly helps to assess the impact of some of the spending measures *ex post*.

1.3.2. Use of microsimulation models and related data

As with results-based budgeting frameworks, there is great variation in the use of microsimulation models across the case study countries. Sweden and the Netherlands place the insights derived from these models front and centre in any distributional impact analysis, and as such have the most developed and integrated systems. France and New Zealand also place an emphasis on microsimulation analysis, although these models are used more for design and implementation of tax and benefit policies in terms of decision making than for budgetary allocations. The development and use of France's models also tends to be spread across a set of institutions. Italy has sophisticated and frequently used models, although it also uses them in an ad-hoc manner, with independent development of models across various institutions. Ireland actively uses its model to conduct *ex ante* and *ex post* analysis of budget measures to inform policy development. While Canada also has a microsimulation model, its focus on a framework-based approach to distributional impact analysis means that its model is less central to the budget process. Korea has also developed microsimulation models at the Korean Institute of Public Finance, although it is unclear how such analysis has been used to inform actual policy decisions.

Table 1.2. Use of microsimulation models: summary points

	Development of model is carried out by an independent institution ¹	Model, or components of it, are publicly available	Single integrated model with shared use	Several analytical models in different parts of government	Dynamic analysis used alongside microsimulation	Model's data is routinely disaggregated by social characteristics	Model is routinely used for feeding into budget submission
Canada	✓	✓	✓	✗	✗	✓	✗
France	✓	✓	✗	✓	✗	✓	✗
Ireland	✓	✓	✓	✗	✗	✓	✓
Italy	✗	✗	✗	✓	✓	✓	✗
Korea	✗	✗	✗	✗	✗	✗	✗
Netherlands	✓	✗	✓	✗	✓	✗	✓
New Zealand	✗	✓	✓	✗	✗	✓	✗
Sweden	✓	✓	✓	✗	✓	✓	✓

Note: A tick indicates that at least one example of the relevant practice is carried out in the country – for more detail on the exact extent of these practices, please see the case studies. In Ireland, the model is not public but is built on the EU's EUROMOD platform.

1. An independent institution can be either a national statistics office, an official planning/advisory agency (CPB in the Netherlands) or a research institute (Ireland).

Source: OECD Secretariat. Comparative country case studies conducted in co-ordination with national administrations

In some of the case study countries, development and management of the relevant microsimulation model tends to lie with the statistics institution or another major independent analytical body. This is the case in Canada, Sweden and the Netherlands, where the relevant Ministry concerned with the budget is able to use the model but does not develop it, in order to ensure maximum trust in the analytical results from the models. This separation is particularly pronounced in the Netherlands, where the Ministry of Social Affairs and Employment is also not able to access the Bureau for Economic Policy Analysis's macroeconomic and labour models. In New Zealand, the relevant microsimulation model is the responsibility of the Treasury.

In Italy and France, teams that concern themselves with distributional impact analysis tend to develop their own models. Co-ordination across government institutions working in this area often remains limited, which has also been observed in some other countries, beyond the current study sample. In France, three different microsimulation models are used, with the first jointly owned by the French statistics institute, the

social ministries, and France's largest social funds, while the other two are owned by the French Treasury and the Institute of Public Policy, an independent academic research centre, respectively. In Italy, the Department of Finance, the Treasury, the Department of Labour and the National Statistics Institution all have their own microsimulation models, fed by their own data sources (sometimes shared) and producing their own data analysis. In Ireland, the government does not develop its own model but relies instead on the model developed by the Economic Social and Research Institute, an organisation that tends to relate more to the Dutch, Swedish and Canadian approaches. Developments to the Irish model are undertaken as part of the annual research programme agreed annually by the ESRI, and government departments.

There is variation amongst the case study countries as to who within government and wider society has access to microsimulation models and relevant data. In Italy and the Netherlands, only the relevant department and statistics organisation have access to the model, while in Sweden, all ministries and many central government agencies have access – all though in all three countries, members of the public are not able to gain full access. However these countries also tend to have some way of giving researchers some degree of access – in Sweden, organisations can access the model's code but not its data, while results of the Bureau for Economic Policy Analysis's analysis in the Netherlands is regularly published. In Italy, under the National Statistical System, members are able to use, with some limitations, the data feeding the government's microsimulation models but not the model itself. Moreover, in Italy, the Department of Finance publishes fiscal statistics onto the [Department website](#), but only under some aggregations (such as regions or income class) and not in the form of microdata. A similar system exists in New Zealand, where some portions of the Integrated Data Infrastructure, Statistics New Zealand's composite of government data, is open to eligible researchers. Canada and France have more open approaches, where their models are available to the public (in France, two of the three models are completely available to the public, while the third, has only its source code available). In Ireland, the model is used internally by the Economic and Social Research Institute, which develops it on the EUROMOD platform and is also provided to civil servants and the Parliamentary Budget Office.

The microsimulation models used by all case study countries integrate both tax and spending data, a practice which allows countries to examine how the interactions between tax and transfer policies impact different distributional groups. However, measurement of secondary effects such as labour supply impacts through dynamic analysis is less common. This is still a crucial aspect, as distributional impact analysis is to be balanced by economic considerations, particularly regarding how redistributive benefits and spending can impact both the distribution of income and the labour supply. Countries with a highly developed social benefits system and a strong analytical tradition in this area, the Netherlands, tend to have greater capacity for this type of analysis. In Sweden, the labour supply has existed for a longer period.

- A best practice case can be seen in the Netherlands, where the Bureau for Economic Policy Analysis uses not only the government's static microsimulation model, but a macroeconomic model, and a labour model, which allow for integrating dynamic economic impacts in terms of labour supply. These allow the Bureau to estimate developments in the Dutch economy, including changes in wages, unemployment and inflation, up to four years in the future. This information is not only used to calculate secondary effects of legislation impacting the income distribution – for example, how an increase in welfare payments may impact propensity to work – but is also regularly used to update the microsimulation model with a more comprehensive economic picture. Sweden also has some dynamic capacity within its model, able to partially analyse long-term labour supply impacts. Italy has also taken steps to analyse the economic impacts in terms of labour supply as some models, can conduct behavioural analyses. However, in Italy's case such analysis is not systematic or necessarily linked to all policies but carried out whenever policy interventions imply a substantial behavioural response. Based on the information available, no routine dynamic analysis takes place in France, Canada, New Zealand or Ireland, which does not exclude that it could be conducted on an ad hoc basis for important policy measures.

In terms of quantitative data and statistics, all case study countries collect data from across government and on a variety of income sources, and make use of a combination of both surveys, usually conducted by the respective country's government agencies and combined. Combining these two types of data helps ensure greater accuracy, although disaggregation at the demographic level varies. All these countries tend to benefit from very developed statistical systems, where issues of access to data and the integration of datasets across government have been predominantly resolved, while also respecting relevant privacy laws. These are preconditions for such analysis to be fully developed, and are not necessarily prevalent in other OECD countries.

All microsimulation models measure income not just from wages, but from dividends due to business ownership, interest rates, and capital gains, among others, allowing for nuanced analysis of policy impacts. Furthermore, all case study countries use data for their models from both surveys and administrative data (usually from income tax declarations), allowing greater coverage of the entire population, including those with non-taxable income. All countries also tend to disaggregate their data by gender and age. However, only some countries, namely Canada and New Zealand, collect and provide data on other social characteristics such as ethnicity, disability and sexual orientation.

1.4. Conclusion and lessons learned

Inequality is a very complex, multidimensional phenomenon, and as such addressing it routinely in core government processes is a significant challenge. This study has offered concrete insights into how government conduct distributional impact analysis in eight countries. Nevertheless, the preliminary findings from the countries in this sample can help to develop preliminary insights in terms of good practices, which could be helpful for the OECD Membership.

Some of the key lessons learned from his study are summarised below.

1. Conduct distributional impact analysis as early as possible to inform the choice of spending decisions and policy options.

While it would be ideal if countries were able to conduct DIA throughout the budget process, in order to receive as full a picture as possible, this may require a level of analytical resources beyond a government's capacity. In this case, countries are encouraged to prioritise conducting such analysis at the beginning when spending decisions and policy priorities are being decided and initial policies are being formulated. Such practices are evident in various case study countries, but are most clear in Sweden and the Netherlands, where DIA is implemented in various forms throughout the budget, and thus forms an integral part of policy design, rather than a mere tacked-on evaluative measure *ex post*.

2. Encourage integration of distributional impact analysis or of broader considerations of inequality in the budget process

While almost all case study countries recommend that their line ministries conduct DIA, very few countries mandate it, and as such the frequency to which DIA is carried out varies greatly. Strongly encouraging implementation of DIA into budget policy decisions helps ensure that all socio-demographic groups are considered, and can also help to identify how various policies impact each other. This is evident in Canada, where use of the same wellbeing results-based budgeting framework is mandated across government, ensuring that all policy analysis follows the same blueprint. Such an encouragement should of course be accompanied by resources that aid teams with this analysis, as well as an offer of assistance from the main body responsible for the budget, so that DIA is not viewed as an excessive burden at the line ministry level. While this can be a costly process to carry out across the budget as a whole, even ensuring this is done only for a few large-scale programmes can still have significant benefits, including increased trust in the budget process, and a higher quality of the democratic debate.

3. Ensure transparency in the distributional impact analysis process and its underlying data to maintain confidence in spending decisions

As inequality is often a highly contentious topic in public discourse, transparency in both the methodology and the results of DIA can help assure the public that such analysis is objective. One way to do this is to ensure that as much of the data used in DIA and in the indicators of the results-based budgeting framework is available to the public as possible, and to create platforms which allow even non-specialists to use and understand this data with ease. A good example of this can be seen in New Zealand, where the New Zealand Treasury publishes its Living Standards Framework Dashboard, and reports explaining the indicators and rationale for changes over time. While these are not the only indicators or evidence used in the Budget process, the LSF Dashboard is one input into the Treasury's advice on Budget priorities. While it may not be possible to make governments' microsimulation models entirely available to the public, making its code available, as done in Sweden, or at European level through the EUROMOD platform, can allow independent researchers to produce their own results.

4. Maintain independence in the development of analytical models

Maintaining independence of analytical operations within the entities that develop microsimulation models is fundamental. A best practice here can be considered that of the Netherlands, where a separate government entity, the CPB, exists to double check the Ministry of Social Affairs and Employment's analysis and ensure it is accurate. While the Ministry of Finance can produce its own DIA to inform policy development, the Bureau for Economic Policy Analysis has the final say for the analysis offered to Parliament underlying the budget law. The Bureau is well-reputed for its independence, there is a great level of public trust in its analysis. While this practice requires the building up of trust in an institution, and thus may not be feasible in all countries in the shorter term, steps can be taken towards it by ensuring there is clear separation of those developing the models used for microsimulation and those utilising them for policy analysis.

5. Ensure that results-based budgeting frameworks and microsimulation models are complementary and promote co-ordinated approaches

While most of the case study countries make use of both results-based budgeting frameworks and microsimulation models to various degrees, most tend to clearly favour one over the other. However, the two serve different functions that do not necessarily overlap. Frameworks are useful for giving teams a clear indication as to what distributional impact analysis looks like, as well as harmonising these results across government, ensuring they are comparable. On the other hand, microsimulation models easily allow for multiple variations of a policy to be considered, and provide a strong evidence base for any policies implemented, which is valuable both for gaining approval from Parliament and justifying decisions to the general public. Regular use of them both can therefore allow for a powerful combination of consistent, well-streamlined analysis with strong evidence to back it up.

Countries which have one central model with which all DIA is conducted see several benefits. Not only does this practice reduce the unnecessary overlap that comes with different models, which can lead to time and cost inefficiencies, it also forces greater communication between different parts of government, increasing the sharing of data and methodologies, and thus improving the quality of any analysis. While it may not be politically or logistically feasible for countries that already have multiple different models to decommission some of them, they should try to promote the sharing of information and more integrated approaches. Systems of communication should be established to allow different teams to reconcile any methodological differences across analytical approaches, so that the different outputs can be considered directly comparable. For example, in France, the Council of Economic Advisers was mandated to produce a comparative analysis of the existing microsimulation models. This more unified approach will help to increase efficiency and trust in the final results.

6. Complement microsimulation modelling approaches with economic models that help to take into account the effects on labour supply

While inequalities matter, and distributional impact analysis does address statistic inequality issues, under a “Rawlsian approach”, it is also important to balance inequality and welfare considerations, to ensure that the reduction of inequalities is not achieved at an excessive economic cost, for example with a reduction of labour supply. Countries with highly developed social protection systems, and sophisticated analytical approaches such as the Netherlands and Sweden, have started to promote more balanced approaches. As the focus of DIA is of course inequality, the use of macroeconomic and behavioural models alongside DIA can help identify any undesirable secondary effects in terms of labour supply from policies with positive distributional impacts, helping to formulate well-balanced policy choices. Furthermore, these complex models can be used to keep microsimulation models up to date with the most recent macroeconomic information, as is done in the Netherlands, thus ensuring more accurate analysis. As these models can be expensive and time-consuming to develop, an easier, although less effective, alternative could be to add modules which examine secondary effects to the existing microsimulation model, as done in Sweden. For EU member states, the EUROMOD microsimulation model developed by the European Commission’s Joint Research Centre, contains several add-ons that can be used to simulate various behavioural factors, including labour supply changes and tax compliance.

7. Make full use of administrative data as a complement to survey data to inform distributional analysis and disaggregate data by socioeconomic characteristics as fully as is possible while ensuring data confidentiality

While this is already a common practice in almost all the case study countries, it is not always a given in many OECD countries. Both administrative data and survey data have advantages and pitfalls – for example, while administrative data tends to be more comprehensive than survey data as it doesn’t rely on volunteers, it can only capture those who interact with government agencies, and has limited demographic information. Survey data, despite its less comprehensive nature, can capture those who don’t earn enough to pay taxes, and link this information with information on the respondent’s age, gender, and other social information. Combining the two allows for painting a more comprehensive picture, making any analysis more accurate.

In many of the case study countries, DIA analysis was limited by a lack of data disaggregated by gender, race, sexual orientation, disability and even income. Without such data, even sophisticated DIA analyses are not able to account for how particular policies impact different segments of the population. A best practice approach can be taken from Canada, which not only regularly disaggregates data by a variety of different measures, but also has a framework in place to continue further disaggregating data over a five-year period. It is of course important that such disaggregation occurs within a framework which ensures that disaggregated data are effectively stored and anonymised, so that they are not used for discriminatory purposes (OECD, 2018^[26]). However, such disaggregation has also to pay attention to the underlying challenges in preserving data confidentiality at the local level. Furthermore, it should be kept in mind that such disaggregation only has value if the sample sizes remain large enough to ensure the data remains statistically significant.

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Notes

¹ Several international organisations also make use of microsimulation models, including the OECD (OECD, 2022^[27]), the IMF (Hisanaga, 2022^[28]), and the World Bank (Gao and Inchaust, 2020^[29]).

² “To some degree” because it is the Department of Public Expenditure, NDP Delivery and Reform (DPENDR) that line ministries report to for equality and performance budgeting, as this is the team that leads it. However, the Departments of Finance, DPENDR, and Social Protection looks at the integration of equality into tax and welfare, using microsimulation to undertake DIA. The final budget DIA prepared by the Department of Finance, is included in the Memorandum to Government on budgetary measures and Ireland’s Draft Budgetary Plan. The Departments’ final budget DIA is also included in each of the three Department’s budget-related publications. Externally, the ESRI also publishes independent *ex post* analysis of the budgetary measures.

³ Most of the DIAs are not published. However, some of them can be found in the Working papers Series of the Department of Finance: <https://www.finanze.it/it/il-dipartimento/collana-di-lavori-e-di-ricerca/working-papers/> or in policy notes: <https://www.finanze.gov.it/it/il-dipartimento/Analisi-economiche-e-fiscali-note-tematiche/notetematiche/>.

2 The case of Canada

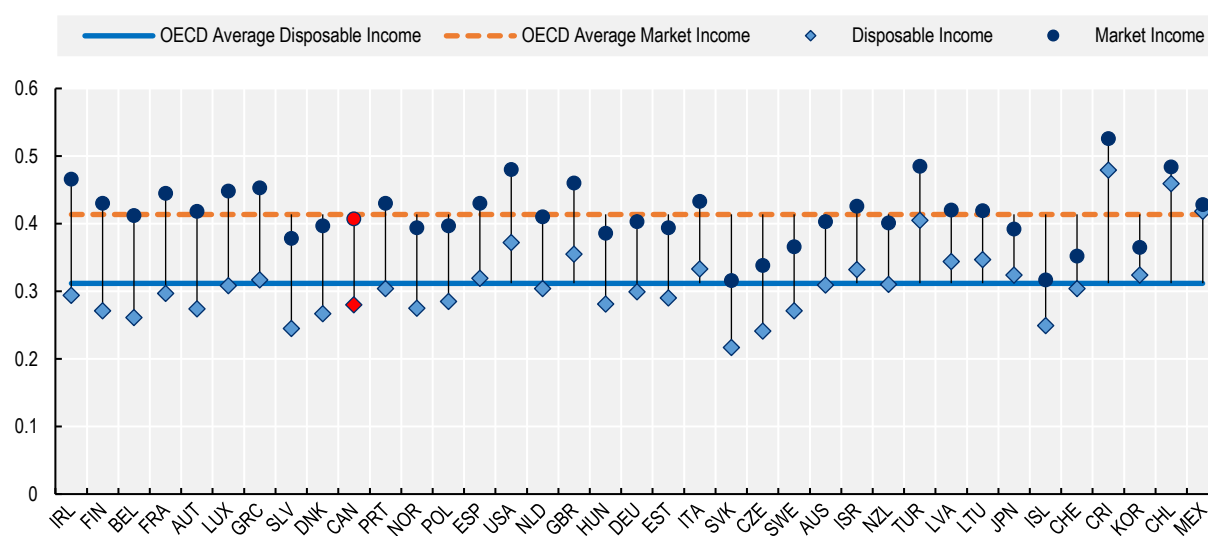
This case study provides an overview of recent trends in income inequality in Canada, and discusses how considerations for inequality and distributional implications of public expenditure are brought to bear as part of the budget process. It discusses the practices currently in place in the country, how they are set up in the country's public expenditure frameworks, and how they are supported at the technical level, through the range of models, and data tools that are utilised in policy practice.

2.1. An overview of recent trends in inequality in Canada

2.1.1. Income Inequality

Canada has levels of income inequality before taxes and transfers below the OECD average, and ranks above the OECD average for the impact of taxes and transfers on income distribution. In 2018, before taxes and transfers, Canada had a Gini coefficient of 0.407, which went down to 0.28 – a 0.127 decrease, compared with the OECD average of 0.102 (Figure 2.1). This points to a significant effect of the government tax and transfers system.

Figure 2.1. Differences in household income inequality pre- and post-tax and government transfers, 2019



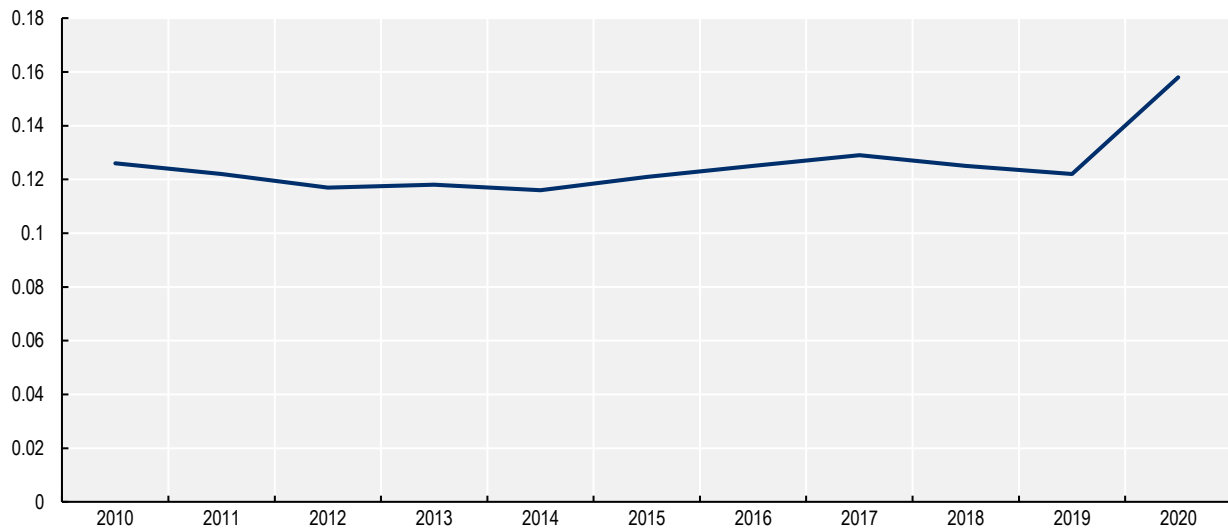
Notes: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, Iceland and South Africa (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg and South Africa. Earlier data for Brazil, Chile, Estonia, Sweden and the United States are from 2013.

Source: OECD Income Distribution Database

The impact of taxes and transfers on distribution of income has remained fairly consistent in the past decade, with the most notable increase being a slight uptick between 2019 and 2020 (Figure 2.2). This uptick was due in large part to the pandemic relief benefits implemented as a result of COVID-19, for which after-tax income growth was faster for households with low incomes (Statistics Canada, 2022^[1]).

Figure 2.2. Impact of taxes and transfers in terms of reduction of the Gini coefficient, 2010-2020

Measured as difference between Gini coefficient for market income (before taxes and transfers) and disposable income (after taxes and transfers)



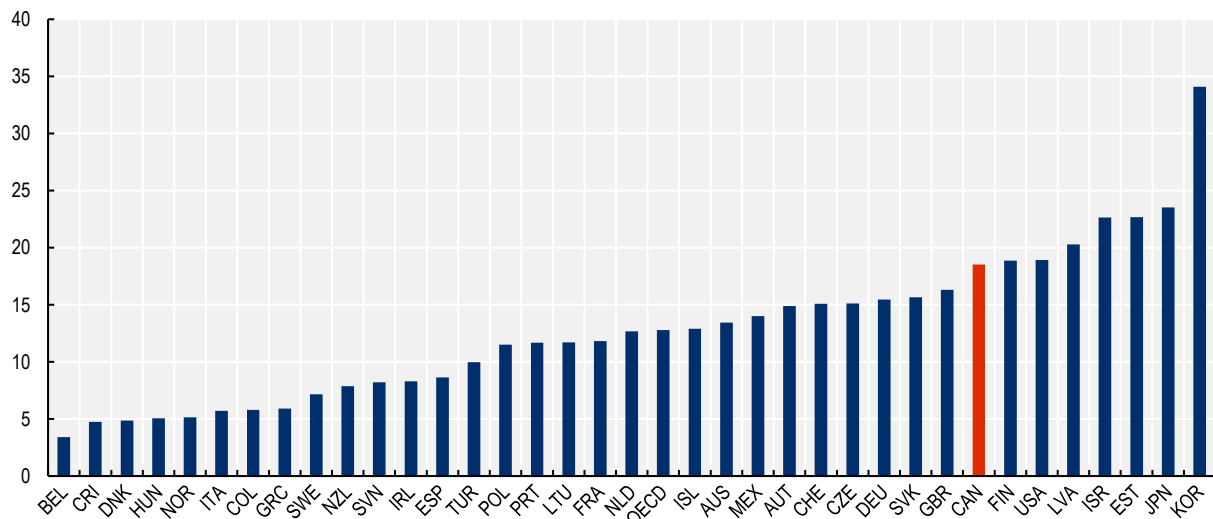
Note: In order to consider the economies of scale present in larger households, data on income has been adjusted by dividing the household income by the square root of the household size.

Source: Statistics Canada

2.1.2. Gender: Wage Gap

The gender wage gap in Canada is also above the OECD average, at about 18.5% compared to the OECD's 12.8% (Figure 2.3). However, this figure has decreased in the past decade, with a reduction of 3.2 percentage points between its peak in 2013 and its low in 2020 (Figure 2.4). Gender wage gaps tend to be higher expressed on an annual basis, given differences in hours worked.

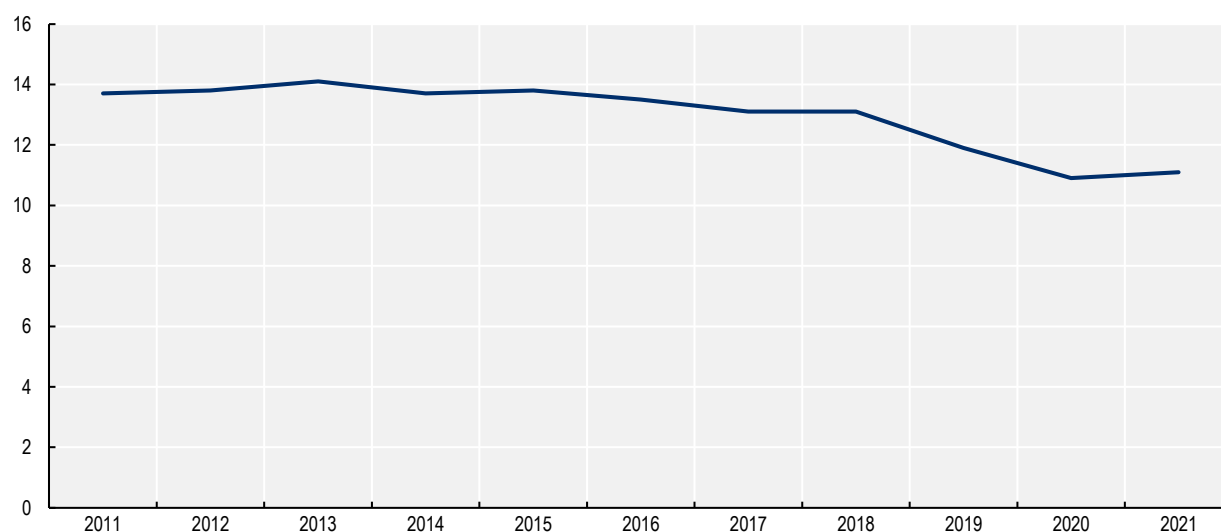
Figure 2.3. Gender wage gap in OECD countries, 2018



Note: The gender wage gap is here defined as the difference between the median earnings of men and women relative to the median earnings of men. Data refer to full-time employees. Some of the data comparisons above may be influenced by definitions. In Canada, hourly gender wage gaps are generally below 20%, while annual gender wage gaps are closer to 30% given the differences in hours worked. While all earnings in the chart refer to given time periods for countries, these time period may differ given the surveys that were used (e.g. weekly, monthly or annual gender gap).

Source: OECD. Stat

Figure 2.4. Gender wage gap in Canada over time

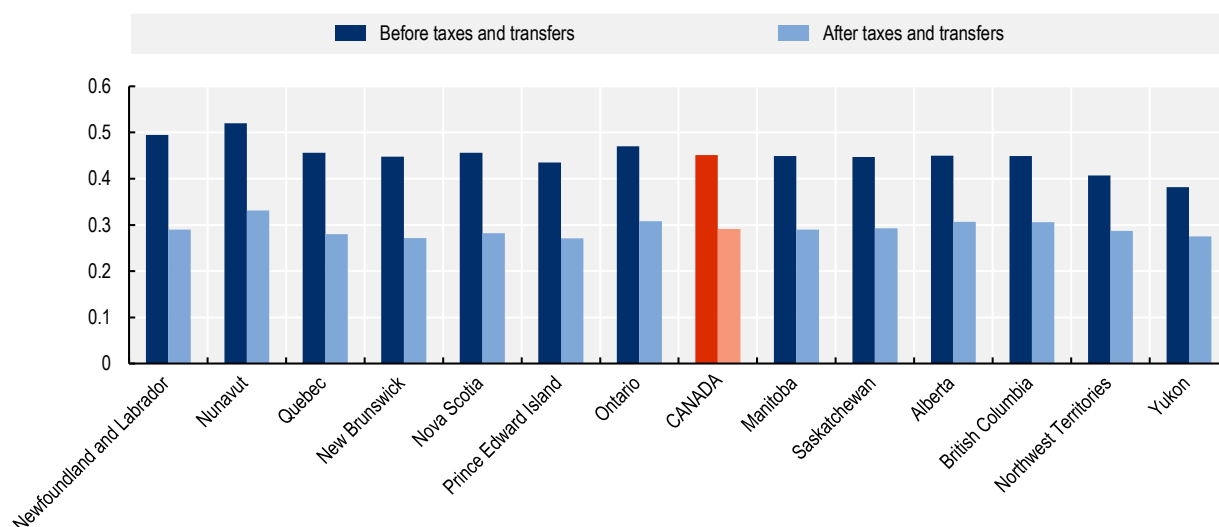


Note: The gender wage gap is here defined as the difference between the median earnings of men and women relative to the median earnings of men. Data refer to full-time employees aged 25-54.

Source: Statistics Canada

2.1.3. Regional Inequality

Taxes and transfers greatly standardise differences in economic inequality between regions (Figure 2.5). Before taxes and transfers, the difference in the Gini coefficient between the most equal (Yukon) and least equal (Nunavut) Canadian regions is 0.138 – a difference that goes down to 0.06 (between Nunavut and Prince Edward Island) after taxes and transfers.

Figure 2.5. Gini coefficient of Canadian regions before and after taxes and transfers, 2020

Source: Statistics Canada

2.2. Budgeting frameworks related to inequality and well-being

2.2.1. The Budget Process

The Budget is presented to the Parliament in Spring, and includes a review of recent economic developments, a discussion of the economic outlook over a five-year horizon, and fiscal plans showing how much the government expects to collect and spend the funds needed for its new policies. The economic forecasts in the budget are informed by a survey of private sector economic forecasters, in order to help ensure objectivity. Projections of federal expenses are based on forecasts of growth contained in the economic outlook (Department of Finance Canada, 2020^[2]).

Preparation of the budget involves a variety of stakeholders. It generally starts with the various Departments and Agencies designing policies and initiatives for proposed funding in the budget, during which time it is mandatory to undertake GBA Plus analysis. This analysis considers the gender and diversity impacts of the proposed policy or initiative and also helps identify any potential barriers to participation or negative impacts. Where a barrier or negative impact has been identified, the design of the initiative should endeavour to, to mitigate these. The GBA Plus analysis for a proposed policy or initiative is reviewed by the gender focal point in each department or agency, who ensures that any analysis has been conducted as effectively and consistently as possible, before it is formally approved by the respective Minister in their Ministerial Mandate Letter. The policy then goes to the respective policy team within the Department of Finance – for example, if it is an education-related policy, it will go to an education policy team. The Prime Minister and the Minister of Finance make the final budget decisions, and the Parliament subsequently approves the final budget motion.

The Canadian Government also holds pre-budget consultations in order to receive input from civil society, industry, and other members of the public, as well as from the Parliament. This process starts when the House of Commons Standing Committee on Finance calls on Canadians to submit written briefs to the Committee highlighting what they consider should be priorities for the next budget. For the 2023 budget, nearly 700 organisations and individuals submitted written briefs. Based on these hearings, the Committee then puts forward a report presenting its recommendations (FINA, 2023^[3]).¹

All budget proposals include a mandatory detailed overview of their expected outcomes, and highlight any impacts on gender and diversity, environment, and quality of life. These expected gender and diversity, and quality of life outcomes are published in the Statement and Impacts Report, which is published as an annex to the Budget.

Since Budget 2019 an Impacts Report (previously called a Gender Report) presents Gender Based Analysis Plus (GBA Plus) impacts for all announced Budget measures has been a common feature of the Budget (Department of Finance Canada, 2020^[2]). Since 2021, it has also included information on the Quality of Life impacts of all proposed budget measures (see following section).

2.2.2. Integrating distributional considerations in budgeting: The role of gender budgeting and GBA Plus

The Canadian Government implements its analysis of inequalities of gender and beyond into the budget process via two key frameworks – Gender Based Analysis Plus (GBA Plus) and the Gender Results Framework (GRF).

An early form of Gender Based Analysis (then without the “Plus”, which was added in 2011 in order to encourage consideration of intersectional factors)² was created by Status of Women Canada in 1995 as part of the United Nations’ Beijing Platform for Action. In 2005, the Standing Committee on the Status of Women released a report looking at the implementation of GBA Plus within the Canadian Government. It concluded that GBA Plus should be implemented across the federal government, as there was strong potential for it to positively impact policy areas which are not traditionally defined as women’s issues – including the federal budget (Government of Canada, 2022^[4]).

In 2007, it became a requirement for line departments to submit their GBA Plus analyses to the Treasury Board Secretariat (TBS), the advising body to the Treasury Board of Canada. The TBS continues to have this ‘challenger’ role, alongside the Privy Council Office (PCO). Both have the power to return a submission to the originating department if they deem it insufficient.

In November 2015, the Prime Minister appointed the first ever Minister of Women and Gender Equality. The current Minister is a member of three Cabinet Committees (CC): The CC on Diversity and Inclusion, the CC on Open Transparent Government and Parliament, and the CC on Growing the Middle Class.

The Department of Finance announced its commitment to gender budgeting in the 2016 Fall Economic Statement. In the 2017 main Budget publication, a “Gender Statement” was included, which contained an overview of gender-related statistics in 2017, and a description of the measures in the 2017 Budget that aimed at addressing gender-based challenges. For the 2018 Budget, the Minister of Finance highlighted the need for GBA Plus analysis in all budgets and off-cycle funding proposals, and announced that the intention was to introduce new legislation making gender budgeting a permanent part of the federal budget-making process.

Women and Gender Equality (WAGE) Canada (formerly Status of Women Canada)³ is the main co-ordinating institution for GBA Plus, involving helping co-ordinate all stakeholders across government, as well as provide training, support and other guidance when it is needed. PCO and TBS continue to play their ‘challenger’ role, and are responsible for validating all GBA Plus analysis that goes to the Cabinet. The Department of Finance also has a role, being responsible for validating all the GBA Plus accompanying budget proposals. Staff in line departments have primary responsibility for undertaking GBA Plus in relation to government decisions. Departments are also expected to include evidence of GBA Plus analysis in their policy statements, implement a responsibility centre to lead implementation, and appoint a senior management representative to lead GBA Plus initiatives (OECD, 2018^[5]).

During its time, GBA Plus has been the subject of several audits by the Office of the Auditor General of Canada (OAG). In 2009, the OAG reported that there was little evidence of GBA Plus being consistently

considered in decision making, and no record of the TBS and PCO carrying out their challenge function. In 2015, a further report noted improvement, but stated that GBA Plus needed to be implemented more systematically across the entire federal government. Most recently, the OAG highlighted that actions taken to identify and address barriers to gender- based analysis did not go far enough, most notably due to a lack of data availability (Office of the Auditor General of Canada, 2022^[6]). WAGE, TBC and PCO have responded to each audit with action plans, involving enhancing GBA Plus tools, updating guidance on submissions for departments, and assessing and reporting on progress more regularly (OECD, 2018^[5]). Overall, pre-budget and medium-term planning exercises consider many different indicators and perspectives on Canadian environmental, social and economic outcomes for many different groups, which allows for capturing distributional issues through a range of angles.

The Gender Results Framework was introduced in the 2018 Budget, to help guide gender budget efforts. Statistics Canada collects and produces the majority of the data for this, and is responsible for monitoring progress on its development. The Department of Finance uses this information to support budget decision making.

2.2.3. How does GBA Plus and the GRF work in practice?

The Canadian Government's commitment to applying GBA Plus in decision making involves several steps, including scrutinising policies for barriers to access and for potential negative impacts on specific demographic groups. Impact assessments are conducted both *ex ante* and *ex post*, meaning that the results can feed into pre-budget consultations and resource allocation decisions, as well as spending reviews.

When proposing a policy, each department must fill out a GBA Plus Department Summary document. Within this, the Department must:

- describe their proposal, say who its target population is, and clarify its expected outcomes
- highlight gender and other demographic characteristics that may be directly or indirectly affected by the proposal
- state the income distribution impacts of the proposal, explaining the assumptions behind the assessment, as well as any generational impacts
- identify the gender and other demographic groups who are expected to be negatively affected by the proposal, or face a barrier to access. This section should also highlight any steps for addressing these barriers
- state when during an initiative's development GBA Plus analysis was carried out
- confirm whether or not the public was engaged on a proposal, and if so, what the nature and format of the public consultations was
- highlight what data sources were used to inform the GBA Plus analysis, and whether there were any notable data gaps (Government of Canada, 2022^[7]).

The Gender Results Framework (GRF) provides a view of Canada's gender equality goals, as well as multiple indicators in order to track the progress towards achievement of these goals. It also provides statistics on indigenous people, those with disabilities, and the LGBTQ community.

The GRF has six pillars:

1. education and skills development
2. leadership and democratic participation
3. poverty reduction, health and well-being
4. economic participation and prosperity
5. gender-based violence and access to justice
6. gender equality around the world.

When proposing a policy, Departments who believe their proposal advances these pillars must highlight this in their GBA Plus Department Summary Document. In particular, they must choose just one pillar that they believe their proposal will advance, and include an explanation of how they expect it to do so (Government of Canada, 2022^[7]).

This information is used by Ministers to help inform budget decisions and it is also presented in the Impacts Report accompanying the budget of Canada, aiming to increase transparency and accountability in relation to government action being taken to progress the areas highlighted in the Framework.

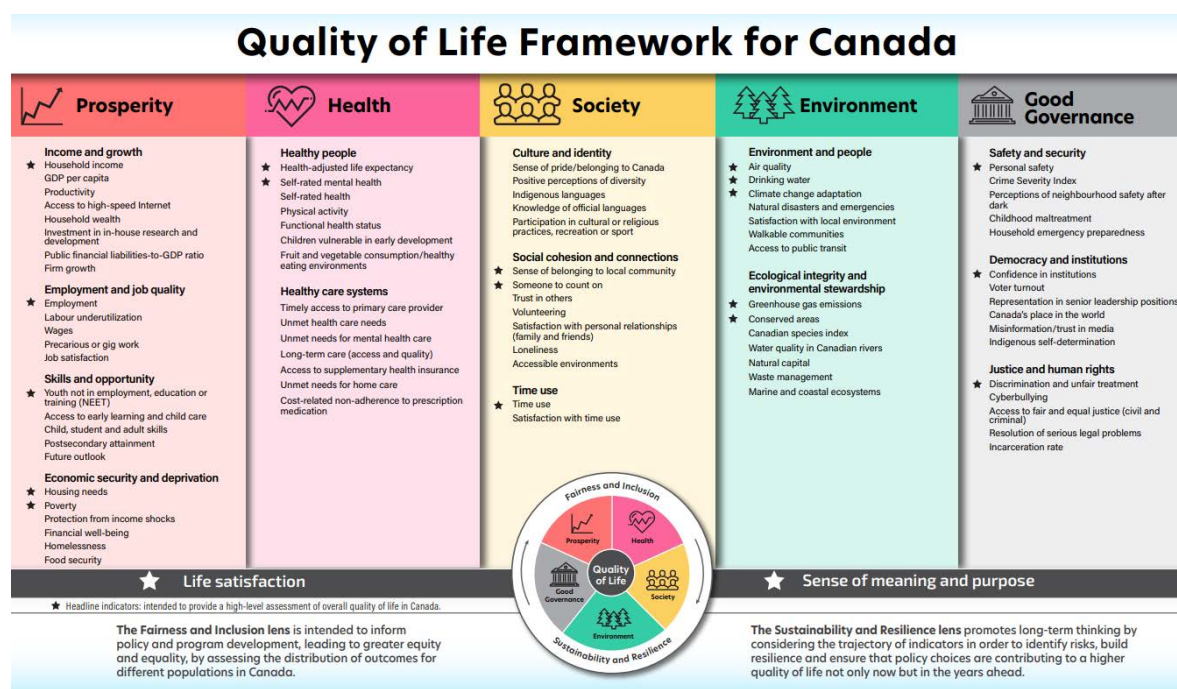
2.2.4. Building distributional considerations in broader frameworks: the Quality of Life Framework

The Quality of Life Framework builds on Canada's GBA Plus approach by introducing a standardised set of domains and indicators to bring a more structured and consistent approach to assessing the nature as well as the distribution of impacts. While gender budgeting looks at who is most affected by new budget measures, the introduction of the Quality of Life Framework now provides additional information on how they are affected.

The Quality of Life Framework's aim is to support growth being inclusive and sustainable, and is used to assess the impact of new measures introduced in the budget. It is composed of five domains – prosperity, health, society, good governance, and environment – and has two cross-cutting lenses, fairness and inclusion and sustainability and resilience. Within its five main domains, the Framework contains 85 indicators (see Figure 2.6) (Statistics Canada, 2022^[8]).

The Framework was developed in 2020-2021 by the Department of Finance, with Statistics Canada playing a key role in data and indicator selection. The five key domains were based on the OECD's Well-being Framework, with some adaptations in order to consider Canada-specific issues more closely (Government of Canada, 2022^[9]).

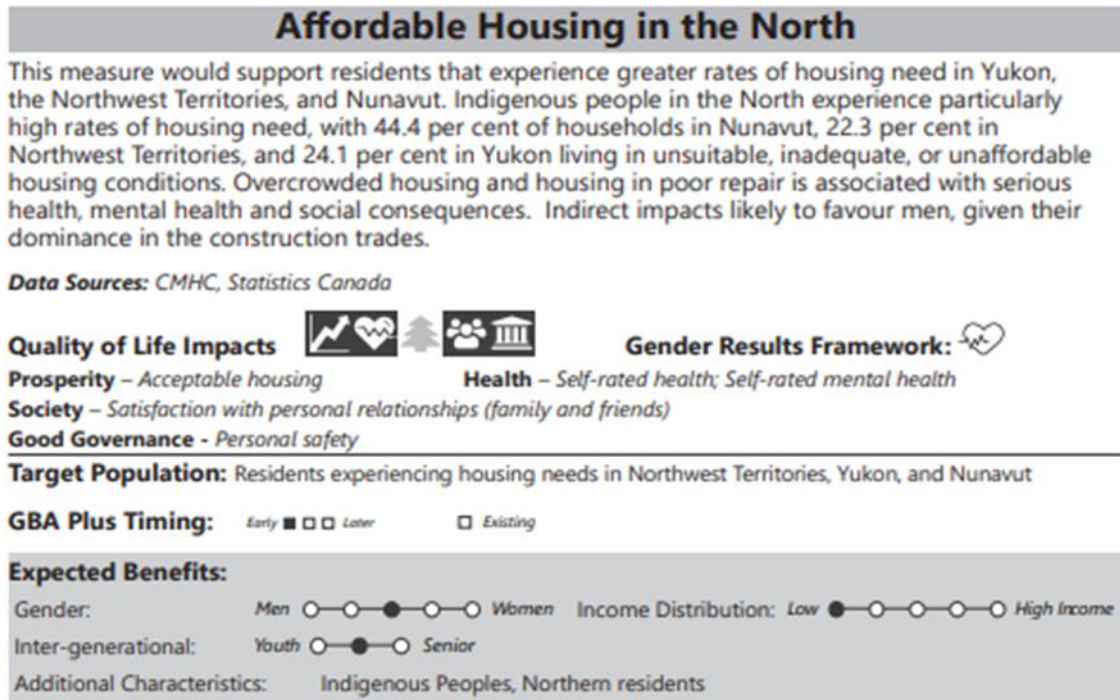
Figure 2.6. Information Sheet on the Quality of Life Framework Indicators



Source: Statistics Canada

Alongside the 2022 Budget, the Department of Finance published a “Statement and Impacts Report on Gender, Diversity and Quality of Life” (Department of Finance Canada, 2022^[10]). Within the report, each new budget measure is assessed in terms of its expected contribution to each of the Quality of Life Framework domains. For each measure, the report highlights the data source of its analysis, looks at the quality of life impacts, and several other factors (see Figure 2.7).

Figure 2.7. Example of Policy Impact Analysis from 2022 Budget Impacts Report



Source: (Department of Finance Canada, 2022^[10])

2.2.5. The Parliamentary Budget Office

The Parliamentary Budget Office (PBO) provides non-partisan financial and economic analysis, independent of the government, in order to support parliamentary debate and help ensure the transparency and accountability of the budget process. It was established in 2006 as part of the Federal Accountability Act (Government of Canada, 2006^[11]).

The PBO is split into two components – the Economic and Fiscal Analysis Division, which provides economic outlooks and risk assessments, and the Budgetary Analysis and Costing Division, which analyses the accuracy of programme cost estimates. On several occasions in the past, the PBO has undertaken distributional analysis, most recently analysing the distributional implications of federal carbon pricing (see Box 2.1), a national guaranteed basic income (PBO, 2021^[12]) and changes to the personal income tax regime (PBO, 2016^[13]).

2.3. Tools for assessing the distributional impacts of budget decisions

2.3.1. Microsimulation models: SPSPD/M

The Social Policy Simulation Database and Model (SPSPD/M) is a microsimulation model owned by Statistics Canada and used to assess the cost implications and income redistribution effects of changes in the tax or cash transfer system. The model is used by federal departments to assess the fiscal costs and economic implications of policies and programmes, as well as the potential distributional impacts of proposals. For example Employment and Social Development Canada, has used it to respond to questions from senators (Employment and Social Development Canada, 2021^[14]), as well as for an evaluation of the national child benefit initiative (Employment and Social Development Canada, 2005^[15]). This implies that, even if distributional analysis is not included in the budget submission, such analysis is conducted upstream when developing and assessing policy measures and spending proposals.

Several other public bodies also regularly use. Beyond the executive, the Parliamentary Budget Office has used it to assess fiscal costs and respond to requests by Members of Parliament, including looking at whether the introduction of new benefits impacted receipt of previously existing benefits (PBO, 2022^[16]). The Library of Parliament used it for an analysis of Canada's retirement income system (Canadian Library of Parliament, 2019^[17]). As the model is publicly available, it can also be used by universities, think tanks and private consultants (Statistics Canada, 2022^[18]).

The model is based off the SPSPD public database, which was constructed by combining administrative data from personal income tax returns and unemployment claims with survey data on family incomes, employment, and spending patterns. The survey weights are adjusted to ensure that the sample population (which consists of just over 1 000 000 individuals residing in 300 000 households) corresponds to the actual population, using data from the Census and the Canada Revenue Agency to check this (Statistics Canada, 2022^[18]).

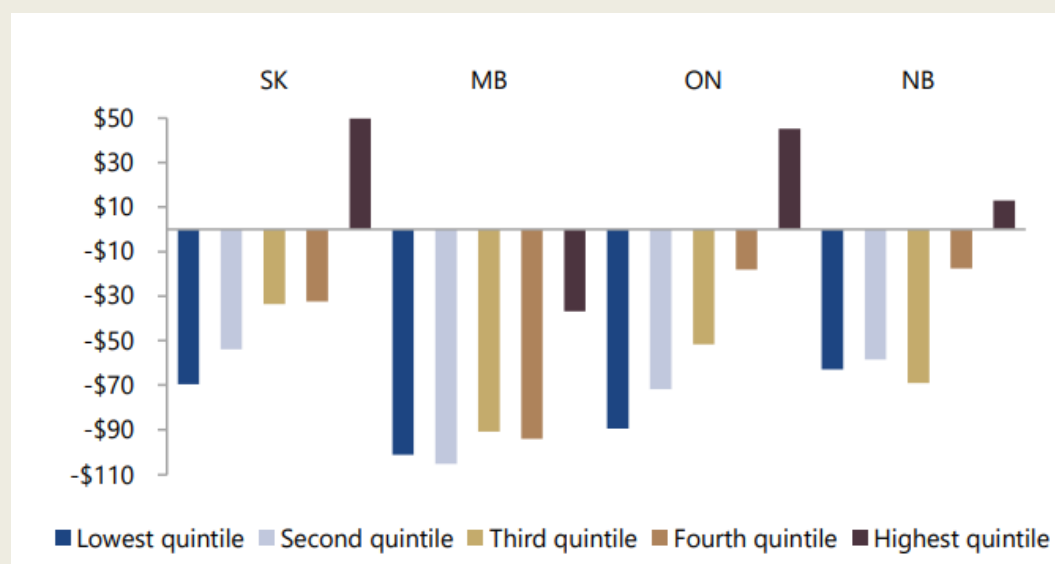
The key programme, SPSPM, can simulate the past two decades of the Canadian tax and transfer system.⁴ The user is able to adjust the already included parameters as they see fit (known as “black-box mode”, as well as write entirely new algorithms and incorporate them into the existing system (known as “glass-box mode”) (Statistics Canada, 2022^[18]).

Box 2.1. Distributional Analysis of the Federal Carbon Pricing System

In October 2018, the Government of Canada announced details of a carbon pricing system for Canada, applying to provinces and territories that did not have adequate climate pricing plans of their own. The system consists of two components: a direct carbon levy set initially to USD 20 per tonne of CO₂ equivalent and rising to a maximum of USD 50, and an output-based pricing system, applied to the production of goods and services of industrial facilities with emissions above 50 000 tonnes of CO₂ (PBO, 2022^[19]).

PBO published a report in order to provide an independent estimate of the net fiscal impact of households in four key provinces: Ontario, New Brunswick, Manitoba and Saskatchewan. It found that the benefits from the system were generally progressive, largely due to the government's promise that any revenues generated under the system would be returned to the province or territory in which they were generated. Indeed, only one quintile, the top one, was predicted to see a net loss in income (Figure 2.8).

Figure 2.8. Quintile distribution of household carbon cost net of amounts paid in 2019-20



Source: (PBO, 2022^[19])

2.4. Data and information infrastructure

2.4.1. Data for microsimulation

The survey data for the SPSP/M microsimulation model predominantly comes from two sources: The Canadian Income Survey (CIS) and the Survey of Household Spending (SHS).

The CIS is a cross-sectional survey conducted nationwide, and administered to a sub-sample of Labour Force Survey respondents. Questions either come from Statistics Canada's Design Resource Centre (QDRC), or from other existing Statistics Canada Surveys. Information about households is obtained from one knowledgeable household member, in order to avoid the high costs of the repeat visits needed to obtain information from each respondent. Households are kept as respondents if information for at least one person is provided, and any missing data within these households is imputed. The most recent CIS data contains a sample of 50 000 individuals within 25 000 households (Statistics Canada, 2020^[20]).

The SHS gathers information on the spending habits of Canadians, in order to measure changes in these spending patterns. It incorporates personal income tax data in order to have information on annual income of household members, and collects information about the demographic characteristics of the household, including type, age, and tenure. The data are collected on a monthly basis for a full year, via both a questionnaire, which is used for more expensive goods that are purchased less frequently, and an expenditure diary, which is used for less valuable and more frequently purchased items. On top of their use within the SPSP/M database, the SHS data are also used as an input for to calculate GDP and the Consumer Price Index. It contains 12 000 households and expenditure data for 30 categories (Statistics Canada, 2022^[21]).

2.4.2. The Gender, Diversity and Inclusion Statistics Hub

The Gender, Diversity and Inclusion Statistics hub was launched by Statistics Canada and developed in collaboration with WAGE,⁵ the Department of Finance, Global Affairs Canada and others. The development of the hub itself was largely developed by Statistics Canada, while the involvement of the other departments was more for the development of the Gender Results Framework itself (e.g. selection of indicators, structure of pillars, setting of goals, etc.). It intends to increase the quality of disaggregated data, particularly data broken down by disability, gender identity, sexual orientation, Indigenous identity, immigrant status and visible minority status. Many of the indicators align with other international frameworks, such as the United Nation's Sustainable Development Goals.

In order to construct the Hub, Statistics Canada surveyed data users in the government, academia, and non-governmental organisations on their data requirements. 70% of responses identified a desire for greater data availability for gender, ethnic groups, immigrations, those with disabilities, 2SLGBTQI+ groups, and the indigenous population (Statistics Canada, 2023^[22]).

The hub is partially responsible for the tracking of the Government of Canada's progress on the Gender Results Framework indicators. Stats Can is responsible for tracking progress against the indicators outlined in this document [Gender Results Framework placemat - Women and Gender Equality Canada](#). The Ministry of Finance also plays a role, by identifying which budget measures advance the Gender Results Framework, and setting these out in the Impacts Report ([Budget 2023 Impacts Report \(canada.ca\)](#)).

2.4.3. Quality of Life Hub

The Quality of Life Hub is the database used for the Quality of Life Framework. It highlights the six domains, and shows the indicators used for each of them, including how each indicator is defined, how it is measured, as well as links to its data sources, any visualisations of the data, and any previous analysis in which the indicator had been used. It also contains some explanation of the two cross-cutting lenses. All this information is publicly available on the Statistics Canada website.

2.4.4. WAGE GRF

The "Woman and Gender Equality" page on the government of Canada website also serves as a database, in this case for the Gender Results Framework. Much like the Quality of Life Framework, it highlights the six domains, and outlines the indicators used within these domains. For each of these indicators, it provides the most recent data source, which in many cases is broken down into age groups, ethnicity, immigration status, and sexual orientation.

2.4.5. Disaggregated Data Action Plan

In the 2021 Budget, it was announced that USD 172 million would be given to Statistics Canada over a five-year period for a Disaggregated Data Action Plan (DDAP), with the intention of providing and making widely available detailed statistical data in order to account for how economic, social and policy variables impact women, LGBTQ, minorities, and those with disabilities. The plan will allow for greater data disaggregation within several key surveys, including the Labour Force Survey, the Canadian Community Health Survey, and the General Social Survey, which are all heavily used for the indicators in the GRF. In 2022, Statistics Canada released a report highlighting the progress of the DDAP, highlighting how it had increased sample sizes for its flagship surveys, and increased the amount of data available in the Gender, Diversity and Inclusion Statistics Hub. The report also notes how Statistics Canada is increase disaggregation in other areas, including for a Centre for Municipal and Local Data (Statistics Canada, 2022^[23]).

Infographic 2.1. The Disaggregated Data Action Plan



Source: Statistics Canada

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Notes

¹ See: <https://www.ourcommons.ca/Committees/en/FINA/StudyActivity?studyActivityId=11712535> and <https://www.ourcommons.ca/DocumentViewer/en/44-1/FINA/report-10/>.

² The Government of Canada's website lists these factors as: indigenous heritage, age, education, language, religion, culture, ethnicity, geography (urban, rural, remote, Northern), socio-economic status, family status, sexual orientation, and mental or physical disability.

³ Note that in December 2018, Status of Women Canada became a federal department and was renamed Women and Gender Equality Canada (WAGE).

⁴ The programme is written and compiled using the C++ programming language.

⁵ Formerly Status of Women Canada.

3

The case of France

This case study reviews how distributional implications related to equality are integrated into budgeting processes and inform budgetary decisions in France. It discusses the practices currently in place, how they are set up in the country's public expenditure frameworks, and how they are supported at the technical level through a range of microsimulation models and data sources. As highlighted in this case study, the field of distributional impact analysis in France is marked by a variety of actors and tools. This variety allows for the transparent comparison of results, which remarkably tend to converge despite different methodological approaches. While additional efforts are necessary to ensure the comparability of outputs and their systematic inclusion in the budget cycle, this robustness lends credibility to the public debate around distributional impacts and how they affect inequality in France.

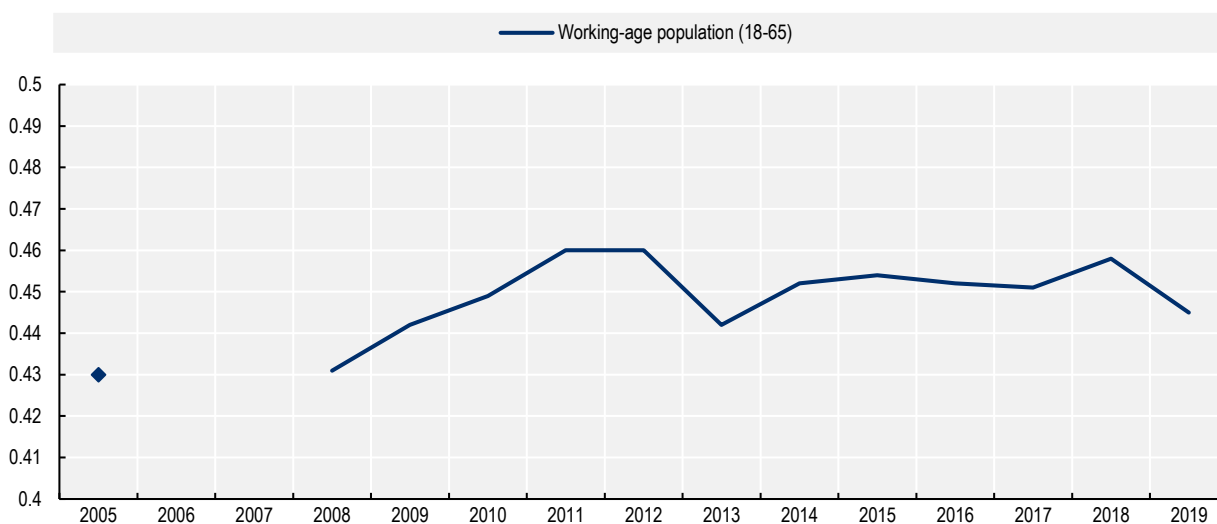
3.1. A review of recent trends in income inequality in France

3.1.1. Market income inequality

Disposable income inequality, which refers to income after taxes and transfers, is well documented in France. However, to gain a comprehensive understanding of the redistributive impact of the tax and benefit system, it is crucial to also examine market income inequality, which refers to income before redistribution in the form of taxes, transfers, and benefits. Figure 3.1 plots the evolution of the Gini coefficient for market income from 2005 to 2019, focusing on the working-age population (ages 18-65) to increase comparability between countries with public pension schemes and those with obligatory private pension schemes¹. It shows that market income inequality for the working-age population has been relatively stable over the last 15 years, increasing by 3.5% from 2005 to 2019.

Figure 3.1. Income inequality before taxes and transfers, 2005 to 2019

France, Gini coefficient, market income (working-age population, 18-65)



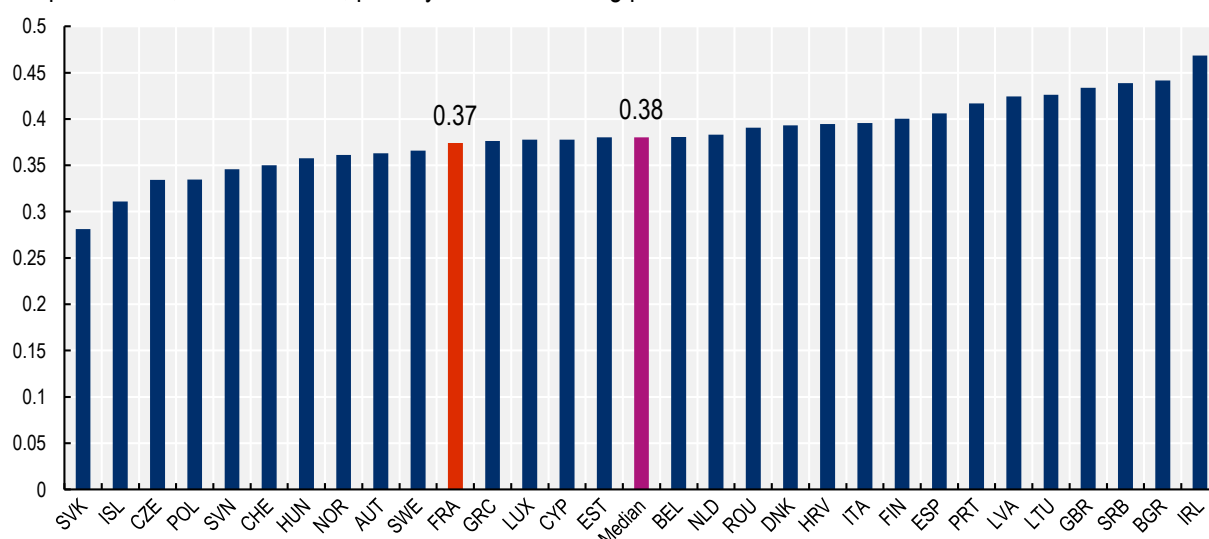
Note: Data for the working-age population (disregarding the effect of public pension schemes). Change in income definition in 2012.

Source: [OECD Income Distribution Database](#), data extracted on 22 June 2023.

By this metric, France is –after Bulgaria and Greece– the European Union (EU) member state with the highest level of market income inequality for the working-age population. However, it is worth noting that because France's retirement age is below 65 years old, some pensioners are included in its working-age population. Because public pensions are excluded from market incomes, French retirees will therefore have market incomes close to null, thus skewing the distribution of income. A 2020 study by France Stratégie showed that when reintegrating pension incomes, France -while less unequal- is still below the European median in terms of income equality before redistribution (see Figure 3.2 below) (Rousselon and Viennot, 2020_[1]).

Figure 3.2. Income inequality before redistribution, including pensions

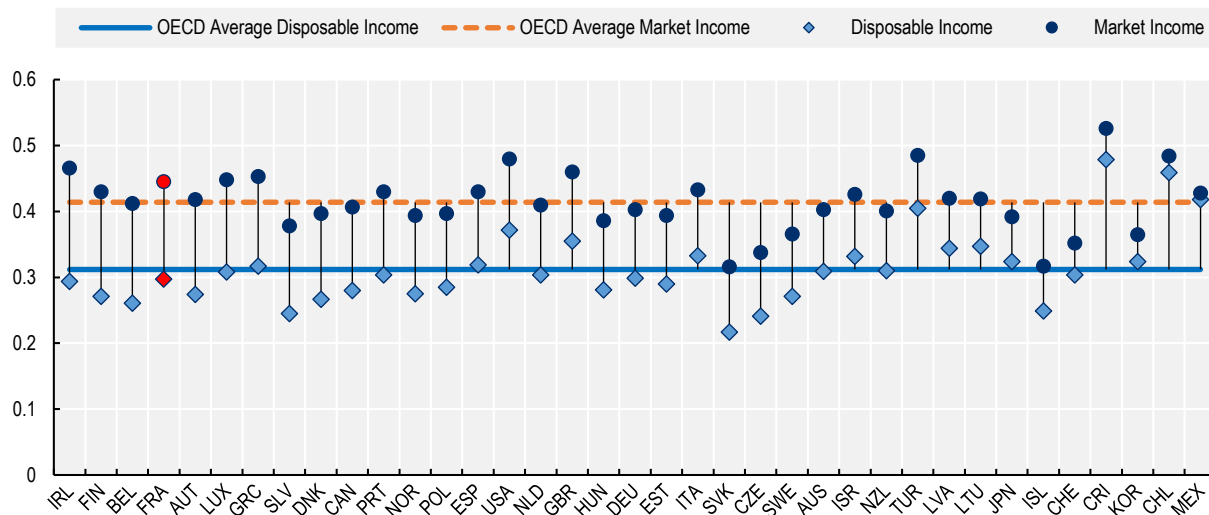
European Union, Gini coefficient, primary income including pensions

Source: Calculations by France Stratégie based on EU SILC data for 2017 income (Rousselon and Viennot, 2020^[1]).**3.1.2. Disposable income inequality**

In France, like in other countries, market income inequality is reduced through the system of taxes and benefits, which redistributes levies (taxes, social contributions, etc.) as social benefits (minimum social benefits “RSA”, family allowances, pensions, invalidity, and housing benefits, etc.) or public services (education, health, etc.). Figure 3.1 plots the Gini coefficient of OECD countries before and after taxes and benefits to show the redistributive power of each system; the graph focuses on the working-age population to exclude the effects of pensions.

Figure 3.3. Differences in household income inequality among the working-age population pre- and post-tax and government transfers, 2019

OECD, Gini coefficient, working-age population (18-65)



Note: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, and Iceland (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg. Earlier data for Chile, Estonia, Sweden and the United States are from 2013.

Source: [OECD Income Distribution Database](#), data extracted on 29 June 2023

As mentioned above, before taxes and benefits, income inequality is greater in France than the OECD average, with significantly higher market income inequality. However, the French system of taxes and benefits is one of the most redistributive in the OECD, reducing inequality by 32%. As a result, income inequality after taxes and benefits is close to the OECD average. For comparison, Ireland, Germany, Portugal, and the Netherlands all have a Gini coefficient close to France after taxes and transfers for their working-age populations. Again, it is important to recall methodological limitations: with a retirement age below 65 years old, some pensioners are included in the working-age population for France and will, therefore, negatively impacts the pre-distribution baseline.

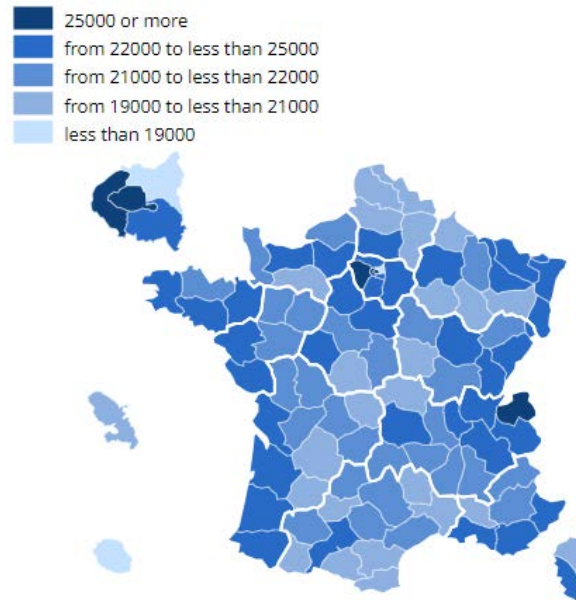
The system of taxes and benefits also mitigates inequalities in living standards. In France, the equivalised disposable income of the top 20% of the income distribution sees a reduction of 21% after redistribution, while the bottom 20% experiences a 61% increase (INSEE, 2022^[2]). As a result, the ratio between the two groups is reduced to 3.8. This reduction is even more important for the two extreme deciles of the income distribution. Before redistribution, the top 10% had an equivalised disposable income 19.6 times that of the bottom 10%. After redistribution, this ratio reduced significantly to 5.5 (INSEE, 2022^[2]).

3.1.3. Regional Inequality

Equivalised disposable income refers to a household's total income divided by the number of household members as equivalised adults. In metropolitan France, Martinique, the Reunion Island, half of the population had an equivalised disposable income of EUR 22 320 in 2020 (INSEE, 2023^[3]). This median figure, however, does not capture discrepancies across departments (i.e. subdivisions of administrative regions in France).

Figure 3.4. Median living standard by department in 2020

In EUR

Source: (INSEE, 2023^[3])

For instance, four departments enjoy a significantly higher median equivalised disposable income: Hauts-de-Seine (EUR 28 810), Paris (EUR 28 790), Yvelines (EUR 27 470), Haute-Savoie (EUR 27 030). On the low end of the distribution, we find the Seine-Saint-Denis department (EUR 18 470) and the overseas departments Martinique (EUR 19 200) and the Reunion (EUR 16 520) (INSEE, 2023^[3]). Within departments, inequalities are most pronounced in border regions and around large cities where privileged populations coexist with more vulnerable ones.

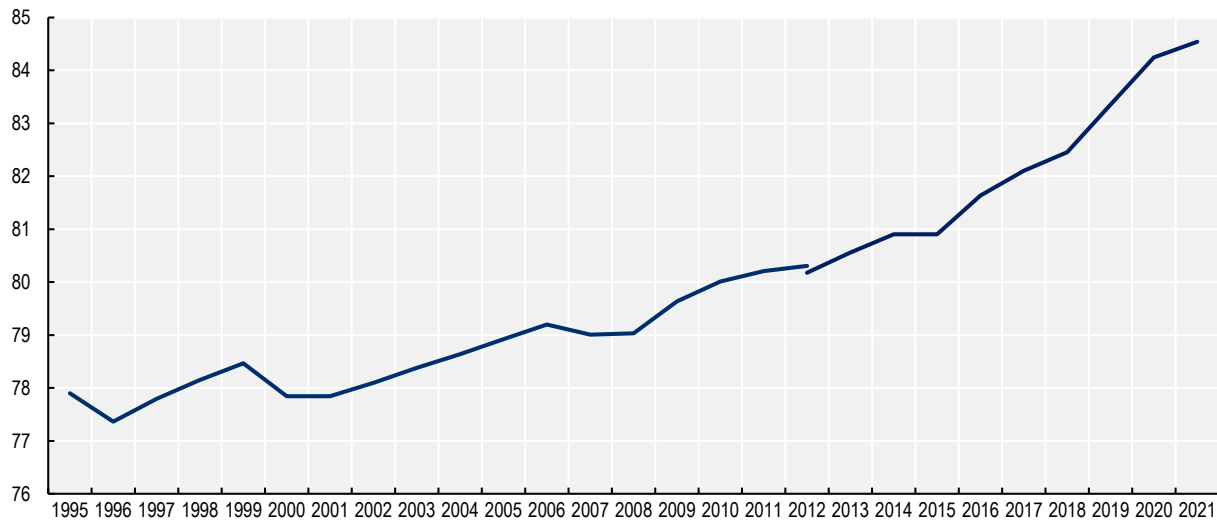
3.1.4. Gender income inequality

Wide income disparities also exist across genders. Among workers primarily employed in France's private sector, women earn, on average, 24.4% less than men in 2021 (INSEE, 2023^[4]). This disparity can be partly explained by the differences in the number of hours worked, which is due to (1) women being employed less than men over a year; and (2) women occupying part-time positions more frequently than men. Importantly, these situations can be a matter of choice or necessity. Given equal working hours, women still earn 15.5% less than men on average (INSEE, 2023^[4]).

As shown in Figure 3.5 below, the gender pay gap in France has been narrowing steadily over the past 25 years. Given equal hours, women earned 22.1% less than men in 1995, a gap which has now been reduced by 6.6 percentage points. This reduction is partly explained by changes in the distribution of jobs, with women occupying 37% of private sector managerial positions in 2021 as opposed to 23% in 1995 (INSEE, 2023^[4]).

Figure 3.5. The gender pay gap has been steadily decreasing over the past 25 years

France, ratio of women to men's annual wages in the private sector (as a percentage)



Note: change in income definition in 2012. Calculations for full-time equivalent wages in constant 2021 EUR.

Source: OECD calculations based on (INSEE, 2023^[4]).

Over the same period, the gender gap for the number of hours worked has also been reduced from 14.9% in 1995 to 10.6% in 2021. This gap widened in the mid-1990s and early 2000s with the rise of part-time work before shrinking in the next 15 years as women worked relatively more hours and men relatively fewer (INSEE, 2023^[4]). The gender gap in the number of hours worked has been relatively stable since 2015.

3.2. Budgeting frameworks related to inequality and well-being

Governments can mobilise budgetary tools and public expenditure to reduce income inequality. The use of public expenditure can include both direct public expenditure through the state or local government budgets, as well as a wide range of transfers and benefits, which are particularly developed in France. Beyond transfers and benefits, long-term inequalities can also be reduced through public expenditure in education, health, or infrastructure projects that benefit marginalised communities, such as building roads, schools, and hospitals or facilitating wider broadband access in underserved areas. While important, these are not necessarily subject to distributional impact analysis within public expenditure frameworks. A recent INSEE report consolidating expertise from a range of administrations and academic centres offered a comprehensive distributional analysis of economic accounts in France, proposing to develop a set of distributional accounts beyond the current national accounts framework and comparing the overall efficiency of the French tax and social transfer system in reducing inequality at various levels of income (INSEE, 2021^[5]).

Overall, the key to using government expenditure to reduce inequalities is to ensure that programmes, services and social benefits funded by the government benefit disadvantaged individuals and communities and that they are effective in addressing the specific needs and challenges faced by these groups. In other words, budgeting and public expenditure can be used as a means to achieve societal objectives. In practice, embedding equality and distributional considerations into the budget and public expenditure decision-making process requires detailed information on the likely impact of proposed and ongoing public expenditure decisions on different groups in society.

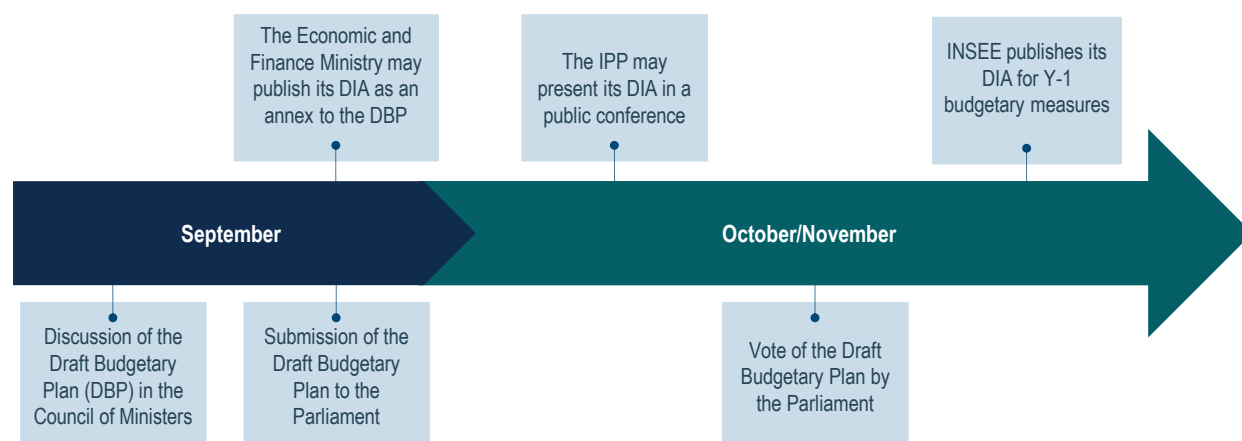
This section reviews the tools used to estimate and assess the distributional implications of budgetary decisions in France. It reviews the different actors that produce Distributional Impact Assessments (DIAs), the main tools they use, and how their findings can inform decision-making processes and budgetary allocations.

3.2.1. Integration of DIAs in the budget process

To maximise the impacts of Distributional Impact Assessments, their results must feed back into the policy and budget cycles. Distributional information can be used to address inequalities across different phases of the budget cycle, either *ex ante* during the preparation of the budget, and spending measures either in sectoral ministries or in the ministry of finance, or *ex post* once budgetary measures have been approved and are being implemented.

Today, several actors –including ministries, agencies and research organisations– regularly conduct and publish the results of Distributional Impact Assessments and other distributional analyses related to reforms in the French tax and benefit system (CAE, 2022^[6]). These institutions perform their analyses at different stages of the budget cycles, either on an *ex ante* or *ex post* basis (see Figure 3.6 below).

Figure 3.6. Integration of DIAs in the budget cycle



Source: French Treasury, adapted by the author.

Government ministries and agencies

- The **French Treasury (DG Trésor)** conducts Distributional Impact Assessments of the measures proposed in the Draft Budgetary Plan² (DBP) by government ministries and agencies. Prospective results are estimated for the upcoming budgetary year (Y+1) and beyond. The French Ministry of Finance may publish the DIA results in September alongside the presentation of the Draft Budgetary Plan. In such a case, the results are published in an annexe to the DBP, the Economic Social and Financial Report (RESF) (CAE, 2022^[6])
- The analytical branch of social Ministries (DREES) and one of the largest social funds (CNAF) conduct *ex post* assessments of measures included in the previous budget (Y-1). This assessment provides a more comprehensive assessment of the year's reforms, as changes may occur during the year through amendments, supplementary budgets, or budget reallocations (CAE, 2022^[6]).
- The National Statistical Office (INSEE) also publishes an *ex post* analysis of measures from the previous budgetary year in its annual "social outlook" ("Portrait Social"), where it offers an overview of inequalities and social trends in France (Ibid.).

Research institutes

- Two research institutions, the **Institute of Public Policies (IPP)** and the **French Economic Observatory (OFCE)**, also publish annual assessments of the redistributive impact of the reforms included in the current budget (Y), usually alongside a cumulative assessment covering a longer period. The IPP can also publish an *ex ante* assessment of the DBP in October before the parliament votes on the bill in November/December (CAE, 2022^[6]). These serve to inform the public debate. The IPP enjoys significant direct access to linked micro datasets, including through INSEE's CASD, which allows for detailed microsimulation results. Given the strength of its data, the IPP has developed expertise on some of the deeper distributional issues.

Scope of assessment

Whether they are *ex ante* or *ex post*, the assessments carried out by these institutions can also differ in the scope of their assessments. The IPP covers reforms to the tax and benefit system that have been voted by the sitting government and social partners during the assessment period (whether their implementation is immediate or not). Proposals voted prior to this assessment period are, therefore, not within the scope of the IPP's analysis (CAE, 2022^[6]).

On the other hand, the OFCE and French Treasury consider all the legislative proposals for a given year so long as they impact the public finances of that year and can be quantified (CAE, 2022^[6]). However, the Treasury and OFCE do not generally consider reform by social partners. The OFCE considers only voted legislation, while the Treasury also assesses budget proposals that have not yet been voted on. As previously mentioned, INSEE publishes in the fall (Y+1) an *ex post* review of policies related to redistribution in its wider "Social Outlook" publication on economic, social, and cultural issues.

3.2.2. Enabling environment

The development and implementation of tools and practices for the systematic consideration of inequalities in the budget process require well-designed expenditure frameworks and institutional arrangements that define clear roles and responsibilities. Key elements for an effective framework include a national strategy with measurable goals and targets; a legal or policy framework; supporting operational guidance and tools; mechanisms for cross-governmental co-ordination. This section reviews the practices in place in France to ensure the consideration of inequality and its implications in the budgetary process.

Integration of distributional considerations in budgetary processes

France is one of eight Euro Area member states that occasionally included DIAs in their Draft Budgetary Plans (DBPs) between 2015 and 2020, along with Austria, Estonia, Finland, Greece, Lithuania, Latvia and Malta (Bazoli et al., 2022^[7]). As shown in Table 3.1 below, France included DIAs in three out of its last six DBPs. Over this period, only two countries consistently included at least one DIA in their DBP: Ireland and the Netherlands (see the other case studies in this report). In France, the organic law on finance laws does not mandate that distributional analyses be annexed to the draft budgetary plan (i.e. PLF in France). Such analyses are included on an ad hoc basis in the Economic, Social and Financial Report (RESF) annexed to the DBP at the request of the political leadership. However, the 13 April 2015 law made provision for the publication of new wealth indicators in policymaking and evaluation (Légifrance, 2021^[8]).

Table 3.1. Use of Distributional Impact Assessments in budgetary processes in France, 2018-23

DBP year	2018	2019	2020	2021	2022	2023
Was at least one DIA included in the annexe to the DBP (RESF)?	Yes (p.74)	No	Yes (p.24)	No	Yes (p.42)	No

Source: author's review of France's DBPs, (DG Trésor, 2017^[9]), (DG Trésor, 2018^[10]), (DG Trésor, 2019^[11]), (DG Trésor, 2020^[12]), (DG Trésor, 2021^[13]), (DG Trésor, 2022^[14])

The number of budgetary measures covered in a DIA also varies across countries. In 2018, France performed a first joint DIA covering a wide range of budgetary measures. In 2020, France's DIA considered 21 budgetary measures over five policy areas: (1) welfare and social inclusion, (2) employment and welfare, (3) family support, (4) health, and (5) energy efficiency (Ibid.). Making France and Finland the only two countries in the Euro Area that include environment and energy-related policies in their DIAs (Bazoli et al., 2022^[7]). In France, as in Estonia and Malta, the policies to be considered for DIA are chosen based on their relative economic importance (Ibid.).

DIAs included in the DBP are conducted by economists working at the French Treasury, which offers on-the-job training on the use of its microsimulation model. An inter-administrative working group was established between 2012 and 2017 to facilitate the sharing of models and methods used in microsimulations underpinning DIA and to compare results in light of methodological differences (CAE, 2022^[6]).

3.3. Tools for assessing the distributional impacts of budget decisions

In addition to a robust framework and an enabling environment, systematically embedding considerations related to equality in budgeting and spending decisions also requires supporting guidelines and operational tools. Different tools can be used to assess the distributional impacts of changes in policies and new spending measures. This section reviews the tools used to conduct Distributional Impact Assessments in France, as well as the different actors that use these tools to inform budgetary decisions.

3.3.1. The different actors and their tools

Tax-benefit microsimulation models are widely used to assess the distributional impacts of public spending measures in France. These models use micro-level data on individual characteristics, income and spending to simulate the effects of policy changes across different groups in the population. While these models are primarily aimed at informing the design and implementation of tax and benefit policies, they can also be used to inform budgetary allocations.

In France, three main models are used to assess the distributional impacts of policies; each is owned by different institutions and has its own strengths and weaknesses.

1. **INES** is jointly developed by the National Statistics Institute (INSEE), the analytical branch of the social ministries (DREES) and the largest social fund (CNAF).
2. **SAPHIR** has been developed and maintained by the French Treasury (DG Trésor) since 2008.
3. **TAXIPP** has been developed and owned by the Institute of Public Policy (IPP) since 2012.

Access to all three models is open to external users. TAXIPP has been public since its inception in 2012, whereas access to INES was made public in 2016, and the source code of SAPHIR was made public in 2018, following a request by the Commission for Access to Administrative Documents (DACA). Unlike models used in other countries, none of the models used in France relies on the EU's EUROMOD model, as its only advantage over the aforementioned models is comparability with other EU member states, which is not a key

concern for France (Bazoli et al., 2022^[7]). As is the case in Ireland, Finland and Greece, the data used for DIA in France can be easily accessed by registered people such as researchers (Bazoli et al., 2022^[7]).

Despite their differences, all these models require comprehensive data on households and individuals to estimate the effects of proposed policies on different population groups. Demographic characteristics and detailed information related to income and expenditure can be collected from surveys or administrative sources. These sources are used to build samples representative of the population that serves as the foundation for accurate and reliable results. Survey sources generally include household or individual-level surveys, such as labour force surveys (SILC in the EU), income and expenditure surveys, and other issue-specific surveys. As for sources of administrative microdata, they typically include tax records or social security databases. Administrative data can be used in conjunction with survey data (e.g. through matching and data validation) or on its own. This section reviews the main features of the different tax-benefit microsimulation models used in France and their respective data sources.

INES

Initially introduced by INSEE in 1996, Ines is now jointly developed by INSEE, the DREES and the CNAF. The model relies on data from INSEE's Tax and Social Income Survey (ERFS³), which provides detailed information on each one of the 50 000 households included in the sample. This data is also matched with tax returns to obtain precise and reliable information on income (Fredon and Sicsic, 2020^[15]).

In total, INES can leverage over 1 000 data points per household to simulate the various benefits to which they are entitled and the taxes they will pay. Thanks to a large representative sample of metropolitan France, INES can capture the diversity and complexity of real-life cases.

INES is developed in the SAS programming language and can be adjusted to simulate simple reforms (e.g. increases in minimum benefits) and complex ones (e.g. individual tax rates). For each household in the sample, the model can estimate the effect of a reform on taxes, benefits and living standards. It can also be used to determine who would be the winners and losers of a specific reform, albeit not accounting for behavioural changes. The model is updated every summer in order to estimate the impact of legislation from the previous year. For example, Ines will be updated in the summer of 2023 to estimate legislation from 2022.

The INSEE uses INES for its annual Social Outlook (*Portrait Social*), an *ex post* assessment of the redistributive effects of social and fiscal measures. Among other uses, INSEE uses INES to estimate real-time or near-real-time economic indicators (nowcasting) and to estimate net social expenditure for Eurostat and the OECD. INES can also be leveraged in the context of in-depth analysis to inform social and economic debates related to income redistribution, taxation or social protection. These analyses can require the development of additional modules that cover a wider range of transfers (DREES, 2020^[16]).

SAPHIR

Like the INES model, the SAPHIR model also relies on the Tax and Social Income Survey (ERFS) dataset. The model is designed to be representative of the year in which budgetary measures will be implemented in terms of demography, legislation, unemployment and income levels. Because the model can simulate a counterfactual with no changes to the French tax and benefit system, it can be used to conduct a prospective analysis of the upcoming measures included in the draft budgetary plan (Amoureux, Benoteau and Naouas, 2018^[17]). By simulating the tax and benefit legislation in place at a given point in time, SAPHIR can estimate the impact of a policy change on each household's revenues and taxes. The redistributive effects of budgetary measures can be computed for living standards and other common indicators of inequality and poverty (e.g. household's gains and/or losses per living standard decile). However, integrating dynamic supply side or labour market effects of benefits is difficult for data that are to be integrated by the Ministry of Finance in its Economic, Social and Financial Report submitted together with

the budget (Ministère de l'Economie et des Finances, France, 2020^[18]). The 2020 RESF report cited an analysis by the OECD to outline some of these labour market effects.

The French Treasury uses SAPHIR to assess the redistributive effects of measures in the DPB. When they are published, the results are annexed to the DPB, which is made public in September. SAPHIR is also used for specific policy issues. For example, the minimum wage (SMIC) working group uses the model to prepare its annual report. Finally, SAPHIR is a static model that does not account for households' behavioural changes that could induce changes to the tax and benefit system, such as the decision to participate in the labour market or not.

TAXIPP

TAXIPP is developed by the Institute of Public Policies (IPP) and benefits from the expertise of the Paris School of Economics (PSE). Unlike the INES and SAPHIR models, which rely on both survey and administrative sources, TAXIPP relies solely on administrative data (IPP, 2023^[19]). TAXIPP uses a demographic file on housing and individuals (FIDELI) as its main data source. This data is then statistically matched with FELIN, a sample of 500 000 households from income tax data with exhaustive representation of the top 0.4% of earners (Bozio, Guillot and Lafféter, 2015^[20]). The IPP also “ages” its data to conduct its assessments. The current version of TAXIPP (2.2) is underpinned by the following administrative sources:

- The FIDELI database collects comprehensive income data from income tax, housing tax and property tax files.
- The FELIN database contains detailed information on the income tax returns of 500 000 households, including an exhaustive representation of top incomes.
- The DADS database contains employee-related information provided by employers.
- The BNS database contains information on self-employed persons.

TAXIPP is used for academic research and –of particular interest to this case study– to evaluate budgetary proposals. Every year, the IPP and the Center for Economic Research and Application (CEPREMAP) use TAXIPP to evaluate reform proposals to the French tax and benefit system. This annual evaluation exercise informs the public debate around the Draft Budgetary Plan (Bozio, Guillot and Lafféter, 2015^[20]).

Static models

All three models are static models that do not account for possible behavioural changes resulting from policy changes. Instead, they focus on the mechanical effect of such change in terms of redistribution. That is, these models work under the assumption that, except for the reform itself, other factors will remain constant. However, in some cases, the reform itself may cause changes in behaviour. For example, widening the eligibility criteria of social benefits may not mechanically result in more recipients if newly eligible beneficiaries are not aware of this change or do not complete the necessary procedures.

3.3.2. Comparability of results

For each model, the results of the microsimulation will depend on the counterfactual against which the policy change is estimated. Since the Treasury, INSEE and OFCE all use models underpinned by the same ERFS dataset, their results should be relatively close – this is generally found to be the case with differences within 2% (CAE, 2022^[6]). The IPP, however, uses a wider database that also includes data on French overseas territories and non-ordinary households (e.g. mobile and community housing). As a result, the average living standards calculated by the IPP are lower, particularly for the lower end of the distribution. Still, and as noted by the CAE, it is quite remarkable that despite this variety of actors and tools, DIA results generally tend to converge. Some notable exceptions include ad hoc analyses that

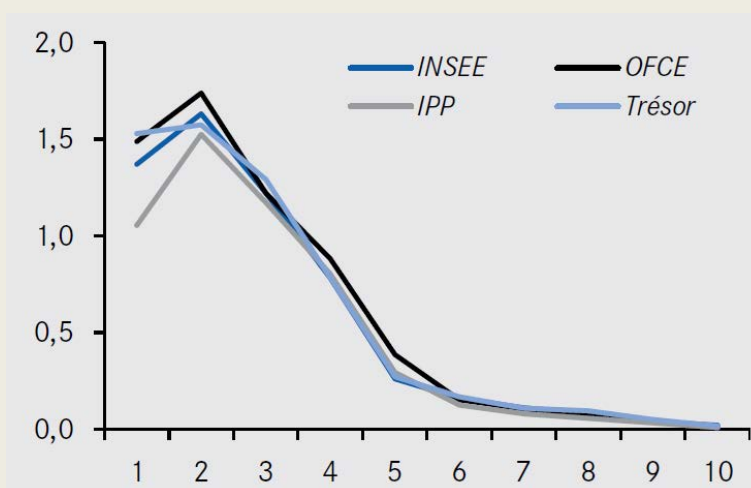
account for behavioural changes or leverage additional sources to complement their main databases (CAE, 2022^[6]).

Box 3.1. Exceptional extension of the activity allowance in 2019

All three models were part of an exercise to estimate the effect of a 2019 policy change to the activity allowance ('prime d'activité'). The changes were two-fold: (1) a EUR 90 increase in the maximum individual allowance (from EUR 70.49 to EUR 160.49); and (2) widened eligibility. The goal of this exercise was to compare the convergence (or divergence) of results among the different. In this particular example, the Treasury, INSEE and OFCE all have similar results for ordinary households, albeit somewhat higher for the OFCE, with 4 billion compared to 3.7 billion for the INSEE and Treasury (CAE, 2022^[6]). As for the IPP, one would expect greater impact among the lower end of the distribution as a result of the wider sample coverage, and thus a greater overall impact as well. However, the total budgetary cost estimated by the IPP is lower. In its review of the different models, the Council of Economic Analysis (CAE) suggests that this discrepancy be further investigated.

Figure 3.7. Extension of the activity allowance

Impact on living standards, %

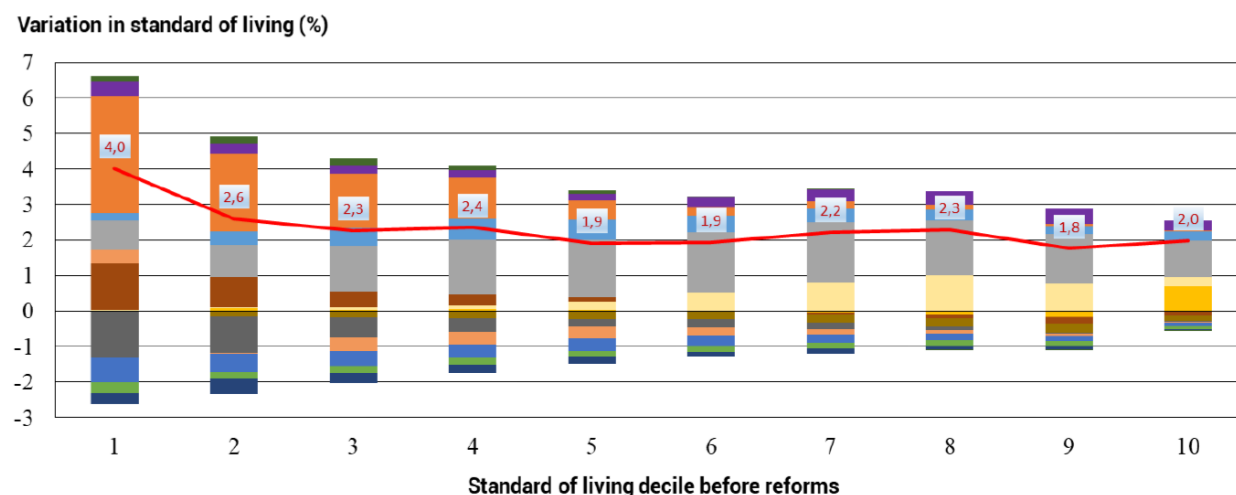


Source: INSEE, OFCE, French Treasury and CAE via (CAE, 2022^[6])

3.3.3. Disaggregation of results

As shown in the figure below from the Economic, Social and Financial Report for 2020, DIA results annexed to the DBP are disaggregated by living standard deciles. In its technical note, the Council of Economic Analysis suggested that the distributional impact of policy changes also be examined by household and individual characteristics (CAE, 2022^[6]). While this is possible for some individual characteristics such as gender and age, public administrations in France do not collect information on race, therefore preventing such disaggregation of the results in the future.

Figure 3.8. The distributional impact of measures implemented in the 2017-2022 term

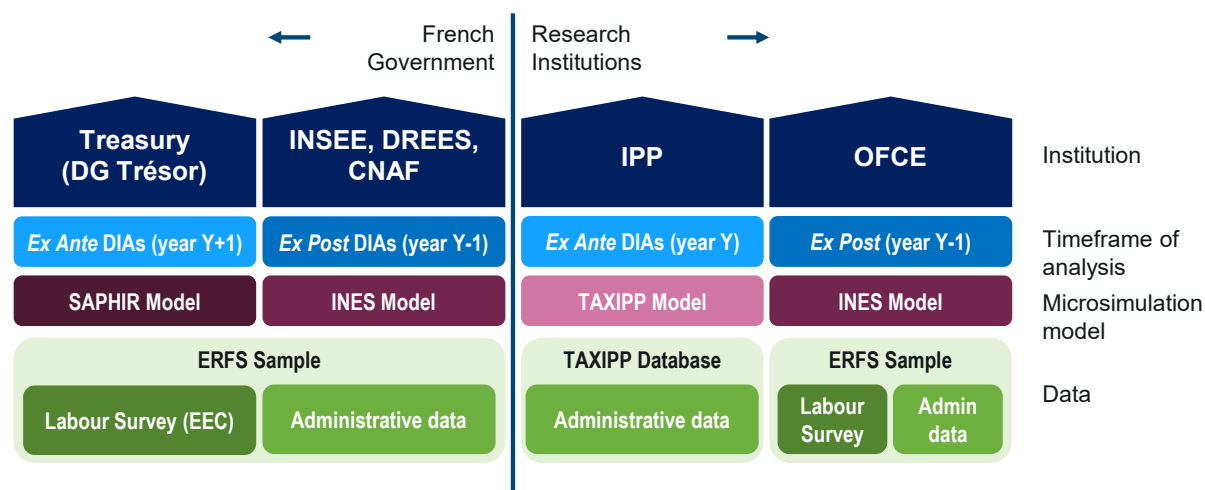


Source: (DG Trésor, 2021^[13])

3.4. Data and information infrastructure

Figure 3.9 provides an overview of the different data sources used by tax-benefit microsimulation models in France. Through the ERFs dataset, SAPHIR and TAXIPP both rely on a combination of survey and administrative sources, whereas TAXIPP relies on administrative data alone. The next section delves deeper into the implications of these different data sources on the precision and reliability of results.

Figure 3.9. DIA actors and tools in France



Source: author

Tax-benefit micro-simulation models use a variety of data sources to model the effects of ongoing and proposed policies on individuals and households. These sources can include administrative data from government agencies, self-reported data from household surveys, and other sources of economic and social data. The specific data sources used in a particular model may vary depending on the goals and objectives of the model and the information needed to achieve them. Overall, the goal of using these data sources is to provide a detailed and accurate picture of the target population and how it would be affected by a change in policy.

An essential element of introducing distributional consideration in budgeting processes is the availability of representative data. The population coverage of the sample on which a model relies is also key in ensuring its representativeness. However, as noted previously, the data sources used to conduct DIAs in France vary across models. The results from microsimulations, therefore, need to be compared in light of these methodological differences.

3.4.1. Tax and Social Income Survey (ERFS)

The INES and SAPHIR models are both underpinned by the ERFS dataset, which contains information on approximately 50 000 households. This dataset is based on survey data from the French labour force survey and administrative data from tax and social registries. The ERFS dataset is compiled every three years by the national statistics institute (INSEE) based on information collected as part of the fourth quarter of the wider labour force survey administered annually by the INSEE. In France, the labour force survey - as defined at the European level- is known as the Continuous Employment Survey (EEC). This survey targets a representative sample of households in metropolitan France, therefore excluding people living in overseas territories, mobile housing, community dwellings and homeless people.

Income-related data from the continuous employment survey (EEC) is self-reported and can therefore contain false, misreported, or missing information. To mitigate this problem, income data from the ECC is matched with administrative data from tax and social registers. As a result, the ERFS sample of a given year Y relies on the following:

- **The fourth quarter of the ECC of year Y**, which contains self-reported data at the individual level, such as the professional situation of household members over 15 years old.
- **Tax records** from the Public Finance Directorate (DGFIP), which contains exhaustive information from tax returns for the year Y+1 based on income received in year Y. This excludes all reported incomes and housing taxes paid.
- **Social benefit registries** from the National Family Allowance Fund (CNAF), Agricultural Social Mutual organisation (MSA), and the National Old-Age Insurance Fund (CNAV), which contain information on benefits received in year Y.

Both INES and SAPHIR rely on data from the ERFS sample. When assessing policy proposals for the upcoming year (N+1), the most recent ERFS data is for the year Y-3. To mitigate this limitation, each institution “ages” its data, meaning that observations are reweighted to account for demographic changes or changes in unemployment levels. The French Treasury and OFCE, because they conduct *ex ante* analyses, both age their data over four years. Whereas INSEE, because it conducts *ex post* analyses, only ages its data over two years (CAE, 2022^[6]).

3.4.2. Data and precision of results

Because TAXIPP relies on a larger data set with 500 000 households compared to 50 000 for INES and SAPHIR, it can also achieve a finer level of granularity. TAXIPP allows for analysis at the percentile level while, on the other hand, it may be difficult to precisely measure differences in income for the top 5% or even the top 10% of households with SAPHIR and INES (CAE, 2022^[6]).

Table 3.2. Comparing tax-benefit microsimulation models in France

	SAPHIR	INES	TAXIPP
Owner	French Treasury	INSEE, DREES, CNAF	IPP
Additional users		OFCE	
Creation	2008	1996	2012
Sample size	50 000 households	50 000 households	500 000 households
Population covered by the sample	63.5 million	63.5 million	67 million
Data source	Survey and administrative data	Survey and administrative data	Administrative data
Precision	Decile	Decile ¹	Percentile (except for the first 5%) ²

1. INSEE statistics from the ERFS survey are usually broken down by ventiles, while DIA results are usually broken down by decile.

2. Due to the inherent complexity of measuring living standards at the lower end of the income distribution.

Source: author based on (CAE, 2022^[6]) and interviews.

As highlighted in Table 3.2 above, the field of distributional analysis in France comprises various actors and tools. This diversity allows for the transparent comparison of results, which can enhance the credibility of the public debate. As discussed previously, DIA results from different actors are found to be generally convergent. Still, there is a need to resolve methodological differences that can impact the comparability of results (such as data sources and the choice of counterfactual) as well as the scope of the analysis (i.e., specific measures or entire budgetary package). Such exchanges among different modellers can also drive improvements to their respective models and enable the pooling of effort, particularly regarding access to data (CAE, 2022^[6]). In a 2022 technical note, France's Council of Economic Analysis (CAE) made recommendations to further improve the comparability and transparency of results, which included using a common structure to present key results.

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Notes

¹ Market income data from the OECD excludes public pension schemes but includes obligatory private pension schemes.

² In France, the finance bill (PLF) and the social security financing bill (PLFSS) constitute together the draft budgetary plan (DPB).

³ Enquêtes Revenus fiscaux et sociaux (EFRS).

4

The case of Ireland

Ireland benefits from a strong and high-level commitment to integrate equality and its different dimensions into budgetary processes. These efforts are articulated under the “Equality Budgeting” initiative, which has been progressively implemented across the government since 2018. As part of this initiative and the country’s wider performance framework, the distributional impacts of budgetary and welfare measures are analysed to inform budgetary decisions. Government departments are also responsible for setting equality-related goals and relevant performance targets. An advisory group steers the development of the initiative, while the technical capacity to support its implementation is provided by an interdepartmental network of experts. Distributional analyses are underpinned by Ireland’s tax-benefit microsimulation model, which is developed and maintained independently. Overall, Ireland’s case therefore provides an example of a robust institutional framework for the routine consideration of equality in the budget cycle.

4.1. A review of recent trends in income inequality in Ireland

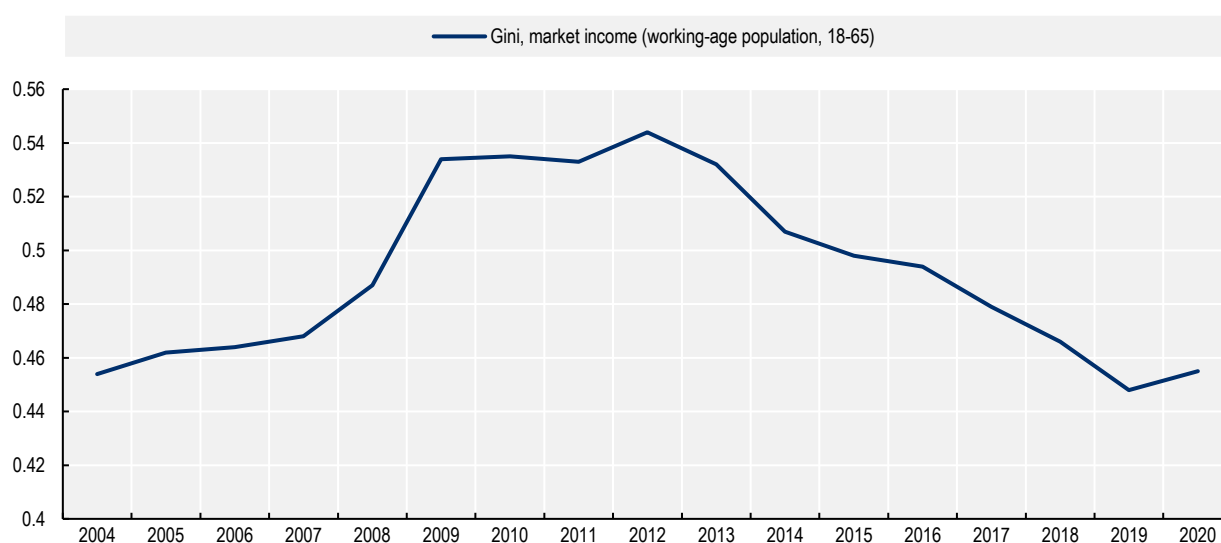
4.1.1. Market income inequality

As a small and open economy, Ireland tends to have a relatively high level of income inequality before redistribution in the form of taxes, transfers, and benefits; this is known as market income inequality. In 2019, Ireland was among the EU member states with the highest level of market income inequality for the working-age population, after Greece, Bulgaria, and Luxembourg (OECD, 2023^[1]).

Figure 4.1 plots the evolution of the Gini coefficient for market income from 2004 to 2020, focusing on the working-age population (ages 18-65) to increase comparability between countries with public pension schemes and those with obligatory private pension schemes.¹ It shows that market income inequality rose in the years following the Great Recession, with the Gini coefficient for the working-age population rising from 0.468 in 2007 to 0.535 in 2010 (OECD, 2023^[1]). These trends and previous research highlight the importance of changes in the employment level and the related evolution of income inequality in Ireland, both in terms of market and disposable incomes (ESRI, 2021^[2]; Callan et al., 1998^[3]; Barrett, Callan and Nolan, 1999^[4]).

Figure 4.1. Income inequality before taxes and transfers, 2004 to 2020

Ireland, Gini coefficient, market income (working-age population, 18-65)

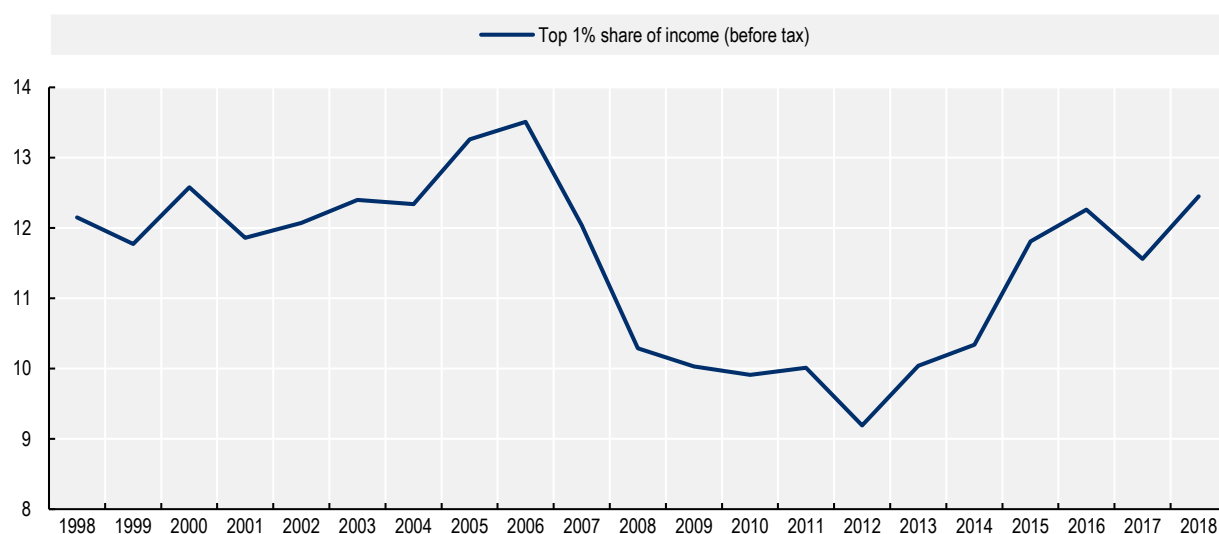


Note: data for the working-age population (disregarding the effect of public pension schemes) and based on the 2012 new income definition
Source: [OECD Income Distribution Database](#), data extracted on 09 Jun 2023.

Figure 4.2 plots the top 1% share of total income from 1998 to 2018. Around the Great Recession, from 2007 to 2010, the top 1% share of income fell from 12.04% to 9.91%. Importantly, income levels at the higher end of the income distribution may be underestimated as household surveys are not well suited to capture the incomes of the top 1% of households (Callan, Doorley and McTague, 2020^[5]; Burkhauser et al., 2017^[6]). However, tax returns can provide an alternative source of data for those on top incomes. Research by the OECD and Ireland's Revenue Commissioners, which relied on tax records microdata, shows a similar trend, with the top 1% share of gross income falling from 12.4% in 2006 to 9.8% in 2012, before rising to 11.3% in 2015 (Office of the Revenue Commissioners, OECD and IGEES, 2018^[7]).

Figure 4.2. Income share of the top 1% before tax, 1998 to 2018

Ireland, top 1% share of total income



Note: Income is measured before the payment of taxes and non-pension benefits, but after the payment of public and private pensions.

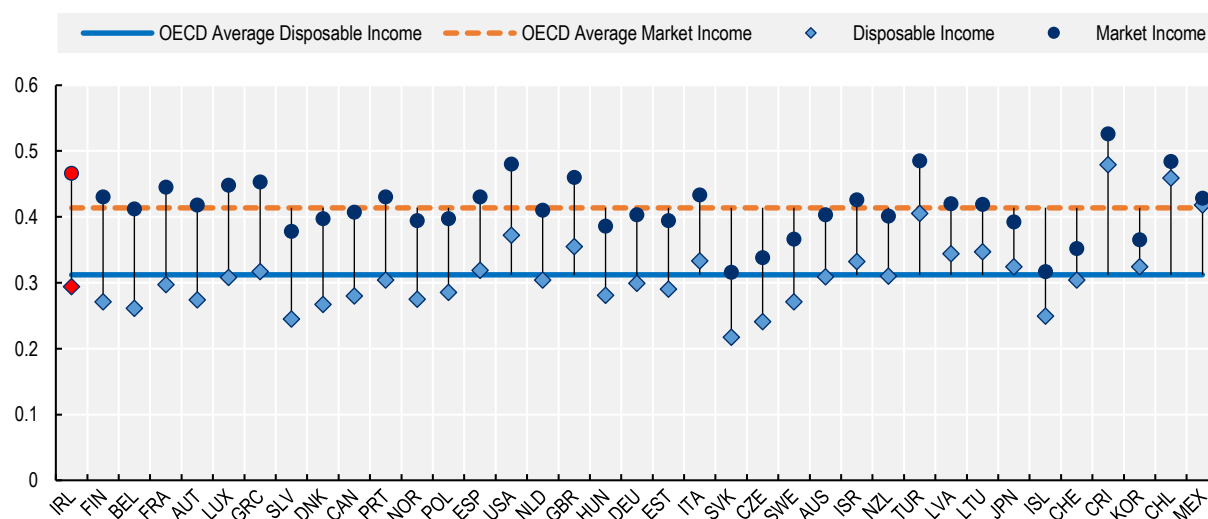
Source: [World Inequality Database](https://wid.world/) (WID.world), data extracted on 09 June 2023

4.1.2. Disposable income inequality

In Ireland, like in other countries, market income inequality is reduced through the system of taxes and benefits, which redistributes levies (e.g. taxes, social insurance contributions, etc.) as social benefits (e.g. basic supplementary welfare allowance, child benefit, pensions, etc.) or public services (e.g. education, health, etc.). Disposable income refers to income measured after direct taxes, transfers and benefits. The difference between market income and disposable income, therefore, reflects the distributiveness of a country's taxation and benefits system.

Figure 4.3. Differences in household income inequality among the working-age population pre- and post-tax and government transfers, 2019

OECD, Gini coefficient, working-age population (18-65)



Note: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, and Iceland (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg. Earlier data for Chile, Estonia, Sweden and the United States are from 2013.

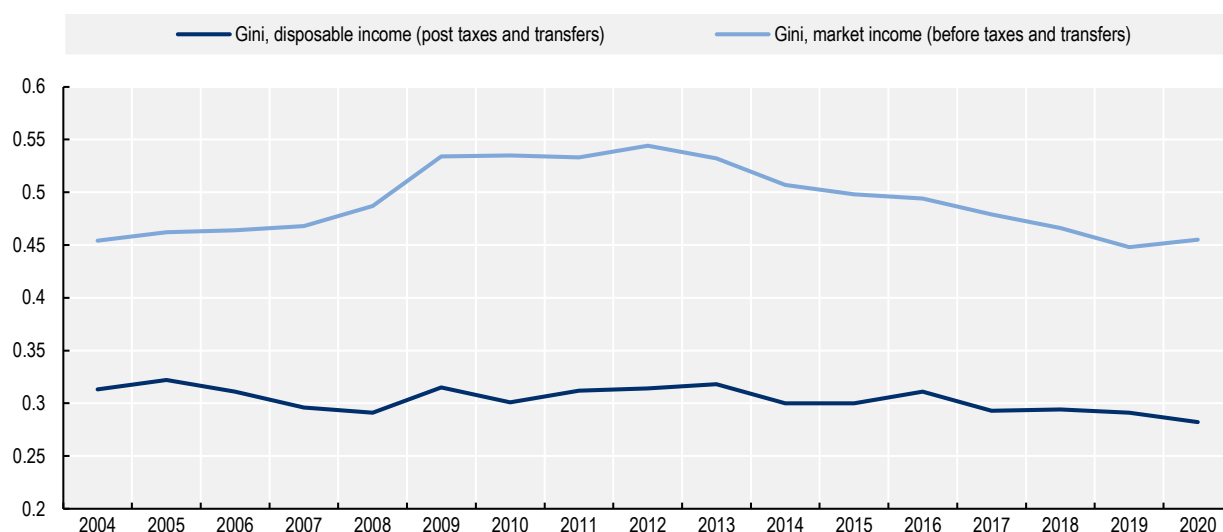
Source: [OECD Income Distribution Database](#), data extracted on 29 June 2023

Figure 3.3 plots the Gini coefficient of OECD countries before and after taxes and benefits to show the redistributive power of each system; the graph focuses on the working-age population to exclude the effects of pensions. Before taxes and benefits, income inequality for the working-age population in Ireland is among the highest in the EU. However, for the working-age population, the Irish system of taxes and benefits is also the most redistributive in the OECD. As shown above, the Irish system of taxation and benefit does more to reduce income inequality for the working-age population than in any other OECD member country. As a result, disposable income inequality in Ireland is close to the EU average after taxes and social transfers. For the whole population, Ireland still has one of the most redistributive systems of taxes and transfers, with only Finland, France, Belgium and Austria having more redistributive tax and welfare systems in 2019 (OECD, 2023^[11]).

Figure 4.4 plots the evolution of the Gini coefficient for household disposable income for the working-age population in Ireland from 2004 to 2020. Despite some upheavals, notably around the Great Recession, the trend is broadly stable over the period. Disposable income inequality increased following the Great Recession, with unemployment rising from 5% to 15% and Gini coefficients rising from 0.291 in 2008 to 0.318 in 2013 (ESRI, 2018^[8]).

Figure 4.4. Income inequality after and before tax, 2004 to 2020

Ireland, Gini coefficient, working-age population



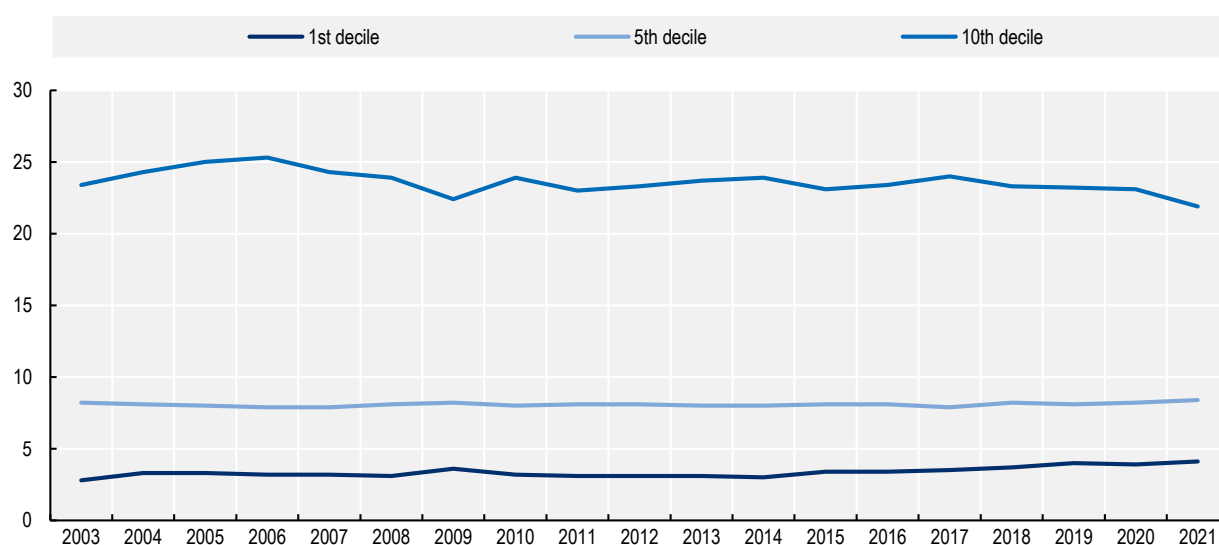
Note: data for the working-age population (disregarding the effect of public pension schemes) and based on the 2012 new income definition.

Source: [OECD Income Distribution Database](#), data extracted on 09 Jun 2023

Overall, Ireland has experienced strong and progressive income growth over the last 30 years (ESRI, 2021^[2]). While real income growth has taken place at all levels of the income distribution, it has grown relatively faster for the bottom half than the top half of the income distribution. Figure 4.5 plots the share of disposable income for the 1st, 5th, and 10th deciles from 2003 to 2021. It shows that growth was also stronger, on average, for the bottom decile of the distribution than the top decile, with 2.4% and -0.3% respective growth rates over the period. As a result of faster real growth at the bottom half of the income distribution from 2003 to 2021, disposable income inequality has fallen progressively over this period.

Figure 4.5. Decile shares of disposable income

Ireland, 2003-2021



Source: (Roantree, Barrett and Redmond, 2022^[9])

This strong and inclusive growth in disposable income has continued despite the rise of the unemployment level during the COVID-19 pandemic. From 2019 to 2021, income grew on average by 4% each year for the bottom half of the disposable income distribution. This continued growth suggests that the measures taken to absorb the negative impact of the pandemic on market incomes, such as the Pandemic Unemployment Payment (PUP), did in fact cushion the blow to disposable incomes, especially around the middle of the income distribution (Roantree, Barrett and Redmond, 2022^[9]).

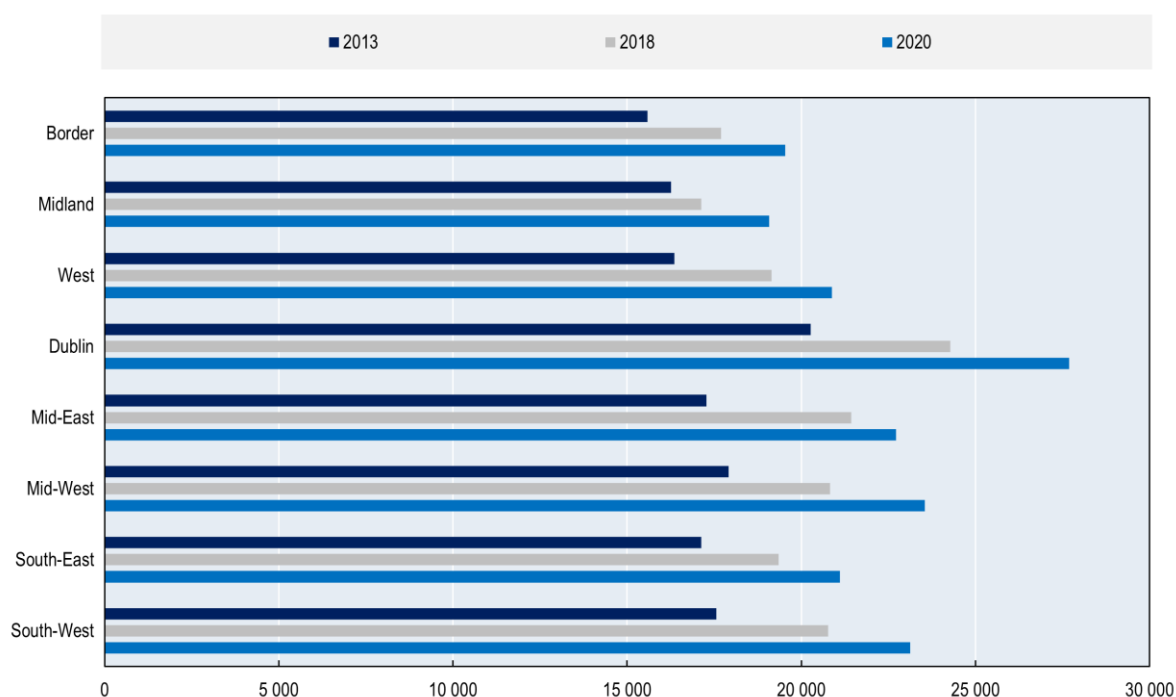
4.1.3. Regional inequality

Regional disparities in Ireland widened during the last decade. The shift toward high-value-added sectors contributed to the change in the geographic distribution of the country's economic activity. Dublin and Cork, the two largest cities, have experienced much faster growth than many other parts of Ireland since 2010. (OECD, 2022^[10]). Employment is also heavily concentrated around Dublin and Cork, with 35% of all employees working in Dublin City and County and 12% of employees working in the Cork City and County. Both counties are outliers compared to the rest of the country. Galway City and County, the third largest county in terms of employed persons only accounted for 6% of employees, Limerick for 5% and Waterford for 2.5% (CSO, 2023^[11]).

In most small regions, disposable income per capita moved further away from the national average between 2018 and 2020 (see Figure 4.6). The Dublin region, comprised of Dublin City and county, had the highest average disposable income per capita in 2020 (CSO, 2023^[11]). On the other hand, disposable income per capita was at least 10% below the national average in the South East, West, Midland and Border regions (see Figure 4.6).

Figure 4.6. Regional income inequality increased during the last decade

Ireland, disposable income per person, percentage deviation from the national average by small regions



Data source: (CSO Ireland, 2023^[12]), "[County Incomes and Regional GDP 2020](#)", data extracted on 09 Jun 2023

4.2. Budgeting frameworks related to inequality and well-being

Government can mobilise budgeting tools and public expenditure to reduce income inequality through various channels. Beyond the redistribution of tax revenues, governments can also use their budgets to fund programmes that provide direct assistance to low-income individuals and families, such as food stamps, housing assistance, and cash transfers. Governments can also invest in free education, training and job placement programmes that help individuals from disadvantaged backgrounds gain skills and knowledge to succeed in the workforce. Similarly, investments can be made in infrastructure projects that benefit marginalised communities; this includes building roads, schools and hospitals in underserved areas.

Overall, the key to using government expenditure to reduce inequalities is to ensure that programmes and services funded by the government benefit disadvantaged individuals and communities and that they are effective in addressing the specific needs and challenges faced by these groups. In other words, budgeting can be used as a means to achieve societal objectives.

The systematic consideration of distributional impacts in the budget process is not an entirely new concept in Ireland. “Equality Budgeting” has been high on the political agenda following developments such as the constitutional referendum on same-sex marriage and the Citizen’s Assembly on gender equality. In the 2016 Programme for a Partnership Government, the Irish Government made an explicit commitment to “develop the process of budget and policy proofing as a means of advancing equality, reducing poverty and strengthening economic and social rights”. Additional commitments to equality proofing were made in the current Programme for Government, which also introduced a broader perspective on well-being.

Ireland has made substantial progress around Equality Budgeting since it was first piloted in 2018. This section reviews the established practices to facilitate the consideration of the likely equality impacts of proposed and ongoing budgetary measures.

4.2.1. Equality Budgeting initiative

Equality Budgeting was introduced as a pilot programme for the 2018 budgetary cycle and expanded in subsequent years. It is a cross-government commitment that builds on Ireland’s performance budgeting framework by encouraging departments to identify programmes and set performance targets related to inequality.

In 2019, the OECD completed a Scan of Equality Budgeting in Ireland at the request of the Department of Public Expenditure, NDP Delivery and Reform (DPENDR) and in liaison with the Department of Justice and Equality. The report was published alongside the 2020 Budget, providing 12 recommendations to support the further expansion of Ireland’s Equality Budgeting efforts. As the implementation of these recommendations continues, guided by an ambitious roadmap, a progress update on the implementation of Equality Budgeting is included in Ireland’s annual Public Service Performance reports published by DPENDR. According to the last Public Service Performance report, all 18 government departments now report equality budgeting metrics, with some departments reporting progress on multiple high-level goals (DPER, 2022^[13]).

The equality budgeting initiative is also informed by the Equality Budgeting Experts Advisory Group, which is comprised of experts from academia, civil society, government departments and agencies. In March 2021, the Irish Government defined several priorities to take Equality Budgeting further, including the establishment of an Interdepartmental Network for Equality Budgeting. Along with the Expert Advisory Group that advises on the direction of Equality Budgeting in Ireland, the Interdepartmental Network helps build capacity within government departments and share information.

Enabling environment

The development and implementation of Equality Budgeting require well-designed expenditure frameworks and institutional arrangements that define clear roles and responsibilities. Key elements for an effective Equality Budgeting framework include a national policy framework for Equality Budgeting, supporting operational guidance and tools, and mechanisms for cross-governmental co-ordination. As shown in Table 4.1, all of these strategic elements are currently in place to support Equality Budgeting in Ireland.

Table 4.1. Overview of the strategic framework for Equality Budgeting in Ireland

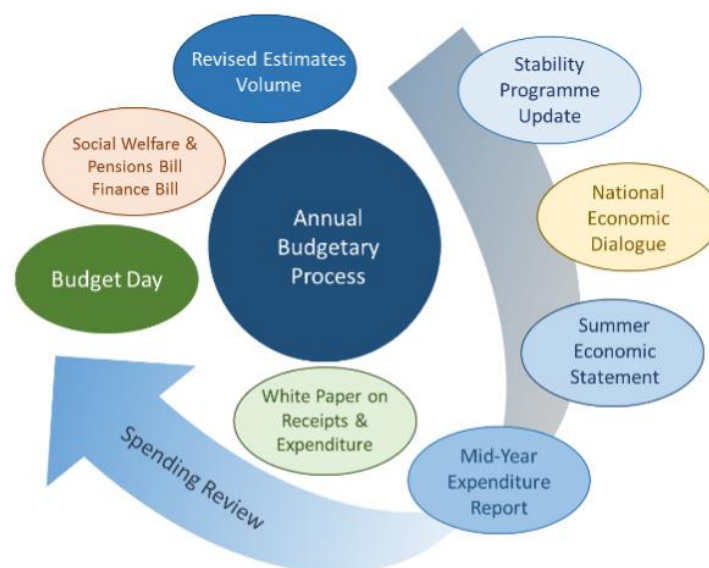
Elements of an effective framework for Equality Budgeting	Is it in place in Ireland?
National policy framework for Equality Budgeting	Yes
Guidance on the application of Equality Budgeting	Yes
Inter-agency group to ensure co-ordination and/or exchange of good practices on Equality Budgeting	Yes

Source: author (based on desk research and interviews)

4.2.2. Integration of Equality Budgeting in the budgetary process

Equality Budgeting reflects a cross-government commitment embedded in Ireland's performance framework. All government departments are therefore responsible for ensuring its implementation and the integration of consideration of equality in budgetary processes. To this end, government departments and agencies share information on the distributional impacts of proposed and ongoing policies at different points in the budgetary process. Figure 4.7 outlines the different phases of the budgetary cycle in Ireland.

Figure 4.7. Whole-of-Year Budgetary Process in Ireland



Source: (Kennedy, 2022^[14])

Prior to the Budget, the Department of Finance, the Department of Public Expenditure, NDP Delivery and Reform, and the Department of Social Protection each conduct distributional analyses of proposed budgetary measures and welfare packages. This analysis is carried out on an *ex ante* iterative basis earlier in the budget year when potential policy options and prospective welfare measures are examined and as

the budget is being finalised to help inform budgetary decisions. This work relies on the use of the SWITCH (**S**imulating **W**elfare and **I**ncome **T**ax **C**hanges) tax-benefit microsimulation model by different government Departments in their respective policy areas. SWITCH is based on EUROMOD, the harmonised European microsimulation model developed and maintained by the European Commission. Multiple departments collectively provide the funding to the Economic and Social Research Institute (ESRI) for the development of the model and related research. More departments now have access to the SWITCH model, which allows for analysis to be undertaken across more policy areas (e.g. Department of Health).

Spending departments across the Irish Government are responsible for implementing equality budgeting by setting relevant performance targets across their policy jurisdictions (Nicol, 2021^[15]). The Performance Budgeting unit in DPENDR is available to provide technical support to government departments in this process. The ESRI also engages with government departments to support their use of the SWITCH model. Overall this provides a very comprehensive framework for distributional analysis. Box 4.1 provides an example where SWITCH analysis was undertaken by the ESRI to inform policymaking.

The distributional analyses conducted by DPENDR and the Department of Finance on a nominal basis are routinely published alongside the budget announcements on Budget Day, making Ireland one of only two countries in the Euro Area that systematically carries out distributional impact assessments as part of the budgetary process. Between 2015 and 2020, Ireland, along with the Netherlands, were the only two Euro Area member states that consistently presented DIAs in their Draft Budgetary Plan (DBP) (Bazoli et al., 2022^[16]). The final budget DIA, prepared by the Department of Finance, is included in the Memorandum to Government on budgetary measures, Ireland's Draft Budgetary Plan, and in the Department's *Beyond GDP – Quality of Life Assessment* publication.

The Parliamentary Budget Office (PBO) uses the SWITCH model to carry out its own analyses, which can further enrich budget discussions in Parliament. It has also developed its own indirect tax model, EVE, to inform its budgetary analysis. For example, the Irish PBO estimated the real distributional impact of [selected tax and welfare measures](#) in the 2023 budget and the [progressivity of targeted measures versus universal measures](#). The ESRI and the Department of Finance also use the ITSIm (Indirect Taxes **S**imulation) model to complement the analysis of direct tax and welfare measures by examining the distributional impact of indirect tax measures.

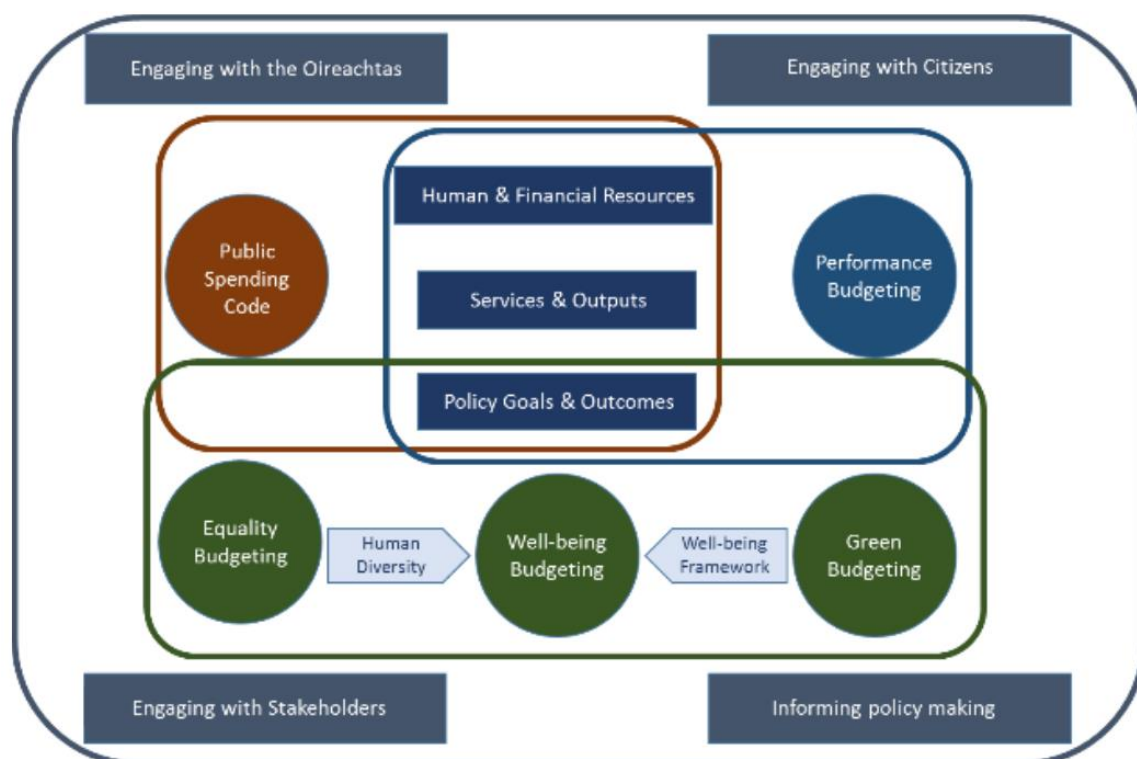
The Department of Social Protection uses the SWITCH model to carry out distributional impact assessments in advance of the budget, the results of which are published in the Department of Finance's Tax Strategy Group papers and during the budgetary process. On Budget Day, distributional impact assessments are published as part of the Budget Day documentation. A few months after the budget, the Department of Social Protection also releases an *ex post* assessment of the likely effects of policies on household incomes, families, poverty and access to employment – this is known as the Social Impact Assessment.

These different distributional impact assessments ensure that considerations related to equality and poverty are systematically incorporated into the Irish budgetary process. Thanks to these processes, decision making can be informed in real-time. Such distributional analyses were very important in the recent decisions on how the Government could best support households with the cost of living in a high inflation scenario. Throughout this process, the Department of Finance engages with relevant colleagues in the ESRI and DPENDR. Officials in the Department of Finance, Department of Public Expenditure, NDP Delivery and Reform and Department of Social Protection also produce internal distributional analyses to inform policy development in the lead-up to decisions being taken. DPENDR maintains engagement with line departments, which are responsible for implementing Equality Budgeting in their respective policy areas. In more recent years, DPENDR has also produced a publication on the use of Carbon Tax funds, which includes a reference to how the impact of Carbon Tax increases on lower-income households has been offset by targeted social welfare policies.

Integration of equality budgeting through performance budgeting

Equality Budgeting in Ireland is integrated into the budgetary process through the country's Performance Framework. As part of the overall structure of performance monitoring, Equality Budgeting exists alongside other cross-government initiatives, including the recent well-being initiative. These initiatives and their wider performance framework seek to promote the use of evidence in policymaking and ultimately improve the use of public resources. Figure 4.8 offers an overview of the different constituent initiatives of Ireland's performance framework.

Figure 4.8. Overview of Ireland's Performance Framework

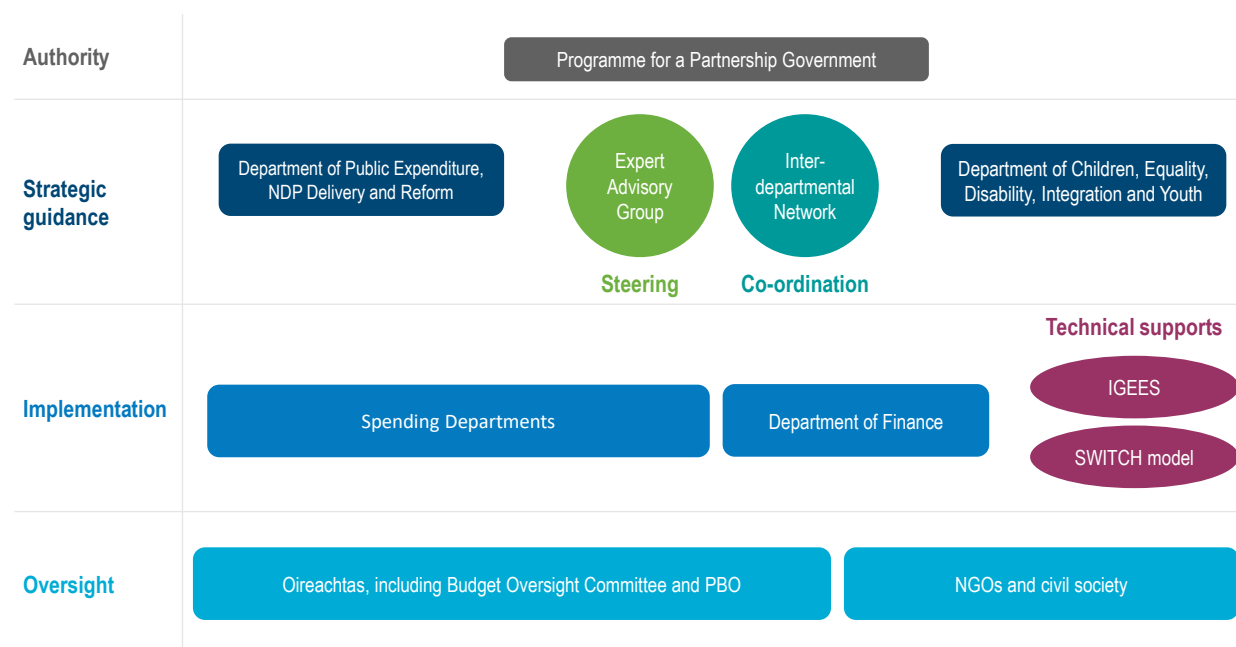


Source: (Kennedy, 2022^[14])

The different initiatives shown above co-exist within the broader performance framework and bring different perspectives on the efficient use of public resources. In recent years, the development of new initiatives such as Equality Budgeting and Well-being Budgeting have placed policy goals at the centre of performance. Both initiatives, as well as Green Budgeting, are concerned with the impact of public policies on people's lives.

Strategic guidance

The implementation of Equality Budgeting in Ireland benefits from the relatively strong institutional framework in which it is embedded. In Ireland, equality budgeting is spearheaded by DPENDR with the support of the Department of Children, Equality, Disability, Integration and Youth (DCEDIY) and benefits from the political support of the Taoiseach. Figure 4.9 provides an overview of the institutional set-up for equality budgeting in Ireland.

Figure 4.9. Institutional framework for equality budgeting

Note: Adapted from (Nicol, 2021^[15]).

Source: OECD Secretariat (based on desk research and interviews)

The Government has also established the Equality Budgeting Expert Advisory Group to provide strategic guidance on the further development and roll-out of equality budgeting in Ireland. The Group advises the Government on the future direction and thematic areas of equality budgeting in light of international experiences and best practices, academic work, and considering the strengths and potential shortcomings of the Irish context. The Group is chaired by DPENDR and involves representatives from relevant departments and institutions.² In addition, the Irish Human Rights and Equality Commission (IHREC) is available to provide general expertise vis-à-vis equality proofing of policies. The Women's Council of Ireland was also instrumental in providing strategic guidance for the development and implementation of equality budgeting.

The Equality Budgeting Interdepartmental Network was established in July 2021 to co-ordinate the implementation of Equality Budgeting across government departments. It is composed of senior staff members from all departments. Each member has a broad knowledge of the policy work carried out within their department and how it relates to the advancement of equality and inclusion. Members of the Interdepartmental Network are accountable for:

- "ensuring that policy makers in their departments are fully aware of, and implementing, Equality Budgeting policy where applicable;
- bringing all relevant work within their department to the attention of the Equality Budgeting unit, to ensure that strategic direction of Equality Budgeting is fully informed; and
- attending all scheduled meetings, or where this is not possible, nominating a suitably informed deputy to attend and represent their department." (Oireachtas, 2022^[17])

Social Impact Assessment Framework

To complement the microsimulation exercise undertaken as part of budget preparations and considering the Government's commitment to equality budgeting, a Social Impact Assessment series was introduced.

Social Impact Assessment (SIA) is an analytical framework that is designed to examine the demographic profile of public services users, and how they are impacted by budgetary policy decisions. SIAs are published throughout the year and examine current expenditures in specific policy areas. 13 SIA papers have been produced as of July 2023, including on domiciliary care allowance, social housing support and targeted childcare programmes.

These analyses are based on an analytical framework for SIAs, developed by IGEES analysts within the Department of Public Expenditure, NDP Delivery and Reform. It has been developed to focus on policy areas that cannot easily be incorporated into the existing SWITCH model, mainly the impacts of public expenditure on recipient households. The Social Impact Assessment framework, which is inspired by New Zealand's experience with well-being budgeting, widens the scope of analysis and integrates factors other than direct tax and benefits. This new framework focuses on policies and programmes with explicit socio-economic goals. It seeks to ascertain whether a policy change resulted in a quantifiable loss or gain to existing beneficiaries by measuring changes in income. To do so, SIAs examine the distributional impact of policies across various indicators related to equality, including age, region, income and household composition.

By establishing a baseline, this exercise also has the potential to incorporate a medium- to long-term dimension to policy assessment. The impacts of public spending measures, which may be delayed over several years, could be assessed over time (e.g. policies related to healthcare, childcare, and other long-term investments). The results would, therefore, not only relate to immediate 'cash' effects of policy changes, but they could also potentially account for long-term effects, including changes in behaviour over time as a result of the implementation of new policies. This approach would also allow for a more comprehensive assessment of the causality of policy outcomes.

SIA is a key tool in assessing the distributional equality impacts of budgetary decisions on certain group characteristics such as age, gender, and region. Since the introduction of Equality Budgeting, the Irish Government has expanded the number of policy areas assessed. So far, SIAs have been carried out in relation to the National Minimum Wage scheme, targeted childcare schemes, energy poverty and the general medical services scheme (Connors, 2016^[18]; Ivory, 2016^[19]; Nestor, 2020^[20]). These policy areas and programmes were chosen for Social Impact Assessments on the basis that they represent a large share of public expenditure in Ireland.

In the current social impact assessment (SIA) framework, households may be broken down by income, economic situation, household size, and age. This information is available on Budget Day and offers a thorough look into the scope and impact of budget decisions on specific groups.

Poverty Impact Assessment (PIA)

Ireland was seen as a frontrunner in Europe when it introduced 'poverty proofing' in 1998 following a prior commitment in the Government's Anti-Poverty Strategy (Murphy, 2017^[21]). As a result of this early commitment, examining the effects of policy proposals on poverty and inequalities that lead to poverty is now a routine part of the policy planning process in Ireland.

Relevant departments are responsible for undertaking poverty impact assessments (PIAs) in their respective policy areas. These assessments should be performed at every stage in which significant policy proposals are being considered. PIAs should therefore be carried out as an inherent part of the policy development and decision making cycles before budget allocation decisions have been made (DSP). Except in particular circumstances where a policy initiative is subject to Cabinet confidentiality, the results of poverty impact assessments are made public.

This commitment was strengthened by the introduction of the Cabinet Handbook, which made it mandatory for Government Memoranda with significant policy proposals to "indicate clearly the impact of the proposal on groups in poverty or at risk of falling into poverty" (GOV.IE, 2022^[22]).

Assistance and supporting guidelines for PIA are available from the Social Inclusion Division in the Department of Social Protection. According to these guidelines, the following groups should be considered when conducting poverty impact assessments: women; lone parent families; families with large numbers of children; people with disabilities; unemployed people; members of the travelling community; people experiencing rural disadvantage; people experiencing rural poverty; homeless people; migrants and ethnic minorities.

Integration of equality budgeting and distributional considerations as part of Parliamentary Oversight

The Parliament is involved in holding the Irish Government accountable for the progress made in implementing Equality Budgeting across departments. The Parliamentary Budget Office provides financial and budgetary information to members of the Parliament, and in particular to the Committee on Budgetary Oversight, as it conducts *ex ante* scrutiny of budgetary matters. The PBO has access to the SWITCH model, its EVE indirect tax model and publishes research to inform the budgetary process. For example, the PBO analysed the real distributional impact of different welfare package options in the 2023 Budget on household income by decile (PBO, 2022^[23]). Beyond this, members of Parliament engage in the broader policy debate on these and other topics through inter alia leaders' questions, parliamentary questions, representations, topical issues debates, private members' motions and parliamentary committees. In addition, there is strong interest from civil society, non-governmental organisations (NGOs) and other stakeholders to promote active engagement and maintain political pressure.

Budget reports

Finally, analysis of the distributional impact of budgetary measures have also been included in government budgetary documentation. For Budget 2024, analysis was conducted by the IGEES Unit in the Department of Public Expenditure, NDP Delivery and Reform using the ESRI's microsimulation SWITCH (Simulating Welfare and Income Tax Changes) tax-benefit model to assess the distributional impact of tax and welfare measures implemented as part of Budget 2024. The analysis also included Department of Finance estimates of the distributional impact of changes in indirect taxes using the indirect taxes satellite model ITSIM (Indirect Taxes Simulation). This analysis was contained in the budget expenditure report (Government of Ireland, 2023^[24]). In addition, the Department of Finance includes the final budget DIA in Ireland's Draft Budgetary Plan and in the Department's Beyond GDP – Quality of Life Assessment publication (Government of Ireland, 2023^[25]; Government of Ireland, 2023^[26]).

4.2.3. Ex post assessments for Equality Budgeting

ESRI Winter Quarterly Economic Commentary

Three days after the budget is announced, the Economic and Social Research Institute presents DIA results comparing the policy reform to a counterfactual indexed scenario. This analysis uses SWITCH, the ESRI's microsimulation model, to illustrate -in real terms- the effects of proposed policies. The impact of the budget is estimated for households by income decile, family type, work status and by gender. About a month later, the analysis is published in the peer-reviewed Quarterly Economic Commentary.

Spending Reviews

The Spending Review process aims to facilitate the development of policy analysis and evaluation in support of the agenda of evidence-informed policymaking, subjecting programmes / policy areas to critical assessment on an ongoing basis. Spending reviews focus on programmes of strategic importance, from a policy and/or expenditure perspective, and are conducted by government departments, typically undertaken by IGEES (Irish Government Economic and Evaluation Service) analysts within these

departments. Along with additional assessments of sustainability and value-for-money, these reviews help inform budgeting decisions. In 2022, the Department of Public Expenditure, NDP Delivery and Reform and the Department of Further and Higher Education, Research, Innovation and Science performed a spending review of demographics in the higher education sector and their implications for public expenditure.

ESRI Assessments

A key research area for the ESRI is the examination of the design of the tax, welfare and pensions system, particularly the impact it has on individuals, redistribution and work incentives. Integral to this work is the use of the SWITCH model to simulate the impact of actual or proposed reforms on households (ESRI, 2023^[27]). Each year the ESRI develops a work programme, which outlines intended model developments and planned research. Some of the papers identified in the work programme and of interest in light of upcoming budget discussions are then presented at the ESRI's annual pre-budget conference. The most recent, Budget Perspectives 2024, discussed work on removing cliff-edges from the taxation and welfare systems; housing tenure, health and public healthcare coverage; and extending the National Childcare Scheme to childminders (ESRI, 2023^[28]).

Changes can be made to the SWITCH work programme to allow for the analysis of unexpected issues. For example, in early 2020, the ESRI evaluated how COVID-19 and the new pandemic-related welfare payments had impacted employment levels and incomes. The results showed that direct and indirect taxation and welfare measures implemented before Budget 2021 helped to cushion income losses incurred during the pandemic.

Box 4.1. Ex post assessment

Assessing the distributional impact of COVID-19-related unemployment

In early 2020, the ESRI evaluated how the new pandemic-related welfare payments impacted employment levels and family incomes. Given the significant impact of the pandemic on employment, the 2017 survey data on which the model rests were adjusted to be representative of the unemployment rates observed in the 2020 population. A subset of workers from each industry were assumed to have either become unemployed or to have been placed on the Employment Wage Subsidy Scheme (EWSS). The proportion of individuals that either lost their occupations or received the EWSS was determined from public CSO data on the number of people who received the Pandemic Unemployment Payment (PUP) and the Temporary Wage Subsidy Scheme (TWSS, which was later replaced by EWSS). Both calculations rely on figures from late August 2020 and consider the industry and age breakdown of recipients for either scheme. The data was also calibrated to account for income growth between 2017 and 2020.

SWITCH was subsequently used to calculate households' welfare benefits, tax liabilities and net incomes under the baseline policy. This indexes the February 2020 policy rules to forecast inflation of 0.2% between 2020 and 2021, which provides a benchmark that controls for welfare payments, tax credits and thresholds in real terms. Comparing this baseline scenario (no policy response to the pandemic) to one in which there is no downward employment shock (Pre-COVID) shows in real terms the effect of pandemic-related unemployment on incomes, controlling for the offsetting effect of lower tax payments and higher welfare benefits ('automatic stabilisers').

The ESRI found that pandemic-related unemployment could have lowered household income by an average of 7% across the Irish population, with significantly larger losses for those who became unemployed. However, thanks to the initial policy response (e.g. the PUP), wage subsidies and cuts on the standard VAT rate, household income only fell by an average of 3%. These losses are most pronounced at the upper end of the income distribution, among youths, and for workers in the most

impacted sectors (e.g. hospitality). The impact of Budget 2021, while less costly than the pre-budget measures, is similar in pattern, with above-average gains for the bottom two-fifths of the income distribution and lower-than-average gains for those at the upper end.

Without these interventions, income inequality would have increased substantially. Instead, the simulations suggest that the COVID-related interventions stabilised disposable income inequality, a remarkable achievement considering the significant unemployment shock. The proportion of people 'at risk of poverty' were also stabilised by policies enacted in response to the pandemic.

Source: (Doorley et al., 2020^[29])

4.3. Tools for assessing the distributional impacts of budget decisions

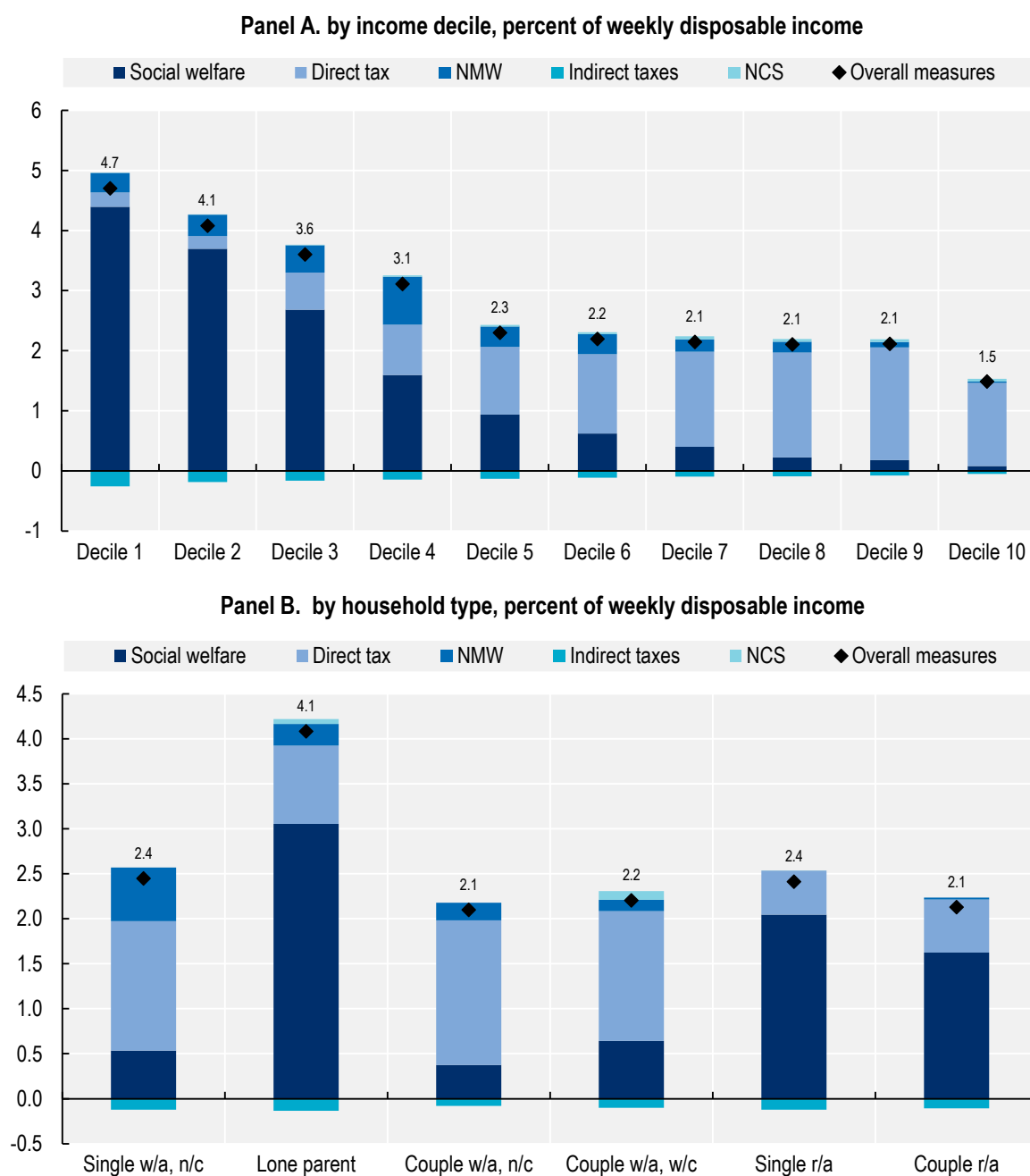
In practice, embedding equality considerations into the budget process requires detailed information on the likely effects of proposed and ongoing budgetary decisions on different groups in society. Governments have a set of tools at their disposal to estimate distributional impacts and provide this information to decision makers. This section provides an overview of the operational tools used in Ireland to support distributional analysis from a technical perspective.

4.3.1. SWITCH – Direct Tax and Welfare Measures

The Department of Finance, the Department of Public Expenditure, NDP Delivery and Reform and the Department of Social Protection assess the distributional effects of direct tax and social welfare measures using the SWITCH tax-benefit model. The model is developed and maintained independently by the ESRI, based on the European Union's EUROMOD platform. SWITCH uses individual and household-level data from the Irish component of the Survey on Income and Living Conditions (SILC). The model is also linked to administrative information on income from the Revenue Commissioners and administrative information on welfare receipt from the Department of Social Protection (Keane et al., 2022^[30]).

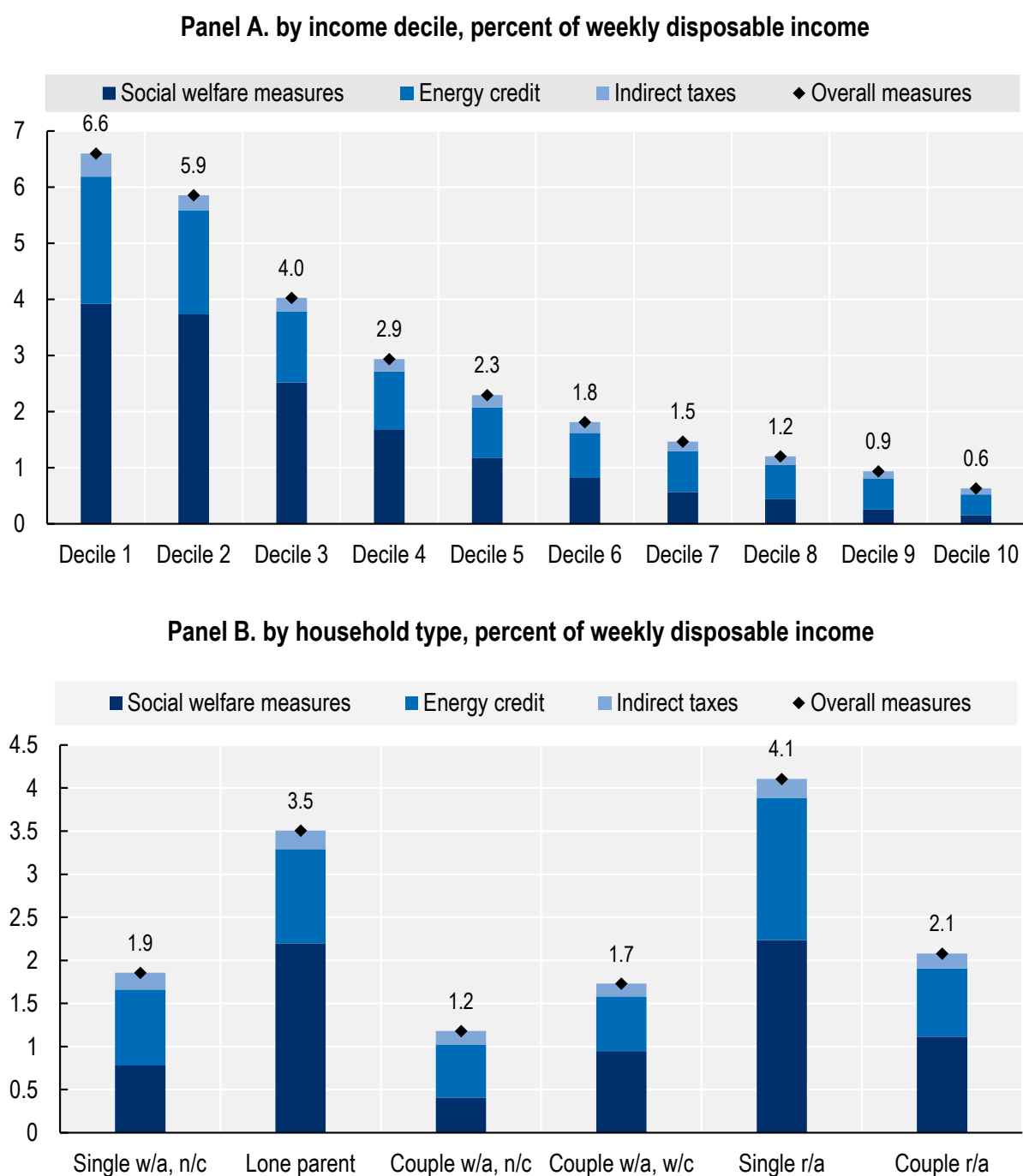
The analysis is performed by measuring the effects of policy change on equivalised household disposable income groups by income decile (see Panel A of Figure 4.10 and Figure 4.11), family type (see Panel B of Figure 4.10 and Figure 4.11), gender and earnings status. The likely impacts of a policy change are considered for different dimensions of equality, including income poverty and the Gini coefficient; the results are produced in an Excel format.

Figure 4.10. Distributional Impact Analysis of the 2024 Core Budget Measures



Note: for Panel A: NMW = national minimum wage; for Panel B: Note: w/a = working age; n/c = no children; w/c = with children; r/a = retirement age. NMW = national minimum wage.

Source: Department of Finance calculations using the ESRI SWITCH model and ITSIM model (Government of Ireland, 2023^[31]).

Figure 4.11. Distributional Impact Analysis of the Cost of Living Measures

Note: for Panel B: w/a = working age; n/c = no children; w/c = with children; r/a = retirement age.

Source: Department of Finance Calculations using the ESRI SWITCH model and ITSIM model (Government of Ireland, 2023^[31]).

Box 4.2. Examples of the use of SWITCH to inform spending decisions in Ireland

Compensating a rise in the Irish carbon tax by redistributing the additional revenues

In 2020, the ESRI examined how to increase the Irish carbon tax without disproportionately affecting low-income households and increasing poverty. In high-income countries, uncompensated carbon taxes are often regressive by nature because goods subject to the tax make a larger share of spending for lower-income households than higher-income ones (e.g. fuel and natural gas). Research also highlights a strong positive correlation between inequality and the regressivity of carbon taxes, meaning that the more unequal a country is, the more regressive its carbon tax tends to be (Andersson, 2021^[32]).

To avoid reinforcing inequalities, it is therefore particularly important to understand how to redistribute the revenues of carbon taxes and any subsequent increases in the carbon tax rate. In Ireland, the ESRI found that the Government can offset and even reverse the regressive impact of a carbon tax rise by allocating one-third of the additional revenues to targeted increases in welfare payments.

In Ireland, the lowest-income fifth of households is largely made up of working-age adults who receive welfare payments and their dependents. The ESRI found that this group can be compensated for a rise in the carbon tax by increasing the maximum rates of the main working-age welfare payments or by raising Increases for Qualified Children (IQCs). In fact, using a third of the additional revenue from a 7.5 EUR increase in the carbon tax would even reduce the overall poverty rate by 0.2 percentage points and leave the lowest income a fifth better off on average. Similarly, using the extra revenue to raise the Increases for Qualified Children would reduce the child poverty rate by 0.4 percentage points.

Source: (O'Malley, Roantree and Curtis, 2020^[33]),

The areas covered by SWITCH include income tax, social welfare payments (PRSI), Universal Social Charge (USC), property tax, welfare benefits and public service remuneration; this accounts for the bulk of the impact of budgetary policy changes on households' cash incomes in recent years. The SWITCH model is updated every year according to the ESRI's annual tax, welfare, and pensions research programme. For example, in 2023, the ESRI adjusted the model to account for work incentives and to allow analyses disaggregated by disability status. The routine SWITCH output is already disaggregated by income decile, family type, gender and earnings status (ESRI, 2022^[34]). In some cases, the ESRI also amends its model to allow for topical analyses of policy options being publicly debated (e.g. lump sum payments, rent tax credit in Budget 2023). Despite the model's expansion in recent years, there remain some limitations. For instance, SWITCH does not account for indirect taxes, although these are covered by the ITSIM (Indirect Taxes Simulation) model, jointly developed by the Department of Finance and the ESRI. In addition, SWITCH –like most microsimulation models– does not model expenditure on public services such as healthcare, nor does it incorporate behavioural changes that can potentially result from the policy.

4.3.2. ITSIM – Indirect Tax Measures

The ESRI and the Department of Finance also measure the distributional effects of indirect tax measures with the ITSIM model. The model is jointly developed by the Department of Finance and ESRI. It is built in STATA and uses data from the Household Budget Survey (HBS). The current version of the model uses the CSO HBS 2015-16 – survey data. In addition, the Parliamentary Budget Office have developed EVE to examine the impact of indirect tax measures on income, using data from the CSO's 2015-16 Household Budget Survey.

To conduct this analysis, the Department of Finances and the ESRI measure the effects of policy changes on equivalised household disposable income groups by income decile and family type. Unlike SWITCH, ITSIM does not show the likely impacts of policy changes on other dimensions of equality, such as gender as it is impossible to attribute consumption in the HBS to an individual within a household; the results are also produced in an Excel format.

4.4. Data and information infrastructure

Tax-benefit micro-simulation models use a variety of data sources to model the effects of ongoing and proposed policies on individuals and households. These sources can include administrative data from government agencies, self-reported data from household surveys, and other sources of economic and social data. The specific data sources used in a particular model may vary depending on the goals and objectives of the model and the information needed to achieve them. Overall, the goal of using these data sources is to provide a detailed and accurate picture of the target population and how it would be affected by a change in policy.

An essential element of equality budgeting is, therefore, the availability of data disaggregated by individual characteristics, including gender, age, race, disability, and others. The ability to properly measure these characteristics is key to ensuring the representativeness of the sample used in the model data vis-à-vis the target population. However, in Ireland, the extent to which disaggregated data on the use of government services is collected is not consistent across all government spending. While the introduction of equality budgeting –starting with the 2018 pilot– has helped promote the collection of gender-disaggregated data and indicators, disaggregated data on age, disability, and race is still lacking.

The routine availability of such datasets and statistics would greatly facilitate the evidential basis for the identification of equality gaps along any of these individual variables, as well as the design and impact of certain policy areas. The need to address such data gaps and data protection issues, if relevant, will be an important objective in ensuring the continued implementation of Equality Budgeting in Ireland.

4.4.1. Survey on Income and Living Conditions (SILC) underlying the SWITCH model

Tax-benefit microsimulation models generally rely on large samples engineered to be representative of the wider target population. In Ireland, there are two main obstacles to building a representative sample of the population despite the availability of data on market and social welfare income from the Revenue Commissioners and the Department of Social Protection. First, simulating tax and welfare benefits requires additional information such as the number of household members, their age, and whether they earn an income or not (e.g. children and unemployed adults) (Keane et al., 2022^[30]). This level of granularity is not available in administrative records. Second, and unlike many other countries, Ireland does not have a population register (Keane et al., 2022^[30]). Additionally, information on hours of work is not available from income tax data, which is necessary for simulating entitlements to benefits such as the Working Family Payment and Medical Cards.

Because of the above-mentioned limitations, the SWITCH model relies on individual and household level data from the Irish component of the Survey of Income and Living Conditions (SILC), an EU-wide survey. In Ireland, the survey is administered by the Central Statistical Office (CSO) and surveys a sample of Irish households. The Survey is the official source of information on income and living conditions and broader indicators of social and economic issues.

The survey is administered every year and covers around 4 000 private households and 10 000 individuals. The SWITCH model relies on the 2019 SILC dataset, which captures information on all household members, their relationships, labour force status, number of hours worked, income types and levels. Such a level of granularity is key to accurately modelling income tax liabilities and entitlement to benefits. The

information collected through the survey is supplemented by more accurate information on income from the Revenue Commissioner and information on welfare from the Department of Social Protection (Keane et al., 2022^[30]).

The analysis in Social Impact Assessment (SIA) and Poverty Impact Assessment (PIA) relies on a mix of sources, depending on the policy matter being considered. Generally, a range of survey data from the CSO, Eurostat, OECD etc. and administrative data is used. Depending on the level of detail required, data can be extracted from online databases or can be sought through CSO Research Microdata Files and Anonymised Microdata Files – ISSDA, etc.

4.4.2. CSO Audit of the availability of public service data

In line with the OECD recommendation³ to develop a data strategy for the collection and management of equality-related information, the CSO completed a data audit to appraise the availability of public service data disaggregated along the different dimensions of equality. The Equality Data Audit was informed by a sub-group of the Equality Budgeting Expert Advisory Group and published in October 2020. The CSO plans on regularly updating the report. The audit was followed by an analysis highlighting the different areas where equality-related data is lacking, such as race and sexual orientation and areas where data is plentiful but not necessarily centralised, such as age.

Overall, there are three types of data gaps: (1) data exists but is not collected regularly, which prevents the analysis of trends over time; (2) data exists but does not provide sufficient disaggregation to explore certain dimensions of inequality; and (3) data does not exist, or data quality is too poor to conduct detailed analyses. The findings of the audit are presented below for different dimensions of equality (CSO, 2020^[35]).

Gender

Data on gender was included in 68 of the 107 datasets analysed by the CSO audit, making gender the dimension of equality for which data is most collected. Gender-disaggregated data was collected for 25 of those 68 datasets, with 23 providing a breakdown for “Male”, “Female”, and “Prefer not to say” (CSO, 2020^[35]). One dataset included “Transgender and Non-Conforming” as an option, and another included “Other gender”.

Age

Detailed age data was contained in 26 datasets. Of these, 21 provided continuous age data (either as years of age or date of birth). The remaining five datasets collected data per age group or regrouped continuous age data after it had been collected (CSO, 2020^[35]). Importantly, the age groupings are not necessarily the same across datasets. For example, some datasets group ages by deciles and others by 15 years. Even when data is collected by deciles, these will not always be the same across different data sources (e.g. 20-30 or 25-35). This variation reduces comparability and complexifies analyses.

Disability

Of 107 datasets audited, only 24 (less than a quarter) included a variable on disability (i.e. yes/no question). Eight of these further disaggregate the variable, but the breakdown varies across sources. Some datasets collected information on the severity of a disability, while others collected information on the category/type of disability (CSO, 2020^[35]).

Race

Race was reported in only two datasets – the CSO Census of Population and the Social Inclusion and Community Activation Programme (SICAP). 24 other datasets claimed to cover race but asked about nationality or ethnicity instead (CSO, 2020^[35]).

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Notes

¹ Market income data from the OECD excludes public pension schemes but includes obligatory private pension schemes.

² The following government departments and institutions are represented at the Group: the Central Statistics Office, the Department of Social Protection, the Department of Finance, the Department of Children, Equality, Disability, Integration and Youth, the Economic and Social Research Institute, the Irish Human Rights and Equality Commission, the National Disability Authority, the National Economic and Social Council, the National University of Maynooth, and the National Women's Council of Ireland.

³ This recommendation was made in the 2019 OECD Scan of Equality Budgeting in Ireland, see (Nicol, 2021^[15]).

5

The case of Italy

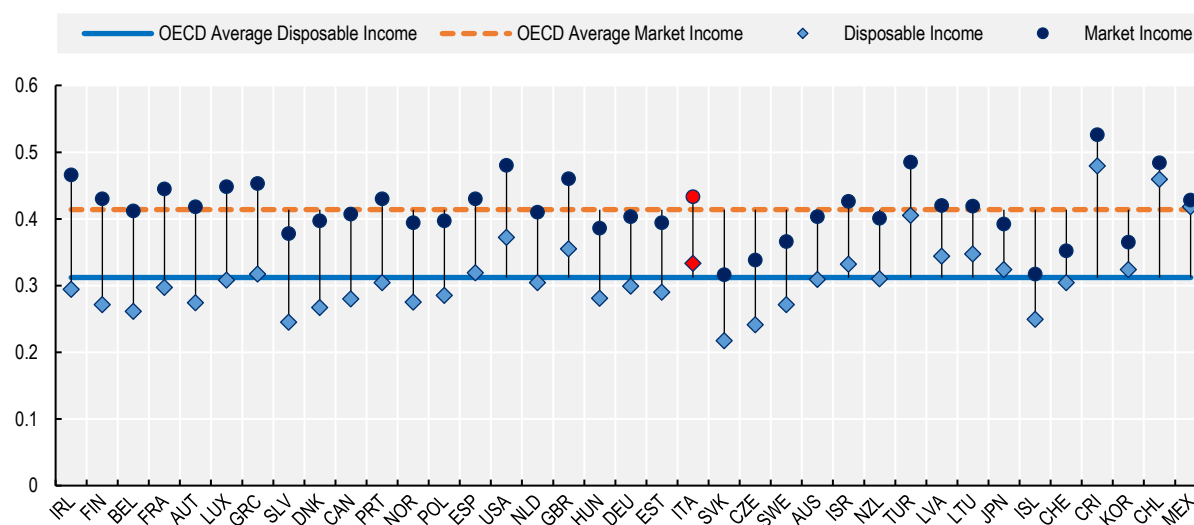
This case study provides an overview of recent trends in income inequality in Italy, and discusses how considerations for inequality and distributional implications of public expenditure are brought to bear as part of the budget process. It discusses the practices currently in place in the country, how they are set up in the country's public expenditure frameworks, and how they are supported at the technical level, through the range of models, and data tools that are utilised in policy practice.

5.1. An overview of recent trends in inequality in Italy

5.1.1. Trends in income inequality

Italy's tax and transfer system reduces income inequality at a rate slightly below the OECD average. In 2018, before taxes and transfers, Italy had a Gini coefficient of 0.433, as shown in Figure 5.1. However, taxes and transfers reduced this coefficient to 0.333. While this coefficient means Italy's disposable income Gini coefficient is still higher than the OECD average of 0.312, it nevertheless represents a significant reduction in inequality.

Figure 5.1. Differences in household income inequality among the working-age population pre- and post-tax and government transfers, 2019



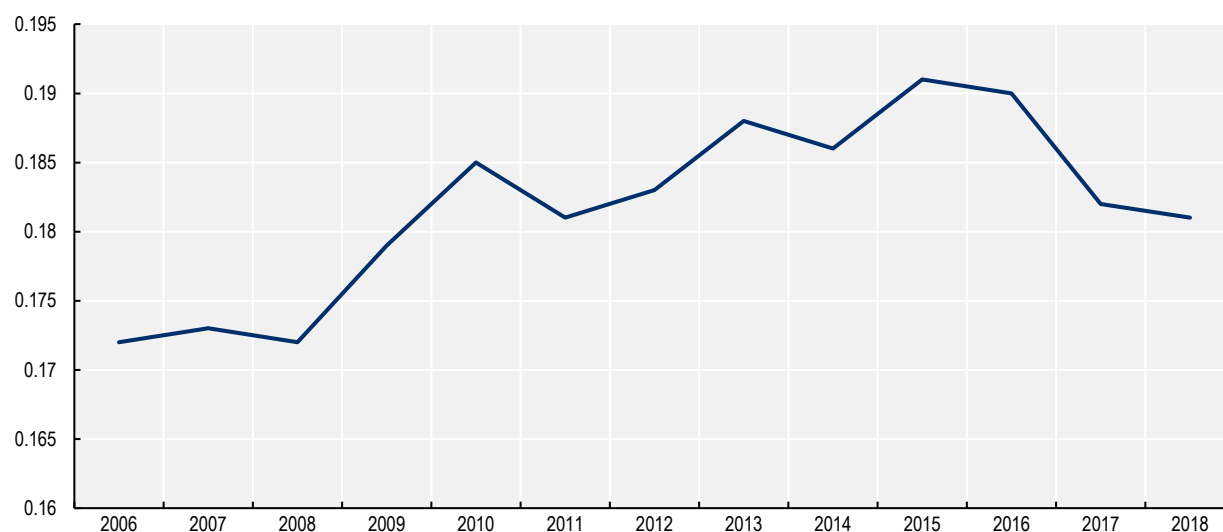
Notes: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, Iceland and South Africa (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg and South Africa. Earlier data for Brazil, Chile, Estonia, Sweden and the United States are from 2013.

Source: OECD Income Distribution Database

The impact of taxes and transfers on reducing income inequality has increased significantly in the past several years. As Figure 5.2 demonstrates, in 2006 the tax and transfer system reduced the Gini coefficient by just 0.172, a figure which had increased 11% at its peak in 2015. While this value has since decreased somewhat, the 2018 impact is still 5.5% higher than the 2006 base.

Figure 5.2. Impact of taxes and transfers in terms of reduction of the Gini coefficient

Measured as difference between Gini coefficient for market income (before taxes and transfers) and disposable income (after taxes and transfers)

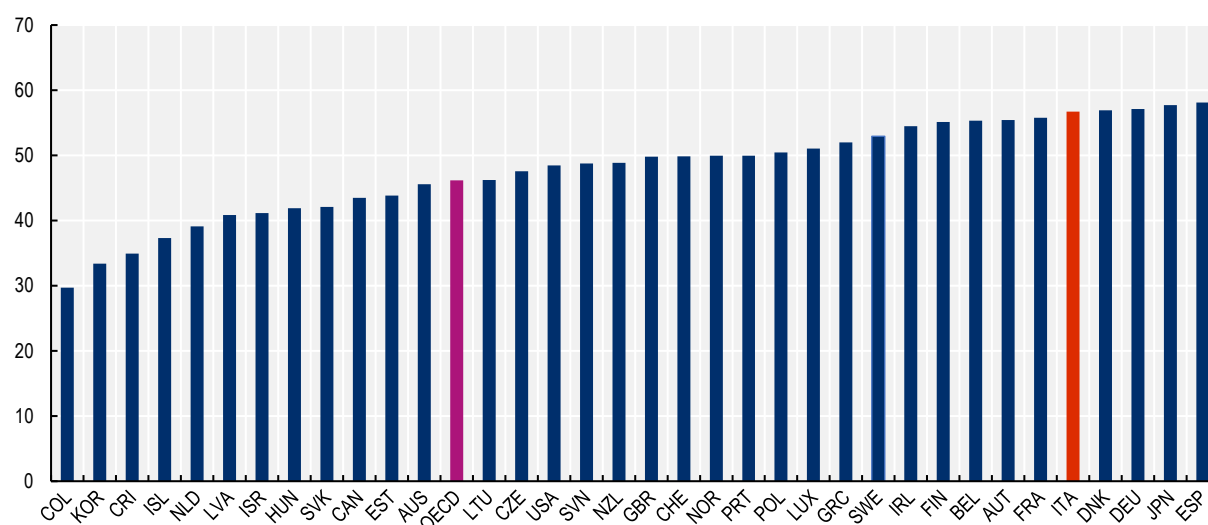


Source: OECD.Stat

These redistributive impacts should be considered against the fact that Italy has among the highest net social expenditures as a percentage of GDP, as evidenced in Figure 5.3, although still well behind France, Denmark, Finland and Belgium. However, Austria, Czechia, Germany, Greece, Hungary, Ireland, Portugal, and Slovenia all spend less on social benefits than Italy, but achieve higher levels of redistribution in terms of the Gini coefficient.

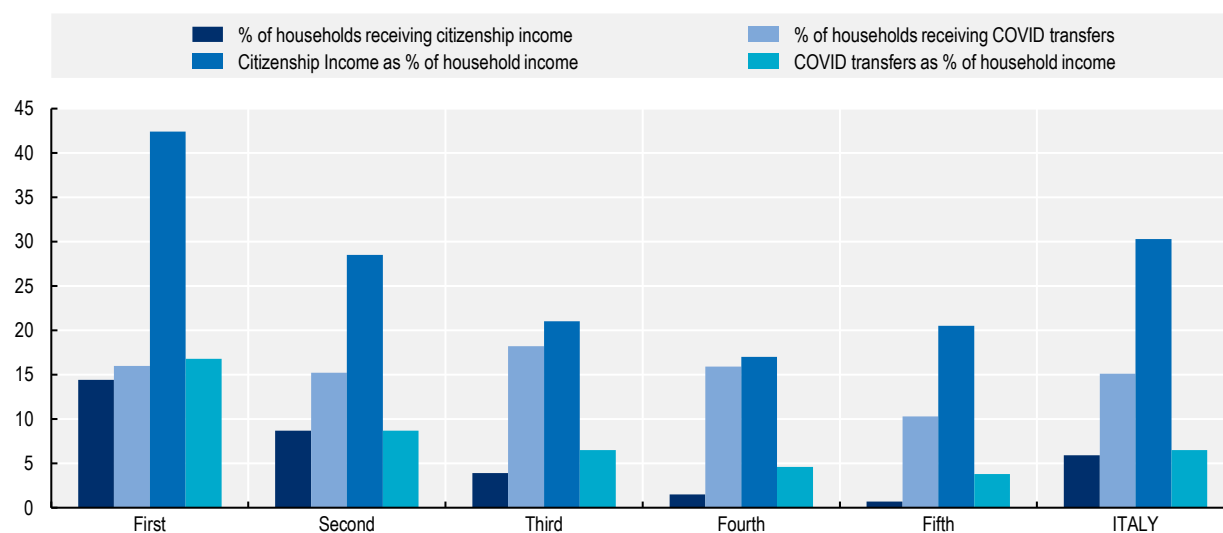
In recent years, Italy has introduced several significant redistributive measures, mainly through transfers, in order to combat poverty. Among these are the “Citizenship Income” (*Reddito di cittadinanza*), a guaranteed minimum income introduced in 2019, and the “Single and Universal Allowance” (*Assegno unico e universale*), a family allowance introduced in 2022. These measures, together with other temporary interventions to limit the economic effects of COVID-19 and of the war in Ukraine, contributed to reducing inequality.¹

The distributional impacts of these measures can be seen in reports from Italy’s Official Statistics Office (ISTAT, 2023^[1]). The lowest income quintile is the most significant recipient of Citizenship Income, receiving nearly half their average family income’s worth (Figure 5.4). This trend is less pronounced for the emergency COVID measures – while the lowest income quintile did benefit the most from these measures as a percentage of income, the top three quintiles benefitted the most in raw terms, likely due to the fact that many COVID-related policies were intended to benefit the population as a whole, and thus were often not income-specific.

Figure 5.3 Social expenditure as a percentage of GDP in OECD countries, 2018

Note: 2017 data is used for Japan and Australia.

Source: OECD.Stat

Figure 5.4. Households receiving emergency COVID measures and Citizen Income, by income quintile

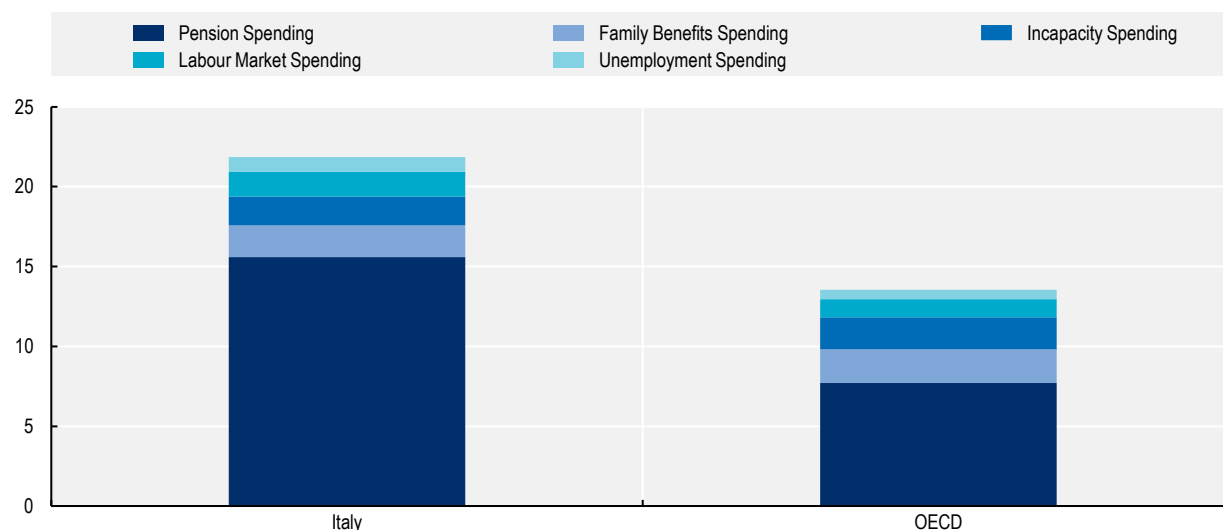
Source: (ISTAT, 2023^[1])

5.1.2. The Pension System

As Italy's high social expenditure is predominantly due to pensions – pension spending in Italy is over double the OECD average (see Figure 5.3) – it is worth taking a special look at its pension system. Pension expenditure of course goes predominantly towards older people, and as wealthier people tend to live longer and thus receive higher pay-outs, such expenditure can actually increase inequality (Sanchez-Romero and Prskawetz, 2020^[2]). There is also a risk that high pensions reduce public resource availability for other age groups, increasing income precarity and poverty risks for the working classes (Fornero, 2021^[3]).

As it currently stands, Italy has seen a relative stagnation in income inequality measured by weekly income since the 1990s, while it has seen a consistent increase in income inequality measured by annual income. This pattern can be predominantly explained by an increase in the regularity of part-time work among the population (INPS, 2019^[4]). As the pension system is heavily geared towards employer contributions,² this change in working patterns serves as further evidence that pensions can actually work to increase net distributions of income, by favouring those who already have relatively high incomes. Indeed, this pattern has been evident in recent years – in 2022, 47.8% of pensions went to the more affluent north of Italy, while only 31% went to the south (Il Sole 24 Ore, 2022^[5]).

Figure 5.5. Net public social expenditure as a percentage of GDP in Italy and the OECD, 2017



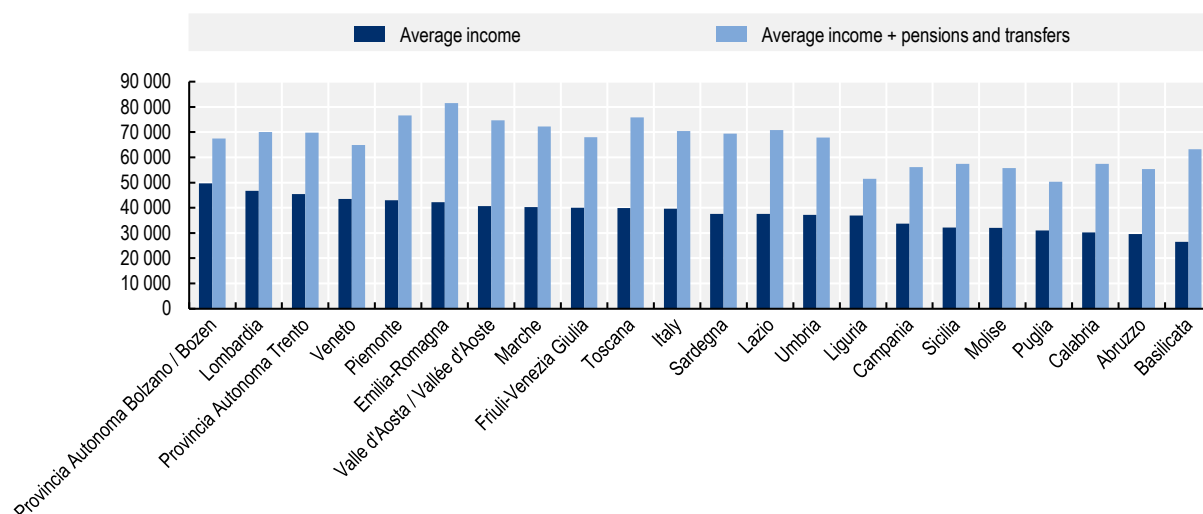
Note: Unemployment spending data is from 2018.

Source: OECD.Stat

5.1.3. Income inequality at regional level

Italy has significant variation in income across its regions, which is not majorly altered after considering pensions and transfers – indeed, aggregate income including transfers is often higher among wealthier regions, likely due to the impact of pensions identified above (Figure 5.5). It is also evident that aggregate income including transfers is often higher among wealthier regions, likely due to the impact of pensions identified above.

Income variation across Italy is consistent with variation in public transfers. As shown in Table 5.1, receipt of Citizenship Income is highest in the South and Islands, where average income is lowest, and risk of poverty is highest. In Sicily and Campania about 38% of the population has a net equivalised income below or equal to 60% of the median equivalised income. However, this trend is not evident when it comes to salary supplement receipts, where the Northeast sees the greatest proportion of people claiming some sort of salary supplement, despite having among the highest incomes in Italy. Again, this may well be due to the pensions effect previously discussed.

Figure 5.6. Average income across regions in Italy 2020, before and after pensions and transfers

Note: Income is calculated as the average of income received by employees and that received by independent workers.

Source: (ISTAT, 2022^[6])

Table 5.1. Income and Living Conditions across different Italian regions

	Northwest	Northeast	Centre	South and Islands	Italy
Average household net income without imputed rent	EUR 36 018	EUR 36 418	EUR 33 837	EUR 27 053	EUR 32 812
Risk of poverty or social exclusion	17.1	14.2	21.0	41.2	25.4
Risk of poverty	13.2	11.5	15.8	33.1	20.1
Salary supplement recipients	38.8	40.8	38.9	31.8	37.4
Recipients of Citizenship income	2.9	1.7	3.6	10.7	5.3

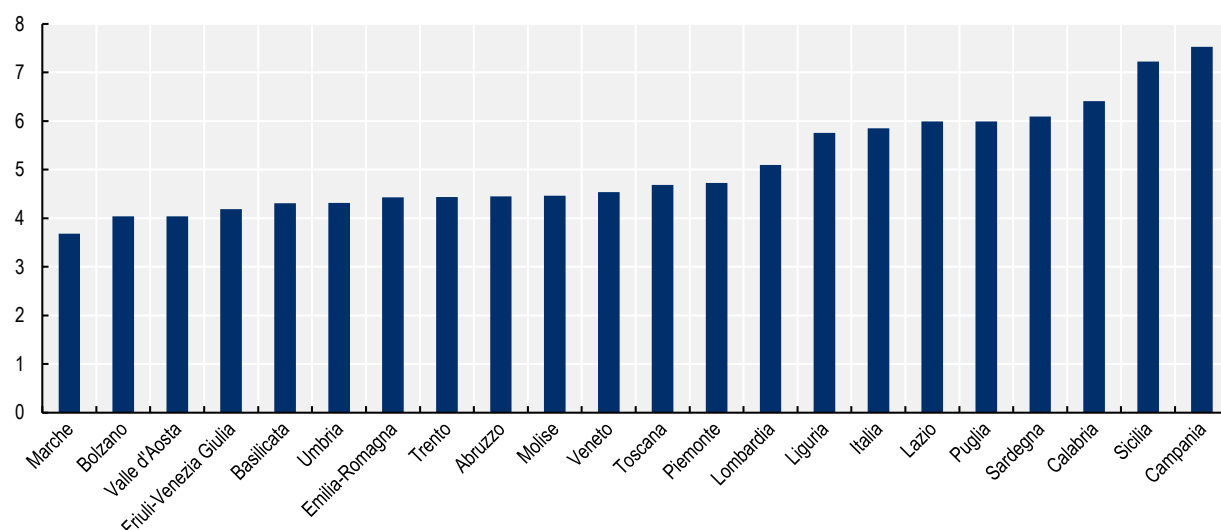
Note: Average household net income is measured in euros, risk of poverty is measured as percentage of population with less than 60% the median income, and all other indicators are measured as percentage of total.

Source: (ISTAT, 2022^[6])

There is also significant variation in in-region inequality – ranging from Marche, where the wealthiest 20% earn 3.7 times as much income as the least wealthy 20% after transfers, to Campania, where they earn 7.5 times as much (see Figure 5.7). This variation does not necessarily correspond to regional variation in income (as seen in Figure 5.5) – Campania, Calabria and Sicily have the highest levels of inequality as measured by the ratio of the highest quintile of income over the lowest quintile, despite being in the bottom half of the income distribution after transfers and pensions. In a similar manner, Tuscany, Piemonte and Emilia-Romagna are the highest income-earners after transfers and pensions, but below-average income inequality levels.

Figure 5.7. In-region inequality varies significantly in Italy

Inequality, as measured by S80/S20 ratio after transfers, across Italian regions



Source: (ISTAT, 2022^[7])

5.1.4. Income inequality and the informal economy

Understanding income inequality in countries with a significant informal economy, such as in the case of Italy, presents many analytical pitfalls. There is substantial evidence that a larger informal economy leads to greater levels of inequality. A large hidden economy can negatively impact the government's tax revenues and therefore reduce the provision of public goods (Enste, 2003^[8]). Furthermore, it can disincentivise innovation and instead encourage rent-seeking behaviours, with the aim of increasing monopolistic power. This can in turn reduce worker wages and consumer surplus, thereby increasing inequality (Eilat and Zinnes, 2002^[9]). On top of this, as wealthier portions of the population are more likely to operate in the informal economy for tax evasion purposes, official statistics can actually underestimate the extent of inequality in an economy, which can subsequently impact policy decisions. This issue is notable in Italy, where it is estimated that the propensity for personal income tax evasion is under 3% for employees while it is nearly 70% for business owners (Italian Ministry of Economy and Finance, 2022^[10]). As the latter group make up the majority of high earners in Italy, there is a real risk of statistical underreporting of inequality (Valentini, 2022^[11]).

While the Italian informal economy has been steadily decreasing in size since 2014, it still makes up a significant component of the economy – in 2019, the Italian institute of Statistics (ISTAT) estimated it to be worth 203 billion euros, 11.3% of total GDP. Of this, 183 billion is estimated to be the hidden economy (i.e., legal activity concealed through misreporting of turnover and costs, or use of irregular labour), with the remainder being illegal activity (ISTAT, 2021^[12]). A 2018 econometric study underlines the negative impact this can have on inequality, finding notable and highly significant correlation between the extent of irregular labour in a region and the inequality of income distribution (Clementi and Valentini, 2018^[13]).

5.2. Budgeting frameworks related to inequality and well-being

5.2.1. The Ministry of Economy and Finance

The Ministry of Economy and Finance (MEF) is divided between the Department of Finance, which focuses on taxation and government revenue, and the Department of the Treasury and the State General Accounting Department (RGS), which concerns itself with government expenditure and budgeting. While the Department of the Treasury traditionally analyses the macroeconomic impacts of policies and reforms, the Department of Finance uses microsimulation models to estimate the revenue effects of fiscal policies – although it can also provide distributional impact assessments on expenditure measures that have fiscal implications. Therefore, this section will discuss first the work in the Department of Finance that has more developed models for studying inequality, before moving on to the role of the Department of Accounting (RGS), in charge of the budget and the Department of the Treasury.

Box 5.1. SOGEI

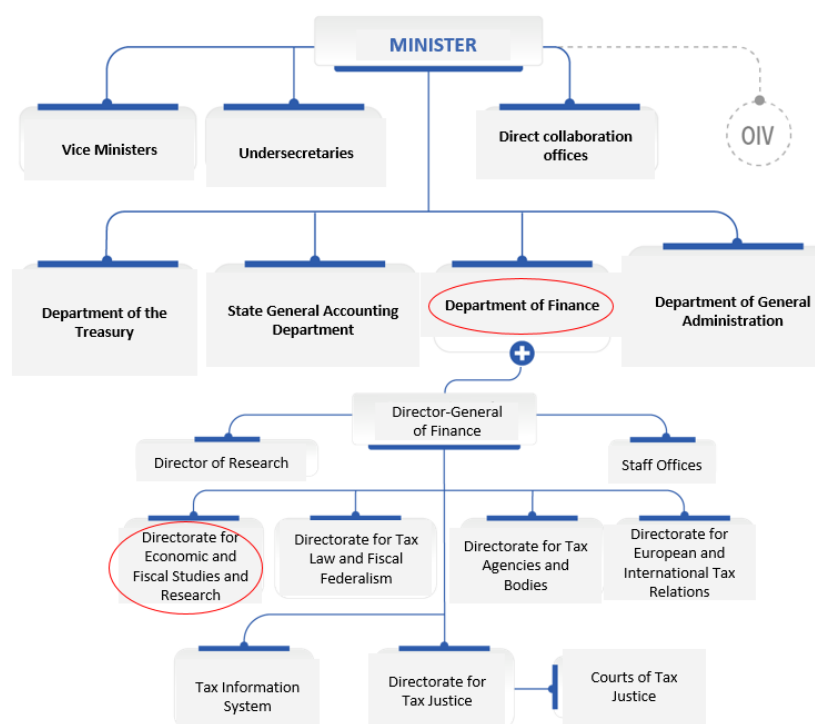
SOGEI (Società Generale d'Informatica), is an information technology company fully owned by the MEF. It is charged with the modernization and digitalization of the Italian public system, as well as with supporting the Government in its policy decisions, through the development of a number of tools.

SOGEI supports MEF in the development and management of a variety of models intended for short-, medium- and long-term forecasts of the Italian economy as well as for policy impact evaluation. Such support is predominantly intended for the preparation of institutional documents, such as the National Reform Plan (PNR), the Stability Program and the Draft Budgetary Plan. SOGEI maintains and operates models fit for macroeconomic and budgetary forecasts and projections, as well as those that look at distributional analysis (see Box 5.3).

5.2.2. The Department of Finance –Directorate for Economic and Fiscal Studies and Research (DSREF)

The Department of Finance's main focus is on tax matters, which has traditionally involved using data from tax returns to provide estimates of the impacts of fiscal policies on tax revenue. This continues to be a key task of the Department, with their estimated impacts appearing in the Technical Notes to legislative documents. However, in the last ten years, there has been a significant increase in the attention given towards distributional impacts by policymakers. In order to support this, the Finance Department's Directorate for Economic and Fiscal Studies and Research (DSREF) has developed various microsimulation models based on the different type of taxes³ in order to analyse the *ex ante* distributional effects of proposed or adopted fiscal policies and reforms.⁴ These models use representative samples of the Italian population, based on a large set of various administrative and survey data. While the models simulate all the relevant tax-benefits policies that it is possible to estimate with the available data, the Directorate is called upon by the government to provide support mainly on policies on the fiscal issues, implying that, in most cases, it only looks at the distributional implications of the relevant benefits and transfers to households and firms having fiscal implications, as is the case of the 2022 family allowance (see Box 5.2) (MEF, 2022^[14]).

Figure 5.8. Hierarchy of the Ministry of Economics and Finance (MEF)



Source: (MEF, 2023^[15])

In most cases, the DSREF conducts distributional analysis in order to assist government officials in choosing the best policy options. As such, the DSREF often runs many simulations, in order to provide the Minister of Economy and Finance and his advisers with a range of policy projects to choose from, and these simulations are internally discussed within the cabinet, and are not made publicly available. The definitive and publicly available simulations are only those on the definitive policies approved and published in the Technical Notes to legislative documents for the tax revenue impacts. Aside from that, Distributional Impact Analysis is also officially published on the Economy Sustainability and Wellbeing report.

In addition, from early 2020 onwards, the DSREF also started to produce policy notes⁵ in order to inform the public on the Covid-19 effects and key reforms, such as the last PIT and family allowance reforms in 2022. When conducting more extensive research on specific topics (e.g. the effects of COVID-19) or when developing new economic models used for the analysis, the DSREF also produces working papers in the Department Working Paper Series⁶ (written in English), as well as occasional scientific publications in specialized economic journals. For example, in the recent case of the pandemic, analysis on the effects of and policy response to COVID-19 was initially published in the form of policy notes, before being further developed in subsequent working papers and published in a scientific journal (Monteduro, De Rosa and Subrizi, 2023^[16]).

Ex ante analyses are essential, considering that there is usually a lag of over a year between when income statements are received and when tax return and survey data are. However, the DSREF also carries out *ex post* analyses once they receive the relevant data, in order to assess the impact of past reforms, and thus support their improvement or justify their continued funding. Examples include the impact assessment of business incentives (*‘Industria 4.0’* plan) (Bratta, Romano and Mazzolari, 2020^[17]), the analysis on the effects on tax gap of the flat tax on real estate (*‘cedolare secca’*) (Di Caro et al., 2022^[18]) and a recent analysis on the expansion of the flat tax for self-employed workers. Sometimes *ex post* analyses are

expressly requested for institutional purposes, as in the case of the analysis provided to the Commission on Tax Expenditures.

The DSREF publishes the official statistics on tax returns annually, as well as those on real estate wealth in Italy⁷ and the above-mentioned Report on the tax gap and informal economy. Some publications receive wide media attention, with major national newspapers covering the main findings as was the case of the recent Well Being and Sustainability Report (Il Sole 24 Ore, 2023^[19]). This kind of media attention has also occasionally been given to the policy notes which are more informal and less technical, and therefore easier for the general public to understand. The statistics on tax returns are of great importance as they form the basis for the DSREF microsimulation models, but also are used by existing external models in Italy.

On top of the internal data at its disposal, the DSREF also makes use of external data sources provided by the ISTAT and the Italian National Social Security Institute (INPS), including information on the socio-demographic characteristics of households, non-taxable incomes, pensions and social security contributions not available in tax returns (for a full description of data sources see the section “Data and information infrastructure”). Model development and impact assessments are generally carried out by internal DSREF officials, as in most cases data are not available for external institutions. However, for some specific projects, the DSREF has worked in collaboration with universities or other research centres (e.g. the Italian EUROMOD team to develop the microsimulation module on labour supply, ECOMOD and the World Bank to develop the ITAXCGE-DF model).

Box 5.2. Impact of 2022 PIT reform and introduction of the “Single and Universal Allowance” (*Assegno Unico Universale, AUU*) on Income Distribution¹

PIT reform and Single and Universal Allowance

In 2022, Italy implemented two important reforms into the tax-benefit system, designing a new Personal Income Tax (PIT) scheme and a new family allowance system intended to make the previous system simpler and fairer. This previous system combined tax credits based on individual income (therefore benefitting only workers with adequate fiscal capacity) and only provided an allowance for employees, based on gross household income.

The AUU increases the number of family allowance recipients by introducing a single and universal allowance for all children under 21. The AUU has a progressive design based on the Indicator of the Equivalent Economic Situation (ISEE),¹ which implies a maximum amount for households with ISEE lower than 15 thousand euros (with an adjustment to a minimum amount for ISEE greater than 40 thousand euros). The modification of the PIT aims to correct some structural flaws linked to the previous design of marginal tax rates, which produced unequal and inefficient treatment of taxpayers. The new scheme reduces the number of tax brackets from 5 to 4 and the two central tax rates from 27% to 25% 38% to 35%. It also innovates the design of the tax credits by type of income (employees, self-employed, and retired people) and the in 2016, design of the so- called “bonus PIT”, an additional benefit initially introduced in 2014 but modified by the most recent PIT reform, and intended for employees with an income of less than 15 thousand euros.

Although the AUU is a transfer to households and thus a spending measure, it fell under the analytical remit of the Department of Finance (DSREF) as it is strictly related to the PIT reform replacing the previous policy of tax credits for dependent children (which now only remains in force for children over the age of 20).

Using the internally developed TAXBEN-DF microsimulation model, the DSREF analysed the impacts of both the PIT reform and the AUU introduction. It found that the two reforms impacted 85% of Italian

households, and although all households benefited, the lowest decile benefitted the most, with the two interventions have an 11.6% impact on household gross income (Table 5.2). When isolating the impact of these two reforms, the DSREF noted that these redistributive effects were predominantly driven by the AUU (Table 5.2, last columns), with an impact of 11.3% on the gross income of the poorest 10% of households, with the income tax reform contributing only the remaining 0.3 percentage points. Overall, the two reforms led to a 1.65% reduction in disposable income inequality (estimated using the post-tax and transfer Gini index), entirely explained by the introduction of the AUU (Italian Department of Finance, 2022^[20]).

Table 5.2. Impact of PIT reform and AUU introduction on Income Distribution

Decile of households equivalent disposable income	# Households involved (thousand)	Average net benefit (euro)	Incidence on household gross income of PIT and AUU		Incidence on household gross income (AUU only)*
1	1 134	1 935	11.6%		11.3%
2	1 585	624	2.5%		1.9%
3	1 901	671	2.3%		1.7%
4	2 147	625	1.9%		1.2%
5	2 292	582	1.5%		0.9%
6	2 364	560	1.3%		0.6%
7	2 453	479	1.0%		0.3%
8	2 625	413	0.7%		0.1%
9	2 738	446	0.7%		0.1%
10	2 957	571	0.5%		0.0%
Total	22 197	614	1.1%		0.6%

Note: On the impacts of PIT and AUU reform on income redistribution and women labour supply, the Department of Finance has recently published this paper: <https://www.rivisteweb.it/doi/10.1429/107435>

* Incidence estimated on households with children only.

Source: (Italian Department of Finance, 2022^[20]).

1. ISEE accounts both for income and for real estate and financial wealth of a household, and it is the ratio between the sum of households' incomes and the 20% of their wealth and an equivalent scale based on the number of household's components, the number of children with some increases based on disability of children, household size, and the number of parents working. In Italy it is widely used to assess the economic situation of households that intended to apply for a social benefit.

5.2.3. The Department of Accounting and the budget process

The Department of Accounting (Ragioneria Generale Dello Stato) is in charge of the budget process, which includes an annual budget cycle starting with the preparation of the Economic and Financial Document (DEF), a document that sets out the macroeconomic projections for the following three years, as well as an update for the current year, and provides fiscal goals for the same period. This initial document must be submitted to Parliament for debate and approval no later than 10 April, before it is then submitted to the European Commission by the end of April, in line with Italy's Euro membership criteria (Blöndal, von Trapp and Hammer, 2016^[21]).

In the second phase of the cycle, line ministries will update their baseline expenditure requirements from the previous year, and attempt to justify these requirements. These line ministries will then defend their claims in front of the MEF, who will review, and adjust the DEF document accordingly. This updated DEF document goes in front of Parliament again, usually around mid-September. This updated version is usually approved by Parliament very quickly, after which budget documentation is presented in mid-October. This documentation consists of the measures necessary to achieve the objectives set out in the updates DEF, and the planning expenditure by policy area. This document goes through several readings, and receives its final approval before 31 December (Blöndal, von Trapp and Hammer, 2016^[21]).

Since 1989, the Italian Parliament has had two in-house non-partisan analytical units in order to help it go through the approval process, known as the State Budget Department and the Senate Budget Service. They both produce several difference types of reports, including analysis of the budget proposals and broader economic analysis. All reports it produces are in the public domain.

In 2016, Italy introduced gender budgeting, with the intention of creating a better understanding of how budgetary allocations impacted men and women differently. RGS prepares the budget, providing a set of indicators to monitor actions taken to address gender inequalities. The initial pilot examined the impact of budgetary policies on women and men in terms of expenditure, services, time and unpaid work, with a 2018 decree strengthening the initiative by explicitly stating that it should define and allocate resources from a gender perspective, and take into account the ESW indicators (Blazey, Lelong and Giannini, 2022^[22]). Analysis of income inequalities by gender have increased steadily since 2016, and are now available in the Annual Gender Report, although as it currently stands this report does not impact the budget process.

5.2.4. The Department of the Treasury

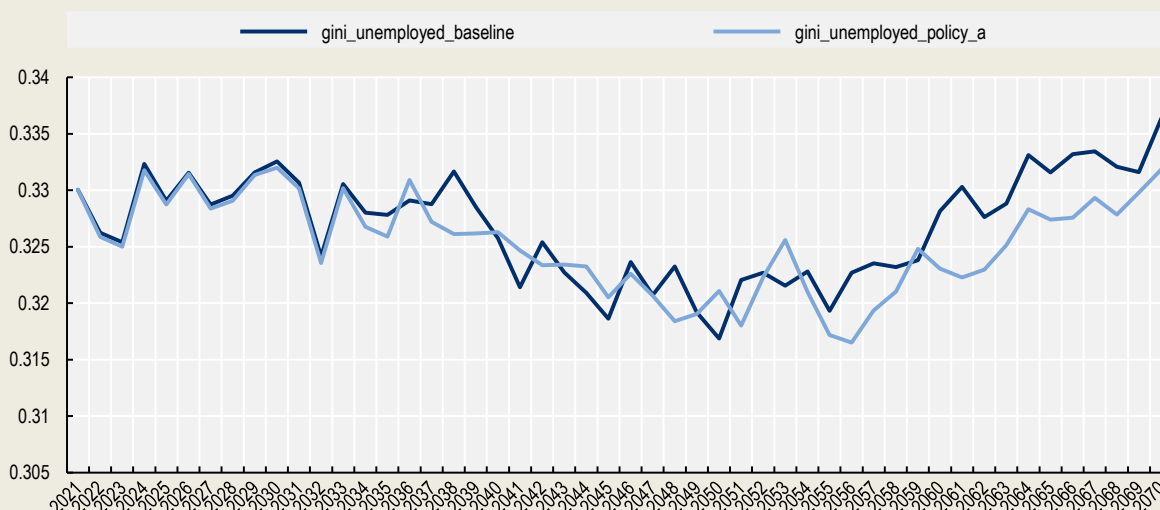
The Department Treasury also plays a key role, given its strength as the powerhouse of economic analysis in the Ministry of Economy and Finance. Its role in terms of inequality and well-being covers two key areas: analysis of distributional implications (particularly for the labour market) using its microsimulation model T-DYMM, and preparation of some general indicators of well-being, which include inequality considerations. Usually analysis from the Treasury is brought to bear for significant structural reforms and long-term projections.

Box 5.3. Policy Recommendations from the “Modernising Social Protection Systems in Italy” Project

“Modernising Social Protection Systems in Italy” (MOSPI) was a project undertaken by INAPP and the Treasury, in tandem with the European Commission and the Giacomo Brodolini Foundation, and with technical support from SOGEI. It aimed at adapting the social protection system to the modern challenges of digitalisation, an ageing population, and the fragilization of the labour market. As part of this project, the T-DYMM simulation model was further developed (see subsequent section), so that it could then be used for impact and distributional analysis.

The project’s final report uses T-DYMM to analyse the impact of two policy options: an extension of the standard unemployment insurance (NASPI) to cover those under nonstandard contracts paired with an extension of an allowance for certain self-employed workers (ISCRO) so that it covers all self-employed workers (Policy A); and the introduction of a guaranteed pension for notional defined contribution (NDC) workers (Policy B). Amongst other things, it finds that Policy A extends the number of unemployment benefits recipients by 3%, and disproportionately benefits those with less education, women, and non-Italians. Furthermore, it has a positive impact on income inequality amongst the unemployed (Figure 5.9). The point of the exercise was to show how T-DYMM can help in assessing the impact of possible policy proposals.

Figure 5.9. Gini index by equivalised disposable income for the recently unemployed



Source: (De Minicis et al., 2021^[23])

Inequality and well-being analysis

In 2010, ISTAT and the National Council for Economics and Labour (CNEL) set up the first phase of the measurement of Equitable and Sustainable Well-being in Italy, and in 2013, the first Equitable and Sustainable Wellbeing (ESW) report was published.⁸ Since then, the report has been published every year by ISTAT and in April 2023 the 10th edition was issued.

In 2016, the Italian Government passed a law which reformed the state budget, it states that government policies must be assessed not only in terms of traditional measures such as GDP, but also in terms of

multidimensional well-being. In doing so it was formally recognised that these indicators should be included in the government's planning documents for the economic cycle. The reform further stated that the MEF must include an annex in its Economic and Financial Document (DEF) report, which must show a) the trend over the last three years of the selected indicators, and b) forecasts on their evolution over the DEF's reference period. Furthermore, by 15 February each year, a report ("The Report on the ESW Indicators", prepared by MEF) must be submitted to Parliament highlighting the evolution of these indicators (Italian Ministry of Economics and Finance, 2018^[24]).

In order to achieve this, a committee⁹ was set up in order to choose the key ESW indicators to be analysed in the annex. The chosen indicators, 12 in total including net income inequality (including direct transfers but not including benefits in kind), absolute poverty, and non-participation in employment by gender,¹⁰ were formally adopted in November 2017, making Italy the first G7 and EU country to include such welfare objectives in economic planning. The reform provided legal basis to the two new reports. Italian governments must now systematically assess, both ex ante and ex post, the impact of policies on the chosen indicators (Italian Ministry of Economics and Finance, 2018^[24]). Much of the data for the indicators is broken down by gender at the national level, including unemployment rate (for both adults and youth), economic inequality and risk of poverty, although most data do not break down by gender at the regional level. (Istituto Nazionale di Statistica, 2021^[25]).

Box 5.4. The Report on Equitable and Sustainable Wellbeing (*Relazione sugli indicatori di benessere equo e sostenibile*)

Since 2017, Italy has incorporated into its budgetary planning a subset of 12 Equitable and Sustainable Wellbeing indicators among those published by ISTAT in its Annual Report, the first OECD country to do so (Blazey, Lelong and Giannini, 2022^[22]).

The baseline level of these indicators is provided by ISTAT using data from the Italian EU-SILC Survey, the LFS Survey and several other sources. Since EU-SILC micro-data are available with a two year delay, in year "x" the models of the Ministry of Economy and Finance provide the estimate of the indicators for year "x-1" and the forecast for years "x+1, x+2, x+3". These estimates are contained in two documents: the "Report on the Equitable and Sustainable Wellbeing Indicators" released to Parliament every February, and the Annex to the DEF, released in April.

The Report and the Annex are co-ordinated and produced mainly by the Department of the Treasury. The statistics within the report and annex concerning income inequality are estimated by the DSREF of the Department of Finance using the interquintile ratio (S80/S20).¹ Following the methodology explained in the previous point, in the year "x", the DSREF provides the impact on the inequality indicator induced by the fiscal policies and transfers of the previous year ("x-1") and the forecast for the following three years accounting for according to currently planned the future policies already planned by the government (European Commission, 2020^[26]).

1. The S80/S20 reports the ratio between the disposable income of the 20% richest and that of the 20% poorest households of the income distribution.

Since then, each year the Treasury Department of the MEF assesses the impact of any new reforms, and publishes its assessment in the two aforementioned key reports. The Report on the ESW Indicators highlights the measures introduced by that year's Budget Law¹¹ that are most relevant to the ESW indicators and provides forecasts of these indicators for the next three years, based on the notes of update to the DEF.¹² The annex to the DEF, which is presented to the Minister of the MEF, updates the forecast of these ESW indicators by considering the new macroeconomic and financial framework defined in the new DEF. These forecasts require specific models that sometimes also consider macroeconomic

variables. The resultant analyses often form part of the public debate and are sometimes considered during parliamentary debates.

While the production of the two reports is mandated by law, ministries are not required to use ESW in their documents, including in their integrative notes¹³ – the guidelines to preparing the integrative notes do suggest the use of ESW indicators, but in practice very few ministries do so. Indicators are also not a part of the Italian government's performance budgeting framework, and thus do not need to be part of the performance plans that ministries submit to Parliament. This means that the budget often will not demonstrate the relevance of ESW to new initiatives that are to receive funding (Blazey, Lelong and Giannini, 2023^[27]).

5.2.1. Other ministries and agencies

In Italy as in other countries, the analysis of the distributional implications of public expenditure is also conducted at the level of some of the social ministries or agencies. The section below discusses the role of two important institutions, the National Social Security Institute and the National Institute for Public Policy Analysis.

5.2.2. The National Social Security Institute

The National Social Security Institute¹⁴ (INPS) is the main Italian entity that concerns itself with managing social monetary transfers, both for pensions and for other forms of welfare. The Institute is run by several bodies, which together draw up, debate and approve both the strategic objectives and the budget of the INPS (INPS, 2023^[27]).

There are several teams within the INPS responsible for the analysis of welfare issues. The first of these is the Central Credit Welfare and Social Facilities Directorate¹⁵ (CCWSS). The CCWSS is responsible for managing all the activities related to the provision of social benefits, as well as the use of various statistical tools in order to monitor and forecast the impact of these benefits. It also analyses regulatory changes in the areas within its jurisdiction, in order to assess their impacts on the INPS' activities. To this end, the team will prepare reports on the trends in the services it provides, and subsequently provide these reports to the Bodies. Another related team is the Central Pensions Directorate¹⁶ (DCP), which is responsible for the management of pensions and redundancy benefits, and provides its own similar reports to the Bodies (INPS, 2023^[27]).

Both the CCWSS and the DCP receive assistance for their analytical endeavours via the General Statistical Actuarial Coordination¹⁷ (CGSA). The CGSA creates medium to long term forecast models, and provides consultancy for the evaluation of new legislative measures. In collaboration with the CGSA, the CCWSS provides analyses on the trends of income support benefits and evaluates the short, medium and long-term effects of these benefits. The DCP's collaboration with the CGSA allows it to manage the Pension's Register, and prepare reports on the trends in pension benefits for submitting to the Bodies, as well as carry out its own analyses on the short, medium, and long-term trends in demand for pensions, and their impacts (INPS, 2023^[27]).

Another key analytical team that the CCWSS, DCP and CGSA all work with is known as the Central Studies and Research Directorate¹⁸ (DCSR), whose overarching role is to provide technical support for the decisions that the INPS makes. This is the team responsible for co-ordinating the writing the INPS' Annual Report, which, among many other topics, includes analysis in income inequality and gender income inequality, as well as the impact of policies aimed at reducing inequality and poverty. The team develops and manages the INPS's microsimulation models in order to assess the impact of welfare policies on the conditions of families and businesses. In liaison with the CGSA, CCWSS and DCP, it promotes the development of new databases, aimed at improving the data frameworks of the INPS. Furthermore, it encourages the interaction between the world of research and the Institute's staff (INPS, 2023^[27]).

5.2.3. The National Institute for Public Policy Analysis

The National Institute for Public Policy Analysis (INAPP) is the research body of the Ministry of Labour. As such, its primary focus is labour market policies (for example, looking at the impacts of temporary vs permanent contracts on medium- and long-term economic growth) but it utilises distributional analysis insofar as it concerns impacts on the labour market. Some of this work has been conducted using LABSIM, an additional microsimulation model developed by the Centre for Microsimulation and Policy (CEMPA) in the Department of Finance, financed by INAPP. The model uses EUROMOD outputs to estimate how a new policy is likely to impact the labour market, as well as any other behavioural impacts it may have (Biagetti, Ferri and Marsiglia, 2023^[28]).

Box 5.5. INAPP's distributional analysis of the 'Baby Bonus'

The Baby Bonus was introduced in 2015 to help incentivise Italians to have children. In 2018, the policy was intended for families with children under 3 years old and with an income below EUR 25 000. In 2019, it was reformed to only include children under 1, and in 2020 reformed again to consider those with incomes up to EUR 40 000.

As this system was to be replaced by the AUU (see Box 5.2) INAPP deemed it valuable to look at how it had helped the population while it was in place. While government provisions such as the baby bonus do not fall directly under INAPP's remit, it was deemed relevant due to the impact of such provisions on the labour supply of women. The work used the EUROMOD Italy micro-simulation model, and EU-SILC data between 2016 and 2018.

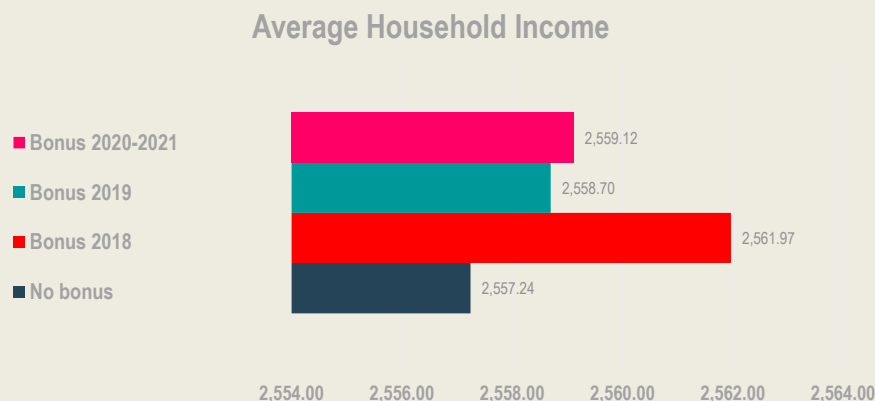
The analysis looked at four scenarios: one without the baby bonus, and then one with each of the three systems in place between 2018 and 2020. It found that the income distribution was most unequal without the bonus, and, according to the Gini coefficient, most equal in 2018. It also found that average family income was highest for the 2018 system. It thus concluded that the AUU would benefit from having a component dedicated to new-borns.

Table 5.3. Disposable income inequality in various scenarios

	Gini No Bonus	Gini Bonus 2018	Gini Bonus 2019	Gini Bonus 2020-2021
Disposable Income	0.3139	0.3129	0.3136	0.3135

Source: (Ferri, Ricci and Scicchitano, 2021^[29])

Figure 5.10. Average household income in four scenarios



Source: (Ferri, Ricci and Scicchitano, 2021^[29])

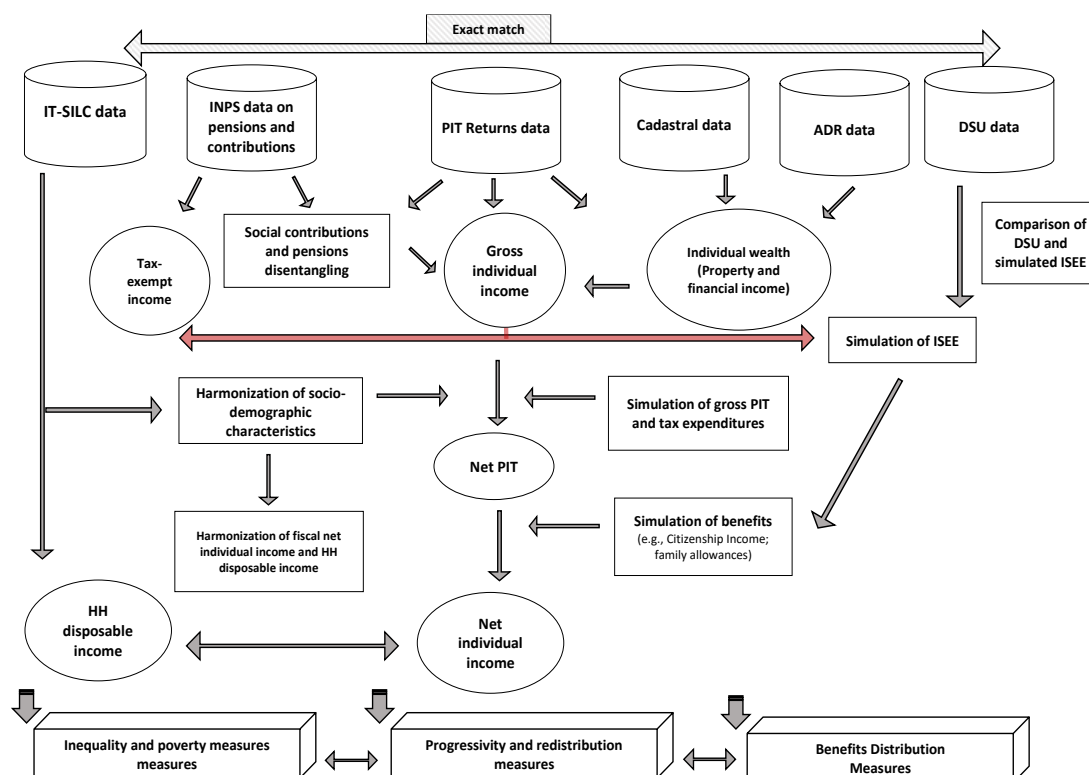
5.3. Tools for assessing the distributional impacts of budget decisions

5.3.1. Microsimulation Modelling: TAXBEN-DF (Department of Finance)

The key model used by DSREF for analysing the redistribution effects of the tax-benefit system on households is called TAXBEN-DF (I). It is based on the Italian version of EU-SILC, a survey provided by the ISTAT that builds a representative sample of the Italian population made up of 21 325 households and 45 761 individuals. TAXBEN-DF uses both survey data from the Italian version of the EU-SILC survey and administrative data from administrative tax returns, exactly matched through individual tax codes, and managed by the Department of Finance (for more details on data sources see the section “Data and information infrastructure”). The model estimates PIT revenue and other wealth and income taxes (i.e. taxation of housing and financial assets, flat tax on certain types of incomes, etc.), as well as social contributions and the impact of household transfers (i.e. family allowances, Citizenship Income, etc.). All this information allows it to simulate the impact of new policies on tax revenue and income distribution (Miola and Manzo, 2021^[30]).

The model contains several different modules that allow for the transition from the individual gross income coming from tax return data to the household disposable income used for distributional impact analysis (see Figure 5.11). Firstly, using the tax identification number, six sources of administrative and survey data are matched, providing the model’s complete database (as the EU-SILC survey sample-weight do not allow to reproduce exactly the major fiscal aggregates, a re-weighting process is applied to replicate both demographics and income distribution resulting from statistics on tax return). Secondly, a first stream of procedures defines all individual incomes, which are normally updated to the current year by applying the growth rate of the latest macro-economic aggregates to wages and prices. All these incomes contribute to the identification of the taxable income. A second stream of procedures then simulates the tax-benefit system. Finally, the net PIT and the net individual income are derived by simulating the main benefits and transfers to households under current tax legislation. The last procedure is applied to harmonize the net tax income and the household disposable income, on which the redistributive analyses are carried out.

Figure 5.11. The TAXBEN-DF model structure



Source: (Subrizi and Miola, 2022^[31])

The DSREF has recently developed a behavioural module of the microsimulation model, called TAXBEN-DF (II), which is used to evaluate the behavioural effects on labour supply of new policies, including labour participation rates, as well as examine second-order impacts of policies on income distribution, by analysing the impacts of behavioural changes. The model takes a discrete approach, grouping working hours into five distinct intervals, and uses a utility function to estimate income and hours of work. It assumes that women vary their labour supply while men work fixed hours, and excludes those who are retired, in education and self-employed (however, further developments of the models will make it more flexible). TAXBEN-DF (II) is fully integrated into TAXBEN-DF (I), meaning that any changes in income tax levels are exactly represented within it (MEF, 2022^[14]).

Furthermore, the distributional effects that TAXBEN-DF (I) and (II) estimate are used as input into the Department of Finance's computational general equilibrium model, ITAXCGE-DF.

The DSREF provides distributional assessments on a large amount of different outcomes, including the variation of household disposable income and how it is impacted by fiscal policies, benefits and transfers, in order to assess where the tax and benefits incidence is concentrated. It also looks at variation in equivalised¹⁹ disposable income and uses indicators to evaluate the distribution of benefits stemming from new policies, their impact on household income inequality and relative poverty, as well as the progressivity of the tax-benefit system. Disaggregated analysis by household composition, region, source of prevalent income, age, education, and other factors is also possible.

The DSREF has developed different microsimulation models to study revenue and distributional effects in a partial and general equilibrium setting of different types of taxes and benefits for firms and households (Table 5.4).

Table 5.4. Microsimulation models in the DSREF of the Department of Finance

Taxes	Non-behavioural microsimulation models		Behavioural microsimulation models	
	<i>Revenue effects</i>	<i>First-order distributional effects</i>	<i>Partial equilibrium</i>	<i>General equilibrium</i>
PIT	TAXBEN-DF (I) Model	TAXBEN-DF (I) Model	TAXBEN-DF (II) Model (in collaboration with EUROMOD)	ITAXCGE-DF Model (in collaboration with ECOMOD and World Bank)
CIT	CITSIM-DF (I) Model		CITSIM-DF (II) Model (in progress)	
VAT and excise duties	VATSIM-DF (I) Model	VATSIM-DF (II) Model	VATSIM-DF (III) Model	

Source: (MEF, 2022^[14])

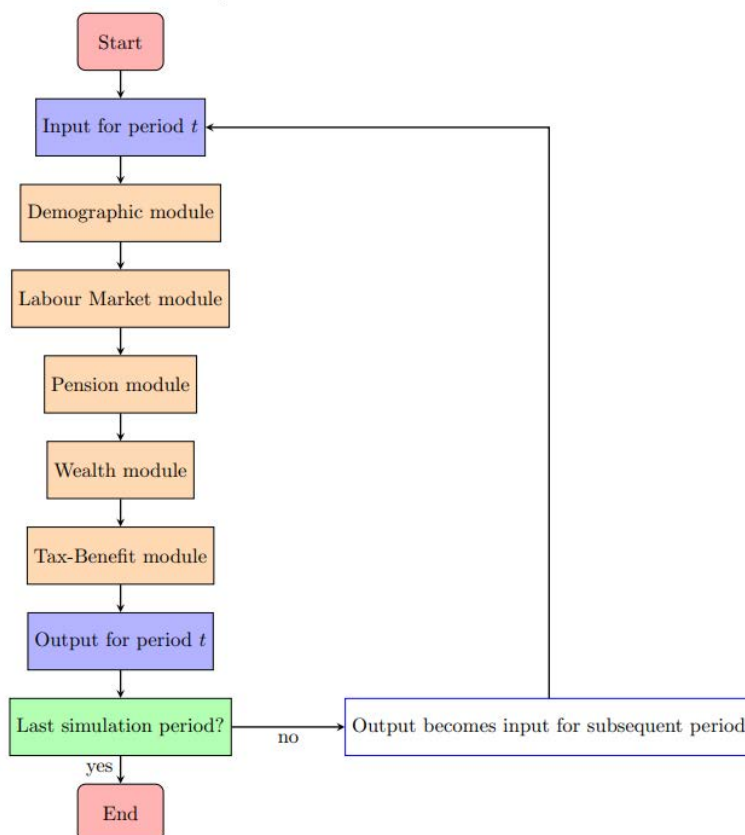
5.3.2. Microsimulation modelling: T-DYMM (The Treasury)

The Treasury Dynamic Microsimulation Model (T-DYMM) has been developed through three research projects sponsored by the European Commission, with the first in 2009 and the most recent in 2021. The model's main aim is to provide long-term distributional analyses of the Italian social security system, hence in most cases it does not concern itself with the annual budget (although it is worth noting that the model has the technical capacity to do short term analysis, it just tends not to be used for this purpose). Its main aim is to look at the impact of pensions and social protection on income distribution, and to this end is able to use other models, including macrosimulation models within the Treasury, to study secondary impacts – for example, it is able to look at the impact of a given reform on employment rates, and then introduce those new employment rates into the model in order to examine their impact on income distribution. The model is able to analyse at both the individual and the household level, although it is not able to look at the regional level (Conti et al., 2023^[32]). It receives the majority of its data from INPS and ISTAT, and some from the Department of Finance.

The model is organised into five modules (see Figure 5.12). For the demographic module, various assumptions are made in order to simulate individuals in the sample being born, aging, dying, migrating, getting education, forming couples and marrying, and becoming disabled. For the labour market module, logit regressions are used to determine whether individuals are employed, and if so, in what capacity. For the pension module, pensions (including disability and survivor pensions) are allocated based on legal requirements as well as the likelihood of the individual taking up the pension when eligible (Conti et al., 2023^[32]).

The most recent version of T-DYMM has incorporated both a wealth module and a tax-benefit module. The wealth module simulates intergenerational wealth transfers, both as a result of donations and inheritances, and financial accrues from housing and other assets. The tax-benefit module simulates taxes and benefits at the national level.²⁰ This tax-benefit module starts by calculating social insurance contributions, which are derived from EUROMOD, before moving on to calculating proportional taxes (i.e. capital income tax, some self-employment taxes) and income tax. It then calculates in-cash benefits, assuming a full-take up rate for all benefits except disability allowances, minimum income schemes and unemployment benefits, for which various probabilistic allocation mechanisms are used (Conti et al., 2023^[32]).

Figure 5.12. Modular structure of T-DYMM



Source: (Conti et al., 2023_[32])

5.3.3. Microsimulation Modelling at INPS

The INPS use a microsimulation model in order to measure the redistributive impact of policy interventions, among other uses. The model breaks down results into various categories, including income, wealth, type of work and geographical area. INPS defines the model as somewhat in between a static and a dynamic model – meaning, in essence, that it is a static model with the ability to adjust incomes, demographic factors, revenues and costs, and other structural conditions. The model uses sample surveys and administrative data, matching the two through tax codes, where generally sample surveys are preferred for analyses of socio-economic issues such as inequality and poverty. The primary source of data for the model is ISTAT SILC data (Di Nicola, 2020_[33]).

5.3.4. The ISTAT Microsimulation Model: FaMiMod

ISTAT's main microsimulation model is known as FaMiMod, and is based on administrative data from the Ministry of Finance, matched to ISTAT survey data from EU-SILC. While the model is static, ISTAT incorporates macroeconomic data into the model using either National Accounts or forecasts from ISTAT's macroeconomic mode, MeMo-It.

The updating of the model consists of three steps: 1) forward projection of monetary variables using either National Accounts or MeMo-It, 2) reweighting based on the most recent known populations breakdown by age, sex, and professional condition (i.e. employed, dependent, self-employed and unemployed), and 3) updating of the legislation within the model in order to have an up-to-date baseline model. At this point, the

model is able to simulate the effects of new policies, comparing incomes and the distribution of incomes in the baseline scenario and a reform scenario. The definition of household income includes labour and capital gains, imputed rent from home ownership, the AUU, and extraordinary measures adopted to mitigate the impact of the recent cost of living increase. The Personal Income Tax Reform and the value of ISEE are estimated within the model (ISTAT, 2023^[34]).

5.4. Data and information infrastructure

5.4.1. Income inequality data: combining administrative and taxation data

The administrative data for TAXBEN-DF (I) comes from personal income tax returns, the National Real Estate Cadaster, the Italian National Social Security Institute (INPS), the Archive of Reports with Financial operators (for financial assets) and the Single Substitute Declaration (the declaration of the income and wealth owned by each family member used to produce the ISEE). To study the effects of COVID-19 on incomes, the DSREF has also recently developed a nowcasting procedure that integrates most frequently available firm-level data, matched using a combination of 6-digit NACE sectors and Italian Regions. The data are managed by the Department of Finance (DSREF), which, as a member of the National Statistical System (SISTAN), is able to utilise data from other SISTAN members provided it is for analysis purposes within previously established and well-defined projects, while they are not available to external academia or research institutes (European Commission, 2020^[26]).

The survey data for TAXBEN-DF (I) comes from IT-SILC (EU-SILC) elaborated by ISTAT. It includes information on incomes, personal characteristics, skills, education level, socio-economic status, and employment conditions. This data source, integrated with non-taxable income data from the INPS, is very important for providing analysis on household income distribution, helping fill in the gaps on the information not included in tax return data. Indeed, the use of survey data in conjunction with administrative data has several advantages. While administrative tax data tends to have greater coverage than survey data, it often provides little to no socioeconomic information on taxpayers or on non-taxable income, and limits coverage to the taxpaying population, meaning that the lower end of the income distribution can be underrepresented. Access to survey data also allows analysts to estimate the size of the shadow economy, through a comparison between survey incomes and tax returns incomes (Miola and Manzo, 2021^[30]).

The Treasury's T-DYMM model also matches survey data from ISTAT with administrative data from INPS, resulting in a final dataset that it called AD-SILC (although it is worth noting that T-DYMM, as a dynamic model, uses longitudinal data, while TAXBEN-DF, as a static model, uses cross-sectional data). More specifically, the model takes longitudinal data (up to four years) on various socio-economic characteristics for 254 212 individuals, while it takes longitudinal data on pensions and working history from INPS. Ad-SILC also contains information from tax returns and the Cadaster, as collected by the Department of Finance, and information from the Bank of Italy's Survey on Household Income and Wealth (Conti et al., 2023^[32]).

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Notes

¹ On the impact of tax and transfers on inequality, see the dynamics of the interquintile ratio estimated in the “Equitable and Sustainable Wellbeing Report” in the years 2022 (https://www.mef.gov.it/inevidenza/2022/article_00071/Relazione-BES-2022_03_03.pdf) and 2023 (https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_it/analisi_programmazione/documenti_programmatici/Relazione-BES-2023.pdf). On the Gini index up to 2020, see http://dati.istat.it/Index.aspx?DataSetCode=DCCV_GINIREDD; for 2022 see <https://www.istat.it/it/archivio/277878>.

² Of the EUR 218 billion spent on pensions in 2021, EUR 195.4 billion (89.3%) came from social security schemes, with the remainder funded by welfare schemes (Il Sole 24 Ore, 2022^[5]).

³ i.e. personal income taxes, corporate income taxes, VAT and excise duties.

⁴ Data on households’ incomes are available with a two-year delay, implying the necessity of microsimulation models to analyse the impacts also of recently adopted policies.

⁵ The policy notes are available here: <https://www.finanze.it/it/il-dipartimento/Analisi-economiche-e-fiscali-note-tematiche/notetematiche>.

⁶ The WPs are available at this link: <https://www.finanze.it/it/il-dipartimento/collana-di-lavori-e-di-ricerca/working-papers>.

⁷ These are published less regularly, usually once every two years.

⁸ For a full description of the nature and data source of each indicator, see *Descrizione dei domini e degli indicatori del Bes selezionati dalla Commissione scientifica e varati* (Italian Government, 2012^[35]).

⁹ The “Committee for Fair and Sustainable Welfare Indicators” (*Comitato per gli indicatori di benessere equo e sostenibile*) was chaired by the Minister of Economy and Finance, and composed of the President of ISTAT, the Governor of the Bank of Italy, and two field experts.

¹⁰ The other indicators were as follows: adjusted gross disposable income per capita, healthy life expectancy at birth, proportion of population that is overweight, early exit from education rate, employment rate of women with young children and without children, predatory crime rate, civil justice efficiency, CO2 emissions, and unauthorised building rate.

¹¹ *Legge di Bilancio* in Italian.

¹² These notes, known as NADEF (*Nota di Aggiornamento al Documento di Economia e Finanza*) are presented to the Chamber before the end of September each year in order to update the predictions and policy objectives of the DEF due to the greater availability of information.

¹³ Integrative notes (*note integrative*) are documents written by the line ministries in order to demonstrate to the General State Accounting Office (*Ragioneria Generale dello Stato*, RGS) their objectives and the financial resources needed to realise them.

¹⁴ *Istituto Nazionale della Previdenza Sociale* in Italian.

¹⁵ *Direzione Centrale Credito Welfare e Strutture Sociali* in Italian.

¹⁶ *Direzione Central Pensioni* in Italian.

¹⁷ *Coordinamento Generale Statistico Attuariale* in Italian.

¹⁸ *Direzione Centrale Studi e Ricerche* in Italian.

¹⁹ Disposable household incomes are made equivalent by the application of the modified-OECD-equivalence scale: disposable household incomes are divided by a quotient that is the sum of individual coefficients, *i.e.* 1 for the first adult, 0.5 for every other adults and 0.3 for every component younger than 14.

²⁰ T-DYMM does not include an internal migration module and no regional-level taxes and transfers are simulated. Furthermore, no COVID-19-related transfers are simulated in the model, for three main reasons: 1) much of the COVID-19-specific aid took the form of salary integration for those suspended from work, which the model is not able to consider separately from other labour income, 2) there was insufficient data on lump-sum transfers to self-employed workers, and 3) the medium- and long-term focus of the model means that emergency measures such as those related to COVID-19 are not of immediate relevance.

6 The case of Korea

This case study provides an overview of recent trends in income inequality in Korea, and discusses how considerations for inequality and distributional implications of public expenditure are brought to bear as part of the budget process. It discusses the practices currently in place in the country, how they are set up in the country's public expenditure frameworks, and how they are supported at the technical level, through the range of models, and data tools that are utilised in policy practice.

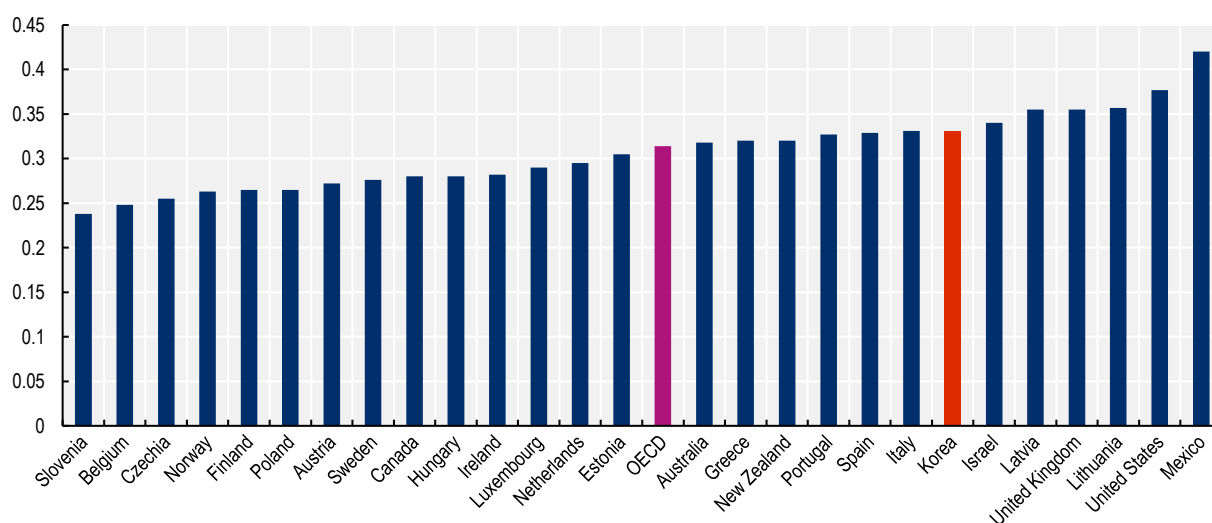
6.1. An overview of recent trends in inequality in Korea

While economic researchers have always had a great interest in income and wealth, multidimensional inequality assessments that move beyond traditional economic metrics are generally considered to be a more recent type of approach. In this spirit, this chapter will examine various inequalities in Korea such as housing, health, education, and regional inequalities.

6.1.1. Income inequality

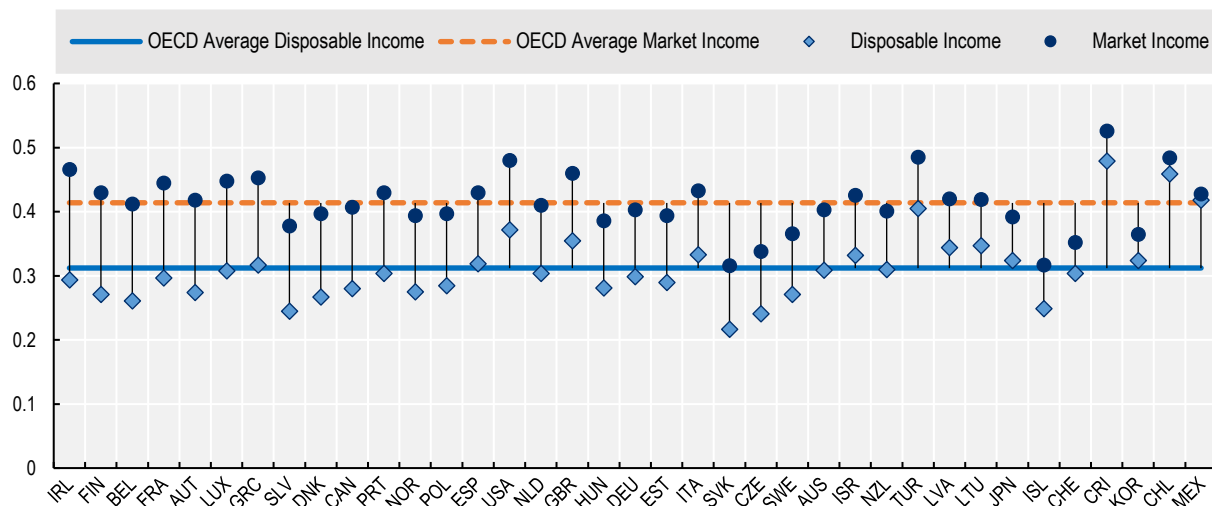
The disposable income Gini coefficient of Korea was 0.331 in 2020, above the OECD average.

Figure 6.1. Disposable income Gini coefficient of Korea



Source: OECD. Stat

Figure 6.2. Differences in household income inequality among the working-age population, pre- and post-tax and government transfers, 2019

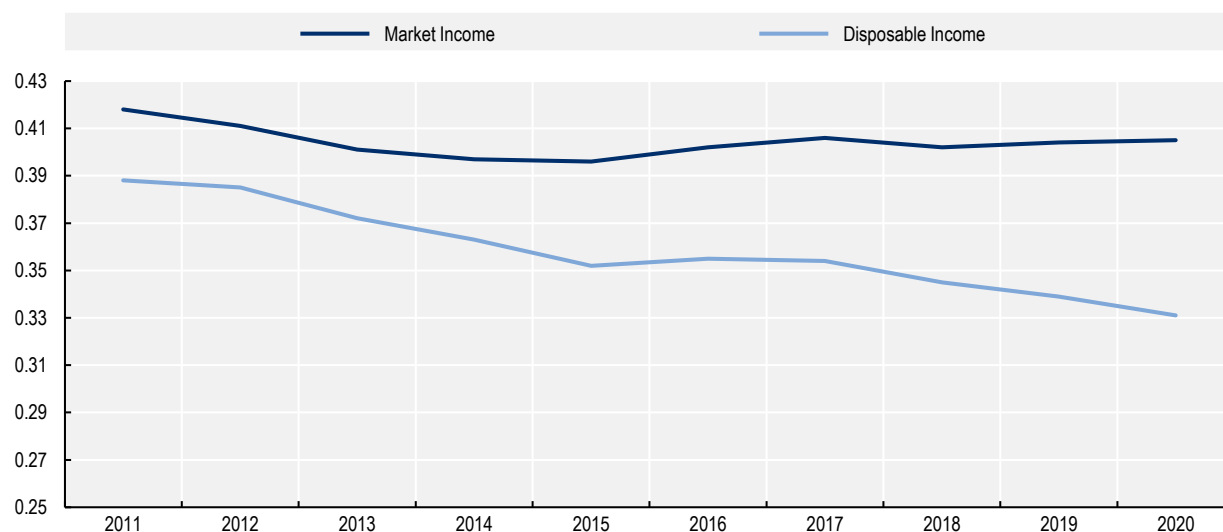


Notes: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, Iceland and South Africa (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg and South Africa. Earlier data for Brazil, Chile, Estonia, Sweden and the United States are from 2013.

Source: OECD Income Distribution Database

While Korea has a lower market income inequality level than the OECD average, the impact of its tax and transfer system on the Gini coefficient is smaller than in most OECD countries.

Figure 6.3. South Korea's market and disposable income Gini coefficients over time



Source: OECD. Stat

The market income Gini coefficient decreased slightly between 2011 and 2020, while the disposable income Gini coefficient for the same time period decreased at a greater rate (see figure 3). This may well reflect the fact that the 19th National Assembly, which was in place between 2012 and 2016, highlighted the importance of using tax policy to reduce inequality, and thus shifted the policy objective for corporate and value-added tax from economic growth to inequality reduction (Korean National Assembly Budget Office (국회예산정책처), 2017^[1]). As a result, corporate tax increased from 12.2% in 2011 up to 33.6% in 2016, and property tax law from 10.5% to 49% (Korean National Assembly Budget Office (국회예산정책처), 2017^[1]). This trend towards equity-oriented tax policies continued under President Moon Jae-in (문재인 in Korean), who reformed the income tax system in 2017 in order to further increase its redistributive impacts.

Such policies aiming to reduce income inequality have tended to focus on tax reforms rather than transfers. While a welfare system does exist in Korea, and indeed has expanded in the past decade (전규식, 정지수, 유경원 (Jeon G., Jeong, J., Yoo G.), 2016^[2]), social welfare expenditure is lower than in many other countries – In addition, the degree to which fiscal spending contributes to reducing income inequality tends to be comparatively lower in Korea (Yeonhap News, 2018^[3]).

6.1.2. Housing Inequality

In the past several decades, firm land ownership has increased while individual land ownership has decreased. In 1945, the Gini coefficient stood at 0.73, although this was reduced to 0.39 in 1960 after land reform saw redistribution of the land owned by former colonial landlords. Since then, wealthy farmers have started to gain more land, and during Korean industrialisation moved to metropolitan areas and were able to build factories and other infrastructure on this land. As such, the figure has climbed back up again steadily, reaching 0.811 in 2019. While this is certainly a major issue facing the Korean economy and merits further research, such an issue is related to wealth inequality and cannot be addressed directly through public expenditure and transfers, and is thus beyond the scope of this paper

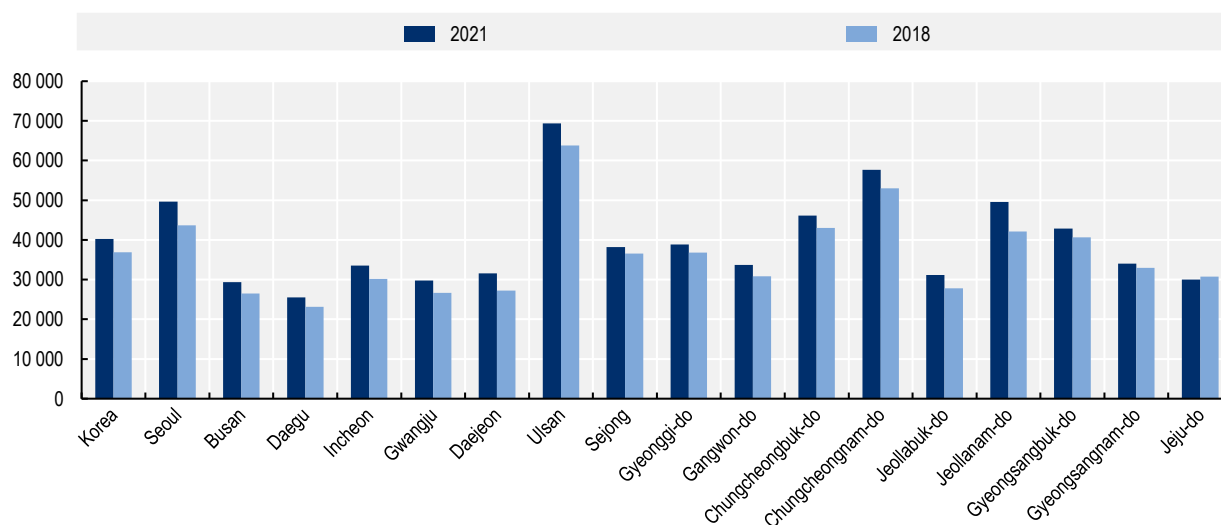
6.1.3. Health and education inequality

The Korea Institute for Health and Social Affairs provides several indexes¹ to measure health inequality in Korea, in order to be able to develop and monitor any health-oriented policies. Education inequality in Korea measures high-ranked university entrance, high-ranked science and engineering department entrance and postgraduate education. Most of these measures are highly dependent on parents' education level, household income, gender, and region of origin. However, the influence of parents in education inequality does not show an increase (김준형 (Kim J.), 2018^[4]). While again, these topics are important issues in Korea, an in-depth discussion of health or education inequality would go beyond this study's focus on the direct income distributional aspects of public expenditure.

6.1.4. Regional inequality in per capita income

The Korean Statistical Information Service (KOSIS) provides data looking at living standards at the regional level. These data consist of 7 main dimensions, including employment and labour and social integration.² They show that the majority of regions have seen an increase in GDP per capita between 2017 and 2020, with some of the highest percentage increases attributable to some of the lowest-income regions, including Daegu, Gwangju and Daejeon.

Figure 6.4. GDP per capita for each region



Source: Korean Statistical Information Service

6.2. Budgeting frameworks related to inequality and well-being

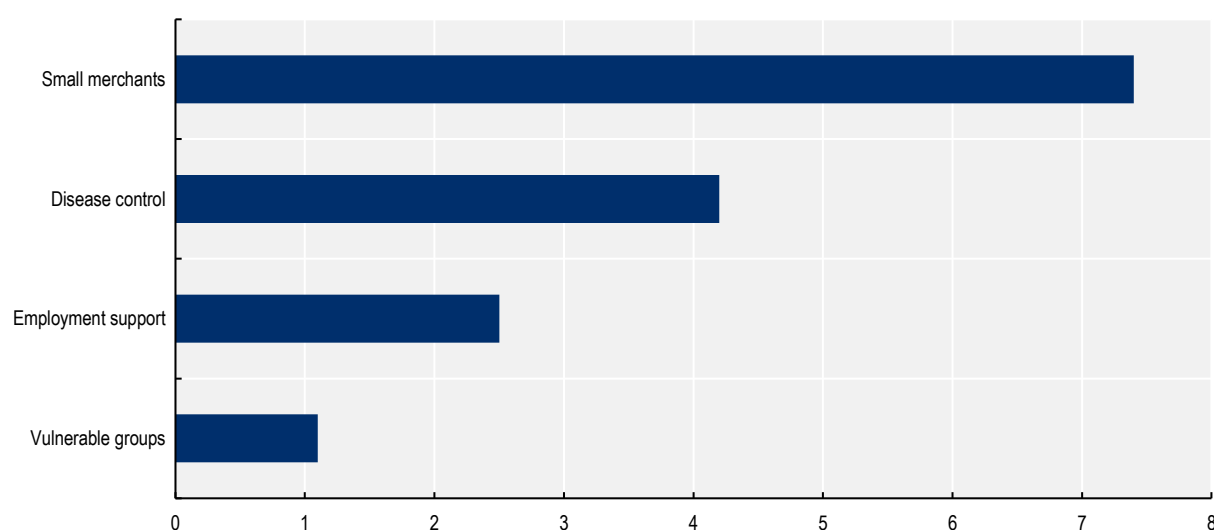
6.2.1. The budgeting process in Korea

Between 31 December and 31 January, the Ministry of Economy and Finance receives submissions of medium-term business plans from each government office. The Ministry then has two months to send instructions on budget plans based on these business plans back to the offices, and formulate that year's budget. This budget formulation is then submitted to parliament, who have 90 days to discuss it. The modified version is then given to the Minister of Economy and Finance, who assigns it to the relevant central government offices for execution. Once policies have been enacted, each head of a central government office must submit a settlement report of the fiscal year to the Minister of Economy and Finance, as required by the Public Finance Act. The Minister then aggregates tax revenue and expenditure and submits this overall settlement report to the Board of Audit and Inspection and the President, who then inspect the report before sending it to Parliament.

The 2023 Korean governmental budget plan states that its main goal is to exert fiscal restraint to maintain financial stability, following the unexpected spike in expenditure over the past few years aimed due to covid-19 related policies. However, the budget plan will also incorporate considerations related to multidimensional inequality and redistribution.

Aggregate revenue in 2023 is predicted to be 625.9 trillion won, and aggregate expenditure is predicted to be 639 trillion won. This represents an increase of 8.7% since 2018, although it is a 5.2% reduction compared to last year's expenditure levels.

Figure 6.5. First supplementary budget for 2021 (KRW trillions)



Source: Korea governmental budget plan 2023

6.2.2. Budget measures to offset inequality

The Korean government's 2023 budget plan consists of several policies relating to inequality reduction³. These take the form of several overarching aims which then contain various policies within them.

One of these aims is to reinforce the social safety net. The Korean government plans to increase the standard median income by 5.47% -- a move that will alter the threshold for receiving basic livelihood security and medical benefits, and thus increase the number of recipients. Subsidies to support the vulnerable in social security living, education, medical benefits, and housing will also increase. Furthermore, social insurance will be modified to help 280 thousand blind spot workers⁴, involving new insurance for housing fraud and subsidies for poor housing environments. As a result, income, health, and housing inequalities are expected to decrease.

A second aim is to protect the socially underprivileged. To this end, the government plans to raise disability benefits and disability pension benefits, as well as provide funding for 8 hour-care for those with developmental disabilities. It will also subsidise call taxis for those with disabilities, and medical procedures such as disability pre-detection for children.

The third aim is to balance regional development. The budget outlines new subsidies for farmers and fishermen who have been in the blind spot, that is, should receive subsidies but do not. In addition, the government plans to increase the low-population rural area budget, and build infrastructure such as universities, smart cities, research institutes, and administration departments in rural areas.

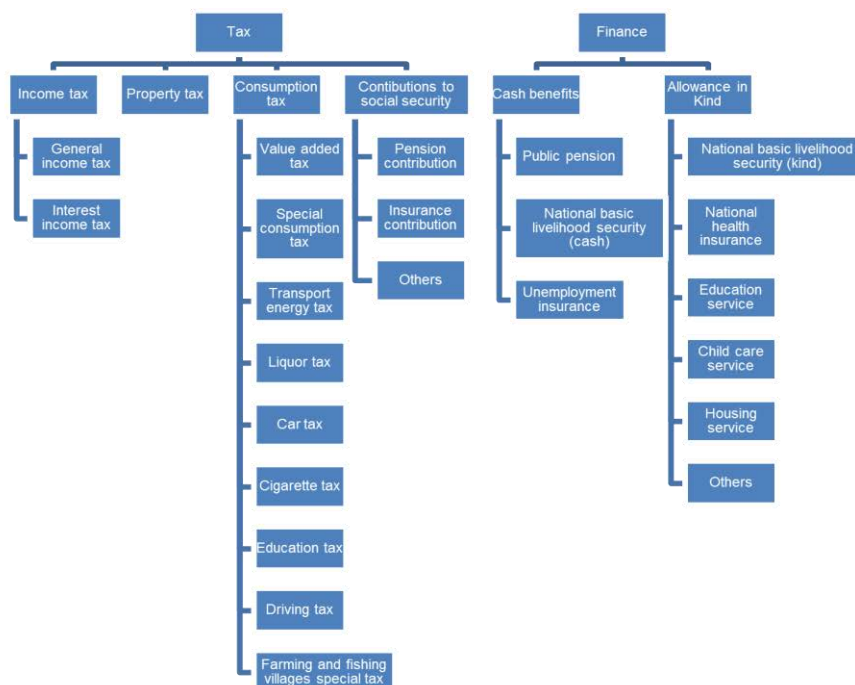
The fourth aim is to increase the fertility rate. The government will subsidise parents who take care of infants, and will increase the level of support targeting low-income households and single parents through the free provision of diapers, powdered milk, and other products. For single parents and double-income households, it will build more childcare infrastructure. Finally, the government will increase parental leave subsidies for both employers and employees.

6.3. Tools for assessing the distributional impacts of budget decisions

6.3.1. Microsimulation models in the Korea Institute of Public Finance (KIPF)

The Korea Institute of Public Finance (KIPF) houses two main microsimulation models, known as KIPFSIM08 and KIPFSIM10. KIPFSIM08 focuses on taxation and fiscal policy effects, especially income tax, consumption tax, pensions, and health insurance, while KIPFSIM10 is a variant of KIPFSIM08 with a greater number of social insurance programmes incorporated.

Figure 6.6. Organisational structure of KIPFSIM08



Source: (선명재, 전병목, 전병힐 (Seong M., Jeon B., Jeon B.), 2009^[5])

KIPFSIM08 was created in 2008, with the intention of creating greater capacity within government to verify the expected success and efficiency of proposed policies. It came alongside the Earned Income Tax Credit, a popular policy in Korea at the time, for which the Korean government was keen to create simulations. The types of tax and transfers it accounts for are indicated in Figure 6.6.

When the model is run, it first gathers demographic variables such as age, gender, education level, and income. At the intermediate step, the tax policy is parametrized and estimated. Given these estimated tax policies, parameters such as labour supply elasticity are subsequently estimated. The user can then choose a scenario, such as a social pension increase, and calculate the income distribution inequality index before and after the application of a scenario.

Table 6.1. KIPFSIM10 simulation analysis result

Income with Policy	Gini Coefficient
Market Income	0.37667
Private Transfer	0.35971
Public Transfer	0.32969
Income Tax and Wealth Tax	0.31727
Disposable Income	0.31260

Source: Korea Institute of Public Finance

The models are updated on an ad-hoc basis, dependent on researcher wishes. Both KIPFSIM08 and KIPFSIM10 are static models, although KIPFSIM10 is able to go some way towards estimating labour supply elasticity by looking at labour market participation. It is worth noting that both rely entirely on survey data, and as such suffer from several measurement issues. Furthermore, microsimulation models are not often used to aid in government decision making.

6.3.2. Data and information infrastructure

This section introduces four key public data sources used in distributional impact analysis: the National Survey of Tax and Benefits, the Korean Longitudinal Study of Aging, the Korean Education and Employment Panel, and the Korea Welfare Panel Study.

- The National Survey of Tax and Benefit data consists of survey data to analyse tax policy and welfare expenditure effects. It consists of a number of variables including income, housing, household expenditure, earned income tax credits (EITC), transfer income, vehicle, education, and pensions. It consists of 5 634 households and uses both individual- and household-level data.
- The Korean Longitudinal Study of Aging data focuses on the middle and old-age population. It consists of activities of daily living (ADL), medical service usage, body function, self-evaluated health, high blood pressure, and diabetes, among other factors. It consists of 10 254 households and uses both individual- and household-level data.
- The Korean Education and Employment Panel is focused on the student population. It consists of education experience, university entrance, labour market participation preparation, and job training, among other factors. It consists of 2 000 middle school students, 2 000 vocational school students, and 2 000 high school students.
- The Korea Welfare Panel Study is focused on poverty. It consists of working poor and near-poor population characteristics, labour participation status, policy benefits, and income and wealth of the poor, among other factors. It consists of 7 000 households, where 3 500 are low-income and 3 500 are general.

6.4. Challenges of developing an appropriate data and information infrastructure

While there are various ways to improve distributional impact analysis, this section focuses on two of the most urgent issues faced when addressing the information needs that arise as a result of distributional analysis.

A key issue in assessing the distributional impacts is caused by difficulty in combining different data sources. As evident from above, most data sources focus on a specific subject and thus are only able to be used in analyses of narrow topics. Given the increasing prevalence and importance of multidimensional inequality analysis, economists often require large and heterogeneous sets of information. To control such heterogeneity, Korea would benefit from a unified large data set that includes all relevant related information. A major reason why this has not yet occurred is due to privacy concerns, which could potentially be addressed by replacing social numbers with private identification numbers, so that people cannot be directly identified.

The second key issue is that many current policies are the result of a multiplicity of slight additions and modifications over the years and are thus very complicated. This can in turn make research and analysis of policies very difficult, as the intended effects of these policies are often not clear. Given the major changes that have occurred in real world situations, it would be better to overhaul these policies entirely, and simplify them in the process.

To solve both problems, there is a need for a more integrated approach, bringing together the data component and the policy component. Regarding data combination, a central institution tasked with unifying otherwise disparate data sets, similar to those found in Sweden and the Netherlands, would be highly valuable. Moreover, regarding the simplification of public policies, it could be useful for the government to appoint policy design experts who could remove redundant policies and rearrange the existing ones in a well-organised way.

References

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- Yeonhap News (2018), “한국 재정지출 소득재 분배 효과 작다...OECD 평균의 ⅓ 불과 [The income redistribution effect of Korea’s fiscal expenditures is small... Only ⅓ of the OECD average]”, <https://webzine.kacpta.or.kr/news/articleView.html?idxno=2152> (accessed on 23 October 2023). [3]
- 김준형 (Kim J.) (2018), *부모배경에 따른 교육불평등은 심화되었는가?: OECD 5개 국가의 교육불평등 비교 분석 (Socio-Economic Educational Inequality is increasing?: A Comparative Study on Inequality among 5 OECD Countries)*. [4]
- 선명재, 전병목, 전병힐 (Seong M., Jeon B., Jeon B.) (2009), *조세/재정모의실험 모형: KIPFSIM08 모형의 구축 (Model of Tax Finance Simulation: Establishment of KIPFSIM08)*. [5]
- 전규식, 정지수, 유경원 (Jeon G., Jeong, J., Yoo G.) (2016), *조세 및 재정지출 정책의 소득재분배 효과 분석 (Income redistribution policy and income inequality in Korea and OECD countries)*. [2]

Notes

¹ These indexes consist of child well-being, smoking ratio, exercise level, breakfast, eating fruit, average sleep time, body image distortion, sexual experience, unmet healthcare needs, self-rated health, BMI, stress assessment, depression, suicidal ideation, and suicide attempts

² The other dimensions are health and education, income, consumption, and growth, security and environment, population and household, and housing, leisure, and culture.

³ Examples included basic livelihood security and medical benefits, disability activity support, promotion of the ease of transportation for mobility-disadvantaged persons, youth housing, and military basic pay.

⁴ Defined as workers who have not been enrolled into social security programmes.

7 The case of the Netherlands

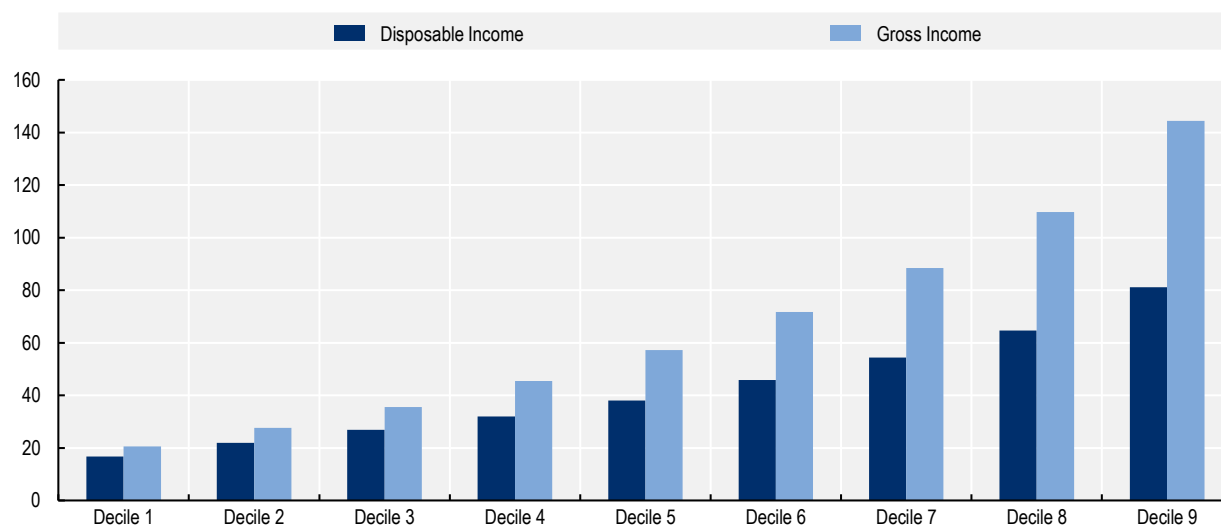
This case study provides an overview of recent trends in income inequality in the Netherlands, and discusses how considerations for inequality and distributional implications of public expenditure are brought to bear as part of the budget process. It discusses the practices currently in place in the country, how they are set up in the country's public expenditure frameworks, and how they are supported at the technical level, through the range of models and data tools that are utilised in policy practice.

7.1. An overview of recent trends in inequality in the Netherlands

7.1.1. Trends in income inequality

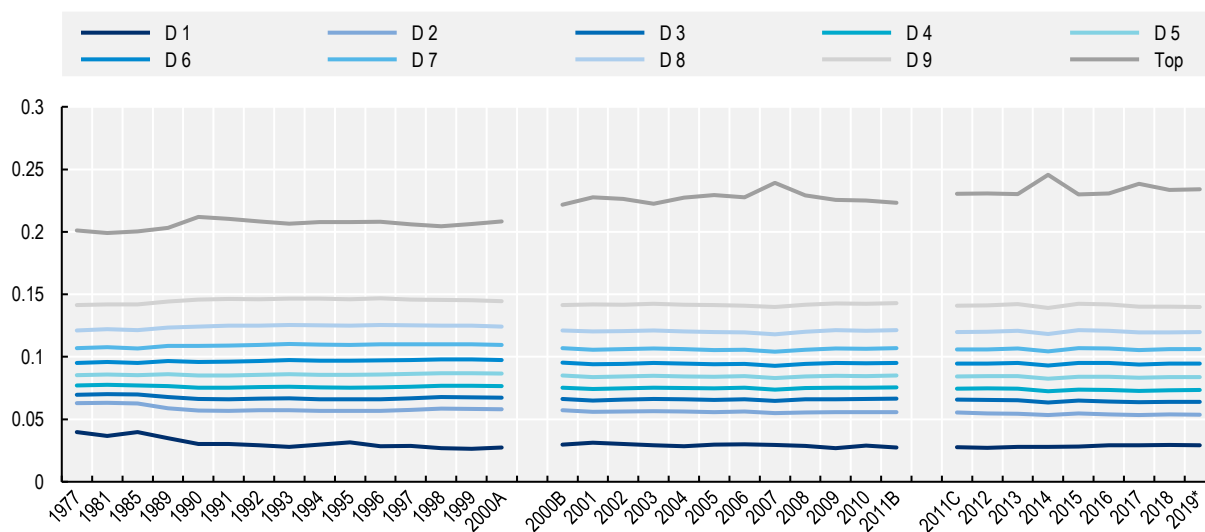
In 2020, the median disposable income in the Netherlands was approximately EUR 38 000, while the thresholds for the bottom and top deciles were EUR 16 700 and EUR 81 200 respectively. As indicated in Figure 7.1, the income distribution is skewed at the top end, with the top decile receiving 21% of total disposable income (CBS, 2022^[1]).

Figure 7.1. Gross and Disposable Income by Decile



Source: (CBS, 2022^[1])

In broad terms the patterns of disposable income distribution, after tax and transfers, have remained fairly stable for several decades, as evidenced by Figure 7.2. The most significant change has been the top decile, which has notably increased its share of total disposable income since 1977.¹ Such income growth by top earners is evident in several OECD countries and reflects underlying market dynamics, and can be attributed to, among several other factors, a significant growth in capital income. In the Netherlands, spikes in the top decile's share in 2007 and 2014 are predominantly due to a temporary tax cut for directors and major shareholders, while the spike in 2017 was caused by a tax rebate for self-administered pensions, which many directors and major shareholders utilised (Caminada et al., 2021^[2]).

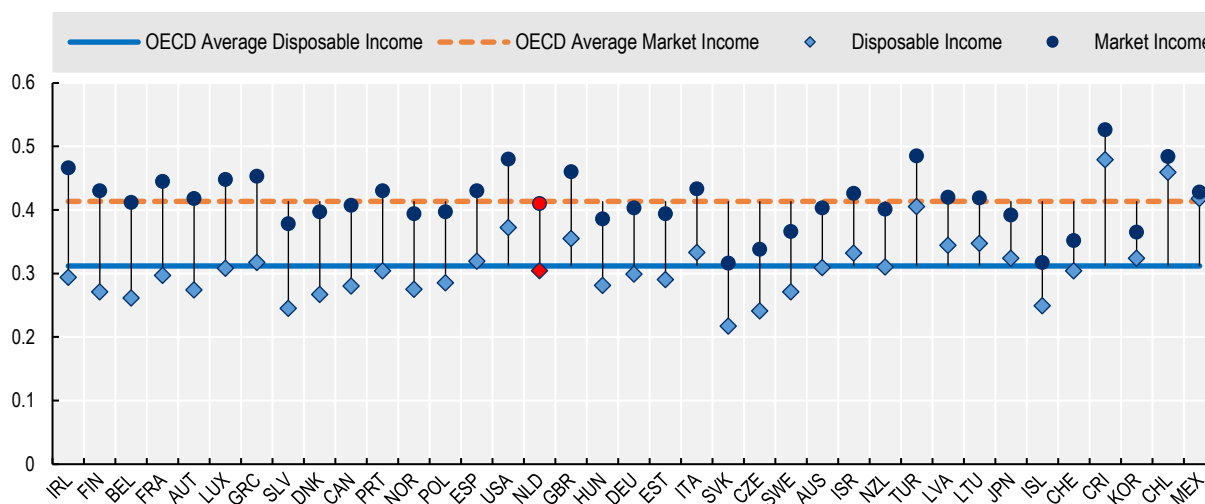
Figure 7.2. Share of disposable income by decile group 1977-2019

Source: (Caminada et al., 2021^[2]).

7.1.2. Impact of taxes and transfers on income inequality

In 2019, 5.2 million Dutch households received income from employment, and 3.8 million households received benefits and/or income transfers. Of this latter group, the largest subgroup was for pensions benefits, with 2.7 million recipient households. Market income made up 76% of total income, while income derived from social insurance benefits (including unemployment benefits, sickness benefit and pensions) made up 21%, and other social benefits made up 3% (Caminada et al., 2021^[2]).

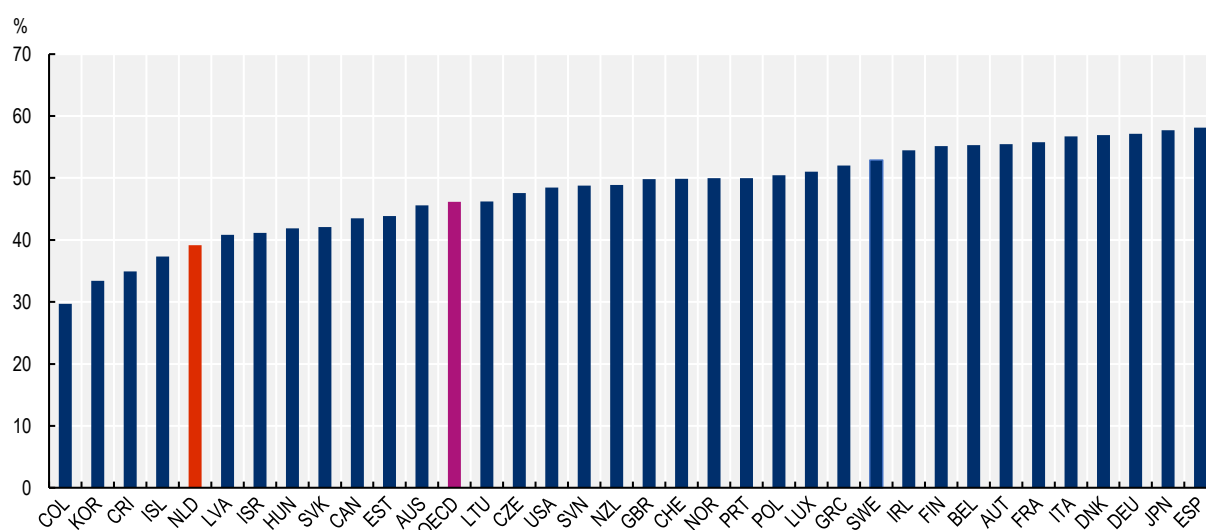
The Netherlands is near or slightly below the average of the OECD countries both before and after redistribution via taxes and transfers – in 2019, they reduced inequality by 0.106 Gini points, slightly more than the OECD average of 0.102.

Figure 7.3. Differences in household income inequality among the working-age population pre- and post-tax and government transfers, 2019

Note: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, Iceland and South Africa (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg and South Africa. Earlier data for Brazil, Chile, Estonia, Sweden and the United States are from 2013.
Source: OECD Income Distribution Database.

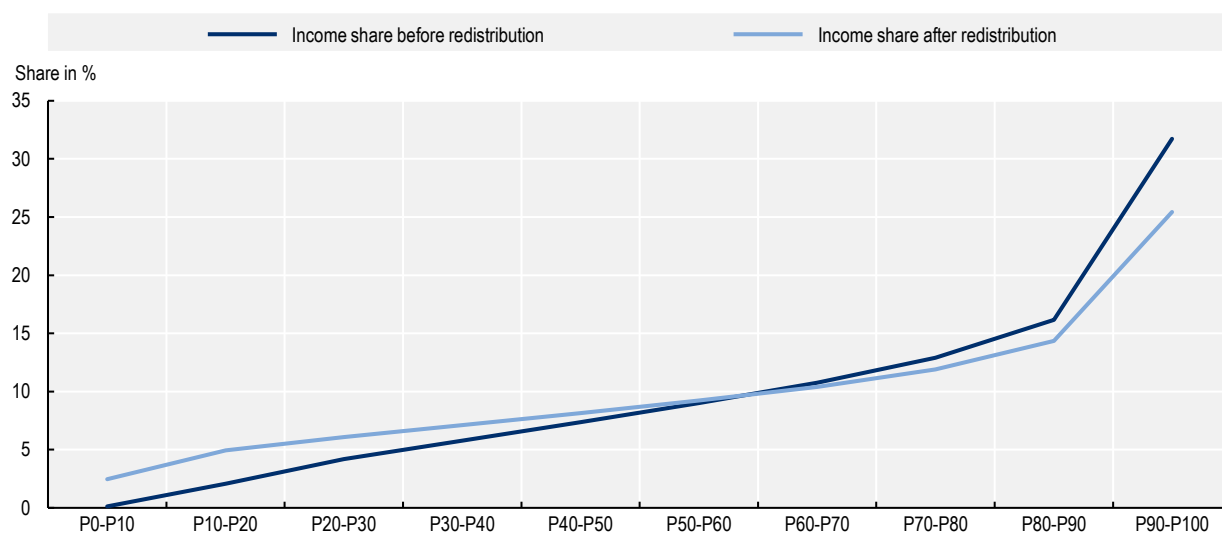
However, the Netherlands is below the OECD average in terms of social expenditure as a percentage of GDP, as evidenced in Figure 7.4. Indeed, Israel, Iceland, Switzerland, Australia, Canada, and the United States all spend more on social benefits as a percentage of GDP than the Netherlands, yet achieve less redistribution. While some of this may be due to the impact of private social spending, particularly pensions, given that in 2019 the Netherlands had the highest private social expenditure in the OECD (OECD, 2023^[3]), it nevertheless suggests a relatively efficient and targeted use of government funds for social purposes.

Figure 7.4. Social expenditure as percentage of total expenditure in OECD countries, 2017



Note: For Japan and Australia, data refer to 2017.
Source: OECD.Stat

According to national estimates by the Netherlands Bureau for Economic Policy Analysis (CPB), social expenditure has a far more powerful effect on redistribution than taxation in the Netherlands, particularly when accounting for regressive taxes such as VAT and excise duties. Redistributive measures cause the income share for the bottom 50% of Dutch households to rise from 19 to 29% of total income, while all income deciles in the top 40% of earners see a reduction in their share (see Figure 7.5). This effect is most notable for the top decile, who see their share decrease from 32 to 25%. On the other hand, the bottom 50% pay 55% of their income in tax, predominantly due to them disproportionality shouldering the indirect tax burden, while the top 10% pay just 36% of their income in tax, mostly as high earners tend to earn a larger share of their income from wealth (such as returns on investments) which is taxed at a lower rate (CPB, 2022^[4]).

Figure 7.5. Income distribution before and after redistribution by income decile, 2016

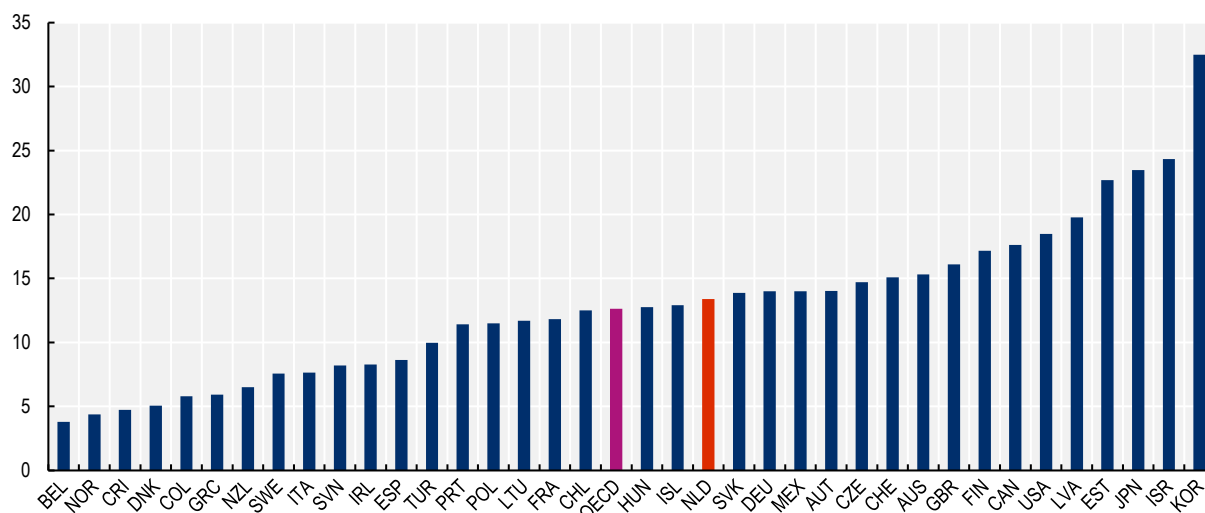
Source: (CPB, 2022^[4])

7.1.3. Trends in income inequality by gender

The Netherlands's wage gap is slightly above the OECD average's, at 13.4% compared to the OECD's 12.6% (Figure 7.6). However, this figure has narrowed significantly in recent years, from its peak of 17.8% in 2010 (31% higher than OECD average) to its 2019 low (6% higher than the OECD average).

Figure 7.6. Gender wage gap in the Netherlands as a % of median earnings of men, 2019

Wage gap defined as the difference between median earnings of men and women relative to median earnings of men



Note: Data refer to full-time employees.

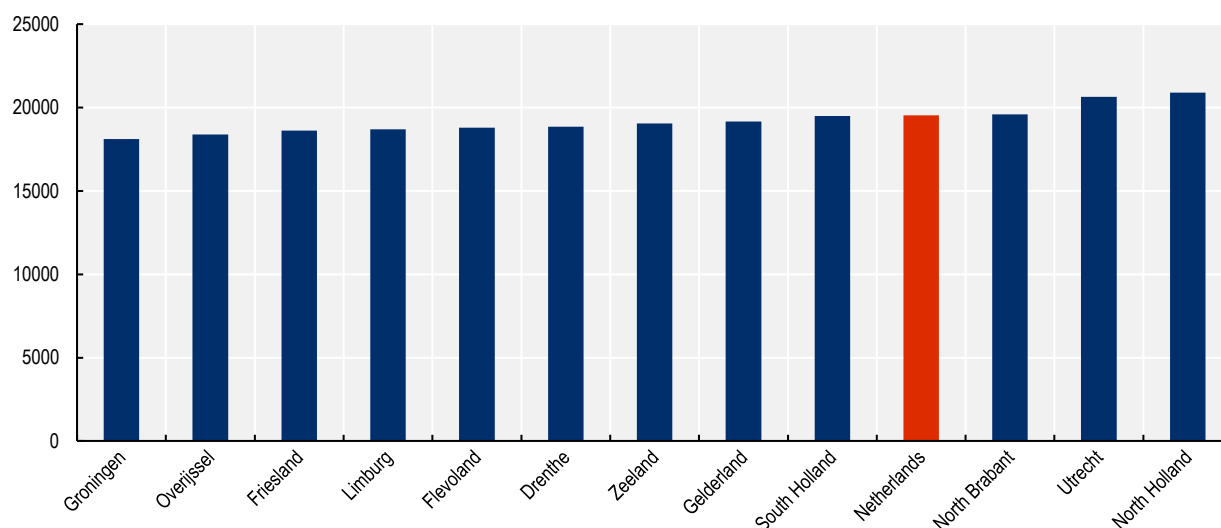
Source: OECD.Stat.

The Netherlands' tax and transfer system has a relatively significant impact in reducing gender income inequality – the highest in a study comparing Ireland, the United Kingdom, the Netherlands, Denmark, Romania and Greece. This is predominantly due to its taxation system – high female labour force participation and progressive taxation means that taxes are much more responsible for reducing gender income inequality than benefits as opposed to countries with lower female labour force participation such as Romania, where benefits plays a larger role (Doorley and Keane, n.d.^[5]).

7.1.4. Trends in regional inequality

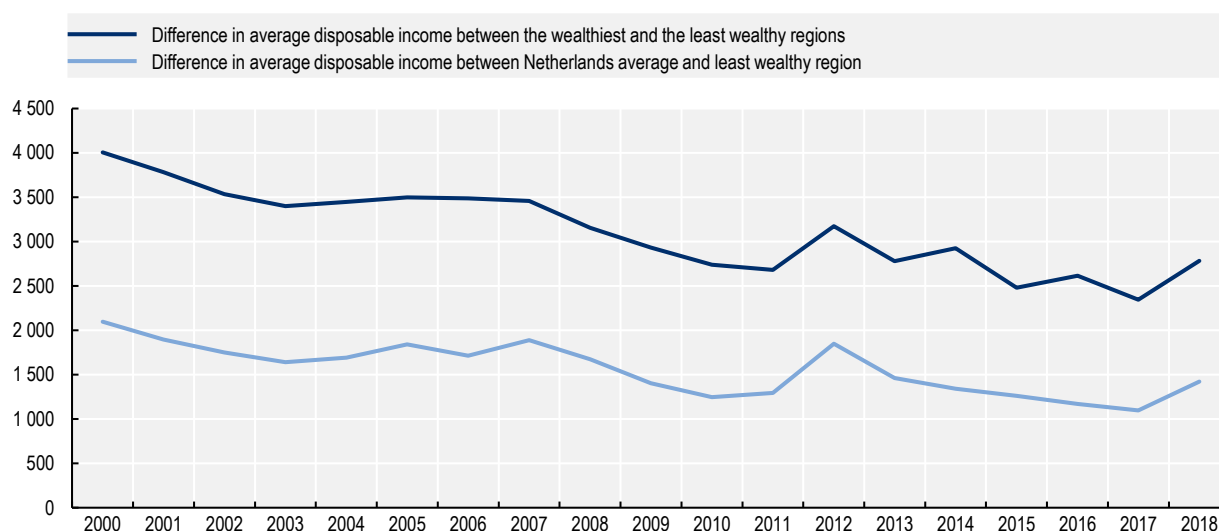
While the Netherlands has relatively little variation in its disposable income across regions, much of its income is concentrated in its two wealthiest regions, Utrecht and North Holland. There is only an 8% difference in average disposable income between Groningen, the least wealthy region, and North Brabant, the third wealthiest. However, the difference between Groningen and North Holland, the wealthiest region, is almost double this, at 15.3%.

Figure 7.7. Variation in disposable income between regions, 2019



Source: OECD.Stat.

The Netherlands has seen a downward trend in its regional disposable income disparities in the past two decades. Average difference between the wealthiest and least wealthy regions peaked in 2000 at EUR 4 005, before reaching its lowest in 2017 at EUR 2 334, and spiking slightly in 2018. This would tend to put the Netherlands aside within the OECD as most countries have experienced an increase in regional income inequality in recent year.

Figure 7.8. Changes in regional income disparities 2000-2018

Source: OECD.Stat.

7.2. Budgeting frameworks related to inequality and well-being

The systematic integration of distributional considerations in the budget process is well-established in the Netherlands, with well-defined communication pathways between the relevant ministries and between Government and Parliament. Much of the success achieved by the country in this area can be attributed to a high level of technical expertise, a thorough budget process led by the Ministry of Finance, and a trusted independent institution with the Netherlands Bureau for Economic Policy Analysis (CPB), that is responsible for the distributional analysis of the budget every year, as well as for maintaining the models and communicating the final results.

7.2.1. Key ministries and institutions

The two key ministries involved in addressing distributional implications of policy proposals are the Ministry of Finance, who is principally in charge of the co-ordination and preparation of the budget, and the Ministry of Social Affairs and Employment. While the ministers of these respective ministries are those who communicate with Parliament, the official evidence for economic inequality come from a shared model, MIMOSI (see Section 7.4), owned at the level of the CPB, which directly feeds its results into the budget submissions.

The CPB conducts its analyses using data from the Central Bureau of Statistics (CBS, see Section 7.5) and MIMOSI (see Section 7.4). While this model is owned and developed by the CPB, both the Ministry of Finance and the Ministry of Social Affairs and Employment have access to it on an equal footing and are able to use it for their own analyses.

The CPB uses this model for its own analyses, as well as at the request of political parties in Parliament, for example during the budget discussions. A key example of this is “Choices in Charts” (*Keuzes in Kaart* in Dutch), which usually occurs every four years just before election plans. CPB performs an economic analysis (including costs and distributional impact) of the plans of all political parties that choose to participate in the process. It was most recently published for the 2022-2025 period (CPB, 2022^[6]). If requested, the CPB will also calculate the costs and distributional impacts of any alternative budgets proposed by opposition parties, such as it did recently for their Labour and Green Parties (CPB, 2022^[7]).

While the calculations made to calibrate spending proposals and policy measures in the budget process are internal to the Ministry of Finance, the results are made public along with the presentation of the new proposed budget to Parliament once a year. However, since 2022, the government has pledged to become more transparent in its decision-making process. All internal documents that have been relevant for decision making are now made public together with the final proposed plans. These documents might also include provisional DIA calculations.

There is frequent movement of staff between the two ministries and the CPB which allows for having a pool of shared expertise at government level. However, the number of people with specific expertise on MIMOSI is generally no more than 15. (Dutch Ministry of Finance, 2022^[8])

While Parliament's main role occurs after the official publication of the budget proposal, members of Parliament can also pass motions to include certain details in the budget before it's adopted and published in final form. For example, in 2017, a motion was passed in Parliament that requested the government to report the difference in tax burden between one-earner and two-earner households, and has thus been undertaken by the Ministry of Finance and included in every budget since. The CPB can directly serve Parliamentary requests when needed.

7.2.2. The budget process

In the Netherlands, the budget process starts in Spring. Under the coalition that was in power in 2022 until mid-2023, decisions about the income side of the budget were finalised in August. This is when the distributional impact of new proposals is considered. This is when the CPB updates MIMOSI with a new economic forecast using numbers from the first half of the year. At this point the Ministry of Finance and Ministry of Social Affairs and Employment have already prepared lists of items to consider, such as budgetary windfalls or setbacks. Furthermore, the income effects of certain policy variants are prepared to facilitate speedy decision making. In doing so, the two ministries may focus on making different aims – for example, the Ministry of Social Affairs may prepare policy options aimed at redistribution between different groups, while the Ministry of Finance may focus more on budget soundness and compensation budgetary setbacks. Once the economic outlook is presented, they will use this new information to calculate the (median) development of real disposable income for the whole population and a number of subsections. This is presented in a boxplot graph, so that politicians can decide whether they feel the development of real disposable income is distributed in a fair manner, or whether they would prefer additional redistribution between groups. For example, they may express a desire to help a particular societal subgroup, and request some options on how this goal could be achieved. Table 7.1 indicates an example of the policy variants presented to political leaders (Dutch Ministry of Finance, 2022^[8]). The Ministry of social affairs published a letter about the Distributional Impact Analysis in September 2022, which shows the development of real disposable income for different groups in 2022, 2023 without additional measures and 2023 with measures (Ministry of Social Affairs, 2022^[9]). The charts with and without measures are usually what is presented to Ministers to facilitate the decision-making process.

Once Ministers have reached their final decisions (usually around the end of August), the Ministry of Finance will send their proposal for the budget of the coming year to the CPB, whose task is then to calculate the economic impacts of these proposals, including the effects on purchasing power for different groups. While both the Ministry and the CPB use MIMOSI for their calculations, CPB will also conduct a full macro-economic forecast, in order to also consider, for example, impact of policies on wages. The CPB will do this for both the proposed budget plan of the government and (if they make this request to the CPB) the alternative budgets of the opposition parties. It is worth noting that due to the CPB's independent status, the CPB does not share with the ministries results prior to publication, and does not discuss the contents of alternative budget proposals with the ministries. (Dutch Ministry of Finance, 2022^[8]).

Table 7.1. Example of list of policy options with purchasing power effects highlighted

#	The Measure	Budgetary Expenditure				Households with affordability problems (number)	Income Effect 2023 per quintile					Income Effect 2023			Impact on labour supply
		(In (EUR billion)										(by source of income)			
		2023	2024	2025	Struc		1st	2nd	3rd	4th	5th	Working	Benefits	I'm going to do it	
1	Lower rate first tranche (up to 36k)	2.1	2.1	2.1	1.7	-23 000	0.6%	0.7%	0.6%	0.6%	0.5%	0.6%	0.7%	0.6%	—
2	Increase General Tax Credit (AHK)	2.1	2.1	2.1	2.1	-55 000	1.3%	0.9%	0.6%	0.5%	0.3%	0.5%	1.3%	1.0%	↓
3	Increase labor discount (AK) - 200 million extra	0.2	0.2	0.2	0.2	-1 000	—	—	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	↑
4	Increase AK - marginal pressure	2.1	2.1	2.1	2.2	8 000	—	—	0.3%	1.0%	0.9%	0.9%	0.0%	0.0%	↑
5	Increase AK - middle incomes	2.1	2.1	2.1	2.1	-25 000	—	0.1%	0.6%	0.6%	0.6%	0.6%	0.0%	0.0%	↑
6	Reverse halving young handicapped discount	0	0.1	0.1	0.1	—	—	—	—	—	—	—	—	—	—
7	Increase free space WKR in 2023	ntb	ntb	ntb	ntb	—	—	—	—	—	—	—	—	—	—
8	Reducing energy tax by 2023	2.4	0	0	0	-50 000	1.6%	1.1%	0.8%	0.6%	0.4%	0.7%	1.7%	1.1%	—
9	Reducing VAT on energy by 2023	3.7	0	0	0	-80 000	—	—	—	—	—	—	—	—	—
10	Reduce fuel excise during by 2023	1.4	0	0	0	N.T.B.	—	—	—	—	—	—	—	—	—
11	Increase healthcare allowance (EUR 100)	0.5	0	0	0	-15 000	0.5%	0.3%	—	—	—	—	0.5%	0.3%	↓
12	Increase rental allowance (EUR 203)	0.3	0.3	0.3	0.3	-24 000	0.9%	—	—	—	—	—	0.8%	—	↓
13a	Increase child benefit (EUR 100)	0.3	0.3	0.3	0.3	-2 000	—	—	—	—	—	—	—	—	↓
13b	Increase child-related benefit (EUR 100)	0.1	0.1	0.1	0.1	-2 000	—	—	—	—	—	—	—	—	↓
14	Childcare allowance to 96%	0	0	0.1	0.1	—	—	—	—	—	—	—	—	—	↑
15a	WML increase by 7.5% in 2023	2.2	1.3	0.3	0.3	-86 000	1.8%	1.1%	0.5%	0.2%	0.1%	0.2%	2.5%	1.1%	↓
15b	Further increase WML by 1% (AOW linked)	0.6	0.6	0.6	0.6	-22 000	0.4%	0.3%	0.1%	—	—	—	0.5%	0.3%	↓
16	WML to EUR 14 in 2025 (AOW decoupled)	0	0	1.1	1.2	N.A.T.	0.1%	0.6%	0.1%	—	—	—	2.2%	0.1%	↓
17	Freeze-off phase-down double AHK assistance	0.1	0.2	0.3	0	-2 500	—	—	—	—	—	—	—	—	↓
18	Re-introducing double AHK assistance in 2023	0.7	0.7	0.7	0.7	-30 000	—	—	—	—	—	—	—	—	↓
19a	Indexing tuition, lesson and course fees	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19b	Increase basic grant (EUR 120)	0.03	0.03	0.03	0.03	—	—	—	—	—	—	—	—	—	↓
20	Moderate indexing own contributions Wiz and Wmo	0	0	0	0	—	—	—	—	—	—	—	—	—	—

Source: (Dutch Ministry of Finance, 2023_[10])

In September, the new budget is presented to the public. Traditionally, it will contain significant amounts of information looking at the impact of the new plans on the purchasing power of different groups, with breakdowns by income quintiles, income source (i.e. working on benefits, pensioners), household type (i.e. single, couple with both employed, couple with one employed) and family characteristics (i.e. with or without children). After the budget is presented publicly, hundreds of detailed questions are asked from Parliament. Some questions from Parliament for the most recent budget include “How much will a nurse’s situation improve, and how much more will a multiple property-owning landlord pay?” and “How much does a single employee with a 32-hour working week and an annual income of EUR 40 000 get to keep if he starts working eight more hours?” (Dutch Ministry of Finance, 2023^[10]). While most of these questions will be addressed to the Ministry of Finance, a more technical list of questions is often directed to the CPB, usually in writing. Answering these questions generally requires further runs of the model, and relevant Ministers are invited to present official responses.

7.3. Beyond income: broader welfare indicators

In 2017, the Dutch Government asked the Central Bureau of Statistics to develop a Monitor of Well-being for the Accountability Debate in May. The Central Bureau of Statistics fulfilled the request, publishing the first Monitor in May 2018. The report has since been published annually and in 2019 also began to monitor the Netherlands’ progress towards attainment of the United Nations’ Sustainable Development Goals (CBS, 2021^[11]).

The publication uses over 200 indicators to look at various issues beyond the economy and labour. The publication focuses on eight key themes,² and looks at two key time frames: the ‘here and now’, which shows trends over the past eight years, and ‘later’, which looks at whether choices are being currently made that will allow future generations to have at least the same level of well-being as the current generation.

The Dutch government takes steps to integrate the Well-being perspective based on these indicators in its budgetary cycle. For example, the 2023 Budget Memorandum included seven priorities with regards to well-being. The 2022 Financial Year Report also included an extensive overview of developments in different dimensions of well-being (subjective well-being, safety, climate, gender etc.). More steps to integrate well-being are being taken, based on the framework currently being developed by the policy research bureau’s CPB, SCP and PBL.³

7.4. Tools for assessing the distributional impacts of budget decisions

In sound budgeting systems, policy formulation should be evidence-based, and thus supported by comprehensive impact analysis and evaluation. The Netherlands’ advanced modelling capacities demonstrate that it recognises this fact – its micro-simulation model, which is itself an improved version of previous models, has been in use since 2007, and is supplemented with macro-level economic information from macroeconomic and labour models, in order to ensure its input information is up to date. This sophisticated system ensures that expenditure decisions are aligned with the strategic goals and priorities and are fully informed in terms of distributional implications.

7.4.1. Micro-simulation modelling: history

The Netherlands’ main microsimulation is named MIMOSI,⁴ and was developed in 2007. Before that, the Government and the CPB used three different models: Mimos-1, which looked at wage costs, Mimos-2, which looked at purchasing power, and MOSI, which looked at social security and wage and income tax. All three models used a gross-net trajectory model, looked to some degree at social security and income

tax, and used microsimulation. As such, there was significant overlap between the three, meaning unnecessary duplication and a time-consuming need to regularly align the three models.

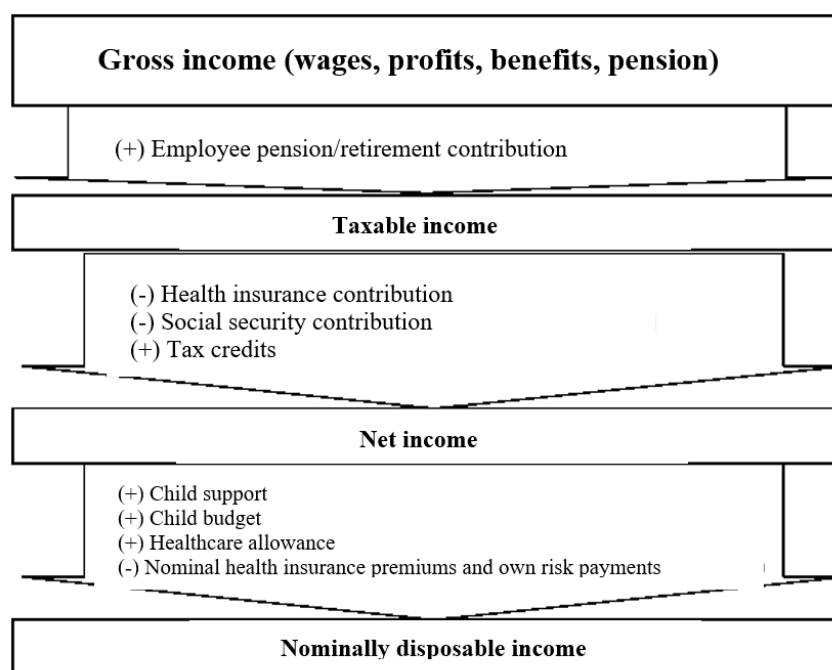
This is why the CPB therefore decided to develop a single microsimulation tool, initially based on a 2002 microdata file that was built off a comprehensive 2001 tax review. The Bureau started developing MIMOSI in 2004, and by 2007 this new model had replaced the old instruments (CPB, 2008^[12]).

7.4.2. Micro-simulation modelling: present day

MIMOSI has several functions. It is able to estimate changes in labour costs and purchasing power, revenue from wage and income tax, and expenditure on social security. It can also be used to calculate policy variants for research purposes as well as at the request of ministries and political parties. Furthermore, it is part of an economic modelling system that is able to estimate future developments in the short (one to two years) and medium term (four years) of the Dutch economy, which also includes general macroeconomic modelling. It is important to note that in the Netherlands the CPB has responsibility both for the macroeconomic modelling and for the microsimulation models informing the distributional analysis (CPB, 2008^[12]).

While MIMOSI contains several modules or models, its key module is known as ‘gross-net trajectory’. This calculates the trajectory from gross income to disposable income (see Figure 7.9 for an illustration of this trajectory). The definition of income used is very wide-ranging, and includes multiple other income sources beyond wages, such as profits from owned companies, dividends from investments including property, and interest paid as a negative income component. (CPB, 2016^[13]).

Figure 7.9. Calculation of income in gross-net trajectory model



Source: (CPB, 2016^[13]).

The other modules are:

- The reweighting model, which uses a weighting factor to ensure the data sample is reflective of the whole Dutch population.
- The prologue model, which calculates all relevant policy parameters, including tax rates and welfare rates. This must be run before the gross-net trajectory module is run.
- The specials model, explained in detail in the subsequent paragraph.
- The social insurance model, which estimates the revenues and expenditures from various social insurance schemes.
- The wage rate model, which produces a macro-level estimate of the difference between gross wages and labour costs.
- The purchasing power model, which uses the results from the gross-net trajectory module to calculate purchasing power development for households in a given year compared to the previous year.
- The 'repwig' and 'marwig' models, which respectively calculate the replacement rate (the ratio of disposable income from wages and from benefits) and the wedge (the difference between what a worker receives for their labour and what an employer has to pay for that worker) (CPB, 2008^[12]).

For some households with multiple sources of income, measuring the impact of a policy change can be a complicated matter— for example, if one partner is employed and the other owns their own company, the impact of a minimum wage change could be positive for the former and negative, through higher costs, for the latter. Such complications can be difficult to communicate to non-specialists in terms of a general audience as well as senior political figures. To get over this, MIMOSI also contains an add-on known as 'specials' households. These are stylised households designed to provide a simplified explanation of purchasing power trends, which can then be used to demonstrate the general impact of a policy to non-specialists. These households generally contain a primary earner, possibly a second earning partner, and possibly two unearning children (CPB, 2008^[12]).

For some specific processes, cases, MIMOSI is not adequate. An example could be a specific policy that only affects a small number of households, forecasting specific arrangement for the self-employed, with large behavioural consequences, for which the panel data in MIMOSI is not representative. In these cases, the Ministry of Finance has about 10 specialists who have access to tax authority data (i.e. the data that Dutch citizens will send in to file their income tax statements), and are able to use this data for one-off analyses. Unlike MIMOSI, such analyses tend not to integrate tax and spending data (Dutch Ministry of Finance, 2022^[8]).

Box 7.1. Purchasing power effects of the 2022 temporary energy price cap

Background on the cap

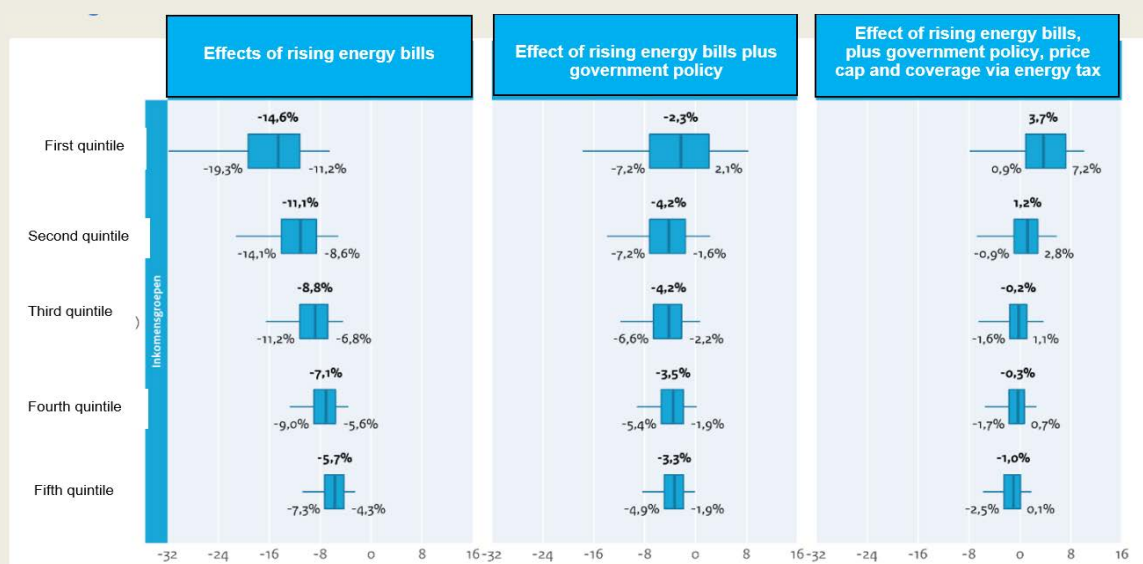
In October 2022, the Dutch Government announced a temporary energy price cap to combat rising inflation and energy prices, intended to take effect on 1 January 2023. The measure intended the policy to be shaped in such a way that at least half of Dutch households would be fully covered by the tariff ceiling, while maintaining the incentive to save energy in times of scarcity. During the General Political Reflections, two Members of Parliament made a written request for the purchasing power effects of the price cap to be shared. The Ministry of Social Affairs calculated the figures using MIMOSI and data on energy prices from the Ministry of Economic Affairs, and presented them as an appendix included in a letter from the House of Representatives to the President. While usually the model is run with the assumption that inflation impacts everyone equally, with energy inflation the poorest are impacted more, meaning that the model was adjusted for this analysis in order to account for this.

Results of the analysis

The graph below shows that while all quintiles benefit from both general government policy and the energy price cap, these positive effects were not enough to completely negate the impact of higher energy prices for the three wealthiest quintiles. Indeed, the impact of the price cap is strongest on lower income groups – the lowest quintile in particular suffers on average a 15% reduction in purchasing power due to rising energy bills, while the price cap and other government policies presented in the budget ultimately boosts its purchasing power by 19 percentage points. As lower income groups tend to spend a larger share of their disposable income on energy bills, such an impact is unsurprising.

Various policy options were put together based on these insights, in order to reduce the energy price burden and distribute it more evenly. Ultimately, a final set of policies was decided on by the cabinet, a decision process that was heavily informed by this appendix.

Figure 7.10. Effects of higher energy bills and extent to which government policies and price cap outweighs them



Source: (Ministry for Climate and Energy and Ministry of Economic Affairs and Climate, 2022^[14]).

7.4.3. Macroeconomic modelling and assessing the dynamic implications in terms of behavioural changes

MIMOSI also contains macro estimation rules, which are able to provide insights into the current state of the economy. These insights can impact the composition of the population (i.e. workers vs self-employed, homeowners vs renters), income components (i.e. wage rate and company profits) and the parameters of schemes (i.e. tax credits, tariffs, etc.).

It is worth noting that that despite its macro component, MIMOSI is a static model – changes that it calculates as a result of a new macroeconomic picture are calculated *ceteris paribus*. As such, it is not able to consider behavioural changes that occur as a result of new policies. In order to do this, the CPB uses the macroeconomic model SAFFIER (although the Ministry of Finance does not have access to it), and the labour supply model MICSIM, which estimates changes in the number of hours worked (CPB, 2016^[13]). While many countries use microsimulation models, very few have a related macroeconomic model to account for behavioural changes. The Netherlands' use of such a model can thus be considered a best practice.

SAFFIER is able to estimate several macroeconomic indicators, including overall wages, unemployment, and inflation. As such, the CPB uses it to help MIMOSI incorporate new information on the economy that may impact the composition of the population, income levels, or the parameters of government schemes. This adjustment is done four times a year, and is carried out in the following way: firstly, MIMOSI (and other tools, including more specialist tools looking at the housing market, pensions and international trade) are used to determine key exogenous factors, such as exchange rates and the implementation of new policies. These factors are then inputted into SAFFIER, which uses them to estimate a new economic picture. This picture is subsequently given to various specialist models (which look at, for example, purchasing power, wage costs, and social security), which recalculate these exogenous factors and return them to SAFFIER. These latter two steps are iterated until they converge towards a consistent estimate of the economic picture, which MIMOSI is then able to use. This ensures that MIMOSI is regularly acting on up-to-date information, and thus is able to provide relevant estimates (CPB, 2008^[12]).

7.4.4. Remaining challenges

As with any model, there is some sampling risk with MIMOSI. If many different policies are evaluated using the sample repeatedly, it can risk creating large standard errors. The CPB together with the involved ministries make efforts to reduce this risk through user conferences which occur four or five times a year, where those who utilise the model will try and identify its issues and make suggestions as to how it could be improved.

Some issues stem not from the model itself, but from its overuse or overinterpretation. For example, as previously mentioned, some data, such as time spent working, is taken from separate surveys and matched to the panel data. However, the matching process is imperfect, and so the Ministry of Finance will avoid overusing the number it produces. This can create difficulties when political leaders want to implement policies related to time spent working – for example, a bonus for people working over 50 hours a week. A further example is the fact that the model is not able to consider changes in individuals' personal lives (promotions, marriage, divorce, etc.), despite the fact that these are a far more powerful determinant of personal finances than government policies. While the model's focus is policy impact, meaning this inability to consider personal lives is not an issue in and of itself, it can become problematic when high media and general public focus leads to excess focus on the model's results. This provides incentives for model overuse and political desire to make policies very specific (often resulting in changes with distributional impacts as low as 0.1%) which in turn can lead to overly complicated fiscal policies (Dutch Ministry of Finance, 2022^[8]).

This high media and public focus on the model can also incentivise political leaders to cater their policies towards achieving good-looking results, even if such an approach isn't necessarily the best for society in terms of achieving a pareto optimal. As an example, the model splits the income distribution by quintiles, and while there is some intra-quintile analysis conducted, the most focused-on results are the disparities between the quintiles' averages. As such, there is a risk that political leaders are motivated to implement redistributive policies that only have a positive effect on the average of the lower quintiles, even if they don't have a positive impact on the peripheries of this quintile.

7.5. Data and information infrastructure

A key component of integrating distributional consideration in public spending and budgeting decisions hinges on the availability of data disaggregated by individual characteristics. In the Netherlands, high quality data is collected in several key fields. Statistics Netherlands (CBS), established in 1899, has a legally defined mandate to collect statistics for the government, as well as to regularly evaluate the quality of these statistics.

7.5.1. Income data for MIMOSI

MIMOSI uses individual data on wages received, benefits, taxes and premiums paid; as well as data on background characteristics of individuals, such as household composition, age, home ownership, and several others. CBS provides the data used for MIMOSI to the ministries as one package, in order to facilitate ease of use (Dutch Ministry of Finance, 2022^[8]). Table 7.2 demonstrates all the characteristics that are inputted into MIMOSI.

The underlying data for the MIMOSI model comes from the 2018 Income Panel Research (IPO), which is updated every 2 or 3 years. This is a sample survey conducted by CBS based on information from the Income Production System, which in turn receives register data from the Tax and Customs Administration supplemented by register data from child benefits, interest, dividends and student loans. The survey contains 100 000 core individuals and their household members, totalling around 270 000 people (CPB, 2016^[13]). The sample is increased to the entire Dutch population by giving each household a weight based on the probability of selection.

The version of the IPO data that CBS provides the CPB with is further enriched with income statistics on wealth, costs of various forms of childcare, rental value and rent paid. Furthermore, the CBS adds information from its policy files on special remunerations, hours and days worked, and overtime hours. Upon receiving the data file, the CPB itself then adds more data, including the annual rent for tenants without rental allowance, people's exact ages, and individual information on childcare. This data makes up MIMOSI's microdata files (CPB, 2008^[12]).

MIMOSI also contains a macro data file with time series from 2001 of several thousand macro variables, from which all its models take their input, and onto which all models (excluding the reweighting model) write their output. The file's variables represent anything that is the same for everyone – for example, changes in GDP, number of beneficiaries by scheme, bases, receipts of taxes, etc. These variables can be both exogenous (i.e. MIMOSI considers them as fixed) or endogenous. Furthermore, there are several adjustment variables which allow users of the model to adjust the endogenous variables' outcomes – for example, if monthly tax receipts demonstrate a windfall gain compared to the estimate, a user could adjust the model outcomes via an adjustment variable (CPB, 2008^[12]).

The data is updated every two to three years. At the time of writing, the model runs with 2018 data, with hopes to update it 2021 data next year.

Table 7.2. Main characteristics inputted into MIMOSI

Household characteristics	Income characteristics	Macro policy data	Other financial data
Number of adults	Type of income	Tax brackets & rates	House (buy/rent)
Number of children	Income height	Tax credit details	Wealth
Age of each individual	Hours worked	Allowances details	Tax deductibles

Note: This list is not exhaustive but includes the most important variables

Source: (Dutch Ministry of Finance, 2022^[6]).

7.5.2. Gender data

The CBS applies gender-based disaggregated data as a standard, and every two years publishes the Emancipation Monitor, a report which compiles the latest data for the most important variables on issues related to gender equality and female empowerment. The report is funded by the Ministry of Education, Culture and Science, and is used to inform parliament and other stakeholders on the progress of gender equality in the Netherlands. It looks at several equality measures, including employment rates, wage rates, economic independence, and how men and women combine work and care. However, the Netherlands does not use gender budgeting in a formal sense.

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Notes

¹ Note that there have been two data breaks – one in 2000 related to a major tax reform, and another in 2010 relating to increased availability of data. Given the clear movement around these years, any trends should be interpreted with care.

² Subjective well-being, material well-being, health, labour and leisure time, housing, society, safety and the environment.

³ See for PBL <https://www.pbl.nl/sites/default/files/downloads/pbl-scp-cpb-2022-verankering-van-brede-welvaart-in-de-begrotingssystematiek-4861.pdf>

⁴ “Microsimulation Model for Taxes, Social Security, Labour Costs and Purchasing Power”

8

The case of New Zealand

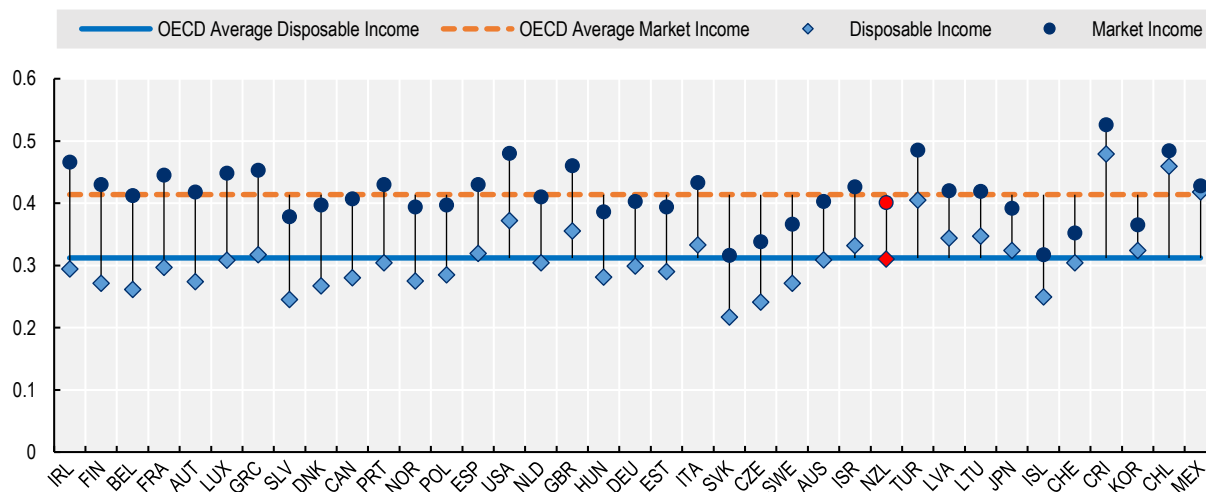
This case study provides an overview of recent trends in income inequality in New Zealand and discusses how distributional analysis is considered within government as part of the budget process, as well as how the various frameworks of different organisations within government consider distributional issues. It discusses the practices currently in place in the country, how they are set up in the country's public expenditure frameworks, and how they are supported at the technical level, through the range of models, and data tools that are utilised in policy practice.

8.1. An overview of recent trends in inequality in New Zealand

New Zealand ranks below the OECD average for the impact of taxes and transfers on income distribution, and its market income distribution is slightly less unequal than in other OECD countries. In 2020, New Zealand had a Gini coefficient of 0.401, which went down to 0.31 after taxes and transfers – a 0.091 decrease, compared with the OECD average decrease of 0.102 (Figure 8.1). As a result, average disposable income inequality is very close to OECD average.

Figure 8.1. Differences in household income inequality

Gini coefficients for income pre- and post-tax and government transfers, 2019



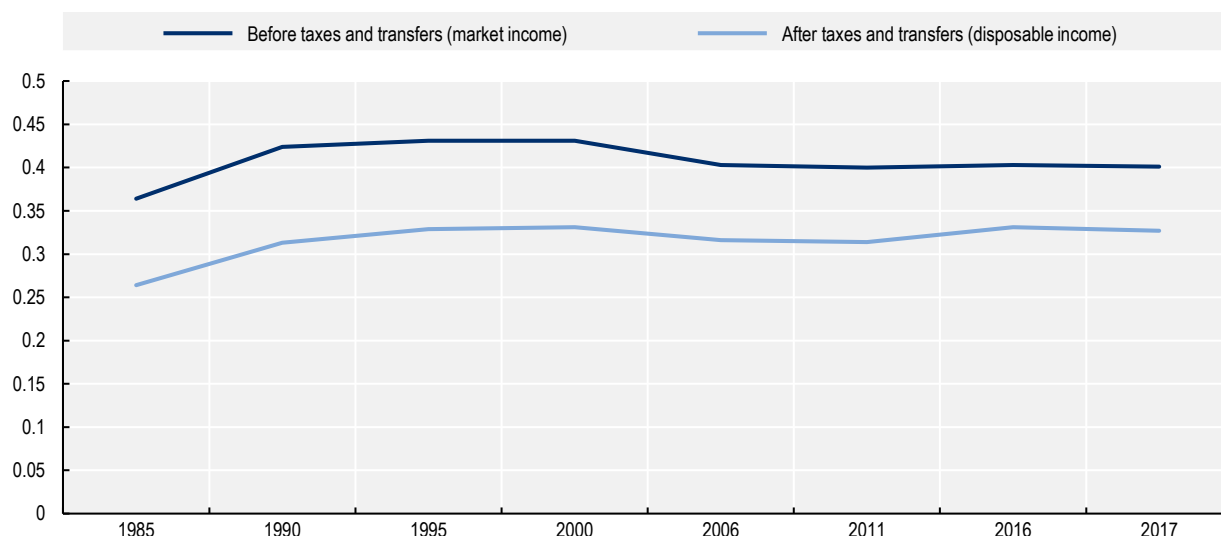
Notes: Countries are ranked from the highest to the lowest difference in the Gini coefficients for average market incomes (before) and disposable income (after taxes and transfers). Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, Iceland and South Africa (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg and South Africa. Earlier data for Brazil, Chile, Estonia, Sweden and the United States are from 2013.

Source: OECD Income Distribution Database

Market income inequality rose steadily throughout the 1980s and early 1990s, after which it saw a gradual yet steady decline. Disposable income followed a very similar pattern, although between 2011-2016 its Gini coefficient increased more rapidly than market income, implying that the reduction of income inequality via taxes and transfers was less impactful in this time period (Perry, 2019^[1]).

Figure 8.2. Income inequality over time, households

Gini coefficients for income pre- and post-tax and government transfers. Data every 5 years + 2017.



Source: (Perry, 2019^[1])

8.1.1. Gender inequality

Women interact differently with the labour market to men, which can put women at an economic disadvantage. On average, women earn less than men, experience gender and ethnic pay gaps, are more likely to work in part-time work or be underutilised, undertake a disproportionate share of caring and family responsibilities, and are more likely than men to experience discrimination, harassment or bullying in the workplace.

Women's increased labour market participation has long been a driver of economic growth in New Zealand and closing the gap between male and female employment rates would boost New Zealand's GDP by an estimated 10% (Manatū Wāhine Ministry for Women, 2021^[2]). Women's participation in the labour force has increased from 54.3% to 70.3% from 1991 to 2021 (Manatū Wāhine Ministry for Women, 2021^[2]).

The gender pay gap is a high-level indicator of the difference between women and men's earnings. The OECD reported that New Zealand's gender pay gap in 2021 was 6.7% (see Figure 8.3).¹ The gender pay gap has reduced since 1998 (when it was 11.4%). The gender pay gap has remained relatively unchanged since 2017, when it was around 7.2% (Stats NZ).

The gender pay gap is greater for those of different ethnicities. The Ministry for Women in New Zealand regularly reports on the gender and ethnic pay gaps, using data from Statistics New Zealand. In 2022, the pay gap for Māori and Pacific women was over double that of women of European descent (see Table 8.1). The gender pay gap is also higher for Asian women and women with disabilities. In 2022, disabled women's pay gap with disabled men was 3.8%. The pay gap with non-disabled men was much higher, at 19.0%.

Table 8.1. National gender and ethnic pay gaps, 2022

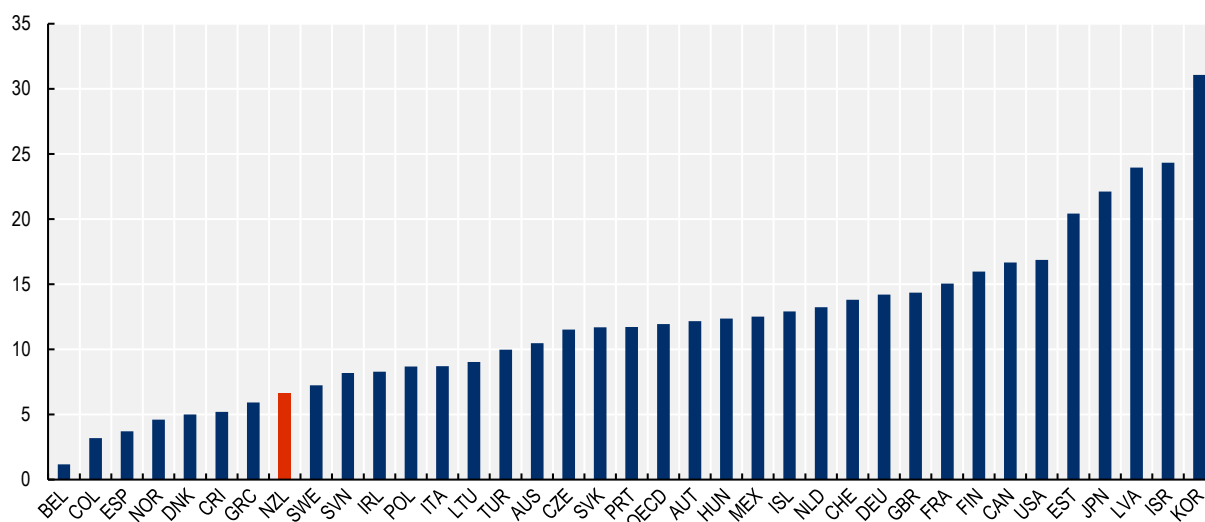
Women's Ethnicity	Median Hourly Earnings	% GPG from all Men's Earnings	Difference from Men's Earnings
European	USD 28.90	6.3%	USD 1.95
Māori	USD 26.00	15.7%	USD 4.85
Pacific	USD 26.00	15.7%	USD 4.85
Asian	USD 27.33	11.4%	USD 3.52

Note: Note that these figures are calculated in New Zealand as the difference between the median hourly pay of all male and female workers (full time and part time workers)

Source: Stats NZ. Labour market statistics (income): June 2022 quarter.

Figure 8.3. New Zealand has a gender pay gap below the OECD average

Difference between median earnings of men and women relative to median earnings of men: full time employees only, 2021 or latest available data



Note: Data for Belgium, Switzerland, Germany, Denmark, Finland, Hungary, Italy, Poland and Portugal are from 2020. Data from Greece and Israel are from 2019. Data from Ireland, Iceland and Slovenia are from 2018.

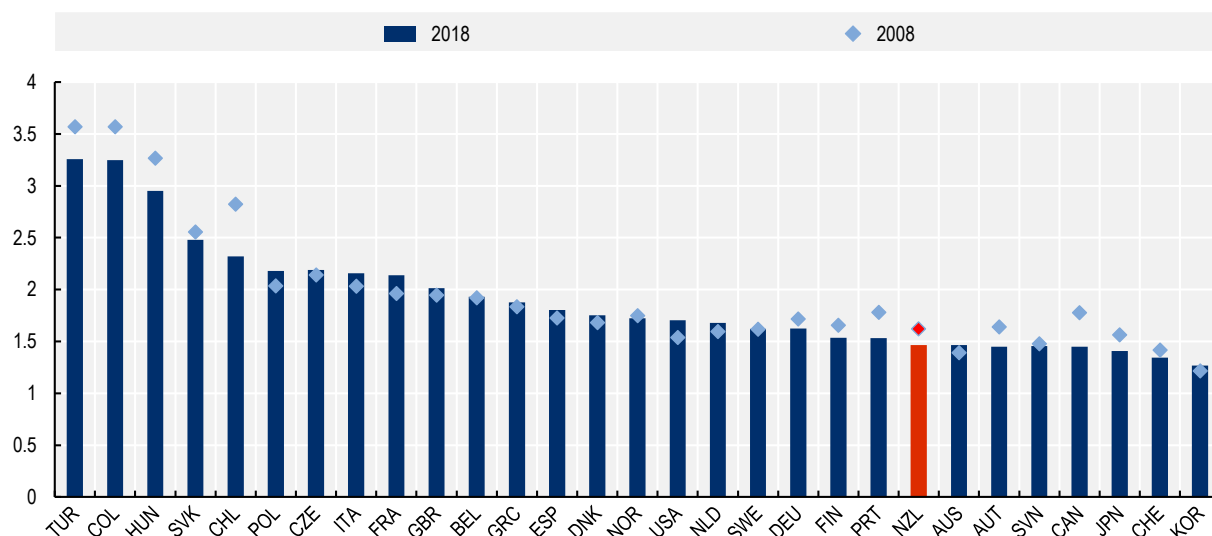
Source: OECD.Stat

8.1.2. Regional income inequality

As of 2018, GDP per capita in the richest 20% of New Zealand's regions was 1.465 times higher than the poorest 20% of its regions, a lower regional disparity than many other OECD countries (Figure 8.4). This gap has declined over the past decade – in 2008, this richest fifth had a GDP per capita 1.62 times higher than the poorest fifth. This can be attributed in part to high productivity growth in the agricultural sector, and as such a less pronounced division between incomes in cities and provincial areas than other countries. Furthermore, New Zealand has a relatively mobile workforce, and has historically been prepared to move from areas of high unemployment to low unemployment, thus evening out unemployment across regions (Whiteford, 2014^[3]).

Figure 8.4. Index of regional disparity in GDP per capita

Ratio of the 20% richest regions over the 20% poorest regions

Source: (OECD, 2022^[4])

8.2. Budgeting frameworks related to inequality and well-being

This section is split into several subsections. The first sections provide an overview of the role of the Treasury. In the case of New Zealand, this includes developing an overall Living Standards Framework and He Ara Waiora, to enhance the quality of policy advice. The second section highlights how the sixth Labour Government drew on the Treasury's LSF, and on He Ara Waiora, to support its well-being approach to budgeting, and to reflect on the implications for the budget process, highlighting the use of distributional analysis within it. It also highlights the recent piloting of gender-responsive budgeting. The subsequent subsections explain the role of several other relevant government organisations concerned with distributional analysis.

8.2.1. The Living Standards Framework and He Ara Waiora

The Treasury developed the Living Standards Framework (LSF) to enhance the quality of its policy advice to Governments on improving the living standards of New Zealanders. The framework enables the Treasury to consider the wider impacts of policies systematically, based on evidence, thereby ensuring that its advice is well-informed and comprehensive.

In 2021, a new version of LSF was released.² This version removed references to well-being domains as current well-being and capitals as future well-being, with both relevant to both current and future well-being. Instead, it defines the well-being domains as capturing the microeconomic distribution of experiences and wealth across individuals and groups, while the capitals (now called the aspects of wealth) capture the macroeconomic aggregation of wealth across the whole country.

This LSF is split into three levels:

1. **“Our Individual and Collective Wellbeing”** includes the twelve aspects of New Zealander’s lives that have been developed through an iterative process of research, and public engagement with people across Aotearoa New Zealand, and in response to the emerging international and New Zealand literature as being important for the well-being of individuals, families, whanau and communities.
2. **“Our Institutions and Governance”** recognises the role institutions³ and organisations play in facilitating the well-being of individuals and collectives.
3. **“The Wealth of Aotearoa New Zealand”** captures overall wealth, including non-financial measures of wealth such as human capability and the environment.

The framework is based on the OECD’s *How’s Life/Better Life* model. However, the OECD views the four types of capitals as factors of production used to produce well-being outcomes whereas the Treasury describes them as aspects of New Zealand’s wealth (and calls them financial and physical capital, human capability, social cohesion and the natural environment), recognising that the value of these goes beyond their role as factors of production. Both the OECD’s model and the Treasury’s framework emphasise the importance of looking at the distribution of outcomes across the population, and across different sub-populations such as age, gender, ethnicity, and regional distribution. Furthermore, they both highlight that maintaining well-being over time in a sustainable manner requires preservation of the capitals / the four aspects of wealth. The Treasury also adapted several components of the OECD model to better capture the distinctive nature of well-being in New Zealand. This adaptation involved including culture as underpinning all aspects of wealth and the inclusion of the ‘Our Institutions and Governance’ level to the LSF. It also involved revisions to the LSF domain to better reflect children’s well-being and well-being in te ao Māori and Pacific cultures (e.g., by introducing the concept of collective well-being and redefining many of the domains). It also includes subjective well-being as a well-being domain.

Culture was added and placed at the bottom of the framework (see Figure 8.5) to emphasise that all aspects of wealth, institutions and well-being are cultural, and thus culture is relevant for every part of the framework.

The framework also includes four analytical prompts – distribution, resilience, productivity, and sustainability. The distribution prompt encourages the analysts to consider distribution impacts of any investment or policy suggestion. As one dimension of distribution, gender is a cross cutting issue to the LSF and does not map to one domain in particular (New Zealand Treasury, 2017^[5]). The resilience prompt encourages consideration of how well individuals and communities are able to absorb future physical and economic shocks. The productivity prompts invites consideration as to how effectively wealth is being used to generate well-being and things of economic value, and the sustainability prompt encourages consideration of whether national wealth is being used sustainably (New Zealand Treasury, 2021^[6]).

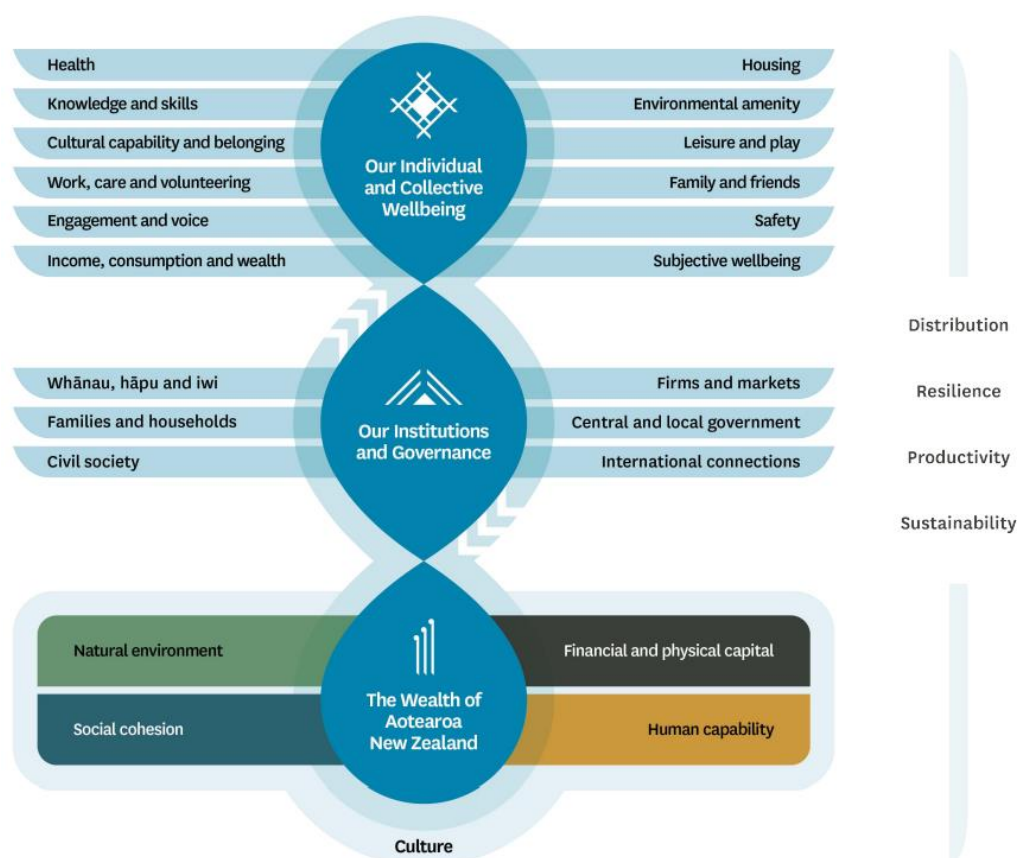
The LSF Dashboard⁴ is a measurement tool that informs the Treasury’s well-being reporting and supports its advice to Ministers on priorities for improving well-being. An initial version of the LSF Dashboard was consulted on from June 2018, and after receiving feedback from a range of private organisations, NGOs, academics and government agencies, was released in December 2018. The LSF Dashboard currently assembles 96 indicators across the 12 well-being domains, the six institutional spheres and the four aspects of wealth. Where available, it provides international comparisons and distributional breakdowns across ethnicity, age, gender, and places. It predominantly draws from Statistics New Zealand data for its existing domains and also draws on OECD data in order to show how New Zealand compares with other countries.

The Dashboard is updated every six months. In 2022, the LSF Dashboard was refreshed to align with the 2021 version of the LSF. This refresh involved adding, moving and removing several indicators in order to better align with the redefined domains, most notably in order to incorporate more child-relevant indicators and to include indicators for the new institutional level of the LSF (New Zealand Treasury, 2022^[7]).

The Treasury emphasizes that the LSF Dashboard is not intended to provide the depth of quantitative and qualitative evidence needed for agency or sector policy analysis, and highlights that agencies, local government and non-government groups will want to develop their own well-being datasets (New Zealand Treasury, 2022^[7]). Such datasets are present within many institutions – for example, the Ministry for the Environment reports on the state of different aspects of the environment every six months (Ministry For The Environment, 2022^[8]), the Ministry of Education provides a variety of statistics, indicators and publications on their “Education Counts” website (Ministry of Education, 2023^[9]), and the Ministry of Health provides annual updates on the health of New Zealanders using its Health Survey (Ministry of Health, 2023^[10]).

Alongside the LSF, the Treasury uses He Ara Waiora, a complementary framework to help the Treasury understand ‘Waiora’, a word that roughly translates to ‘well-being’ in Māori (New Zealand’s indigenous population) language. He Ara Waiora presents a holistic, intergenerational approach to well-being and deepens the Treasury’s understanding of living standards. It highlights the importance of co-ordination and alignment, partnership, collective and strengths-based actions, and stewardship.

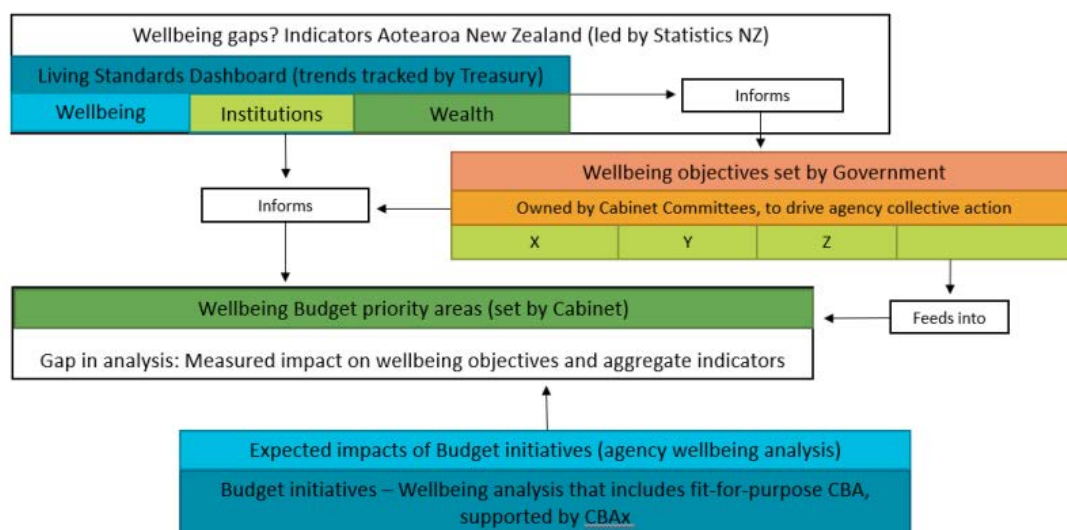
Figure 8.5. The Treasury’s 2021 Living Standards Framework



Source: (New Zealand Treasury, 2021^[6])

The Treasury suggests that LSF can be used both at a higher level in order to inform policy priorities, as well as at a micro level for the analysis of specific policy proposals and options (see Figure 8.6).

Figure 8.6. Illustrative example of use of the LSF at different levels.



Source: (New Zealand Treasury, 2022^[11])

8.2.2. The budget process

Te Tai Ōhanga The Treasury is the main organisation responsible for management of the budget process, which includes preparing the annual budget as well as assessing and providing advice on the outcomes and impact of the various policies within it.

The sixth Labour Government drew on the Treasury's LSF, and on He Ara Waiora, to support its well-being approach to budgeting. The LSF was embedded in the budget templates and guidance, asking agencies to identify the key benefits with reference to the relevant well-being domain(s) from the LSF. During the assessment phase, Treasury Vote Teams would consider to what extent the initiative positively impacted the well-being domains of the LSF, considering the synergies and trade-offs between different initiatives.

The first phase in the budget process is the strategic phase, which ordinarily occurs from June to September. Here, the Treasury provides advice to the Minister of Finance on an overall budget strategy, including priorities for spending. Decisions by Ministers here are reflected in the Government's Budget Policy Statement (BPS), which is required to be tabled in Parliament no later than 31 March but is generally published in December the previous year, so as to have enough time to modify and adapt the document if any sudden changes arise. The Public Finance Act requires the Government to state the well-being objectives in the Budget Policy Statement which will guide Budget decisions, and to explain how those well-being objectives relate to and are intended to support long-term well-being in New Zealand. The Treasury draws on the LSF and He Ara Waiora in providing advice on these well-being objectives.

Between September and December, agencies develop initiatives using this guidance issued by the Treasury and explain how these initiatives will contribute to government priorities and well-being objectives. The LSF was embedded in the budget templates and guidance by asking agencies to identify the key benefits with reference to the relevant well-being domain(s) from the LSF. Agencies were also asked to consider the impact of their initiative in relation to some of the elements of He Ara Waiora,

The assessment and decision-making phase occurs from January to April. The Treasury reviews and advises the Minister of Finance on the Budget initiatives submitted by agencies. During the assessment phase, Treasury Vote Teams considered to what extent the initiative will positively impact the well-being domains of the LSF, considering the synergies and trade-offs between different initiatives. Once senior Ministers have considered and taken decisions on Budget initiatives, they put forward a Budget package to Cabinet for a final decision.

Following Cabinet's decisions, a subsequent phase occurs where the Treasury and agencies prepare the Wellbeing Budget, the main document for Budget Day. This document includes explanations of any new investments' impacts on well-being, as well as an outline of the Wellbeing Approach used for the Budget and an overview of New Zealand's current state of well-being. The Wellbeing Budget is published alongside a range of documents, including estimates of government expenditure and the government's financial position over a medium-term horizon, and includes a report on child poverty (see Box 8.1).

The final phase involves obtaining Parliamentary support for the Government's Budget package. This includes examination of all financial estimates by the appropriate Select Committee. All budget documents are tabled in Parliament, helping to inform debate.

During the initiative development phase, which occurs between September and December, when preparing and submitting Budget initiatives, all departments are asked about the distributional impacts of the initiative (for example, whether the initiative will have a positive impact on the environment, Māori and Pacific people, or women and girls). Departments use data and anecdotal evidence to support this distributional analysis. Departments are also asked to explain how the initiative aligns with Government priorities, which are informed by its enduring well-being objectives.

Departments or Agencies must also state what they intend to achieve and justify any increases in appropriation. In most cases, the Department or the agency must also highlight how they expect their initiatives' performance to be assessed at the end of the year, including who will report on what was achieved, and in what document this report will be presented to the House of Representatives. Treasury analysts will use this analysis when evaluating the value for money of the initiative.

For example, for spending on Improved Employment and Social Outcomes Support, which aims to support New Zealanders receiving, or at risk of receiving, a benefit closer to independence, the Ministry of Social Development stated that performance information would be reported in the Ministry of Social Development Annual Report (Various Ministers, 2021^[12]). The report also highlighted that while a deeper and long-lasting economic shock may have been prevented, COVID-19 had a disproportionately negative effect on some groups more than others. These groups included young people, Māori, Pacific peoples and women, where pre-existing inequalities in the labour market were exacerbated and which the budget is intended to help. (New Zealand Treasury, 2021^[13]).

Stewardship reports

The Treasury also produces a number of periodic reports. Among those most relevant to distributional analysis is a statement on the long-term fiscal position of the government, which is published at least once every four years and examines economic trends and potential policy impacts over a 40-year horizon. The most recent publication was in 2021, and used both the Living Standards Framework and He Ara Waiora (see "Tools for assessing the distributional impacts of budget decisions" section for more information) to consider the distributional impacts of potential policy choices – for example, it highlighted that a decision to reduce the growth rate of retirement payments would have the largest impact on those close to retirement, as they would have the least time to adjust to this change. (New Zealand Treasury, 2021^[13]).

In 2020, the 1989 Public Finance Act was amended to require the Treasury to produce a well-being report at least once every four years. The first of these reports, named Te Tai Wairoa, was first published in 2022, and provides an overview of well-being in New Zealand, how it has changed over time, and its resilience

and sustainability. It uses the Living Standards Framework and He Ara Waiora. It examines trends in each of the Living Standards Framework's well-being domains (see "Tools for assessing the distributional impacts of budget decisions" section for more information) and compares these to OECD averages (New Zealand Treasury, 2022^[14]). Most notably, it examines the distribution of well-being in New Zealand, highlighting trends in income inequality and suggesting some reasons for these trends, as well as highlighting differences in well-being levels of various major subpopulations, including differences in gender, age, ethnicity, and those with disabilities (New Zealand Treasury, 2022^[14]). The report explores the sustainability of well-being through the lens of the four aspects of wealth. The findings of the report led the Government to refine its well-being objectives relating to the future of work and physical and mental well-being in the 2023 Budget Policy Statement. They also informed the Treasury's assessment of Budget initiatives and advice to the Government.

The Treasury also produces ad-hoc reports on a variety of topics, including distributional issues. Recent examples with a distributional lens have included an overview of trends in household income distribution in the past 15 years (Stephens, 2023^[15]), an analysis of the impact of government taxation and expenditure on household income (Aziz et al., 2012^[16]), age and gender dimensions of income distribution and fiscal incidence (Aziz and Gemmell, 2015^[17]), and several others (Hyslop and Mare, 2001^[18]), (Crawford and Johnston, 2004^[19]).

Box 8.1. The Child Poverty Report

Each year, the Government publishes a dedicated report on child poverty alongside the budget, as mandated under the Child Poverty Reduction Act 2018 (New Zealand Legislation, 2018^[20]). This report must discuss any progress made in reducing child poverty and provide, wherever possible, consideration of how the measures in that year's budget may affect child poverty, as well as projected rates of child poverty over the next four years.

The 2018 Act sets out nine child poverty measures – three of which are primary measures and six of which are supplementary. The three primary measures are: 1) The number of children in households with incomes much lower than a typical 2018 household, after housing costs have been paid and adjusting for the cost of living; 2) The number of children in households with much lower incomes than a typical household in the measurement year; and 3) material hardship, a measure which looks at the number of households going without the basics, and considers the impact of income level as well as other resources, such as the cost of essential items (New Zealand Treasury, 2023^[21]).

In 2018, Statistics New Zealand received additional government funding in order to improve the Household Economic Survey, the data source for measuring child poverty. As a result, Stats NZ increased the sample size to 20 000 households, started to use administrative data for income rather than collect income directly from respondents, and improved the survey design in order to ensure good representation of lower socio-economic households (Statistics New Zealand, 2019^[22]).

Gender budgeting

Gender budgeting adds a valuable lens to the budget process and may offer some complementary perspective on distributional issues though it goes beyond income inequality as such. It is a powerful tool to understand how and to what extent different people will be affected by Budget initiatives and Government spending decisions, depending on their gender. New Zealand introduced gender budgeting in 2021 for Budget 2022, and is progressing this work on a year-by-year basis.

In 2021, the Minister of Finance, Minister for Women and Minister for Social development agreed to pilot a gender budgeting programme for Budget 2022. Manatū Wāhine Ministry for Women and The Treasury

ran this pilot between September 2021-May 2022, focusing on *ex ante* gender impact assessments (Manatū Wāhine Ministry for Women, 2022^[23]). Six participating Government agencies working in education, employment and training areas applied a gender lens across 19 budget initiatives, by completing a gender assessment template (GAT) as an annex to the Budget template. Agencies identified and assessed the impacts of Budget initiatives on women and girls, particularly for Māori women and girls, alongside alignment to the Government's Wellbeing Objectives.

The Pilot found that 100% of participating initiatives would impact on women and girls (directly or indirectly), particularly for wāhine Māori and Pacific women. Nearly half (47%) identified a disproportionately positive impact for women and girls. 94% highlighted an impact for wāhine Māori – 56% of which was a disproportionately positive impact.

Following the pilot's success, a second gender budgeting exercise was conducted for Budget 2023, similarly using gender impact assessments. Manatū Wāhine provided additional support to agencies for the second Exercise through a 'Gender Budgeting Toolkit'. The toolkit included: an additional guide (separate to the Budget guide) for agencies, group gender analysis workshops, 1:1 support, a peer-review service, and the *Bringing Gender In* tool. 15 agencies were required to participate in the Exercise for budget 2023 – more than double the original pilot.

Participating agencies completed additional gender analysis on their Budget initiatives by identifying and articulating the impacts on diverse groups of women and girls, (whether direct, indirect or negative), through both qualitative and quantitative insights and with gender-disaggregated data where possible. The gender assessments were reviewed by Manatū Wāhine and incorporated into the Treasury's Vote Analysts' overall assessments and ratings, and provided to Ministers to support decision making. In addition, Budget 2023 included for the first time a gender budgeting snapshot, which highlighted a range of initiatives that were identified as having direct positive impacts on women and girls.

8.2.3. Te Manatū Whakahiato Ora, the Ministry of Social Development

The Ministry of Social Development (MSD) is the main organisation in New Zealand responsible for providing social services, including financial assistance for those who are unemployed or have low incomes, as well as housing support, child welfare and disability support.

In 2019, the Welfare Expert Advisory Group released a series of recommendations for the MSD, including that they should begin annually reporting after-tax and abatement earnings for those receiving financial support by ethnicity, gender, location, health conditions, disabilities, and number and age of dependent children, thereby helping them better understand the distribution of their services. In order to enact this recommendation, MSD have designed a new dataset looking at the full range of financial support received by MSD clients receiving main benefits, and have stated an intention to develop an annual publication using this dataset in the future (Ministry of Social Development, 2022^[24]). This report aims to improve transparency and increase public understanding of income trends for MSD clients, as well as to help MSD monitor whether payment levels in the income support system are increasing or decreasing over time.

The dataset, which uses MSD administrative data, employs a 'total incomes' reporting approach, which in most cases accounts for housing costs. The dataset covers families who received an income-tested benefit from 2006 onwards and breaks down these figures by the factors listed above, as well as by different family types. It reports income distribution across these family types, finding that single clients have the lowest variation in total income, while families with multiple children have the largest variation. It also reports on which benefits the highest-earning recipients are receiving (Ministry of Social Development, 2022^[24]).

Up until 2019, the MSD also produced an annual household incomes report⁵ using HES data (see "Data and Information Infrastructure" section for more detail). This report was used to inform policy development both within and outside of MSD, as well as to contribute to discussion and debate by stakeholders outside of government. Unlike the planned publication described above, the incomes report uses both gross and

disposable household income measures, covers a wide range of income distribution themes including inequality and low-income rates for different population groups, sets New Zealand outcomes in an international context, and highlights the impact of selected policies on income distribution – for example, highlighting that the 2004 Working for Families package, which provided various tax credits for families, caused the incomes of households below the median to grow faster than the incomes of those above the median for the first time in 25 years (Perry, 2019^[1]). This report is used extensively within government agencies, predominantly due to its comprehensive information on household income distribution.

8.2.4. The Social Wellbeing Agency

The Social Wellbeing Agency (SWA) is a departmental agency working on complex social sector issues that span across other social sector agencies. It was founded in 2017 (as the Social Investment Agency) to help social sector agencies better understand and meet the needs of the most at-risk New Zealanders and communities. The SWA is actively engaged with the Integrated Data Infrastructure (IDI) held by Statistics New Zealand, as it has used it for its own purpose and shared certain codes and tools (e.g., data assembly tool) that they have developed.

Following Cabinet decisions in late 2019, it had its mandate refreshed to an approach centred on people, with emphasis on broader measures of well-being that inform social sector agencies on whether people are leading full, meaningful lives. As part of this refresh, SWA was given two broad functions:

1. Providing cross-social system advice and supporting the social sector with cross-system work; and
2. Creating insights, tools, and practices that improve cross social system decision making and ultimately social well-being.

SWA thus serves as the ‘glue’ for social sector co-ordination and enables a strategic cross-sector approach. It has a degree of separation from individual agency operational pressures, but still has a range of relationships with different parts of the social sector. It is able to deliver actionable advice and insights that help key social sector decision makers to understand complex social issues and how they might address them.

Recent work from SWA has included insights on COVID-19 vaccination patterns, how government debt affects people’s lives, the well-being of older people, youth crime and gang harm, and children with high and complex needs.

8.2.5. Te Puni Kōkiri

Te Puni Kōkiri (TPK), also known as the Ministry of Māori development, is the government’s key advisory body on Māori well-being. In 2020, TPK set forward its refreshed strategic framework, which highlights how its nine focus areas connect with its strategic priorities, role, purpose, and vision. One of these focus areas concerns the monitoring of Māori well-being and ensuring that public services perform well for them. To this end, TPK is currently developing a set of indicators for measuring how the public sector enables Māori well-being in a number of sectors, the results of which will be compiled into a public sector performance report (Te Puni Kōkiri, 2020^[25]).

8.2.6. Oranga Tamariki

Oranga Tamariki, also known as the Ministry for Children, is responsible for ensuring that all tamariki (children) are in loving whānau (groupings of families, kinship, and connection) and communities, where oranga tamariki (child well-being) can be realised. It supports the delivery of a multi-agency Action Plan whose responsibility stretches across six children’s agencies, including MSD, and is supported by many more. This Action Plan comprises 11 actions, which highlight, among other things, that Oranga Tamariki

must undertake in depth assessments of the needs of children and young people, and develop an indicator dashboard to allow for evidence-based discussions on progress. (Oranga Tamariki, 2023^[26]).

Oranga Tamariki also provides a quarterly report, which looks at how it is performing in relation to its Outcomes Framework – a document that highlights its key goals (including reducing the number of children in state care or custody), and how it plans to achieve them. This report breaks down all its data by gender, ethnicity, and age (Oranga Tamariki, 2022^[27]).

8.2.7. Manatū Wāhine Ministry for Women

Manatū Wāhine Ministry for Women is the Government's principal advisor on improving the lives of women (wāhine) and girls (kōtiro). Manatū Wāhine has four strategic outcomes: 1) Wāhine Māori have improved outcomes (which encompasses the other three outcomes); 2) social and economic well-being (all wāhine women and kōtiro girls enjoy economic security and thrive throughout their lives); 3) participation (all wāhine women and kōtiro girls fully participate in society) and 4) safety (all wāhine women and kōtiro girls are safe from all forms of violence.) (Manatū Wāhine Ministry for Women, 2023^[28])

In 2022, the Ministry for Women and Manatū Wāhine launched [Te Mahere Whai Mahi Wāhine: Women's Employment Action Plan](#) to provide a roadmap towards a better future for women's employment. It includes long, medium- and short-term actions to improve employment pathways for women, particularly those who are marginalised at work. Manatū Wāhine also provides an online tool, named *What's my gender pay gap*, which helps users find out how the gender pay gap varies by occupation, industry and other factors (Manatū Wāhine Ministry for Women, 2023^[29]).

Each year, Manatū Wāhine conducts a rapid gender assessment of the final Budget package, to assess the overall impacts on women and girls, which is provided to the Minister for Women. In 2022, Manatū Wāhine found that NZD 2.34 billion of Budget 2022 was likely to have a largely positive impact on women and girls, ranging from some positive impacts to strong, direct benefits ([Manatū Wāhine, 2022](#)).

8.3. Tools for assessing the distributional impacts of budget decisions

8.3.1. Microsimulation modelling: The Tax and Welfare Analysis Model (TAWA)

TAWA⁶ is the Treasury's in-house model of the New Zealand personal tax and transfer system, and is used extensively to estimate the costs and assess the distributional impacts of potential tax and welfare policies. For any Ministerial decision making on major income support policies, such as changes to core income support payments, TAWA is used to conduct distributional analysis. This analysis is routinely included in policy advice, and directly informs Ministerial decisions on any budget initiatives. It is also commissioned by various government agencies, including the Welfare Expert Advisory Group, and is used in academic collaborations in order to explore policy reforms. It has provided valuable information on welfare reform, including changes to programmes such as Working for Families (which provides tax credits to help with the costs of raising children), as well as evaluating the distributional impacts of the emissions trading scheme.

TAWA combines representative micro data on individuals with either historical, projected, or hypothetical tax and transfer policies to allow for comparisons of the impact of different policy settings. As it looks at both tax and transfer changes, it can also look at the interactions between the two. It is also able to analyse policy changes at the household, family and individual level. However, it is not able to model behavioural impacts. (New Zealand Treasury, 2018^[30]).

TAWA has made substantial contributions to the measurement and analysis of child poverty. It has provided valuable advice on welfare reform, including significant changes to programmes like Working for

Families and child support pass-on. Furthermore, TAWA has been instrumental in understanding the distribution of wealth and expenditure.

8.3.2. CBAX

CBAX is an excel-based spreadsheet designed to support cost-benefit analysis (CBA) of budget and policy initiatives. It was first released in October 2015, and has since been updated annually to reflect the upcoming budget, most recently updated in October 2022. In a budget context, the tool is mostly used by the Treasury for supporting recommendations and advice on value for money, although it is also used across many social sector agencies.

CBAX includes the LSF well-being domains, so that agencies can identify, quantify, and where possible, monetise impacts. The CBAX guidance materials highlight the importance of distributional analysis, suggesting that any CBA should as a minimum set out significant positive or negative impacts for particular subgroups, and if necessary, undertake further analysis looking at the nature and magnitude of these impacts. The guidance also provides several prompts for considering the distributional impacts of policy options, including questions such as “is the proposal targeted specifically at a particular population group, and if not, will it have different impacts on different individuals and groups?” and “is there a group of people that has particularly low outcomes, and to what extent does the policy proposal reinforce these existing patterns?” (both paraphrased) (New Zealand Treasury, 2022^[11]).

To undertake CBAX analysis, an agency first needs to define the policy and counterfactual, identify the portion(s) of the population that is(are) likely to gain and the portion(s) likely to lose, and identify the benefits and costs, allocated to specific time periods. For this process, the CBAX guidance materials strongly recommend that agencies use their own dedicated research teams, as well as consider if external organisations such as the SWA could help. The tool is then able to quantify the benefits and costs and compare them. This is an iterative process, where the outputs will provide further options which can then inspire alternate inputs.

In 2018, consulting firm NZIER was hired by the Treasury to review whether CBAX was improving the quality of budget initiatives. It found that the quality of advice had improved following the introduction of CBAX, mostly due to clearer definitions of issues, better identification of the target population, greater use of evidence, and greater transparency about assumptions. However, it also noted that the work for CBAX analysis posed a heavy burden of work on agencies, and underlined a failure to describe the counterfactual clearly and consistently. There was also a lack of understanding amongst some agencies on how to monetise some impacts, and inadequate guidance for dealing with these (NZIER, 2018^[31]). The NZIER review led to greater focus on the front end of undertaking cost-benefit analysis, such as a clear intervention logic, and coverage of all of the impacts whether or not these were quantified or monetised.

8.3.3. Bringing gender in

In 2019, Manatū Wāhine Ministry for Women launched *Bringing Gender In* (BGI) is an online analysis tool to help policymakers explore the gender impacts of their policies. The tool has several stages, which encourage gender issues to be considered at multiple steps of the policy process, including in forming the policy issue, in developing the policy options, in consultation, in implementation, and in monitoring and evaluation. It provides several prompting questions, as well as links to potential data sources. It has drawn on Canada’s GBA+ framework, adapting it to New Zealand’s situation with relevant data and examples. In late 2022, Manatū Wāhine commenced a review of the tool to enhance its usability and increase the focus on Māori women and girls, to be re-launched in 2023.

8.4. Data and information infrastructure

8.4.1. Integrated Data Infrastructure

Integrated Data Infrastructure (IDI) is a database developed by Stats NZ, where they have taken the databases from various government agencies, non-government organisations, and Stats NZ surveys and combined them. The data is made anonymous and can only be used for non-commercial purposes. There are eight broad categories of data – health, education and training, benefits and social services, justice, people and communities, population, income and work, and housing. The data is split into core data, which is available to all researchers with an approved research project, and restricted data, to which access is granted on a case-by-case basis. The dataset is open to additions, and anyone can apply to have new data added.

While SWA operates as a user of the IDI, it has built up significant expertise and experience using the IDI to feed into social sector analysis and insights. SWA creates analytical tools and practices that support the data and analytics community across government including the Dataset Assembly Tool¹, which standardizes and automates data preparation and dataset assembly, in order to help researchers who want to conduct data analysis do so more efficiently. (Social Wellbeing Agency, 2020^[32]).

8.4.2. Data for microsimulation: TAWA

TAWA uses the Household Economic Survey (HES) as its input data. There can be some potential issues with this, including lack of certain information and sample size. This can lead to differences when comparing results using different HES survey years, as well as differences when comparing results with models that use administrative data (due to, for example, misreporting of benefits or income in the survey).

TAWA increases HES accuracy by modelling income support payments and tax credits, then calculating personal income tax. Up to 2017-18, Stats NZ merged this calculated information into the HES survey dataset, which was then used by Stats NZ, MSD and others to produce reports on various trends, including income inequality. This composite dataset is known as the HES-TAWA dataset. TAWA does not model self-employment and income from investment, so this is taken straight from the reported survey values. Since 2017-18, TAWA has also integrated administrative sources of income from Stats IDI. When administrative data is not available, the survey response has been used, although from HES 2019-20, much of this survey information is no longer collected. In these instances, the HES-TAWA dataset is now used (New Zealand Ministry of Social Development, 2022^[33]).

From the 2018-19 HES onwards, Stats NZ started using administrative data for most of the income information, and calculated disposable income themselves, rather than relying on the Treasury's TAWA estimates. Tax data from Inland Revenue and data from MSD on benefits paid has been used to provide salary, wages and benefit income. These datasets are called HES-Admin, and have been available for report use since 2019. The use of administrative data has improved income information available for HES analysis, as it reduces misreporting issues, and avoids the need to make take-up assumptions. However, there are still some remaining issues – notably that it is not always possible to match 100% of the administrative data to HES respondents, and there are also some timing mismatches between IR income and HES time frames. (New Zealand Ministry of Social Development, 2022^[33]). TAWA also projects HES data into future years, using CPI-based indicators.

8.4.3. Data for modelling: MSD Benefit Simulation

The projection model used by MSD for benefit simulation is processed by Taylor Fry, an analytics and actuarial consulting firm operating in New Zealand and Australia. It uses SAS datasets supplied directly by MSD on the public benefit and public housing systems, as well as various other data files looking at

sentences served, child protection, and education. It also uses the Treasury's fiscal projections to inform its own forecasting of economic variables. For some sections of the report, Taylor Fry also made use of IDI data, including data on healthcare usage (Taylor Fry, 2017^[34]).

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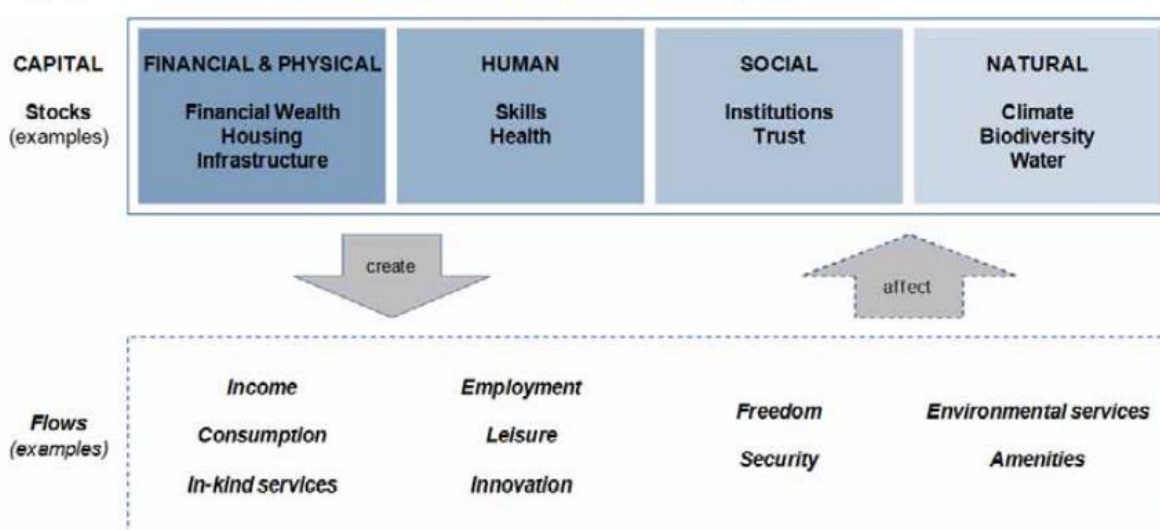
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Annex 8.A. History of the Living Standards Framework

The first version of the Living Standards Framework (LSF) was published in 2011, with the stated aim of helping the Treasury consistently provide Ministers with robust, theoretically-grounded and evidence-based advice that aims to improve the lives of all New Zealanders (New Zealand Treasury, 2011^[35]). This Framework looked at both aggregate living standards and their distribution across the population, and created the distinction between capitals and domains that continues to be used today. The framework emphasizes the importance of measuring and monitoring a broad spectrum of indicators, rather than merely focusing on economic ones, and encourages identifying the broad impacts of policies on well-being (Hughes, 2022^[36]).

Annex Figure 8.A.1. The 2011 Living Standards Framework

Figure 1 – Treasury’s Living Standards Framework

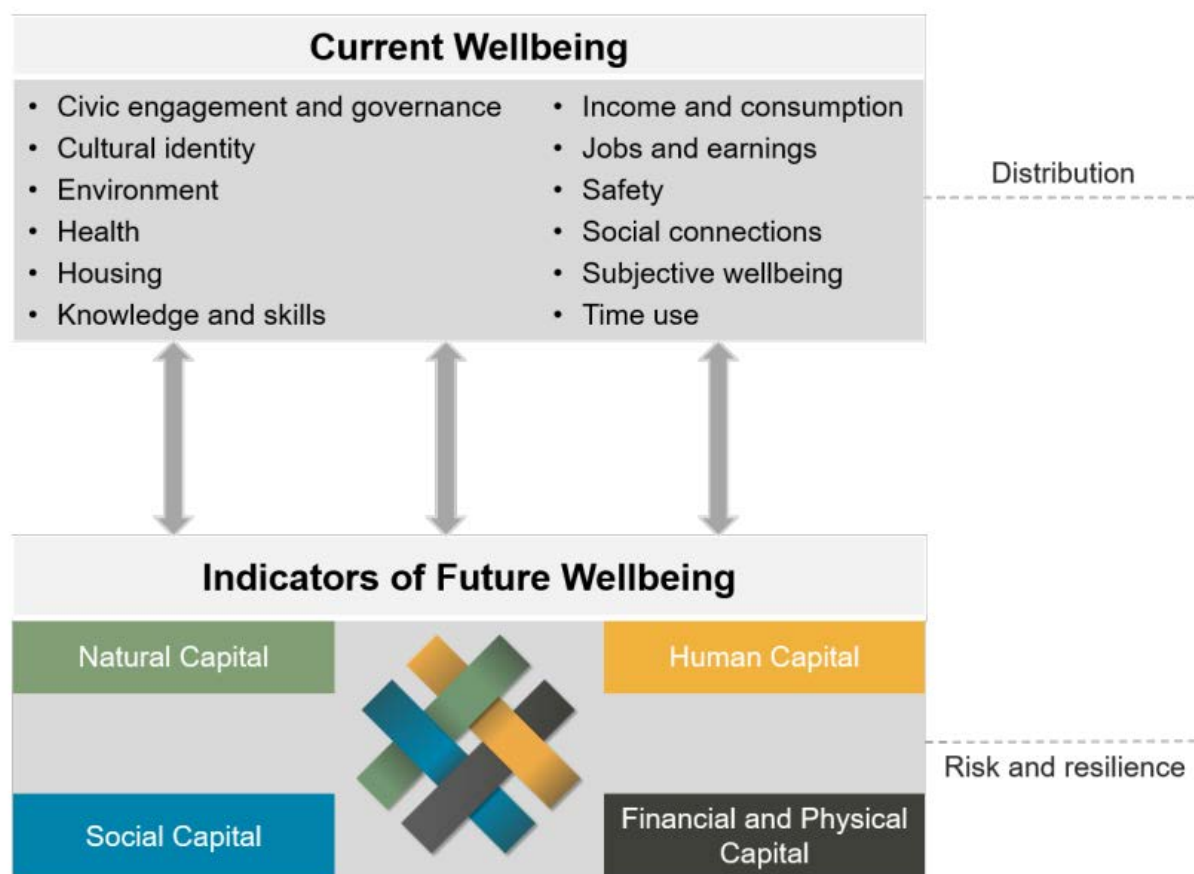


Source: (New Zealand Treasury, 2011^[35])

Between 2012 and 2018, the Treasury’s work focused on how to apply the Living Standards Framework to policy advice. Much of this work used a simpler representation of the key concepts in a pentagon that supported analysts to consider key high-level trade-offs. This simpler framework was first developed as part of the work of a working group set up to provide recommendations on tax policy to the Government, to help them apply the Living Standards Framework to their analysis (New Zealand Treasury, 2012^[37]). In subsequent years, the Treasury developed a variety of guides and background notes in order to help further guide use of the LSF for formulating policy advice.

In 2018, a second version of the LSF was released (Annex Figure 8.A.2). This version explored the four capitals introduced in the initial 2011 version in more depth, and defined the 12 domains of well-being for the first time. The LSF Dashboard was also released alongside this version of the LSF, with a selection of indicators chosen through consultation with the public and a range of experts both in New Zealand and overseas (New Zealand Government, 2018^[38]).

Annex Figure 8.A.2. The Treasury's 2018 Living Standards Framework



Source: (New Zealand Government, 2018^[38])

Notes

¹ Please note that the OECD gender pay gap is calculated based on the difference between median earnings using full time employees, whereas New Zealand's gender and ethnic pay gaps are calculated based on the median hourly pay of all working people (full time and part time). See Stats NZ, <https://stats.govt.nz/information-releases/labour-market-statistics-june-2022-quarter/>.

² For a history of the LSF, see Annex 8.A.

³ The LSF uses a broad definition of “institutions”. It includes formal and informal rules, social norms and other political, economic, social and cultural institutions.

⁴ See <https://lsfdashboard.treasury.govt.nz/wellbeing/>

⁵ After 2019, the MSD paused the production of this paper due to data issues, which are currently being resolved with Stats NZ. Their website states that they plan for the report to return in 2023.

⁶ TAWA is the current model used. TAXMOD-B was the New Zealand Treasury's behavioural microsimulation model, but it is no longer in use since 2018.

9 The case of Sweden

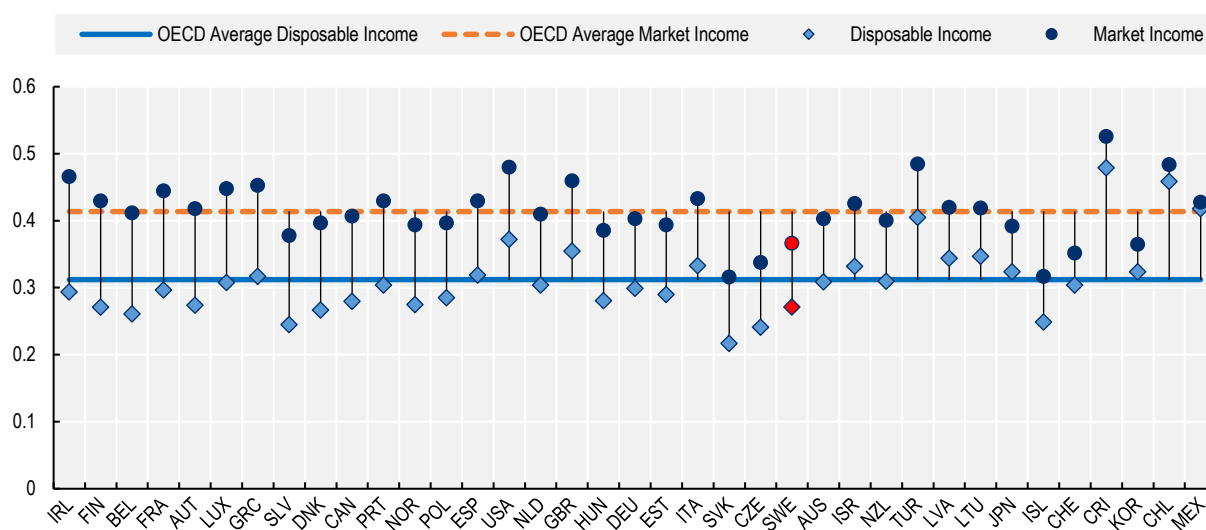
This case study provides an overview of recent trends in income inequality in Sweden, and discusses how considerations for inequality and distributional implications of public expenditure are brought to bear as part of the budget process. It discusses the practices currently in place in the country, how they are set up in the country's public expenditure frameworks, and how they are supported at the technical level, through the range of models and data tools that are utilised in policy practice.

9.1. An overview of recent trends in income inequality in Sweden

9.1.1. Overall income inequality

Sweden is one of the most equal countries in the world regarding income distribution with both relatively low levels of market income inequality and significant impacts of taxes and transfers (OECD, 2021^[1]). In 2018, before taxes and transfers, Sweden had a Gini coefficient of 0.366, as shown in Figure 9.1. However, taxes and transfer reduced this coefficient to just 0.271, below the OECD average (OECD, 2021^[1]).

Figure 9.1. Differences in household income inequality among the working-age population pre- and post-tax and government transfers, 2019

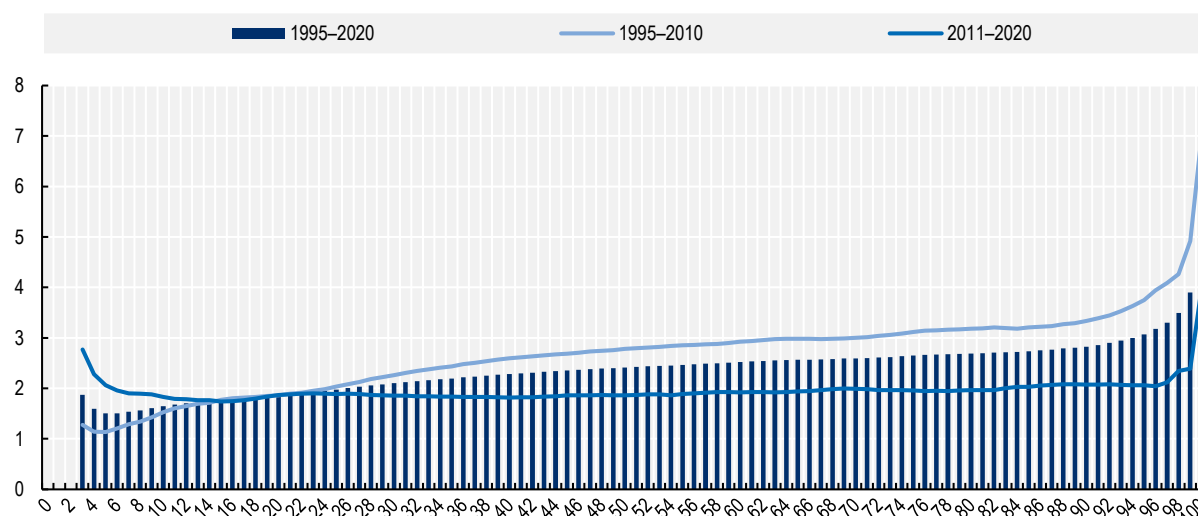


Note: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, Mexico, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom (2020); Ireland, Italy, Japan and Poland (2018); Chile, Iceland and South Africa (2017). No data available before 2018 for Belgium and Japan or before 2015 for Luxembourg and South Africa. Earlier data for Brazil, Chile, Estonia, Sweden and the United States are from 2013.

Source: OECD Income Distribution Database.

Between 1995 and 2020, all income groups in Sweden experienced economic growth, with the median economic standard¹ increasing by 82%. This income growth was highest at the top of the distribution while lowest at the bottom. In 2020, the top decile of the income distribution earned on average three times more than the median income earner and eight times more than the bottom decile (Swedish Government, 2022^[2]).

Much of this income dispersion has been driven by the top percentile, who in 2020 earned five times more than the lower part of the top decile, ten times more than the median income earner, and 25 times more than the bottom decile. The main reason for this has been the top percentile's increase in property and other capital income. However, policies implemented in the latter half of the 2010s had an equalising distributive effect, reducing the Gini coefficient from its peak in 2017 (Swedish Government, 2022^[2]). These trends mirror those of many OECD countries, with a general increase of property and capital income over the period.

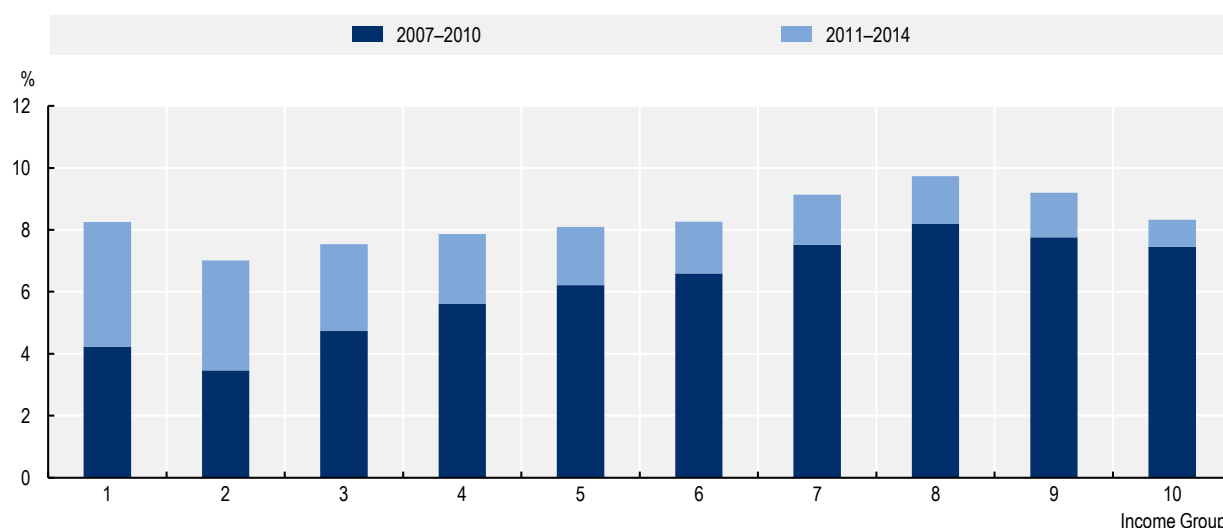
Figure 9.2. Annual change in real equivalised disposable income, percentiles 1995-2020

Note: First few percentiles have such low income that even small changes have a significant relative impact. As such, they are not included in the graph.

Source: Swedish Ministry of Finance

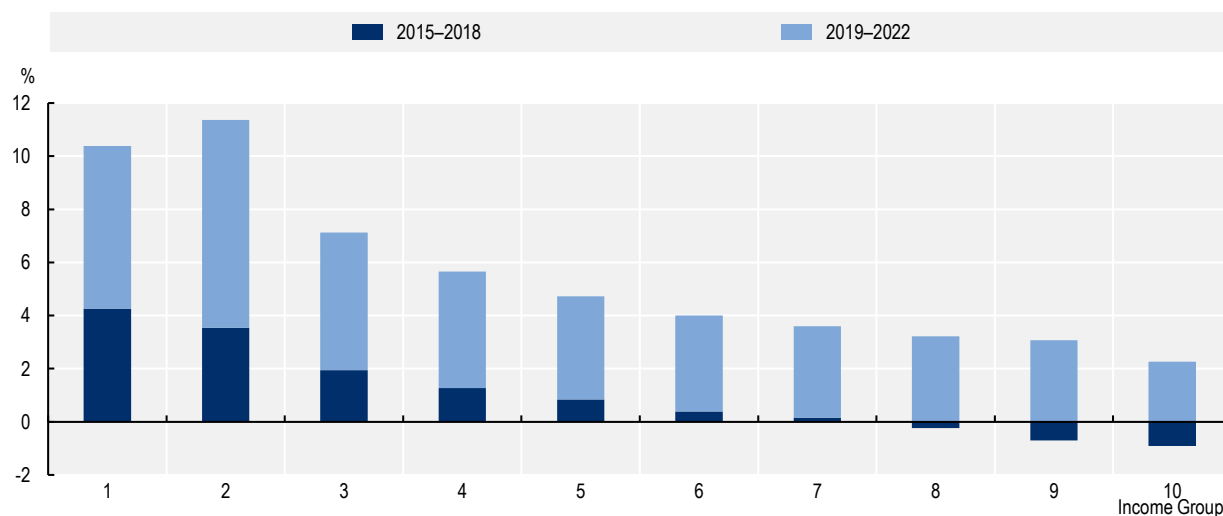
The reforms of 2007–2010 contributed to a more unequal distribution of the economic standard in the short run. For example, the gradual expansion of the employed tax credit meant that gainfully employed people, who are largely in the upper half of the income distribution, received a significant increase in their economic standard. Between 2011 and 2014, several reforms were carried out which targeted lower-income households with additional support, such as a reduction in pension tax and an increase in housing allowance. Further reforms in 2015–2018 improved the distribution to an even greater extent, and are estimated to have had a strong redistributive effect, benefitting the two lowest deciles the most. These reforms included increased housing allowance and reduced tax for pensioners, increased unemployment insurance benefits, and increased maintenance support. Reforms in 2019–2022 continued to be directed towards the lower deciles, and included changes in unemployment insurance and supplementary housing allowance for families with children. Not all reforms were progressively distributed in this manner: some reforms, such as a 5% cut in marginal tax rates for high income earners, have had the greatest effect on the upper part of the income distribution, while others, such as the tax reduction on earned income, have had the greatest impact on the middle of the distribution (Swedish Government, 2022^[2]).

Figure 9.3. Average effect on equivalised disposable income in difference income groups as a result of reforms 2007-2014



Source: (Swedish Ministry of Finance, 2022^[3]).

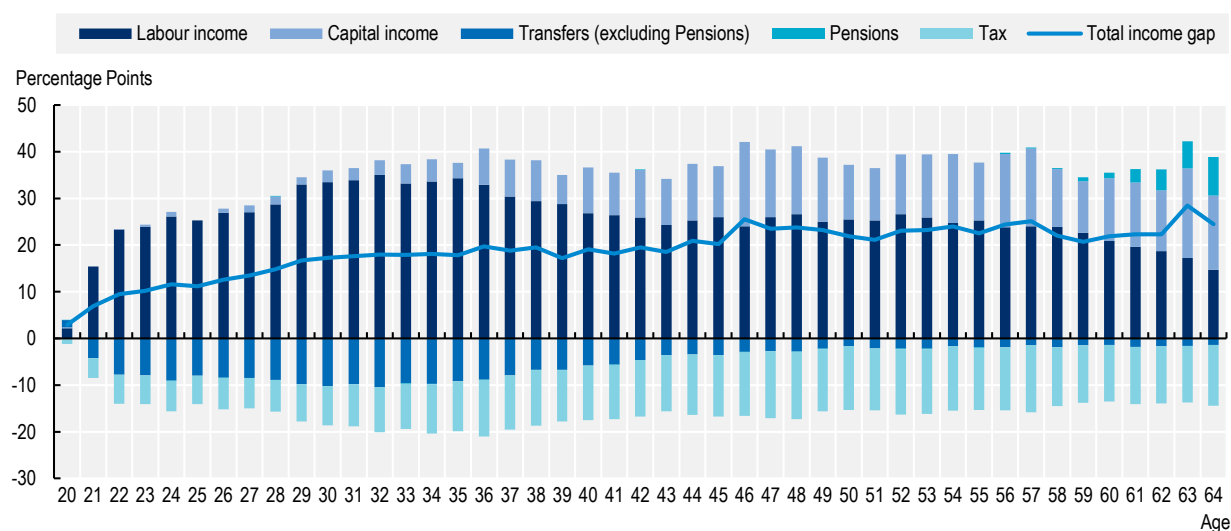
Figure 9.4. Average effect on equivalised disposable income in different income groups as a result of reforms 2015-2022



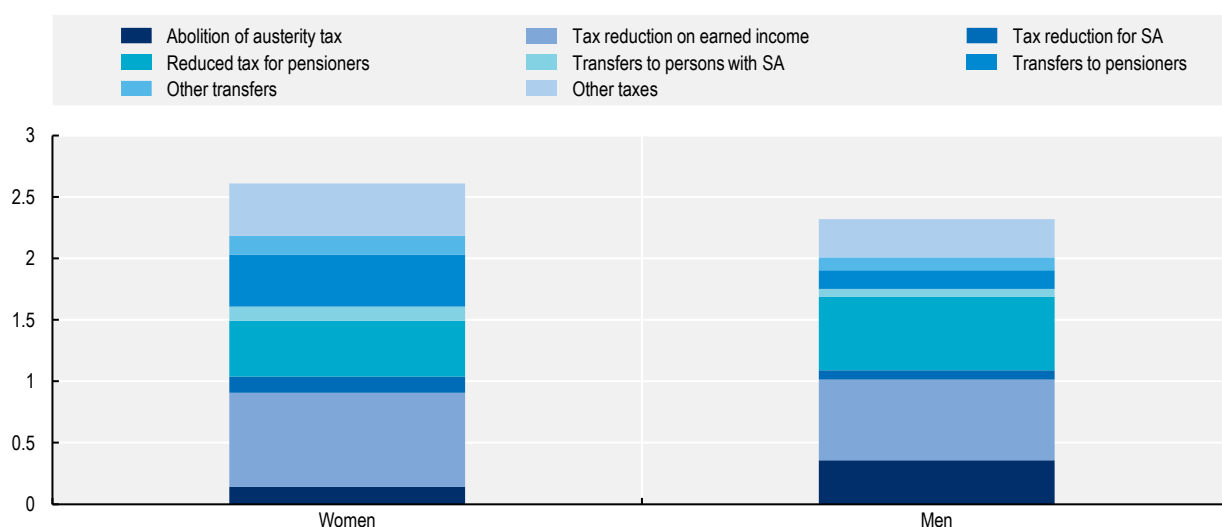
Source: (Swedish Ministry of Finance, 2022^[3]).

9.1.2. Income inequality by gender

While there is an income gap² between women and men at all ages, this gap increases over time, from 3% at the age of 20 to as high as 25% at the age of 50. After that, the gap remains constant up to about 65. Labour income is the largest contributor to the gap, while taxes and transfers trend to reduce it. In the 65 and older age group, pension income dominates and contributed the most to the income gap (Swedish Government, 2021^[4]). Overall, the impact of the Swedish government's 2019-2022 reforms was larger for women than for men.

Figure 9.5. Contribution of different income components and taxes to the income gap by age (2019)

Source: (Swedish Government, 2021^[4]).

Figure 9.6. Average change in disposable income resulting from the Swedish Government's reforms 2019-2022

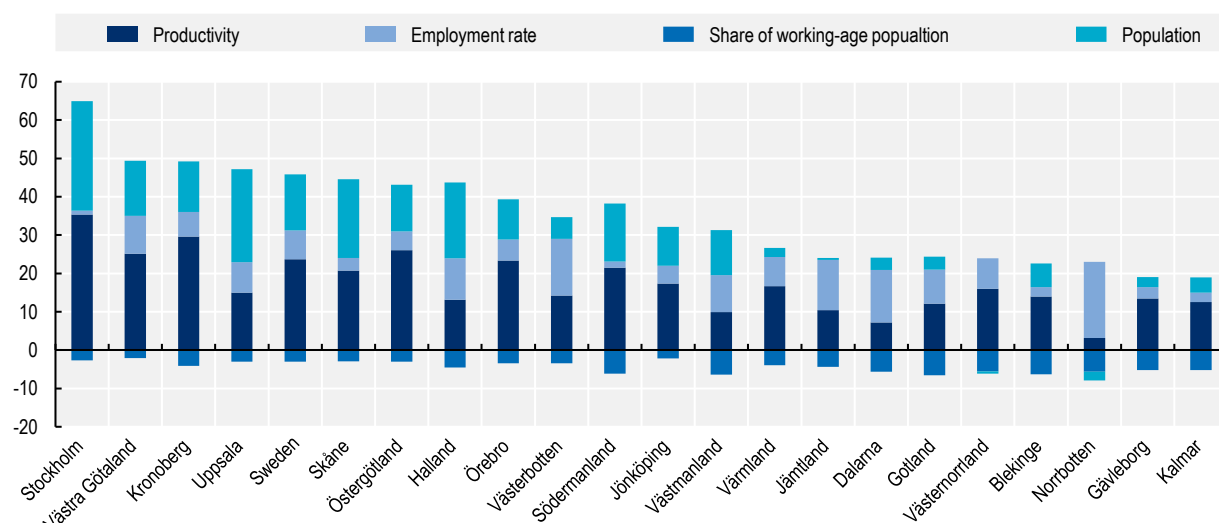
Note: "SA" means early retirement. The "austerity tax" refers to a 5% cut in marginal tax rates for high earners, implemented during the Swedish recession in the 1990s.

Source: "Economic Gender Equality 2021"

9.1.3. Selected insights on income inequality at regional level

While regional inequality is low in Sweden compared to most OECD countries, it has been rising since the 1980s. The main urban areas, most notably Stockholm, have enjoyed the strongest growth both in population and in productivity (OECD, 2021^[5]). This matches broad economic trends observed across OECD countries over the period as big cities have driven half of global economic growth.³

Figure 9.7. GDP growth components across Swedish regions



Source: OECD Economic Surveys 2021: Sweden

In Sweden, regions and municipalities are responsible for most welfare services. This has continued in recent years, with the central government increasing grants to sub-national governments – although it is worth noting that 70% of their revenue come from municipality-level income taxes, while central government grants account for around 22% (OECD, 2021^[5]). In March 2021, the government unveiled its 2021-2030 national strategy for sustainable regional development throughout the country. Some of its key governance aims include strengthening multi-level co-ordination between government institutions, regions, and other stakeholders, and strengthening policy assessment through research and evaluation (OECD, 2021^[5]).

9.2. Budgeting frameworks related to inequality and well-being

The systematic consideration of distributional implications in the budget process is well established in Sweden – an annual report looking at income inequality has been published since 1994, while an annual report examining gender inequality has been published in connection with the Budget Bill since 1988. The country is among those with the longest standing experiences in integrating distributional concerns into the budget. In terms of capacity, the work is supported by a distribution analysis section within the Division for Economic Policy and Distribution (DEPD), a division whose role is in part to analyse the distributional impacts on income inequality and economic gender equality of proposed policies, and use these analyses to inform the discussion on the new budget each year. The unit addresses the distributional implications of taxes, transfers and publicly funded welfare services.

9.2.1. The role of the division for economic policy and distribution in the Ministry of Finance

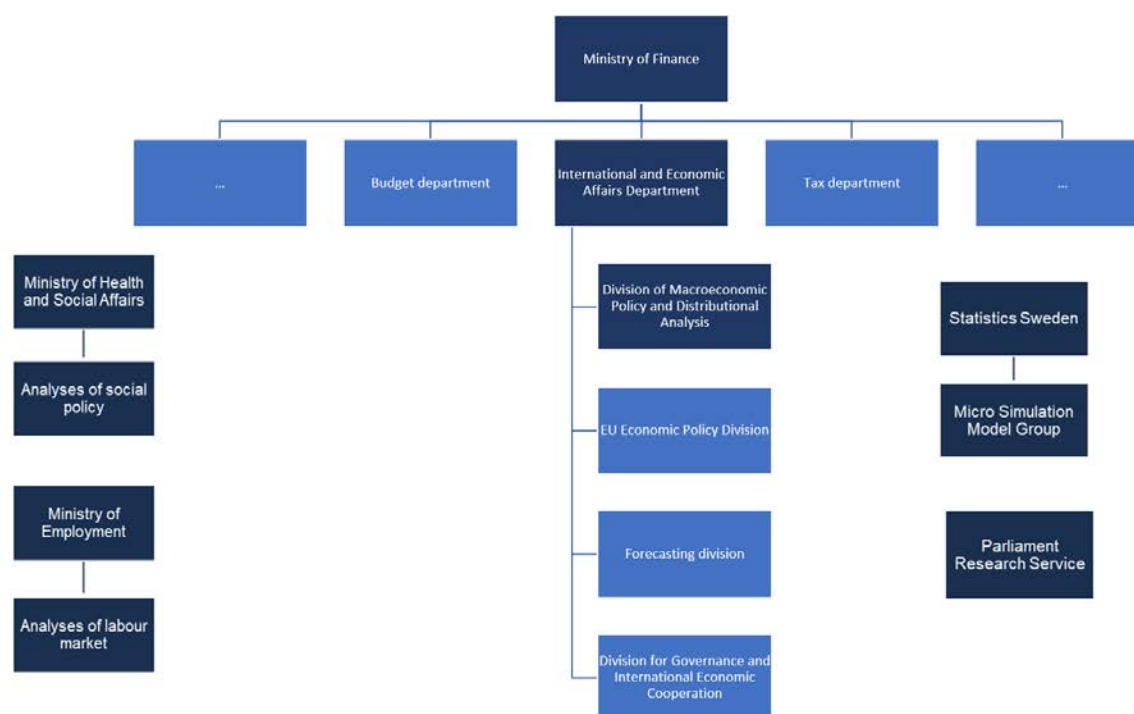
The work on distributional analysis is carried under a section of the division for economic policy and distribution (DEPD) under the International and Economic Affairs Department. The section of the division focusing on DIA focuses on two key areas:

1. the development and driving forces of economic inequality and economic gender inequality,
2. the reforms on taxes, transfers and publicly funded individual welfare services.

Depending on the requests of the sitting Minister of Finance the DEPD also analyses long term effects on the income distribution stemming from impact of reforms on labour supply.

The section focusing on distributional analysis includes 5-10 professional staff and predominantly uses data from Statistics Sweden (see section 4), and uses the FASIT static microsimulation model as its main model (see section 3). It is responsible for analyses of income inequality and economic gender inequality in budget documents. In practice, the section in the DEPD collaborates regularly with other ministries, as the Ministry of Health and Social Affairs and the Ministry of Employment. As far as available data allows, the Ministry of Finance's analysis is quantitative, as this is what politicians request, but for unexpected events (such as the Coronavirus pandemic) and reforms where microdata is lacking qualitative analysis is often used. All analysis is published on an inflation adjusted basis (Swedish Ministry of Finance, 2022^[6]). The division also has professional and methodological exchanges with statistics Sweden.

Figure 9.8. Position of distribution analysis section of the DEPD within the government of Sweden



Source: Swedish Ministry of Finance

9.2.2. The budget process

The distributional analysis unit supports the budget process within the Ministry of Finance in three phases:

1. It provides a general basis for the Ministry's prioritisation and thinking at an early stage, by helping to calibrate the potential impact of various scenarios.
2. It aids in the development of draft budgets and concrete estimates in practice.
3. It contributes to the impact statement in the Budget Bill.

In addition, it undertakes analytical work on many different topics, for example the impact of COVID, or how current inflation affects distribution.

The upper-level work on the Budget generally begins in January or February. Here, the Ministry of Finance and its political leadership, alongside all the other ministries, starts determining their political priorities for the next year, and puts forward proposals for reforms. Such proposals can vary greatly, and may consider the impacts of several different types of inequality, including income, gender, and regional inequality. The DEPD aids when proposals from other ministries are processed within the Ministry of Finance. Either at the initiative of political leadership or by their own initiative, the division will propose reforms that ensure shared increases in prosperity. In these discussions, the various effects of economic driving forces are also taken into consideration. This means that efforts to ensure that increases in income equality do not come at the cost of a reduced labour supply. A large number of possible reforms are considered during this process, ranging from very general potential policies to those on certain demographics. While in some cases the division will work in collaboration with the Budget department, in other cases they will work alone (Swedish Ministry of Finance, 2022^[6]).

The DEPD also aids in the development of draft budgets. The first of these, the Spring Budget Bill, is published in April, and provides both the expenditure ceiling for two years into the future and an assessment of public finances to indicate the scope for reform. Since 1994, the division has prepared an annex to this budget known as the distributional account (Swedish Government, 2022^[7]). While the Ministry of Finance has relatively high levels of freedom to determine the content of the annex, during the writing stage, leadership may request to review the draft.

The subsequent steps occur in May and June, when ministries submit their proposals for the next year along with their financing propositions. At this stage, a collective budget review occurs, where the proposals from all the ministries are weighted and prioritised, and trade-offs have to be made. This process tends to be highly political, with heated debates within the government offices, as the different ministries compete for funds within the expenditure ceiling set out in the Spring Budget Bill two years prior. While the Budget Department has the upper hand during this period, the distributional analysis unit also plays a role. The DEPD conducts both quantitative and qualitative analysis to look at the potential impact of suggested changes to tax and transfer systems. As the main task of taxes is to finance government income, while most redistributive policies are enacted through transfers, analysis of new transfer policies tends to happen sooner than for tax policy analysis for which it occurs at a late stage, with direct orders from the Minister of Finance occurring at an early stage in the Budget process (Swedish Ministry of Finance, 2022^[6]). The DEPD works in collaboration with the budget department, and will often contact other ministries in order to discuss the distributional impact and other aspects of their respective proposals. The type of analysis the division conducts is not limited to distributional effects – the team will also conduct system analysis and look at budget effects (i.e. how the policy in question will affect the budget). This analysis can influence the negotiations about which proposals are ultimately included in the final budget (Swedish Ministry of Finance, 2022^[6]).

In September, the Budget Bill is released,⁴ which provides the coming year's new policies. The proposals in the Budget Bill often consider the distributional effects of their implementation, as calculated by the DEPD. The division also contributes to the “economic gender inequality” annex, which has been a component of the Budget Bill since 1988. Furthermore, it scrutinises the distributional effects of political oppositions' proposals, particularly for the larger opposition parties. Often this will be done solely with the information available in the opposition parties' budget texts, but sometimes the Ministry of Finance will request further information from the parties if it is needed to effectively carry out analyses.

9.2.3. Discussion with Parliament

The distributional profile of new policies is important to parties across the Swedish political spectrum. Distributional impact assessment is thus a relevant component of parliamentary debates. However, the DEPD does not deliver work directly into Parliament – apart from the distributional analysis presented to parliament in the budget bills the division's role is limited to preparing briefs and answers for the Minister

for Finance, when he/she needs to appear in Parliament. Instead, there is a research unit connected to the Parliament, through which Members of Parliament can request their own analysis. The Parliament Research Service will work on any topics requested of them, including distributional analysis. Such analysis is done year round, but a large part of the DIA analysis is conducted in the autumn, both before and after the DIA in the autumn Budget Bill is released, as opposition parties will produce their own responses for the bill, which themselves often include DIA (Parliament Research Service, 2023^[8]). The Parliament Research Service is apolitical and is widely accepted by Members of Parliament as independent (although this independence is not enshrined in law).

The two DIA teams have many similarities – they use the same tools and data, and have some exchange of staff. Furthermore, they convene to resolve any technical issues in their respective analyses, in order to ensure that politicians are able to focus on political differences in the analysis during debates, rather than the technical ones (Swedish Ministry of Finance, 2022^[6]). In particular, the Parliament Research Service will try to use the same assumptions as the Ministry of Finance as much as it can and will contact them if it is not clear on anything. However, as the Ministry of Finance has political leadership and the Parliament Research Service is apolitical and independent, the Service will always discuss and evaluate the assumptions the Ministry uses before deciding whether to also use them.

9.2.4. DIA external to the government

The Swedish Fiscal Policy Council provides regular DIA of government policies (Swedish Ministry of Finance, 2022^[6]), providing an input to the public debate.

9.2.5. Gender budgeting

Gender governance is deeply integrated into the budget process, with gender mainstreaming having been in operation in Sweden since 1994 and introduced into the budget process in 2002 (OECD, 2017^[9]). Since 2016, the annual budget has included instructions on the application of gender budgeting, and requires that gender impact analysis be carried out early in the budget process. In addition, Sweden is one of only two OECD countries to systematically collect gender-disaggregated data, a decision underlined by the OECD as key in the development of gender-responsive policymaking (OECD, 2017^[9]).

As Sweden requires all policies to have a gender perspective, every unit will conduct at least some gender analysis. However, there are three main units who concern themselves with gender budgeting issues, DEPDA being one of them, being responsible for the statistical analysis of economic gender inequality. The other two include the Ministry of Labour, who are responsible for the overall gender perspective, and the Structural Unit in the Budget Department, who are responsible for analysing structural issues in society with the aim of promoting efficient use of resources, and examine the processes around gender budgeting. (Swedish Ministry of Finance, 2022^[6]).

9.2.6. Analysis of financially vulnerable households

While the annual reports described above tend to focus on trends in income distribution, the previous five editions have also contained sections looking at economically vulnerable households, using a relative measure of poverty (60% of median income). These sections report the percentage of the population living under this poverty line, and break them down by age group, proportion of household members working full time, and whether or not they were born in Sweden.

Some editions have also contained a specific focus section on children, underlining that financial vulnerability at a young age can lead to a higher risk of reduced education levels, bad health, and increased vulnerability to further economic insecurity down the road. Here, the report uses longitudinal data to follow children between the ages of 1 and 18 born between 1990-2000, and children between the ages of 1 and

10 born between 2000-2008, in order to measure how many years each child is classified as economically vulnerable.

The sections account for earnings both from income and from social benefits, breaking down the data by social benefit and highlighting that the further one goes down the income distribution, the more likely one is to earn a living predominantly from social benefits. On top of this, the paper examines the impact of each year's policies in reducing the number of people living below the poverty line. In 2021, it found that in total, government reforms reduced this figure by 13%.

9.2.7. Inter-generational equity

While the Swedish government regularly pursues new welfare initiatives, it also recognises that increases in the number and quality of welfare services in pace with real income can cause inter-generational distributive issues. In other words, under some circumstances, the case can be made that an increase in government surpluses today can be justified on the basis that it will allow greater public spending to occur in the future. To ensure this happens, the Government's annual assessment of the long-term sustainability of fiscal policy in the Spring Fiscal Policy Bill is sometimes supplemented with generational analyses, which show whether spending decisions are likely to cause redistribution between different generations. Any proposal expected to have an impact on inter-generational equity must be preceded by such an analysis.

9.3. Tools for assessing the distributional impacts of budget decisions

The integration of distributional implications in the budget process calls for policy formulation to be evidence-based, and thus supported by comprehensive impact analysis and evaluation. Sweden's advanced modelling capacities demonstrate that it recognises this fact – its micro-simulation model allows it to make detailed analyses of the potential impact of proposed policies, and thus ensure that expenditure is aligned with the strategic goals and priorities of government, as suggested by the OECD's good practices for performance budgeting (OECD, 2019^[10]).

9.3.1. Micro-simulation modelling – FASIT:

DEPDA uses the static microsimulation model FASIT.⁵ The model was developed jointly by the Ministry of Finance and Statistics Sweden in the late 1980s and is today managed, developed, and updated following changes in taxes and transfer systems by Statistics Sweden (SCB), while the distributional analysis unit uses it and makes suggestions for changes. It is also available to all government agencies free of charge, while the Parliament and other users pay a users' fee. Organisations external to the government can have access to the code but not the data, they can also order analyses from Statistics Sweden for a fee.

FASIT can:

1. Examine how disposable income is affected by changes in the rules for calculating taxes and transfers. This can be done both for specific social and income groups, or aggregated to the societal level.
2. Examine how regulatory change affects marginal effects and replacement rates for households. This can be done both for specific social and income groups, or aggregated to the societal level.
3. Evaluate statistics on publicly funded welfare services. To do this, welfare services are divided into 30 categories, and each reform is allocated to one category. The value of the service is then divided into the population, partially based on actual consumption from register information, and partially based on an insurance principle, with costs differentiated between groups by age, sex, and region.⁶

The model is also able to give indications of certain economic variables, such as wages, interest rates and capital gains. These indications are based on forecasts from the National Institute of Economic Research, Pensions Agency, and the National Financial Management Authority.

Statistics Sweden delivers four versions of the FASIT model each year, with the first version delivered in February. The three subsequent versions use new updated forecasts from the Pensions Agency, the Social Insurance Agency, the Public Employment Service and the National Institute of Economic Research,⁷ (an apolitical government agency under the Ministry of Finance with about 50 employees), to update the model's structural and economic projections. These may differ from the Ministry of Finance projections. The Ministry of Finance is also able to change these projections, although these projections are separate to those conducted by Statistics Sweden.

While the model is predominantly static, it does contain a labour supply model, which is able to estimate the effects of tax and transfer changes on the long-term labour supply and the implied long-term effect on income distribution. The module contains detailed rules for taxes and transfers, data on income, and several estimated equations based on individuals' characteristics (education level, household type, etc.) that partly describe individuals' preferences for market work, and partly examine the probability of their transitions from non-work to work when the compensation rate changes. The module is also able to consider labour market heterogeneity – for example, it accounts for the fact that different types of households (e.g. single women, single men, cohabitants) are likely to have different work preferences.

The labour supply module is able to simulate various rule changes, which in turn alter the possible combinations of leisure and consumption that a household can choose between. Not all individuals who wish to work more are assumed to be successful in obtaining work – some will become unemployed. The model also accounts for ulterior dynamic effects – for example, a change in working hours will affect the individuals labour income and transfers, which in turn will affect the public sector economy, household income and income distribution.

9.3.2. How FASIT works

Before running the model, the user utilises a control programme to specify the year he/she wants to analyse, the selection of sample used, and several other controls. The user has access to many modules, where generally one module represents one type of tax or transfer in the base year, and can be adapted for any regulatory changes in the years thereafter. If a proposal has been officially presented by the Government but has not yet been made law, Statistics Sweden will programme the new regulation as a 'switch', meaning the proposal is present within the model, but will not run by default, the user has to take an active decision to run the switch. When the regulation is formally confirmed by law it will run by default.

Modules are then organised into three key groups, all of which look at every income group:

- The first group of modules simulates individual transfers and direct taxes. FASIT contains detailed information about tax and benefit rules, and uses register data to obtain information about individuals' incomes and how many days of a certain benefit an individual uses.
- The second group of modules simulates household transfers and fees. While most individual-level transfers are based on earnings, household transfers are often needs based, and so people must apply to them (see the Table 9.1 below for a full breakdown of which areas FASIT simulates at individual level and which it simulates at group level). As in reality, not everyone who is eligible for a model will apply to it, FASIT models a take-up rate, which provides an estimate as to the proportion of the population eligible for a transfer that actually applies for it.
- The third group of modules simulates indirect taxes and publicly funded welfare services. However, some parts of the data needed for simulating indirect taxes rely on survey data from 2012, and as such are not considered reliable. While Statistics Sweden have tried to collect more up-to-date data since, the reply rate for the survey has been so low that it has not been usable. As such, this module is not in regular use.

Table 9.1. Areas that FASIT simulates at individual level vs at group level

Areas simulated at individual level	Areas simulated at household level
Pensions	Housing allowance
Sickness and activity compensation	Housing supplement for pensioners and sick people
Sickness benefit and rehabilitation allowance	Older income support
Labour market allowance	Social assistance
Parental allowance	Fees for preschools and recreation centres
Dividends from small companies	Fees for elderly care
Direct taxes	
Maintenance support	
Child allowance and multi-child allowance	
Student aid/study grant	
Start-up compensation	
Public welfare services	
Dental subsidies and patient expenses	

Source: (Swedish Ministry of Finance, 2022^[6])

9.3.3. Limitations of the model

A first key limit of the model is that it is predominantly static (with the exception of the labour supply model, although even this can only be run after the static model itself has already been run). As such, it has no way to simulate behavioural reactions to welfare changes as the change occurs (Swedish Ministry of Finance, 2022^[6]).

A further limitation is that all analysis is done on a yearly basis, while many transfers are decided upon on a monthly basis. While some income data is available on a monthly basis, there is not enough to comprehensively analyse the month-to-month impacts of transfer changes.

Several policies cannot be simulated in FASIT. For example, policies on collective public goods such as police and defence and any kind of reform on public goods where it cannot be ascertained exactly who will use the services is unable to be simulated in FASIT.

A final key limitation is the reliance of indirect tax calculations on a household survey examining consumption patterns. The response rate to this survey has historically been very low, with the last available survey collected ten years ago. As such, much of the information the model contains related to indirect taxation is now out of date.

9.4. Data and information infrastructure

A key component of integrating distributional implications in the budget process hinges on the availability of data disaggregated by individual characteristics. In Sweden, high quality data is collected in several key fields. Statistics Sweden collects detailed and disaggregated statistics, and regularly evaluates the quality of these statistics, including information on production time, punctuality, cost, and time spent on data collection.

In addition, statistics are collected through 28 government agencies, with Statistics Sweden responsible both for co-ordinating these agencies and producing its own statistics. The statistics are divided into 22 subject areas and 112 statistical areas. However, there is only a legal mandate to disaggregate data based on income and gender criteria. While detailed data at the individual level also allows researchers to disaggregate by age, country of birth and parents' country of birth, there is no legal basis for collecting data on other individual characteristics such as race, sexual orientation.

Data sources for income distribution statistics – Statistics Sweden. Every year, Statistics Sweden publishes a variety of statistics on the income of individuals and households, taking advantage of the wealth of registries available in Sweden. However, the way Statistics Sweden has collected the data needed to create these statistics has evolved over time. For example, between 1975 and 2013, Sweden's official income distribution statistics came from the Economics of Households Survey (HEK), a dataset consisting of individuals 18 or older which was collected data via a mix of declaration data, telephone interviews and register data. In 2013, due to improvements in the quality of register-based statistics, Statistics Sweden decided to close HEK⁸ and replace it with a new, completely register-based dataset known as Total Income Distribution Statistics (TRIF). Statistics Sweden provided a study in which it highlighted the differences in how the data from these two sources were collected,⁹ and found that TRIF generally provided slightly higher estimates of the average and median of the economic standard, a slightly lower Gini coefficient, and a slightly lower share of income below 60% of the median (Statistics Sweden, 2016^[11]). As of 2019, employers are obliged to provide earnings to Statistics Sweden on a monthly basis,¹⁰ and as of 2020, pension and wage income from Denmark, Finland, Iceland and Norway has also been included in TRIF.

Alongside TRIF, Statistics Sweden also uses data from EU-SILC for its income distribution statistics. Between 1994 and 2018, it also used LINDA (Longitudinal Individual Database), which contained a sample of about 3% of the Swedish population from 1968 onwards, with household members added to sample individuals.¹¹ The results from LINDA were never published as official statistics, and thus were predominantly used by researchers.

Data sources for income distribution statistics used in FASIT Indeed, the largest register used for the model is the Income and Taxation Register,¹² which is managed by Statistics Sweden, who in turn gets its data from the tax authority and others. However, data is also collected from a variety of other sources, including the Social Insurance Agency,¹³ the Land Survey,¹⁴ the Swedish Pensions agency, the Swedish Public Employment Service, and the National Board of Health and Welfare, and many others. It is worth nothing that there has been no wealth data in Sweden since 2007, after the wealth tax was abolished¹⁵ (Swedish Ministry of Finance, 2022^[6]).

As the basis for specific FASIT calculations, the Ministry of Finance (as well as any other Ministries that use FASIT) use an unrestricted random sample of TRIF known as STAR, consisting of approximately 2.1 million individuals, divided into 960 000 family households, and MSTAR, which is a subsample of STAR, consisting of approximately 92 000 individuals and 42 000 family households. The data in STAR and MSTAR are very detailed and consider various types of income, including capital income, entrepreneurial income, various kinds of transfers, fees paid by individuals, and others. The samples also contain data on people's living situations, and if they are married or cohabiting and have children, as well as information on year of birth, year of immigration, municipality, occupation, etc.

A large part of the data for STAR and MSTAR are obtained from Statistics Sweden, including data on population, income and tax data, education, property, vehicle ownership, and many others.

The data in STAR and MSTAR is available to the Ministry of Finance with a lag of two years, and so projections of the data are used for more recent and future years. These projections are updated and calibrated four times a year within the Ministry, to be consistent with the latest macroeconomic forecasts. Statistics Sweden officially recommends that STAR should be used for analyses due to its lower margin of error, and that MSTAR should only be used for testing the model. However, in reality most analyses will use MSTAR, as STAR takes a significant amount of time to run. The metric the Ministry of Finance uses in calculations is disposable income, equalised to account for differences in household size and composition. The Ministry sometimes uses other data sources external to FASIT to conduct analysis.

9.4.1. Gender analysis data sources

Sweden's Official Statistics Ordinance contains a section which explicitly states that official statistics related to individuals must be disaggregated by sex, unless there are special reasons for not doing so. A booklet by Statistics Sweden further highlights that statistics broken down by sex alone are insufficient for analyses on gender equality, and thus statistics must be employed that illustrate gender equality issues in society (Statistics Sweden, 2018^[12]). To this end, Statistics Sweden provides data related to the six sub-goals of Sweden's gender equality policy: an even distribution of power and influence, economic equality, equal education, equal distribution of unpaid home and care work, equal health, and fighting violence against women. Within the economic equality sub-goal, gender equality statistics are further broken down into various income statistics (including return on capital and entrepreneurship earnings) as well as labour force participation, including illness and sick leave (Statistics Sweden, 2020^[13]). Furthermore, Statistics Sweden breaks down gender statistics to the regional level, examining gender equality issues in all counties and municipalities. Aside from presenting the data, Statistics Sweden has in the past written detailed guides on how to use its gender statistics, including advice on methodology and presentation (Statistics Sweden, 2004^[14]).

The analysis of women and men's income in is also based on TRIF and HEK, while the analysis on gender equality in the labour market is mainly based on the Labour Force Surveys.

In the analysis presented in their respective annexes, gender analysis and distribution analysis focus on two different income concepts:

1. Distribution analysis looks at total (equivalised) disposable income of all household members. The income is shared equally among everyone in the household, even children.
2. Gender analysis looks at individual disposable income. Each individual receives his/her own income, taxes, and transfers. Household-based transfers are shared equally among adults – children are not included.

9.4.2. Data sources for analysis of other individual characteristics

Neither the Ministry of Finance nor Statistics Sweden is allowed to collect data on race or sexual orientation, and as such there is no explicit mention of data disaggregation for these characteristics in any of Sweden's statistics reports.

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Notes

¹ The economic standard, otherwise known as equivalised disposable income, is calculated as a household's total disposable income divided by its total household weight. Total household weight is calculated as follows: the first adult in a household is given a weight of 1. The second adult has a weight of 0.51, and additional adults 0.6. The first child has a weight of 0.52, and each additional child a weight of 0.42.

² Note that there is a slight difference between how Sweden measures income inequality and how it measures economic gender inequality. For the former, income is adjusted by consumption weights, while for the latter men's and women's individual disposable incomes for those aged 20 and above are measured.

³ Financial Times. <https://www.ft.com/content/24dbcc0f-7974-48d7-9824-ab86b58a3a29>, McKinsey Global Institute analysis, consistent with OECD findings.

⁴ In election years the Budget Bill is released later to avoid any political interference. The latest it can be released is the 15th November.

⁵ FASIT stands for Analytic Distribution Statistics System for Incomes and Transfers (or *FördelningsAnalytiskt Statistiksystem för Inkomster och Transfereringar*).

⁶ About half of this is divided according to actual consumption based on register information, while the other half is done according to an insurance principle, with costs differentiated between groups by age, sex and region. The measure used is called extended disposable income.

⁷ Konjunkturinstitutet in Swedish <https://www.konj.se/>

⁸ The final version of HEK included 39 000 individuals divided into approximately 17 000 households.

⁹ A first difference is that in HEK, the household concept is defined as all people who live together with joint housekeeping (i.e. with common facilities). With TRIF, the concept is defined as all people registered in the same property or appartement, regardless of whether or not there is joint housekeeping. A second difference concerns the fact that maintenance payments (transfers that occur between separated parents) are not recorded in administrative registers. To make up for this, HEK collected data on maintenance payments in the interview, while TRIF uses model simulation of these payments.

¹⁰ As of now, earnings information collected by Statistics Sweden does not include capital income. However, there are ongoing projects within the organisation to try and include this in the future.

¹¹ As STAR (See subsequent subsection) also contains a longitudinal sample, it was considered inefficient to publish two longitudinal databases, and as such Statistics Sweden opted to stop publishing LINDA.

¹² The Income and Taxation Register contains around 900 variables. The other two main registers used are for family households and household-dwelling units, and contain 80 and 40 variables respectively, most of which are background variables. FASIT also uses several supplementary registers, which include data on unemployment, parental benefits, sickness benefits, dental care, and many others.

¹³ *Försäkringskassan* in Swedish

¹⁴ *Lantmäteriet* in Swedish

¹⁵ There is currently a government inquiry into starting the wealth register again. See (Swedish Government, 2022^[15]).

Addressing Inequality in Budgeting

LESSONS FROM RECENT COUNTRY EXPERIENCE

In many countries, public expenditure, including transfers, plays a major role in reducing income inequality. The report reviews the various ways that budgeting can be used to this end. A first includes taking a broad approach to results-based budgeting, taking social and distributional goals into consideration. A second relies on integrating distributional impact analysis directly into the budget process. The report discusses the concrete experience of eight OECD countries in this area, analysing how they are integrating distributional impact assessment in spending and budgeting decisions. Finally, it discusses the tools, frameworks and data that are needed to take distributional considerations into account as part of evidence-informed policy making.



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