

## **UNDERSTANDING PRESENT AND FUTURE PUBLIC SERVICE DELIVERY COSTS IN EUROPEAN REGIONS**

Most EU Member States have substantially different public service systems e.g. education and health services, with different provision, quality and accessibility requirements. Available data on service provision differs substantially across Member States in terms of coverage, definitions and spatial resolution. To allow ceteris paribus comparisons across the EU, despite institutional variance and measurement issues, it is highly important to quantify current and future costs of service provision, while explicitly accounting for the differences in density and demographic change that exist in the EU. This session will gather researchers and policy makers from different countries and representatives from the OECD and European Commission to discuss and exchange relevant information and recent findings on public service provision. The discussion will focus on topics related to health and education services covering different characteristics of urban and rural areas.

### Moderators:

- Mert Kompil, Scientific Project Officer, European Commission - JRC, Italy.
- Carlo Lavalle, Scientific Officer, European Commission, Joint Research Centre, Italy.

### Speakers:

- Lewis Dijkstra, Head of the Economic Analysis Sector of the Directorate-General for Regional and Urban Policy, European Commission, Belgium.
- Jose Enrique Garcilazo, Project Manager, OECD, Centre for Entrepreneurship, SMEs, Regions and Cities, France.
- Markus Hirvonen, Mayor, Municipality of Juuka, Finland.
- Chris JACOBS-CRISIONI, Scientific Officer, JRC, Italy.
- Mert Kompil, Scientific Project Officer, European Commission - JRC, Italy.
- Chiara Marinacci, Project Manager, DIREZIONE REGIONALE SALUTE E INTEGRAZIONE SOCIO-SANITARIA - LAZIO, Italy.
- Jochen Mierau, Tenure Track Professor and Scientific Director AJSPH, University of Groningen, Netherlands.
- Ana Moreno Monroy, Economist, OECD, Centre for Entrepreneurship, SMEs, Regions and Cities, France.
- Adriana Perez Fortis, Scientific coordinator Cross-border Institute of Healthcare Systems and Prevention, University of Oldenburg and Aletta Jacobs School of Public Health, Netherlands.

### **1) EU regional policy & public service provision - Lewis Dijkstra**

The EU population. EU population is stable, however we have more seniors and fewer juniors. Natural growth has become negative, but migration is positive. Fertility rate in Spain and Italy is very low, which drives population change. Active and healthy ageing can avoid that more people over 64 means more healthcare expenditure. Mobility, however, is a concern especially in rural areas, but villages and towns can offer model choice. Broadband can help, but only if it is available, affordable and seniors have sufficient digital skills.

Fewer school aged children means that some schools will have to close, some children will have to travel further, some schools will offer less choice in their curriculum and overall costs may go

up. Can a school anchor a community? Does closing a school lead to even more population decline?

Focussing on rural regions. They already have an older population (45 vs 43 in 2019). The rural population between 2014 and 2019 shrank (-0,17% a year) due to negative natural change (-0,23%), but net-migration is still positive (0,06%). Rural population reductions are projected to continue (-0,2 - -0,3%). Rural regions have lower birth rates, but slightly higher fertility than urban regions. This is due to fewer and older women in rural regions. Distances to education and healthcare are already greater. Rural regions tend to have a lower GDP per head than other regions.

Rapid change is rural. Rapid changes in population occur most often in rural regions and are always rapid reductions. Regions with a GDP per head below 75% of the EU average may struggle to finance the necessary adjustment costs. Focus should be on quality of life and access to services, not on trying to reverse population decline!

Demographic change will affect access to healthcare and education. Policy responses should consider the spatial distribution of the services, the spatial distribution of the targeted population, digital forms of access (including the availability, affordability of broadband and the digital skills to use them), the unavoidable trade-off between cost and distance. Grid population by age and sex will become available, but reliable, exhaustive and annually updated locations of schools and healthcare are needed.

What will we do when elderly population can't drive a car anymore?

Rural vision: access to services and broadband are key questions.

## **2) Understanding present and future public service delivery costs in European regions – objectives and initial outcomes of the project - Ana Moreno Monroy, Chris Jacobs-Crisioni and Mert Kompil**

How much more expensive is it to provide services in rural areas? Public service provision is challenging for rural areas due to high transportation costs, low economies of scale and scope, difficulty in attracting and retaining professionals. There is currently no available monetary estimates and projections of cost of public service delivery by type of human settlement.

Preparing for future needs.

- Estimation of future school delivery using population projections at grid-cell (1km<sup>2</sup>) level.
  - Demand: present and future population by age group.
  - Supply simulated facilities based on optimal access placement.
- Model costs at facility level considering:
  - Costs arise in the facilities (e.g. schools), not in the areas (e.g. school districts).
  - Public services are local, and are provided close to places of residency.
  - Additional costs arise as a result of smallness.
  - Transport costs are not necessarily born by the government.

Decision support system for demographic change.

- Compare school cost across EU countries driven purely by geographical and settlement structure differences.
- Estimate the impact of changes in teacher compensation and class sizes across areas and settlement types.
- Compare costs of current school network with efficiently placed schools.
- Estimate the increase in school cost by settlement type of future population changes under different policy scenarios.
- Understand the effect of school reorganization on student travel times in rural areas.

Modeling facility distribution based on population distribution.

- Observe spatial distribution of relevant service users (e.g. children in primary school age).
- Step by step, distribute facilities based on bounding conditions.
- Allocate users to facilities (e.g. children to schools), measure travel times and estimate school expenditure per user.

Estimating schools costs.

- We set parameters to EU averages where available or based them on actual school data for England where no EU equivalent was available.
- We take advantage of well-behaved functional forms to draw likely values for schools ordered by their size.

Education expenditure in England.

- School size influences cost per student, e.g. because small schools tend to underuse capacities.

In rural areas, schools are farther and costier.To retain similar efficiency levels, schools may be even farther!

- Calculating costs and travelled distances according to three model variants:
  - facility placement optimized for now, student allocation for now ;
  - facility placement optimized for now, student allocation for 15 years from now ;
  - facility placement optimized and student allocation for 15 years from now.

Delivering quality education in rural communities.

- Restructuring schools networks (consolidating schools and school clusters).
  - Costs and performance outcomes are not immediately improved because of the consolidations. Another alternative is putting clusters (cooperation between schools) and train teachers to expand their skills in rural areas.
- Digital and comprehensive approaches (ICT-based support and service col-location).
  - Service co-location allows social innovation (creating school hubs in different levels).

Delivering healthcare in rural communities. All the outcomes are mediated by individual factors (income and education levels, ageing population and lifestyle factors). Besides the individual factors, 3 objectives co-exist at the same time: cost, quality and access (c.f. big and urban hospitals are better trained to deal with heart attacks). There are more medical needs in rural areas.

- Comprehensive measures: reinforcing primary care and integrated care.
- Innovative approaches: telemedicine and new forms of rural hospital organisation.
- Multi-strategy for workforce attraction & retention.

3 main gaps in the service provision:

- Normative: little consideration of spatial scope in regulation and limited funding.
  - decoupling of activity and place (careful balance of migration versus efficiency) and horizontal (broadband) ; targeted too.
- Digital skills: substantial gaps and insufficient training uptake.
  - integrate education/health care on digital models and substantial ; smart funding for digital upskilling.
- Internet access: lower speeds and older technologies, fewer options/less value and latency, caps, etc.
  - redesign subsidies ; exploit different competition models (cooperatives, publicly-owned entrants, PPP's).

Better governance for better service provision: challenges and policy options:

- Spatial spillovers and externalities: earmarked transfers to subnational governments, joint delivery through cooperation agreements, upscale responsibility.

- Lack of scale economies: facilitate inter-jurisdictional cooperation or with mergers, outsource to private entities or other subnational governments.
- Funding, responsibilities and capacity issues: rely on local revenues to financing their services, make funding consistent with functional responsibilities, identify and address overlapping responsibilities, implement well-designed capacity development programmes.
- Wrong scale of service provision: plan delivery in functional regions/areas, promote cross border-region projects by facilitating legal frameworks to enhance collaboration.

### **3) The Northern Netherlands Health Landscape: A Regional and Cross-Border Perspective - Jochen Mierau and Adriana Pérez Fortis**

#### The European health landscape in transition.

- Relatively more older adults, but they are healthier than today's older adults: more healthcare delivery with fewer healthcare workers per patient.
- More comorbidity and polypharmacy, focus on chronic and life-style related diseases: a substantial part of the burden of disease could have been reduced through prevention.
- Improved organization of care, cure and prevention as tools for cost-containment: integration between formal and informal care and between social and healthcare, (improved) utilization of cross-border healthcare facilities.
- Regionalization in areas of 3-4 million inhabitants (i.e., HRA's of Tertiary Centers): e.g. Northern-Netherlands, Lower-Saxony may be two or three regions.

Groningen region: within 50 km distance, there is the area with the highest increase population in Europe and the highest increase of depopulation in Europe.

#### Socioeconomic differences in health.

- A lion's share of the literature deals with differences in average outcomes across individual's in different socioeconomic groups:
  - yet differences within socioeconomic groups are sufficiently large that reducing them can lead to very significant cost savings.
  - there are many healthy poor neighborhoods that potentially hold the key to breaking the bond between poverty and ill health.
  - integrating social policy and health policy can be an ally to realizing these savings.
- Viewing health: health capabilities.
  - "A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1948).
  - "The ability to adapt and self manage in the face of social, physical, and emotional challenges" (Hubert et al. 2001, BMJ).
- "Confidence and ability to be effective in achieving optimal health given biologic and genetic disposition; intermediate and the broader social, political, and economic environment; and access to the public health and healthcare system (Prah-Ruger, 2010, AJPH).

#### Actors of the Northern Netherlands Health Landscape:

- Aletta Jacobs School of Public Health (founded in 2018).
- Participating faculties: all faculties of the University of Groningen and the University Medical Centre Groningen.
- Societal partners: province & municipalities, municipal health services, various health insurers.
- Academic partners.
- Network partners.

#### Some key developments:

- Prevention accelerator: joint programme with Menzis and UMCG to accelerate the implementation of evidence-based interventions.
- Prevention Board Groningen: regular meeting of key prevention stakeholders in the Province of Groningen to coordinate prevention policy.

- Educational programmes: minor, research master, summer schools and PhD courses aimed at challenge based public health education in co-creation with regional stakeholders.
- Population health data NL: National consortium bringing together population health data sources and making them beneficial for policy and research use.
- Public engagement: outreach programs to engage with society at large.
  - Healthy Living Room: An RV that goes around to bring health promotion into neighborhoods.

Weekly Corona Barometer. It is a weekly surveys sent out of 135 000 adult participants of the Lifelines Cohort Study and Biobank. It aims to trace the virus and understand its impact on physical, social and mental health of the virus and the pandemic control measures.

Ems dollart region is a cross-border region. In this region, close to the border the prescription of antibiotics is higher and there is a lower density in healthcare structures.

- Make joint use of care infrastructure on both sides of the border.
- Both sides of the border continuously learn from each other: import and export health innovations.
- Is facilitated by the Cross-Border Institute for Healthcare and Prevention - a joint venture between the Aletta Jacobs School of Public Health and the Department für Versorgungsforschung in Oldenburg.
  - a comparative cross-border survey of the health situations and facilities on both sides of the border.
  - Joint Agenda for knowledge development and transfer for health policy in both regions.

**Q&A: What are in your opinion the top 3 horizontal investments European Funds should support to improve healthcare in rural regions?**

- 1- Facilitate a European Network of Regional Population Health Data Ecosystems (rural areas stand to benefit most from data-driven policy but hardly have the funds to build the infrastructure).
- 2- Stimulation funding for integrated primary care centers that can serve as health hubs for a larger spectrum of (chronic) treatments and that can alleviate the pressure on the hospital system.
- 3- Fund transnational policy structures, knowledge development in the regional context is key to make policies work.

The barrier that I see is the difference in the language and the cultural differences. But we are just in the process to start cross-border research projects, aimed to identify the main barriers.

**Q&A: Would you envision a way to combine a health data ecosystem with digital skills trainings, or should that fall under the demand/supply of universities in rural regions?**

Absolutely, so the Population Health Data NL ecosystem that we are building focuses very closely on building capacity of policy makers to actually use the data. I did not know yet the concept of Digital Skills Training, I think it summarizes well what we aim to do.

**4) Public service delivery, a case study from Finland - Markus Hirvonen**

As the town is in a very sparsely area, the provision of public service is challenging. Almost all the population is retired. School food is free and school is financed by state contribution and local taxes. Finland is a leading country in education. You cannot be a teacher without having a Master degree.

**Q&A: What are the source of public funds?**

Finland has a high tax rate. The State collects state tax and the municipality collects municipal tax. In practice, these taxes cover the costs. Finland has a special system. Rich cities collect a lot

of taxes, which is distributed to the provinces. This is called the equalization system. The system is widely accepted because a decentralized society is the goal.

**Q&A: Are there minimum efficiency requirements for schools in Finnish municipalities? So, can it happen that a municipality in Finland does not have its own school if there are not enough children?**

The Ministry sets the requirements for the school. The curriculum is the same for everyone in basic education. There are no financial efficiency requirements for municipalities in Finland. Municipal state contributions and tax revenues must cover costs. The municipality can make choices about where to invest the money. Some invest more than the others. In Finland, there may be a situation where your own school ends completely. There is only one school left in Juuka. But here are still no municipalities without school.

**Q&A: Can you tell us a bit about the health care reform going on in North Karelia? And specifically how it would affect the cooperative model?**

A consortium of municipalities has been formed in North Karelia. It does all the social and health care tasks. The consortium of municipalities has made extensive integration, i.e. combined primary health care, special medical care, emergency care, rescue and social care. This has brought wildly high cost savings to the municipalities in the area. We have reduced costs by millions of euros.

North Karelia has united all social and health care issues under the same administration and thus removed unnecessary borders between organizations.

## 5) Public service delivery, a case study from Italy - Chiara Marinacci

### National Health Service governance and Realignment Plans:

- Government of the health system by state and regions, with distribution of powers established by the constitutional legislation.
- Central Ministry is responsible for defining the Essential Levels of Health Care benefits (LEA) and on monitoring their homogeneous provision, according to efficiency and appropriateness criteria, throughout the country.
- Regions have exclusive jurisdiction in the regulation and organization of services, through Local Health Units and Hospitals.
- Regions not complying with full provision of LEA, according to efficiency and appropriateness criteria, are not entitled to receive full financing for health care.
  - Subscription of agreement between Region and Ministries (Health and Economy) for implementation of a Realignment Plan.
- Lazio subscribed a Realignment Plan since February 2007, still ongoing.

### A new Person-centred vision.

Intervention lines addressing 3 needs categories...

- General population needs: active prevention strategies to increase screening programmes participation, vaccination and health promotion interventions.
- Acute patients “unpredictable” needs, requiring promptly responsive take-over, effective and efficient.
- Chronic patients “predictable” needs, addressable through regional interventions favoring pro-active and global management.

... and interventions addressed to vulnerable population groups.

Chronic patients “expectable” needs. Chronic care model aimed at ensuring disease control, prevention and treatment of complications, commodities and disability. The principles of National Chronic Care Plan are the following:

- A new culture: from unexpected to predictable (involve and engage all actors, from persons to health care macro-system)

- Person-centred healthcare system (patient-person - not “clinical case” -, expert because of her/his history “co-existence” with her/his chronic condition)
- Home care (maintaining patients at home and reducing hospitalization risk)
- A different integrated inpatient/outpatient care, also with the support of ICT (hospital as a highly specialized hub of the chronic care system, which interacts with outpatient specialists and Primary Care)
- Multidimensional assessment (patient/person-oriented)

#### Impulse to specific macro-actions in relation to COVID-19 emergency:

##### 1- Stratification of population

##### 2- Improving outpatient and community care:

- susceptibility of multi-chronic patients to the unfavorable outcomes of SARS-COV-2 infection
- improved proactive system and investments in primary care and District professionals:
  - to protect fragile population groups and ensuring compliance and adherence to chronic care pathways
  - care to confirmed COVID-19 cases in home isolation or other outpatient settings, also though the implementation of telemedicine and other innovative supporting technologies, as well as in the monitoring of residential structures.

##### 3- Integration among different care settings

##### 4- Fostering digital health and telemedicine

- digitalisation and simplification of procedures (e.g. digital drug prescription)
- tele-consultation connecting HUBS (INMI L. Spallanzani and the Children’s Hospital Bambino Gesù) with all Emergency Department for SARS-COV-2 cases: 2529 tele-consultations carried out (end Sept 2020) and only 13% infections needed patient transfer.
- platform connecting district health operators: approximately more than 5000 operators with access to platform.
- App (LazioDrCOVID) for tele-surveillance of cases at risk of contagion and tele-monitoring of cases.

#### Conclusions

- Planning improvement of outpatient care, before the COVID-19 emergency, prepared the ground for interventions that the emergency accelerated and allowed to test, reinforce and/or calibrate
  - fostering remote clinical interventions
  - increasing home care offer, where possible
  - simplifying processes and procedures and fostering their digitalization
- pandemic-related emergency as a driver for more investments in research and innovations that can put people at the center.

**Q&A: Great you mentioned the Hub & Spoke Model, I was going to mention it as an example of clinical networks. Italy is one of the few countries with national legislation for hospital care in rural regions. How important do you think this legislation is in carrying out the right type of policies for rural regions in Italy?**

Legislation showed to be important but very difficult definition and updating reference parameters.

#### **6) Discussion and concluding remarks - Jose Enrique Garcilazo**

- How to deal with ageing will be a critical issue. The situation is alarming in countries such as Portugal.
- How to address this demographic challenges? Population growth is declining in OECD countries.
- The current trend is that we need to repopulate places, but this does not work. We need realistic scenarios and planning them.

- Sustainable public policy is also key.
- The new vision for rural development is that well-being must be at the center, which is an important new idea and a long-term vision.
- Think about sectorial approaches and how to come up with synergies and joint agendas is fundamental.
- The current debate around closing or opening schools is difficult to deal with. The OECD does not take these decisions but analyzes the costs associated, trying to provide a tool for policymakers on what the costs implications are, and helping them to take the decisions.
- Geographic dimension in traditional areas is quite new and brings a lot of value.