# 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.
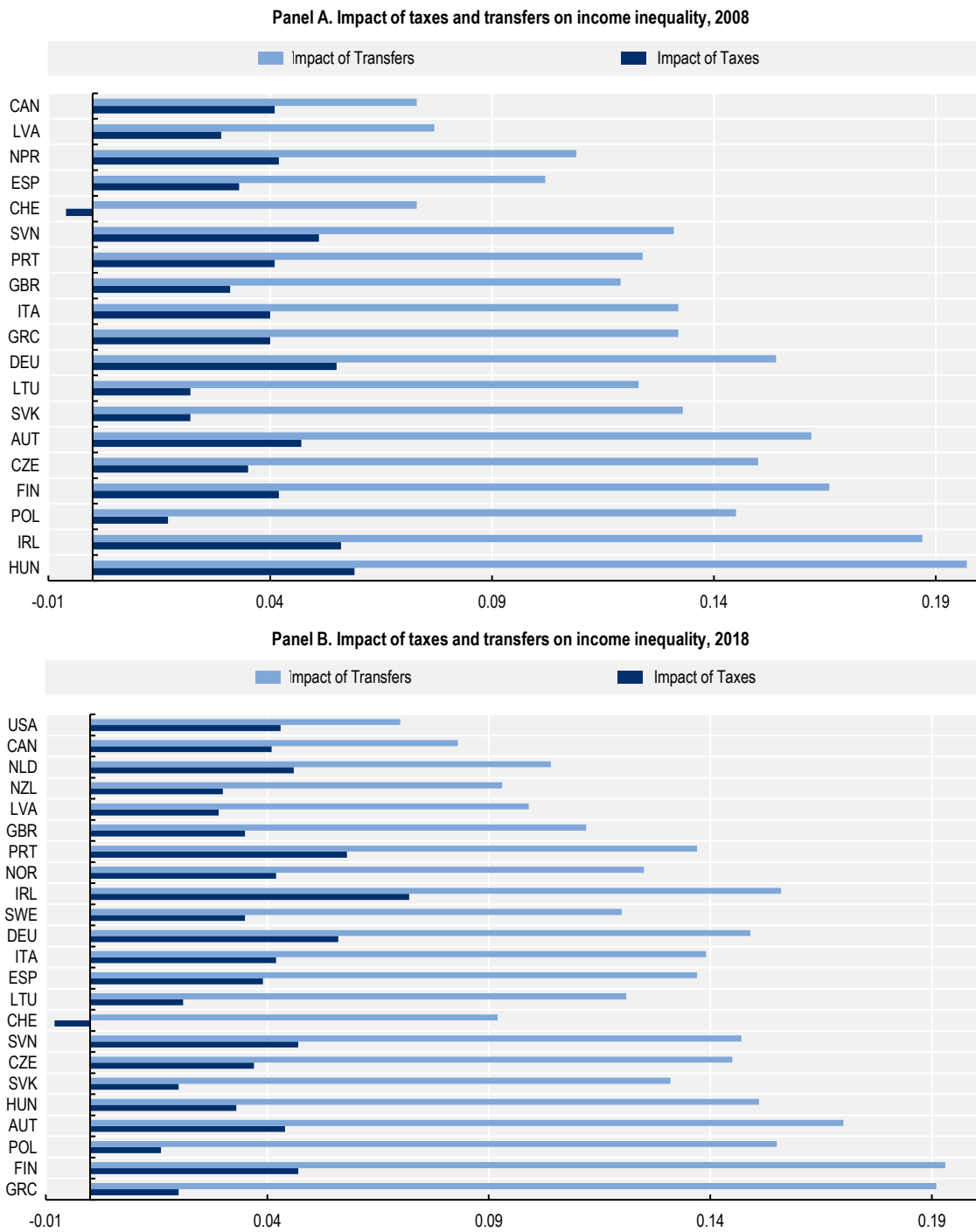
## 1.1. Opportunities and rationale for action

### 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

**Panel A. Impact of taxes and transfers on income inequality, 2008**



**Panel B. Impact of taxes and transfers on income inequality, 2018**



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
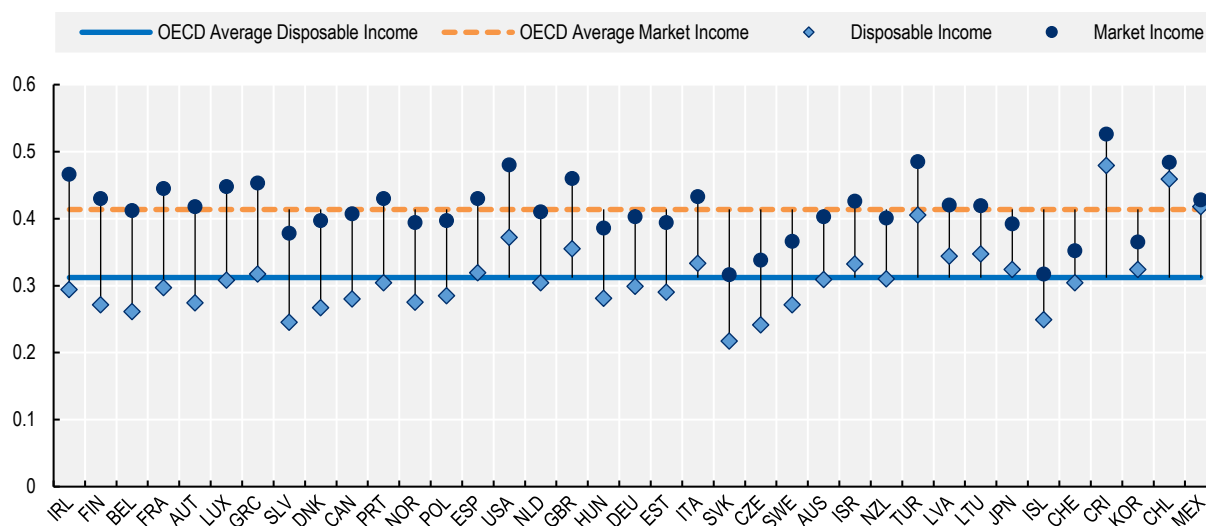


Notes: Countries are ranked from the highest to the lowest difference before and after taxes. Before taxes and transfers data for Mexico are post taxes but before transfers. The latest data refer to 2019 for all countries except Costa Rica and the United States (2021); Australia, Canada, Latvia, Korea, 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 (Torrisi, 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).

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**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**

| | *Ex ante* distributional and related analysis in sectoral ministries | *Ex ante* 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) | *Ex post* distributional and related analysis in government | *Ex post* 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 DIA[3] 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 heterogenous 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, an 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.

# References

Amoureux, V., I. Benoteau and A. Naouas (2018), "Le modèle de microsimulation Saphir", https://www.tresor.economie.gouv.fr/Articles/380f1480-951e-4c97-ad8a-f820ca5268f0/files/a14b1f71-2b2d-4a65-82e5-22774e8d37b9 (accessed on 8 September 2023). [12]

Bazoli, N. et al. (2021), "Study on Distributional Impact Assessment", https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8479&furtherPubs=yes (accessed on 4 May 2023). [24]

Central Planning Bureau (2016), "MIMOSI: Microsimulation Model for Taxes, Social Security, Labour Costs and Purchasing Power", https://www.cpb.nl/publicatie/mimosi-microsimulatiemodel-voor-belastingen-sociale-zekerheid-loonkosten-en-koopkracht-2016 (accessed on 5 December 2022). [9]

Conti, R. et al. (2023), *The Italian Treasury Dynamic Microsimulation Model (T-DYMM): data, structure and baseline results*, https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_it/analisi_progammazione/working_papers/WP-1-2023.pdf (accessed on 22 March 2023). [10]

European Commission (2022), "Better assessing the distributional impact of Member States' policies". [25]

Gao, J. and G. Inchaust (2020), "A Customizable Microsimulation Tool to Analyze Distributional Effects of Country Fiscal Policies", World Bank, https://openknowledge.worldbank.org/server/api/core/bitstreams/794fd3c1-6884-5dd9-a6f6-14a6d54cad8d/content (accessed on 8 September 2023). [29]

Hisanaga, T. (2022), "Distributional Effects of Tax Reforms in Japan: Micro-simulation Approach", IMF, https://www.imf.org/en/Publications/WP/Issues/2022/07/22/Distributional-Effects-of-Tax-Reforms-in-Japan-521199 (accessed on 8 September 2023). [28]

Institute for Fiscal Studies (2017), "TAXBEN: The IFS tax and benefit microsimulation model", https://ifs.org.uk/sites/default/files/output_url_files/TAXBEN%252520Guide%252520-%252520UPDATE%2525202021.pdf (accessed on 8 September 2023). [16]

Joumard, I., Pisu M. and Bloch D. (2012), "Tackling income inequality: the role of taxes and transfers", *OECD Journal of Economic Studies*, Vol. 2012/1, https://doi.org/10.1787/eco_studies-2012-5k95xd6l65lt. [1]

Keane, C. et al. (2023), "SWITCH: A Tax-Benefit Model for Ireland Linked to Survey and Register Data", *International Journal of Microsimulation*, Vol. 16/1, https://doi.org/10.34196/IJM.00275. [13]

Lustig, N. (2022), "Commitment to Equity Handbook", https://commitmentoequity.org/wp-content/uploads/2023/04/CEQ-Handbook-Volume-1-.pdf (accessed on 8 September 2023). [17]

New Zealand Treasury (2021), "The Living Standards Framework (LSF) 2021", https://www.treasury.govt.nz/publications/tp/living-standards-framework-2021-html (accessed on 31 May 2023). [23]

New Zealand Treasury (2018), "Tax and Welfare Analysis (TAWA) Commissioning Manual", https://www.treasury.govt.nz/sites/default/files/2018-09/tawa-commissioning-manual.pdf (accessed on 20 March 2023).  [15]

Nicol, S. (2022), "Gender budgeting: The economic and fiscal rationale", *OECD Journal on Budgeting*, Vol. 22/3, https://doi.org/10.1787/9ca9b221-en.  [20]

OECD (2023), *Gender Budgeting in OECD Countries 2023*, OECD Publishing, Paris, https://doi.org/10.1787/647d546b-en.  [22]

OECD (2023), *Government at a Glance 2023*, OECD Publishing, Paris, https://doi.org/10.1787/3d5c5d31-en.  [21]

OECD (2023), "Income support for jobseekers: Trade-offs and current reforms", https://www.oecd.org/employment/Income-support-for-jobseekers-Trade-offs-and-current-reforms.pdf (accessed on 8 September 2023).  [6]

OECD (2023), *OECD Economic Outlook, Volume 2023 Issue 1*, OECD Publishing, Paris, https://doi.org/10.1787/ce188438-en.  [2]

OECD (2022), "TaxBEN: The OECD tax-benefit simulation model", https://www.oecd.org/social/benefits-and-wages/OECD-TaxBEN-methodology-and-manual.pdf (accessed on 8 September 2023).  [27]

OECD (2019), *Under Pressure: The Squeezed Middle Class*, OECD Publishing, Paris, https://doi.org/10.1787/689afed1-en.  [5]

OECD (2018), *Development Co-operation Report 2018: Joining Forces to Leave No One Behind*, OECD Publishing, Paris, https://doi.org/10.1787/dcr-2018-en.  [26]

OECD (2016), "2016 OECD Performance Budgeting Survey: Integrating performance and results in budgeting", OECD, Paris, https://www.oecd.org/gov/budgeting/Performance-Budgeting-Survey-Highlights.pdf (accessed on 4 May 2023).  [18]

OECD (2015), *In It Together: Why Less Inequality Benefits All*, OECD Publishing, Paris, https://doi.org/10.1787/9789264235120-en.  [4]

OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*, OECD Publishing, Paris, https://doi.org/10.1787/9789264119536-en.  [3]

Schofield, D. et al. (2017), "A Brief, Global History of Microsimulation Models in Health: Past Applications, Lessons Learned and Future Directions", *International Journal of Microsimulation*, Vol. 11/1, pp. 97-142, https://doi.org/10.34196/ijm.00175.  [7]

Statistics Canada (2022), *SPSD/M: Product Overview*, https://www.statcan.gc.ca/en/microsimulation/spsdm/spsdm (accessed on 20 February 2023).  [14]

Statistics Sweden (2021), "FASIT Anvandarhandledning (FASIT User Guide)", https://www.scb.se/contentassets/010bcd618980445db871d55e57ca7b02/anvandarhandledning_2021.pdf (accessed on 8 September 2023).  [11]
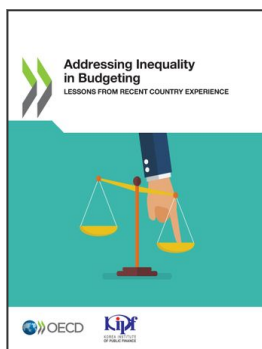
Torrisi, V., M. Ignaccolo and G. Inturri (2022), "The microsimulation modeling as a tool for transport policies assessment: An application to a real case study", *International Conference of Computational Methods in Sciences And Engineering ICCMSE 2021, AIP Conference Proceedings*, https://doi.org/10.1063/5.0121825. [8]

Tryggvadottir, Á. (2022), "OECD Best Practices for Spending Reviews", *OECD Journal on Budgeting*, Vol. 22/1, https://doi.org/10.1787/90f9002c-en. [19]

## 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/.