7 The case of the Netherlands

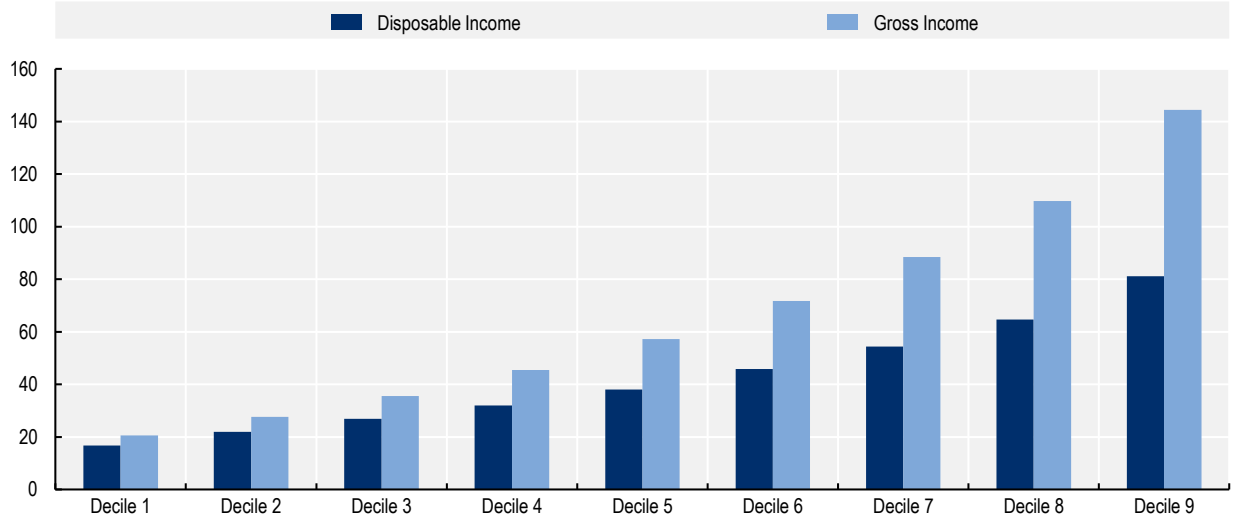
This case study provides an overview of recent trends in income inequality in the Netherlands, and discusses how considerations for inequality and distributional implications of public expenditure are brought to bear as part of the budget process. It discusses the practices currently in place in the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

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

7.1.1. Trends in income inequality

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

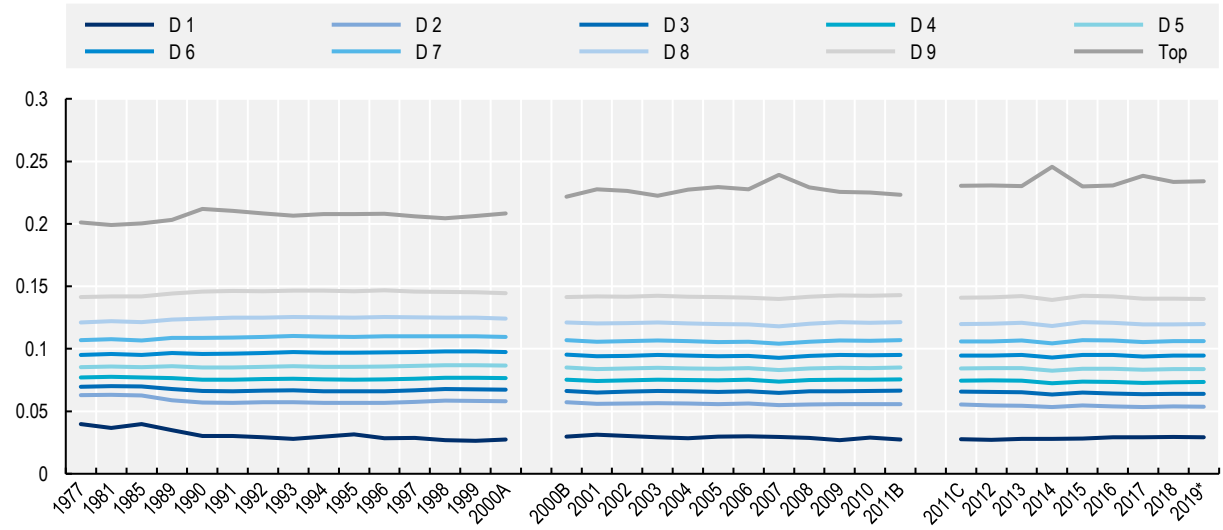
Figure 7.1. Gross and Disposable Income by Decile



Source: (CBS, 2022[1])

In broad terms the patterns of disposable income distribution, after tax and transfers, have remained fairly stable for several decades, as evidenced by Figure 7.2. The most significant change has been the top decile, which has notably increased its share of total disposable income since 1977.[1] Such income growth by top earners is evident in several OECD countries and reflects underlying market dynamics, and can be attributed to, among several other factors, a significant growth in capital income. In the Netherlands, spikes in the top decile's share in 2007 and 2014 are predominantly due to a temporary tax cut for directors and major shareholders, while the spike in 2017 was caused by a tax rebate for self-administered pensions, which many directors and major shareholders utilised (Caminada et al., 2021[2]).

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



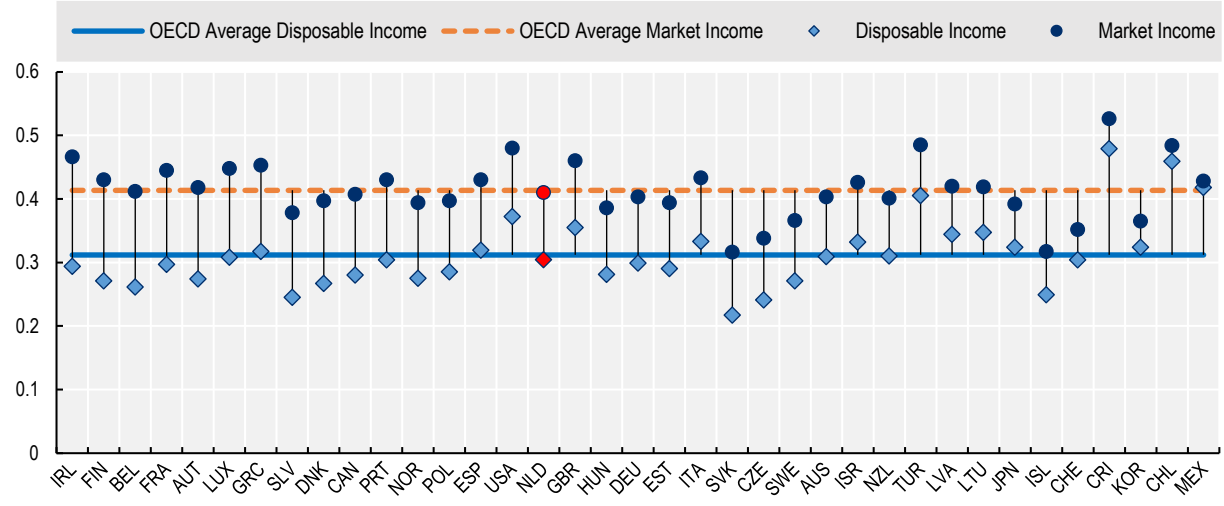
Source: (Caminada et al., 2021[2]).

7.1.2. Impact of taxes and transfers on income inequality

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

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

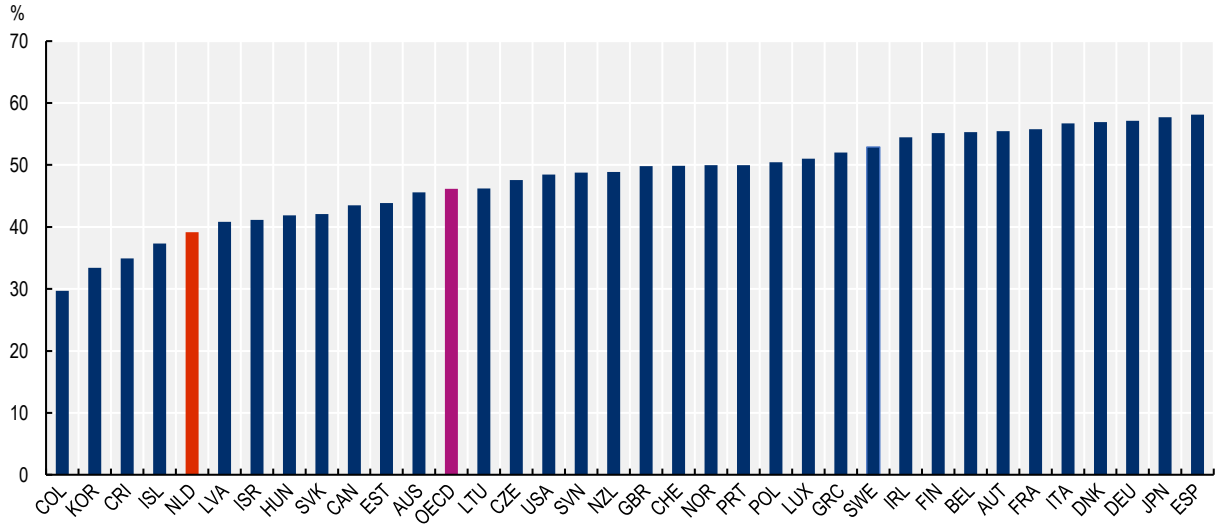
Figure 7.3. Differences in household income inequality among the working-age population pre- and post-tax and government transfers, 2019



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

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

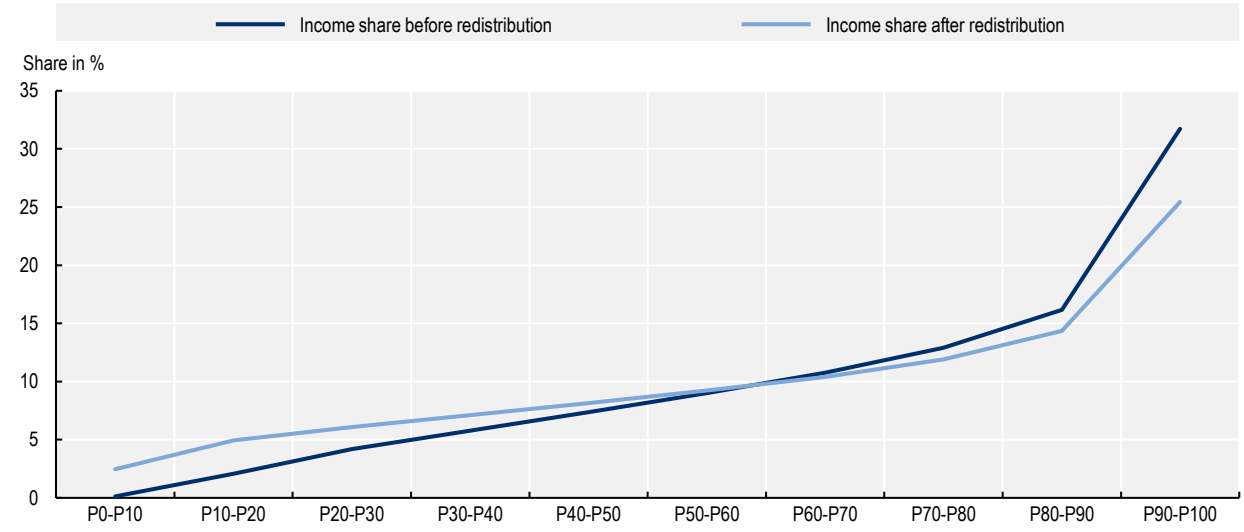
Figure 7.4. Social expenditure as percentage of total expenditure in OECD countries, 2017



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

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

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



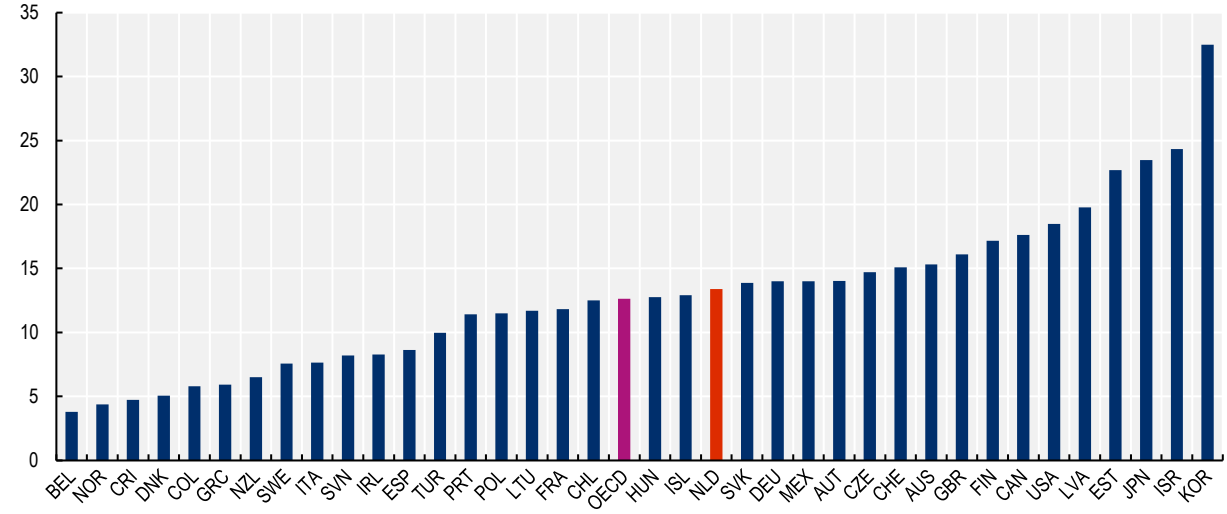
Source: (CPB, 2022[4])

7.1.3. Trends in income inequality by gender

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

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

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



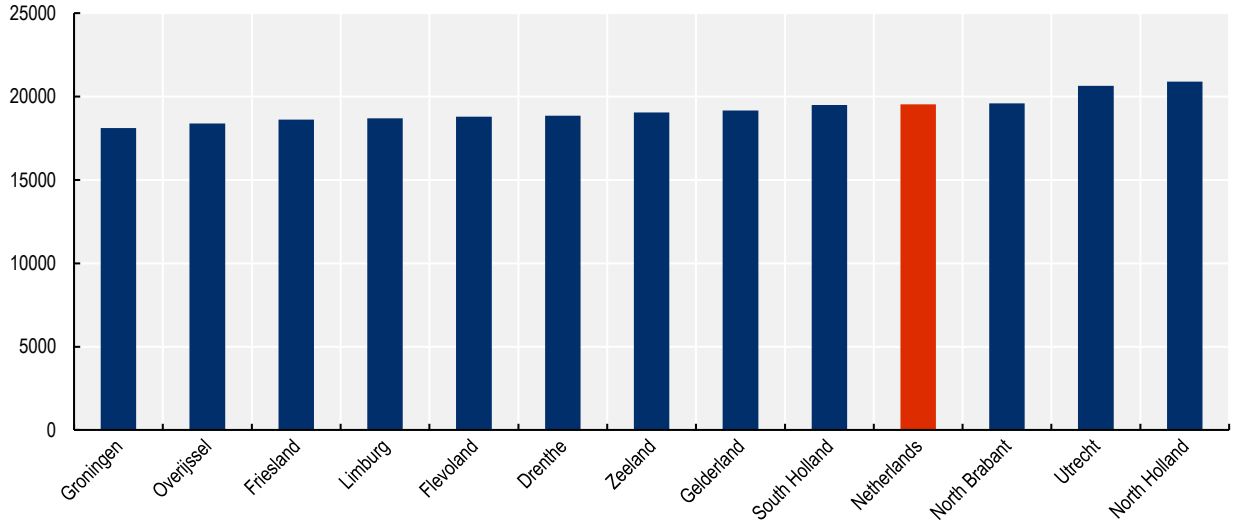
Note: Data refer to full-time employees.
Source: OECD.Stat.

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

7.1.4. Trends in regional inequality

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

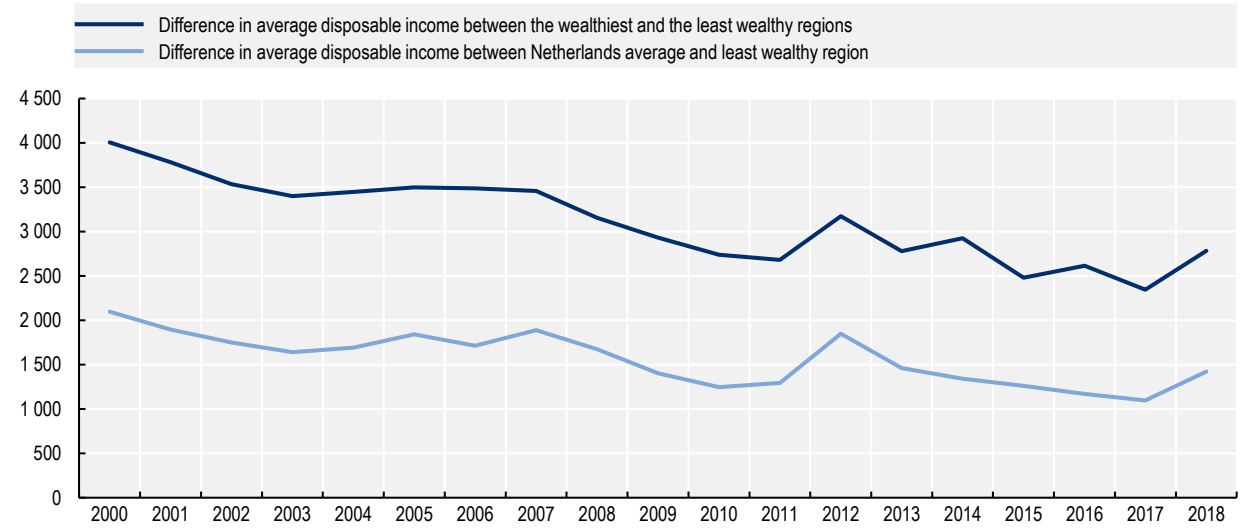
Figure 7.7. Variation in disposable income between regions, 2019



Source: OECD.Stat.

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

Figure 7.8. Changes in regional income disparities 2000-2018



Source: OECD.Stat.

7.2. Budgeting frameworks related to inequality and well-being

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

7.2.1. Key ministries and institutions

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

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

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

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

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

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

7.2.2. The budget process

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

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

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

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

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

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

7.3. Beyond income: broader welfare indicators

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

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

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

7.4. Tools for assessing the distributional impacts of budget decisions

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

7.4.1. Micro-simulation modelling: history

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

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

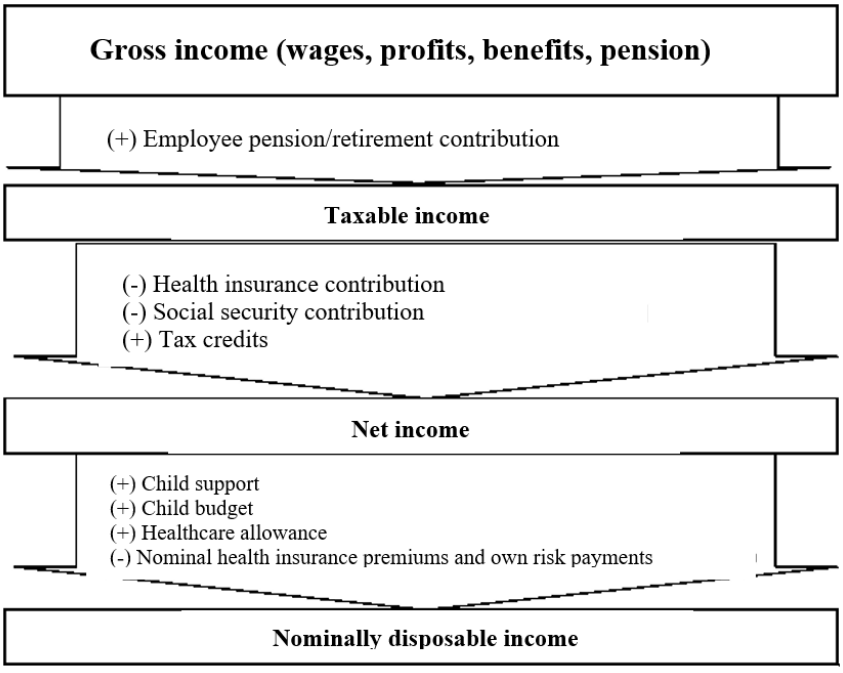
This is why the CPB therefore decided to develop a single microsimulation tool, initially based on a 2002 microdata file that was built off a comprehensive 2001 tax review. The Bureau started developing MIMOSI in 2004, and by 2007 this new model had replaced the old instruments (CPB, 2008[12]).

7.4.2. Micro-simulation modelling: present day

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

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

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



Source: (CPB, 2016[13]).

The other modules are:

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

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

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

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

Background on the cap

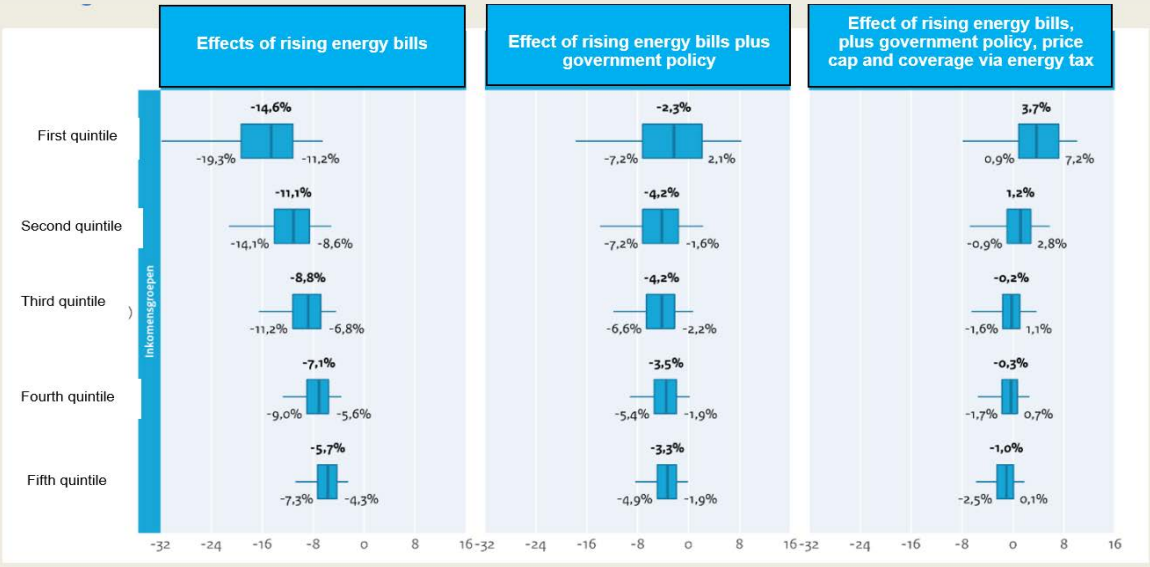
In October 2022, the Dutch Government announced a temporary energy price cap to combat rising inflation and energy prices, intended to take effect on 1 January 2023. The measure intended the policy to be shaped in such a way that at least half of Dutch households would be fully covered by the tariff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

Results of the analysis

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

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

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



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

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

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

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

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

7.4.4. Remaining challenges

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

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

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

7.5. Data and information infrastructure

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

7.5.1. Income data for MIMOSI

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

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

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

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

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

Table 7.2. Main characteristics inputted into MIMOSI

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

Note: This list is not exhaustive but includes the most important variables
Source: (Dutch Ministry of Finance, 2022[8]).

7.5.2. Gender data

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

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Notes

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

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

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

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