



Wilfried  
**Martens Centre**  
for European Studies

# Me, Myself and I

Could Tax Individualisation Create  
Jobs and Reduce Inequality?

**Ronald Bachmann, Philipp Jäger and Robin Jessen**





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## Credits

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The Wilfried Martens Centre for European Studies is the political foundation and think tank of the European People's Party (EPP), dedicated to the promotion of Christian Democrat, conservative and like-minded political values.

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# About the Martens Centre



The Wilfried Martens Centre for European Studies, established in 2007, is the political foundation and think tank of the European People's Party (EPP). The Martens Centre embodies a pan-European mindset, promoting Christian Democrat, conservative and like-minded political values. It serves as a framework for national political foundations linked to member parties of the EPP. It currently has 31 member foundations and two permanent guest foundations in 25 EU and non-EU countries. The Martens Centre takes part in the preparation of EPP programmes and policy documents. It organises seminars and training on EU policies and on the process of European integration.

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# Executive summary



Throughout Europe the Covid-19 pandemic has led to lower economic growth and higher unemployment. This has resulted in a surge in public debt and an increase in gender inequalities in the labour markets of many advanced countries. This situation has stimulated interest in policies that can simultaneously boost employment, increase tax revenues and reduce labour market inequalities.

This report investigates whether a move from family-based (i.e. joint) taxation to individual taxation would increase the labour supply of the lower-earning spouse (often the woman). It has often been argued that joint taxation decreases the employment of women because it increases the tax rate for the second earner.

This report focuses on the situation in Germany because work disincentives for women are particularly strong in the country's tax system. However, it is likely that the conclusions will apply to other EU countries with joint income taxation, for example, France, Poland and Portugal.

According to our simulations, moving to individual taxation would substantially increase the labour supply in Germany and therefore also spur economic growth. Moving to individual taxation and returning the higher tax revenues to married couples (to ensure that there are no additional budgetary costs) would increase the labour supply by more than a half million full-time equivalents. This reform would lead to a measurable increase in GDP, that is, an increase of up to 1.5%.

Such a tax reform might be a way to reduce debt levels and stimulate the economy in the face of the current massive rise in public debt and decline in GDP. It could also help reverse labour market gender inequalities, which have been exacerbated by the pandemic.

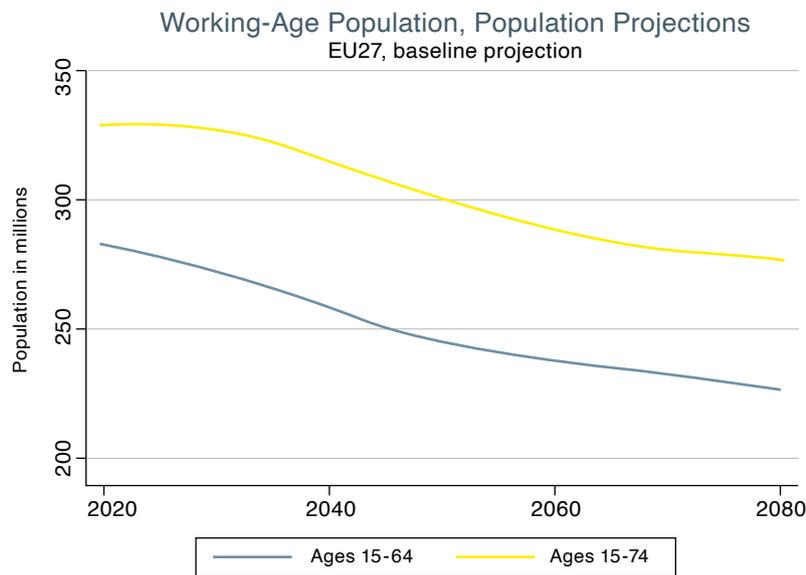
However, since the simulated reforms produce results that are not distributed equally, ultimately a political value judgement is needed to decide whether the sizeable efficiency gains would outweigh the losses for those who would lose from the reform. Politically, the negative impact on more financially vulnerable groups may need to be addressed through further targeted tax reforms.

# Introduction



The European population is ageing quickly. The number of people of working age is expected to decline substantially over the next coming decades (Figure 1). Policymakers throughout Europe are therefore aiming to increase labour market participation rates<sup>1</sup> to cushion the negative implications of demographic change for pension systems and long-run economic growth.

**Figure 1 Population ageing is leading to a decrease in the number of people of working age**



Source: Data from Eurostat.<sup>2</sup>

Note: 'Working age' in the narrow (ages 15–64) and wide (ages 15–74) definition. Graph shows projection for both narrower (15–64) and broader (15–74) definitions of 'working age'.

<sup>1</sup> The participation rate is the share of working-age individuals who work.

<sup>2</sup> Eurostat, 'Population on 1st January by Age, Sex and Type of Projection', [proj\_19np] (2021).



Overall, the participation rates of the working-age population in the EU27 countries have increased since 2000. This increase has mostly been driven by higher female labour force participation rates, which have narrowed the gender employment gap (Figure 2). However, the participation rates of women are still more than 10 percentage points lower than those of men. Moreover, women work in part-time employment more often than men. According to Eurostat, 29.9% of the women in the EU27 worked part-time in 2019, compared to 8.4% of the men.<sup>3</sup> Gender disparities in the labour market may have been further exacerbated by the recent Covid-19 pandemic. There is evidence that at least in some advanced economies, women have been hit harder by the pandemic. There are two reasons for this. First, they more often work often in sectors which have been strongly affected. And second, they often bear a larger burden of childcare responsibilities, such as homeschooling; and activities related to childcare have increased during the pandemic.<sup>4</sup>

The gender difference in participation rates and hours worked raises the question of whether the gap is mostly due to personal preferences or to policy-based disincentives. If the latter are at least partly responsible, abolishing these disincentives could increase overall labour force participation rates and at the same time improve gender equality.

There are a number of factors that prevent the participation gap between women and men from narrowing further, such as the lack of childcare facilities.<sup>5</sup> Among the most important factors are the European tax systems. In particular, unlike individual taxation, family-based (i.e. joint) taxation benefits couples with unequal earnings. It is a potential deterrent to female employment as it disincentivises the employment of the second earner (often the female spouse).

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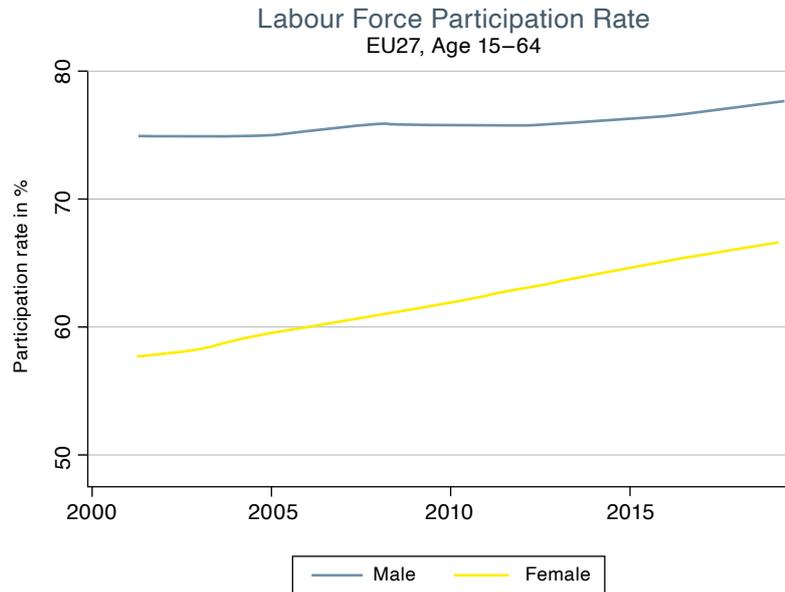
<sup>3</sup> Eurostat, 'Part-Time Employment and Temporary Contracts: Annual Data', [lfsi\_pt\_a] (2021).

<sup>4</sup> S. Djankov, T. Trubmic and E. Zhang, 'The Gender Gap and COVID-19: Evidence From Eight Advanced Economies', *VoxEU.org*, 14 December 2020.

<sup>5</sup> RWI, *Working Women and Labour Market Inequality*, RWI Projektberichte (2018).



Figure 2 Female participation has increased over time, but the gap remains



Source: Data from Eurostat.<sup>6</sup>

The disincentives are particularly strong in the German tax system.<sup>7</sup> Therefore, this report analyses the labour supply effect as well as the distributional consequences of moving to individual-based income taxation in Germany. Specifically, we investigate the effect of moving from joint taxation based on the splitting method, where the tax rate is the same for both spouses and derived from a couple's average income, to individual taxation, where each spouse is subject to a separate tax rate, based on his or her own income. To quantify the implications of the policy change, we apply a behavioural microsimulation model. This model closely mimics the German tax and transfer system and takes into account that people adjust their labour supply in response to a policy changes.

<sup>6</sup> Eurostat, 'Employment and Activity by Sex and Age: Annual Data', [lfsi\_emp\_a] (2021).

<sup>7</sup> OECD, *Taxing Wages 2014–2015 – Special Feature: Measuring the Tax Wedge on Second Earners* (Paris, 2016).



Germany provides an interesting case study for many reasons. First, it is the biggest economy in the EU, and reforms in Germany have the potential to translate into sizeable changes in the Union and into lessons for other member states. Second, while Germany has a rapidly ageing society, labour market participation rates are above the EU average, which indicates that the demand for labour is relatively high. Thus, increasing the female labour supply might be especially important in the future. Third, the gender gap in participation rates has narrowed since 2000 and currently lies below the EU average. (In 2019 the figures were 8.6 percentage points for Germany compared to 11.1 percentage points for the EU27.) However, the gender gap in part-time employment has increased and lies above the EU average. (The 2019 figures were 36.8 percentage points for Germany and 21.5 percentage points for the EU27.)

According to our simulations, a move to individual taxation would substantially increase the labour supply in Germany and therefore also spur economic growth. The positive effect on the labour supply would be even greater if the increased tax revenues due to tax individualisation were returned to married couples. In our simulation, this is done via an increase in the basic income tax allowance. In Germany, income is not subject to taxation if it falls below the basic income tax allowance (in 2021, €9,744 for single people and €19,488 for married couples<sup>8</sup>). Moving to individual taxation and returning the higher tax revenues to married couples would increase the labour supply by more than half a million additional full-time-equivalents (FTEs). Assuming that the additional labour supply would be as productive as the current workforce, the estimated increase in the labour supply translates into a 1.5% increase in GDP. Since the simulated reforms produce winners and losers, ultimately a value judgement is needed to decide whether the sizeable gains outweigh the losses for those who would be disadvantaged by the reform.

In the next section we review the most important arguments for and against individual taxation. Section 3 briefly summarises the existing literature on the labour supply effects of tax individualisation. The simulations are described in Section 4, and Section 5 contains our conclusions.

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<sup>8</sup> In 2015, the year on which we base our simulations, the figures were €8,472 and €16,944, respectively.



# The case for and against individual taxation



In principle, married couples in Germany are free to choose between joint and individual taxation. However, choosing individual taxation never makes a married couple better off financially. In contrast, benefits from joint taxation can be substantial because the tax burden can be split between two people, which often yields a much lower tax rate than under individual taxation. For example, a single-earner couple with an annual taxable income of €60,000 can reduce its annual tax liabilities by almost €6,000 (€5,866 based on the 2015 tax schedule). Under joint taxation the average income tax rate of such a couple falls from 28% to 18%. If the spouses each earn €30,000, however, they would be subject to an average tax rate of 18% under either individual or joint taxation. Hence, couples with equal earnings do not benefit from joint taxation.

Due to the progressivity of the tax code—whereby the marginal tax rate<sup>9</sup> increases with income—joint taxation is beneficial only if earnings differ between spouses, the couple pays income tax and at least one spouse earns less than the top marginal income tax threshold. Therefore, joint taxation is the de facto norm for married couples. Couples with unequal earnings benefit because, under the splitting rule, the tax schedule is (1) the same for joint and individual taxation and (2) applied to the total income of the couple divided by two. The resulting tax is then multiplied by two to arrive at the couple's total payable tax. Since the calculated average income is lower than the income of the highest-earning spouse (if earnings differ between spouses), the average tax rate will also be lower under joint taxation than under individual taxation.

The main argument for tax individualisation is higher economic efficiency, that is, a better, a better allocation of scarce resources. Under joint taxation both spouses face the same marginal tax rate, since taxes are calculated on household income (and not individual income). Moving to individual taxation increases the marginal tax rate for the higher-earning spouse (typically the man) and decreases the marginal tax rate for the lower-earning spouse (typically the woman). If the secondary earner's labour supply reacts more strongly to financial incentives than the primary earner's, the distortion of labour supply incentives induced by joint taxation exceeds that induced by individual taxation.

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<sup>9</sup> The marginal tax rate is the tax rate that, for a given level of income, would be applied to an additional euro of income if income were to be increased by one euro.



Given that higher marginal tax rates reduce the incentive to work, tax individualisation should therefore reduce the labour supply of the higher-earning spouse and at the same time increase the labour supply of the lower-earning spouse. The lower-earning spouse is typically the woman, and it has been shown that women react more strongly to tax incentives (i.e. have a higher labour supply elasticity with respect to wages and taxes).<sup>10</sup> Reasons for the higher labour supply reactions for women include preferences and the role of non-market household production (e.g. childcare). This being the case, the increase in the labour supply of the second earner should more than compensate for the decrease in that of the first earner.

Another argument for individual taxation is that joint taxation might also negatively affect the allocation of household resources. Family-based taxation relies on the idea that couples pool their resources. Empirical studies, however, have shown that when it comes to the allocation of household resources and bargaining power within the household, it matters who actually earns the money.<sup>11</sup> Secondary earners are therefore likely to receive a relatively small share of the money earned and therefore not be fully compensated for the work they do in the household. Thus, household specialisation might harm secondary earners.

The main argument against individual taxation is horizontal equity, that is, the notion that couples with the same joint earnings should pay the same amount of tax. The current joint taxation model ensures that couples with the same household income pay the same amount of tax, irrespective of the distribution of household earnings. Thus, in theory, joint taxation (1) guarantees that couples are taxed based on their ability to pay taxes and (2) enables the couple to freely decide how to distribute work and non-work time within the household. Furthermore, joint taxation might also serve as insurance against the loss of either a job or one spouse's ability to earn an income.<sup>12</sup> Assuming that such a risk is not insurable, joint taxation might be superior to individual taxation.

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<sup>10</sup> For overviews of empirical estimates of male and female labour supply elasticities, see Tables 6 (p. 1042) and 7 (p. 1070) in M. P. Keane, 'Labor Supply and Taxes: A Survey', *Journal of Economic Literature* 49/4 (2011).

<sup>11</sup> S. J. Lundberg, R. A. Pollak and T. J. Wales, 'Do Husbands and Wives Pool Their Resources? Evidence From the United Kingdom Child Benefit', *Journal of Human Resources* 32/3 (1997); and M. Beznoska, *Do Couples Pool Their Income? Evidence From Demand System Estimation for Germany*, Discussion Papers 2019/3, Free University Berlin, School of Business & Economics (2019).

<sup>12</sup> G. Corneo, 'A Note on the Taxation of Couples Under Income Uncertainty', *FinanzArchiv* 69/1 (2013).



In fact, equity concerns were the main reason behind the introduction of the current joint taxation model in 1958, after a ruling of the constitutional court that the existing taxation model was unconstitutional. More recent rulings of the constitutional court, starting in 1982, might even imply that individual taxation is unconstitutional because it does not take into account the specific character of marriage, including the obligation to support each other financially.<sup>13</sup>

However, the argument that joint taxation ensures horizontal equity has been subjected to criticism. Where the household income is fixed, a single-earner household is arguably better off financially than a double-earner household because the former enjoys more time for leisure and household production (e.g. cleaning, cooking and childcare) than the latter.<sup>14</sup>

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<sup>13</sup> Scientific Advisory Board of the German Ministry of Finance, *Gutachten zur Reform der Besteuerung von Ehegatten* (2018).

<sup>14</sup> OECD, *Taxing Wages 2014–2015*.

**The effects  
of individual  
taxation as  
discussed in  
the literature**



To date, the economic literature has mostly confirmed the idea that tax individualisation enhances efficiency. Empirical studies investigating the introduction of tax individualisation (or moves in this direction) in the US, Canada and Sweden suggest that female labour supply indeed increased after such reforms.<sup>15</sup> In the same vein, the move from individual to joint taxation in the US in 1948 had the opposite effect.<sup>16</sup> However, since tax individualisation reforms are quite rare, most studies do not evaluate *ex post* reforms but use economic theory combined with empirical data to quantify the effects of policy reforms *ex ante*.

Two macroeconomic studies conclude that sizeable increases in US female participation rates would occur if the country moved towards individual taxation.<sup>17</sup> Due to the differences in labour supply elasticities between men and women, individual taxation also leads to substantially higher overall participation rates. Interestingly, a study by Bick and Fuchs-Schündeln<sup>18</sup> suggests that tax individualisation would have an even bigger effect in Germany since the tax system provides especially strong disincentives for secondary earners due to the presence of pronounced tax progressivity. In addition, employees pay no income tax on earnings from marginal employment: from 'mini-jobs' paying a maximum of €450 per month. If secondary earners earn slightly more than this, net income actually decreases, as will be explained in more detail in the next section. The combination of this tax exemption and joint taxation has a negative effect on the work hours of secondary earners.<sup>19</sup> A 2015 study confirms that introducing tax individualisation in Germany would have a positive effect on efficiency.<sup>20</sup>

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<sup>15</sup> N. O. Eissa, *Taxation and Labor Supply of Married Women: The Tax Reform Act of 1986 as a Natural Experiment*, NBER Working Paper 5023 (1995); T. Crossley and S.-H. Jeon, 'Joint Taxation and the Labor Supply of Married Women: Evidence from the Canadian Tax Reform of 1988', *Fiscal Studies* 28 (2007); and H. Selin, 'The Rise in Female Employment and the Role of Tax Incentives: An Empirical Analysis of the Swedish Individual Tax Reform of 1971', *International Tax and Public Finance* 21 (2014).

<sup>16</sup> S. LaLumia, 'The Effects of Joint Taxation of Married Couples on Labor Supply and Non-Wage Income', *Journal of Public Economics* 92 (2008).

<sup>17</sup> N. Guner, R. Kaygusuz and G. Ventura, 'Taxation and Household Labor Supply', *Review of Economic Studies* 79 (2012); and A. Bick and N. Fuchs-Schündeln, 'Quantifying the Disincentive Effects of Joint Taxation on Married Women's Labor Supply', *American Economic Review Papers & Proceedings* 107/5 (2017).

<sup>18</sup> Bick and Fuchs-Schündeln, 'Quantifying the Disincentive Effects of Joint Taxation', 102.

<sup>19</sup> See V. Steiner and K. Wrohlich, 'Work Incentives and Labor Supply Effects of the "Mini-Jobs Reform" in Germany', *Empirica* 32/1 (2005).

<sup>20</sup> H. Fehr, M. Kallweit and F. Kindermann, 'Reforming Family Taxation in Germany – Labor Supply Versus Insurance Effects', *FinanzArchiv* 71 (2015).



To assess the effect of tax individualisation in Germany in more detail, the literature has relied on microsimulation models. Previous studies using such models<sup>21</sup> have suggested that tax individualisation would lead to considerable increases in female participation rates: ranging from two to almost five percentage points or up to 11.4% in hours worked. Moreover, in all cases the increase exceeds the reduction in the male labour supply, thus resulting in an overall increase in hours of work. Since tax individualisation itself raises average tax rates, government revenues would also increase. Furthermore, most of the existing studies simulate reforms that leave the government budget unchanged. They typically achieve budget neutrality via lump-sum transfers, that is, cash transfers that are the same for all taxpayers.<sup>22</sup> While budget neutrality via lump-sum transfers is attractive from an analytical point of view, such reform scenarios are not particularly realistic. The current study opts instead for an arguably more realistic approach and achieves budget neutrality by increasing the basic allowance for married couples. As described below, this has the additional advantage of decreasing marginal tax rates further, which improves labour supply incentives still more.

To make the results easily comparable, we start by simulating a ‘pure’ tax individualisation reform which increases overall tax revenues and therefore reduces average disposable household income. In a second step, we investigate a budget-neutral reform by increasing the annual basic allowance and the thresholds of all income tax brackets. We consider this reform more realistic than the lump-sum transfers commonly used in the existing literature.

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<sup>21</sup> S. Bach et al., ‘Reform of Income Splitting for Married Couples: Only Individual Taxation Significantly Increases Working Incentives’, *DIW Economic Bulletin* 5 (1995); H. Bonin et al., ‘Evaluation zentraler ehe- und familienbezogener Leistungen in Deutschland – Endbericht’, Gutachten für die Prognos AG, Zentrum für Europäische Wirtschaftsforschung (Mannheim, 2013); A. Decoster and P. Haan, ‘Welfare Effects of a Shift of Joint to Individual Taxation in the German Personal Income Tax’, *FinanzArchiv* 70 (2014); and V. Steiner and K. Wrohlich, ‘Household Taxation, Income Splitting and Labor Supply Incentives: A Microsimulation Study for Germany’, *CESifo Econ Stud* 50 (2004).

<sup>22</sup> S. Bach et al., ‘Ehegattenbesteuerung: Individualbesteuerung mit übertragbarem Grundfreibetrag schafft fiskalische Spielräume’, *DIW-Wochenbericht* 84 (2017) is a notable exception. However, the authors analyse a slightly different tax individualisation reform with a transferable tax allowance.



**Microsimulation  
case study:  
Germany**



# Description of the data set and the microsimulation model

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This study uses the German Socio-Economic Panel (Sozio-oekonomisches Panel, SOEP), an annual representative survey of more than 20,000 German households.<sup>23</sup> The data set contains detailed information on demographic characteristics, labour supply and income from different income sources. The study uses retrospective data for 2015, the most current year for which the SOEP includes detailed information for on household incomes. There have been no substantial changes in the German tax-transfer system since then, and thus, the conclusion of this paper is still applicable.

As a modelling framework, the study uses a microsimulation model (Einkommensteuer-Mikrosimulationsmodell, EMSIM).<sup>24</sup> On the basis of the current rules of the tax-transfer system, demographic characteristics and market income, the microsimulation model calculates disposable income for every household in the SOEP. The simulation model captures the important details of the redistributive system, including taxes, transfers, social security contributions and deduction possibilities. The model can therefore be used to simulate the effects of a hypothetical reform. To do this, the input parameters of the microsimulation model, which denote the parameters of the redistributive system, are changed and the disposable income for every household is calculated under the reform scenario, that is, the 'counterfactual scenario'. Then the relevant outcome variables in the status quo are compared to the same outcome variables in the counterfactual scenario—for instance, the disposable income of different socio-demographic groups.

When computing the effects of a reform, the microsimulation model takes into account that individuals may change their behaviour. Therefore, the model includes a labour supply model, which is described in detail in the Appendix. The microsimulation model is used to calculate the disposable income that

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<sup>23</sup> G. G. Wagner, J. R. Frick and J. Schupp, 'The German Socio-Economic Panel Study (SOEP): Scope, Evolution and Enhancements', *Schmollers Jahrbuch* 127/1 (2007).

<sup>24</sup> P. Bechara, T. Kasten and S. Schaffner. 'Dokumentation des RWI-Einkommensteuer-Mikrosimulationsmodells (EMSIM)', RWI Materialien 86 (2015).



households would have with different choices of hours of work. Given this budget constraint, spouses jointly decide on their hours of work in order to maximise utility, which depends on both spouses' consumption and leisure activities. A change in the tax system leads to a change in the household budget constraint. Households might react to such a change by adjusting their labour supply.

Labour supply reactions are simulated for households with at least one spouse who can change hours of work. That the supply of labour is flexible is assumed for all individuals except those outside the working-age bracket, those for whom there is no information on hours of work in the survey, civil servants, soldiers, the self-employed, students, people working in sheltered workshops and people on parental leave. These groups' labour supply reactions are not simulated either because the people in these groups are not free to adjust their hours of work or because of measurement problems. For instance, income from self-employment may have been earned in the previous year, and thus it is not possible to calculate an hourly wage for the self-employed.

## The reform scenarios

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In the first step we simulate the effects of a switch to individual taxation without any further adjustments of the tax system. Such a reform increases the tax burden of most married couples, and no household is better off under this scenario. However, this simulation makes it possible to isolate the effects of the introduction of individual taxation from those of other changes in the tax system.

In the second step we simulate the effects of a reform that is neutral as regards government budget. Under this scenario, the increased tax revenue is given back to households via an increase in the basic allowance, which is not subject to taxation. Assuming a fixed labour supply, the annual basic allowance for married couples can be increased by €3,750 (from €8,472 to €12,222). Taking the increase in labour supply into account, the basic allowance could be increased slightly more.

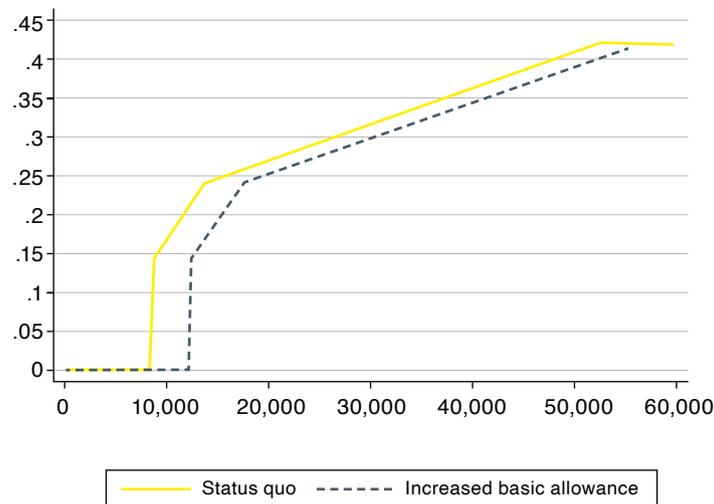
Note that the analysis is conducted only for married couples as this is the only group that is directly affected by a switch from joint to individual taxation. The basic allowance is increased only for married couples. Therefore, single people and married couples would be subject to different individual tax



codes after the reform.<sup>25</sup> If the basic allowance were to be increased for all households, the increase that is possible would be substantially smaller. A reform with a smaller increase in the basic allowance would make married couples considerably worse off, while making most other households better off.

Alternative ways to achieve budget neutrality would be a lump-sum transfer or a proportional decrease in the income tax rate. Compared to a lump-sum transfer, an increase in the basic allowance offers the advantage that it leads to a decrease in marginal tax rates for many households, which improves labour supply incentives. The advantage in comparison to a proportional decrease in income tax rates is that such a decrease would mainly benefit high-income households. Figure 3 shows a comparison of marginal income tax rates from 2015 with those under the reform scenario with budget neutrality. Under this reform scenario, marginal tax rates are lower than in the status quo for levels of taxable income between €8,472 and €57,766.

**Figure 3 The German income tax schedule: status quo and increased basic allowance**



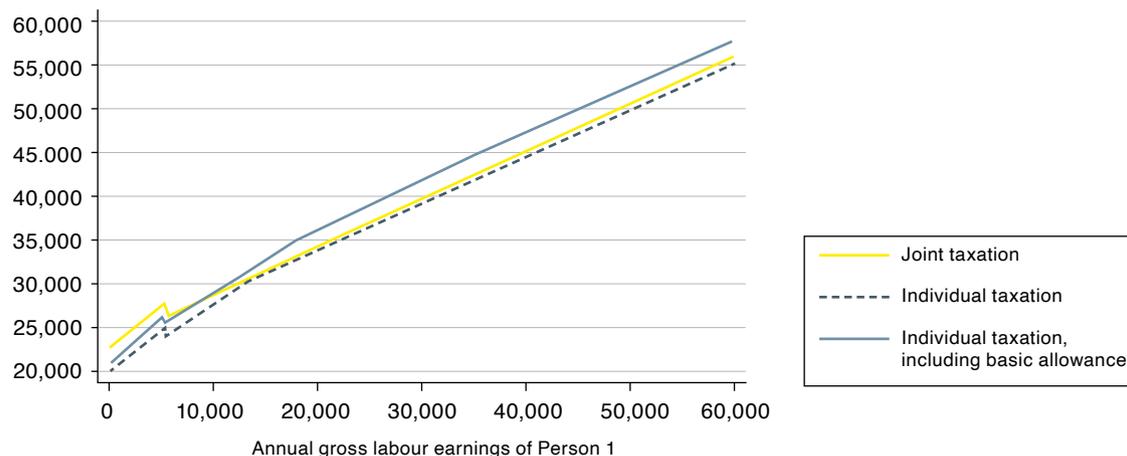
<sup>25</sup> The US tax system has different tax codes for single individuals and married couples.



# Analysis of joint versus individual taxation

Figure 4 shows how the disposable income of married couples without children is affected by tax individualisation. For this purpose, the annual gross earnings of one spouse (Person 2) are fixed at €30,000, which is close to the average gross labour earnings in Germany. The earnings of the other spouse (Person 1) vary along the horizontal axis. The solid line shows the status quo with joint taxation, the dashed line depicts the scenario with individual taxation, and the dash-dotted line shows the scenario with individual taxation and a shift of the income tax schedule 'to the right', that is, an increase in the thresholds of all income tax brackets. Moving from €5,400 to €5,401 per year leads to a decrease in disposable income. This is due to the threshold for tax-free marginal employment, so-called mini-jobs paying up to €450 per month. The combination of this tax exemption and joint taxation makes increases in work hours for secondary earners below the threshold extremely unattractive.<sup>26</sup>

**Figure 4 Disposable household income at different earning levels for a married couple without children; earnings of Person 2 = €30,000**



<sup>26</sup> Under individual taxation there is still a slight decrease in net income at the mini-job threshold due to social security contributions, but this decrease is smaller than the corresponding decrease under joint taxation.



Three observations can be made. First, a switch to individual taxation without an increase in the basic allowance makes households worse off, especially those with lower levels of earnings. If the earnings of the two spouses are similar, a switch to individual taxation has only a very small impact on disposable income. Second, for relatively low earnings (but above €5,400), the line is steeper under individual taxation. This implies that each additional euro the secondary earner earns leads to a larger increase in income than is the case under the status quo. Thus, under individual taxation, it is more worthwhile for the secondary earner to increase her hours of work. Third, the reform that includes an increase in the basic allowance makes households better off for many income levels while simultaneously improving labour supply incentives. In fact, the line is overwhelmingly steeper compared to 'pure' tax individualisation without an increase in the basic allowance.

Figure 4 also demonstrates how a switch can even make a household better off *and* increase the taxes the household pays at the same time. Suppose that the secondary earner holds a job where she earns €10,000 per year. At this point the yellow and the blue solid lines cross. If individual taxation with an increase in the basic allowance is introduced and she keeps the same job with unchanged hours of work, disposable income is unchanged. Moreover, the total amount of tax and social security contributions the household pays is unchanged.<sup>27</sup> Now suppose that the move to individual taxation prompts the secondary earner to increase her hours of work, so that she earns, say, €15,000 per year. She is clearly better off as her disposable income would have remained unchanged relative to the status quo if she had continued to earn €10,000 per year. Instead, she decided to increase her hours of work. By working more, she also pays more tax. This example shows that the reform leads to efficiency gains as it increases the 'size of the pie', which can be distributed between households.

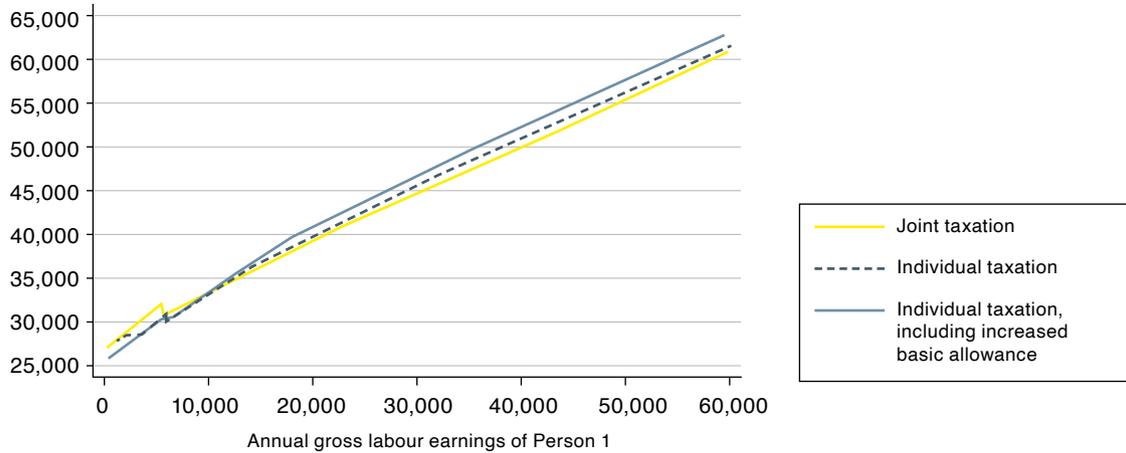
Figure 5 portrays the same situation for a couple with two children. The main difference is that disposable income levels are higher for given levels of earnings because of the child benefit (a transfer to families). The positive effect of a switch to individual taxation on labour supply incentives is similar.

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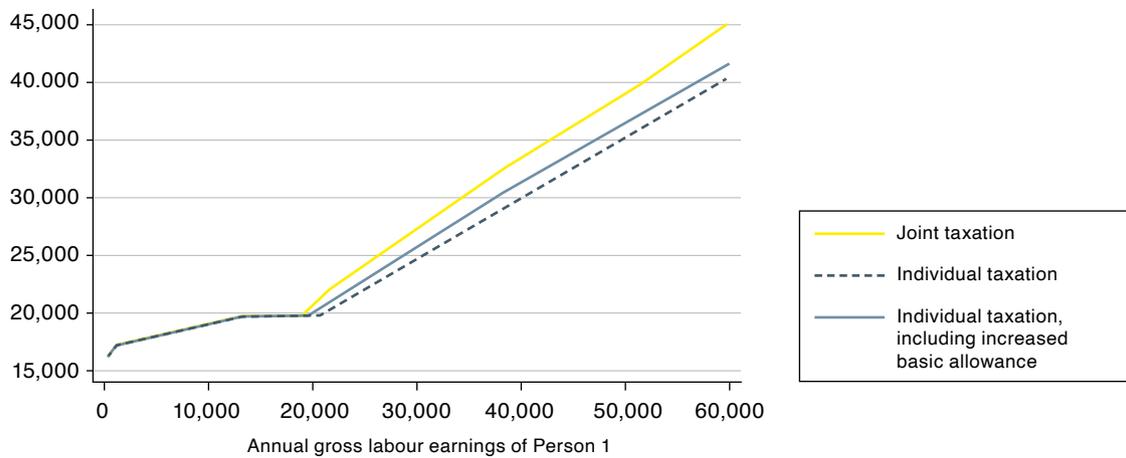
<sup>27</sup> This can be seen by subtracting disposable income from the total combined earnings of both spouses.



**Figure 5 Disposable household income at different earning levels for a married couple with two children; earnings of Person 2 = €30,000**



**Figure 6 Disposable household income at different earning levels for a married couple without children; earnings of Person 2 = €5,000**





Finally, Figure 6 portrays the situation of a couple without children, where one spouse's earnings are fixed at €5,000 per year. Here the effect of the introduction of individual taxation is quite different from the previous example. For low earnings levels, a change in income taxation has no effect as the household is eligible for transfers. At higher income levels, the spouse whose earnings vary along the horizontal axis earns more than the other spouse. Now the lines under the reform scenarios are less steep. Thus, marginal tax rates are higher and work incentives are worse under individual taxation than under joint taxation.

## Labour supply effects

As described earlier, a tax reform not only changes disposable income but can also change labour supply. Table 1 shows the simulated labour supply effects of a move to individual taxation and a move to individual taxation combined with an increase in the basic income tax allowance. For both scenarios, it displays the percentage change in total hours worked for different types of households. Results are displayed only for those households where at least one spouse can adjust hours of work (see subsection titled 'Description of the data set and the microsimulation model').

Households are divided into income deciles, with Decile 1 corresponding to the lowest and Decile 10 to the highest earning group. Our income measure is *potential* net equivalent income, that is, net equivalent income if all spouses with flexible labour supply worked full time. The use of potential income is appealing because the government might find it more worthwhile to redistribute to a household that is poor because the earnings potential is low than to a household that is poor because the spouses choose to work fewer hours. To make it possible to compare households of different sizes, net incomes are transformed into net equivalent incomes using the modified OECD scale.<sup>28</sup> For instance, a couple with three children and an annual net income of €40,000 is materially worse off than a couple without children and the same annual net income.

The first figure in Table 1 shows that, on aggregate, a move to individual taxation would induce women in the first income decile to reduce their hours worked by 0.3% relative to the status quo. Labour supply effects

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<sup>28</sup> Therefore, net incomes are divided by  $(1 + 0.5 \times [\text{number of adults} - 1] + 0.3 \times [\text{number of children under 14}])$ .



in the first decile are small because these households hardly pay income tax. The first three columns show that a switch to individual taxation would—perhaps surprisingly—decrease the hours of work put in by both women and men in the lower four deciles. The reason is that individual taxation leads to lower marginal tax rates for the female spouse only if the earnings of the other spouse are relatively high. Where the male spouse has low earnings, individual taxation leads to an increase in marginal tax rates for women. This is illustrated in Figure 6. The negative effect on the labour supply of men is predicted by the theory: for the primary earner, individual taxation leads to higher marginal tax rates.

**Table 1 Effects of a switch to individual taxation on total hours worked, as a percentage of hours worked in the status quo**

	Individual taxation			Individual taxation, increase in basic allowance		
	Women	Men	Total	Women	Men	Total
<b>Income deciles</b>						
1st	-0.3	-0.4	-0.4	0.2	-0.0	0.1
2nd	-3.8	-3.9	-3.8	-1.5	-1.6	-1.6
3rd	-4.0	-3.2	-3.4	-1.3	-1.1	-1.1
4th	-1.6	-3.8	-3.0	3.4	-0.8	0.7
5th	3.5	-3.1	-0.9	9.1	-0.1	3.0
6th	5.5	-1.4	1.1	10.2	0.6	4.1
7th	9.0	-0.5	3.4	12.3	0.7	5.5
8th	9.1	0.3	4.0	11.5	0.7	5.2
9th	8.6	0.8	4.5	10.3	1.0	5.3
10th	9.2	0.8	4.6	10.4	0.7	5.1



	Individual taxation			Individual taxation, increase in basic allowance		
	Women	Men	Total	Women	Men	Total
<b>Demographic characteristics</b>						
Married couples, 0 children	6.7	0.2	3.3	9.1	1.1	4.9
Married couples, 1 child	8.8	-0.6	3.1	11.1	0.2	4.5
Married couples, 2+ children	10.7	-1.0	2.9	13.4	-0.1	4.5
All households	7.9	-0.3	3.2	10.4	0.6	4.7
Effect in FTEs	409,817	-21,177	388,640	538,965	42,420	581,385

*Source:* Own simulation based on the SOEP.

*Note:* Deciles of potential net equivalent income; net equivalent income calculated according to the modified OCED scale, i.e. household income divided by  $(1 + 0.5 \times [\text{number of adults} - 1] + 0.3 \times [\text{number of children under 14}])$ .

In contrast, positive labour supply reactions on the part of women are substantial in the upper six deciles. In the top three deciles, the labour supply adjustments of men are also positive. This is driven by male secondary earners. The marginal tax rate of primary earners, whose income is above the top marginal income tax threshold, is not affected by the introduction of individual taxation, which means that negative labour supply reactions are limited in the top three deciles.

The lower part of the table shows that these increases in hours worked on average are the smallest for couples without children and the largest for couples with at least two children. The reason is that the



difference in earning levels between spouses tends to be higher if children are present in the household. In these cases, individual taxation improves the work incentives of secondary earners substantially. The last row of Table 1 shows the estimated increases in hours worked in FTEs, that is, the aggregate increase in hours worked per week is divided by 38.<sup>29</sup> According to our simulation, the introduction of individual taxation increases total hours worked by roughly 389,000 FTEs. This increase is driven by the rising work hours of women, while the hours worked by men decrease slightly.

The last three columns in Table 1 show the labour supply effects of a switch to individual taxation accompanied by an increase in the basic allowance. Overall negative labour supply effects occur only for the second to third deciles. For the upper six deciles, hours worked by both women and men increase considerably. Thus, the negative labour supply incentives for primary earners and for low-income households brought about by a move to individual taxation can be partially offset by an increase in the basic allowance.

The lower part of the table shows that for couples with and without children the positive labour supply effects of the reform are even larger than the effects of a switch to individual taxation without an increase in the basic allowance. The reason is that the increase in the basic allowance leads to a further decrease in marginal tax rates, which further improves labour supply incentives. Therefore, the total increase in work hours under this reform would be even larger: about 581,000 FTEs. Again, this increase would mainly be driven by women, but men, too, would work more hours.

The comparison of the two reform scenarios shows that a substantial further increase in hours worked results from returning the additional tax revenue that results from a switch to individual taxation via an increase in the basic allowance. Therefore, this reform contrasts sharply with one involving a lump-sum transfer. As the latter reform does not require people to work in order to receive the transfer, it decreases the incentive to work.

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<sup>29</sup> In collective agreements in Germany, full-time is commonly defined as 38 hours per week. See J. Fuchs, et al., *IAB-Prognose 2019: Trotz Konjunkturlaute: Arbeitsmarkt hält Kurs*, IAB-Kurzbericht 7 (Nürnberg, 2019).



**Table 2 Participation effects of a switch to individual taxation, in percentage points**

	Individual taxation			Individual taxation, increase in basic allowance		
	Women	Men	Total	Women	Men	Total
<b>Income deciles</b>						
1st	0.0	-0.1	-0.1	0.0	0.0	0.0
2nd	-0.3	-1.0	-1.0	-0.1	-0.4	-0.4
3rd	-0.4	-0.8	-0.9	-0.1	-0.2	-0.3
4th	-0.4	-1.1	-1.3	0.4	-0.2	0.0
5th	0.5	-1.4	-0.8	1.7	0.0	0.9
6th	1.5	-0.7	0.4	2.5	0.4	1.8
7th	3.0	-0.2	1.9	3.7	0.4	2.8
8th	3.4	0.2	2.5	3.8	0.5	3.0
9th	3.9	0.6	3.2	4.2	0.7	3.6
10th	4.2	0.6	3.4	4.5	0.6	3.6
<b>Demographic characteristics</b>						
Married couples, 0 children	2.5	0.2	2.0	3.1	0.7	2.7
Married couples, 1 child	3.0	-0.2	2.0	3.6	0.2	2.6
Married couples, 2+ children	3.2	-0.5	1.8	3.7	0.0	2.5
All households	2.8	0.0	1.9	3.3	0.4	2.6

*Source:* Own simulation based on the SOEP.

*Note:* Deciles of potential net equivalent income; net equivalent income calculated according to the modified OCED scale, i.e. household income divided by  $(1 + 0.5 \times [\text{number of adults} - 1] + 0.3 \times [\text{number of children under 14}])$ .



Table 2 shows the effects of the two hypothetical reforms on labour market participation rates in percentage points. For instance, the participation rate of men in the first income decile would decrease by 0.1 percentage points if individual taxation was introduced. In most cases, positive changes in the participation rate go together with positive changes in total hours of work, as reported in Table 1. The largest increase in the participation rate would occur for women in the tenth decile. A switch to individual taxation accompanied by an increase in the basic allowance would increase their participation rate by 4.5 percentage points. For the two reforms, the total effect on the participation rates of all married individuals with flexible labour supply would be 1.9 and 2.6 percentage points, respectively.

## Distributional effects

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How disposable income responds to the two hypothetical reforms depends on people's position in the income distribution (Table 3).<sup>30</sup> In the following we summarise the distributional effects of the two reforms, before and after labour supply adjustments:

- Moving to individual taxation alone (without the compensation reform) has negative effects on disposable incomes for married couples across the income distribution.
- Moving to individual taxation with budget neutrality (i.e. with the compensation reform) before labour supply adjustments leads to disposable income falling slightly across most deciles.
- The last-mentioned reform after labour supply adjustments has positive effects on the average disposable income of married couples.
- This increase in disposable income is driven by the top half of the income distribution.

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<sup>30</sup> Note that the sample in Table 3 differs slightly from that of Table 1 and 2 as it includes couples that cannot adjust their hours of work.



- For the bottom half of the income distribution, effects on disposable income are small but remain negative.
- The effects on disposable income differ only slightly by family size. However, bigger families show the smallest increase in income after labour adjustments.

Note that an increase in net income after labour supply adjustments does not necessarily imply an increase in welfare as higher incomes might be caused by longer working hours and thus go together with there being less leisure time. On the other hand, higher net income before labour supply adjustments necessarily implies an increase in welfare because a higher level of consumption can be achieved with the same number of hours of work.

## Discussion

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The simulation in the previous subsection has shown that introducing individual taxation would increase the total hours worked substantially, due to the higher female labour supply. Such an increase in labour supply would lead both to a one-time increase in GDP and to a higher growth path for Germany. A back-of-the-envelope calculation<sup>31</sup> suggests that the estimated increased labour supply would translate into a 1.0% increase in GDP for a reform with 'pure' tax individualisation and an increase of up to 1.5% for a reform with tax individualisation and a higher tax allowance. This result must be treated with caution because it is based on multiple assumptions.<sup>32</sup>

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<sup>31</sup> The current GDP per hour of work (€55.40) x the increase in hours of work.

<sup>32</sup> These assumptions include the following: (1) The productivity of newly hired employees equals the average productivity in Germany. (2) A year has 40 work weeks. Holiday time, public holidays and sick leave reduce the number of actual work days.



**Table 3 Effects of a switch to individual taxation on disposable income, in per cent relative to disposable income in the status quo**

	Individual taxation			Individual taxation, increase in basic allowance	
	Mean net equivalent income	Mean relative change in disposable income <i>before</i> labour supply adjustment, in per cent	Mean relative change in disposable income <i>after</i> labour supply adjustment, in per cent	Mean relative change in disposable income <i>before</i> labour supply adjustment, in per cent	Mean relative change in disposable income <i>after</i> labour supply adjustment, in per cent
<b>Income deciles</b>					
1st	8,321	-0.1	-0.0	-0.0	-0.0
2nd	9,818	-0.6	-0.8	-0.2	-0.3
3rd	11,048	-0.9	-1.1	-0.4	-0.4
4th	12,097	-1.6	-1.9	-0.4	-0.3
5th	14,603	-3.1	-3.1	-0.8	-0.1
6th	17,125	-3.2	-2.8	-0.3	0.8
7th	19,586	-3.9	-2.9	-0.7	1.0
8th	22,980	-3.4	-2.1	0.2	2.0
9th	27,708	-3.4	-2.0	0.2	2.0
10th	39,069	-3.4	-2.0	-0.3	1.3
<b>Demographic characteristics</b>					
Married couples, 0 children	24,457	-3.0	-2.2	-0.0	1.1
Married couples, 1 child	22,997	-3.4	-2.0	-0.0	1.8
Married couples, 2+ children	20,918	-3.7	-2.5	-0.8	0.8
All married couples	23,234	-3.2	-2.2	-0.2	1.2



*Source:* Own simulation based on the SOEP.

*Note:* Net equivalent income calculated according to the modified OCED scale, i.e. household income divided by  $(1 + 0.5 \times [\text{number of adults} - 1] + 0.3 \times [\text{number of children under 14}])$ .

In reality the effects might be slightly smaller or larger. On the one hand, we have only conducted a partial equilibrium analysis and have not taken into account that increases in labour supply reduce market wages and that, in turn, lowers the hours worked. Thus, we might have overestimated the positive labour supply effect. On the other hand, increases in labour supply generate additional tax revenue, which could be used to improve labour supply incentives even more—for example, through a further increase in the basic income tax allowance. Moreover, rising household income typically increases consumption spending, which could boost economic growth.

Notwithstanding these caveats, tax individualisation has a significant advantage. The reform increases efficiency by decreasing labour supply distortions for secondary earners, whose labour supply is typically more elastic: they react more strongly to financial incentives. Since it increases efficiency, a move to individual taxation is clearly desirable, especially if combined with an increase in income tax allowances.

However, the reform also creates losers and has adverse distributional consequences. First, disposable income decreases for the majority of couples with unequal earnings. This raises concerns about horizontal equity: couples that lose from a switch to individual taxation do so only because earnings are not split equally between the spouses. In contrast, for spouses with equal earnings, the introduction of individual taxation has no negative effect on disposable income. But as argued above, this might not necessarily be unfair since double-earner households might face higher costs than those with a single earner (e.g. childcare).

Second, although the losses for couples with unequal earnings are relatively small (in the budget-neutral reform, after labour supply adjustments), they are concentrated among financially vulnerable groups: those at the bottom of the income distribution and households with (two or more) children. To alleviate concerns about adverse effects on these vulnerable groups, a switch to individual taxation could be accompanied by additional measures, such as the following. First, the marginal withdrawal rates of transfers could be decreased; this would improve labour supply incentives for low-income households and increase their disposable income. Second, the tax allowance for children could be increased; this would lead to an additional decrease in marginal tax rates for parents.

**Conclusion**



This study has shown that a move to individual taxation would substantially increase the labour supply in Germany. This increase would amount to 389,000 FTEs if a switch were made to individual taxation without an additional adjustment of the tax schedule. If the increased tax revenues were returned to taxpayers via an increase in the basic income tax allowance, the increase in hours worked would amount to 581,000 FTEs. Such a reform would lead to a measurable increase in GDP (up to 1.5%). If general equilibrium effects are taken into account—for example, lower wages due to an increase in labour supply—the overall reform effects might be slightly lower.

Given the large positive labour supply effects, the aggregate gains are larger than the aggregate losses. A move to individual taxation is clearly desirable from an efficiency perspective. Still, such a reform produces winners and losers, and a value judgement is necessary to decide whether the gains for some outweigh the losses for others. Specific policies targeted at the losers of a switch to individual taxation could accompany such a reform. Generally speaking, the conclusions arrived at here likely also apply to other EU countries with joint income taxation, for example, France, Poland and Portugal. Their ageing populations notwithstanding, tax individualisation could boost the labour supply in these countries and therefore spur economic growth.

The results of this study were obtained using data from before the 2020–21 recession due to the Covid-19 pandemic. Nonetheless, the conclusions remain valid: a move towards individual taxation would generate additional tax revenue and increase the labour supply. Such a tax reform might be a way to reduce debt levels and stimulate the economy in the face of a massive rise in public debt and declining GDP. It could, furthermore, be a way of reversing gender inequalities in the labour market, which have been exacerbated in a number of advanced economies as a result of the Covid-19 pandemic.

**Appendix:  
technical  
description  
of the labour  
supply model**



Labour supply reactions are simulated by estimating a utility function for every household. This utility function has the disposable income and leisure time of the male and female spouse as arguments. Spouses are assumed to jointly maximise their utility by choosing their hours of work on the basis of their budget constraints. The budget constraints depend on non-labour income, each spouse's hourly wage and the tax-transfer system. The probability of working a particular number of hours depends on this estimated utility function. When there is a change in disposable income associated with a particular choice of hours, as in our case due to the introduction of individual taxation, these probabilities change.

Households are assumed to make discrete choices of hours of work per week. In particular, women choose between 0, 10, 20, 39, and 45 hours, and men choose between 0, 20, 40, and 48 hours per week. Thus, households with two spouses with flexible labour supply choose between 20 possible combinations of work hours. One key advantage of this approach is that the disposable income associated with the choice of different hours can be microsimulated, taking into account the details of the German distributional system. To this end we use the microsimulation model EMSIM. Information on actual hours of work and gross income is taken directly from the SOEP, and hourly wages are calculated using this information. For the unemployed, potential hourly wages are imputed using a selectivity corrected<sup>33</sup> wage regression on variables related to human capital. This is done separately for women and men in West and East Germany. The utility function is then estimated using the tax and transfer system and choice of hours for a given year.

The estimation of labour supply reactions follows two 1995 studies.<sup>34</sup> The number of leisure hours per week is denoted by  $lf$  for the female spouse and by  $lm$  for the male spouse. Household consumption—which in this one-period model equals disposable income—is denoted by  $c$ . Suppressing household-specific subscripts, the utility function of a household for a given choice of work hours  $j$  is given by

$$V_j = U(lf_j, lm_j, c_j) + \epsilon_j.$$

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<sup>33</sup> J. Heckman, 'Sample Selection Bias as a Specification Error', *Econometrica* 47/1 (1979).

<sup>34</sup> R. Aaberge, J. Dagsvik and S. Strøm, 'Labor Supply Responses and Welfare Effects of Tax Reforms Reforms', *Scandinavian Journal of Economics* 97/4 (1995); and A. Van Soest, 'Structural Models of Family Labor Supply: A Discrete Choice Approach', *Journal of Human Resources* 30/1 (1995).



The utility function consists of a deterministic part,  $U$ , and a random component  $\epsilon_j$ . The deterministic part takes the form

$$U = \beta_1 \ln(c_j) + \beta_2 \ln(c_j)^2 + \beta_3 \ln(lf_j) + \beta_4 \ln(lm_j) + \beta_5 \ln(lm_j) \ln(lf_j) + I_j$$

where 'ln' denotes the natural logarithm.  $I_j$  is a fixed effect that is specific to each hours category and captures, for instance, the fact that part-time work is uncommon in many professions. As is standard practice in discrete choice structural labour supply models, heterogeneity between households is introduced by letting the coefficients of the utility function depend on socio-demographic characteristics such as age, education and the number of children in the household. For instance, the leisure time of the female spouse is valued more by couples with children. The error term is assumed to follow the Gumbel distribution. The probability that a specific household chooses work hours category  $j$  is then given by<sup>35</sup>

$$P_j = \Pr(V_j > V_i, \forall i \neq j) = \frac{\exp(U_j)}{\sum_{i=1}^I \exp(U_i)}$$

Changes in labour supply are simulated by changing the disposable income associated with specific choices of hours, for instance due to the introduction of individual taxation. This leads to a change in the deterministic part of the utility function and thus in the choice probability.

For this study the model is estimated only for married couples. The estimation distinguishes between households with two spouses with flexible labour supply and those where only one spouse can change the hours worked.

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<sup>35</sup> D. McFadden, 'Conditional Logit Analysis of Qualitative Choice Behavior', in P. Zarembka (ed.), *Frontiers in Econometrics* (New York: Academic Press, 1974).



**Table 4 Simulated increase in hours worked and participation rates due to an increase of 1.0% in the hourly wage rate**

	Women	Men
Aggregate hours increase in per cent	0.47	0.17
Participation rate increase in percentage points	0.14	0.08

*Note:* Simulated with a 1% increase in gross wages.

Table 4 shows by how much the hours worked by married women and men would increase if all hourly wage rates were increased by 1%. These increases have been simulated by increasing the gross wages of women and of men by 1% and then simulating the labour supply response. The table shows that, for women, a 1% increase in gross wages leads to a 0.47% increase in hours worked. For men, this figure is smaller (0.17%). These elasticities are in line with common findings in the labour supply literature.<sup>36</sup> It is a very common finding that hours worked by women tend to react more to a change in wages is very common. The second line in the table shows that a 1% increase in hourly gross wages would lead to an increase in the participation rate of women of 0.14 percentage points and of 0.08 percentage points for men. Again, these figures are plausible and in line with the existing literature.

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<sup>36</sup> Keane, 'Labor Supply and Taxes'.

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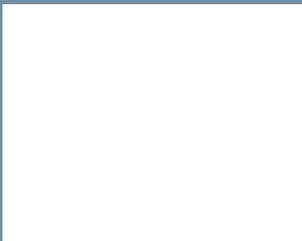
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Throughout Europe the Covid-19 pandemic has led to lower economic growth and higher unemployment. This has resulted in a surge in public debt and an increase in gender inequalities in the labour markets of many advanced countries. This situation has stimulated interest in policies that can simultaneously boost employment, increase tax revenues and reduce labour market inequalities.

Would a move from family-based (i.e. joint) taxation to individual taxation increase the labour supply of the lower-earning spouse (often the woman)? Would such a policy also increase employment and reduce gender inequalities? Based on German data, this paper concludes that moving to individual taxation would substantially increase the labour supply in Germany and therefore also spur economic growth.

However, since the simulated reforms produce results that are not distributed equally, ultimately a political value judgement is needed to decide whether the sizeable efficiency gains would outweigh the losses for those who would lose from the reform. Politically, the negative impact on more financially vulnerable groups may need to be addressed through further targeted tax reforms.



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