Maier, Martina:

Gender Bias in Income Taxation: Investigating the Drivers of Income Tax Individualization

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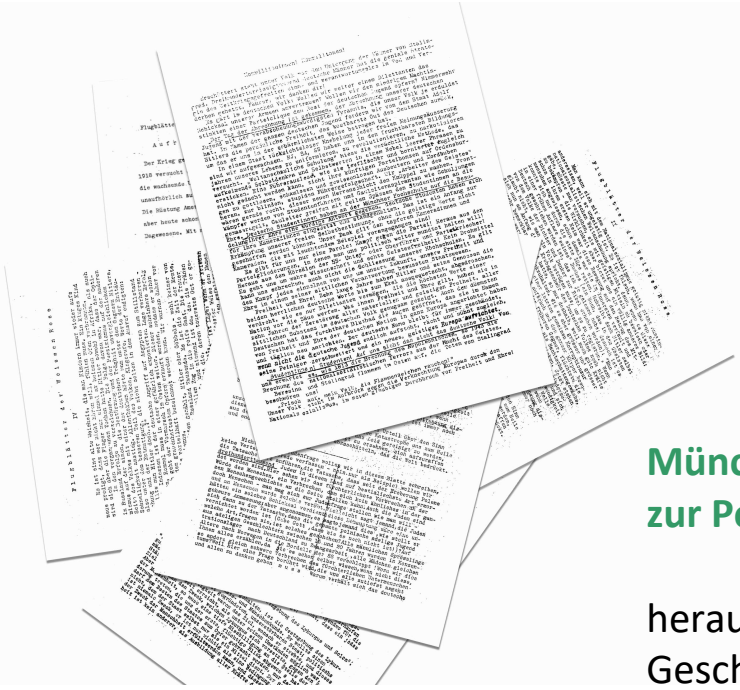

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Martina Maier

Gender Bias in Income Taxation: Investigating the Drivers of Income Tax Individualization

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Abstract

To date, tax systems around the world continue to treat men and women differently. In countries where married couples are taxed jointly, secondary earners – who most often are women – face higher tax rates and are heavily discouraged from entering the labor market. As a result, most countries have reformed their tax systems towards a more gender-equal system of separate taxation. Other countries, however, continue to tax married couples jointly. Given the cross-national variation in the scope and timing of tax individualization, I investigate the driving factors of such tax policy reforms. Drawing on a new dataset on introductions of tax individualization in 28 European countries from 1970 to 2020, I utilize event history analyses to test potential drivers of tax individualization reforms that I derive from gender and politics as well as welfare state scholarship. My results indicate the importance of labor unions and women's representation in the labor market. In contrast to feminist and welfare state scholars, female politicians and left party power do not seem to affect the likelihood of tax individualization introductions.

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1. Introduction

Increasing women's labor inclusion has long been on the political agenda of many countries worldwide (Fruttero et al., 2020). At the 2014 Summit in Brisbane, leaders of the Group of 20 (G20) once again made it a priority to fight gender inequality and boost the number of women in formal employment – this time, ambitiously pledging to reduce the gender gap in labor participation by 25% by 2025 (OECD, 2014). Yet progress has been slim and wide gender gaps persist. Not only are women less likely to be engaged in paid labor, but when they are, they tend to be employed in lower-paying sectors, work more part-time and carry out the vast majority of unpaid care work (Ferrant et al., 2014). And, paradoxically, the exact laws and policies that have the power of combatting such inequalities, contain a heavy gender bias themselves.

Indeed, tax systems around the world continue to treat men and women differently (Stotsky, 1996). More specifically, in countries where married couples are taxed jointly, secondary earners – most often women – face the higher tax rates of the primary earner and thus, are heavily discouraged from taking up paid work. Not without reason has the German tax system been subject to heavy criticism. Its so-called system of *Ehegattensplitting* inherently privileges the traditional "male breadwinner/female caregiver model" (Sainsbury, 1996) and, from an economic point of view, acts as a major barrier to married women's labor force participation. Meanwhile, other countries have explicitly addressed this form of gender discrimination and shifted towards a more just tax treatment of married couples – not the least in efforts to combat labor shortages and stimulate economic growth in times of a rapidly ageing world population. Germany's neighboring country Austria, for example, abolished joint taxation already in 1972, not much later than Sweden that did so in 1971 (Selin, 2014). Today, this is the case in most European countries, where pre-existing systems of joint taxation have more or less been replaced with separate taxation.

Still, joint taxation, either fully or partly, remains in place in several nations. And, while its adverse effects on married women's labor supply are talked about a lot, little is known about what prompts countries to move towards a more female-friendly system of individual taxation. Given the lack of research on drivers of such fiscal policy change, and more importantly, growing public interest in abolishing a tax system that so unequivocally puts women at a disadvantage, I seek to answer the following research question: *What are the driving factors of tax individualization?* By looking more closely at income tax reforms in European countries

over a period of 50 years, this thesis aims to investigate the underlying political, economic, and structural conditions that facilitate or constrain the adoption of tax individualization. Can a general pattern be observed that accounts for cross-national variation in the scope and timing of tax individualization? What factors affect the overall willingness of policymakers to adopt such a reform? By answering these questions, I hope to better understand the drivers of change of a policy so pivotal in promoting women's economic independence, and more generally, contribute to a field that remains vastly understudied in political science: the intersection of gender and taxation.

Due to the lack of research, this thesis turns to comparative welfare state studies and the gender and politics scholarship to identify determinants of tax individualization. Although most scholars have typically focused on the spending side of taxation (Seelkopf, 2021), both strands allow me to derive a number of factors that are potentially related to the specific tax reform in question. In particular, I focus on four sets of determinants: women's political representation, party ideology, and (socio)economic factors. After briefly explaining how income tax systems are biased against women, I provide an overview of current tax systems in selected European countries. I then review both literature strands and their contribution to the observed variation in the tax treatment of married couples. Next, I set out my methods and data sources. Drawing on an own dataset on introductions of tax individualization in 28 European countries, I use econometric methods to test my assumptions. Finally, I present and discuss my findings which indicate the importance of unions and women's representation in the labor market. In concluding, I address the limitations of my findings and propose future avenues of research.

2. Gender Bias in Income Taxation

In a first step, it is crucial to understand how income tax systems treat men and women differently. One of the earliest and perhaps most prominent studies has been published by Janet Stotsky who was among the first to coin the expression "Gender Bias in Tax Systems" (Stotsky, 1996). She presents a framework to examine the gendered impact of tax systems and distinguishes two types of gender biases in taxation – explicit and implicit bias. The first arises when regulations in tax laws explicitly treat men and women differently, such as granting men higher tax-free allowances or requiring married couples to file tax returns in the name of the husband; the latter possible in France until 1983 and in Ireland until 1993 (Stotsky, 1997).

While such explicit forms are more easily observable and hence, have been abolished in most modern tax systems, implicit gender biases are less apparent and remain prevalent to this day (A. Thomas & O'Reilly, 2016). They are not evident from the tax code itself but, in practice, arise where regulations and provisions of the tax law have unequal effects on men and women (Stotsky, 1996). One such example is the so-called tampon tax – the consumption tax imposed on menstrual hygiene products (Seelkopf, 2021). Although both men and women face the same tax rates, only women rely on such products and bear the economic costs, while their male counterparts do not. And, given that other medical products used primarily by men are taxed at a lower rate, this tax is seen as discriminatory (Bennett, 2017).

Hence, explicit and implicit gender biases exist across different types of taxes, but they are mostly studied in personal income taxes (Seelkopf, 2021). Not only do personal income taxes affect individuals' disposable after-tax income, but by doing so, have a substantial impact on socioeconomic decisions (Bettio & Verashchagina, 2009). These include decisions to participate in the labor market or those about the distribution of paid and unpaid work between partners. As such, income tax systems may contain a heavy gender bias, primarily emerging from the tax treatment of married couples. More specifically, progressive tax systems in which spouses' incomes are assessed jointly have been a prime example of an implicit gender bias, as they heavily discourage women from participating in the labor market (Dulude, 1985). To demonstrate this, I first explain both types of tax treatment, followed by economic evidence on how one of these systems discriminates against women.

2.1. Joint versus Individual Taxation

Income taxes are commonly classified into two large groups which differ in the definition of the appropriate tax unit: joint taxation (also referred to as family-based taxation) and individual taxation. In a system of joint taxation, tax liability is assessed on a family or spouses as a single unit. In most cases, joint taxation presupposes that the filing unit is the married couple[1], with their income being aggregated and treated as one (Stotsky, 1996). They can be designed in different ways. In most cases, the aggregated income of spouses is divided by a coefficient, upon which the tax amount is determined, commonly known as "income splitting" (Barnett & Grown, 2004; Bettio & Verashchagina, 2009; Dingeldey, 2001). Germany, for example, operates under a system of income splitting between spouses, the so-called *Ehegattensplitting*, whereby the tax

[1] Although I refer to the "married couple" as the tax unit throughout this thesis, joint taxation also applies to registered civil partnerships in most countries. Cohabitating couples are, in most cases, not included.

is levied on half of the sum of both spouses' incomes. To determine the final tax burden, this amount is then doubled, resulting in a significant "splitting advantage". The more unequal the income distribution between spouses, the higher this advantage and thus, the more taxes are saved (Steiner & Wrohlich, 2006). By contrast, France uses a form of income splitting in which the total taxable income is divided by a so-called *quotient familial* to which the tax schedule is then applied (Dingeldey, 2001). Contrary to income splitting, this method includes dependent children in the calculation (O'Donoghue & Sutherland, 1998).

In systems of individual taxation, on the other hand, the assessment unit is the individual. Each person is taxed on their own labor earnings, irrespective of their marital status (Coelho et al., 2022). Inevitably, individual filing systems are considered more gender-neutral, as tax rates are based on one's own income and are not affected by the spouses' labor income. It is important to note, however, that individual taxation systems are never purely individual. They often contain certain elements of family-based taxation, such as a dependent spouse allowance, which allow the primary earner to reduce his or her taxable income if the secondary earner earns less than a specified threshold (Bettio & Verashchagina, 2009; Coelho et al., 2022; Gunnarsson, 2021). Despite assessing spouses individually, such elements may also decrease work incentives for secondary earners.[2]

2.2. Secondary Earner Bias

Tax economists have long criticized systems featuring joint taxation (e.g., Boskin & Sheshinski, 1983; Dulude, 1985; McCaffery, 1999; Rosen, 1977). Stemming from the traditional (male-)breadwinner family model (Sainsbury, 1996), family-based tax systems inherently favor sole-earner households and discriminate against secondary earners (Gunnarsson et al., 2017). By assessing spouses' income together, the secondary earner is effectively taxed at a higher marginal tax rate, i.e., the rate applicable to the primary earner income, resulting in a so-called secondary earner bias (Barnett & Grown, 2004). The greater the difference between primary and secondary earnings, the bigger this bias and the less worthwhile it is for the secondary earner to enter work (LaLumia, 2008). In addition, the disincentive effects increase with a more progressive tax schedule and are generally the highest for high-income couples (Meier & Wrede, 2013). Hence, secondary earners with high-income spouses face the greatest disadvantages and would benefit most from individual taxation (Selin, 2014).

[2] For simplification purposes, I merely distinguish between joint and individual taxation in absolute terms. Individual tax systems may contain numerous joint elements that might make the system of individual filing equally disincentive as pure joint tax systems. Still, this distinction will not be made in this thesis.

As joint tax systems discriminate against secondary earners regardless of gender, they only indirectly discriminate against women. Yet because women – traditionally and to this date – largely remain the secondary earners, they more often put women at a disadvantage (Christl et al., 2022). Further, because the labor supply elasticity of (married) women is typically higher, they are more responsive to changes in tax rates and are affected most by the discouraging effects of joint filing (Boskin & Sheshinski, 1983; Evers et al., 2008).

The relationship between the treatment of married couples and female labor supply has been studied in various countries' tax reforms, including the 1971 Swedish tax reform which abolished joint taxation (Selin, 2014), Ireland's partial tax individualization in 2000 (Doorley, 2018), Canada's tax reform of 1988 (Crossley & Jeon, 2007), and the removal of mandatory joint taxation in Spain (Fuenmayor et al., 2018). All studies confirm that reforms towards individual taxation led to a substantial increase in the employment rate of married women. By contrast, the move to joint taxation has been proven to decrease women's labor market participation. In the United States, for example, women's employment rates dropped by two percentage points when joint taxation was put in place in 1948 (LaLumia, 2008). Similar results have been found in Czech Republic that switched to joint taxation in 2005 (Kalíšková, 2014). Numerous studies have also made use of microsimulation models to examine the effects of a hypothetical move to individual taxation – all of which are in line with the findings above. Gustafsson (1992) and Steiner & Wrohlich (2004) both demonstrate that the introduction of individual taxation in Germany would significantly increase the labor supply of German wives.

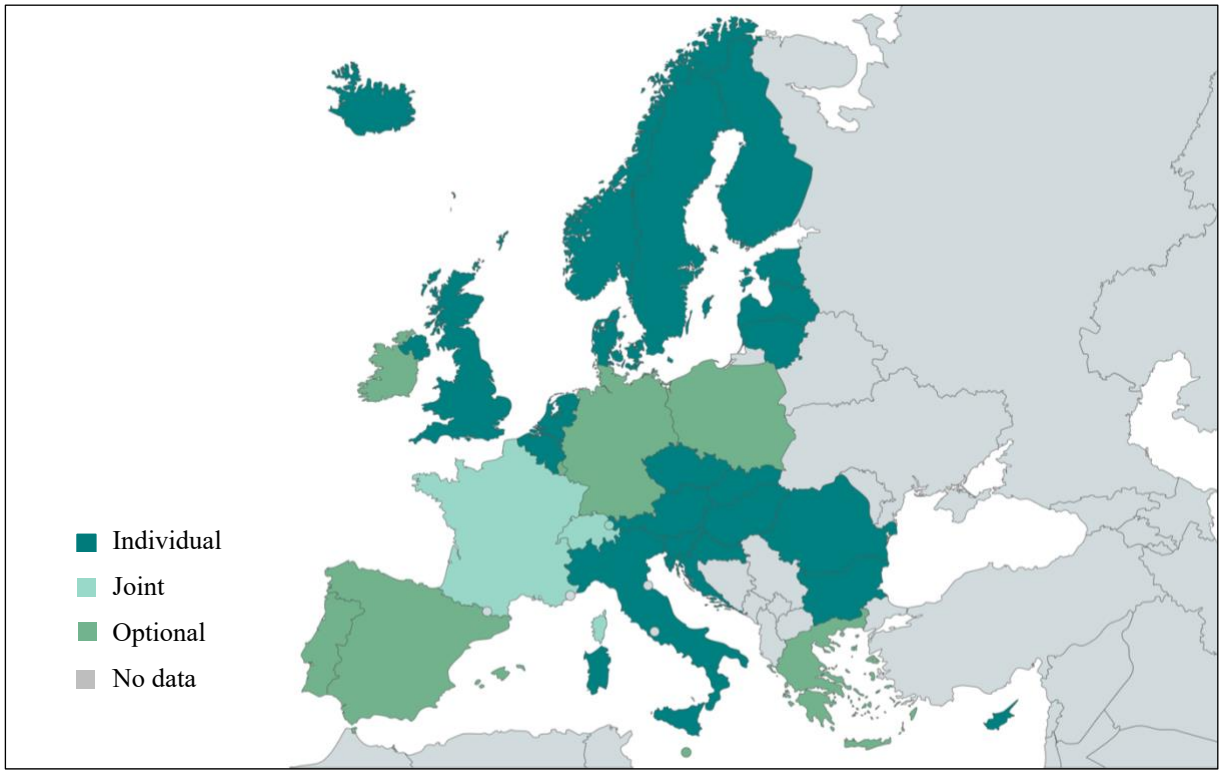
2.3. Tax Treatment of Couples Today

In the history of income taxation, most advanced economies have at some point operated under joint filing (Daly, 2011; Dingeldey, 2001). As McCaffery (1999) correctly notes, "the world of income taxation in this era was a man's world" (p. 32). Indeed, it was not until 1984 that major changes could be observed. In efforts to promote gender equality, the Commission of the European Communities released a memorandum in which it urged its member states to reform their tax systems and at least offer the option of separate taxation for spouses (Commission of the European Communities, 1984). Partly as a result of this, the ongoing trend in most advanced economies has been an individualization of the personal income tax (Gunnarsson et al., 2017; O'Donoghue & Sutherland, 1998).

Already permitting married couples to be taxed separately in 1966 and switching to compulsory separate taxation in 1971, Sweden is often described as the pioneer of tax individualization. Similarly, Denmark switched to individual taxation in 1970. Several countries, such as Austria, Finland, the Netherlands, and Iceland, quickly followed suit, reforming their income tax systems in the mid to late 1970s. Others, including Greece, Luxembourg, and Portugal, only undertook a reform in the 2010s that now allows married couples to at least opt for separate filing. Malta implemented such a reform just recently in 2020. No change has been observed in France and Switzerland – the only two countries that continue to tax partners jointly, without offering the option of individual assessment.

Figure 1 gives an overview of income taxation systems in 32 countries, including the 27 EU member states, and additionally, Iceland, Liechtenstein, Norway, Switzerland, and the United Kingdom. As is evident, the majority of these countries operate under a system of mandatory separate taxation – despite retaining some degree of "jointness".[3] A handful of countries, such as Germany, Poland, and Portugal, offer both systems, whereby joint filing for married couples generally remains the norm.

Figure 1. *Income Tax Systems in Selected European Countries, 2023.*



Note. Own Illustration based on own coding (see Appendix B for sources).

[3] See Appendix, Table A1 for a full overview of income tax systems and, if present, any joint elements.

It is important to note that countries are categorized differently, depending on which source one relies on. Germany's income tax, for instance, is often referred to as a system of joint tax treatment (e.g., Christl et al., 2022) because it is assumed that this is most widespread among couples – although the German tax code does allow married couples to file separately. Others place Germany in the third category of optional tax filing (e.g., Bettio & Verashchagina, 2009; Coelho et al., 2022; A. Thomas & O'Reilly, 2016). In this case, I follow the second approach and place any country that allows married couples to choose between both individual and joint taxation into the category of optional taxation. Even if spouses are generally assessed jointly in such countries, they are *de facto* given the option to be taxed separately. The inconsistency in information provided by various sources is, in part, owing to the lack of sufficient data; even today, a clear classification system concerning the tax treatment of married couples does not exist.

3. Determinants of Tax Reforms Towards Individualization

To date, the field of gender and taxation remains vastly understudied in political science (Seelkopf, 2021). Tax policy in general is framed in fiscal terms and receives little to no attention from political scientists. Not surprisingly, taxes are largely studied from an economic perspective, with most research – as previously shown – focusing on the (gendered) implications of different tax systems in a small subset of Organization for Economic Co-operation and Development (OECD) countries. Little is known about which factors contribute to such policy reforms in the first place, or more particularly, about the drivers of income tax individualization. Yet given the cross-national variation in the scope and timing of tax reforms towards individualization, this remains a fundamental question.

Still, identifying potential drivers of policy reforms towards individual taxation is not an easy task. Despite being a fiscal policy, the broader tax literature and its primary focus on macroeconomic factors are deemed insufficient to explain tax individualization. Tax reforms that concern the treatment of married couples are better placed in the field of social policy, as they truly are more a social policy tool than a fiscal tool. Furthermore, tax individualization is generally framed as a policy to promote women's economic independence and achieve gender equality.[4] For this reason, I derive my hypotheses from two strands of literature I consider well-

[4] e.g., in Ireland, the partial individualization of the income tax system in 2000 was explicitly announced as a policy aimed at promoting women's employment and achieving greater gender equality (Doorley, 2018).

suited for studying income tax individualization: the gender and politics scholarship and the comparative welfare state literature.

Thus far, both feminist and mainstream welfare state scholarship have primarily focused on tax expenditures and hence, center on explaining different social spending efforts. Taxation of married couples *as* a social policy has been widely neglected despite its distributional consequences and direct impact on social welfare goals (Atkinson, 1972). Nevertheless, a number of studies have explored the drivers of social policies that – like individual taxation – indicate a shift away from the traditional male-breadwinner model towards a dual-earner model. The majority of these studies focus on policy areas such as childcare and family leave (e.g., Bonoli & Reber, 2010; Daly & Scheiwe, 2010; Ferragina & Seeleib-Kaiser, 2015; Gleichen & Seeleib-Kaiser, 2018; Lewis & Campbell, 2007; Morgan, 2006). Still, placing tax individualization in the broader category of such policies will allow me to identify a number of factors that could account for cross-national variation in the introduction of separate taxation. In the following sections, I examine the possible contribution of each of these strands to my research question.

3.1. The Substantive Representation of Women

Gender and politics scholars have typically focused on linking women's descriptive and substantive representation, i.e., understanding how women's presence makes a difference in policy outcomes. In terms of preferences, research finds that female legislators hold different policy attitudes than their male counterparts, with women more inclined to express liberal preferences and prioritize women's issues (e.g., Carroll, 1994; Funk & Gathmann, 2015; Norris & Lovenduski, 1994; Poggione, 2004; Schwindt-Bayer, 2006; Swers, 1998). It is then argued that a larger number of women in politics leads to increased attention on women's interests, and consequently, evokes female-friendly policy change (Carroll, 2001; Childs & Krook, 2009; Dahlerup, 2006; S. Thomas, 1991; Tremblay, 1998). Grounded in the critical mass theory, these studies posit that once women constitute a certain proportion or "critical mass" of a legislature, they will have an impact on advancing a female-friendly policy agenda (Dahlerup, 1988).

A rich body of research confirms that higher levels of women's presence in parliaments are associated with the adoption of policies favoring women's substantive interests, such as policies related to gender equality, families, and children. Examples include the expansion of

childcare provision in Norwegian municipalities (Bratton & Ray, 2002), the adoption of maternity and childcare leave in developed democracies (Kittilson, 2008), and higher levels of public spending on family services (Bonoli & Reber, 2010). In line with the concept of critical mass, all these studies provide evidence of a link between descriptive and substantive representation – confirming that female legislators do indeed act for women (Mackay, 2008). Although the focus in most studies has been on social spending policies, it is reasonable to expect that a higher share of female parliamentarians will also increase the likelihood of income tax individualization. As Annesley et al. (2015) argue, costly gender equality issues that concern women's access to the labor market as well as the unfair division of paid and unpaid work are more likely to receive attention when more women are represented in parliament.

Critiques of critical mass theory have emphasized its exaggerated focus on numbers of women in parliaments, arguing that these are only of minor importance (Dahlerup, 2006). Instead, scholars have stressed the role of critical actors – key influential individuals and groups that are able to bring about gendered change (Childs & Krook, 2009). Research suggests that individual cabinet ministers, for example, might be of even greater importance than female parliamentarians (Atchison, 2015). The basis of such an argument is threefold: Firstly, it is argued that policy typically originates in the cabinet; and secondly, the executive dominates the policy process in parliamentary democracies. Third, cabinet ministers are assumed to hold more power than women in the legislature (O'Regan, 2000). This is especially true when it comes to gender equality policies that have clear spending implications, including those that address labor market discrimination (Atchison, 2015). In their analysis of state guaranteed leave entitlement in 18 advanced democracies, Atchison & Down (2009) find that the number of women in cabinet is a key explanatory factor of maternity and parental leave duration. Likewise, I expect female ministers to exert greater pressure on income tax individualization as a female-friendly policy.

3.2. Power Resources Theory

Feminist scholarship on the welfare state has also emphasized the role of party ideology as a driving factor of female-friendly policy adoption (Orloff, 2002). More generally, power resources theory is frequently used to explain the cross-national variation in generosity and expansion of social policies. As one of the most influential approaches in the study of postwar welfare states, it posits that such variation is attributable to the degree of working-class

mobilization. Left parties and strong unions are expected to contribute to more generous welfare policies (Esping-Andersen, 1990; Korpi, 2006; Stephens, 1979). Further, the egalitarian values of left parties make them more likely to support policies designed to improve gender equality (Duverger, 1955). By contrast, conservative parties are commonly known to preserve the traditional family model and thus, resist expansive family policies that might facilitate women's economic independence (Huber & Stephens, 2000).

The strong effect of left-wing party power has been found in a great deal of research, most prominently in studies on childcare and family policy expansion (e.g., Bonoli & Reber, 2010; Ferrarini, 2006; Huber & Stephens, 2000; Morgan, 2006). At the same time, few scholars argue that left governments may not play that much of a decisive role in adopting female-friendly policies. Kittilson (2008), for example, finds no significant effect of left party power in the adoption of maternity and childcare leave but proves that women's political presence matters substantially. Similarly, Ferragina & Seeleib-Kaiser (2015) demonstrate that while the power of the left was one of the main drivers of family policy change during the 1980s and 1990s, this effect radically declined in the 2000s, implying that partisanship has lost importance in explaining welfare variation in recent years.

In the case of income tax individualization, the effect of left power and union strength is less clear. In fact, there are reasons to expect the two factors to be both against and in favor of such a tax policy reform. On the one hand, reforms towards tax individualization generally promote gender equality as well as a fairer distribution of the gendered division of labor and thus, are presumably promoted by leftist parties (Buchanan & Annesley, 2007). Yet, as previously elaborated, joint filing especially discriminates against secondary earners married to high-income partners – the group that benefits most from income tax individualization according to economic evidence (e.g., Crossley & Jeon, 2007; Fuenmayor et al., 2018; Selin, 2014). Because left-leaning parties are particularly responsive to wage inequality and hence, pursue expansive welfare policies more favorable to lower-income groups (Pontusson & Rueda, 2010), it is not clear whether they would advocate for a tax policy reform that primarily benefits high-income households. In Denmark, for example, social democratic parties were among the biggest defenders of the long-established system of joint taxation (Ravn & Rosenbeck, 2008). Similarly, reforms towards separate taxation were not actively supported by Swedish social democrats; instead, they considered it to be a "luxury problem" (Gustafsson, 1992, p. 64).

With regard to labor unions, several scholars have challenged their stance in supporting gender-equal policies, arguing that unions do not always promote gender equality in the labor market (Huber & Stephens, 2001). As Iversen & Rosenbluth (2010) indicate, unions have reasons to resist expansive social policies unions in favor of women's employment because they fear the loss of jobs to women. Individual taxation, since it promotes women's participation in the labor market, increases the labor supply and exerts a downward pressure on wages (Bonoli & Reber, 2010). As a result, trade unions, that typically represent the interests of low wage workers, might feel threatened from women's employment and oppose such a reform (Kittilson, 2008). And, because unions have historically been male-dominant, it is not clear whether they would support feminist demands that undermine the social norms of the male breadwinner (Gelb, 1989).

3.3. Economic Context

The next set of determinants relates to economic factors hindering or facilitating gender policy change. The importance of the overall economic and fiscal conditions in advancing women-friendly policies has been pointed to by the more general scholarship on the politics of taxation. More precisely, it is suggested that policy reforms which negatively affect the public budget are less likely to be implemented when a country faces severe economic constraints (Haffert, 2021). Individual taxation, however, faces a more complex dilemma. Its implications for tax revenue are less clear: On the one hand, there are reasons to believe a switch to separate taxation to be accompanied by large revenue gains. Several researchers have supported such an argument by referring to the loss of tax savings possible under joint filing and the increase of taxable income driven by higher female participation rates[5] (e.g., Bach et al., 2011; Bachmann et al., 2021). On the other hand, others point to the fact that such reforms are revenue-neutral, arguing that the increased revenue from higher taxes on the primary income balances out the tax cuts on secondary earners (Bierbrauer et al., 2023). Yet little research exists on the effects of tax individualization on government revenue and the few studies that do show mixed results. Indeed, the fiscal implications of individual taxation depend on the specific design of the income tax system as a whole, making it difficult to derive general claims. For this reason, I consider the literature on fiscal policy reforms to be less well-suited to examine income tax individualization. I therefore turn to claims made by gender and politics scholars.

[5] Bach et al. (2011), for example, demonstrate that the abolition of Ehegattensplitting in Germany would not only boost female labor force participation, but would also increase tax revenue by five times. Further, Bachmann et al. (2021) argue that the increase in tax revenue could, in turn, be used to create even more incentives for labor supply.

Although the role played by macro-level economic determinants in explaining gender equality policies is understudied (Annesley & Gains, 2013), few scholars have noted that gender-neutral measures are more likely to be addressed and implemented in favorable economic circumstances (Annesley et al., 2015; Daly & Scheiwe, 2010). In particular, class-based gender policy issues targeted at alleviating women's burdens in the sexual division of labor, such as paid parental leave, often require significant intervention in the market as well as greater financial investments and thus, will not be placed on the political agenda in bad times (Annesley & Gains, 2013; Htun & Weldon, 2010). Further, as Annesley et al. (2015) signal, because such policies challenge deep-rooted gender norms, they might be perceived as costly by the wider population – particularly by male employees who may see women as a threat to their jobs. Indeed, Annesley et al. (2014) find that redistributive gender equality proposals related to the sexual division of labor are more likely to reach the governmental agendas of Western European states when the economy is performing well, i.e., in periods characterized by a significant growth in gross domestic product (GDP) and low unemployment rates.

Moreover, several studies have demonstrated such an argument by pointing to the Swedish case of income tax individualization of 1971. Marked by the post-World War II economic boom and increasing demand for skilled labor, the Swedish government individualized its income tax system and expanded childcare provision as crucial supply-side measures to pull more women into the labor market (Hobson, 2004; Lewis & Åström, 1992). A long period of sustained economic growth, labor shortages, and perhaps most pivotally, Sweden's reluctance to increase labor migration, are often described as the main drivers of labor supply policies targeted at incentivizing married women to participate in the labor market in the 1960s and 1970s (Afonso, 2019). On the basis of these considerations, it is evident that tax individualization faces many economic constraints. I expect tax reforms towards individualization to be more likely in favorable economic circumstances.

4.3. Further Factors Related to Tax Individualization

Guided by past research, I derive additional factors that could affect the likelihood of tax individualization. Firstly, it seems intuitive that countries with a higher female labor force participation are more likely to introduce individual taxation. More broadly, the rapid increase in women's labor force participation reflects profound socioeconomic developments. The male-

breadwinner orientation of traditional welfare states is no longer prevalent (Fraser, 1994; Giuliani, 2022). Indeed, changing family structure, gender relations and social norms, have generated new needs and demands – labelled new social risks (Bonoli, 2005; Taylor-Gooby & Taylor-Gooby, 2004) – all of which significantly influence the character of modern welfare states (Orloff, 1996). Huber & Stephens (2000) argue that women's growing presence in the paid labor force exerts substantial pressure on welfare states. Thus, as more women enter the workforce, demand for policies supportive of female labor force participation, such as a more equal tax treatment, is expected to increase.

Likewise, welfare state scholarship has highlighted the role of demographic changes on social policy expansion (e.g., Castles, 2004; Ferrera & Rhodes, 2007; Pierson, 2001). In particular, the greying of the population and a shrinking working-age population are increasingly posing a burden on contemporary welfare states – commonly referred to as a period of permanent austerity (Pierson, 1998). Rising numbers of welfare recipients exert financial pressures on public and social expenditures, and most notably, on the labor market, as they require a massive expansion of the tax base (Apps, 1991). Increasing female labor force participation can help mitigate the macroeconomic implications of population ageing (Bloom et al., 2015; Jaumotte, 2003). Thus, tax individualization might serve as a public policy response to countervail increasing demographic pressures by boosting the workforce participation of women.

4. Data and Methodology

This chapter provides an overview of the data and methods utilized to study my research question. In order to analyze the determinants of tax individualization introductions, I employ cross-sectional time-series regression techniques based on an original dataset. Organized in a time-series cross-sectional format, the dataset combines information on the introduction year of personal income tax reforms towards individualization, i.e., the dependent variable of interest, with data on potential factors. The start year is set at 1970, when the first countries introduced individual taxation. Due to limited data availability, 2020 was chosen as the end of the observation period. My final dataset consists of a total of 28 countries, a subset of the initially presented 32 countries. The four countries, namely Bulgaria, Cyprus, Liechtenstein, and Romania, were excluded from the analysis since no information on the introduction of separate

taxation could be found. The included dependent and independent variables are described in the following sections.

4.1. The Dependent Variable

My dependent variable is binary and turns from 0 to 1 when a country introduces a tax reform towards individualization. Data on the introduction year of personal income tax reforms towards individual tax treatment were gathered for each country individually, based on own research using primary and secondary government documents as well as academic sources. The year of tax individualization refers to the calendar year in which the introduction was legislated. In most cases, the decision occurred one or two years before the enactment, i.e., when the reform was applied to taxable income.

In this context, tax individualization is defined as a shift away from a system of joint taxation to a system of separate taxation. As previously indicated, some countries have only partially individualized their tax systems, meaning that separate taxation was introduced as an option for married couples next to the pre-existing system of joint filing. Other countries completely abolished the option of joint filing, thereby making separate taxation compulsory for every taxable person. In my dataset, I differentiate between these two different types of individualization reforms, and further, add a variable that includes both reforms. For this reason, my dataset includes a total of three dependent variables. Thus, in the third case, countries take on the value 1 in a given year if individual taxation was introduced either as an option next to joint taxation (from now on referred to as a partial individualization), or if individual taxation was implemented fully, with joint taxation no longer given as an option (from now on referred to as full individualization). Once a country has undergone a full reform, it is not at risk of tax individualization anymore and therefore drops out of my risk set. It makes sense to distinguish different types of reforms and create three dependent variables to run separate regressions, as different dynamics might apply to different types of tax reforms.

It is to be noted that some Central and Eastern European states, such as Croatia, Czech Republic, Estonia, and Hungary, only established their personal income tax systems in the 1990s. For this reason, they would not enter the risk set until the early 1990s. Most of these late adopters, however, introduced their income tax as a fully individualized system to begin with, meaning that they never are at risk of tax individualization in my dataset – unless, like Czech Republic

in 2005, they undergo a switch to joint taxation within the observation period (see Appendix A, Table A1).

4.2. The Independent Variables

The independent variables selected for testing are based on the theoretical framework presented above and available data. Each will be presented in the next sections following the same order adopted in my theoretical framework. Descriptive statistics as well as sources of the variables can be found in the appendix.

Because there exists no literature at all on the tax reform in question, the aim of my research is to identify any potential drivers that might or might not be associated with tax reforms towards individualization. Instead of formulating traditional hypotheses, Table 1 gives an overview of the independent variables deemed important for tax reforms towards individualization and their hypothesized direction of causality.

Table 1. *Independent Variables and Their Hypothesized Effect on Tax Individualization.*

	Measure	Hypothesized effect
Women in Power		
Female Parliament	Percentage of seats in held by women in the lower or single house	+
Female Ministers	Percentage of female ministers	+
Party Ideology		
Left Government Control	Cabinet posts of social democratic and other left parties in percentage of total cabinet posts	+/-
Union Density	Percentage of workers in the labor force who are members of unions	+/-
Economic Factors		
GDP Growth$_{t-1}$	Percentage change in growth of real GDP	+
Unemployment$_{t-1}$	Unemployment persons as a percentage of the civilian labor force	-
Socioeconomic Factors		
Female Labor Force Participation$_{t-1}$	Female percentage of the total labor force	+
Aged Population	Percentage of population age 65 and over	+

Note. See Table A2 in Appendix for descriptive statistics and sources.

Women in Power

Following the above theoretical discussion, I include two variables derived from literature on the substantive representation of women with two variables: the percentage of seats held by women in parliaments based on Inter-Parliamentary-Union (1995) data and the percentage of female ministers. Data for the latter were retrieved from the WhoGov dataset (Nyrup & Bramwell, 2020) which includes information on the absolute number of female ministers. Based on this, the share of women ministers was calculated as a percentage of total cabinet ministers. As previously argued, both are expected to positively affect the likelihood of tax reforms towards individualization, yet female ministers are predicted to have a bigger impact due to their position as influential key actors in the executive (Atchison & Down, 2009).

Party Ideology

The power resources theory is tested with two variables. Left government is measured as the proportion of cabinet seats controlled by social democratic and other left parties in percentage of total cabinet posts. The strength of unions is measured as the percentage of workers in the labor force who are members of unions. Data for both variables are available in the Comparative Political Data Set (CPDS) (Armingeon et al., 2022). Based on traditional power resource theorists, left parties and unions are expected to positively affect the likelihood of income tax individualization. Yet taking into consideration the discussed implications of tax individualization that primarily benefit spouses of high-income earners, the direction of causality is not clear. Also, there are reasons to expect no significant effect of both factors due to the declining importance of class actors in driving welfare state expansion (Huber & Stephens, 2001).

Economic Factors

Finally, favorable economic circumstances are hypothesized to facilitate the promotion of gender equality issues. Also, the historical case of Sweden has shown that tax individualization might serve as a necessary policy measure to increase women's labor market participation in times of severe labor shortages. To assess the impact of economic factors, I include two indicators: the percentage change in growth of real GDP and unemployment rates as a percentage of the civilian labor force. Data on both indicators are provided by the OECD (2023) and can be found in the Quality of Governance (QOG) dataset (Teorell et al., 2023).

The economic variables are lagged by one year to better account for the time it takes for governments to consider economic performance when making policy decisions. As discussed, GDP growth is expected to positively affect the likelihood of tax individualization, while unemployment is predicted to take on a negative coefficient. Although it would be false to associate low unemployment rates with labor market shortages, they are often a first indicator of a labor shortage (Cohen, 1995). For this reason, robustness checks will include five-year moving averages of the unemployment rate to eliminate short-term fluctuations and highlight longer-term trends.

Socioeconomic Factors

I expect a higher female labor force to increase the probability of income tax reforms towards individualization. Hence, tax individualization facilitates female labor force participation, and vice versa. Following Huber & Stephens (2000), female percentage of the total labor force is taken as a measure and coded with a one-year lag to address the problem of reverse causality. Due to the lack of data on female labor force participation which date back to the 1970s, I combine data from two sources: the Comparative Welfare States Data Set (CPDS) (Ragin et al., 2014) and the World Bank (2021). The first provides data for selected OECD countries already from 1960 onwards, while the latter only starts in 1990. To take demographic pressure into consideration, I include a variable measuring the proportion of the aged population, defined as the number of people aged 65 and over as a percentage of the total population. Data are provided by the World Bank and retrieved from the QOG dataset (Teorell et al., 2023). The fiscal implications of demographic changes suggest that a larger share of the elderly population should increase reform pressure, leading me to expect a positive relationship between both variables.

4.3. Control Variables

To capture differences in welfare state efforts, I control for different welfare regime types by including a set of dummy variables. Following Esping-Andersen's (1990) threefold classification, I distinguish between conservative, liberal, and social-democratic welfare regimes with conservative as the reference category. Since several Southern European countries as well as most states of Central and Eastern Europe are not included in the traditional welfare state typology and cannot be classified accordingly, I follow Ferrera (1996) and Fenger (2007) and add two additional categories – Southern and Eastern European. This approach is deemed

most appropriate, as there is no scholarly consensus on the classification of these countries into Esping-Andersen's original categories.[6] Attempts of doing so have been mostly criticized and contested (Bazant, 2009).

Finally, a measure of constitutional structure is added to consider the impact of a nation's political institutions. Guided by past research, institutional veto points are seen as major barriers to reforms and therefore hinder policy change (O'Reilly, 2005). For this reason, I include an additive index of constitutional structure based on (Huber et al., 1993), with a higher score indicating the existence of more veto points.

4.4. Model Specification

To analyze the determinants of tax individualization introductions, I turn to the statistical method of event history analysis which enables me to investigate the time to event occurrence – in this case, the time it takes for a country to individualize their personal income tax. Such an approach considers explanatory variables over time and their effects on the occurrence and timing of events (Box-Steffensmeier & Jones, 2004). As shown in previous sections, the data in this research are a form of binary time-series cross-section (BTSCS) data. Because of the dichotomous nature of the dependent variable, I estimate my models using logistic regression. Yet since my data structure violates the assumption of independence, an ordinary logistic regression would yield biased results (Beck et al., 1998). To account for temporal dependence, I follow Carter & Signorino (2010) and include a cubic polynomial of time (t, t^2, t^3).

As described in previous chapters, a distinction must be made between different types of tax reforms. More specifically, I distinguish between full (mandatory separate filing for married couples), partial (optional separate filing for married couples) and more general reforms (full and partial) of tax individualization. My focus lies first on tax reforms towards a fully individualized tax treatment of couples. Hence, in such models, countries only take on the value 1 if a switch to mandatory separate taxation took place. Accordingly, introductions of partial reforms are not coded as 1, meaning that the corresponding countries maintain in the risk set. To complement my findings, I look at tax individualization more generally, i.e., the dependent variable which covers partial and full individualization. Here, both reform types are coded as 1.

[6] Fenger (2007) goes even further by creating two new categories: Former-USSR type and Post-communist European type. For simplification purposes I lean on his approach but only create one new category, "Eastern", which includes the following countries: Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia. Following Gal (2010), Malta was categorized into the Southern welfare type.

5. Results

In the following sections, I discuss the results based upon the methodology presented above. I report my main findings as well as any conducted robustness tests to verify my results (see Appendix A, Tables A4-A7). Potential problems that should be considered when interpreting the findings will be highlighted.

5.1. Drivers of Income Tax Individualization

The results of the logit models depicted in Table 2 reveal a significant positive relationship between union density and income tax reforms towards full individualization (see Appendix, Table 3 for full results). Due to the high correlation between the share of female parliamentarians and female ministers, which in turn, both correlate with female labor force participation, I run models without the first two variables and then add them separately. This finding stays significant across all four model specifications, allowing me to conclude that there is indeed a statistically significant positive effect of union density on the likelihood of income tax individualization.

Interestingly, left government is significant in the first two models, and has a negative, albeit small, effect on the likelihood of tax reform. The negative coefficient stands in contrast to the classic power resources approach. Furthermore, it takes on the smallest value in my models which supports claims of more recent scholars who argue that party ideology has potentially lost its importance in the last decades. However, its statistical significance does not hold in the last two models, making it difficult to statistically confirm this finding.

In line with descriptive evidence, lagged female labor force participation is positively associated with income tax individualization. This result is consistent and significant in each model even in the absence of female politicians, which leads me to confirm my hypothesis that a higher female labor force makes tax individualization more likely. In accord with my expectations, aged population is positive in each model, implying that a higher share of the elderly population increases the probability of a tax reform. Yet, this effect only becomes significant in the last two models which include the share of female ministers and female parliamentarians, and therefore cannot be fully confirmed.

Table 2. *Results of the Logit Models for Income Tax Individualization, Full Reform.*

	(1)	(2)	(3)	(4)
Women in Power				
Share of Female MPs		-0.150		-0.137
		(0.119)		(0.142)
Share of Female Ministers			-0.0453	-0.0130
			(0.0581)	(0.0612)
Party Ideology				
Left Government Control	-0.0204*	-0.0213*	-0.0198	-0.0212
	(0.0117)	(0.0123)	(0.0127)	(0.0133)
Union Density	0.135**	0.118**	0.151**	0.131*
	(0.0604)	(0.0567)	(0.0722)	(0.0700)
Economic Context				
GDP Growth	-0.0385	-0.0613	-0.111	-0.137
	(0.119)	(0.120)	(0.126)	(0.132)
Unemployment	-0.0911	-0.152	-0.0679	-0.0744
	(0.179)	(0.204)	(0.190)	(0.199)
Socioeconomic Factors				
Female Labor Force Participation	0.220*	0.300**	0.289*	0.384**
	(0.121)	(0.151)	(0.148)	(0.194)
Aged Population	0.410	0.395	0.625*	0.609*
	(0.261)	(0.268)	(0.321)	(0.330)
Control Variables				
Constitutional Structure	-0.225	-0.179	-0.110	-0.103
	(0.640)	(0.672)	(0.744)	(0.774)
Social Democratic Welfare State	-1.257	0.678	-0.691	0.771
	(1.556)	(2.110)	(1.754)	(2.295)
Liberal Welfare State	-0.0815	-0.660	-0.327	-0.876
	(1.386)	(1.473)	(1.450)	(1.604)
Constant	-20.18**	-21.40**	-26.17**	-27.97***
	(7.953)	(8.477)	(10.19)	(10.85)
N	442	442	438	438
Pseudo R^2	0.3072	0.3262	0.3656	0.3766

Note. Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; cubic polynomials of time t, t^2, and t^3 as well as two welfare regime dummies are suppressed to conserve space (see Table A3).

Contrary to my first set of assumptions as well as the majority of gender and politics scholars, the variables measuring female political power are insignificant in every model. Interestingly, the coefficient of the variable measuring women in parliament even takes on a negative value, while the share of female ministers is positive. Since both are not of statistical significance, these results are rather inconclusive. None of the other determinants are significant. Unemployment, for example, does take on its hypothesized negative value, yet is insignificant in every model. Although an emphasis was put on economic factors, especially given the historical evidence from countries like Sweden, they do not seem to matter in explaining tax individualization. Regarding the controls, I find no statistically significant effect.

5.2. Robustness Checks

To support the validity of my findings for the full tax reform reported in Table 2, I conduct several robustness tests. Firstly, additional models with different specifications are run. More general economic theory emphasizes the link between real GDP growth and unemployment. To address possible multicollinearity, I test models without real GDP growth as a first robustness check (see Table A4). All the results presented above hold in models without GDP growth and do not vary considerably, with some variables, namely aged population, only becoming more significant. Left government is negative and significant in all four models in which GDP growth was omitted yet does not pass further robustness checks.

In addition to this, models with five-year moving averages of the unemployment rate are conducted to eliminate short-term fluctuations and account for longer-term trends. Based on my theoretical framework, I assume tax individualization to be associated with countries' experiences with labor shortages. Calculating five-year moving averages therefore seems more appropriate than solely looking at the lagged rate of unemployment. Again, my findings stay similar (see Table A5). The positive effects of female labor force participation and union density hold, leading me to confirm the positive influence of both on the likelihood of tax individualization. The effects of aged population and left party power cannot be entirely confirmed, as they vary across different model specifications. Still, there seems to be some type of relationship between both factors on tax individualization. Further investigation is needed to fully confirm such a relationship.

So far, my findings only apply to income tax reforms that present moves to a system of mandatory individual taxation for married couples. To complement these results, I run separate models as additional robustness tests. Turning to tax individualization in general, I estimate models with my dependent variable in which both partial and full tax individualization are coded as an event occurrence (see Table A6). Control variables are excluded in the first models. The results are somewhat similar to my previous findings. Union density is positive and significant in models (2) to (4), but loses its significance when controls are added. Likewise, female labor force participation seems to have a positive and significant effect on the likelihood of tax individualization. This effect does not hold in the model with control variables, making my findings rather inconclusive. The share of female parliamentarians has a significant negative effect in the second model yet also loses its significance in the subsequent models. None of the other variables or controls are significant.

Overall, the mixed results of the logistic models for both tax reforms do not allow me to establish any substantial relationship between the hypothesized determinants and their effects on the likelihood of tax individualization. The more robust results found in models in which the dependent variable only captures full reforms indicate that the inconclusive findings are potentially attributed to the inclusion of partial reforms. For this reason, another specification is used; now only considering partial reforms (see Table A7). Since the dependent variable represents a rare event, I use rare event logistic regression to account for any possible bias. The welfare regime dummies are excluded. Not surprisingly, the results obtained are mixed. GDP growth is statistically significant across all four model specifications and is positively associated with partial tax reform. However, the same applies to unemployment which is statistically significant at an even higher level. The positive effect of unemployment stands in contrast to my expectations. Moreover, given the negative correlation between GDP growth and the rate of unemployment, this result cannot be explained. Hence, my results need to be enjoyed with caution.

6. Limitations

In light of such mixed findings, it is important to address possible limitations. While my analysis suggests that both female labor force participation and labor unions may be predictors of tax reforms towards full individualization, the inconclusive results observed when looking at partial

reforms and both reforms together might, in part, be attributed to shortcomings in my dataset. Indeed, my estimations might be imprecise or even heavily biased due to missing data on several variables, most notably for observations before 1990 and for non-OECD countries. Since a big part of the observed reforms took place in the 1970s and 1980s, the absence of data from earlier periods might restrict the reliability of my results. And, given the fact that most reforms towards full individualization took place in OECD countries, the results from my first analysis might be biased towards that group of European countries, limiting the generalizability of my findings. Perhaps different dynamics apply to different countries – most notably for the few Central and Eastern European countries included in my dataset, as these only established their personal income tax systems in the 1990s.

Another crucial aspect worth mentioning is the low reliability of data on the dependent variable. The research process of my data collection has proven that information on tax reforms concerning the treatment of couples cannot be easily obtained. Various sources provide information that differs enormously from each other, and in many cases, no information could be found at all. As a rule, I compared different sources to confirm the correctness of information. Unfortunately, this was not always possible. Thus, data on the introduction year could suffer from low accuracy.

Furthermore, it should be acknowledged that there exists a wide range of other potentially important factors not accounted for. Given the lack of literature and research on the tax reform in question, and on gender-equitable fiscal policy changes in general, I heavily relied on two literature strands deemed most appropriate for my research question. Additional factors not considered in this thesis due to time constraints and limited data availability might yield more reliable results. Of great importance, for example, could be the role played by women's movements. More recent gender and politics scholars show that autonomous feminist movements are *the* key actors in getting women's issues on the political agenda and bringing about female-friendly policy change (Htun & Weldon, 2012). They are said to account for much of the observed cross-national variation in gender-equalizing policy outcomes.

In Denmark, for instance, joint taxation received public and political attention only after coming under attack from feminist movements. The strong alliance between Danish women's movements and unions triggered far-reaching reforms, one of which was the introduction of separate taxation in 1970 (Ravn & Rosenbeck, 2008). Likewise, Gustaffson (1992) argues that

the debate on separate taxation in Sweden was primarily set in motion by feminist movements. My findings concerning union strength might be an indicator of such a relationship – perhaps one in which labor unions *and* women's movements are pivotal in understanding female-friendly policy reforms. Unfortunately, comprehensive data on women's movements dating back to the 1970s do not exist; most often, indices are used to measure their presence and strength, and therefore, might be misleading. Given these constraints, a conscious decision was made to omit their potential effect in my analysis.

7. Conclusion

The aim of this thesis was to investigate the drivers of income tax individualization and shed light on any factors that facilitate or hinder the likelihood of tax reforms towards a more just treatment of married couples. Despite all its deficiencies and shortcomings, my analysis has found a statistical link between labor unions and women's increasing participation in the labor force and tax individualization in the few European countries that replaced their system of joint filing with a system of compulsory individual taxation. By contrast, most factors considered important by feminist and welfare state scholars do not seem to have an influence on tax individualization. Neither women in the legislature, nor female ministers drive introductions of separate taxation. Although these results need to be enjoyed with caution, they provide a first glimpse of possible drivers of income tax individualization and might be an indicator of more complex dynamics behind gender-equitable tax policy reforms.

Due to the limited scope of this thesis, a wide range of aspects could not be considered. Therefore, several avenues of future research are proposed. For example, I solely looked at tax individualization in absolute terms. In many countries, however, we see minor reforms towards individualization taking place, such as the abolition of the transferrable tax credit to the primary earner in the Netherlands by 2023 (de Boer et al., 2018). Looking at different degrees of tax individualization might give a clearer picture of what pushes governments to adopt gender-equitable fiscal policies. Moreover, a next step would be to expand the analysis from a subset of European countries to a global scale. Similarly, more qualitative studies of single cases might shed light on country-specific dynamics. Why did the Czech Republic, for example, switch from individual to joint taxation in 2005 and move back to individual filing in 2008?

Hence, more sophisticated examinations into the determinants of income tax individualization are needed. On a more general note, I encourage scholars to conduct further research in the field of gender and taxation. Firstly, deeper insights are necessary to better understand the demands of a changing society; which tax treatment is most suitable and treats each individual as equally as possible might differ over time and across different societies. Also, as shown, the process of gathering data for this research has proven to be a greater challenge than anticipated, only portraying the huge gender data gap researchers still face (Seelkopf, 2021). Thus, it should come as no surprise that so little is known about the gendered implications of tax laws, let alone about the tax laws themselves. A more transparent and accessible documentation of such information is necessary to encourage the wider public to talk more about taxes. This way, awareness can be raised, and perhaps, real change towards a more gender-based taxation can be set in motion.

Finally, to end on a positive note, there is hope that major change is in sight. In Switzerland – one of the few countries in Europe that continues to tax married couples jointly – a popular initiative calling for the abolition of joint taxation has successfully been launched by its liberal party, triggering a nationwide referendum that will be held in 2024 (Verein Individualbesteuerung, 2023). Similarly, in Germany, Lisa Paus, Federal Minister of Family Affairs, Senior Citizens, Women and Youth, has demanded a reform of the current splitting system and affirmed her commitments to promote women's economic independence (James, 2023). Such reforms are not only vital to achieving greater gender equality; according to Sustainable Development Goal 5, they are "a necessary foundation for a peaceful, prosperous and sustainable world" (United Nations, 2015, para. 1).

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Appendix A. Supplementary Material and Regression Results

Table A1. *Overview of Current Income Tax Systems Concerning the Treatment of Married Couples, 2023*

Country	System	Comment
Austria	Individual	Sole earner and single parent tax credit for families with children.
Belgium	Individual	Married couples file joint income tax returns but tax is calculated separately. Marital quotient (*huwelijksquotient*) applies if one of the spouses earns less than 30% of the couple's combined earned income. Amount transferred is limited to 30% and is effectively taxed at a lower marginal rate than if it had remained part of the income of the higher earning spouse.
Bulgaria	Individual	-
Croatia	Individual	-
Cyprus	Individual	-
Czech Republic	Individual	Tax credit for dependent spouse if his or her income does not exceed CZK 68.000 in the taxable period.
Denmark	Individual	Transferable personal allowance.
Estonia	Individual	Transferable tax allowance.
Finland	Individual	Transferable tax credit.
France	Joint	Family quotient applies (*quotient familial*) for people who are married or have signed a contract of civil partnership (PACS). Total income is divided by a family quotient, before the tax schedule is applied.
Germany	Optional	Married couples are assessed jointly in the form of income splitting (*Ehegattensplitting*) but can choose to be taxed on an individual basis if more advantageous to them.
Greece	Optional	Married persons are subject to tax separately on their own income but are required to file a joint tax return unless a declaration requesting separate filing is filed.
Hungary	Individual	Family tax base allowance and allowance for first marriage can be split between spouses.
Iceland	Individual	Transferable tax credit.

Ireland	Optional	Married couples/civil partners may choose to be taxed jointly with a limit on the degree of transferability of income tax bands between spouses since Budget 2000.
Italy	Individual	Family tax credits for dependents (spouse and children).
Latvia	Individual	Tax allowance for dependents (spouse and children).
Liechtenstein	Joint	-
Lithuania	Individual	Deductible expenses (e.g., life insurance and pension contributions) can be shared or transferred between spouses .
Luxembourg	Optional	Spouses and partners are taxed jointly but can choose between pure individual taxation, individual taxation with reallocation of income, or a joint taxation.
Malta	Optional	-
Netherlands	Individual	Transferable tax credits (being phased out since 2009 and will diminish by 2023).
Norway	Individual	-
Poland	Optional	In case of joint taxation, the tax is levied on the average taxable income and multiplied by two.
Portugal	Optional	-
Romania	Individual	-
Slovakia	Individual	Tax allowance for dependent spouse.
Slovenia	Individual	Tax allowance for dependent spouse.
Spain	Optional	Married couples filing jointly are entitled to a tax allowance.
Sweden	Individual	-
Switzerland	Joint	Deduction for two-income couples (partner allowance).
United Kingdom	Individual	Marriage allowance allows member of a married couple or civil partnership to transfer 10% of their personal allowance to their partner if they are not using their full allowance.

Table A2. *Descriptive Statistics.*

	N	Mean	St. Dev.	Min	Max	Source
Female MPs	1,208	19.9477	11.9981	0	47.6	Inter-Parliamentary Union
Female Ministers	1,265	17.9519	15.6571	0	64.7059	WhoGov Dataset
Left Government Control	1,210	38.4971	37.7446	0	100	Comparative Political Data Set
Union Density	982	39.8632	21.6501	4.2	93.9	Comparative Political Data Set
GDP Growth	1,187	2.4450	3.4538	-21.2928	25.3580	Comparative Political Data Set
Unemployment	1,181	7.2068	4.4849	0	27.5	Comparative Political Data Set
Female Labor Market Participation	1,135	43.1432	5.2410	24.7822	50.7549	Comparative Welfare States Data Set, Quality of Governance
Aged Population	1,273	14.9122	2.9614	8.2311	23.3721	Quality of Governance
Veto Points*	1,206	1.0415	1.5561	0	6	Comparative Political Data Set

*Additive index based on Huber et al. (1993) of federalism (none, weak, strong), presidentialism (absent, present), bicameralism (absent, weak, strong), and the use of popular referenda in the political process (absent, present) (Armingeon et al., 2022).

Table A3. *Results of Logit Models for Full Individualization Reforms Only.*

	(1)	(2)	(3)	(4)
Share of Female MPs	-	-0.150	-	-0.137
		(0.119)		(0.142)
Share of Female Ministers	-	-	-0.0453	-0.0130
			(0.0581)	(0.0612)
Left Government Control	-0.0204*	-0.0213*	-0.0198	-0.0212
	(0.0117)	(0.0123)	(0.0127)	(0.0133)
Union Density	0.135**	0.118**	0.151**	0.131*
	(0.0604)	(0.0567)	(0.0722)	(0.0700)
GDP Growth	-0.0385	-0.0613	-0.111	-0.137
	(0.119)	(0.120)	(0.126)	(0.132)
Unemployment	-0.0911	-0.152	-0.0679	-0.0744
	(0.179)	(0.204)	(0.190)	(0.199)
Female Labor Force Participation	0.220*	0.300**	0.289*	0.384**
	(0.121)	(0.151)	(0.148)	(0.194)
Aged Population	0.410	0.395	0.625*	0.609*
	(0.261)	(0.268)	(0.321)	(0.330)
Constitutional Structure	-0.225	-0.179	-0.110	-0.103
	(0.640)	(0.672)	(0.744)	(0.774)
Social Democratic Welfare State	-1.257	0.678	-0.691	0.771
	(1.556)	(2.110)	(1.754)	(2.295)
Liberal Welfare State	-0.0815	-0.660	-0.327	-0.876
	(1.386)	(1.473)	(1.450)	(1.604)
Southern Welfare State	0.579	-0.0190	0.635	0.563
	(1.684)	(1.904)	(1.923)	(1.993)
East European Welfare State	4.611*	3.704	4.018	3.283
	(2.378)	(2.391)	(3.074)	(3.188)
t	-0.284	-0.159	-0.287	-0.217
	(0.230)	(0.259)	(0.238)	(0.252)
t2	0.00146	-0.00133	-0.00187	-0.00460
	(0.0117)	(0.0123)	(0.0140)	(0.0143)
t3	0.0000638	0.0000938	0.000134	0.000172
	(0.000168)	(0.000174)	(0.000216)	(0.000221)
Constant	-20.18**	-21.40**	-26.17**	-27.97***
	(7.953)	(8.477)	(10.19)	(10.85)
N	442	442	438	438
Pseudo R^2	0.3072	0.3262	0.3656	0.3766

Note. Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4. *Results of Logit Models for Full Individualization Reforms only, GDP Growth omitted.*

	(1)	(2)	(3)	(4)
Share of Female MPs	-	-0.134	-	0.111
		(0.112)		(0.136)
Share of Female Ministers	-	-	-0.0439	-0.0439
			(0.0577)	(0.0635)
Left Government Control	-0.0200*	-0.0212*	-0.0211*	-0.0227*
	(0.0114)	(0.0114)	(0.0127)	(0.0134)
Union Density	0.122**	0.108**	0.143**	0.129*
	(0.0565)	(0.0532)	(0.0682)	(0.0666)
GDP Growth	-	-	-	-
Unemployment	-0.0546	-0.0905	-0.0218	-0.0144
	(0.167)	(0.184)	(0.180)	(0.187)
Female Labor Force Participation	0.202*	0.274*	0.274*	0.349*
	(0.115)	(0.144)	(0.142)	(0.183)
Aged Population	0.415	0.418	0.639**	0.632**
	(0.252)	(0.259)	(0.310)	(0.319)
Constitutional Structure	-0.228	-0.185	-0.122	-0.111
	(0.608)	(0.646)	(0.717)	(0.751)
Social Democratic Welfare State	-0.982	0.783	-0.509	0.662
	(1.479)	(2.043)	(1.716)	(2.221)
Liberal Welfare State	-0.120	-0.625	-0.307	-0.759
	(1.375)	(1.443)	(1.440)	(1.581)
Southern Welfare State	0.462	-0.0713	0.381	0.318
	(1.649)	(1.862)	(1.898)	(1.968)
East European Welfare State	4.072*	3.213	3.640	3.133
	(2.229)	(2.278)	(2.902)	(3.002)
t	-0.281	-0.175	-0.269	-0.208
	(0.225)	(0.250)	(0.238)	(0.253)
t2	0.00100	-0.00132	-0.00279	-0.00537
	(0.0118)	(0.0122)	(0.0143)	(0.0148)
t3	0.0000727	0.0000974	0.000146	0.000182
	(0.000169)	(0.000175)	(0.000220)	(0.000227)
Constant	-19.27***	-20.79***	-26.00***	-27.70***
	(7.351)	(7.969)	(9.531)	(10.30)
N	443	443	439	439
Pseudo R^2	0.2979	0.3149	0.3539	0.3618

Note. Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5. *Results of Logit Models for Full Individualization Reforms only, 5-Year Moving Averages Calculated for Unemployment.*

	(1)	(2)	(3)	(4)
Share of Female MPs	-	-0.198	-	-0.154
		(0.133)		(0.143)
Share of Female Ministers	-	-	-0.0513	-0.0169
			(0.0601)	(0.0611)
Left Government Control	-0.0202*	-0.0220*	-0.0188	-0.0206
	(0.0116)	(0.0124)	(0.0125)	(0.0132)
Union Density	0.143**	0.132**	0.154**	0.133*
	(0.0679)	(0.0649)	(0.0771)	(0.0753)
GDP Growth	-0.0478	-0.0844	-0.121	-0.153
	(0.122)	(0.127)	(0.129)	(0.137)
Unemployment	-0.150	-0.312	-0.111	-0.135
	(0.235)	(0.288)	(0.240)	(0.264)
Female Labor Force Participation	0.222*	0.324**	0.292*	0.403**
	(0.123)	(0.156)	(0.151)	(0.200)
Aged Population	0.373	0.304	0.626*	0.607*
	(0.271)	(0.284)	(0.329)	(0.345)
Constitutional Structure	-0.156	-0.0403	-0.0633	-0.0235
	(0.688)	(0.716)	(0.785)	(0.827)
Social Democratic Welfare State	-1.449	0.864	-0.733	0.902
	(1.627)	(2.164)	(1.779)	(2.318)
Liberal Welfare State	0.0118	-0.639	-0.292	-0.922
	(1.440)	(1.546)	(1.492)	(1.667)
Southern Welfare State	0.662	-0.230	0.740	0.677
	(1.716)	(2.017)	(1.928)	(2.016)
East European Welfare State	5.015*	4.471*	4.097	3.422
	(2.648)	(2.635)	(3.323)	(3.494)
t	-0.240	-0.0176	-0.242	-0.147
	(0.243)	(0.299)	(0.249)	(0.272)
t2	0.000120	-0.00578	-0.00415	-0.00822
	(0.0120)	(0.0132)	(0.0145)	(0.0152)
t3	0.0000772	0.000144	0.000167	0.000225
	(0.000170)	(0.000184)	(0.000225)	(0.000236)
Constant	-20.11**	-21.35**	-26.40**	-28.60**
	(8.373)	(8.839)	(10.56)	(11.34)
N	434	434	430	430
Pseudo R^2	0.3133	0.3411	0.3711	0.3850

Note. Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6. *Results of Logit Models for Partial & Full Individualization Reforms.*

	(1)	(2)	(3)	(4)	(5)
Share of Female MPs	-	-0.0836*	-	-0.0839	-0.0949
		(0.0501)		(0.0729)	(0.103)
Share of Female Ministers	-	-	-0.0313	0.00789	0.0253
			(0.0315)	(0.0449)	(0.0452)
Left Government Control	-0.00181	-0.00267	0.000517	-0.000352	0.00198
	(0.00790)	(0.00831)	(0.00844)	(0.00850)	(0.00925)
Union Density	0.0356	0.0474**	0.0486*	0.0573**	0.0653
	(0.0225)	(0.0241)	(0.0252)	(0.0268)	(0.0500)
GDP Growth	0.0701	0.0244	-0.00877	-0.0271	0.0104
	(0.109)	(0.106)	(0.113)	(0.114)	(0.121)
Unemployment	0.125	0.0960	0.0945	0.116	0.207
	(0.0817)	(0.0867)	(0.0898)	(0.0959)	(0.125)
Female Labor Force Participation	0.122**	0.204**	0.140**	0.206**	0.108
	(0.0608)	(0.0794)	(0.0643)	(0.0888)	(0.0979)
Aged Population	-0.252	-0.296	-0.211	-0.271	-0.204
	(0.164)	(0.173)	(0.168)	(0.183)	(0.217)
Constitutional Structure	-	-	-	-	0.0935
					(0.492)
Social Democratic Welfare State	-	-	-	-	1.161
					(1.770)
Liberal Welfare State	-	-	-	-	-0.684
					(1.319)
Southern Welfare State	-	-	-	-	-0.253
					(1.235)
East European Welfare State	-	-	-	-	2.321
					(2.295)
t	0.0342	-0.00521	0.0683	0.0237	0.0762
	(0.188)	(0.188)	(0.189)	(0.194)	(0.214)
t2	-0.00862	-0.00572	-0.0106	-0.00914	-0.0146
	(0.00934)	(0.00939)	(0.00983)	(0.00997)	(0.0113)
t3	0.000185	0.000153	0.000218	0.000210	0.000304*
	(0.000129)	(0.000129)	(0.000139)	(0.000141)	(0.000165)

Constant	-6.475*	-8.373**	-7.827*	-9.276**	-7.863
	(3.779)	(4.231)	(3.996)	(4.472)	(4.918)
N	359	359	355	355	354
Pseudo R^2		0.1749	0.1874	0.1989	0.2130

Note. Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A7. *Results of Logit Models for Partial Individualization Reforms Only, Rare Events Logit.*

	(1)	(2)	(3)	(4)
Share of Female MPs	-	-0.0406	-	-0.0363
		(0.0732)		(0.0884)
Share of Female Ministers	-	-	-0.0141	0.000850
			(0.0405)	(0.0505)
Left Government Control	0.000473	-0.000422	-0.00174	-0.00170
	(0.0110)	(0.0109)	(0.0111)	(0.0109)
Union Density	-0.0275	-0.0194	-0.0323	-0.0277
	(0.0239)	(0.0275)	(0.0260)	(0.0293)
GDP Growth	0.461**	0.400*	0.462**	0.411*
	(0.203)	(0.221)	(0.202)	(0.218)
Unemployment	0.264***	0.255***	0.242**	0.238**
	(0.0908)	(0.0924)	(0.0926)	(0.0935)
Female Labor Force Participation	0.125	0.150	0.131	0.139
	(0.124)	(0.132)	(0.122)	(0.126)
Aged Population	-0.397	-0.426	-0.399	-0.413
	(0.251)	(0.263)	(0.249)	(0.253)
Constitutional Structure	-0.0259	0.0525	-0.0168	-0.0114
	(0.365)	(0.364)	(0.358)	(0.363)
t	0.391	0.391	0.352	0.314
	(0.549)	(0.582)	(0.455)	(0.505)
t2	-0.0218	-0.0211	-0.0187	-0.0167
	(0.0240)	(0.0243)	(0.0201)	(0.0220)
t3	0.000336	0.000327	0.000290	0.000266
	(0.000300)	(0.000294)	(0.000253)	(0.000273)
Constant	-8.363	-8.671	-7.964	-7.554
	(6.879)	(7.041)	(6.539)	(6.859)
N	593	593	578	578
AIC	-8.143	-12.19	-13.72	-17.34

Note. Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix B. Codebook

Personal Income Tax (PIT) Individualization Database

Martina Maier

The Personal Income Tax (PIT) Individualization Database consists of data on tax policy reforms from family-based (i.e., joint) taxation to individual taxation. The dataset covers a total of 28 countries, including 24 EU member states, as well as Iceland, Norway, Switzerland, and the United Kingdom. For each country the dataset reports the year in which individual taxation was introduced. Two types of reforms towards tax individualization are distinguished: reforms, in which individual filing was introduced as an option next to preexisting joint taxation and reforms, in which individual filing was introduced as the only option. Data ranges from 1970, when the first countries introduced individual taxation until 2020.

Version June 2023

1. Dataset Structure & Overview of Variables

[ccode] The country's alpha-3 ISO code.

[country] Country name.

[year] Calendar year of legislation, i.e., decision, of the tax reform.

[fullind] Binary variable with value 1 for legislation of mandatory individual tax filing for married couples.

[partind] Binary variable with value 1 for enactment of optional individual tax filing for married couples.

[bothind] Binary variable with value 1 for implementation of both mandatory and/or optional individual tax filing for married couples.

2. Description of Variables

The personal income tax (PIT) is a tax levied on the income of individuals and/or households, depending on each PIT system's definition of the tax unit, i.e., the entity that is subject to taxation under the personal income tax. Two main types of tax units are distinguished: individual and family (joint). In an individual taxation system, each individual is taxed separately on their own labor income, regardless of their marital status. By contrast, under a family (joint) tax system, the family, or, in most cases, a married couple, is defined as a tax unit. Here, tax liability is assessed on the combined income of a both partners, regardless of how income is divided between them.

It is important to note that individual tax systems are never purely individual. By allowing certain credits from the non-working spouse and other dependents to be transferred to the primary earner, they may contain elements of joint tax systems. For purposes of simplification, different elements will not be considered in this dataset.

In this context, tax individualization is defined as a shift away from a system of joint taxation to a system of separate taxation. Countries at risk of individualization are coded 0 until a reform occurs. Afterwards they are coded as missing. Several Central and Eastern European countries did not establish a PIT system until early 1990s. In this case, the date of PIT introduction (see Table B1, year in parentheses) was obtained from the Tax Introduction Database (TID) (Seelkopf et al., 2019). In most of these countries, the late established PIT was introduced as a fully individualized system. Therefore, they are coded as missing despite having "introduced" individual taxation with the establishment of their PIT. However, there are several exemptions. Czech Republic is coded as 0 again in 2005, as it switched back to joint taxation, thereby becoming at risk again for tax individualization. Similarly, Estonia introduced its PIT as a partial system. It is therefore coded as 0 until full individualization (except in the variable "partind").

2.1. Full Individualization [fullind]

This variable captures full individualization reforms only. An introduction is coded as 1 only if individual taxation was implemented fully, thereby completely replacing the pre-existing system of joint or partial individualization, and hence, made compulsory for married couples. Introductions of partial individualization reforms are not captured and are coded 0 as they remain at risk. Once a country has undergone a full reform, it is not at risk anymore and is coded as missing.

2.2. Partial Individualization [partind]

This variable captures partial individualization reforms only. Countries take on the value 1 in a given year if individual taxation was introduced as an option next to joint taxation. Full individualization is not captured. Once a country has undergone a partial reform it drops out of my risk set.

2.3. Both Partial and Full Individualization [bothind]

Finally, in this column, countries take on the value 1 in a given year if individual taxation was introduced either as an option next to joint taxation or if individual taxation was implemented fully, with joint taxation no longer possible to be chosen. Countries therefore only drop out of

the risk set once they have undergone a full reform. If only a partial reform was implemented, it remains at risk for full individualization.

3. Tax Reform Data and Sources

Data on the introduction years of tax individualization was collected for each country individually and is based on own research using the following sources:

- Primary & secondary government documents: legislative acts introducing or reforming taxes; official government documents;
- IGO/Consultancy reports: reports on tax legislation and policy produced by international organizations, such as the IMF or the OECD, or by private consultancies, such as PwC or Deloitte (see references);
- Academic sources: scholarly works that mention tax individualization (see references).

As a rule, this research attempted to primarily rely on official government documents. For documents in foreign languages, I relied on Google Translator. To begin research, I started my online search by finding any news articles in which a tax reform concerning the tax treatment of married couples was announced. Further research using Google and Google Scholar was conducted to find primary and secondary government documents. If none could be found, I turned to consultancy reports. For some countries, I had to solely rely on either news articles or academic sources which might not be completely accurate. All sources can be found in the References page.

Table B1. *Year of Partial/Full Tax Individualization.*

Country	Tax unit	Full	Partial	Comment
Austria	Individual	1972		Introduction of individual tax treatment.
Belgium	Individual	1988		Introduction of individual tax treatment.
Bulgaria	Individual	-	-	-
Croatia	Individual	(1993)		Introduction of individual tax treatment with establishment of PIT.
Cyprus	Individual			-

Czech Republic	Individual	(1992), 2007		Introduction of individual tax treatment with establishment of PIT. Switch to joint taxation in 2005 and abolished again in 2007.
Denmark	Individual	1970		Introduction of individual tax treatment.
Estonia	Individual	2016	(1993)	Introduction of optional individual tax treatment with establishment of PIT. Switch to mandatory individual tax treatment in 2016.
Finland	Individual	1975		Introduction of individual tax treatment.
France	Joint	-		-
Germany	Optional	1957		Introduction of optional individual tax treatment.
Greece	Optional	2018		Introduction of optional individual tax treatment.
Hungary	Individual	(1987)		Introduction of individual tax treatment with establishment of PIT.
Iceland	Individual	1978		Introduction of individual tax treatment.
Ireland	Optional		1993	Introduction of optional individual tax treatment.
Italy	Individual	1976		Introduction of individual tax treatment.
Latvia	Individual	(1993)		Introduction of individual tax treatment with establishment of PIT.
Liechtenstein	Joint	-	-	-
Lithuania	Individual	(1991)		Introduction of individual tax treatment with establishment of PIT.
Luxembourg	Optional		2017	Introduction of optional individual tax treatment.
Malta	Optional		2019	Introduction of optional individual tax treatment.
Netherlands	Individual	1973		Introduction of individual tax treatment.
Norway	Individual	2017	1959	Introduction of optional individual tax treatment. Switch to mandatory individual tax treatment in 2017.
Poland	Optional		1991	Introduction of optional individual tax treatment.
Portugal	Optional		2014	Introduction of optional individual tax treatment.
Romania	Individual	-	-	-
Slovakia	Individual	(1992)		Introduction of individual tax treatment with establishment of PIT.

Slovenia	Individual	(1990)		Introduction of individual tax treatment with establishment of PIT.
Spain	Optional		1988*	Introduction of optional individual tax treatment.
Sweden	Individual	1970	1964	Introduction of optional individual tax treatment. Switch to mandatory individual tax treatment in 1970.
Switzerland	Joint	-	-	-
United Kingdom	Individual	1989		Introduction of individual tax treatment.

*Year of legislation was officially in 1989 due to a delay in legislation. However, it was already decided and applied on taxable income in 1988. Therefore, I chose 1988 as the decision year.

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