Preparing for the Worst: Post-Divorce Instability Risk and Economic behaviour of Households

Abstract

How do households adapt their economic behaviour in response to the financial instability they anticipate after a divorce? This paper examines how married couples respond to the anticipated post-divorce consequences by altering their labour supply and saving decisions. Given that financial instability can be endogenous, I use alimony reform as an exogenous shock to investigate how changes in future spousal maintenance claims — metaphorically referred to as "marriage insurance" — can impact family decisions by altering bargaining positions of partners and increasing the need to self-insure. Using a difference-in-difference approach with individual and household-level longitudinal and retrospective data, I find that policy changes in Germany led to a notable increase in labour force participation among married women, who are primarily eligible for alimony claims. This anticipatory behaviour suggests that women adjust their labour supply in expectation of possible financial instability after divorce. However, despite increased labour participation, these women do not proportionally reduce household chores, potentially exacerbating existing gender asymmetries in household time allocation. The extent of these responses varies significantly between different age groups, family structures, duration of relationships, and income levels. These findings underscore the importance of understanding intra-household economic decisions and suggest that legal frameworks, such as alimony policies, play a significant role in shaping household dynamics and influencing broader trends in women's labour force participation.

JEL classifications: D14, D15, J12, J16, J22, K36.

Keywords: Household Economics, Spousal bargaining, Intra-family Decisions, Saving, labour Supply, Policy Reform.

1 Introduction

The economic decision-making behaviour of households is intricately linked to their beliefs and expectations regarding future financial and economic stability. The perceived consequences associated with a potential marriage dissolution may influence how spouses make decisions within the household, potentially altering their behaviour. This paper explores how changes in spousal maintenance claims - legal protection for income-sharing in case of divorce - influence the economic behaviour of married households. Marriage is a legal union of two partners that benefit from economies of scale, within-family insurance mechanisms (e.g. against income and health shocks), family-friendly policies (e.g. marital splitting tax) and legal protection of each partner's rights. Family decisions of these wedlock partners with distinct preferences, like division of labour, saving and investment decisions, etc., are the outcome of the intra-household joint decision-making process.[1] Literature shows that reforms in legal maintenance claims or alimony payments like other divorce legislations,[2] can significantly influence within-family decisions specifically women labour supply, which otherwise look less obvious.[3] Therefore, policymakers and legislators are interested in exploring the responses of private households to such reforms as they can have significant policy implications (such as the well-being of children, single-parent poverty/pension poverty, social welfare costs, inequality, etc.). Although the literature on the impact of these reforms on household economic decisions is expanding, empirical evidence on restricted alimony regimes remains insufficient and inconclusive.

To study this relationship, I explore the impact of a maintenance obligations reform in Germany, known as the alimony reform, enacted in January 2008. The reform, a significant intervention in the realm of family maintenance law, restricted the entitlements for the post-divorce alimony settlements (spousal support), claiming to reduce the unfair financial dependency between ex-partners and encourage the self-sufficiency of each spouse (within/outside marriage). It directly affected the couples divorcing in the new regime and indirectly affected the intact married couples and even potential couples in the marriage market. This paper analyses the behaviour of intact married couples who are not getting divorced but anticipate the consequences of the new regime and adapt their behaviour, specifically labour supply and saving behaviour. The main contribution of this paper is that it identifies changes in the perceived risk of divorce as an additional channel that may drive the responses of households. This is also the first paper to study the saving behaviour of couples in response to the changes in the German alimony reform. Moreover, I contribute by understanding the labour market dynamics of couples in long-term relationships, extending the previous work by (Bredtmann & Vonnahme, 2019) who

[1] There is a vast literature on household consumption, saving and investment decisions. These households optimise their decisions conditional on future expectations and under various sources of risks — labour income, capital market, (Cocco et al., 2005); mortality, marital uncertainty such as spouse death, divorce (Hubener et al., 2016). In unitary models, the head of the household represents the preferences of all household members, whereas recent developments in household economics consider heterogeneous preferences; for instance, see (Chiappori et al., 2002).

[2] for example, fault versus no-fault divorce regimes, property division regimes and child custody arrangements

[3] Nevertheless, these decisions dramatically depends on mutual trust, relationship expectations, shared family goals, and commitments of couples

investigated the impact on couples who got married right before the reform, and (Schaubert, 2023) who explored time spending behaviour of couples.

This paper is designed to examine the subsequent research questions. First, how do existing married couples within stable relationships respond when they are surprised by changes in the entitlements of spousal maintenance rights? What is the potential mechanism that derives this behaviour? How does the response vary depending on age cohorts, duration of relationships, household composition and income distribution? Second, to understand if the adaptations in behaviour are persistent or just a temporary response. The analysis spans different categories of married households and helps to understand whether legislative interventions provide an essential channel to affect household behaviour.[4]

Spousal alimony payments function as marriage insurance between partners (Fahn et al., 2016), fostering mutual trust and allowing for cooperation in distributing domestic and work responsibilities. There are three main channels through which changes in these entitlements may affect the economic behaviour of households. Firstly, limiting spousal support may impact the intra-household bargaining positions of married couples and can directly influence their decisions. Secondly, such changes can also affect intact couples' divorce probability by affecting their value of divorce versus the value of marriage (Chiappori & Mazzocco, 2017). Thirdly, limiting alimony claims is equivalent to an unexpected idiosyncratic income shock, raising concern about post-divorce instability risk resulting from declining living standards (see (Burkhauser et al., 1991); (Bonnet et al., 2021)) due to permanent loss of expected income (future spousal claims). The changes in expectations can affect the partners' commitment towards unpaid care work and create an incentive to improve self-sufficiency by increasing labour supply and reducing leisure or home production (Becker et al., 1977). This is particularly true for women primarily involved in domestic tasks for a long duration and who compromise on a career. Couples renegotiate their decisions as preventive measures, manifesting in their economic behaviour.

A vast amount of literature finds that divorce law-regulated reforms such as grounds of divorce[5], property division rights[6], child custody rights, child support, and spousal maintenance greatly matter for social outcomes like labour market outcomes, financial investments, fertility decisions, and the decision to marry or dissolve a marriage. The changes in legal regimes affect the value of exiting a marriage and thus potentially alter the bargaining position of partners during their marriage (Stevenson, 2008), (Voena, 2015). These reforms also increase the actual and perceived risk of marital instability within the family (González & Özcan, 2013). Generous alimony regime reduced women's labour supply in Brazil (Rangel, 2006) and Canada (Chiappori et al., 2017).

[4] Any reform in divorce law that changes the economic well-being of divorcing families can also affect the welfare of individuals in families that are in stable marriages and not getting divorced. Therefore, policymakers and researchers should carefully examine these indirect effects as they have potential long-term social and economic consequences.

[5] Legal regimes define the conditions to exit marriage. In fault-based regimes, the mutual consent of partners is necessary to dissolve a marriage, and if both parties do not agree, they need to fight in court and get a contested divorce. Under a no-fault regime, divorce can be reached even if one of the partners agrees, e.g. Unilateral divorce

[6] Matrimonial property regimes include community-based regime (equal division of marital assets and debts incurred during the marriage, title-based regime (based on ownership rights), and equitable distribution regimes (at the discretion of the court and protects the vulnerable))

The restricted alimony regime in Germany had no impact on the labour supply of women in short-duration marriages (Bredtmann & Vonnahme, 2019) but affected the daily time allocation to paid work for women in long-duration marriages (Schaubert, 2023). For the latter study, the impact is only significant for women less dependent on these payments, which is quite counterintuitive.

To uncover the adaptations in economic behaviour, I examine changes in the employment status of married men and women, annual hours worked, and monthly household saving rate, using longitudinal and retrospective datasets (cohabitation, marriage, and fertility histories) from the German Socioeconomic Panel (GSOEP) during 2003-2013. Annual hours provide a long-term and holistic perspective on labour supply, capturing how households adjust their total supply over a year. Policy changes may not result in immediate adjustments in daily work schedules, but can lead to gradual changes over months. To rule out the composition effect, I restrict the sample to include existing married couples who remained married after the reform.[7] I first estimate the average impact of the reform by comparing the behaviour of intact married couples to that of cohabiting couples, using the difference-in-difference framework.[8] These two groups generally differ in their commitment to relationships and legal regulations; however, I narrowed the commitment gap by selecting cohabiting partners who are in long-term relationships and have similar family structures, but do not have any divorce risk from alimony changes. Secondly, the longitudinal dataset allows me to control for unobserved heterogeneity across the two groups. This ensures the validity of the identification assumption that in the absence of reform, both groups have the same trends in the outcome variables.

Interestingly, what the average impact missed is the distributional impact of the reform because the mean effect across the entire married population would also include the individuals who were never eligible for the treatment. The expected outcomes may vary depending upon the potential beneficiary and dependency on alimony payments (Bredtmann & Vonnahme, 2019). Therefore, to understand the differential responses and to potentially explore the mechanism, I further compare the behaviour of affected married couples to those who remained unaffected or less affected. Specifically, I exploit the variations in treatment caused by disproportionate legal impacts to define the treatment and control group. Following (Schaubert, 2023) methodology, I estimate the expected spousal maintenance for each household using the income difference method (or 3/7 rule) commonly used by courts. These are the payments a partner is legally eligible for in divorce. Based on this proxy, I can identify the potential beneficiary of these payments and quantify the instability risk for each married couple. I assume that restricted access to spousal claims can affect post-marital living standards ((Bonnet et al., 2021); (Burkhauser et al., 1991)). Based on the distribution of estimated proxy, I define four main risk groups of

[7] Theory shows that the impact of policy on outcomes is conditional on the formation of partnerships relative to the changes in policy. Reforms can affect existing couples by affecting relative bargaining power and divorce probabilities. In the case of forward-looking potential couples, reforms can affect their initial matching phase, such as the initial allocation of resources before the legal partnership, matching market, etc.

[8] I have carried out this exercise as a replication of previous work by (Bredtmann & Vonnahme, 2019) with an extended sample (including couples with long duration). However, this exercise is different from (Schaubert, 2023) as my outcomes variables are different

households: high risk, medium risk, low risk (treated groups) and no risk group (control group). The intuition is straightforward: the higher the dependency on spousal maintenance, the higher the risk. Imagine driving a car with full insurance versus no insurance—you would be much more cautious when the potential loss is high. For analysis, I use the fixed effects difference-in-difference empirical framework and estimate the average treatment effects of vulnerable groups compared to the no-risk group. My identification assumption is that in the absence of this reform, married couples in all treatment groups have parallel trends compared to the no-risk group. As a robustness check, I perform the analysis using cohabiting couples as a control.

The average treatment effect for all existing married couples shows a significant increase in overall female labour force participation by 4.7 percentage points (Table 4.1). To analyse if the exogenous shock to bargaining positions (via changes in perceived marital instability risk) contributes to changes in household behaviour - I estimate if the probability of divorce has increased after the reform using GSOEP spell data on the history of marriage and divorce and employ event history discrete time analysis (Blossfeld, 2007). Literature (see (González & Özcan, 2013; Voena, 2015)) shows that divorce-regulated reforms can significantly increase the perceived risks of marital dissolution by affecting the bargaining positions of couples within stable marriage and their economic decisions. Uncertainty around spousal maintenance claims might have discouraged divorce among weak partners who fear financial insecurity and encouraged strong partners to leave an unsatisfactory marriage, knowing they do not have to fulfill their post-divorce legal settlements. The analysis of the hazard of divorce using discrete-time event history analysis shows that marital instability increased after the reform (see Table B3).

In analysing heterogeneous treatment effects, I find that married couples' responses vary depending on the expected financial consequences. Across the three defined vulnerable groups, including high risk, medium risk and low risk, I observe a significant impact on women's labour supply outcomes for high and medium risk groups. Female spouses significantly increase labour market participation both at extensive and intensive margins. Post-reform, there is a 5.4 percentage point increase in labour market participation of married women from the high-risk group, 4.5 percentage points in women from the medium-risk group, and there is no significant impact on the low-risk group relative to the no-risk group (Table 4.2). The previously employed women have increased their hours worked by 9.0 percentage points. These results remain robust when I choose cohabiting couples as a control group. These results are consistent with existing findings by (Bargain et al., 2012), (Stevenson, 2008) but opposite to (Schaubert, 2023) who has found that alimony reform 2008 significantly affected the women in West Germany who were in the defined low-intensity group. Furthermore, I do not observe the statistically significant impact on husbands' labour market participation.

The results are consistent with the plausible assumption that expected responses depend on the potential beneficiary and level of spousal claim. The mechanism is the following: changes in spouse maintenance alimony affect couples' expectations and increase economic stability concerns. To ensure their future economic and financial stability, couples rebalance their roles within the household. In the unilateral divorce law regime, the partner more involved in child-

rearing and domestic responsibilities may feel threatened by future financial consequences in case of potential divorce. Therefore, these households are more likely to respond strongly to such reforms, which means how strongly they react depends on their intra-household bargaining position and risk vulnerability. This channel typically does not work when both partners' positions are equally balanced, like in a household where both partners are distributing time between leisure, domestic tasks and career and have a very close wage gap.

The increased expected financial instability risk can also affect the saving decisions of married couples, even if they are not facing any risk of marital breakup (González & Özcan, 2013). Under both homogeneous and heterogeneous treatment assumptions, I do not observe any significant changes in the saving rate of married couples, which is defined as the net monthly household saving to the net monthly total household income. However, I observe an increase in the absolute level of net monthly saving, which may be due to the rise in total household income. The overall insignificant impact on the saving rate of married households is consistent with findings from theoretical models (Voena, 2015). Under unilateral divorce law and with equitable distribution of property regime, married couples have less incentive to increase their saving. I cannot rule out the possibility of reallocating financial assets after the reform. However, I do not have enough wealth data during the respective period to explore this dimension; therefore, it does not fall under the scope of this paper. However, I have wealth information for the pre-treatment period 2007, which allows me to analyse if married households with sufficient wealth respond to the reform. Even after controlling for shared wealth and assets, my findings remain consistent with the previous results.

The behavioural responses of couples may also vary depending on age cohorts, duration of relationship, family composition, income distribution, and potential beneficiary of alimony. The subgroup analysis shows that middle-income married women from both high and medium-risk groups significantly increase their labour market participation. In contrast, the response of low and high-income groups is positive but not statistically significant. Women who are already in the labour market but belong to high-risk groups because their level of participation is very low also significantly increase their level of involvement by increasing the number of hours worked. I also observe that women raising children and taking career breaks significantly increase their labour market participation and hours worked. Looking at the impact across age cohorts, more young and middle-aged women have entered the labour market, and higher-aged women do not show a significant effect. However, women of higher ages who are already in the labour market significantly increase their working hours.

This paper contributes to the existing literature by analysing the behavioural responses of married households to restricted spousal support, explicitly accounting for differences in household-specific characteristics and heterogeneity. I further investigated the impact of this reform on the saving behaviour of married couples. To my knowledge, no existing empirical evidence analyses couples' saving decisions directly affected by alimony reform or implicitly affected by changing income sources. Secondly, in my empirical methodology, I identify the impact on outcomes using different comparison groups, which supports the robustness of my key findings. Thirdly,

I contribute by expanding my sample and considering the effects on all married German households from East and West Germany. Finally, this paper also contributes to understanding the long-term consequences of the reform by analysing the dynamic impact of the reform. The paper shows that married women have persistently increased their labour market supply. The increase in labour market outcomes for these women increases total household income, provides future economic stability, increases self-sufficiency, and improves the family's overall well-being. From a policy implications perspective, although reform might have increased the financial vulnerability of women who might have divorced right after the reform, it incentivised self-sufficiency among those in stable marriages.[9] However, the minimal impact on low-income groups still raises concerns about the self-sufficiency of these households as in cases of union dissolution, they are the most vulnerable.

In the forthcoming sections, section 2 presents the theoretical framework, encompassing the related literature, conceptual framework, and reform background. Section 3 details the empirical methodology, including data, sample, key variables, and econometric specifications. Section 4 discusses the estimated results regarding households' behavioural responses. Section 5 explores the responses considering household-level heterogeneity and section 6 concludes with a summary of the findings.

2 Background

2.1 Related Literature

Abundant literature shows how legal changes affect households' well-being and economic behaviour. Most studies use legal reforms as quasi-natural experiments that create an exogenous variation in spousal bargaining positions or risk of divorce. The most common empirical methodology is exploiting the variations across states using divorce law reforms. There is evidence that marital instability and separation rates between couples are significantly affected by social, cultural, legal, religious and financial factors. Changes in divorce rates after a divorce reform, like unilateral legislation, are plausible in the literature. The liberalisation trends in divorce laws (no-fault/unilateral divorce laws) around the world spiked divorce rates ((Friedberg, 1998) and (Wolfers, 2006)). A panel of 18 European countries from 1950 to 2003 (González & Viitanen, 2009) investigated the extent to which the legal reforms have contributed to an increase in the divorce rates across Europe by making marital dissolution an "easier divorce". They found an average increase in divorce rates (0.3-0.4 annual divorces per 1000 people) in countries that allowed unilateral divorces. Because of the specificity of institutional setups, most existing research is country-specific.

The recent papers discuss the impact of reforms on various social and economic outcomes such

[9]The impact is opposite to the previous family-friendly tax policy, specifically, the generous tax benefits for married couples, "Marital splitting" ("Ehegattensplitting") which incentivises traditional heteronormative gender roles, and most women decide to stay at home.

as saving behaviour (González & Özcan, 2013), labour supply (Gray, 1998; Stevenson, 2008; Voena, 2015), marriage-specific investments and risk of marital dissolutions. Both empirical and theoretical literature suggest that household behaviour depends on the relative bargaining power of each spouse. The relative bargaining position of a partner may significantly rely on the income of the partner (Browning et al., 1994) and also affect their resource allocations (Thomas, 1990).[10] However, many other factors outside the household's environment may affect the intra-household decision process, such as the supply of men and women in the marriage market and legislation. Laws regulating alimony, right to marry, and marital property divisions may redistribute power within marriage and significantly affect behaviour (Chiappori et al., 2002). Using the theoretical model, (Chiappori et al., 2002) shows that whenever the distribution factors under consideration are favourable for one partner, their bargaining position within the household improves.

The findings on the impact of spousal maintenance reform on women's labour supply are inconclusive. A recent study by (Bredtmann & Vonnahme, 2019) investigated the effect of the 2008 alimony reform in Germany on first-time married couples and found that it did not significantly affect women's labour supply in their sample. Extending the literature, (Schaubert, 2023) found that reform has dramatically increased women's labour supply from West Germany and in longer marriages, including those with a history of remarriage.

Earlier literature suggests that legal reforms' impact on couples' behaviour largely depends on the laws governing property divisions (Gray, 1998). While exploring the impact of unilateral divorce reform in the 1970s in the United States on married and single women labour market participation, (Stevenson, 2008) finds a substantial increase in labour supply participation, regardless of property division. The paper highlights that such changes in law change the returns to specialization in household production by reducing the time women expect to spend in marriage and increasing the returns to invest time in outside options. Using a dynamic model, (Voena, 2015) shows how unilateral divorce law in the United States affected the couples' intertemporal behaviour during marriage. The paper showed that when counties that follow equitable property division law impose unilateral divorce law, women's labour force participation decreases by five percentage points, and asset accumulation increases. She argues that unilateral divorce reforms result in a lack of commitment, and when property is meant to be equally divided after divorce, it also distorts asset accumulation.

The vast literature on consumption, saving and labour supply shows that households make optimal decisions conditional on future expectations. Based on rational expectations, these models consider uncertainty regarding economic stability, which is generally defined in the context of labour income or capital income uncertainty. (Krueger et al., 2023) empirically show the impact of income shocks on the financial behaviour of the households in the short and medium term. Using panel data from the Italian survey of household income and wealth from 1991 to 2016, they found that shocks to household labour income led to changes in consumption behaviour

[10] This study shows that resources in the hands of mothers appear to have a more significant effect on households and health of children than resources controlled by fathers.

and household wealth. The risk of future financial stability arising from marital breakups is vastly ignored in the literature. There are different channels through which changes in alimony - marriage insurance - may result in household economic decisions regarding saving, investment preferences and labour supply. From the perspective of theoretical literature, consumption, saving, and portfolio choice models do not account explicitly for life-changing events or family transitions because of the increasing numerical complexity of such models. However, the recent studies by (Love, 2010) and (Hubener et al., 2016) (2016) have modelled family life events and predicted the behaviour of households over the life cycle. The key findings suggest that events like marriage, divorce, widowhood, etc., can have long-lasting implications for the economic decisions of households, such as consumption, labour supply and investment decisions.

2.2 Conceptual Framework

Intra-household bargaining positions of the married partners are the result of endogenous decisions. Since there is no empirical counterpart of bargaining positions (Rangel, 2006), existing literature uses divorce regulated reforms as a quasi-natural experiment. There is empirical and theoretical evidence that changes in the institutional environment proxy an exogenous distribution of bargaining power within a family that favours one partner (see Rangel, 2006; Chiappori et al., 2017). In theoretical literature, collective household models emphasize the heterogeneity of preferences and intrahousehold bargaining process among different household members to understand the household decision-making process (Van Klaveren et al., 2011). To explain the conceptual framework, I describe the general characterisation presented by (Rangel, 2006). The general welfare function of a married household can be represented as follows:

$$\mathbf{W} = \mathbf{W}\big[U^h(\mathbf{X};\mathbf{k},\boldsymbol{\epsilon}), U^w(\mathbf{X};\mathbf{k},\boldsymbol{\epsilon});\boldsymbol{\Lambda},\mathbf{k},\boldsymbol{\epsilon}\big] \tag{1}$$

This welfare function represents the specific weighted aggregation over felicity functions of husband (h) and wife (w). $\mathbf{X}$ is the consumption vector that includes leisure, $\mathbf{k}$ represents vectors of observed characteristics, and $\boldsymbol{\epsilon}$ is the vector of unobserved characteristics. The parameter $\boldsymbol{\Lambda}$ is the vector of bargaining weights for husband (λ^h) and wife (λ^w). The households are constrained by time endowment L and their budget, and the income budget constraint is as follows:

$$\mathbf{PX} = (w^h + w^w)L + Y \tag{2}$$

$\mathbf{P}$ is the price vector and assumes all prices are given as $(p; w^h; w^w)$ where, w^h and w^w are the wages of husband and wife. Y is the non-labour income.

The reduced form of this general framework can be represented as follows:

$$\mathbf{X} = X(\boldsymbol{\Lambda};\mathbf{Z};\boldsymbol{\epsilon}) \tag{3}$$

The observed characteristics at the household and individual levels are captured by the vector **Z**. In the simplified framework described above, any changes to the family law that affect the individual's economic status in case of a marital breakup should affect the allocation of resources of existing married couples via affecting their bargaining power within the household. Therefore, the expected change in outcomes can be captured by $\partial X/\partial \lambda$. This derivative captures how changes in bargaining weights lead to changes in resource allocation within the household, like leisure, labour, etc., since the distribution of decision-making power plays a crucial role in reshaping the decisions of households.

Divorce law-regulated reforms such as grounds of divorce, property division rights, child custody rights, child support, and spousal maintenance can influence economic behaviour through affecting the value of marriage versus divorce. The restrictions in alimony claims can also affect the decisions of households, especially for those with a higher probability of divorce. The increased probability of divorce (or marital instability) incentivises the partners to renegotiate. For example, the unilateral divorce law is generally associated with higher divorce rates because it makes the divorce more accessible for the partner who wants to exit the relationship and improve his position within the household.[11] Literature shows that most marriages that end up with divorces after changes in divorce regulations find higher value outside marriage than within marriage. Second, these reforms may affect the allocation of resources and assets within and outside marriage, thereby affecting the negotiation dynamics of the households, without affecting their risk of divorce. However, the underlying mechanism linking legal reform and household economic behaviour depends on the specifics of the law. It is important to note that households do not immediately respond to such policies; instead, these reforms lead to long-term behavioural adjustments that often become evident later and may result in new economic outcomes.

To explain this, I use the limited commitment model by (Chiappori & Mazzocco, 2017) and illustrate using the Figure 1 provided in their paper. In this model, the households choose a contingent plan at the time of union formation. These households come across different events, a) those after which spouses, at their current Pareto weights, are both better off staying together relative to taking their best outside option (divorce). This implies that households will stick to their contingent plans (see Figure 1 (panel a). Events like wage or income increases shifts the Pareto frontier outwards. b) second types of events are those that will be more favourable for one spouse relative to the other for example, promotion of one or inheritance of property by one partner. In this case, households may remain married but with a new contingent plan as a result of a change in intra-household bargaining decision power (see Figure 1 (panel b). Finally, following shock, if no point on the Pareto frontier provides each partner with utility at least equivalent to their outside option. The households may choose their best available outside option (see Figure 1 (panel c). The authors mention that an event should be significant enough to substantially increase the outside option and increase the probability of divorce. In the real world, events like changes in earnings, fertility, welfare subsidies, cash transfers and alimony

[11] "A husband and wife would both consent to a divorce if, and only if, they both expected to be better off divorced." (Becker, 1993).

payments are the substantial events (Chiappori & Mazzocco, 2017).

a) Marriage (no change) **b) Marriage (with renegotiation)** **c) Divorce**

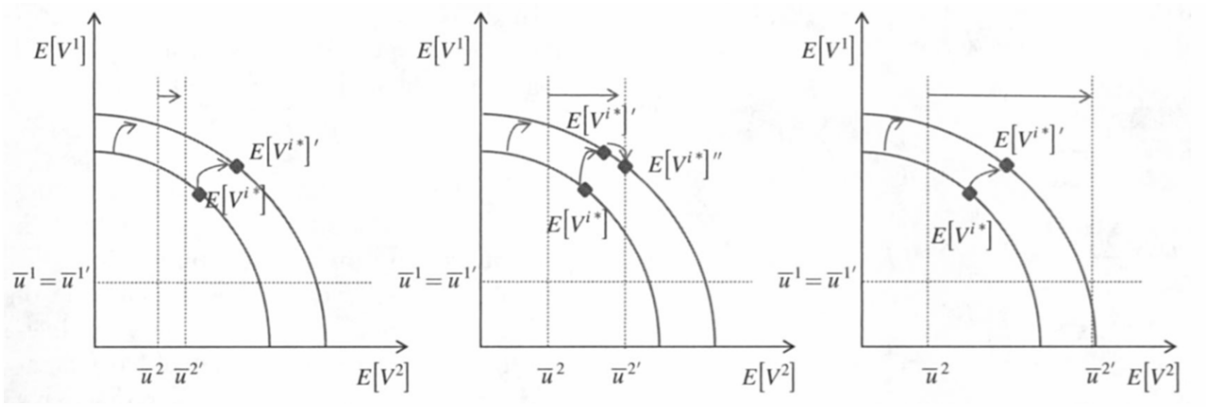


Figure (1) Shocks and Household Potential Responses

The reform in question, which changed the criteria for spousal maintenance, potentially affects partners' intra-household bargaining position. Partners who are more involved in child-rearing and put aside their careers, hoping to gain maintenance in the event of divorce, are particularly vulnerable groups. There are two primary ways spousal maintenance reform may affect the economic behaviour of married households in intact marriages. First, changing grounds of maintenance claims might have affected the perceived risk of divorce by making a potential divorce cheaper for one partner and expensive for the other, thereby affecting marital instability and economic decisions within the household. For example, in a household with a male breadwinner system, the husband may become less concerned about the financial repercussions of maintenance payments after a divorce. The perceived risk of divorce is the individuals' subjective expectations regarding their likelihood of ending a legal relationship. These perceptions are different from the actual risk of divorce. They can result from many factors, such as the quality of the relationship, personal characteristics, experiences, social norms and culture, and external factors (like legal reforms). When a couple's perceived risk of divorce changes, it may affect their expectations and behaviours. For example, a high perceived risk of divorce for a housewife can influence her to start work to financially protect herself in case of an event of divorce and reduce her commitment to household tasks. Regardless of the event's occurrence, the individuals may modify their behaviour. Most of the existing research has focused on the consequences of divorce and its implications at individual, household and aggregate levels. There is very little work that focuses on the pre-event part, and that, too, has inconclusive findings. (González & Özcan, 2013) studied the causal impact of increased risk of marital dissolution on the saving behaviour of married individuals using the legalization of divorce in Ireland in 1996 as an exogenous shock. The paper finds an increase in the propensity to save among married individuals due to the rise in the risk of divorce.

Second, the reduction and limitation of post-divorce spousal maintenance payment might have affected the concerns of financial troubles for the weaker partners, thereby affecting their behaviour. Alimony payments function as marital insurance between partners, fostering mutual

trust and allowing for the distribution of responsibilities. In a typical male breadwinner society, such as in Germany, women often take on household responsibilities while men are the primary earners. In the event of a divorce, women are not left disadvantaged as they can claim alimony, thereby ensuring financial support. However, reductions in alimony payments or the imposition of stricter conditions for obtaining alimony can significantly impact the partners' bargaining power. These changes may alter the traditional distribution of tasks within the marriage, potentially leading to shifts away from the conventional male breadwinner model. Figure A1 shows that alimony reform affects married couples' subjective expectations and beliefs in stable marriages. These expectations may include the marital dissolution risk or post-divorce financial instability risk. The households are expected to adjust their behaviour even if the event of divorce does not occur.

Regardless of the channel, the reform may change marital dynamics and household decisions. Therefore, examining the dynamics of economic variables in households after such policy interventions can help to understand their impact and behavioural adjustments. Women, in general, are the primary alimony receivers and dependent on ex-husbands after divorce through marital alimony and childcare alimony. The nature of the reform has increased(decreased) the expected financial burden for women(men) and, therefore, increased(decreased) the risk of divorce for women(men). The change in this bargaining position of men versus women can affect various choices of couples. These choices may include consumption patterns, investment decisions, participation in the labour force, health and well-being, social interactions, housing choices, division of household chores and family planning. Several studies show that changes in divorce-regulated reforms positively affect women's labour supply. The alimony reform may also result in a shift of bargaining power within the household and may affect the choice of household labour. For example, suppose a household is run on a male breadwinner concept. In that case, the risk of having no marital alimony may encourage the woman to pursue her career to avoid any future financial risk. Second, alimony reform may also affect the investment decisions of the couples if the expected income stream changes after the marriage dissolution. It may affect the risk preferences of both spouses, thereby affecting the investment choices of the households. For example, increased divorce risk may incentivise married households to shift their saving from illiquid to liquid assets.

The literature on saving decisions is generally inconclusive; however, intuitively, the reduction in marital alimony is a future negative income shock for potential alimony receivers; therefore, a negative shock should translate into an increase in precautionary saving. Furthermore, the legal divorce process involves a significant amount of time and money for an average household. Therefore, individuals may increase their precautionary saving to compensate for the legal costs of divorces, if any. Thirdly, the expected distribution of assets after the dissolution of marriage can make the saving risky, therefore, couples should increase their consumption by reducing their saving. Hence, the effect of alimony reform on saving decisions is ambiguous.

2.3 About Divorce Reform 2008

Before delving into specifics of reform, it is essential to understand alimony payments' criteria and allocation. Alimony is the maintenance obligation recognised in German maintenance law and realised after the dissolution of marriage. There are different types of alimony obligations in a marital relationship, including spousal support during marriage (Familienunterhalt), Child support ("Kindesunterhalt"), separation support ("Trennungsunterhalt") and post-marital support("Nachehelicher Unterhalt"). The last three obligations are realised if the spouses decide to separate and eventually get divorced. It is possible that within a family unit, one spouse is the main earner and the other looks after domestic tasks. Therefore, after divorce, post-marital spousal maintenance ("Nachehelicher Unterhalt") can be claimed based on disadvantages due to marriage and the inability to make one's own living. The basic principle is that legal partners are economically interconnected during their relationship, and there should be a balance in their living standards if they decide to split. The partner who has incurred disadvantages during marriage, such as career breaks that may lead to unemployment later on in life, must be compensated for that. The amount and duration of payment for spousal alimony depend on individual cases; however, the expected payment primarily depends on the wage difference between the partners. According to the maintenance law, 3/7 part of this difference is the allowable income for a spousal maintenance claim.[12]. The duration of spousal maintenance is not fixed and can last for a certain period or a lifetime, but the court considers factors like the duration of marriage, age, and the health of partners.

German law on spousal maintenance was generous for the weaker partner until reform in 2008 was enacted. Before the reform, the ex-partner had an automatic claim on the other partner's income, conditional on his income level (capable of paying), duration of the relationship, etc. However, after the reform, this claim can only be made through the court if the ex-partner proves that he/she is eligible for spousal alimony from the ex-partner. The priority ranking of spousal maintenance was also put at the end, previously equally ranked with childcare maintenance. It implies that spousal maintenance claims can only be fulfilled after the children's maintenance claims are met. [13] For example, if a couple gets divorced where the husband is the solo earner and the wife was taking care of two children. Suppose the total alimony requirements are €300 for the first child, €200 for a second child, and €250 for the ex-wife. The total due alimony payment is €750. However, after the adjusted income, the remaining income of the ex-husband is only €500. According to the pre-reform period, the adjusted amount for the first child is €200, the second child €133.33 and the ex-wife €166.66. Under the new regulation (post-reform), children's claims are fulfilled first (together €500), and the ex-wife, in this case, goes empty-handed.[14]

[12]Many reasons can contribute to the wage differences between couples like child care, elderly parents care, preferences for role specialization within the household, less number of hours worked, preferences for non-greedy jobs for flexibility, not able to find a good job because of education and experience or preference for leisure over work etc.

[13]The children's maintenance claims are pretty standard and depend on the parent's income and ages of children as shown in Düsseldorfer Table B2

[14]I have given this example from this website (Dittmann & Hartmann, n.d.) but there are many online alimony

Specifically, before 2008, the primary determinants of the spousal maintenance claim were the eligibility and capability of the liable spouse. After 2008, it depends on eligibility, the capacity of liability and demand survey participants, like proving that she/he cannot reasonably be expected to earn their own living because of disadvantages during the marriage (see for legal clauses and media attention (Schaubert, 2023) for further details. Since the great social media coverage significantly increased public attention and awareness about the key aspects.[15]

3 Empirical Methodology

3.1 Data and Variables

The paper uses the German Socio-Economic Panel (GSOEP) by the German Institute for Economic Research (DIW), one of the largest and longest-running multidisciplinary household surveys since 1984. I have combined different datasets of GSOEP to run the analysis, including individual retrospective datasets on marital and cohabitation histories, personal and households panel datasets for income and labour market variables, and individual and households-level wealth datasets. The crucial feature of this dataset is that it provides detailed information about the cohabitation and marital histories of individuals since birth. Moreover, the longitudinal nature of the dataset allows to control for unobserved heterogeneity that may significantly affect the selection into marriage. All participants of the survey provide information about their cohabitation, marital and fertility history. Using this data, I can track the duration of each married couple's marital relationship.[16]

The dependent variable for understanding the saving behaviour is the saving rate. Saving rate has been estimated as a ratio between the monthly reported saving of the households to the total monthly net household income, following previous literature (Fuchs-Schündeln et al., 2020). This variable shows the proportion of saving that households left aside each month. For monthly

calculators that can be used to get a rough idea about alimony payments. Again, this is an extreme example, and these payments depend on the decisions of the court; they rely on specific conditions, evidence and claims. Still, the idea is that there is an increased uncertainty in getting future spousal support claims.

[15] As reported by (Bredtmann & Vonnahme, 2019) in March 2009, a survey (BertelsmannStiftung, 2009) of 1,560 randomly selected households was conducted to explore if the public is aware of the new divorce law. A total of 792 individuals were divorced or separated with children below age 25 and were categorised as potentially affected households, whereas 768 people were married or unmarried couples with children below the age of 25, who constitute a potentially affected group. The survey results show that 79 percent of households have heard about the law, 16 percent were unaware of the reform, and 5 percent did not specify. A total of 17 percent of households know all the details of the law, and 22 percent were affected by the law either as a maintenance payer or a recipient of alimony. One out of three people from those directly affected by the law knew all the details of the law.

[16] The data is in spell form and provides one observation for each spell and duration of that spell. I have converted the data from spell to panel structure and merged it with the panel dataset. Spell dataset does not provide explicit information on cases of remarriages, therefore, I assume that the transition from single to married is the instance of first marriages. The cases when the partner number is changed or the spell number is changed signal the spells of remarriage. In the case of multiple events in a year, I assume there will be only one event. For a few households, I can track if the partner has changed or if they drop out of the panel for some time. Therefore, in case of a partner change for both legally married and cohabiting couples from 2007 to 2009, I dropped those households to control for the pretrends.

income, households are asked, "if you look at the total income of all household members, how much is the monthly household net income today (Euro per month)? Some households are employed but have not reported their monthly net household income. I have used monthly net labour income as a proxy for these households. All income and wealth-related variables have been adjusted to 2019 prices using the Consumer Price Index (CPI). This adjustment ensures that the figures are comparable over time by accounting for the effects of inflation. For monthly saving amount, the participants are asked about their monthly household level saving using the following question in the questionnaire. Do you usually have a certain amount left over each month that you can save or set aside, for example, for larger purchases, emergencies, or wealth formation? - [Yes], namely (euros per month). To understand the labour market behaviour of households at extensive and intensive margins, I use employment status of the spouses, which are separately reported and their number of annual hours worked.

Since the economic behaviour of the households is largely affected by the composition and characteristics of the household members, e.g. number and age of children, age difference between spouses, total household income and intra-household distribution of income (Freyland, 2004), therefore, I am also controlling for household composition and characteristics. For example, there is a sharing of resources within married households, and usually, the wife decides to look after the household tasks completely, while she equally utilises the household's resources. Therefore, if the resources are enough, her decision to participate in the labour market is directly affected. Thus, considering total net household income controls for resources available to both partners.

The variable education is categorised into three groups: less than high school, high school and more than high school. According to educational system in Germany as mentioned in the documentations available at SOEP Companion (2021), less than High School means intermediate or lower secondary school (Realschule and Hauptschule), High School means upper secondary school, certificate of aptitude for specialized short-course higher education, apprenticeship and specialized vocational school (Abitur, Fachhochschulreife, Lehre, Berufsfachschule) and more than High School covers school of health care, specialized college of higher education, post-secondary technical, college, technical university usually requiring practical training as part of the studies and civil service training.

3.2 Sample

I have applied several restrictions to finalize the sample of married and cohabiting couples. The married sample includes the couples who were married before the alimony reform took place. The cohabitation sample includes couples who were not legally married during the observed period, but were in a relationship before the alimony reform. The longitudinal nature of the data controls the pre-existing differences between the cohabiting and the married couples. Since cohabitation is usually of short duration and considered non-cooperative units (Moreau & Lahga, 2011), I select the cohabitation couples in long term relations but not legally married during

the observed period. A stable and clean control group is essential to fulfill the parallel trend assumptions and get unbiased average treatment effects. SOEP has been updating its sample occasionally by including refreshment samples for immigrants, refugees, and low-income and high-income groups. However, as the reform was implemented in January 2008, I only kept the sample that participated in the survey before 2007 to have enough information to control for the pre-trends before the reform. I also dropped the sample of married couples who are separated but not divorced yet. I have ensured that married and cohabiting couples do not change their partners during the investigated period.

Moreover, I have dropped the samples of immigrants as their marriages come under international marriage laws. Table 3.1 shows the descriptive statistics of the final sample of cohabiting and married couples considered for analysis. The final sample includes 1455 married couples and 575 cohabiting couples between age 25-55 years from 2003 to 2013 (for details of subsample distribution see Table B6). Table B1 shows the descriptive statistics of high, medium, and low-risk groups and non-eligible married couples. It is interesting to see that across all risk groups, the share of egalitarian couples is significantly higher, however, the observable wage gap is substantially higher for vulnerable groups.

3.3 Econometric Specification

To investigate the differential impact of the reform across different types of households, I use quasi or non-experimental difference in difference (DID) framework by (Wooldridge, 2021) for static analysis and (Callaway & Sant'Anna, 2021) for dynamic analysis assuming all the treatment timing is 2008, the year of reform. Under parallel trends assumption (Figures A3, A3) and no anticipation of the event, DiD approach compared the changes in the outcome of treated individuals with changes observed in control units and the observed differences after the treatment between the two groups reflect average treatment effects of the treated (ATET).

The static DID compares the aggregate changes in treated units' outcomes with changes observed among non-treated/control units. Under the Parallel Trends Assumption (PTA), differences in those changes (DiD) identify the average treatment effects of the treated units (ATET). The static regression model is as follows:

$$y_{it} = \beta_1 T_i + \beta_2 Post_t + \beta_3 T_i Post_t + X'_{it}\gamma + \lambda_t + \zeta_i + \epsilon_{it} \tag{4}$$

where, y_{ijt} is the dependent variable for household i and time t, and T_{ij} is the indicator for treatment status. The variable $Post_t$ is a dummy variable and equals 1 for years after reform. Interaction variable $T_i Post_t$ is the key variable of interest, and its coefficient captures the effect of reform on the treated group. Variables in X'_{it} include female/female partner characteristics (age, second-degree polynomial of age, and education); household level characteristics (number of kids, single or double-income earning households, net household income and its second-degree

Table (3.1) Descriptive Statistics: Cohabiting versus Married Couples

Treated	**Mean**	**SD**	**Min**	**Max**	**N**
Cohabiting couples					
Female age	41.2338	7.6166	25	55	1065
Male age	39.2254	8.0205	25	55	1065
Education: low(1), medium(2), high(3)					
Female education	2.2237	0.5629	1	3	1064
Male education	2.2237	0.4863	1	3	1055
Children (below 18 years)	0.8770	1.0004	0	4	1065
Region (*west=1*)	1.4854	0.5000	1	2	1065
Male net labour income (euro)	1634.668	1273.788	0	16942.33	1065
Female net labour income (euro)	1204.237	836.2548	0	5082.699	1065
Net monthly saving (euro)	306.4626	538.7444	0	7580.212	1035
Female hours worked (annual)	1701.982	883.2443	0	5414	1065
Male hours worked (annual)	1980.880	865.0868	0	4263	1065
Egalitarian share	0.8366	0.3699	0	1	1065
Male breadwinner share	0.0695	0.2544	0	1	1065
Female breadwinner share	0.0601	0.2378	0	1	1065
Married Couples					
Female age	45.1761	6.4249	25	55	14623
Male age	43.0743	6.5992	25	55	14623
Education: low(1), medium(2), high(3)					
Female education	2.1850	0.5270	1	3	14608
Male education	2.2364	0.5078	1	3	14617
Children (below 18 years)	1.4494	1.1422	0	12	14623
Region (*west=1*)	1.2766	0.4473	1	2	14623
Male net labour income (euro)	2419.112	1456.604	0	17773.97	14623
Female net labour income (euro)	861.9017	837.9616	0	16887.2	14623
Net monthly saving (euro)	336.6045	537.0224	0	11258.13	14046
Female hours worked (annual)	1158.706	869.3657	0	4994	14623
Male hours worked (annual)	2184.696	740.5079	0	7506	14623
Egalitarian share	0.7683	0.4219	0	1	14623
Male breadwinner share	0.1816	0.3856	0	1	14623
Female breadwinner share	0.0353	0.1845	0	1	14623

Note: Table 3.1 shows descriptive statistics of the whole sample, including mean, standard deviation, minimum, maximum and total number of observations. The key variables include age, education, number of children, monthly saving binary variable and amount, monthly household income, details about partners' employment status, annual hours worked and region. All variables are CPI adjusted

polynomial, and region, including east or west Germany). Moreover, variables λ_t and ζ_i control for time and household fixed effects.

I use the following econometric model to estimate the dynamic impact of the reform.

$$y_{it} = \sum_{t \leq 2006} \beta_t \, \text{Treat}_i \times \text{Pre}_t + \sum_{t \geq 2008} \beta_t \, \text{Treat}_i \times \text{Post}_t + X'_{it}\gamma + \lambda_t + \zeta_i + \epsilon_{it}, \tag{5}$$

where $2003 - 2006$ represents the pre-treatment periods (lags), while $2008 - 2013$ represents

the post-treatment periods (leads). The period 2007 is dropped as it is the base category. The parallel trend assumption is supported if β_t is statistically insignificant for the pre-treatment period. The treatment effect is supported if β_t is statistically significant for some $t > 2007$. The dynamic DID allows for a time-evolving treatment effect, as households take time to adjust their behaviour. The estimated β_t represents the difference between the treatment and control groups, relative to the period 2007, and can be formulated as follows:

$$\beta_t \approx \left(\overline{y}_{\text{treated, post}(t)} - \overline{y}_{\text{treated, 2007}}\right) - \left(\overline{y}_{\text{control, post}(t)} - \overline{y}_{\text{control, 2007}}\right) \tag{6}$$

My empirical specification ensures unbiased estimates, and eliminates potential sources of bias. First, to deal with potential selection into marriage effects, I am keeping the fixed sample of married people who got married before the reform and remained married after divorce. There is also potential of selection bias into marriage or living cohabitation - individuals that choose to marry may have a different mindset, financial preferences, risk tolerance or work attitude relative to those who do not marry. These groups may also differ because of their legal status, such as married couples get a tax benefit in Germany, which cohabiting couples do not get. Moreover, other than legal reasons, they may differ in terms of their socio-economic status and relationship stability, which may directly affect their economic behaviour. The unobserved heterogeneity between the two groups may raise endogeneity concerns. However, I reduce this risk by controlling for pre-trends between the two groups and ensuring parallel trends in the outcomes variables. Another source of endogeneity is the reverse causality, which may arise if the economic behaviour increases the family-friendly legal frameworks, e.g., an increase in egalitarian household structure leads to more friendly policies. However, as this law is entirely exogenous and unaffected by such gender norms, there is no concern for reverse causality and helps reduce the risk of endogeneity. The other two potential biases can be measurement/reporting bias and sample bias. Therefore, econometric methodology, DiD helps to control time invariant unobserved heterogeneity and the pre-period differences can be attributed to observed changes to the reform rather than other factors.

4 Behavioural Responses and Potential Mechanisms

4.1 Shift in Spousal Bargaining Power and Household Decisions

Existing literature shows that although bargaining positions within households are endogenous, however, changes in the institutional environment proxy an exogenous distribution of bargaining power within a family that favours one partner (see Rangel, 2006; Chiappori et al., 2017). Following this theory, I use alimony reform as a quasi-natural experiment that might have exogenously affected the spousal bargaining positions. This helps to identify the first channel - the reform affects the within-family decisions by shifting the bargaining positions. I implement this by estimating the average effect of the reform, focusing on all married couples. This

also implies that, at this point, I assume that post-divorce instability risk is identical for all married couples. I examine the impact on saving and labour market outcomes. In reality, married households affected by alimony reform are not uniform, and the effect varies depending upon various factors such as financial circumstances, especially the reliance on future spousal maintenance in case of marital breakup. Next, finding a control group that did not undergo the direct impact is essential. The cohabiting couples, who are living partners but not legally married, represent the ideal control group in this regard. Cohabitation is substituting marriage in Germany, and this form of living arrangement, especially among young people, is becoming very common. However, cohabitation might be a transitional phase, and many cohabitant couples eventually marry. It may also be true that the reform affects future marriage decisions of cohabiting couples. However, the law does not directly affect their permanent or expected future income, as they have no risk of divorce. A few concerns may be necessary when comparing married and cohabiting couples, especially the self-selection into marriage. Another challenge is to account for the unobserved heterogeneity, such as cultural effects or individual preferences and risk-taking characteristics for saving and consumption. The longitudinal dataset allows for control for unobserved heterogeneity between the treatment and control group, and exogenous variation allows for establishing a causal relationship. Therefore, I assume that in the absence of reform and after conditioning on covariates including age, education, duration of relationship and number of children, married and cohabiting couples meet the parallel trend assumption. I have also performed pre-trends analysis to ensure that confounding effects are avoided. [17]

Technically, I define the treatment dummy variable as "1" after the reform for the treated individuals (i.e., married couples) and "0" for the control group (i.e., cohabiting couples) before and after the reform. I estimate the average treatment effect using the difference-in-difference approach for panel data (Wooldridge, 2021) and controls for time and household-level fixed effects. Table 4.1 shows the estimates of the average treatment effect on married couples in intact marriages. The results show a significant positive impact on female labour participation (4.7 percentage points), and married men significantly decreased their labour market participation by 3.8 percentage points. The couples share the resources in a married household, including their total household income. The decision on who will participate in the labour market largely depends on the value of the increase in household income versus an increase in childcare expenses. If this difference is negative, one of the partners takes responsibility for taking the children. Therefore, after the reform, husbands and wives redistribute their roles. The impact on annual hours worked by men and women already participating in the labour market is not statistically significant. This may signal that these households do not feel the pressure of post-divorce instability risk and continue with their current roles.

Although these estimates are quite intuitive, as mentioned before, investigating the distributional impact of reform is necessary to identify the vulnerable groups. Moreover, further analysis can facilitate the identification of the other underlying mechanisms through which such legal

[17] This way of testing the mechanism was previously employed by (Bredtmann & Vonnahme, 2019); therefore, repeating this analysis helps to replicate the results of (Bredtmann & Vonnahme, 2019) but with an extended sample.

changes may affect family decisions.

Table (4.1) Difference-in-Difference Estimates at Aggregate Level

Dependent Variables	Savings Rate (1)	Female Participation (2)	Male Participation (3)	Female Hours Worked (4)	Male Hours Worked (5)
ATET	-0.005	0.047*	-0.038*	-0.0099	-0.0229
	(0.007)	(0.022)	(0.018)	(0.038)	(0.028)
Year FE	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y
Control Group	575	562	576	495	539
Treatment Group	1455	1445	1455	1351	1441
Observations	16,791	17,505	17,504	13,676	16,488

Note: Figure 4.1 shows the Average treatment Effect on Treated (ATET) when I assume that alimony reform has the same impact on all married couples - post-divorce instability risk is the same. Column 1 shows the impact of different economic variables. Column 1 captures the impact on saving rate, which is defined as the ratio of the total monthly saving of households to the total households ' net monthly income including labour and other income. Monthly saving amounts are the average monthly saving reported by the heads of households. Columns 2-3 show the labour market participation of wives and husbands, defined as a binary variable equal to 1 if the employment status is 1 and 0 otherwise. Columns 4-5 show the log of annual hours worked by wives and husbands, conditional on their participation in the labour market. Estimates are run using difference-in-difference by (Wooldridge, 2021) and controls for time and household-level fixed effects. The numbers enclosed in brackets show the robust standard errors. The last rows in the table show a number of married households in the control group (cohabitation couples) and the treatment group (married couples) and a total number of observations.

4.2 Expected Income Shock and Gender-Specific Behaviour

The second channel through which the reform can affect household decisions is based on individual labour supply models. This theory suggests that limiting alimony claims is equivalent to an unexpected idiosyncratic income shock, raising concern about post-divorce instability risk resulting from declining living standards (see (Burkhauser et al., 1991); (Bonnet et al., 2021)) due to permanent loss of expected income (future spousal claims). The changes in expectations can affect the partners' commitment towards unpaid care work and create an incentive to improve self-sufficiency by increasing labour supply and reducing leisure or home production (Becker et al., 1977). This is particularly true for women primarily involved in domestic tasks for a long duration and who compromise on a career. Couples renegotiate their decisions as preventive measures, manifesting in their economic behaviour.

Based on this theory, a plausible assumption is that the expected outcomes should vary depending on the type and size of the shock. The kind of shock is positive for the liable person and negative for the potential beneficiary of future claims. The individual-level information in the GSOEP dataset allows us to disentangle the partners' responses. In the section below, I show how the expected individual responses vary depending on the type and level of shock.

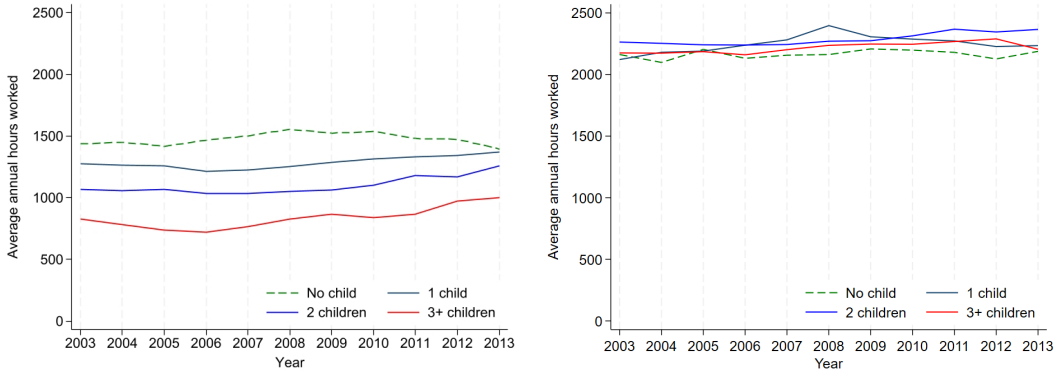
4.2.1 Type of Shock → Gender-specific Outcomes

The expected responses of spouses depend on whether the person is the payer or the receiver of the payment. In the legal context, the likely beneficiary of spousal claims is the person with lower earnings, and for child support, is one who takes the child care and custody. Spousal

claims within this family structure play a role as marriage insurance as highlighted by (Fahn et al., 2016). Women usually take the role of housekeeping and child-rearing and are more likely to face losses in their current income, expected loss of permanent income, and depreciation of capital - motherhood penalties. However, the sharing rules and responsibilities are the mutual decisions between partners and alimony payments facilitate the cooperation (Fahn et al., 2016). Any exogenous shock to this legal promise affects the decision process of couples.

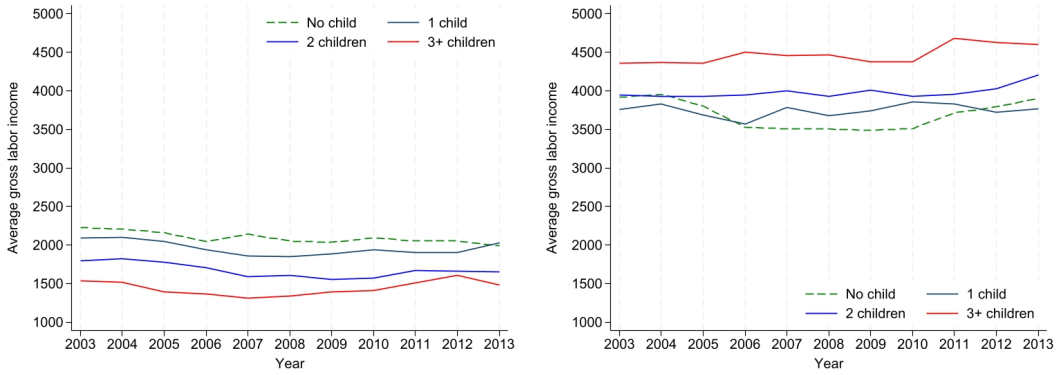
Figure 2 shows the average annual hours for men and women by the number of children in the total sample during the observed window. The figure shows that women, on average, work fewer hours than men. The average annual hours worked for women decreases significantly with every additional child. On the other hand, the average annual hours worked for men do not vary significantly by number of children. Figure 3 shows similar trends for monthly gross labour income for women and men. I observe that, on average, women have less gross monthly labour income than men, and the gross income decreases with each additional child. These empirical trends show that women are the potential beneficiaries of alimony (spousal and childcare) and their expected responses should differ relative to men.[18]

Figure (2) Average Annual Hours Worked by Gender



(a) Wives (b) Husbands

Figure (3) Average Monthly Gross labour Income by Gender



(a) Wives (b) Husbands

[18]However, I have also found 5.5 percent of households where the potential beneficiary is a male, and I dropped that sample.

4.2.2 Size of Shock → Expected loss of alimony

To capture the size of the shock, I use the anticipated loss of spousal claim as a proxy to define the risk of post-divorce instability in the case of divorce. As explained in the conceptual framework, the uncertainty around this future claim may affect partners' bargaining power. Secondly, this anticipated risk of post-divorce financial consequences affects their beliefs and expectations about future financial stability caused by idiosyncratic income shocks from alimony reform, reshaping their current behaviour and economic decisions. Since the responses can vary depending on the level of the expected spousal claim, I estimate the counterfactual spousal alimony loss following (Schaubert, 2023).[19] The higher the expected loss, the higher the vulnerability of those households. However, in contrast to that paper, I estimate the spousal and children support separately because the changes were made for the spousal support. Children's support is standard, and its criteria were not changed.

As mentioned, I estimate the expected loss of maintenance payment for all households if they get divorced in 2007 (for robustness also for the year 2006). The basic calculation for spousal maintenance "eheliche Lebensverhältnisse" is as follows [20]:

$$\text{Expected Spousal Maintenance} = \frac{\text{Income of Primary Earner} - \text{Income of Secondary Earner}}{7} \times 3 \tag{7}$$

The duration of spousal maintenance payment is not standard and may vary depending on the duration of the relationship. In most cases, it is paid for 1/3 of the duration of the marriage. As I am interested in quantifying the risk of economic vulnerability in case of a potential divorce, the basic calculation method is sufficient to categorise married households into different risk bins.[21]

Then, I divided the sample into four groups based on the distribution of estimated expected loss, including high-risk, medium-risk, low-risk, and no-risk groups. The married households in the top 25 percentile ("High-Risk Group") are considered the most vulnerable group at the time of change in reform. The married households in the bottom 25 percentile ("No Risk Group") are unaffected because their expected alimony loss almost equals zero. This might be because these households are egalitarian, where both partners have nearly similar labour income and are not eligible to apply for spousal maintenance in case of divorce. In case of a potential divorce, there is no probability of any claim for spousal maintenance alimony from these households. This characteristic makes these households the perfect control group. Based on legal grounds, they are not eligible for any alimony payment. The married households in 25th-50th percentile and 50th-75th percentile are the "Medium Risk Group" and "Low-Risk Group". Therefore, I run the difference-in-difference regressions for each risk group - low to high risk, as the treated individuals and the first quartile as the control group.

[19] The economic literature, specifically the Life Cycle Hypothesis and Permanent Income Hypothesis, suggests that the economic behaviour of households significantly depends upon their anticipated changes in future income.

[20] For further details (http://www.german-family-law.de/alimony-and-child-support.html, n.d.)

[21] However, I will perform sensitivity analysis to ensure how robust my risk group definitions are to the changes in the calculation of alimony.

This proxy for spousal maintenance payment is very simple because, in reality, spousal maintenance payments depend on several other factors. Also, how long the maintenance is paid depends on the duration of the relationship. A simple rule is that it is paid for one-third of the duration of marriage. In that case, individuals with a long marriage duration and who stay away from the labour market are the most vulnerable. However, as one of the main criteria is the difference between the labour income of husband and wife, this basic calculation is sufficient to define the heterogeneous treatment groups. I further define a potential beneficiary of the alimony in the year 2007. If the labour income of the husband is higher than the wife's in 2007, then in case of divorce, the wife is the potential beneficiary and vice versa. I can see that only 4 percent of the sample includes male beneficiaries, and the sample is very small to test the impact on this group, so I dropped this sample. I use cohabiting couples as a control in heterogeneity analysis to ensure that my results are not affected by selecting a specific comparison group.

Table 4.2 shows the treatment effects on saving rate and labour market outcomes of the households by the defined risk groups. Please refer to Table B5 for the sample distribution for all the regressions. Results show that the saving rate of married households across all risk groups is unaffected. On the other hand, there is a significant positive impact women's labour participation across the most vulnerable high and medium-risk groups. Women's labour market participation increases by 5.4 percentage points in high-risk and 4.5 percentage points in medium-risk groups relative to no-risk control group. These women who are potential beneficiaries of spousal maintenance payments. Interestingly, reform does not significantly affect men's labour market participation. This shows that women are more responsive to reform to maintain economic stability than men. This also shows the differential behaviour of men and women to the type of expected income shock, which is positive for husbands and negative for wives. This gender-specific behaviour appears as the average woman's standard of living declines compared to the standard that she enjoyed during the marriage, whereas men often face an increase in material well-being (Becker et al., 1977).

Results show a significant increase in the annual hours worked by previously employed women in the highest-risk group. These women increased their annual hours worked by 9 percent. Women in medium- and low-risk groups increase their annual hours worked, but this is not statistically significant. This behaviour implies that women may feel a stronger need to secure their financial position and increase their working hours, which results in the rebalancing of household roles. An increase in household overall income after the participation of women in the labour market also incentivises men to reduce their working hours.

I further conducted two robustness checks. First, I investigate if my findings are not explicitly driven by the control group. Therefore, I rerun the analysis using cohabiting couples as a control group and estimated the impact across all other risk groups. Table B7 shows that the results are consistent with the previous results, female participation increases by 6.0 percentage points, and annual hours worked of previously employed women increase by 11.6 percentage points. However, I also observed a significant impact on men's participation in the labour market. However, the impact on men's hours worked is not substantial. This leads to ambiguity in

findings for men's labour market participation. For the robustness check, I redefine the risk groups based on expected alimony loss from the year 2006, and the results are consistent with the findings above (see Table B8).[22]

Table (4.2) Difference-in-Difference Estimates by Risk Group Based on Spousal Maintenance

	High Risk	Medium Risk	Low Risk
Saving Rate	0.008	0.000	0.001
	(0.005)	(0.005)	(0.005)
Female Participation	0.054***	0.045**	0.017
	(0.022)	(0.022)	(0.020)
Male Participation	-0.013	-0.018	-0.015
	(0.009)	(0.010)	(0.011)
Female Hours Worked	0.090**	0.043	-0.007
	(0.039)	(0.037)	(0.032)
Male Hours Worked	-0.027	-0.009	-0.009
	(0.018)	(0.017)	(0.018)
Year FE	Y	Y	Y
Household FE	Y	Y	Y

Note: Table 4.2 shows the average treatment effects on treated (married couples) according to their exposure to risk of expected future income loss in case of potential divorce. Column 2 "High Risk Group", Column 3 "Medium Risk Group" and Column 4 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. For each risk group, I show how the impact varies depending upon the potential beneficiary (Female or Male) of the maintenance payment. Each row represents a separate regression model and shows the average treatment effect on the respective dependent variable, including saving rate, female labour market participation, male labour market participation, female annual hours worked(log), and male annual hours worked(log). The estimates are based on the difference in difference framework and controls for husbands' demographics, wife demographics, household characteristics, time and households' level fixed effects.

4.2.3 Is the Change in Economic Behaviour Persistent?

Now, I estimate the dynamic impact of reform on women's labour force participation using equation 5. Figure A6 shows that women's labour has significantly increased in the year of reform, and there is a persistent increase in the post-reform period; however, it is insignificant for married men. Women's increased labour market participation reflects their response to perceived risks to future financial security. This led to an increase in total household income; however, the insignificant impact on saving suggests that despite the income increase, married households maintain a fixed and stabilised saving level to uphold their financial goals. In intact marriages, these households do not alter their saving level. This may suggest that, in response to anticipated financial troubles, married households prioritize maintaining future financial security and do not make significant adjustments in short-term targets such as monthly saving. Figure A5 shows the saving behaviour of married households after the reform. The figure shows that there has been no persistent impact on the saving rate of households since the reform. Although the dynamic impact is statistically insignificant, it retains its economic significance and shows how households behave. The increase in women's labour force participation leads to changes in

[22]This robustness check eliminates doubts if an individual takes a short-term break from employment

income composition, but the monthly saving level is stable. The unchanged saving level may suggest that households are experiencing an increase in income; however, their saving threshold is fixed. This naturally declines the saving rate and shows a low marginal propensity to save out of additional income. On the other hand, married households where the husband is a potential beneficiary are increasing their saving rate in case of divorce. There are households where women are the primary earners of the family while men might be the secondary earners.

4.3 Considering the role of Child-maintenance payments

The findings in the previous sections show that changes in spousal maintenance conditions may incentivise women to increase their labour market participation within marriage. However, there is a possibility that those women who are eligible for child maintenance payments may feel less pressure to increase their market participation. Therefore, to evaluate if the eligibility of child maintenance payments plays a role, I rerun the analysis and redefine the risk groups considering both expected spousal maintenance and child maintenance payments. The children's maintenance payments (Kindesunterhalt) are usually based on "Düsseldorfer Tabelle" B2 and CPI adjusted. For simplicity, I assume that the woman is the main custodian of the children and potential beneficiary of the children's maintenance payments and the husband is liable to pay. This implies that child alimony is estimated based only on the father's income. I estimate the children's maintenance payments for children under 18 and possibly living in the same household. Using information on paying parents' net income I, age A_i be of child i. I estimate the maintenance amount for each minor child C_i, using the piecewise function Amount_k where, $\mathbb{1}_{\text{condition}}$ be the indicator function, which is one if the condition is true and zero otherwise. The amount is not mentioned for the higher income brackets (above 5,442 euro) and I set the maximum child maintenance for this group.[23].

$$C_i = \begin{cases} \text{Amount} \cdot \mathbb{1}_{(0 \leq A_i \leq 5 \text{ and } I \leq 1737)}, \\ \text{Amount} \cdot \mathbb{1}_{(6 \leq A_i \leq 11 \text{ and } I \leq 1737)}, \\ \text{Amount} \cdot \mathbb{1}_{(12 \leq A_i \leq 17 \text{ and } I \leq 1737)}, \\ \text{Amount} \cdot \mathbb{1}_{(0 \leq A_i \leq 5 \text{ and } 1738 < I \leq 2200)}, \\ \text{Amount} \cdot \mathbb{1}_{(6 \leq A_i \leq 11 \text{ and } 1738 < I \leq 2200)}, \\ \text{Amount} \cdot \mathbb{1}_{(12 \leq A_i \leq 17 \text{ and } 1738 < I \leq 2200)}, \\ \vdots \\ \text{Amount} \cdot \mathbb{1}_{\text{Conditions for higher income brackets}} \end{cases} \tag{8}$$

Now I estimate the total alimony claim in case of a potential divorce using expected spousal maintenance (Ehegattenunterhalt) (equation 7) and children maintenance payment (equation 8). Based on the quartiles of the distribution of total alimony payment, I redefine the risk

[23] All variables are adjusted for CPI to allow comparisons over time

groups as before and rerun the analysis compared to the no-risk group. I first see the behaviour of all married couples in each risk group compared to the no-risk group.

Table B9 shows that results are consistent with the previous findings for the women labour market outcomes. Like previous findings, households with potential beneficiaries are significantly more likely to increase their participation in the labour market by 6.1 percent and 7 percent from high and medium-risk groups. Results also show a significant increase in the annual hours worked by previously employed women in the highest-risk group. These women increased their annual hours worked by 10.7 percent. The impact is also significant for the women from medium-risk groups, where women increase their annual hours worked by 8.8 percent. Women in low-risk groups increase their annual hours worked, but this is not statistically significant. This behaviour implies that women may feel a stronger need to secure their financial position even if they are eligible for child maintenance payments and increase their working hours.

4.4 Risk of Divorce and Household Decisions

The literature on bargaining models shows that policy reforms regulated by divorce laws may affect the partners' bargaining positions and the probability of divorce (Chiappori & Mazzocco, 2017). Therefore, expected responses of the spouses may reflect the changes in shifting of power within the house. The reform of 2008 is favorable for financially strong partner, improving their bargaining. Therefore, although the reform does not explicitly support any specific group, however, given the traditional hetero normative gender roles, it makes husbands better off and wives worse off. Therefore, the relative risk of divorce between partners changes - who initiates the divorce. The shift in bargaining power can affect the household's negotiation dynamics and economic decisions. To analyse if the probability of divorce changed after this reform, I estimate the hazard of divorce using the marriage and divorce data if individuals from GSOEP.

To empirically estimate the impact of reform on the marital stability of then-married couples, I use a sample of married and divorced individuals for the period 1978-2014. During this period, there were 7,099 divorce events for a sample of 51,521 individuals.[24] The divorce process is a time-dependent and dynamic process as the probability of divorce between a couple significantly varies depending on individuals' characteristics like age, education, duration of relationship, number of previous marriages and number of children; therefore, it is important to know the life histories of individuals since birth such as their date of first marriage, divorce, widowhood, remarriage etc. The state and time-dependency of the divorce process and censoring issues in the dataset make the event history framework an ideal choice to determine if the risk of divorce increased after alimony.[25] Using discrete-time events history analysis following (Maurer & Usman, 2023), I estimate the hazard of divorce for husbands and wives after the reform. Moreover, it also proves the significance of reform and its substantial impact on the marriage market.

[24] For window 1984-2013, total married individuals are 40,013 and 4,820 events of divorces can be observed
[25] This is the period after the first divorce reform in 1977.

The discrete hazard of divorce can be defined as follows:

$$h(t/x) = Pr(T = t|T >= t; x) \tag{9}$$

Where h(t/x) is the hazard of divorce in calendar year, t given covariates, x. The hazard of divorce can be estimated using logistic regression on data in event history structure.[26] The risk is estimated using Logit regression given below:

$$Pr(Divorce = 1|x) = \frac{exp(\beta_0 + \beta_1 x_1 + ... + \beta_k x_k)}{1 + exp(\beta_0 + \beta_1 x_1 + ... + \beta_k x_k)} \tag{10}$$

Figure A2 shows the distribution of risk of divorce across age. The figure also shows that the distribution of hazards for the period 2008-2021 shifted towards the right compared to the period 1978-2007. There are two interesting information. First, after the unilateral law reform, the hazard of divorce has greatly increased. Second, the hazard of divorce during 2008-2021 is highest for the age above 40 in the post-reform period compared to the pre-reform period. This signals that, on average, risk increases at older ages and probably for long-term marriages. Also, delaying marriages and more cohabitation relationships may provide the reason that the risk of divorce at younger ages has reduced.

Table B3 shows the estimated coefficients based on discrete-time event history analysis. The estimates are based on individual-level datasets from the GSOEP panel survey for 1978-2022. Column 1 shows the probability of divorce for the time window 1978-2021, and column 2 shows estimations based on the window 2004-2012.

Following is the regression specification.

$$\begin{aligned} D_{i,t} = {} & \beta_1 \text{ Post Reform}_t + \gamma \text{ Age Splines}_{i,t} + \theta \text{ Duration Splines}_{i,t} + \rho_1 \text{ Kids}_{i,t} \\ & + \rho_2 \text{ Kids}_{i,t} \times \text{Post Reform}_t + \alpha_1 \text{ Education}_{i,t} + \alpha_2 \text{ Education}_{i,t} \times \text{Post Reform}_t + \epsilon_{i,t} \end{aligned} \tag{11}$$

Table B4 shows the marginal effects for two sample periods. The results suggest a significant increase in the probability of divorce after the reform for various subgroups. These findings are consistent with the previous studies that show if reforms are favourable for one spouse, it may increase marital instability between the couples. This motivates me to delve further into heterogeneity analysis and explore whether the households that adapted their behaviour are the ones for which the risk of divorce changed at the average level. The ideal scenario is to have

[26] Time to the event data structure is crucial to perform this analysis where each observation for each year is a record for individuals that shows if the event happens to happen (=1) or not(=0). For further details, please check.

data about "who initiated the divorce", but because of the unavailability of this information, I use the average level changes in risk of divorce as an indicator to analyse if a specific subgroup of households is more vulnerable and responsive.

5 Subgroup Analysis: Household-level Heterogeneity

After analysing the varied economic responses of married households, the impact may differ across various subgroups due to systematic differences in their socioeconomic status and family composition, among other factors. Therefore, I have conducted the following analysis to empirically examine the differential responses of married households categorised into various subgroups.

5.1 Age Cohorts

In most cases, the ex-husband is the payer, and the ex-wife is the payee, as the partner with more income is the payer. These differences are higher among older cohorts; however, the increasing participation of women in the labour market and changing social norms are contributing to lowering these differences. However, older cohorts still have significant differences in hours worked and the gender pay gap. To analyse the impact across age distribution, I categorise the sample based on the head of the households, usually the husband. The three categories include young cohort (head's age <= 35), middle cohort (35 < head's age <= 45) and older working age cohort (head's age > 45). I do not observe any significant effect on saving rate, female or male labour market participation (Table 5.1 Table 5.2 Table 5.3 Table 5.5). For married women labour market participation, I observe that middle-aged women from high-risk groups increase their participation by 7.3 percentage points. In contrast, young women from medium and low-risk groups increase their involvement by 14.2 percentage points and 16.2 percentage points. However, middle-aged women from the high-risk group and old-aged women from the risk group significantly increased their annual hours worked by 18.8 and 8.2 percentage points, respectively (see Table 5.4). Young women from any risk group do not show any significant change.

What is the reason for the strong response from the middle-aged and younger groups? Table B3 shows that based on the estimation of the hazard of divorce, the risk is higher for the women from the middle-aged group. This is the possibility that these women are more responsive. However, the lower response of the senior working-age group is quite intuitive, as a grey divorce can have significant implications for a financially weaker partner at older ages.[27] However, there are two main explanations for that. First, there is less probability of getting a divorce in this age category because of the empty nest syndrome as their children move out, and they are great support for each other (see Table B3). Secondly, even if there is a risk of divorce between senior

[27]Grey divorce - is defined as the dissolution of marriage at an older age.

working-aged groups, getting back into the labour market is quite a challenge. For the young group, as they might be at the beginning of their marital relationships, the risk of divorce might not have shifted, but the negotiation dynamics (e.g. reallocation of tasks) changed because of a shift in bargaining positions or expected risk of instability.

5.2 Household Composition

Marriage increases the specialisation of women in domestic unpaid work, especially for couples with preschool children (Moreau & Lahga, 2011). Therefore, married couples with children are more likely to specialise in their roles and, thereby, more likely to be affected by maintenance reforms.

I am looking at the impact on women's labour participation in the presence or absence of children. Table 5.2 (subgroup 2) shows how the presence of kids (no kids, one kid, more than one kid) affects the labour supply of women. There has been a significant increase in the labour market participation of women with more than one child across all risk groups. The impact varies between 11.1-14.1 percent depending upon the risk group. This may suggest that women with more children were previously away from the job market because they were more involved in looking after the children, facing greater pressure post-reform and increasing their labour market participation. There is a 9.7 percent decline in labour market participation of women with no children and in the high-risk group. It might be because these women with no kids from the high-risk group feel a lack of commitment in marriage and prefer more leisure time. I do not observe any significant impact on male labour market participation across distribution of children (Table 5.3).

Table 5.4 shows that married women from the high risk group and with more children have significantly increased their annual hours worked after the reform. The increase in hours worked is 27 percent and 13.5 percent from the high and medium risk groups. This shows that women who were mainly involved in raising the children and were not actively participating in the labour market, were mostly affected by the reform. There is no significant impact on hours worked of men 5.5.

Next, subgroup 3 in Table 5.1 shows if the saving behaviour of households differs across different types of households with no child, one child or more than one child. I do not find any significant impact across various household types based on the presence of children.

5.3 Duration of Relationship

I performed a stratified analysis to determine whether the responses of the married couples vary based on the duration of their relationships. I split the duration into three categories: the first group with less than 14 years of relationship, the second group between 14 and 21 years of

relationship, and the third group from 22 to 34 years of relationship.

I observed that married women from the first group were more responsive than other defined groups. Married women in this group increase their labour market participation by 14.7 percentage points and 14.2 percentage points from high and medium-risk groups (see Table 5.2). I further observe that married women in the first defined group based on relationship duration and who are previously employed increase their annual hours worked by 34.4, 25.0 and 22.7 percentage points from high, medium and low risk groups respectively (see Table 5.4). Table B3 shows that based on estimating the hazard of divorce, the hazard of divorce increased significantly for the couples in the first defined group. I do not observe any significant impact on married men's labour market outcomes and household saving rates.

5.4 Traditional versus Egalitarian Households

The male breadwinner system (traditional), female breadwinner, and egalitarian systems are different models of gender roles within households based on work contexts. The male breadwinner system is characterized by a household where the man is the primary earner and the woman is responsible for child-rearing and household production. In this system, women can face career breaks or reduced working hours, leading to lower lifetime earnings and pensions. However, the tax benefits "Ehegattensplitting" and guaranteed post-marital alimony can incentivise married couples to opt for this system. In an egalitarian system, men and women share responsibility for domestic tasks and work. The changing societal attitudes and younger cohorts tend to favour equal sharing of tasks as it can increase household resources and reduce gender inequality, as well as the risk of pension poverty, especially for women. The male breadwinner system was predominant in Germany, especially after the Second World War economic boom, and married households adopted a single-income model. It is often believed that women's bargaining power in the male breadwinner system is typically less as they earn less. However, individual and household characteristics also play a significant role in the intrahousehold bargaining process (Van Klaveren et al., 2011). Therefore, to explore if the responses of the married couples post-reform under different models vary, I divide the sample based on single-income earners (men/women) and double-income earners.

Table 5.1 shows the treatment effects on the saving rate of married households by the defined risk groups. The first row captures the impact based on gender roles within households, including egalitarian (both working), male breadwinner (only husband working) and female breadwinner (only wife working). I am not considering the employment level (part or full-time) in this regression because it is implicitly covered under each risk group. For example, egalitarian households under the high-risk group are those where both husband and wife work, but the income difference is significantly higher.[28] Results show that egalitarian and female breadwinner

[28]There can be various reasons for the income differences between spouses including the level of employment, gender wage gap, type of occupation, education, etc. I am capturing most of these differences in my regression model; however, the basic calculation of expected alimony in law does not consider these differences.

households in the high-risk groups significantly increase their saving rate by 1 percent and 2.6 percent, respectively. However, there is no significant impact on the saving rate in any other risk group. Since the women in the high-risk group are increasing their labour supply, this may also increase the proportion of their monthly saving amounts. In egalitarian and female breadwinner households, where gender roles are more equally distributed, and females take the primary roles, but there are still significant income discrepancies, there might be a greater sense of family responsibility. Therefore, these households increase their saving to ensure the weak partner does not suffer after the reform. Moreover, the increasing saving rate may also signal adjustments in households' financial strategy, which will help these households reassess and rebalance their assets.

5.5 Low versus High-Income Households

Next, I explore the impact of reform across low-income, medium and high-income households. I divide the sample into four quartiles based on CPI-adjusted monthly household income. Low-income households belong to the first quartile of the distribution, and high-income households belong to the fourth quartile. Medium-income households belong to the second and third quartiles of the income distribution. Subgroup 2 in Table 5.1 shows if the saving rate of married households changes across income distribution by risk groups. The impact is insignificant for all other income categories across all risk groups. This may be because low-income groups do not have enough resources to adjust their saving, and highly vulnerable affluent households are not affected by the reform because they are not entirely relying on alimony in case of divorce.

Subgroup 1 in Table 5.2 shows the impact on female participation from different income groups under each risk group. Married women from high and medium-risk groups and belong to the 25th to 75th percentile of the income distribution increase their labour participation by 11.9 percent and 9.5 percent, respectively. Both low and high income groups from all risk groups do not show any significant change in rebalancing the roles in the work context. Since the participation decision also depends on the earnings from work versus expenses on child care, for low-income earners, childcare is more expensive, and women choose not to work. Table 5.3 shows that there is no significant impact on married men labour market participation. This is because married men usually have more stable unemployment and are less likely to leave the labour market entirely. However, there is a possibility that rebalancing gender roles within the household after the reform may affect the hours worked by husbands. On the other hand, there is a 5.7 percent decrease in male labour participation in the low income medium risk group. This may show the reallocation of time to other responsibilities in this group.

Table 5.4 shows that women annual number of hours worked have significantly increased among high risk groups specifically for middle and high income groups.

In estimating divorce risk, I have used information based on a retrospective dataset; therefore, I do not have a direct control for income levels for the majority of the sample. I assume here

that people from low-income groups may have low levels of education and vice versa. Based on this assumption, I argue that the risk of divorce has significantly declined for the low-educated group, as a divorce can be costly for both partners. However, relative to low-risk groups, middle-educated groups have faced an increase in risk of divorce. This may give an idea of the responsiveness of the middle-income group.

5.6 Wealth Level

The wealth level of couples can play a significant role in reducing the vulnerability of individuals to future income shock through spousal maintenance payments. Literature shows that married women in equitable matrimonial property regime reduces their hours worked after the divorce reforms. To revisit if women behave the same way to changes in maintenance payments, I distributed the married sample from each risk group into three quantiles based on their level of wealth in the year 2007. The estimates in Table 5.2 show that women in high risk group significantly increase their labour market participation across all quantiles of wealth distribution. The participation of these women increase by 11.9 percent, 8.4 percent and 7.1 percent across low, medium and high wealth distributions respectively. Married women from medium risk group who belong to the top two quantiles of distibution increase their participation, while from low risk group only women having lower wealth levels increase their participation. The women who are already working and belong to the middle and highest quartile of income distribution increase their hours worked from both high and medium risk groups (Table 5.4). There is no significant impact on saving rate and male labour participation (Table 5.1 and Table 5.3). Interestingly, married men from highest wealth distributions across all risk groups reduce their annual hours worked, on average, by 7 percent (5.5). This shows that the responses of households vary across their wealth distribution.

5.7 Policy Implications

The intra-family decisions about the division of labour are the outcome of personal choices and trade-off between the couples. The state cannot interfere with the personal sphere of family, for instance, if they choose an egalitarian model or a shared model (male/female breadwinner). However, legal maintenance obligations during or after divorce can significantly affect their choices. For instance, a generous spousal alimony regime considers unpaid care work and paid work as an equal contribution towards the family. Under this regime, partners contribute to achieving shared goals and follow the principle of shared financial solidarity during and after marriage. Furthermore, in the context of Germany, a marital income-splitting tax regime under a progressive tax rate further impacts couples' work choices, especially after having children. Income splitting equalises the tax burden between the "egalitarian model," where both partners reduce working hours, and the "role specialisation model," where one partner works full-time and the other stays home. It may inadvertently encourage traditional gender roles and lead

Table (5.1) Subgroup Analysis of Saving Behaviour of Married Households across Defined Risk Groups

	High Risk Group			Medium Risk Group			Low Risk Group		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Subgroup 1:	Egalitarian	Male Breadwinner	Female Breadwinner	Egalitarian	Male Breadwinner	Female Breadwinner	Egalitarian	Male Breadwinner	Female Breadwinner
Saving Rate	0.010	0.02	0.026**	0.003	0.010	-0.004	0.003	0.003	-0.002
	(0.060)	(0.031)	(0.013)	(0.006)	(0.033)	(0.017)	(0.005)	(0.030)	(0.010)
Subgroup 2:	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income
Saving Rate	0.032	0.0115	-0.009	0.004	0.005	-0.020	0.011	0.001	-0.007
	(0.049)	(0.006)	(0.012)	(0.012)	(0.005)	(0.013)	(0.010)	(0.005)	(0.013)
Subgroup 3:	No Kid	One Kid	More than one kid	No Kid	One Kid	More than one kid	No Kid	One Kid	More than one kid
Saving Rate	-0.004	0.018	0.003	-0.001	0.015	-0.003	-0.011	-0.003	-0.000
	(0.011)	(0.011)	(0.011)	(0.009)	(0.010)	(0.010)	(0.008)	(0.010)	(0.010)
Subgroup 4:	Young(25-35)	Middle(36-45)	Older((46-55)	Young(25-35)	Middle(36-45)	Older((46-55)	Young(25-35)	Middle(36-45)	Older((46-55)
Saving Rate	-0.006	0.012	-0.003	-0.004	0.003	0.004	-0.003	0.002	0.006
	(0.018)	(0.008)	(0.009)	(0.015)	(0.007)	(0.007)	(0.015)	(0.008)	(0.008)
Subgroup 5:	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)
Saving rate	0.008	0.008	0.008	-0.000	-0.000	-0.000	0.000	0.000	0.000
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Subgroup 6:	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth
Saving Rate	-0.005	0.008	0.008	-0.002	0.010	-0.014	-0.003	0.006	-0.012
	(0.011)	(0.009)	(0.010)	(0.007)	(0.009)	(0.010)	(0.006)	(0.009)	(0.011)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Household FE	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Table 5.1 shows the impact on saving rate of married couples across different types of households based on breadwinner type, income distribution, number of children, age cohorts and wealth level. Column 1-3 "High Risk Group", Column 4-6 "Medium Risk Group" and Column 7-9 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. All married couples in any of these three groups (high, medium, low) are the treated households whereas households in the "no risk group" form the control group. For each risk group, I show how the saving behaviour of married households differ across breadwinner type (egalitarian, male breadwinner, female breadwinner), income distribution (low, middle, high), presence of children (0, 1, more than one kid) and age cohort of head of household (young, middle, old). For example, the estimated coefficients for subgroup 1 show the average treatment effects on treated (ATET) on saving rate of married couples across different types of households based on gender roles distributions within household (egalitarian, male breadwinner, female breadwinner). The estimates are based on the difference in difference framework and controls for husbands' demographics, wife demographics, household characteristics, time and households' level fixed effects. To see the number of treated groups, control groups and total number of observations, check the Table B6

Table (5.2) Subgroup Analysis of Married Women labour Market Participation across Defined Risk Groups

	High Risk Group			Medium Risk Group			Low Risk Group		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Subgroup 1:	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income
Female Participation	0.045	0.119***	0.013	0.009	0.095***	0.037	0.029	0.026	0.025
	(0.070)	(0.032)	(0.025)	(0.047)	(0.023)	(0.025)	(0.041)	(0.016)	(0.020)
Subgroup 2:	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid
Female Participation	-0.097***	0.054	0.116***	-0.047	0.053	0.141***	-0.014	0.078*	0.111**
	(0.035)	(0.045)	(0.044)	(0.033)	(0.041)	(0.044)	(0.024)	(0.040)	(0.045)
Subgroup 3:	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)
Female Participation	0.043	0.073**	-0.010	0.142*	0.043	-0.020	0.162**	0.011	0.001
	(0.093)	(0.031)	(0.031)	(0.081)	(0.030)	(0.023)	(0.064)	(0.026)	(0.024)
Subgroup 4:	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)
Female Participation	0.147***	0.015	-0.040	0.142***	0.026	-0.039*	0.092***	-0.020	0.015
	(0.034)	(0.035)	(0.039)	(0.036)	(0.039)	(0.021)	(0.035)	(0.026)	(0.026)
Subgroup 5:	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth
Female Participation	0.119**	0.084**	0.071**	0.062	0.060**	0.058**	0.062**	0.022	0.025
	(0.052)	(0.038)	(0.029)	(0.049)	(0.030)	(0.029)	(0.027)	(0.023)	(0.040)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Household FE	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Table 5.2 shows the impact on labour participation of married women across different types of households based on income distribution, number of children and age cohorts. labour participation represents the employment status of the female spouse. Column 1-3 "High Risk Group", Column 4-6 "Medium Risk Group" and Column 7-9 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. All married couples in any of these three groups (high, medium, low) are the treated households whereas households in the "no risk group" form the control group. For each risk group, I show how labour participation of married women differs across income distribution (low, middle, high), presence of children (0, 1, more than one kid) and age cohort of head of household (young, middle, old). For example, the estimated coefficients for subgroup 1 show the average treatment effects on treated (ATET) on women's labour participation of married couples across income distribution in all three risk groups (low income, middle income and high income). The estimates are based on the difference in difference framework and controls for husbands' demographics, wife's demographics, household characteristics. I control for the year and the household level fixed effects. To see the number of treated groups, control groups and total number of observations, check the Table B6

Table (5.3) Subgroup Analysis of Married Men labour Market Participation from Defined Risk Groups

	High Risk Group			Medium Risk Group			Low Risk Group		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Subgroup 1:	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income
Male Participation	-0.034	-0.004	0.000	-0.057*	0.006	-0.007	-0.002	-0.012	0.000
	(0.028)	(0.008)	(0.002)	(0.032)	(0.008)	(0.012)	(0.033)	(0.011)	(.)
Subgroup 2:	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid
Male Participation	0.005	-0.015	-0.025	0.000	-0.012	-0.020	0.011	-0.014	-0.004
	(0.029)	(0.013)	(0.020)	(0.030)	(0.014)	(0.025)	(0.031)	(0.018)	(0.023)
Subgroup 3:	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)
Male Participation	-0.020	0.009	-0.030	-0.015	0.000	-0.030	-0.005	-0.021	-0.027
	(0.016)	(0.018)	(0.025)	(0.019)	(0.021)	(0.022)	(0.020)	(0.030)	(0.026)
Subgroup 4:	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)
Male Participation	-0.020	0.007	-0.018	-0.020	0.000	-0.006	-0.021	0.002	-0.005
	(0.015)	(0.011)	(0.022)	(0.016)	(0.012)	(0.022)	(0.020)	(0.014)	(0.028)
Subgroup 5:	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth
Male Participation	-0.032	0.004	0.012	-0.026	-0.005	0.001	-0.027	0.005	-0.004
	(0.021)	(0.011)	(0.010)	(0.024)	(0.013)	(0.013)	(0.024)	(0.015)	(0.023)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Household FE	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Table 5.3 shows the impact on labour participation of married men across different types of households based on income distribution, number of children and age cohorts. labour participation represents the employment status of the male spouse. Column 1-3 "High Risk Group", Column 4-6 "Medium Risk Group" and Column 7-9 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. All married couples in any of these three groups (high, medium, low) are the treated households, whereas, households in the "no risk group" form the control group. For each risk group, I show how labour participation of married men differs across income distribution (low, middle, high), presence of children (0, 1, more than one kid) and age cohort of head of household (young, middle, old). For example, the estimated coefficients for subgroup 1 show the average treatment effects on treated (ATET) on men's labour participation of married couples across income distribution in all three risk groups (low income, middle income and high income). The estimates are based on the difference in difference framework and controls for husbands' demographics, wife demographics, household characteristics, time and households' level fixed effects. To see the number of treated groups, control groups and total number of observations, check the Table B6

Table (5.4) Subgroup Analysis of Married Women Annual Hours Worked across Defined Risk Groups

	High Risk Group			Medium Risk Group			Low Risk Group		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Subgroup 1:	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income
Female Hours Worked	0.102	0.144**	0.082*	-0.018	0.074*	0.080	0.001	0.022	-0.001
	(0.103)	(0.060)	(0.049)	(0.069)	(0.043)	(0.052)	(0.064)	(0.031)	(0.036)
Subgroup 2:	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid
Female Hours Worked	-0.027	0.096*	0.888***	0.044	0.030	0.703***	-0.028	0.043	0.677*
	(0.063)	(0.053)	(0.230)	(0.042)	(0.053)	(0.227)	(0.033)	(0.045)	(0.393)
Subgroup 3:	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)
Female Hours Worked	0.616**	0.168**	0.008	0.019	0.081	0.086*	0.347**	0.024	0.020
	(0.269)	(0.070)	(0.045)	(0.278)	(0.052)	(0.045)	(0.154)	(0.042)	(0.034)
Subgroup 4:	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)
Female Hoursworked	0.344***	0.102	-0.076	0.250**	-0.104	0.027	0.227**	-0.086	0.121
	(0.104)	(0.084)	(0.144)	(0.109)	(0.093)	(0.099)	(0.113)	(0.097)	(0.131)
Subgroup 5:	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth
Female Hours Worked	0.124	0.121**	0.055	-0.094	0.116**	0.098*	0.010	0.003	0.005
	(0.097)	(0.059)	(0.059)	(0.074)	(0.048)	(0.051)	(0.047)	(0.039)	(0.048)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Household FE	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Table 5.4 shows the impact on log of annual hours worked of married women across different types of households based on income distribution, number of children and age cohorts. Column 1-3 "High Risk Group", Column 4-6 "Medium Risk Group" and Column 7-9 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. All married couples in any of these three groups (high, medium, low) are the treated households whereas households in the "no risk group" form the control group. For each risk group, I show how labour hours worked of married women differ across income distribution (low, middle, high), presence of children (0, 1, more than one kid) and age cohort of head of household (young, middle, old). For example, the estimated coefficients for subgroup 1 show the average treatment effects on treated (ATET) on women annual hours worked across income distribution in all three risk groups (low income, middle income and high income). The estimates are based on the difference in difference framework and controls for husbands' demographics, wife demographics, household characteristics, year and households' level fixed effects. To see the number of treated groups, control groups and total number of observations, check the Table B6

Table (5.5) Subgroup Analysis of Married Men Annual Hours Worked across Defined Risk Groups

	High Risk Group			Medium Risk Group			Low Risk Group		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Subgroup 1:	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income
Male Hours Worked	-0.046	-0.031	-0.014	-0.017	-0.001	-0.034	0.024	0.001	0.018
	(0.048)	(0.019)	(0.023)	(0.042)	(0.021)	(0.029)	(0.050)	(0.020)	(0.026)
Subgroup 2:	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid	No Children	One Kid	More than one kid
Male Hours Worked	-0.045	-0.021	0.030	-0.034	-0.014	0.075	-0.072***	0.034	-0.092
	(0.035)	(0.026)	(0.074)	(0.030)	(0.026)	(0.079)	(0.027)	(0.028)	(0.173)
Subgroup 3:	Young(25-35)	Middle age(36-45)	Senior Middle(46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)	Young(25-35)	Middle age(36-45)	Senior Middle((46-55)
Male Hours Worked	0.104	-0.007	-0.078**	0.118	-0.015	-0.073*	0.139	-0.003	-0.045
	(0.090)	(0.023)	(0.037)	(0.087)	(0.023)	(0.041)	(0.104)	(0.028)	(0.031)
Subgroup 4:	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)	Duration(1-13)	Duration(14-21)	Duration(22-34)
Male Hoursworked	-0.139*	-0.030	-0.089	-0.131	-0.048	-0.037	-0.114	-0.021	-0.157
	(0.079)	(0.070)	(0.122)	(0.087)	(0.068)	(0.096)	(0.094)	(0.085)	(0.125)
Subgroup 5:	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth	Low Wealth	Medium Wealth	High Wealth
Male Hours Worked	-0.023	-0.061**	-0.077***	-0.045	-0.017	-0.079**	-0.028	-0.006	-0.080**
	(0.029)	(0.028)	(0.029)	(0.033)	(0.026)	(0.032)	(0.032)	(0.026)	(0.034)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Household FE	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Table 5.5 shows the impact on log of annual hours worked of married men across different types of households based on income distribution, number of children and age cohorts. Column 1-3 "High Risk Group", Column 4-6 "Medium Risk Group" and Column 7-9 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. All married couples in any of these three groups (high, medium, low) are the treated households whereas households in the "no risk group" form the control group. For each risk group, I show how labour hours worked of married men differ across income distribution (low, middle, high), presence of children (0, 1, more than one kid) and age cohort of head of household (young, middle, old). For example, the estimated coefficients for subgroup 1 show the average treatment effects on treated (ATET) on men annual hours worked across income distribution in all three risk groups (low income, middle income and high income). The estimates are based on the difference in difference framework and controls for husbands' demographics, wife demographics, household characteristics, year and households' level fixed effects. To see the number of treated groups, control groups and total number of observations, check the Table B6

to the disparity between individual couples' income. It may also lead to long-term inequality between partners, as the partner who stays home, especially for a long duration, experiences reduced human capital (skills, experience, promotions, etc). These policy dynamics suggest that while the system ensures short-term fairness, it may contribute to widening intra-household inequality over time, shifting the bargaining power to the financially stronger partner. The generous spousal maintenance payments provide a way to reduce the risk of falling back on the standard of living after a divorce, but cannot guarantee that a married woman, having lived many years as a housewife or mother, enters the labour market without any challenges.

In a less generous spousal maintenance regime, the principle of self-sufficiency dominates as partners know they may face challenges in accessing the alimony entitlements. This increases concerns regarding future instability risk and the shift in the bargaining power during the marriage, thereby significantly affecting the partners' commitments towards unpaid care work. Since the marital-splitting tax does not discriminate between shared versus specialisation roles, the likelihood of couples moving from a specialisation model to a shared model. It also reduces the possibility of leaving financially weak partners to suffer disadvantages and may reduce couples' inequality. Therefore, alimony reform 2008 provides a great incentive to achieve self-sufficiency in the presence of a tax-splitting legal regime.

6 Conclusion

In conclusion, this study empirically investigates households' economic decision-making behaviour in response to changes in alimony law reform in Germany. By using this reform as a quasi-natural experiment, the research uncovers both immediate and long-term effects on the economic actions of individuals in intact marriages. The key findings reveal significant behavioural adjustments in married women's labour force participation.

The results are consistent with the theoretical expectations that restrictions in spousal claims lead to increased women's labour force participation at extensive and intensive margins (Table 4.2). The first channel is that restricted future spousal claims are an exogenous shock to the intra-bargaining positions of married couples. This can directly affect their within-family decisions. Using event history discrete time analysis, I show that the reform has significantly shifted the probability of divorce for specific groups, which is reflected in their behavioural responses. The main reason for the increasing risk of divorce is the change in the value of divorce versus the value of marriage, which can be explained through a collected intertemporal household behaviour model (Chiappori & Mazzocco, 2017) and a potential future extension of this paper. I plan to build upon this paper by constructing a theoretical model to explore further and expand the understanding of household behaviour in different alimony regimes.

Based on the empirical evidence in this paper, I observe that within intact marriage, restrictions on claims reduce the welfare of women in case of marriage dissolution. Therefore, women

increase their participation in the labour force to improve their welfare options outside marriage and to ensure their future economic stability. Differential responses are observed since the expected shock is positive for husbands and negative for wives. Consistent with the theory from labour supply literature, women increase their participation and hours worked. In no-fault divorce law, the partner more involved in child-rearing and domestic responsibilities may feel threatened by future financial consequences in case of potential divorce. Table (4.2) shows that the impact of responses across different risk groups and coefficients are more robust for the most vulnerable households. This channel does not work when the position of both partners is equally balanced, like in households where both partners are similarly distributing time between domestic tasks versus careers and the wage gap is close. The insignificant impact on saving behaviour of married households is consistent with findings from theoretical models (Voena, 2015).[29] This is evident from the estimated impact on saving behaviour of the households after the reform. However, I cannot rule out the possibility of reallocating financial assets after the reform, and it can be a potential topic for future research.

These outcomes highlight that changes in expected financial solidarity due to changing conditions of spousal alimony can have profound and lasting effects on the labour supply of economically weak partners. This research contributes to the existing empirical literature by offering novel insights into how legal reforms influence household saving and labour market behaviour, particularly within the context of Germany's legal and social framework. The paper's unique focus on the heterogeneous treatment effects across different household types adds depth to our understanding of economic behaviour under uncertainty, providing a crucial perspective for policymakers, lawmakers and economists interested in the intersection of family law and economic decision-making.

[29] Under unilateral divorce law and with equitable distribution of property regime, married couples have less incentive to increase their saving. In Germany, the equitable distribution applies only to the assets accumulated during marriage or capital accumulation of individual assets.

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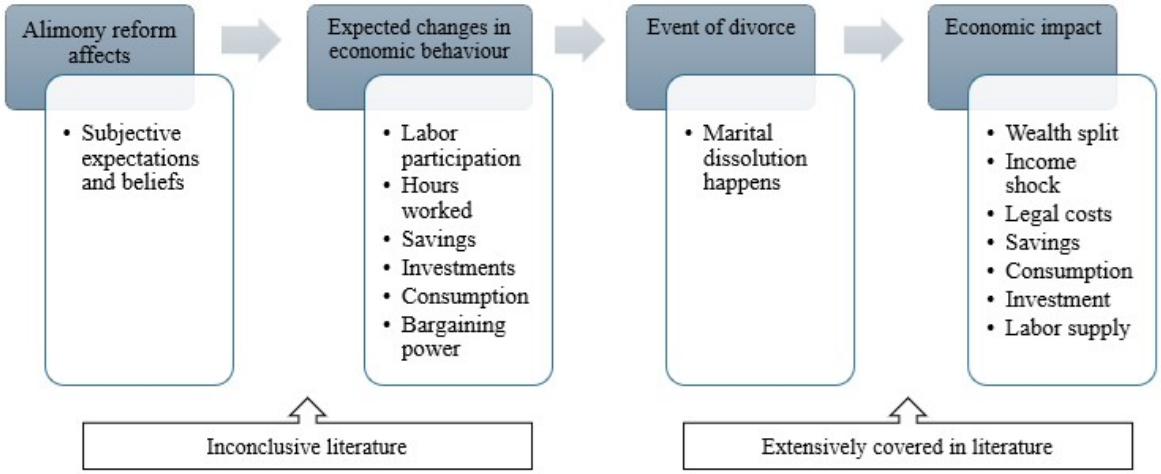
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A Appendix - Figures

Figure (A1) Alimony Reform and Economic Behaviour



Source: Author's defined framework

Figure (A2) Hazard of Divorce Before and After Reform by Age

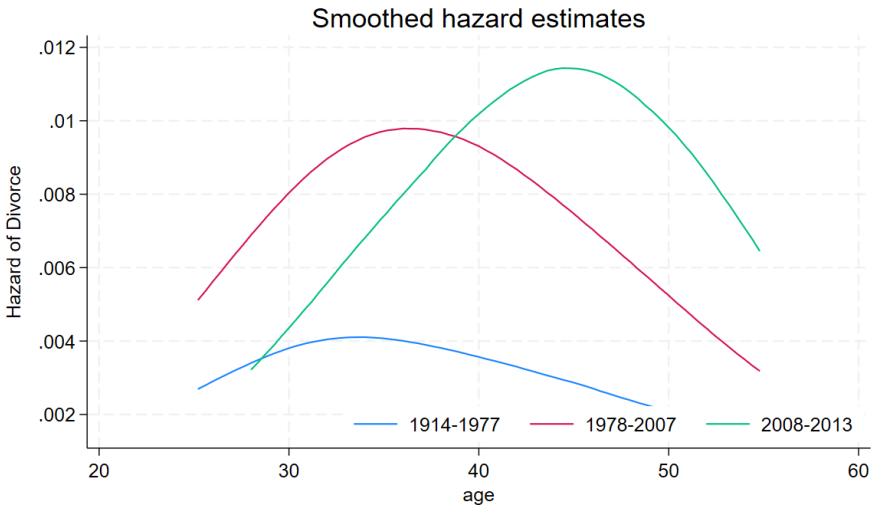
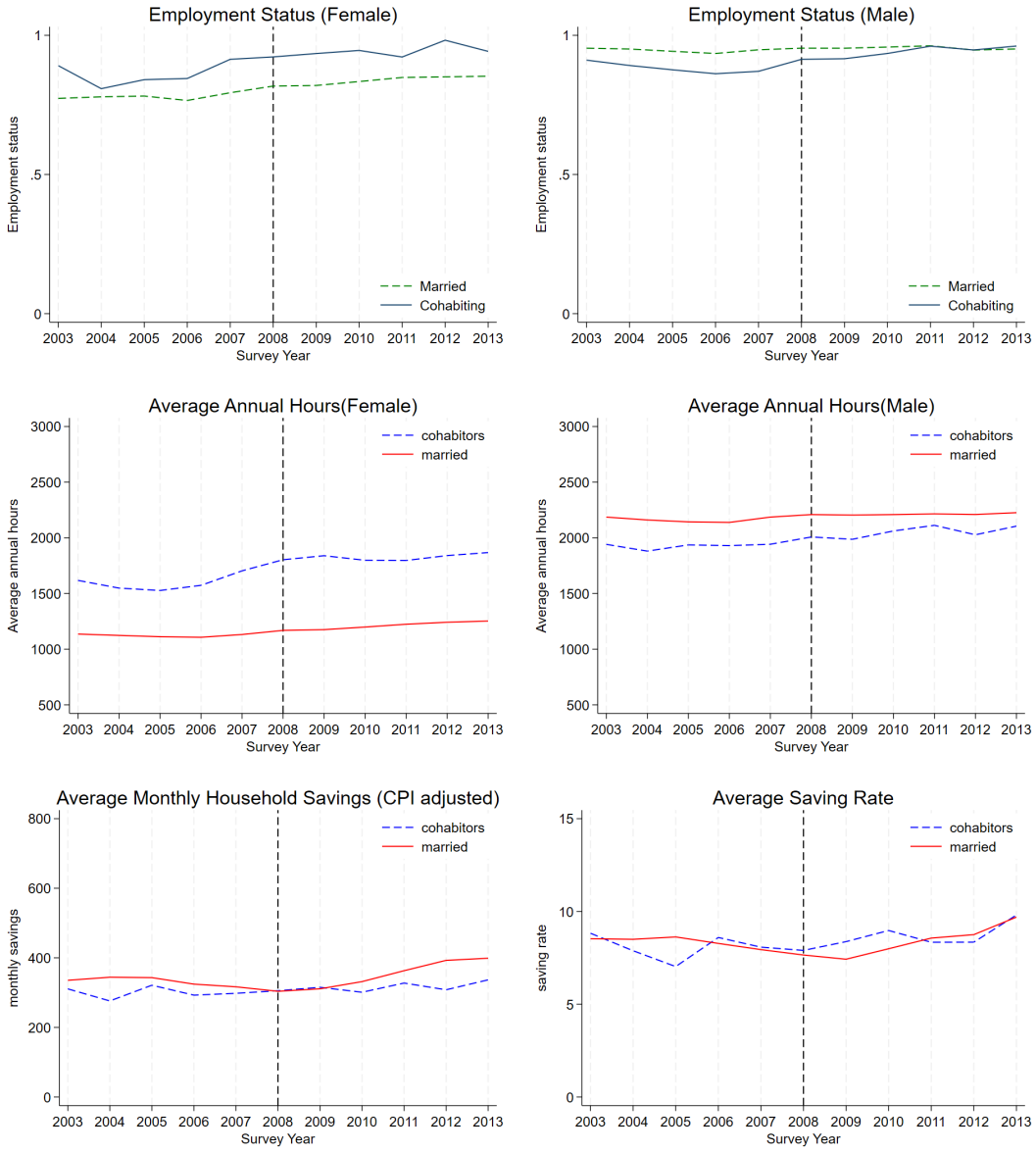


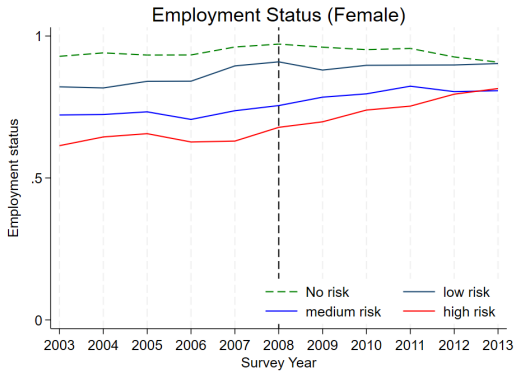
Figure shows the hazard of divorce over the age horizon in three different periods. Blue line shows the hazard of divorce from period 1914-1917 (period before the unilateral regime). It shows that the risk of divorce was very low among married couples as divorce was enforced based on mutual consent of the partners. Red lines show the distribution of hazards of divorce from 1978-2007 (the period after the unilateral law and before the alimony reform in 2008). It shows that the hazard of divorce significantly increased after the unilateral divorce was passed in 1977. Green Line captures the hazard of divorce from 2008-2014 (period after the alimony reform took place). The distribution shows that the average risk of divorce has increased in the post-reform period and for individuals at higher ages. The figure is based on the author's own estimated hazard model of divorce presented in the paper.

Figure (A3) Trends in Outcomes Married (Treated) versus Cohabiting (Control) Couples

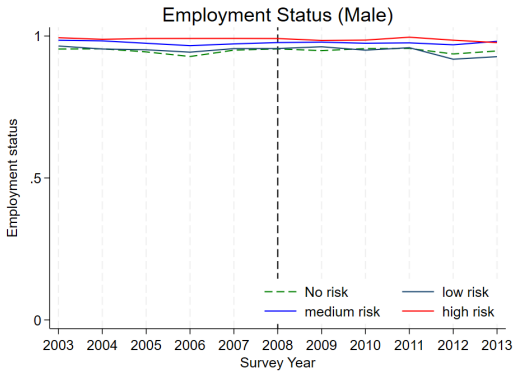


Note: The figure A3 shows the trends in hours worked and saving of men and women in the sample by treated (married) and control (cohabiting) groups.

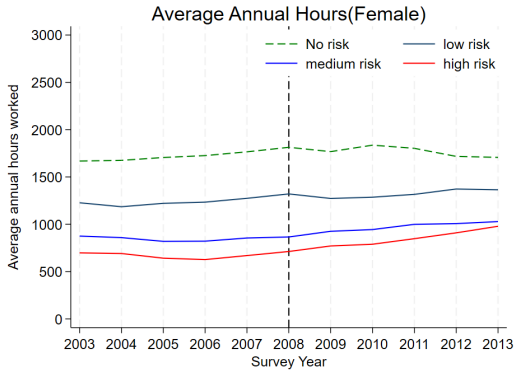
Figure (A4) Trends in Outcomes By Risk Groups



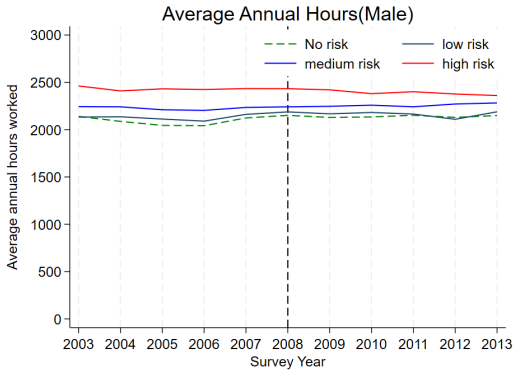
(a) Women employment status



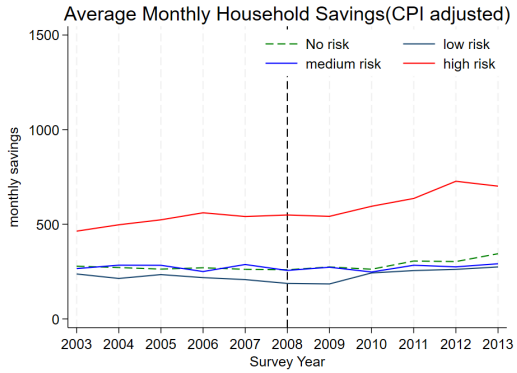
(b) Men employment status



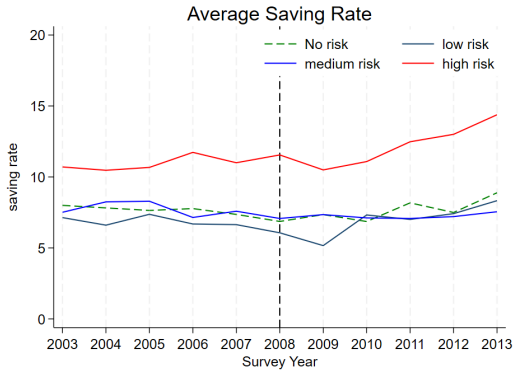
(c) Women average annual hours



(d) Men average annual hours



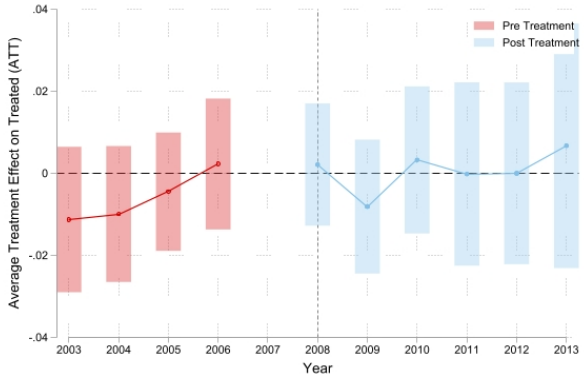
(e) Household monthly saving amount



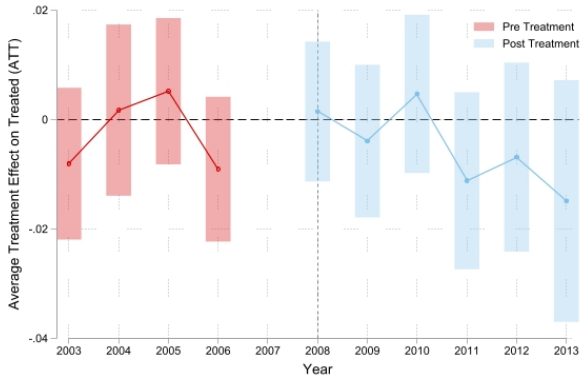
(f) Household average saving rate

Note: The figure A4 shows the trends in hours worked and saving of men and women in the sample by treated (high, medium and low risk married) and control (no risk married couples) groups.

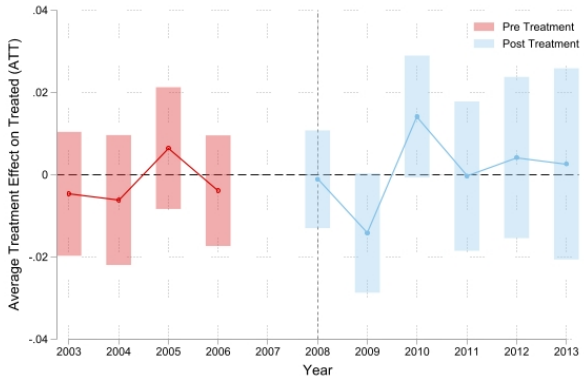
Figure (A5) Saving Dynamics across Married Households



(a) High Risk Group



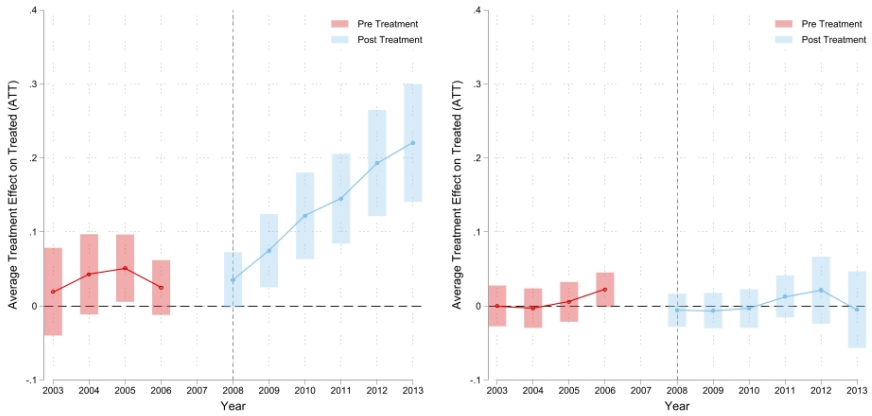
(b) Medium Risk Group



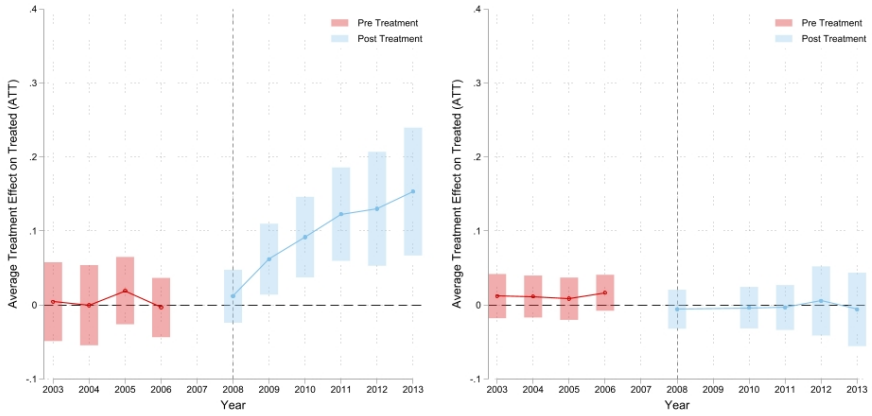
(c) Low Risk Group

Note: Figure A5 shows the average dynamic responses of saving rate of married households across three risk groups compared to married couples in no risk group before and after the reform. The X-axis shows the periods to treatment, whereas period 0 shows the year of reform (2008), with pre-window (5 years to the left) and post-window (5 years to the right). Y-axis shows the Average treatment Effect on Treated (ATT). The saving rate is defined as the ratio of the total monthly savings of households to the total households' net monthly income, including labour and other income. Monthly saving amounts are the average monthly savings reported by the heads of households. Red color bars show the pre-treatment coefficients and blue bars show the post-treatment coefficients obtained using dynamic difference-in-difference framework. The estimated impact in the pre-treatment year 2007 is zero, as we assume there is no anticipation. Married sample includes all married households which got married before the reform and did not get divorced throughout the observed period (2003-2013).

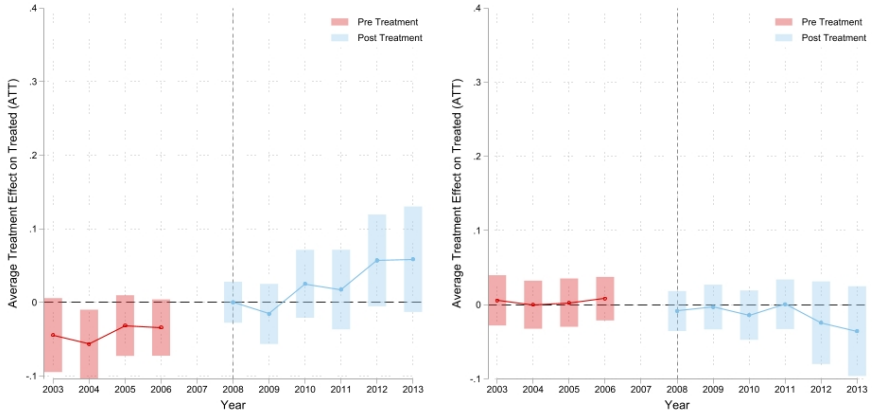
Figure (A6) Labour Market Participation Dynamics by Wife(L) Husband(R)



(a) High Risk Group



(b) Medium Risk Group



(c) Low Risk Group

Note: Figure A6 shows the dynamics of labour market participation of three risk groups by husbands (right) and wives (left) compared to no risk group before and after the reform. The X-axis shows the periods to treatment, whereas period 0 shows the year of reform (2008), with pre-window (5 years to the left) and post-window (5 years to the right). Y-axis shows the Average treatment Effect on Treated (ATT). The variable labour market participation is a dummy variable that takes the value one if an individual is employed and zero otherwise. Red color bars show the pre-treatment coefficients and blue bars show the post-treatment coefficients obtained using dynamic difference-in-difference framework. The sample includes all married households that got married before the reform and did not get divorced throughout the observed period (2003-2013). Results show a significant increase in the labour participation of married women in the years following reform.

Table (B1) Descriptive Analysis: Descriptive Statistics by Instability Risk Group

Defined Risk Group	Mean	SD	Min	Max	N
No Risk Group "not eligible"					
Female Age	45.1956	6.2719	25	55	3303
Male Age	43.1714	6.4091	25	55	3303
Female Education	2.2183	0.5173	1	3	3303
Male Education	2.1355	0.4203	1	3	3298
Children (below 18)	1.1496	1.0534	0	5	3303
Region (West=1)	1.5553	0.4970	1	2	3303
Male Net labour Income	1568.264	835.9528	0	9944.91	3303
Female Net labour Income	1327.388	757.5446	0	8443.601	3303
Net Monthly saving	276.3023	402.4178	0	5345.005	3187
Female Hours Worked	1744.300	723.2859	0	4988	3303
Male Hours Worked	2111.178	750.3923	0	5389	3303
Egalitarian Share	0.9004	0.2995	0	1	3303
Male Breadwinner	0.0478	0.2134	0	1	3303
Female Breadwinner	0.0448	0.2069	0	1	3303
Low Risk Group					
Female Age	44.2353	6.4887	25	55	3319
Male Age	42.4655	6.5858	25	55	3319
Female Education	2.1612	0.5140	1	3	3319
Male Education	2.1262	0.4309	1	3	3319
Children (below 18)	1.3028	1.0515	0	5	3319
Region (West=1)	1.2998	0.4582	1	2	3319
Male Net labour Income	1925.511	892.5214	0	7483.007	3319
Female Net labour Income	864.7278	735.8293	0	5000.245	3319
Net Monthly saving	223.3157	346.6864	0	4279.152	3158
Female Hours Worked	1267.272	814.0228	0	4676	3319
Male Hours Worked	2147.666	723.1745	0	5092	3319
Egalitarian Share	0.8265	0.3788	0	1	3319
Male Breadwinner	0.1253	0.3312	0	1	3319
Female Breadwinner	0.0422	0.2010	0	1	3319
Medium Risk Group					
Female Age	44.1494	6.2767	25	55	3286
Male Age	41.8841	6.5487	25	55	3286
Female Education	2.1257	0.5138	1	3	3286
Male Education	2.1726	0.4807	1	3	3286
Children (below 18)	1.6442	1.2049	0	12	3286
Region (West=1)	1.1342	0.3409	1	2	3286
Male Net labour Income	2515.624	915.5154	0	10754.99	3286
Female Net labour Income	646.8928	777.8945	0	16887.2	3286
Net Monthly saving	273.126	385.6203	0	3670.838	3139
Female Hours Worked	898.0320	799.5597	0	4994	3286
Male Hours Worked	2238.722	617.3378	0	5462	3286
Egalitarian Share	0.7343	0.4418	0	1	3286
Male Breadwinner	0.2416	0.4281	0	1	3286
Female Breadwinner	0.0228	0.1494	0	1	3286
High Risk Group					
Female Age	45.0279	5.7315	25	55	3301
Male Age	42.9949	6.0210	25	55	3301
Female Education	2.2757	0.5056	1	3	3294
Male Education	2.5388	0.5423	1	3	3300
Children (below 18)	1.7546	1.0831	0	5	3301
Region (West=1)	1.0821	0.2746	1	2	3301
Male Net labour Income	3925.913	1578.001	0	17773.97	3301
Female Net labour Income	609.426	838.7707	0	8057.534	3301
Net Monthly saving	561.5807	735.2178	0	11258.13	3202
Female Hours Worked	739.6131	728.2370	0	4363	3301
Male Hours Worked	2418.296	565.5642	0	7506	3301
Egalitarian Share	0.6725	0.4694	0	1	3301
Male Breadwinner	0.3169	0.4653	0	1	3301
Female Breadwinner	0.0103	0.1010	0	1	3301

Note: Table 3.1 shows descriptive statistics of the married couples from no-risk, low-risk, medium-risk and high-risk groups. These statistics include mean, standard deviation, minimum, maximum and total number of observations.

Table (B2) Düsseldorfer Table for Estimating Child Care Payments January 2008

A. Kindesunterhalt

	Nettoeinkommen des Barunterhaltspflichtigen (Anm. 3, 4)	Altersstufen in Jahren (§ 1612 a Abs. 1 BGB)				Prozent-satz	Bedarfskontroll-betrag (Anm. 6)
		0 – 5	6 – 11	12 – 17	ab 18		
	Alle Beträge in Euro						
1.	bis 1.500	279	322	365	408	100	770/900
2.	1.501 - 1.900	293	339	384	429	105	1.000
3.	1.901 - 2.300	307	355	402	449	110	1.100
4.	2.301 - 2.700	321	371	420	470	115	1.200
5.	2.701 - 3.100	335	387	438	490	120	1.300
6.	3.101 - 3.500	358	413	468	523	128	1.400
7.	3.501 - 3.900	380	438	497	555	136	1.500
8.	3.901 - 4.300	402	464	526	588	144	1.600
9.	4.301 - 4.700	425	490	555	621	152	1.700
10.	4.701 - 5.100	447	516	584	653	160	1.800
	ab 5.101	nach den Umständen des Falles					

Note: This table shows the standard child maintenance payments that the ex-spouse is eligible for after the divorce. The parent who takes the responsibility for the children is eligible for this payment. The childcare payments are for the year 2008. The values are expressed in 2018 monetary units for analysis purposes. Source: (Higher Regional Court of Düsseldorf, 2008)

Table (B3) Discrete Time Event History Model for Hazard of Divorce

	(Odds Ratio) Sample 1978-2013	(Odds ratio) Sample 1984-2013
Post Reform	−0.612	−0.628
	(−0.75)	(−0.76)
Agespline 25-35	−0.0282***	−0.0307***
	(−4.24)	(−4.11)
Agespline 36-45	−0.0204***	−0.0152*
	(−3.34)	(−2.66)
Agespline 46-55	−0.0775***	−0.0833***
	(−9.06)	(−9.13)
Post*Agespline 25-35	0.000165	0.00278
	(0.01)	(0.11)
Post*Agespline 36-45	0.0415**	0.0365*
	(2.78)	(2.41)
Post*Agespline 46-55	0.0134	0.0194
	(0.80)	(1.14)
Low education	−0.154***	−0.0885*
	(−4.57)	(−2.22)
High education	−0.107**	−0.140***
	(−2.88)	(−3.46)
Post*Low education	−0.203*	−0.269**
	(−2.14)	(−2.80)
Post*High education	−0.0697	−0.0370
	(−0.73)	(−0.38)
Duration 0-3	0.442***	0.476***
	(14.87)	(14.48)
Duration 4-13	−0.0207***	−0.0161**
	(−3.61)	(−0.14)
Duration 14-26	−0.0381***	0.00732
	(−5.69)	(0.48)
Duration 26plus	−0.0302	−0.0436*
	(−1.47)	(−1.96)
Post*Duration 0-3	0.108	0.0734
	(1.08)	(0.73)
Post*Duration 4-13	0.0514***	0.0420*
	(3.48)	(2.31)
Post*Duration 14-26	0.00703	−0.00227
	(0.47)	(−0.12)
Post*Duration 26plus	−0.0720	−0.0590
	(−1.55)	(−1.25)
One kid	−0.434***	−0.336*
	(−3.39)	(−2.46)
Two kids	−1.194***	−1.159***
	(−8.32)	(−7.49)
Three kids	−0.118	−0.178
	(−1.11)	(−1.56)
Post*One kid	0.226	0.127
	(0.59)	(0.33)
Post*Two kids	0.202	0.167
	(0.52)	(0.43)
Post*Three kids	−0.131	−0.0699
	(−0.47)	(−0.25)
Previously married	1.225***	1.218***
	(35.30)	(33.06)
Constant	−4.552***	−4.539***
	(−21.30)	(−18.85)
N	565071	448985
rho	0.045	0.0472

z score in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Table B3 shows the estimated odd ratios using discrete-time event history analysis. The estimates are based on an individual-level dataset from the GSOEP panel survey for the period 1978-2013. Column 1 shows the log odds for time window 1978-2013 and column 2 shows estimations based on window 1984-2013. The main variable of interest is the coefficient of post reform which captures the hazard of divorce after the reform.

Table (B4) Marginal Effects using Discrete-Time Event History Analysis

	(Marginal Effects) Sample 1978-2013	(Marginal Effects) Sample 1984-2013
Post Reform	0.00120**	0.000480
	(2.65)	(1.06)
Agespline 25-35	−0.000279***	−0.000320***
	(−4.27)	(−4.11)
Agespline 36-45	−0.000146**	−0.0000985
	(−2.62)	(−1.55)
Agespline 46-55	−0.000749***	−0.000849***
	(−9.80)	(−9.91)
Low education	−0.00181***	−0.00141***
	(−5.74)	(−3.81)
High education	−0.00120***	−0.00157***
	(−3.44)	(−4.02)
Duration 0-3	0.00452***	0.00516***
	(15.56)	(15.13)
Duration 4-13	−0.000135*	−0.0000912
	(−2.57)	(−1.53)
Duration 14-26	−0.000367***	−0.000396***
	(−6.08)	(−5.80)
Duration 26plus	−0.000396*	−0.000561**
	(−2.15)	(−2.68)
One kid	−0.00338***	−0.00296**
	(−3.96)	(−2.82)
Two kids	−0.00710***	−0.00748***
	(−15.57)	(−13.90)
Three kids	−0.00129	−0.00189*
	(−1.46)	(−1.98)
Previously married	0.0193***	0.0201***
	(23.33)	(22.14)
N	565071	448985

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Table B4 shows the estimated marginal effects based on event history model (B3) using discrete time event history analysis. The estimates are based on an individual-level dataset from the GSOEP panel survey for the period 1978-2013. Column 1 shows the log odds for time window 1978-2013 and column 2 shows estimations based on window 1984-2013. The main variable of interest is the coefficient of post reform, which captures the hazard of divorce after the reform, and the interactions with a number of children and education.

Table (B5) Sample Distribution for Regressions by Potential Beneficiary

	High Risk Group			**Medium Risk Group**			**Low Risk Group**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Saving	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)
Treated	340	331	9	342	317	25	340	294	46
Control	368	234	134	371	233	138	375	235	140
Total	6,269	5,028	1,241	6,226	4,838	1,388	6,251	4,668	1,583
Female Participation	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)
Treated	373	333	9	345	230	25	343	296	47
Control	342	236	137	375	234	141	381	238	143
Total	6,591	5,270	1,321	6,584	5,110	6,617	1,822	4,921	1696
Male Participation	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)
Treated	342	333	9	345	320	25	343	296	47
Control	373	326	137	375	234	141	381	238	143
Total	6,591	5,270	1,321	6,584	5,110	1,474	6,617	4,921	1,696
Female Hours Worked	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)
Treated	298	298	9	317	292	25	336	289	47
Control	364	227	137	369	228	141	375	232	143
Total	5,417	4,118	1,299	5,651	4,200	1,451	6,038	4,371	1,667
Male Hours Worked	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)	All	Beneficiary (F)	Beneficiary(M)
Treated	341	333	8	345	320	25	338	296	42
Control	372	236	136	378	234	141	380	238	142
Total	6,406	5,200	1,206	6,584	5,110	1,474	6,315	4,814	1,501

Note: Table B5 shows the distribution of total sample of married couples by risk groups and potential beneficiary. Column 1-3 "High Risk Group", Column 4-6 "Medium Risk Group" and Column 7-9 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. For each risk group and subgroup, I show the total number of observations of treated households and control households.

Table (B6) Sample Distribution by Subgroups

	High Risk Group			**Medium Risk Group**			**Low Risk Group**		
	(1) egalitarian	(2) male	(3) female	(4) egalitarian	(5) male	(6) female	(7) egalitarian	(8) male	(9) female
Treated	289	194	11	310	167	16	324	119	45
Control	357	65	56	362	62	58	367	63	58
Total	4942	1125	180	5083	923	215	5390	534	281
	low income	middle income	high income	low income	middle income	high income	low income	middle income	high income
Treated	269	243	72	170	307	165	212	291	128
Control	135	319	216	216	323	137	221	321	135
Total	2134	3061	1074	1561	3544	1141	1822	3479	943
	no kid	one kid	more than 1 kid	no kid	one kid	more than 1 kid	no kid	one kid	more than 1 kid
Treated	141	204	228	161	210	211	203	216	173
Control	283	212	124	283	217	124	288	213	125
Total	2372	1643	2254	2570	1677	1999	2897	1674	1673
	young	middle age	old	young	middle age	old	young	middle age	old
Treated	99	292	217	117	271	200	113	272	208
Control	97	279	250	97	283	252	97	279	258
Total	797	3027	2446	983	2958	2305	935	2929	2308

Note: Table B6 shows the distribution of total sample of married couples by risk groups and subgroups. Column 1-3 "High Risk Group", Column 4-6 "Medium Risk Group" and Column 7-9 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. For each risk group and subgroup, I show the total number of observations of treated households and control households. How does the labour market behaviour of husbands differ across income distribution (low, middle, high), presence of children (0, 1, more than one kid), and age cohort of the head of household (young, middle, old)? For example, in the first category of high risk, the total number of treated egalitarian couples is 289, the control group consists of 357 egalitarian couples, and the total observations for both treated and control for the observed period 2003-2013 are 4942.

Table (B7) Difference-in-Difference Estimates by Risk Group using Cohabitating Couples as Control Group

	High Risk	Medium Risk	Low Risk
Saving Rate	0.005	-0.007	-0.007
	(0.008)	(0.008)	(0.007)
Female Participation	0.059**	0.057**	0.026
	(0.029)	(0.029)	(0.026)
Male Participation	-0.037**	-0.046**	-0.045**
	(0.015)	(0.018)	(0.019)
Female Hours Worked	0.116**	0.075	0.029
	(0.052)	(0.049)	(0.044)
Male Hours Worked	-0.030	-0.017	-0.005
	(0.028)	(0.029)	(0.030)
Year FE	Y	Y	Y
Household FE	Y	Y	Y

Note: Table B7 shows the average treatment effects on treated (married couples) according to their exposure to the risk of financial troubles in case of potential divorce compared to cohabiting couples as a control group. Column 2 represents "High Risk Group", Column 3 represents "Medium Risk Group" and Column 4 represents "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. Each row represents a separate regression model and shows the average treatment effect on the respective dependent variable, including saving rate, female labour market participation, male labour market participation, female annual hours worked(log), and male annual hours worked(log). The estimates are based on differences in different frameworks and controls for husbands' demographics, wives' demographics, household characteristics, time and household-level fixed effects.

Table (B8) Difference-in-Difference Estimates by Risk Group by Estimated Spousal Maintenance for 2006 as Robustness Check

Dependent Variables	High Risk Group	Medium Risk Group	Low Risk Group
Saving Rate	-0.000	-0.001	0.006
	(0.006)	(0.006)	(0.006)
Female Participation	0.105***	0.078***	0.024
	(0.023)	(0.024)	(0.021)
Male Participation	-0.015*	-0.020**	-0.030***
	(0.009)	(0.009)	(0.011)
Female Hours Worked	0.146***	0.088**	0.042
	(0.043)	(0.036)	(0.028)
Male Hours Worked	-0.041**	-0.026	-0.018
	(0.017)	(0.017)	(0.017)
Year FE	Y	Y	Y
Household FE	Y	Y	Y

Note: Table B8 shows the average treatment effects on treated (married couples) according to their exposure to risk of financial troubles in case of potential divorce. Column 2 "High Risk Group", Column 3 "Medium Risk Group" and Column 4 "Low Risk Group". Risk groups are defined based on the estimated potential loss of alimony for married households if they get divorced using income information for 2006 as a robustness check. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. Each row represents a separate regression model and shows the average treatment effect on the respective dependent variable, including saving rate, female labour market participation, male labour market participation, female annual hours worked(log), and male annual hours worked(log). The estimates are based on differences in different frameworks and controls for husbands' demographics, wives' demographics, household characteristics, time and household-level fixed effects.

Table (B9) Difference-in-Difference Estimates using Spousal Maintenance and Children Support Alimony

	High Risk Group	Medium Risk Group	Low Risk Group
Saving Rate	-0.004	-0.002	-0.001
	(0.006)	(0.005)	(0.023)
Female Participation	0.061***	0.070***	0.005
	(0.022)	(0.022)	(0.020)
Male Participation	-0.015	0.001	0.003
	(0.013)	(0.013)	(0.011)
Female Hours Worked	0.107***	0.088**	0.037
	(0.040)	(0.036)	(0.032)
Male Hours Worked	-0.030	-0.000	0.005
	(0.019)	(0.018)	(0.019)
Year FE	Y	Y	Y
Household FE	Y	Y	Y

Note: Table 4.2 shows the average treatment effects on treated (married couples) according to their exposure to risk of financial troubles in case of potential divorce assuming beneficiary is a female. Column 2 "High Risk Group", Column 3 "Medium Risk Group" and Column 4 "Low Risk Group". Risk groups are defined based on the estimated potential expected loss of alimony in 2007(pre-reform) for married households if they get divorced. Above 75th percentile are at high risk, 50-75th percentile are at medium risk, 25-50th percentile are low risk and below 25th percentile are almost at zero risk. Each row represents a separate regression model and shows the average treatment effect on the respective dependent variable, including saving rate, female labour market participation, male labour market participation, female annual hours worked(log), and male annual hours worked(log). The estimates are based on the differences in difference framework and controls for husbands' demographics, wife demographics, household characteristics, time and household level fixed effects.