# Child Penalties Beyond First Birth in the Netherlands: The Role of Family Complexity

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## Introduction

The economic consequences of childbearing are a significant concern in high-income societies (Kleven, Landais and Leite-Mariante 2024). Extensive research has linked parenthood to gendered labor market outcomes in many country contexts (Goldin, Kerr and Olivetti 2024; Kleven et al. 2024; Kleven et al. 2019a), including the Netherlands (e.g. Artmann, Oosterbeek and van der Klaauw 2022; Begall and Grunow 2015; Rabaté and Rellstab 2022). After having children, women often work fewer hours, face labor market interruptions or permanent exits, and generally earn less than they did before becoming mothers. By contrast, earnings and labor supply of most men remain stable after they become fathers. Because of these child penalties, women often "fall behind men" (Kleven, Landais and Søgaard 2019b:182) in terms of labor market participation and earnings.

Whereas the majority of studies have focused on the economic penalties associated with the birth of the first child, there is a growing need to examine the impact of subsequent births on labor market outcomes (see Abendroth, Huffman and Treas 2014; Doren 2019; Dorius, Courtney and Riser 2025; Hsu 2021). Because gendered penalties can compound across births, inequalities between mothers of one and mothers of more children can be large.

Differences between women and men might also be exacerbated if women consistently earn less because of parity progression while men's earnings remain unaffected. These patterns can have severe repercussions in terms of gender inequalities in the labor market and for women's economic independence within and outside households.

Another potential source of child penalties among parents who have a second or third child is represented by the number of partners with whom they have children. Fertility behaviors have undergone significant shifts concerning the partnership contexts of births. Increasing union dissolution and re-partnering rates (Galezewska 2016; Härkönen 2014; Kalmijn and Leopold 2021) have led to a growth in the number of people having children with more than one reproductive partner (Thomson 2014; Thomson, Dahlberg and Svallfors 2021). Hence, we must introduce a relevant distinction between having a second or third child in a single-partner fertility (SPF) context and in a multiple-partner fertility (MPF) context. This distinction, which has inevitably been ignored by the child penalty literature because of its strong focus on first births, can bring out important insights into how economic penalties may differ depending on the level of family complexity associated to higher-order births. The dissolution of a union in which children were born, subsequent repartnering, and the transition from a step- to a blended family after the birth of a new child can affect labor market participation and influence child penalties differently compared to higher-order births within stable partnerships. Additionally, if trends in union dissolution, repartnering, and gender equality would continue and spread across social strata, MPF will increase its positive contribution to currently declining fertility rates in high-income societies (Andersson 2023a, 2023b). Thus, it is important to understand how these life experiences interact with labor market processes.

Additionally, child penalties by level of family complexity can be linked with social stratification Research showed that lower socioeconomic status is associated with a higher likelihood of having children with multiple reproductive partners. Social stratification can affect earnings as well. Whereas lower-earning men and women might not be able to adjust their participation in the labor market in response to the birth of a child, higher earners might show more elasticity in their labor supply or in the investment into their current jobs and,

ultimately, in their earnings. At the same time, recuperation of lost earnings might vary depending on the degree of job autonomy, the possibility of career progression within firms and professions, and economic pressure on household providers. These patterns can contribute to further differences between lower and higher earners and explain how family complexity influences second- and third-child penalties.

The contribution of our study is three-fold: (1) we examine women's and men' earnings trajectories in the Netherlands in the years surrounding the birth of a second or third child; (2) we consider both single-partner fertility and multiple-partner fertility scenarios; (3) we explore how second- and third-child penalties associated with gender and level of family complexity vary by earnings levels before birth.

We focus on the Netherlands because its flexible labor market and high prevalence of part-time work arrangements (OECD 2019) provide an ideal context for studying the economic consequences of childbearing. This emerges clearly from the literature on penalties associated with entry into parenthood (e.g. Artmann et al. 2022). As the world's "first part-time economy" (Visser 2002), the Netherlands has reduced gender inequalities by allowing women to remain active in the labor market after parenthood and marking the decline of the male breadwinner model. Yet, the strong concentration of part-time work among mothers and persistent gendered norms in the division of paid and unpaid labor (Begall 2023; Zwier, Kalmijn and Bol 2024) continue to reproduce inequalities and contribute to a decreasing but substantial gender wage gap (CBS Statline 2025b). This offers the opportunity to explore how gender stratifies the consequences of having a second or third child in an otherwise highly egalitarian context.

Our study aims to provide a comprehensive understanding of the economic consequences of parity progression beyond parity one in the Netherlands and to shed light on their role in widening gender and social inequalities.

## Background

### Child penalties beyond first birth

The strong focus on the birth of the first child in the literature on child penalties (e.g. Kleven et al. 2024) might be justified by: (1) the fact that the birth of the first child represents the transition into the new role of parents, and thus it is central in the family life course of women and men; (2) decreasing fertility rates in many high-income countries (Eurostat 2025) and fewer second and higher-order births. Yet, despite low fertility levels, many parents still have more than one child: In 2022, more births in the Netherlands were to women who already had children than to first-time mothers. (CBS Statline 2025a). Additionally, child penalties beyond parity one might compound with the widely observed penalties that follow entry into parenthood. Thus, negative trends in labor market outcomes following higher-order births might drive further economic inequalities between men and women. Because the gender wage gap that exists in high-income countries is largely driven by motherhood penalties (Kleven et al. 2024), it is important to understand how parity progression can exacerbate these gender imbalances at the aggregate level. Economic penalties around second and higher-order births might also produce disparities between mothers of one and mothers of more children, with potential repercussion across the life course in terms of prolonged economic vulnerability among specific groups of women.

Continued fertility introduces challenges for parents because of the arrival of a new child and the resulting increase in parental responsibilities, the cost for sustaining the household, and a higher time pressure on parents. At the same time, economic penalties associated with higher-order births may different from first-child penalties, especially for women. Having already experienced child penalties, women who have a second or third child might not face the same reduction in earnings because they already work fewer hours or follow a shallower wage trajectory.

Additionally, selection into higher parities can influence the magnitude of second- and third-child penalties. Parents who feel they can successfully integrate another child into their existing family–work arrangements may face smaller penalties than at first birth. Conversely, parents may decide to have additional children only if they believe they can afford further earnings losses or if their labor market position allows them to adjust their participation (e.g., if women increased their labor supply after an initial reduction following the first birth).

**Family complexity and child penalties**

Having children across consecutive partnerships can introduce further challenges that go beyond the birth of a new child. Because MPF often follows union dissolution and the formation of a step-family, households might face boundary ambiguity.(Brown and Manning 2009), although this is lower if partners have a child together (Juteau et al. 2025). Family boundary ambiguity refers to inconsistent perceptions between household members of who is in and who is out of the family (Boss and Greenberg 1984). Unclear definitions of norms and expectations between household members are associated to poorer family functioning (Brown and Manning 2009; Carroll, Olson and Buckmiller 2007) and may affect the division of tasks within households and the resources available to invest in the labor market. Moreover, parental responsibilities towards earlier-born children can be shared with the previous partner which belongs to a different household, increasing the network of relationship that must be maintained and potentially affecting the available time and resources to invest in the labor market.

At the same, because parenting demands towards earlier-born children can be shared with the child's other parent and ex-partner, the overall care burden might be lower. This can especially apply to women if post-dissolution care arrangements compel fathers to assume a greater share of childcare than they might within an intact couple (Begall 2023). Hence, time and economic resources to invest in the labor market might be more readily available after union dissolution and especially after re-partnering for women, increasing labor market participation and hours worked. These patterns would be consistent with evidence of increased labor supply and earnings commonly observed after union dissolution in the Netherlands and abroad (Bargain et al. 2012; Hogendoorn and Kalmijn 2024; Klingler 2025; Tamborini, Couch and Reznik 2015; van Damme, Kalmijn and Uunk 2008). Although these opposing mechanisms are likely to co-exist, recent research from the United States and western Germany associates MPF to lower wealth at midlife for women (Dorius et al. 2025; Kapelle and Vidal 2022). This evidence suggests that the opportunity cost of parity progression might, in fact, be higher with as family complexity and the challenges that it

entails for parents increase. However, the link between parity progression with a new partner and child penalties has not been proven empirically yet.

**The role of earnings before birth and fertility schedules**

Different child penalties associated with family complexity could be tied to social stratification. MPF is socially stratified and is associated to lower socio-economic status (Jalovaara and Kreyenfeld 2020; Lappegård and Rønsen 2013; Monte 2019; Stannard, Berrington and Alwan 2024; Thomson et al. 2014). If MPF parents are concentrated among lower earners, this could be a relevant driver of differences with their SPF counterparts. First, there might be reverse causality between economic resources and the choice to have children: lower-earning individuals might choose to not have children because of the low resources available to maintain the child and to invest into formal childcare; on the other end, parents-to-be might invest more time and effort in the labor market to accrue resources in view of their fertility desires or because of an upcoming child. If people without the financial resources for parenthood are selected out, we might observe an increase in earnings among lower-earning women and men.

Second, lower earners might face lower child-penalties if they cannot afford to withdraw from the labor market or reduce work-hours substantially. In scenarios where men are the primary economic provider, a reduction in earnings might not be sustainable. Lower-earning women, who in the Netherlands are less likely to be main providers within couples (Verbakel 2010), might instead already be at an earnings floor, and be faced with either a possibly very costly decision to withdraw from the labor market or continue in their job without new work-time arrangements. We expect these mechanisms to be of particular relevance because the birth of a higher-order child inevitably follows the birth of the first, which might have already introduced substantial reductions in earnings (Artmann et al. 2022; Kleven et al. 2024).

There is no evident earnings stratification in parity progression beyond parity one in the Netherlands (van Wijk 2024). However, higher earners can have a larger economic capacity to reduce their investment into the labor market or into their jobs substantially after the birth of a second or third child. Additionally, higher earners might not only work more hours, but also earn higher hourly wages. This would mean that for the same reduction in hours worked

after childbirth, they would face larger earning losses than their counterparts who earn less per-hour. As a result, higher earners might witness steeper reductions in earnings around the birth of a child, at least in absolute terms.

Thus, depending on the prevailing mechanisms, different earnings trends around the birth of a second or third child might take shape between lower and higher earners and explain different child penalties between SPF and MPF parents. Indeed, evidence of different child penalties by various measures of earning potential has been found for entry into parenthood (Artmann et al. 2022).

An additional source of heterogeneity in child penalties by level of family complexity is represented by different fertility schedules between SPF and MPF parents. MPF is associated to a relatively young age at first birth in several country contexts (Carlson and Furstenberg Jr. 2006; Guzzo 2014; Thomson et al. 2014). MPF also often entails a longer birth spacing between children due to the time it takes to transition from one reproductive union to the next (see Andersson 2021). In turn, ages at birth and the spacing between births predicts labor market participation and earnings (Carlson, Guzzo and Wu 2024; Doren 2019; Gough 2017) and could account for different second- and third-child penalties by levels of family complexity.

**The Dutch context**

Part-time work contracts are common among the working population of the Netherlands: in 2017, 37.4% of workers worked fewer than 30 hours, more than double the OECD average (OECD 2019). The growth in part-time use in the Netherlands over the last decades has been driven by changes in attitudes towards working mothers, who increasingly preferred reducing working hour instead of withdrawing from the labor market after birth (Begall and Grunow 2015). Additionally, lower work demand after economic shocks in the 1970s, the reduced availability of formal childcare, and national policies in support of part-time use helped the spread of part-time contracts (Visser 2002). Other characteristics of the Dutch labor market is that a sizeable share of part-time workers works less than 20 hours per week and part-time employment is found across educational and occupational skill levels (OECD 2019).

The availability of low-hours employment contract and low barriers to working low hours for employees make the Netherlands highly flexible with respect to the need to reduce activity in the labor market in response to childcare demands. Compared to other western countries where part-time work arrangements are less common, the Netherlands represents an ideal context to study how second and third births shape the earning trajectory of women and men because of the higher degree of elasticity in labor supply. This elasticity is also the main driver of first-child penalties (Artmann et al. 2022; Rabaté and Rellstab 2022).

At the same time, the Dutch part-time economy reflects structural gender inequalities. Many more women work low-hours compared to men (CBS Statline 2025b). Whereas a reduction in hours worked by women after entry into parenthood drives the difference with men in employment after parenthood, paid work arrangements within couples do not always follow economic considerations: Zwier et al. (2024) showed that men's work hours tend to remain stable around birth even if it would make more financial sense for them to work less instead of their female partners. The authors attribute part of this patterns to the persistence of gender norms and expectations regarding men's and women's role in childbearing. Indeed, there is evidence that gendered norms on the division of paid labor within couples after birth persist: women consistently prefer higher work-hours for their male partner; although weaker, such preference extends to dual-earners and female-earner scenarios (Begall 2023). There is also evidence that social norms influence the division of paid-labor (Verbakel 2010) and the size of child penalties in the Netherlands directly (Rabaté and Rellstab 2022; Rellstab 2024).

Adjustments of work-hours after birth and the resulting reduction in earnings reflect the flexibility of labor supply available to workers in the Netherlands. However, this flexibility often translates to women reducing their investment in the labor market, while men tend to remain employed full-time. The result is the high prevalence of the one-and-a-half earner family type (OECD 2019). In conclusion, the development of a part-time economy has reduced gender inequalities in the labor market allowing women to remain active after parenthood and has marked the end of the dominance of the welfare-supported male breadwinner model (Visser 2002). At the same time, persistent gendered patterns in the

distribution of part-time work in the Netherlands reproduce inequalities in paid and unpaid labor and contribute to a gender wage gap that still reached 10.5% in 2024 (CBS Statline 2025b), despite the Netherlands being considered highly egalitarian (Gender Equality Index 2024).

Given these patterns, the Netherlands provide an ideal context to study how family events affect men and women differently within a gendered labor market. While specific institutional and normative features —such as flexible working hours and the concentration of part-time employment among mothers— make the Dutch case distinctive, the mechanisms behind child penalties in this context reflect broader structural and normative processes shaping gender inequalities in advanced welfare states. In this sense, the Netherlands can be seen both as a special case and as informative example through which to understand how labor-market structures and gendered norms contribute to the persistence of child penalties for women.

## Data and methods

### The data

We used administrative micro data from Statistics Netherlands (CBS) which provide information on basic demographic characteristics (gender, date of birth), household address, earnings (2003-2022), and linkages between children and parents for the entire population of the Netherlands.

For our main analyses, we constructed two 10-year long yearly panels which include 1,167,517 men and women who had their second child and 353,208 men and women who had their third child between 2006 and 2016. We did not include fourth and higher-order births due to their lower occurrence. We limited the analyses to men and women born from 1970 onwards with a registered address in the Netherlands for at least one day every year between three years before and six years after the birth of the focal child (second or third). We excluded people who were registered at an institutional household within this time window. We also excluded parents for whom the other parent of at least one child is unknown and parents who had their first child before their 18$^{th}$ birth year.

**The measures**

The outcome of interest is yearly personal gross income from employment and self-employment. Income from employment include gross wages and remuneration for any work carried out outside employment, as well as the value of private use of the employers' car. Income from self-employment is defined as gross earnings from own business. Although we expect child penalties to be mostly driven by a reduction in labor supply, we included self-employed individuals in the analyses because self-employment represent a form of flexible work. In some instances, earnings take negative values. These were recoded to zero. Earnings were adjusted for inflation and are expressed in 2015 values. In the Netherlands, the employer of workers on maternity or paternity leave is required to pay the full salary of their employees, which contributes to gross yearly personal earnings from employment. During the study window, national policies extended the right to unpaid parental leave from 13 to 26 weeks, while the availability of (partially) paid parental leave depended on collective labor agreement and mostly concerned the public sector (Yerkes and Peper 2025).

The birth-year of children was established via the child-parent linkages, which contain the personal identifier of the parents of each person who appears in the population records and are linked to children's basic demographic information. CBS does not distinguish between biological and adoptive children. Pooling adopted and biological children can be problematic if child penalties differ between the two. However, even in the highly egalitarian Danish context, gendered child penalties exist also in the case of adoption (Rosenbaum 2021). The child-parent linkages also allow to establish if all children born to a person share the same other parent. We distinguished between single partner fertility (SPF) women and men whose focal child shares the same other parents with the earlier-born child(ren) and multiple- partner fertility (MPF) women and men whose focal child does not share the other parent with the earlier-born child(ren).

We also included indicators of whether a co-residential union is formed or dissolved within the observation window, as well as their interaction to capture re-partnering because these events could directly influence both the likelihood of having children and earnings. Consecutive unions with the same partner are considered as a single union. We also

included a variable measuring whether the first and third child are born within the observation window if the focal child is the second; whereas we include an indicator for first, second, and fourth birth if the focal child is the third. Any twin birth was considered a single birth. All these variables take value one from the year the event happens.

**Analytical strategy**

We build on the event study methodology developed by Kleven et al. (2019b), which found large use in the recent economic and sociological research on child penalties (among others: Casarico and Lattanzio 2023; Hsu 2021; Musick, Bea and Gonalons-Pons 2020; Rellstab 2024). This methodology is based on the idea that any sharp changes in earnings around birth are attributable to the birth itself, whereas other determinants of earnings should develop smoothly over time. Within this methodology, earnings are modelled as a function of event-time dummies capturing earnings trends in the years around the birth of the focal child and as a function of age dummies capturing life-cycle trends, and year-dummies capturing macro-economic trends.

We extended this approach by using fixed-effects models with individual-specific slopes, which relax the assumption of parallel trends required by traditional fixed-effects models (Rüttenauer and Ludwig 2023). By using fixed-effects with individual slopes (FEIS) we accounted for time-constant as well as time-varying unobserved heterogeneity between SPF and MPF parents. This is particularly relevant because MPF parents might be selected not only on some fixed characteristics increasing their likelihood of having a child with a different reproductive partner, but they might also be on a steeper or shallower earnings trend compared with their SPF counterparts. Since age is the most obvious axis on which earnings trends between MPF and SPF might diverge, we include it as slope variable. Another difference with the method proposed by Kleven et al. (2019b is that we included gross domestic product (GDP) growth rate as a continuous variable instead of specifying year-dummies to control for macro-economic fluctuations (Ludwig and Brüderl 2021). In our case, the fixed effect with individual slopes estimator is given by:

$$y_{it} = x_{it}\beta + \alpha_{i1} + w_{it}\alpha_{i2} + \gamma_{it} + \varepsilon_{it}$$

Where $y_{it}$ is the earnings of person $i$ at time $t$, $\beta$ is the coefficient for event-time $t$, $\alpha_{i1}$ is individual specific constant, $\alpha_{i2}$ captures the earnings trend for individual $i$ over slope parameter $w$ (age in our case), $\gamma_{it}$ is a vector of covariates, and $\varepsilon_{it}$ is the individual specific error.

To estimate earnings changes around birth of the focal child for both MPF and SPF parents, we interacted the set of event-time dummies with an indicator of whether the focal child was born from the same other parent as the earlier-born one(s) or from a different parent.

In the analyses, event-time dummy t-1 was omitted. Thus, the coefficients for the other event-time dummies represent deviations from the level of earnings one year before the birth of the focal child. We begin by modelling earning trajectories around the birth of the focal child separately for men and women and compare child penalties between first and subsequent births Because child penalties can be influenced by the economic resources available in the pre-birth period, and because of MPF is socially stratified (among others Lappegård and Rønsen 2013; Stannard et al. 2024), in a second set of models we stratified by personal earnings levels three years before the birth of the focal child (t-3). We divided the population in five categories: we distinguished between men and women with zero earnings at t-3 whereas men and women with positive earnings at t-3 were divided into gender-specific earnings quartiles. Earnings are expressed in levels and not on a log scale due to non-participation in the labor market. Hence, to improve the interpretation of child penalties we also calculate the median earnings level for each category at t-3 and show them in the figure displaying model results.

**Matching to account for different fertility schedules**

MPF parents tend to have their first child at relatively young ages (Carlson and Furstenberg Jr. 2006; Guzzo 2014; Thomson et al. 2014), which may lead to earning differences that reflect the timing of births rather than partnership context. Moreover, births from different reproductive partners tend to be spaced further apart because of the time it takes to transition from one relationship to the next (Andersson 2021). Hence, differences in the age

at which children are born could explain variation in child penalties by levels of family complexity.

To account for this, in a third step of the analyses we implemented a matching procedure that ensures SPF and MPF parents are compared at similar points in their life course and with comparable resources. Because age at birth is time-constant within individuals, it cannot not be directly included in the models as a covariate. To assess if any observed difference between SPF and MPF is explained by different fertility schedules, we matched individuals without replacement by age at birth of previous child(ren) and age at birth of focal child, and by earnings category at t-3. Due to the large number of observations, many SPF parents could be matched with many MPF parents. Hence, within categories defined by ages at birth and earnings category, the matching was randomized. We obtained 79,387 and 43,030 matched pairs when the focal child is the second and third, respectively. We then ran a third set of models including only the matched pairs. An alternative to exact matching on ages at birth would be to match on birth spacing itself. However, our procedure ensures that pairs are matched not only on the spacing of births, but also on the specific ages at birth. Keeping only matched pairs allows to estimate if differences in child penalties between SPF and MPF parents are to be attributed to having a child with the same or with anew partner or just to differences in the ages at which children are born.

## Results

### Descriptive results

We begin by showing the average earnings trend around birth of the second and third child by gender and level of family complexity in figure 1.

Starting from panels a and b, SPF men earned the most, whereas MPF men earned markedly less. We also see that men's earnings trajectory around the birth of the second (panel a) or third child (panel b) developed smoothly with a positive trend. SPF men's earnings grew more steeply, whereas MPF men's earnings trajectory was shallower. Earnings differences three years before the birth of the second child (panel a) were also larger between SPF and MPF men than three years before the third child (panel b). Women (panels c and d) earned

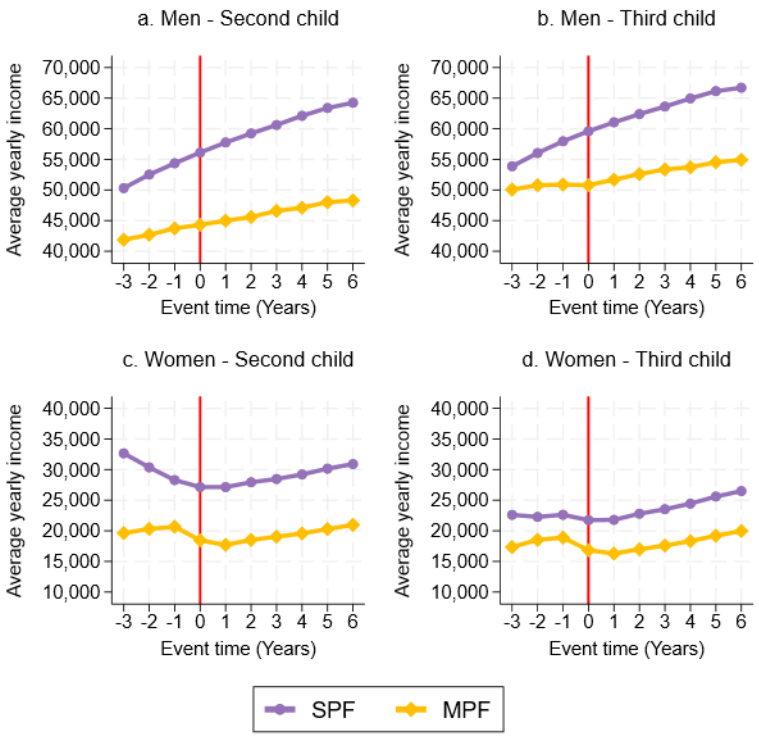


Figure 1: Trends in average yearly gross personal earnings from employment and self-employment around the birth of the focal child, by gender and level of family complexity

markedly less than both SPF and MPF men, and MPF women earned the least of all four groups of parents. Contrary to men's, women's earnings decreased around the birth of the second child (panel c), and it did more so among SPF women than MPF women due to a reduction in earnings in the pre-birth period. By contrast, we observed a slightly smaller loss of earnings around the birth of the third child (panel d). SPF women's earnings developed smoothly before the birth of the third child, contrary to the period before the birth of the second. This reduced differences between SPF and MPF mothers, who also earned closer to each other than they did around the birth of the second child.

These descriptive findings suggest that gendered child penalties in the Netherlands extend beyond entry into parenthood and can be observed also around the birth of the second child, where MPF was associated to slightly weaker economic penalties for women. Penalties were weaker around the birth of the third child among SPF women, but were comparable to

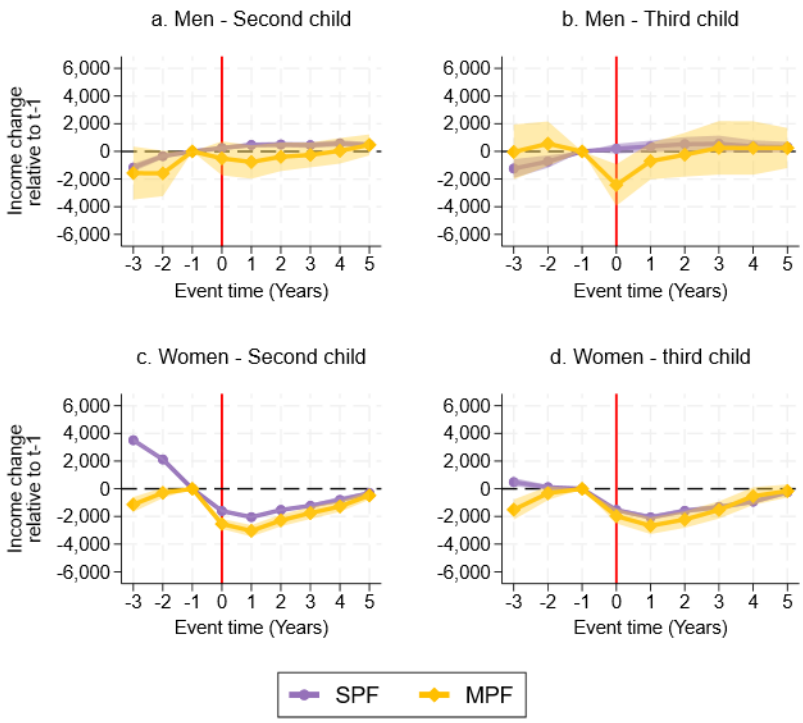


Figure 2: Changes in yearly gross personal earnings from employment and self-employment around the birth of the focal child. Comparisons with one year before birth, by gender. Results from FEIS models. Results for the second child are based on a 10% random sample. T+6 is omitted due to collinearity. Shaded areas represent 95% confidence intervals derived from cluster-robust standard errors.

second-child penalties among MPF women. By contrast, men did not suffer any losses of earnings after having a second or third child, irrespective of the level of family complexity. These descriptive findings do not take into account the selection of men and women into a MPF life course. However, they highlight that earnings trends before birth were not parallel between SPF and MPF parents, which violates the assumptions of traditional fixed-effects models (Rüttenauer and Ludwig 2023). Our use of fixed effects with individual slopes in the multivariate analyses addresses this issue.

Stark differences in the levels of earnings between SPF and MPF parents also underline the need to further explore the role of earnings before the birthin shaping second- and third-child penalties and variations by level of family complexity.

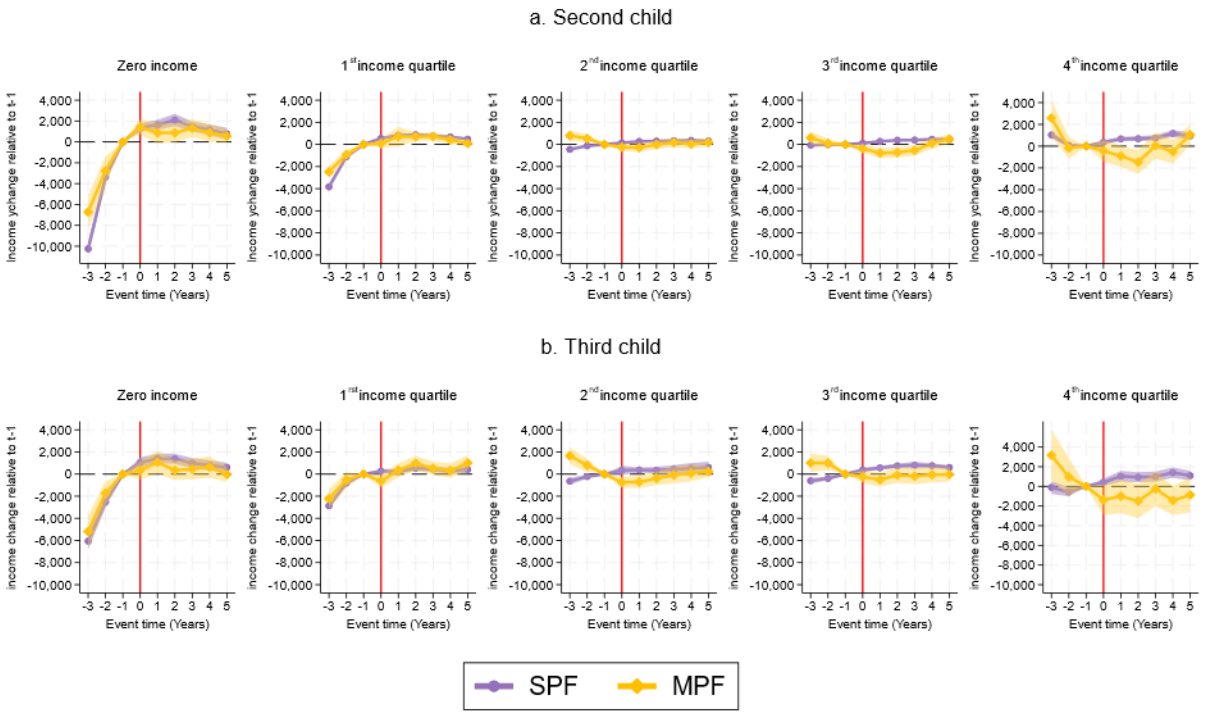


Figure 3: Trends in average yearly gross earnings from employment and self-employment around the birth of the focal child for men, by earnings level three years before birth and level of family complexity. T+6 is omitted due to collinearity. Shaded areas represent 95% confidence intervals derived from cluster-robust standard errors.

**Multivariate results:**

Figure 2 present the results of our modelling strategy for all men and women.

Results for men confirm that there were little fluctuations in earnings around the birth of the second child (panel a), irrespective of whether the child shared the same other parent with the earlier-born child. Instead, men who had a third child (panel b) with a new reproductive partner witnessed a reduction in earnings the year of birth, although recuperation followed within one year.

By contrast, we found substantial variations in earnings for women who had a second child (panel c): SPF mother consistently lost earnings in the years before the birth of the second child with a partial recuperation in the years following birth. MPF mothers lost more earnings

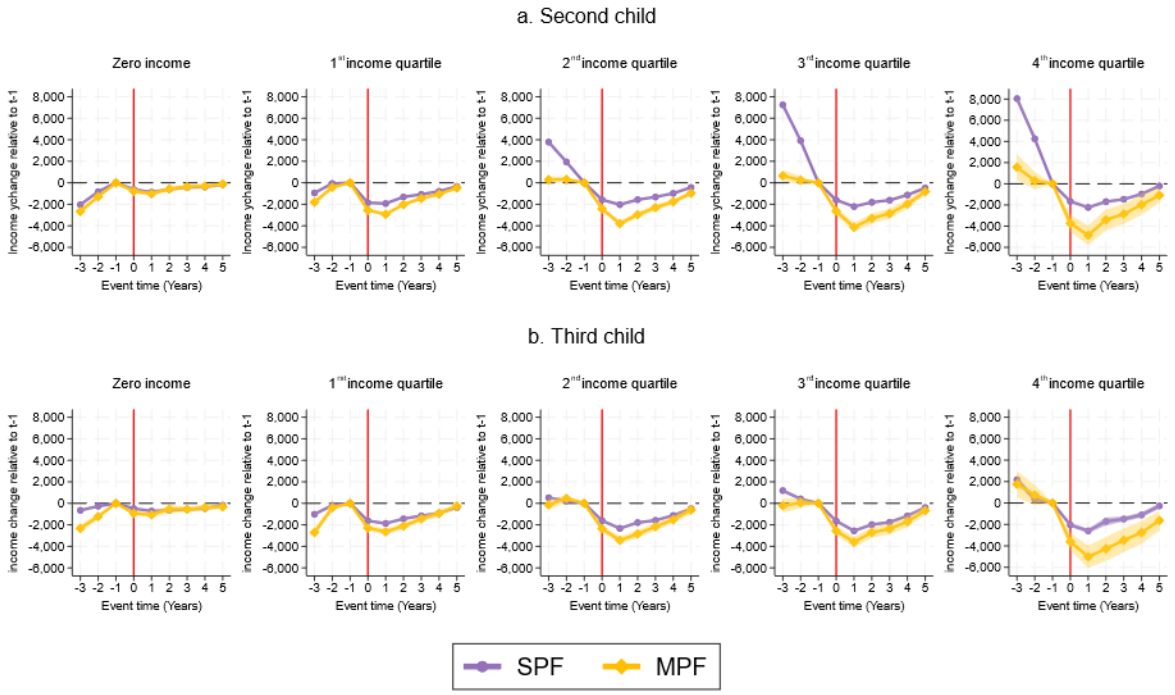


Figure 4: Trends in average yearly gross earnings from employment and self-employment around the birth of the focal child for women, by earnings level three years before birth and level of family complexity. T+6 is omitted due to collinearity. Shaded areas represent 95% confidence intervals derived from cluster-robust standard errors.

in the years immediately around birth, but almost-fully recuperated these losses in the post-birth years. The losses of earnings associated with the birth of the third child (panel d) were comparable between SPF and MPF mothers, with a reduction in earnings from the year of birth to one year after and full recuperation within five years

after birth. Because women who had a third child with the same reproductive partner did not lose earnings in the years before birth, the overall loss of earnings was substantially smaller than for the second child and was only temporary.

Figure 3 and 4 present the results from the models stratified by earnings levels three years before birth.

For men (figure 3), we don't see any difference between having a second (panel a) or third child (panel b) with the same reproductive partner vs a higher order one among the bottom three categories of earnings. We also see that zero- and lowest-earning men witnessed an

increase in earnings before birth, which was especially steep if they were without earnings at t-3. However, the zero-earnings category requires careful interpretation due to the high chance of reverse causality between increasing labor market activity and childbirth for people without earnings. We found some differences between SPF and MPF higher-earning men: having a second child (panel a) with a different reproductive partner was associated to small earnings losses in the three years following birth among men in the third earnings quartile, whereas losses were slightly more pronounced but lasted for a shorter time among men in the top earnings quartile. We did not find any fluctuations in earnings among men who have a second (panel a) or third child (panel b) with the same reproductive partner.

By contrast, women's earnings three years before birth substantially influenced the magnitude of child penalties and contributed to differences between SPF and MPF mothers (figure 4). We found a small reduction in earning around the birth of the second child (panel a) among women without earnings at t-3, after a slightly positive trend before birth, but we found no differences by level of family complexity. A slight difference between SPF and MPF appeared among women in the first quartile of the earnings distribution: MPF women witnessed a slightly larger loss of earnings around the birth of their second child than SPF women. However, both groups recuperated their lost earnings within five years after birth. We found evidence of larger child penalties among middle- and higher-earning women, with substantial variations by level of family complexity.

Having a second child was associated to strong penalties among SPF women, who witnessed a steep decline in their earnings in the years before birth. Such decline was more pronounced among the top two earnings quartiles and was only partially recuperated in the five years after birth. Penalties were largest and recuperation was lowest among women in the top earnings quartile. Concerning the third child (panel b), we found again a positive earnings trend before birth among women without earnings at t-3

Women in the bottom earnings quartile also witnessed a positive trend before birth, but having a third child was associated to larger reductions in earnings. However, these were concentrated in the year of birth and in the following period, and were fully recuperated within five years of birth. Penalties for SPF women in the second earnings quartile were

Table 1: mean age at the birth of focal and earlier-born children, by gender and level of family complexity

| | Focal child: second | | Focal child: third | | |
|---|---|---|---|---|---|
| | First child | Second child | First child | Second child | Third child |
| Total | | | | | |
| SPF | 29.6 | 32.5 | 27.9 | 30.4 | 33.9 |
| MPF | 25.8 | 33.3 | 25.3 | 28.2 | 35.7 |
| Men | | | | | |
| SPF | 30.7 | 33.6 | 29.1 | 31.6 | 35.0 |
| MPF | 27.0 | 34.7 | 26.8 | 29.7 | 37.2 |
| Women | | | | | |
| SPF | 28.7 | 31.6 | 26.8 | 29.4 | 33.0 |
| MPF | 24.6 | 32.0 | 24.0 | 26.9 | 34.4 |

comparable to women in the first quartile, but were larger for MPF women. We again found a decrease in earnings before birth among SPF women in the third earnings quartile, although the reduction was moderate compared to the second child (panel b). MPF women did not start losing earnings before birth, but again suffered slightly larger penalties after birth. However, they fully recuperated their lost earnings, against a partial recuperation among SPF women. Earnings losses before birth were more pronounced among highest-earning women and extended to MPF women too, whose earnings also dropped much more after birth than it did for their SPF counterparts. MPF women also faced a smaller recuperation in the five years after birth.

**Analyses on matched pairs**

Women and men living in the Netherlands who have children with different reproductive partners do so at different ages than parents who have children with the same reproductive partner. These patterns could explain differences in child penalties by level of family complexity because births happen at different ages, and children are born closer or further-apart. Table 1 displays the mean age at first, second, and third child by gender and by level of family complexity. The largest difference between SPF and MPF parents is found in the age

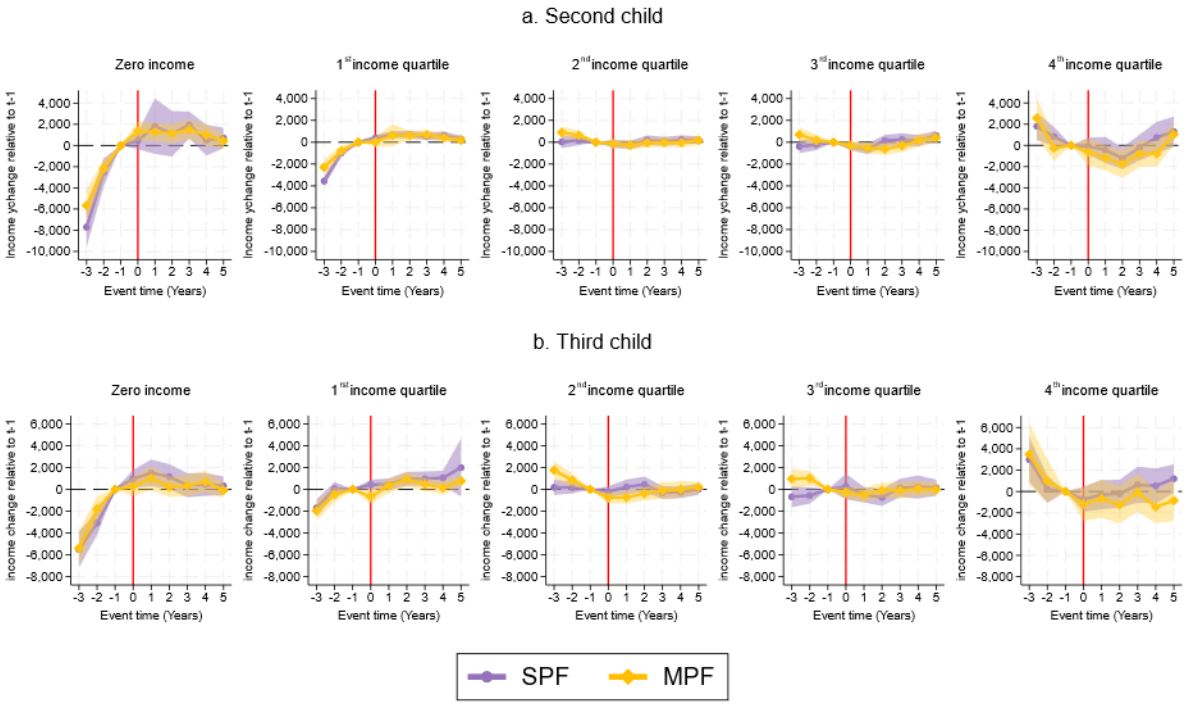


Figure 5: Trends in average yearly gross earnings from employment and self-employment around the birth of the focal child for matched pairs of men (matched on age at birth of previous and focal children, and earnings category three years before the birth of the focal child), by earnings level three years before birth and level of family complexity. T+6 is omitted due to collinearity. Shaded areas represent 95% confidence intervals derived from cluster-robust standard errors.

at first birth. MPF in the Netherlands is associated to a younger age at first birth, confirming previous findings on different country contexts (Carlson and Furstenberg Jr. 2006; Guzzo 2014; Thomson et al. 2014). We also confirm that MPF is associated to a larger interval between births (Andersson 2021). We also found that in the case of parents of three or more children, it is the interval between the second and the third child (the one to the new partner) that was larger than for SPF parents. Together, these results underline that union dissolution and re-partnering likely drive differences in birth spacing between earlier-born children and children born to a new reproductive partner in the Netherlands, for both men and women. These descriptive findings confirm the necessity to account for different fertility schedules between SPF and MPF life courses in the analysis of the child penalties linked to these life

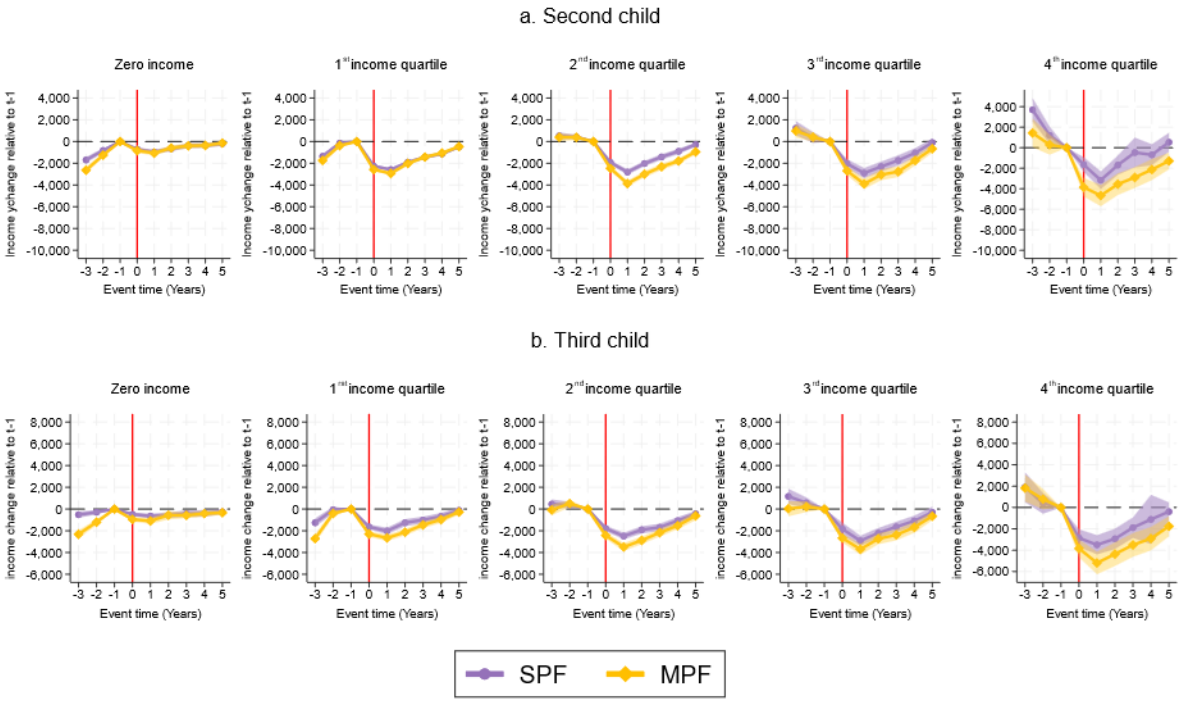


Figure 6: Trends in average yearly gross earnings from employment and self-employment around the birth of the focal child for matched pairs of women (matched on age at birth of previous and focal children, and earnings category three years before the birth of the focal child), by earnings level three years before birth and level of family complexity. T+6 is omitted due to collinearity. Shaded areas represent 95% confidence intervals derived from cluster-robust standard errors.

experiences. We did so by running the models only on pairs of individuals matched by age at previous and focal births and earnings category at t-3.

Figure 5 and 6 present the results for the model including only pairs of individuals matched by age at previous and focal births and earnings category at t-3.

Results for men (figure 5) confirm that there are no child penalties associated with having a second (panel a) or third child (panel b) with the same or a new reproductive partner for fathers in the bottom three categories of earnings. The matched analyses also reveal that the small penalties associated with MPF for men in the top two earnings quartiles were driven by ages at birth rather than by the reproductive partner' rank.

We found similar results also for women (figure 6), although some differences between MPF and SPF women persist. Differences in the penalties associated with having a second child

(panel a) disappeared among zero and lowest earners, and among women in the third earnings quartile. Difference can still be observed among women in the second and fourth quartile of earnings between having a second child with the same or a new reproductive partner and among women in the first quartile of earnings between women who had a third child (panel b) with the same or a new reproductive partner. These differences were small and mostly short-lived, again highlighting the role of different ages at birth in explaining the different penalties associated with SPF and MPF.

## Discussion

In this study, we set out to examine if parity progression beyond first birth in the Netherlands is associated to changes in men's and women's earnings. We also explored if this association varies by level of family complexity and earnings levels before birth.

Our findings point to the existence of a child penalty around the birth of a second and third child. Similar to entry into parenthood (Artmann et al. 2022; Zwier et al. 2024), penalties are concentrated among women, whereas men's earnings trajectory remain substantially unaffected by second or third births. Stable earnings trends for men are observed in both SPF and MPF scenarios. This is especially worth noticing because women earn much less than men in general. Part of this difference can be attributed to long-lasting first-child penalties (Artmann et al. 2022), but our results indicate that women face a cumulation of penalties across their entire reproductive life-course.

We found some evidence of a positive earnings trends before the birth of the second and third child for both men and women who earned no or little income from work three years before birth. Earnings increase more for second-and third-time fathers than mothers, although these trends also likely reflect reverse causality processes and not just a tendency to increase investments in labor market before birth. By contrast, child penalties are found across all earnings categories of women: they increase with earnings levels before birth and are largest among highest-earning women. Penalties among higher earners appear especially large after having a second child with the same reproductive partner, mostly because of steep decreases in earnings before birth that are not recuperated in the short to

medium term. Earnings losses before births are minor for MPF women, although they are larger immediately after birth. However, our analyses on parents matched by ages at focal and previous births reveal that these differences are largely driven by different fertility schedules between single-partner and multiple-partner fertility scenarios. Among only parents with a suitable match, earnings trajectories are generally comparable irrespective if the other parent of the focal child fathered all earlier-born children or not. Some differences persist only among women in the second and fourth earnings quartiles, but they are small. Interestingly, among middle and higher-earning women, earnings were also more stable before birth. This suggests that the reductions in earnings we observed among higher-earning SPF mothers before the birth of their second child were mostly driven by the close proximity to the birth of the first.

Our results also speak to the recuperation of the income from work lost by women after second and third births. Whereas first-child penalties can endure over time (Artmann et al. 2022; Hsu 2021), earnings losses around second and third birth can be recuperated. The degree of recuperation depends on earnings levels before birth, especially among second-time mothers. Lower-earning women generally recuperate the earnings lost after birth, while higher-earning women experience only partial recuperation. These results do not come as a surprise: lower-earners have a lower capacity to lose earnings. Economic pressure is also likely higher, pushing their return to their pre-birth level of commitment to the labor market. Instead, larger penalties among higher-earning women might reflect their capacity to reduce their activity and investments in the labor market. They might also work in more flexible or parent-friendly environments (cf. Zwier et al. 2024). Higher-earning women might also face a lower economic pressure on their household and can afford longer-lasting reductions in labor market activity and earnings. Another explanation is that women who earn more before having a second child had maintained a stronger attachment to the labor market after the birth of the first child. This may have led their household to transition to the typical Dutch one-and-a-half earners model only after the second birth. It must be noted that when recuperation is present, it takes place over several years. This suggest that child penalties are not primarily driven by unpaid parental leave in the years after birth.

Overall, our results indicate that parity progression in the Dutch context contributes to gender inequalities in labor market outcomes. Second- and third-child penalties compound with long-lasting penalties caused by entry into parenthood. Our evidence suggest that women fall behind men in the Netherlands in terms of economic outcomes also because of child penalties beyond first birth, confirming findings from Japan (Hsu 2021). These penalties also create disparities between mothers of one and mothers of two and three children.

Even if earnings losses associated with parity progression can be temporary, especially among lower earners, they still represent a source of economic vulnerability that compounds with, and derives from, persistent structural inequalities placing women in the double role of carers and secondary providers.

Our findings also shed light on the intersection between family complexity and economic outcomes. New fertility behaviors stem from life course processes with a relevant influence on fertility schedules. Similarly to the United States (Carlson et al. 2024; Doren 2019; Gough 2017), ages at birth and birth spacing are important predictors of women' economic wellbeing in the Netherlands. This evidence suggests that having children with multiple reproductive partners can be a social stratifier. However, its economic consequences primarily stem from the life course process leading to a birth from a new reproductive partner, whereas the level of family complexity itself plays a modest role. This finding underlines that family complexity is a characteristic of the life course, rather than just an individual attribute, with relevant implications for policy and research.

Our analyses followed an individual approach, rather than observing household attributes. This means we cannot derive conclusions on the role of child penalties for women's economic vulnerability at the household level. Additionally, there is some evidence that women's relative contribution to household resources and partner's characteristics can influence the division of paid labor within couples after childbirth (Artmann et al. 2022; Begall and Grunow 2015), an aspect which we did not consider in our analyses. This notwithstanding, we were able to estimate the earnings losses that individuals themselves face around second and third births, which have more important repercussion for women's

autonomy and empowerment within couples and the labor market (see also Kapelle and Vidal 2022).

Our findings underscore the role of parity progression beyond first birth in perpetuating gender inequalities in labor market outcomes. They also highlight the need for a more nuanced understanding of the complex relationships between family formation, fertility schedules, and economic wellbeing.

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