MOTHERS' LABOUR MARKET ENTRY AFTER CHILDBIRTH: THE ROLE OF PRE-PREGNANCY JOB CHARACTERISTICS AND SOCIO-DEMOGRAPHIC FACTORS*

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ABSTRACT

In Hungary, women often take advantage of maternity and child-raising allowances and, according to social norms, typically stay at home for a relatively long time after giving birth. However, little is known about the factors that influence the length of career breaks. This study examines the impact of labour market characteristics and other socio-demographic factors prior to childbirth on mothers' labour market participation during the first 40 months after giving birth. The descriptive and multivariate statistical analyses are based on the first five waves of the longitudinal panel study 'Cohort '18 Growing Up in Hungary.' The survey started in 2018, and the participating women were interviewed five times between pregnancy and their child's fifth birthday. We analyse the postnatal employment of 6,800 mothers.

The results show that although a significant proportion of mothers continue to be primary caregivers after childbirth, the rate of postnatal employment has somewhat increased compared to previous decades. Controlling for various factors, including the number of children, the analysis reveals that approximately 90% of mothers are not employed during the first year and a half following childbirth. This proportion declines to 77% once the child reaches the age of two. After the age of three, 43% of mothers are employed, and this proportion does not reach 50% by the time the child is 40 months old.

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Using Cox proportional hazards models, we also find that stronger labour market attachment and key background factors – such as birth order, additional children, income, and relationship stability– play a more important role in returning to work than job-specific characteristics such as sector, contract type or form of employment. Mothers who were employed in the seventh month of pregnancy showed a particularly early return to work. In addition, our study identifies a group of around 8% of mothers who had never worked before becoming pregnant, for whom childbearing further restricts their future employment and financial opportunities.

Keywords: maternal employment, employment determinants, parental leave, Cohort '18 study, Hungary

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INTRODUCTION

In developed countries, women's participation in the labour market has increased significantly in recent decades, but it still largely depends on the number and age of children (Hofferth & Curtin, 2006; Russell & Banks, 2011; Saurel-Cubizolles et al., 1999). Moreover, there are still important differences between developed countries in this respect. While in some countries women leave the labour market for only a short time, in others the career break can last several years (Dobrotić et al., 2024; Makay, 2023).

Economic theories of the relationship between labour market participation and childcare emphasise that paid work and childcare are often seen as competing alternatives in a woman's life. These economic theories are based on the assumption that individuals make optimal decisions about the use of available resources (*homo oeconomicus*), based on a weighing of advantages and disadvantages, taking into account their preferences (Becker, 1975). This suggests that families make a similar calculation when it comes to childbearing, given the many positive changes expected from having children but also the fact that, in

addition to the loss of income, this can mean several years of absence from the labour market for women in some countries (Andorka, 1982; Bernhardt, 1993; Cramer, 1980)[1]. Also, Bernhardt (1993) and Cramer (1980) showed a correlation between childbearing and labour market participation patterns. In addition, Stolzenberg and Waite (1977) demonstrated that as women age, they are more likely to align childbearing with their labour market aspirations (R. Fedor, 2015).

In line with traditional gender roles, the distinction between male and female roles was more pronounced until the second half of the 1900s. Typically, women were responsible for domestic, family-related tasks, while men were expected to be breadwinners. However, nowadays the significance of labour market motivations in shaping maternal experiences is acknowledged, even in the context of childbearing. Also, there are several difficulties in reconciling work with family and care responsibilities, which can only be partially mitigated by external (public or local workplace) measures. This phenomenon is evidenced by the steady increase in the average childbearing age, a trend that has been fuelled by changes in employment patterns and economic and financial processes that have led to women's emancipation, as well as by the expansion of education and changes in the forms and timing of relationships. For many people, the primary childbearing years (20–30 years) have a significant impact on their future life outcomes, particularly in terms of career paths, financial stability, and the achievement of desired goals and positions in later life. Conversely, this period is also considered to be the most optimal for childbearing (Andersen, 2000; Mirowsky, 2002).

The challenge of reconciling the two roles is most evident in the early years after childbirth and has a significant impact on parents' schedules and roles, particularly when the first child is born. This is because both roles require a significant investment of parents' most limited resource: time, which can lead to important role conflict (Roberts, 2008).

In some cases, the division of labour between parents can be shared, with the mother working part-time and devoting the rest of her time to childcare. This may be facilitated by the father, grandparents, nursery staff, or other third parties during the mother's working hours. However, it is plausible that the mother may

1 There have been a number of criticisms of the economic theory of fertility, including that it oversimplifies family dynamics and childbearing by assuming that these phenomena are based on rational decisions and purely economic considerations (R. Fedor, 2015). It fails to take into account the intrinsic value and intangible benefits of having children and ignores the role of irrational actions and decisions (Belinszki, 1997; Gábos & Tóth, 2000; Spéder, 2002). Furthermore, in its pursuit of value neutrality, economic theory primarily takes into account external factors (prices, wages, income trends), assuming that preferences are constant, and thus does not take into account the effect of shifting values and attitudes (Fromm, 1994).

temporarily withdraw from the labour force and stop working for some or all of the early childhood years. Alternatively, the mother may be in full-time employment, but the child does not spend most of the time in her care.

The choice of a particular scenario is influenced by several factors, including social norms, gender role values, and the specific circumstances of the parents, such as their labour market and income situation, their perception of their parental role and the accessibility of income support benefits (Blaskó, 2011; Makay et al., 2024).

For low-status women, motherhood can serve as an alternative career path to formal work and a key route to adulthood. Due to limited access to higher-paying and stable employment opportunities, these women may view motherhood not only as a biological role but also as a social and economic pathway to gaining status, identity, and purpose. For them, labour market entry after childbirth may not be a priority; whereas for mothers with higher education opportunity costs of career breaks may be more important (Miller, 2011).

In Hungary, women's labour market emancipation was already underway before the change of regime in 1989, as employment rates were high under state socialism and the need for two breadwinners in a family accelerated women's dual role in the labour market and the family (LaFont, 2001). However, the dominant scenario is that Hungarian mothers leave the labour market for a relatively long period after the birth of their child and focus exclusively on child-raising. This approach has been supported for decades by the Hungarian family policy support system, which covered a long period even by international standards. Women were not allowed to combine paid work with part-time parental leave, thus pushing them into long childcare leaves (Makay, 2024). However, a notable change occurred in 2014 with the introduction of the so-called 'gyed extra,' which introduced a more flexible system that allowed for unlimited hours of work, even part-time, while still receiving childcare benefit. Although only a few studies have examined the direct effects of this policy change, existing research suggests that its benefits have been distributed unevenly. Women with greater social, cultural and economic capital – typically from middle- and upper-class backgrounds – were better able to access and benefit from flexible working arrangements. In contrast, women from disadvantaged groups were often relegated to informal or insecure employment. This finding is consistent with the concept of 'distorted emancipation' (Uhde, 2016), which emphasises the uneven distribution of the gains from expanded employment opportunities. Moreover, the low replacement rates of family benefits provided limited financial incentives for low-income families, who also encountered additional costs and organisational barriers to

labour market reintegration (Gregor, 2017; Gregor & Kováts, 2020; Kálmán, 2018; Makó, 2018).

We use data from the 'Cohort '18 Growing Up in Hungary' panel study to examine how long mothers who gave birth between 2018 and 2019 remained at home after childbirth, and what factors influenced their entry or re-entry into the labour market. First, a review of the existing literature identifies salient socio-demographic and other factors (e.g. labour market characteristics prior to childbirth, attitudes etc.) that have been recognized as crucial for the timing and occurrence of labour market participation after childbirth. The novelty of our results lies in the use of a large representative follow-up survey, which allows for more detailed analyses and a better identification of cause and result. The present study offers an up-to-date perspective on how mothers in Hungary reconcile their roles in employment and motherhood, as well as the social, economic and socio-demographic factors that influence the timing and realisation of employment after childbirth. Particular emphasis is placed on the impact of labour market and workplace factors on mothers' employment, as the data provide a wealth of information on mothers' labour market situation before and during pregnancy.

As the first step in our study, we draw on previous research to review the main factors that influence the timing of maternal labour market participation after childbirth, from both a societal and an individual perspective. As part of the theoretical overview, we describe the characteristics of the family support system in Hungary and present the prevailing social attitudes towards the employment of mothers with young children. We then examine the influence of socio-demographic and employment characteristics on (re)integration into the labour market after childbirth. Afterwards, we present our hypotheses based on these findings and outline the methodological framework of our analysis. The hypotheses are tested using Cox proportional hazards models. After the presentation of the results, the final discussion closes the article.

FACTORS OF LABOUR MARKET PARTICIPATION AFTER CHILDBIRTH

The labour market participation of mothers with young children is influenced by several factors at both societal and individual levels (Russell & Banks, 2011). At the societal level, the system of financial support available to families (as a contextual factor) and access to childcare facilities are of particular importance, as they play a key role in the realisation and timing of women's postpartum employment.

Furthermore, the prevailing attitudes towards mothers' labour market participation, both at the individual and societal level also play a key role (Blaskó, 2005; Makay, 2018; Ökrös et al., 2023).

Individual-level factors include socio-demographic characteristics such as age, relationship status, education, income, parity, future fertility plans, the labour market situation of the partner, mothers' previous labour market experience and their employment characteristics. Factors influencing labour market activity after childbirth include the availability of parental leave and earnings replacement during leave, the extent of which is mostly determined by pre-pregnancy labour market status (Hofferth & Curtin, 2006; La Valle et al., 2008; Makay et al., 2024).

CONTEXTUAL AND INSTITUTIONAL FACTORS

As we refer to some forms of childbearing and childrearing support at several points in our study, we consider it important to provide a brief overview of the characteristics of each of the available supports below.[2]

In Hungary, mothers are entitled to baby care allowance (csed) equal to 100% of their previous salary until the child is six months old. For the following one and a half years, mothers receive childcare benefit (gyed), which is 70% of their previous salary. In order to be eligible for both of these benefits, the mother must have been insured for at least 365 days in the two years prior to the child's birth. The amount of the gyed is determined on the basis of previous earnings. It is capped at 70% of twice the current minimum wage, but this is still a fairly generous income-related benefit. Mothers who receive csed and then gyed are entitled to another year of childcare allowance (gyes) until the child is three years old. However, mothers who do not qualify for either of the first two forms of support receive the low amount flat-rate gyes for the first three years of the child's life. This benefit has remained unchanged since 2008 at HUF 28,500 (70 EUR) gross per child. A third group of benefits linked to childbearing is the child-raising allowance (gyet), which is intended to help large families with at least three children (between the ages of 3 and 8 of the youngest child). This benefit is equal to the amount of the childcare allowance (Leitheiser & Veroszta, 2020).

Fathers are also entitled to these benefits (with the exception of baby care allowance), but only a few fathers take paid parental leave to look after their child; in most cases, this duty falls to the mother (Drjenovszky & Sztáray Kézdy, 2023).

2 This chapter provides an overview of the different family benefits that are available to mothers of small children in Hungary. However, we do not delve into the intricacies of these measures. For a more detailed overview, see: Leitheiser & Veroszta, 2020; Makay, 2021; Makay et al., 2024.

A notable change in the conditions for access to benefits and employment took place in 2014. In the case of childcare benefit and childcare allowance, parents (either the mother or the father) can work full-time during the benefit period and receive both the benefit and their salary (Makay, 2017b; Makó, 2018; Nagy, 2021; Spéder et al., 2020). Under gyet, 30 hours of work per week are allowed while receiving the benefit, with the exception of remote work, for which there is no time limit. From 2019, employers are legally obliged to offer part-time employment to parents with young children under the age of four (or six for employees with three or more children). Furthermore, from 2023, parents of children aged between four and eight have the option to request part-time work. Employers are not obliged to allow it but must provide written justification. Parents are also protected against dismissal during pregnancy, maternity and parental leave (up to the age of three of their children) and unpaid leave to care for a permanently ill or severely disabled child (up to the age of ten). The regulations are less strict for fixed-term workers, since in such cases the employer is not legally obliged to renew the contract if it expires during maternity leave.

Several studies highlight the importance of maternity leave and allowances in the context of labour market participation after childbirth. Access to paid leave has been shown to increase the likelihood of postnatal employment among mothers who received such allowances (Jonsson & Mills, 2002; Pronzato, 2009; Ulker & Guven, 2011). However, a more detailed picture emerges from a German study by Kluve and Tamm (2013). Their results show that in the first months after birth, the probability of employment is significantly lower for those receiving benefits than for those not receiving them. After 18 months, however, the probability of employment is significantly higher for the former group. A possible explanation for this discrepancy may be that individuals who were not entitled to maternity leave often lacked stable employment, making a return to work impractical in the long term. Notably, there was no statistically significant difference between the employment rates of the two groups after one and two years. However, a study of three European countries (Makay, 2023) identified the duration of paid leave as a key factor. In another comprehensive analysis of 16 European countries, the researchers concluded that a paid leave duration of between 20 and 30 weeks was optimal. However, they also found that not working beyond this duration increased the risk of income loss and labour market segmentation (Akgunduz & Plantenga, 2013). Conversely, some evidence suggests that extended paid leave may have positive effects on mental health, fertility, and child development, among other things (Lalive & Zweimüller, 2009; Ruhm, 2000, 2004).

Ensuring access to adequate and quality childcare facilities is a key component of family policies to promote maternal employment. In Hungary, many nurseries have been closed in the 1990s after the political transition. While in 1990 13.7% of children below the age of 2 had a place in a nursery, this was only 9% in 1995 and 8.4% in 1996 (Boda et al., 2000). There were 50,000 nursery places in 1990 but only 26,000 in 1999. Improvement began during the 2000s and 38,000 places operated in 2020 (Hungarian Central Statistical Office [HCSO], 2025a). Because of the relatively generous parental leave system, however, most of the children are enrolled only after the age of two, and around one third of the children in nurseries are older than three (HCSO, 2025b).

Kindergarten enrolment is compulsory in Hungary from the September following a child's third birthday. This is roughly the same time as the end of paid parental leave, if there has been no subsequent birth. Consequently, this may also serve as a motivating factor for labour market participation. Indeed, both national and international research shows that the accessibility of childcare facilities has a positive impact on maternal labour market participation after childbirth (Bauernschuster & Schlotter, 2015; Nollenberger & Rodríguez-Planas, 2015; Szabó-Morvai & Lovász, 2018). Ulker and Guven (2011) – who examined a sample of women who gave birth between 2001 and 2005 – also found that limited access to childcare in Australia, exacerbated by the high cost and poor quality of childcare services, had a detrimental effect on the postpartum employment prospects of these women. The importance of childcare is underscored by the observation that its availability, even during pregnancy, has a positive impact on plans to re-enter the labour market, facilitating reintegration (Leitheiser & Veroszta, 2020; Ökrös et al., 2023).

MATERNAL EMPLOYMENT IN THE CONTEXT OF PUBLIC OPINION

Despite recent fluctuations, there has been a general modernisation of views on gender roles in Hungary (Blaskó, 2005; Spéder, 2023). However, a significant proportion of the population still holds the view that women's primary responsibility after childbirth is to raise their children, while employment and individual career aspirations are secondary (Leitheiser & Veroszta, 2020; Makay, 2018; Pongrácz & S. Molnár, 2011). According to Eurobarometer data, in 2017, 78% of the Hungarian population agreed with the statement that 'the most important task of a woman is to take care of the household and family' (Makay, 2017a). Buber-Ennser and Panova (2014) used data from the Generations and Gender Survey to exam-

ine social attitudes in the participating countries regarding the employment of mothers of children under school age. The study revealed that in Hungary, 80% of respondents of reproductive age agreed that it is not beneficial for small children if their mother works, thereby indicating a high degree of traditionalism. In contrast, the majority of European countries show a more permissive attitude towards this issue, with only 50% agreeing with the statement in Austria and France (Buber-Ennser & Panova, 2014; Makay, 2023).

The survey instruments assess different aspects of societal attitudes towards maternal employment and childcare, providing valuable insights into prevailing global perspectives. Results from the Cohort '18 study show that 58.9% of women in the seventh month of pregnancy believe it is optimal to stay at home until the child turns three, while 26% would prefer to stay at home until the age of two (Leitheiser, 2021). This suggests that the timing of employment after childbirth is influenced by mothers' perceptions of traditional versus modern roles. While Makay (2017a) did not find a significant relationship in the Hungarian context, data from France suggest that more modern attitudes may lead to shorter home-based childcare. This phenomenon is also evident in the UK, where mothers with more modern gender role attitudes are more likely to return to work one year after childbirth than those with more traditional attitudes (Smeaton, 2006). However, it is important to note that gender role attitudes not only influence the timing of women's return to work after childbirth but also play an important role in shaping future employment plans during pregnancy. In Hungary, the postnatal employment plans among women in the seventh month of pregnancy show that those with more modern views plan to spend less time at home (Leitheiser & Veroszta, 2020).

INDIVIDUAL-LEVEL FACTORS

The impact of socio-demographic characteristics on postnatal employment is often inconsistent and shows country-specific patterns (Russell & Banks, 2011).

Maternal age

Regarding maternal age, some studies have found a more rapid entry into employment after childbirth and higher employment rates for older age groups (Hofferth & Moore, 1979; Yoon & Waite, 1994), while others have confirmed the opposite (Saurel-Cubizolles et al., 1999). In the case of Hungary, Drjenovszky (2009) found that while women under 21 are more likely to be employed in the

first year after childbirth, the correlation reverses in favour of older age groups after 12 months. It should be noted, however, that these findings are based on different theoretical frameworks. Women who have children at an older age are more likely to have a longer career path in the prenatal period. They have developed a stronger job attachment, greater financial security, and more knowledge. This suggests that for older women, the extended period spent at home after childbirth may come at a greater financial and career cost than for younger mothers, while the length of maternity leave may result in lower earnings for younger mothers due to their less extensive work experience. Conversely, some theories suggest that it is younger mothers who tend to return to work more quickly, which may be due to a lack of accumulated earnings over a shorter career. While mothers in older age groups tend to have more financial reserves due to greater labour market experience and human capital accumulated over the years, this is less the case for younger mothers. As a result, they are more likely to return to the labour market after childbirth to maintain financial stability, which may reduce the time spent at home (Han et al., 2008; Klerman, 1993). Research by Russell and colleagues (2006) provides further support for this hypothesis; they found that women in the older age group were significantly less likely to work in the first year after childbirth in Ireland and the UK.

However, when considering the structure of the Hungarian family support system as outlined above, it is crucial to recognise that its certain elements, such as the baby care allowance (csed) and the childcare benefit (gyed), are calculated on a pro-rata basis and are only available to insured mothers (or fathers). Research suggests that the proportion of older women receiving the maximum amount of childcare benefit is higher (Makay, 2021). As the Hungarian system compensates a relatively high level of income loss for women with higher earnings – who tend to be older –, they may be more likely to be absent from the labour market for a longer period after childbirth.

Income and education

The impact of educational attainment and income on labour market participation is primarily driven by human capital considerations derived from economic theories, similar to the effect of age. It can be hypothesised that women with higher level of educational tend to return to the labour market in greater numbers and at an earlier age after childbirth, as they are more likely to secure employment opportunities that offer, among other things, more stable financial support, the flexibility to adapt working hours to child-rearing responsibilities, and better

conditions for reconciling parental responsibilities. In such cases, time spent out of the labour market would be associated with higher economic returns (Becker, 1975; Polachek, 2004; R. Fedor, 2015). Consistent with this theoretical framework, Makay (2017a), in a study analysing data from France and Hungary, also finds that higher education reduces the time spent at home after childbirth. This association is further supported by the findings of R. Fedor (2015) and Drjenovszky (2009). However, a US study adds further nuance to this perspective by showing that while the employment rate at nine months is highest for mothers with bachelor's degree or higher, the return to work in the first and second months after childbirth is more likely for mothers with high school education or less. Drawing on previous research (Cantor et al., 2001; Klerman & Leibowitz, 1994; Smith et al., 2001), Han and colleagues (2008) attribute this to differential access to maternity benefits (with more educated mothers having greater access to benefits after childbirth), which may prolong the time to return to the labour market. Although the social support systems of Hungary and the US are quite different, this finding may also be relevant for Hungary, given the extended duration of the generous childcare benefit (gyed). Moreover, all mothers are entitled to some financial support through the childcare allowance (gyes), and the gyes has the potential to confer a social status that is widely accepted by the majority of the society, which may hinder rapid entry into the labour market.

When examining the role of income on labour market participation after childbirth, it is important to distinguish the effect of the mother's income from the effect of the total household income, including the partner's income. The higher income of the mother before birth – often due to a higher position with more work experience after a longer period of education – has been shown to reduce the length of time spent at home after childbirth (as the income loss is higher for these mothers). Conversely, high partner income and high total household income have been found to increase the time spent outside the labour market (Desai & Waite, 1991; Drjenovszky, 2009; Hofferth & Curtin, 2006; Klerman & Leibowitz, 1994; McGovern et al., 2000; Ulker & Guven, 2011). However, research by Russell and O'Connell (2004) found that the labour market status and income of the partner did not affect mothers' return in Ireland.

In the case of Hungary, it is also important to note that access to paid parental leave and the amount mothers receive are influenced by the labour market activity before motherhood. During the first two years of the child's life, a mother with a higher income can benefit from a higher amount of support (csed, then gyed, with a relatively high ceiling), while a woman with a lower income receives a lower amount. However, after the child's second birthday, mothers who previ-

ously received the relatively generous childcare benefit are more likely to return to work, as the amount of childcare allowance is very low. Nevertheless, the effect of different levels of support remains ambiguous as no clear trend has been identified. One hypothesis is that mothers with higher incomes who receive maternity and childraising allowances may return to work earlier and thus increase their income. Conversely, it is plausible that these women may choose to postpone their return to work in order to benefit from the financial stability provided by the subsidies. Taking advantage of the provision that fathers are also entitled to, couples may decide—after assessing their financial situation—to claim benefits based on the father's salary. Since the benefits can be received in combination with income from a full-time employment, this decision may later result in fathers continuing to work and mothers, who often already have a lower income, staying at home to concentrate on childcare – without receiving any benefit. This puts mothers at even greater risk of dropping out of the labour market altogether, losing their social insurance and increasing their dependence on their partner's income (Makay, 2021; Makay et al., 2024).

Relationship situation

While there is no clear trend regarding the effect of marital status per se, existing research suggests that there may be different motivations behind the postpartum labour market behaviour of married, cohabiting and single mothers. On the one hand, married mothers often adhere to more traditional norms and tend to rely more on the resources of their spouses. The presence of a higher-earning partner may therefore provide a sense of security to a mother who may be more inclined to extend her stay at home, making a faster return to work more likely for single and divorced mothers (Drjenovszky, 2009; McGovern et al., 2000; Percheski, 2008; R. Fedor & Toldi, 2017). Conversely, several studies have found that single women return to the labour market later, while marriage and cohabitation tend to reduce the time spent at home (Hofferth & Curtin, 2006; Ulker & Guven, 2011).

Moreover, for women experiencing partnership dissolution, economic necessity can be a powerful mechanism for increasing labour market participation. Research suggests that many women are pushed into the labour market after separation in order to secure financial stability and to improve their earnings (Bradbury & Katz, 2002; Jenkins, 2008; Schmauk & Nylin, 2022; Smock, 1994; van Damme et al., 2009).

Labour market situation

The employment characteristics of mothers before childbirth (working hours, type of contract, type of occupation etc.) are also important factors of labour market activity after birth. Several studies emphasise that mothers' labour market attachment before childbearing is one of the most important (positive) predictors of postpartum labour market participation (Berger & Waldfogel, 2004). In addition to prenatal employment characteristics being key determinants of the level of benefits, which in turn influences the timing of postnatal employment, flexible work options such as part-time or remote work facilitate mothers' successful and early return to work, as do other workplace measures (e.g. family-friendly, supportive environments, provision of breastfeeding time, on-the-job childcare, etc.) (Brugaillères et al., 2024; Desai & Waite, 1991; Makay, 2017a; Ulker & Guven, 2011).

Women are more likely to work in the public than in the private sector for a number of reasons (Lovász, 2013). First, the public sector tends to be less discriminatory in terms of workplace rules and regulations. Second, it is more predictable in terms of expectations and working hours. Third, it is less competitive than the private sector and therefore offers a more relaxed working environment, which is more conducive to work–life balance. Furthermore, numerous studies highlight that public sector employees often encounter more opportunities to reconcile work and private life, such as flexible working hours and childcare support, which is particularly important for mothers (Aderemi & Alley, 2019; Been et al., 2017; Den Dulk et al., 2010). However, workers in the public sector are typically paid less than those in the private sector, where it is often more difficult to reconcile work and childbearing, and women are more likely to experience discriminatory treatment, even during pregnancy (Adam, 1996). This dichotomy often leads to a form of labour market segmentation that effectively relegates women with young children to less lucrative, albeit more stable, positions in the public sector, thereby impeding their access to higher paid positions in the private sector (Mandel & Semyonov, 2006).

Number of children

Several studies confirm that having more children reduces the chances of labour market participation and increases the length of time spent at home after childbirth (Han et al., 2008; Leitheiser, 2021; R. Fedor & Toldi, 2017). Research by Russell and colleagues (2006) found that in Germany, the UK and Ireland, the

birth of a second or subsequent child reduced the likelihood of the mother being employed within a year of the birth. However, a study conducted two years later in the UK found no significant association between birth order and the likelihood of employment (La Valle et al., 2008).

In the Hungarian context, it is important to emphasize that childcare allowances are paid after the birth of each new child (in addition to existing allowances), which extends the duration of maternal home-based care, especially in families with three or more children. Furthermore, the opportunity for mothers to spend more time with their older children and focus more on their upbringing while staying at home with the youngest on parental leave supports the decision to postpone employment (R. Fedor & Toldi, 2017).

HYPOTHESES

Based on previous empirical findings, the present research focuses on the following hypotheses regarding the determinants of postnatal employment of mothers with young children.

Regarding the mother's age, we expect that younger mothers will enter the labour market more quickly after childbirth because they are less likely to benefit from the high replacement rate of maternity benefits and have had less opportunity to accumulate reserves due to a shorter career path (H1).

Although previous research has not established a clear trend between educational attainment and women's reintegration into the labour market, taking the Hungarian context into account, we suggest that women with higher education tend to return to work more quickly. One of the reasons is that the job characteristics of more educated mothers may make it easier to combine work and childcare. Furthermore, in line with economic theories of utility maximisation, highly educated mothers are more likely to return to the labour market sooner after childbirth, as they tend to earn higher wages, which – together with childcare benefit – give them access to higher incomes. On the other hand, we expect the opposite effect: we believe that for partnered women, especially if their partner has a high level of education, the sense of financial security – which is often associated with higher education – contributes to a longer absence from the labour market (H2). Similarly, in relation to income status, we expect that mothers with a higher household income are more likely to stay at home longer after childbirth due to greater financial security (H3).

The fourth hypothesis regarding the number of children states that mothers with more children or mothers who had another child during the study period

will stay at home longer than women with fewer children or mothers who have not had another child (H4).

Three hypotheses concern the labour market and employment characteristics of mothers prior to childbearing. Regarding labour market attachment, we hypothesise that a longer period of employment prior to childbirth will strengthen mothers' attachment to the labour market and thus reduce the time spent at home (H5). In addition, we suggest a positive relationship between working in flexible arrangements, such as part-time jobs, and faster reintegration after childbirth. The provision of working time benefits is important in facilitating the reconciliation of work and family life, a key aspect of employment for mothers with young children. We expect that mothers who have worked part-time before the birth are more likely to be able to return to their job on a part-time basis (H6). Moreover, as jobs in the public sector tend to be more secure and the working environment is often more flexible, making it easier to combine work and childcare. Therefore, women working in this sector may be more likely to return to work sooner after giving birth than women working in the private sector.

In addition to the sector, job classification may also be a significant predictor of postnatal employment outcomes for mothers with young children. In this regard, we expect that occupying a more senior position within an organisation will lead to a reduction in the time spent at home, as mothers face increased costs associated with their absence. Conversely, we expect self-employed mothers to spend less time at home due to the more flexible and informal nature of their employment, which may facilitate better alignment with childcare responsibilities (Bokányi & Bauer, 2019; Brugaillères et al., 2024; Vajda, 2014) (H7).

DATA AND METHODS

The statistical analysis is based on data from the 'Cohort '18 – Growing Up in Hungary' longitudinal panel survey, which was launched in 2018 by the Hungarian Demographic Research Institute to examine the development of children and family life in Hungary longitudinally. The first wave of the survey was conducted in 2018 among approximately 8,700 women in their seventh month of pregnancy. About 10% of the mothers who were expecting their child between 1 April 2018 and 30 April 2019 were sampled. The weighted database from the first wave of the survey provides a representative sample of the population of mothers who became pregnant in 2017–2018, taking into account factors such as educational level, parity, official marital status, age and place of residence (for more details on the sampling and methodology of the survey, see Kapitány, 2018 and Szabó et al., 2020).

The prenatal interviews were complemented by subsequent face-to-face interviews at six months, one and a half and three years of the child's age, as well as a supplementary telephone interview between 27 and 30 months. In the present study, each of these surveys is used as a panel database to investigate when the mother entered the labour market after the birth of the child.

We define 'labour market entry' as the first time when the mother entered the labour market after the birth of her child, and the exact date of this event is specified in the survey. From this date, we calculate the age of the child (in months) at labour market entry. Analysis time starts on the date of the child's birth and continues until the child is 40 months old. The main background variables (including labour market participation before the birth) were derived from the first wave of the interview, which took place during the seventh month of pregnancy.

We use Cox proportional hazards models (Cleves et al., 2016) to assess the relative risk of entering the labour market over this period[3]. We estimate the effect of the explanatory variables on relative risks, defined as the instantaneous risk of entering the labour market at a given point in time (Austin, 2018; Kim et al., 2017). The basic assumption of the models is the proportional hazard assumption, which states that the relative effect of the explanatory variables on the risk function remains constant over time (Bender et al., 2005; Kuitunen et al., 2021, 2022). We have confirmed the validity of this assumption using the Schoenfeld residuals test.

It is noteworthy that during the first wave of the COVID-19 pandemic (18 March 2020 to 18 June 2020), the fieldwork at age one and a half of the children was temporarily suspended. Although the telephone data collection at 27 months was unaffected, the pandemic may have changed mothers' employment and labour market entry plans. We therefore include this information in the models by adding a time-dependent variable to control for the months of lockdown[4]. All other variables are time-invariant and were measured during the seventh month of pregnancy. These explanatory variables were selected on the basis of a comprehensive literature review and an independence test conducted prior to model fitting.

3 Accordingly, we did not focus on whether the mother was employed or not in month 40 of the child's life, but on the time of first entry into employment. For example, if the mother started working when the child was 24 months old but did not work at month 40, she is considered to have already entered the labour market.

4 Curfew restrictions were imposed twice during the COVID-19 outbreak in Hungary. The first was announced on 28 March 2020 and lasted until 18 May (Magyar Közlöny, 2022; Uzzoli et al., 2021). In the third wave, following an increase in the number of cases, a new curfew was introduced on 4 November 2020, but only for the evenings and nights (first between midnight and 5 am, then between 8 pm and 5am). The curfew was finally lifted on 22 May 2021, when most of the COVID-19 measures were phased out (Kövesdi & Oszter, 2023; Magyar Közlöny, 2020, 2021).

The *independent variables* can be divided into three categories. The social background and status of the respondents are measured by the classical demographic background variables, namely age, highest level of education, number of biological children already born, and equivalent household income quintiles. At the time of the survey, less than 5% of women were not living with a partner, and more than half of partnered women were married. The partnership status variable differentiated between married and cohabiting or single respondents, and a variable was included in the models to indicate whether the mother's relationship status changed (i.e. dissolution) during the observation period. It was not possible to include this variable as time-dependent due to a lack of information on the date when the partnership dissolved.

The partner's social status was measured with his highest level of education. The variable on the partner's employment status during the pregnancy was not statistically significant and was therefore not included in the final models.

A separate variable was created to indicate the birth of an additional child during the observation period. As only the year of birth of a subsequent child is known, it was not possible to build competing risk models or to use the information as a time-varying variable. Nevertheless, the information of a new birth was included in the models as a dummy variable.

We present two regression models in the results section. *Model 1* includes all mothers regardless of their employment status before the birth. This model includes three employment variables. 1) Had a job contract during pregnancy: A dummy variable indicating whether the mother had a job contract during the seventh month of pregnancy (even if she may not have been actively working) 2) Employment during pregnancy: A categorical variable indicating her actual employment status (Did she work or not? If not: the duration of absence from work in the seventh month of pregnancy.) 3) Occupation type during pregnancy: The mother's occupation, measured using the Andorka job classification scheme (Andorka, 1982), which was also asked of non-working mothers during the pregnancy interview.

Model 2 focuses exclusively on mothers with a job contract at the time of the pregnancy interview. Although some of these mothers were not actually working during the seventh month of pregnancy (they could have been on paid parental leave with a previous child, on sick leave because of their high-risk pregnancy, or not working for other reasons), we assume that their labour market entry options are better because they had a job at the time of the interview. The fol-

lowing question[5] was used for screening, and all mothers who answered option 1 or 2 are included in Model 2:

Are you currently actively working?

1 – Has an employment /job and works actively

2 – Has an employment /job but does not work currently/does not work and will not work until delivery

3 – Has worked earlier but has no current job

4 – Has never had a paid job

The following labour market variables are included in Model 2. 1) Employment during pregnancy: Did the mother work during the seventh month of pregnancy (full- or part-time?), and if not, how long had she not worked? (combined variable from two different questions) 2) Length of job tenure: How long had she been with her employer until the seventh month of pregnancy? 3) Type of contract or employment status during pregnancy: A distinction is made between employees with fixed-term and permanent contracts, as well as self-employed women and other employees (including communal workers, temporary workers, and apprentices). 4) Type of sector during pregnancy: Which sector was the mother employed in? (private or state/municipally owned). 5) Occupation type during pregnancy: The mother's detailed occupation.

All employment variables were measured during the first wave of data collection, in the seventh month of pregnancy.

The distribution of the sample by the independent variables is shown in *Table 1.*

Table 1: Background variables included in Model 1

	N	%
Age group during pregnancy		
18–25	1,526	23.9
26–34	3,820	53.9
35–49	1,564	22.2
Educational level during pregnancy		
Up to 8 years of primary school	1,023	18.2
Vocational training	914	11.6
Secondary education	2,102	34.8
Higher education	2,871	35.4
Partnership status during pregnancy		
Married	3,806	55.7
Other (cohabiting or single)	3,104	44.3

5 Cohort '18 pregnant questionnaire, question 14.

Partnership dissolved after the pregnancy		
No	6,672	96.5
Yes	238	3.5
Birth order of present pregnancy		
1st child	3,320	46.2
2nd child	2,290	33.6
3rd or higher order child	1,300	20.2
New childbirth following the present pregnancy		
No	5,381	78.2
Yes	1,529	21.8
Partner's level of education during pregnancy		
Up to 8 years of primary school	832	13.6
Vocational training	1,849	27.5
Secondary education	2,305	33.4
Higher education	1,813	27.7
No partner	111	1.7
Equivalent household income quintiles during pregnancy		
Lowest	1,227	19.3
Second	1,288	19.8
Third	1,345	19.7
Fourth	1,530	21.4
Highest	1,520	19.8
Had a job contract during pregnancy		
No	1,618	25.9
Yes	5,292	74.1
Employment during pregnancy		
Worked	1,453	19.8
2 years or less out of work	3,470	49.3
More than 2 years out of work	1,214	22.8
Never worked	473	8.1
Occupation type during pregnancy		
Self-employed	397	5.5
Employed, manual worker	2,436	37.1
Non-manual worker in managerial position	2,331	29.6
Non-manual worker in subordinate position	1,181	18.1
Does casual work or never worked before	565	9.6
n	6,910	100.0
Number of failures	2,477	
Time at risk (months)	183,805	

Source: Hungarian Demographic Research Institute, Cohort '18 survey, waves I–5.

Notes: The variable 'New childbirth', and 'Partnership dissolved' was created based on the data from the first and fifth waves. All other variables are from the first data wave during pregnancy. Percentages are weighted.

Table 2: Further background variables included in Model 2

	N	%
Employment during pregnancy		
Full-time	1,221	24.4
Part-time	156	3.1
2 years or less out of work	2,846	56.9
More than 2 years out of work	776	15.5
Length of job tenure		
3 years or less	2,249	45.0
4–7 years	1,614	32.3
More than 7 years	1,136	22.7
Type of contract and employment status during pregnancy		
Fixed-term contract	4,255	85.1
Permanent contract	359	7.2
Self-employed	170	3.4
Other	215	4.3
Type of sector during pregnancy		
Private	3,444	68.9
State or municipally owned	1,555	31.1
Occupation type during pregnancy		
Self-employed	350	7.0
Employed, manual worker	1,475	29.5
Non-manual worker in managerial position	2,168	43.4
Non-manual worker in subordinate position	1,006	20.1
n	4,999	100.0
Number of failures	2,031	
Time at risk (months)	130,739	

Source: Hungarian Demographic Research Institute, Cohort '18 survey, wave 1.

Notes: All variables are from the first data wave during pregnancy. Percentages are weighted. Model 2 also includes variable presented in Table 1.

RESULTS

DESCRIPTIVE RESULTS

Descriptive results indicate that mothers tend to return to work gradually following childbirth. When the child was 1.5 years old, only 13% of mothers were employed, rising to 23% by the age of two. By the age of three, the proportion

increased to 43% and did not yet reach 50% when the child was 40 months old (*Figure 1*).

Figure 1: Cumulative labour market entry rate of mothers after childbirth by the child's age and the employment status of the mother at the seventh months of pregnancy

Source: Hungarian Demographic Research Institute, Cohort '18 survey, waves I–5, own calculation, N=6,909. Weighted results.

However, mothers' employment patterns were significantly influenced by their pre-pregnancy employment status. In particular, mothers' presence on the labour market during the seventh month of pregnancy had a significant impact on their employment trajectories after childbirth. The descriptive results indicate that mothers who had a job and worked during this period[6] were more likely to return to work during the first 40 months after the birth. One in five mothers who were employed before childbirth was already working at around 20 months of age, while one in two was working by the time the child was 30 months old. Conversely, mothers who did not have a job in the seventh month of pregnancy

6 Based on the prenatal results, mothers who were still actively working in the seventh month of pregnancy were typically married (63.6%), had a tertiary education (54.4%), belonged to the fifth income quintile (35.3%), were expecting their first child (59.9%), belonged to the 30–34 age group (36.5%), and the highest proportion lived in Budapest (30%), followed by those living in settlements with 5,000–19,999 inhabitants (20%).

or who had never been employed were less likely to work until the end of the observed period. In the former group, where participants did not have a job during the seventh month of pregnancy, one in five mothers took up a job before the child was three years old, while in the latter group, where mothers never worked, this proportion did not reach 20% by the end of the observation period.

Table 3: Estimated mean time of labour market entry after childbirth according to pre-birth employment

Employment in the 7th month of pregnancy	Number of subjects	Restricted mean survival time [7]	95% confidence interval	
Had a job and worked	1,453	29.28	28.63	29.95
Had a job but did not work	3,838	32.91	32.59	33.23
Did not have a job	1,145	36.38	35.81	36.95
Never worked	473	36.87	36.10	37.64
Total	6,909	33.24	32.98	33.51

Source: Hungarian Demographic Research Institute, Cohort '18 study, waves I–5, own calculation.
Note: Restricted mean values. Weighted results.

Although the mean time to labour market entry also differs according to pre-birth employment, the gap is relatively modest. While the overall mean is 33.2 months, it is 29.3 months for women who had a job and were working in the seventh month of pregnancy and 36.9 months for women who had never worked (*Table 3*). This suggests that even those with prior work experience return to employment rather late.

RESULTS OF THE REGRESSION MODELS

Model 1: All women

The regression results showed that most of the independent variables were associated with the timing of maternal employment after childbirth (*Figure 2*).

7 The restricted mean is calculated as the area under the survival curve within a given time period (until month 40) and represents the average survival time from start (childbirth) to the end of the observed time. The largest observed analysis time is censored, thus the mean is likely to be underestimated.

In terms of age, there was a positive relationship between mothers' age and time spent at home after childbirth: younger mothers entered the labour market earlier, while older mothers stayed at home longer. This finding supports the prevailing assumption in the literature that a shorter labour market career and less capital accumulation during this period encourage women to be absent from the labour market for a shorter period.

Educational attainment also emerged as a significant predictor of labour market participation: mothers with up to eight years of schooling, i.e. very low educational attainment, had a 34% lower hazard of entering the labour market during the period considered than mothers who had completed lower secondary education at most. In addition, mothers who had completed vocational training were 18% less likely to enter the labour market compared to the reference group, based on hazard ratios.

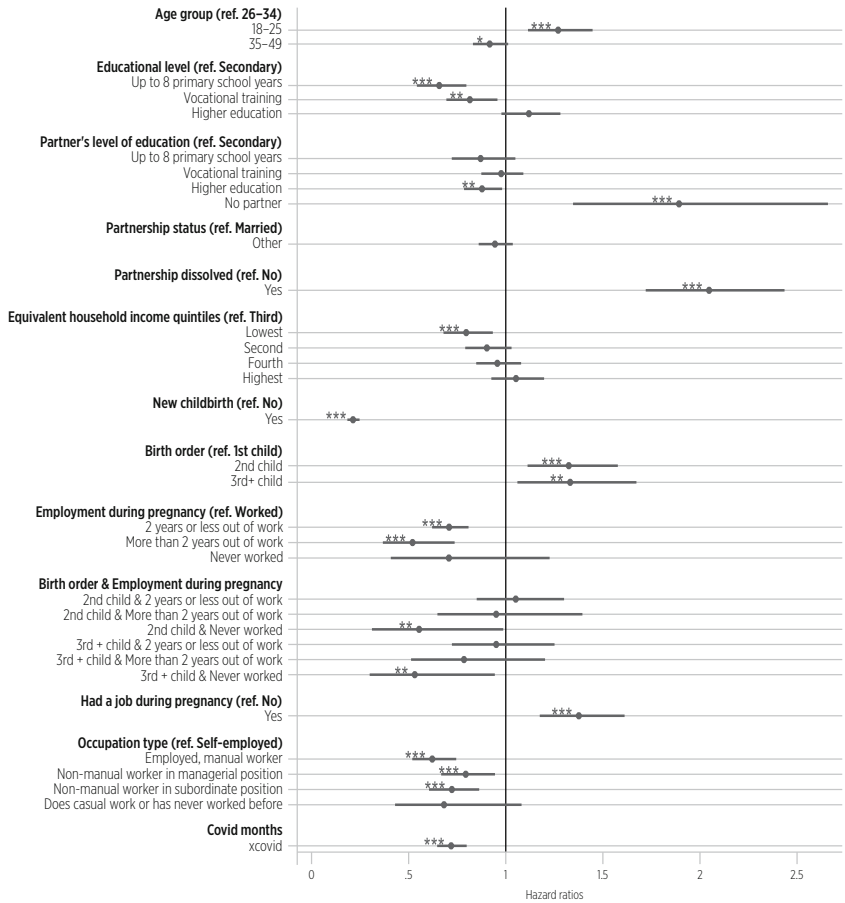
When the educational level of the partner is taken into account, the mother was less likely to be employed if her spouse or partner was highly educated. This result suggests that mothers may feel more confident in their ability to stay at home for longer periods, possibly due to the financial stability resulting from their partner's more favourable social status. It is interesting to note that the opposite is true if the mother had tertiary education. Although there were no significant differences between mothers with secondary and tertiary education, higher-educated mothers appeared to reintegrate into the labour market faster than mothers with lower educational attainment. In the rare cases where there was no partner in the household during pregnancy, labour market entry was 1.9 times higher than if the partner had held a secondary degree. Confidence intervals here are large, however, because of the low sample size.

There was no effect of partnership status on labour market entry, while mothers whose relationship ended after childbirth seemed to return to work faster, and were about twice as likely to enter the labour market as those who had stayed with their partner. This is probably because single mothers face greater financial hardship, making labour market entry more urgent than for those with a partner. However, the small number of observations (only 3.6% of the sample, 238 mothers experienced relationship dissolution) is likely to lead here again to considerable variability in the confidence intervals.

The equivalent household income quintiles during pregnancy showed that, compared to the third quintile, mothers in the lowest income quintile stayed at home for a longer time, and had a 20% lower hazard of being in employment. No statistically significant effects were observed for the other quintiles, controlling for all other background characteristics. This finding suggests that mothers in the

lowest income quintile may face greater barriers to returning to the labour market, possibly due to limited access to affordable childcare, fewer job opportunities, or financial burdens that make it more difficult for them to return to work. These mothers may also have fewer resources (lack of financial savings or social support networks) to support a return to work, leading them to stay at home longer.

Figure 2: Factors affecting employment within 40 months after childbirth among all mothers (Model 1)



Source: Hungarian Demographic Research Institute, Cohort '18 study, waves I–5, own calculation, N=6,888.
Notes: Results of the Cox proportional hazards model (hazard ratios and 95% confidence intervals). Hazard ratios for main effects and interaction terms (not combined effects). Weighted results.
Significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01.

We examined the interaction between birth order and labour market situation in order to account for the specific circumstances of mothers who had been out of the labour market for an extended period due to a previous birth.

The main effects indicate that, compared to first-time mothers who were working in the seventh month of pregnancy, having spent less than two years at home lowered their hazard of working after the birth by 29% and by 48% if the absence had been longer.

Working mothers who had a second or higher order child both saw their hazard of labour market entry increased by 32% compared to working first-time mothers. These mothers may be more attached to the labour market since they have already returned to their job after a previous birth.

Notably, there was no significant impact on postnatal employment for women who had never worked. The wide confidence interval for this group suggests potential confounding factors and heterogeneous life trajectories.

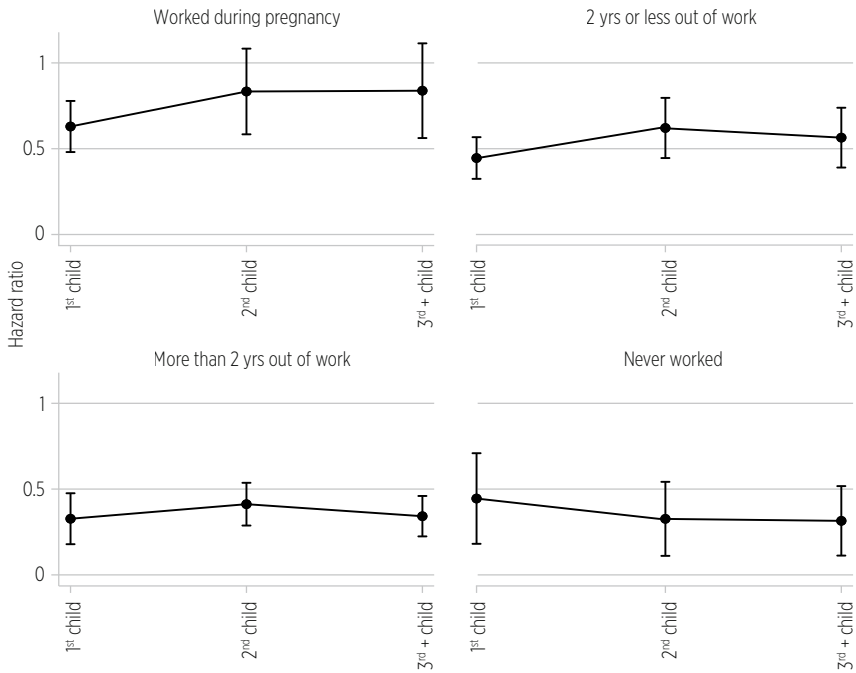
We interpreted the interaction terms using the 'lincom' command in STATA to account for the fact that the effect of one variable depends on the level of the other. Although the joint test of interaction terms was not statistically significant ($p=0.213$), some specific interaction terms between birth order and employment status were significant. For instance, compared to mothers who had a first child and worked during pregnancy, those who had never worked and had a second child had a 48% lower hazard to enter the labour market (CI: 0.252–0.898). In the case of mothers who never worked and had a third or higher order child, the hazard was about 42% lower (CI: 0.225–0.776).

Predictive margins based on the interaction effects of the Cox regression model indicate the same results, even though they do not test group differences directly. Among mothers who worked during pregnancy, those with a second or third child had a significantly higher hazard of returning to work than first-time mothers (predicted hazard of returning: 0.83–0.84), although these differences were not statistically significant in the post-estimation of the model (*Figure 3*).

In contrast, among mothers who had never worked, the predicted hazard of returning to employment was substantially lower across all parities, with the lowest values seen for those with a second (0.33) or third child (0.31). These differences were statistically significant in the Cox model, particularly for higher-order births ($p<0.05$). A similar pattern is observed for mothers who had been out of the labour market for more than two years: their predicted hazards remained below that of currently employed mothers, and decreased slightly with higher parity. In all non-employed groups, the confidence intervals were wider, reflecting higher heterogeneity, especially among mothers who had never worked. Overall,

labour market attachment before childbirth is a strong predictor of postnatal employment, particularly for mothers with more than one child. Parity, however, seems to be a less crucial predictor of future employment.

Figure 3: Predicted hazard ratios of employment within 40 months after childbirth by birth order and employment status (Model 1)



Source: Hungarian Demographic Research Institute, Cohort '18 study, waves 1–5, own calculation.
Notes: Predictive margins based on the interaction effects of the Cox regression model. Weighted results.

Some women with a job can be inactive due to parental leave with a previous child, a high-risk pregnancy or any other reasons. The dummy variable related to this information shows that, controlling for activity status, those who had a job returned to work more quickly – they had a 38% higher hazard of (re-)entering the labour market after the birth of a child than those without a job (*Figure 2*). This result is important but not surprising as women who had a job to return to did not have to look for a new one, which probably have facilitated their return to the labour market. Having an established job to return to reduces the barriers associated with job search and provides a smoother transition back to work after childbirth.

Furthermore, compared to self-employed women, all other women spend more time at home and are less likely to be employed. This phenomenon may be partly explained by the fact that the self-employed are less subject to the same employment protection regulations as employees. As a result, they may face greater financial constraints that affect their ability to cover absences due to work-related commitments. In addition, these mothers are less likely to qualify for maternity benefits, which may also motivate them to return to work more quickly (Horwood et al., 2021). At the same time, although starting a business is a necessity for many to avoid unemployment, this form of employment allows women to work more flexible and informal hours (Bokányi & Bauer, 2019; Vajda, 2014), which may help them to balance childcare and paid work, thus enabling faster postpartum employment (Brugaillères et al., 2024).

The hazard of labour market entry during the curfew periods of the COVID-19 pandemic was 28% lower among mothers with young children compared to other periods. This finding aligns with previous research indicating that the pandemic contributed to rising unemployment and a global reduction in working hours (Eurofound, 2020; International Labour Organization, 2021). Furthermore, the pandemic exacerbated existing gender disparities in the labour market, as restrictive measures disproportionately affected sectors with high female employment rates, such as education, services, and tourism (Alon et al., 2020; International Labour Organization, 2021).

In addition, school closures and the widespread shift to remote work placed a disproportionate burden of childcare and domestic responsibilities on women (Del Boca et al., 2020; Hipp & Bünning, 2021; Qian & Fuller, 2020; Sevilla & Smith, 2020). While research remains inconclusive on the extent to which the pandemic reinforced traditional gender role attitudes, some studies highlight an increase in fathers' involvement in childcare during this period (Alon et al., 2020; Craig, 2020). However, this increased male involvement proved insufficient to alleviate the additional burden placed on women (Andrew et al., 2022; Fodor et al., 2021).

MODEL 2: WOMEN WITH A VALID EMPLOYMENT CONTRACT DURING PREGNANCY

The second model, as described above, only includes mothers who had a job at the time of the first fieldwork, regardless of whether they actually worked during the pregnancy or not. This separate model was developed to examine the impact of specific job-related factors on labour market participation.

The results show that most effects were the same as in Model 1, while the impact of several variables weakened or disappeared (*Figure 4*).

Regarding educational attainment, only the negative effect of low education persisted. Having a partner with higher or low education were both associated with a lower hazard of mothers entering the labour market than in the case of partners with secondary education.

The highest equivalent household income quintile increased the hazard of participation by 13%, and accelerated the time of (re-)entering the labour market compared to the third quintile. The dissolution of a relationship again accelerated the timing of employment.

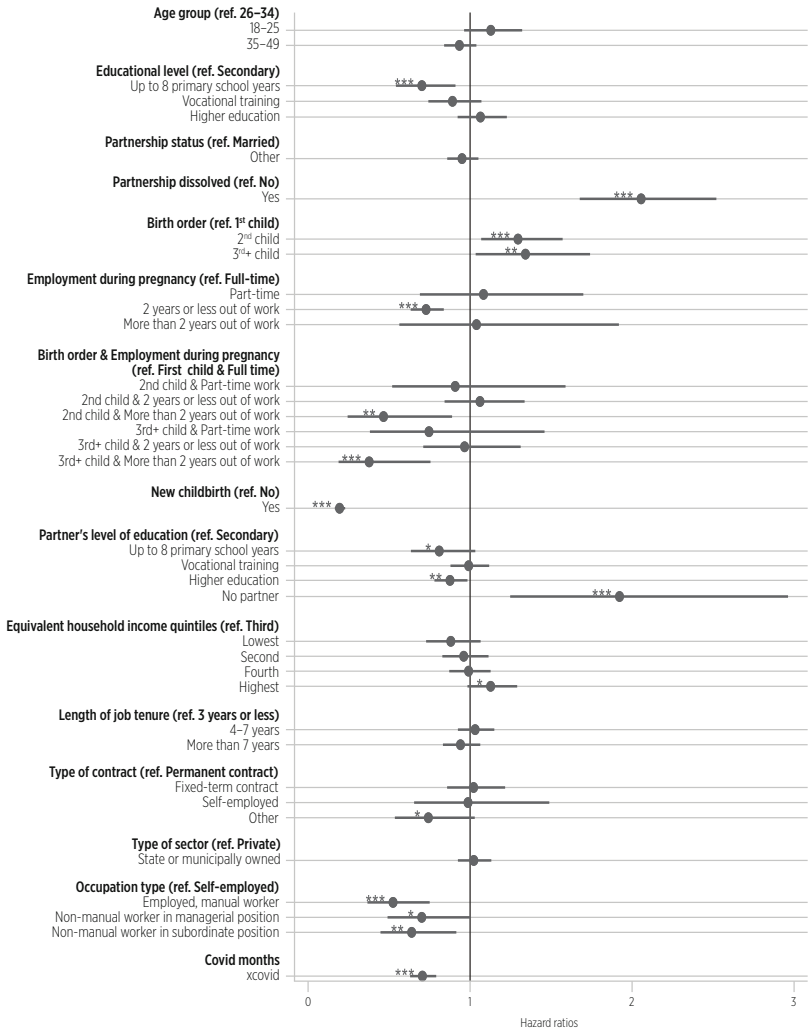
The overall impact of labour market variables was moderate, as several variables related to the labour market situation during pregnancy did not affect labour market participation after childbirth. An interaction term was also included to account for prolonged labour market absence due to a previous childbirth. The results were obtained in the same way as in the previous model.

The main effects show that compared to mothers who have worked full-time and have their first children, mothers working full-time and having had their second or third child entered the labour market much quicker (their hazard rate is increased by 30% and 34%, respectively). Again, a strong attachment to the labour market among mothers having already returned to it after a previous birth seems to explain this result.

Compared to first time mothers who have worked full time, the hazard of those who have been out of the labour market for no more than two years decreased by 27%. However, a longer absence was not associated with later labour market entry.

The combined interaction effects were again jointly not significant statistically, however, some of the effects were. For instance, those who had a second child and had been out of the labour market for more than two years saw their hazard rate of employment decreased by 0.35 (CI: 0.53–0.77) while in the case of higher order children the hazard decreased by 0.48 (CI: 0.40–0.69). The predicted hazard ratios from the Cox model confirm that women who were employed during pregnancy, especially full-time, have higher predicted hazards than those who were previously out of the labour market (Figure 5). The relationship with birth order was not so clear-cut, since mothers who have had their second child consistently showed higher hazards of labour market return than first-time mothers, particularly among those who were working during pregnancy.

Figure 4: Factors affecting employment within 40 months after childbirth among mothers who had a job at month 7 of pregnancy (Model 2)

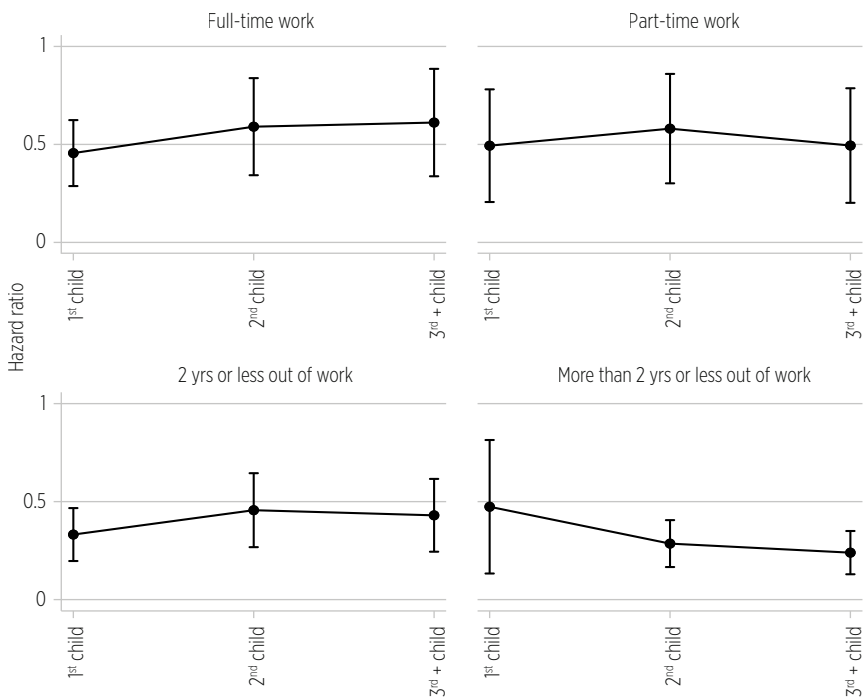


Source: Hungarian Demographic Research Institute, Cohort '18 study, waves 1–5, own calculation, N=4,999.
Notes: Results of the Cox proportional hazards model (hazard ratios and 95% confidence intervals). Significance levels: * p<0.1; ** p<0.05; *** p<0.01. Hazard ratios for main effects and interaction terms (not combined effects). Weighted results. Significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01.

For example, among full-time working mothers, the predicted hazard of returning to work was 0.59 for those with two children, compared to 0.46 for those with one child. Although these effects were not statistically significant, a

similar pattern was observed for part-time workers (0.58 vs. 0.49). Even among mothers who were out of the labour market, those with two children generally had equal or higher hazards than those with one child. This suggests that women with two children may be more likely to re-enter the labour market than those with just one child — possibly because many of them have already achieved their desired family size or they wish to take up work before having a third child. However, among mothers with three or more children, the hazard of return decreased again. For instance, among full-time workers, it dropped slightly to 0.61, and it was even lower among long-term inactive women (0.24), suggesting that at higher parities, return to work becomes less likely, especially when combined with weak labour market attachment.

Figure 5: Predicted hazard ratios of employment within 40 months after childbirth by birth order and employment status (Model 2)



Source: Hungarian Demographic Research Institute, Cohort '18 study, waves 1–5, own calculation, N=4,999.
Notes: Predictive margins based on the interaction effects of the Cox regression model. Weighted results.

The mother's occupation also remained an important factor of labour market (re-)entry: compared to self-employed mothers, women working in every other occupation type stayed at home for a longer time. For example, employed manual workers not only stayed at home for a longer time after birth but also had a 46% lower probability of entering the labour market before the child's third birthday. However, the length of time a mother had been in her current job and whether she was employed in the public or private sector did not affect employment. There was also a small but significant negative effect for mothers with 'other' type of contract (not self-employed, with no permanent or fixed-term contract). Presumably these mothers were less attached to the labour market, had less job stability or fewer benefits, which made it more difficult for them to re-enter the labour market after giving birth.

As in the first model, entering the labour market during the curfew periods of the COVID-19 pandemic reduced labour market entry (by 30% in the case of mothers who had a job). The effect of age was no longer significant.

DISCUSSION AND CONCLUSIONS

The present study analysed how mothers' employment evolves after childbirth using the most recent survey data available in Hungary, the Cohort '18 study, which is representative of mothers with young children born in 2018 and 2019 in Hungary. We were able to follow the mothers' life course prospectively, taking into account both individual and employment-related factors at 'baseline', i.e., during pregnancy. The analysis is based on data from 6,800 mothers.

Previous studies have shown that Hungarian mothers remain outside the labour force for a considerable period after giving birth (Blaskó, 2005; Makay, 2023; R. Fedor & Toldi, 2017, p. 20). The results of the present study corroborate this observation.

A comparison of our results with the previously formulated hypotheses led to the following conclusions. Our hypotheses concerning mothers' age (H1), relationship status (H2), and income (H3) were confirmed. Specifically, the results indicated that younger mothers were more likely to return to work within three years of giving birth, probably due to the lack of financial reserves resulting from a shorter career path (H1). However, while higher education had no significant effect on labour market reintegration (H2), gyed extra, which is more common among highly educated mothers who tend to have higher incomes, probably further encourages this group to seek employment. This is also consistent with the income status hypothesis, which is also supported by the finding that mothers

with higher household income are more likely to work if they had been employed before the birth (H3). According to the expected impact of relationship characteristics – although marital status during the pregnancy was not significant –, mothers in stable relationships during the observation period (i.e. without divorce or separation) and women with a highly educated partner (H2) were more likely to be stay-at-home mothers. This phenomenon can be partly explained by a supportive environment at home and financial security.

Regarding the birth order hypothesis (H4), both of our models suggested that birth order alone was not a significant predictor of postnatal employment. In both models, the interaction between birth order and pre-birth employment was not statistically significant and no consistent pattern emerged. Thus, results suggest that labour market attachment before childbirth is a stronger predictor of postnatal employment than the number of children: the slower entry into the labour market for women less attached to their work does not seem to be further reduced when there are more children in the family.

In line with our fifth hypothesis, the degree of labour market attachment prior to childbearing had a significant effect. However, our multivariate analyses revealed only moderate correlations for other employment characteristics. Contrary to our predictions, our analysis did not find any relationship between flexible forms of employment (H6) or employment sector (H7) and postpartum employment. An important point is the relatively small number of mothers in our sample working in atypical forms, a phenomenon that is in line with Hungarian trends. This limitation did not allow a more detailed analysis of atypical work arrangements. However, it is worth noting that, contrary to our preliminary hypotheses, self-employed mothers were most likely to be employed during the first three years of the child's life (H7). While working hours during the perinatal period did not show a significant relationship with the employment outcome, flexible working arrangements – which also characteristic of self-employment – probably play a particularly important role for mothers with young children. These measures, combined with the need to increase the number of childcare facilities, ease the reconciliation of work and care responsibilities.

There are two important innovations in this study. First, a comparison of our results with previous research suggests that the entry of mothers into the labour market has accelerated somewhat compared with previous decades. Makay (2023) showed that – during the period from 1965 to 2008 – the proportion of mothers in the labour force reached 10% when their children were two years old and only exceeded 20% around the age of three. Moreover, the probability of

entering the labour market after childbirth decreased after the regime change (Makay, 2023). Recently, this trend seems to have been reversed. Our results show that mothers with small children have become somewhat more likely to work in the late 2010s. This finding appears to be a realistic outcome given the more flexible childraising allowance schemes and benefit conditions compared to previous decades, and the significant increase in employment rates in general, compared to the 2000s (HCSO, 2024).

The second main contribution of the study concerns the central role of labour market attachment in shaping mothers' employment trajectories. The analysis reveals that women with a strong labour market attachment have significantly higher chances of returning to work compared to mothers who have been out of the labour market for an extended period or have never worked. Notably, even a period of just two years of inactivity before childbirth is associated with approximately 27–29% lower hazard of labour market entry, regardless of the number of children. These results suggest that pre-birth employment status is a stronger predictor of labour market entry than birth order itself.

Of course, there may be a selection effect in that women with several children are less likely to be employed before their next child. This still points to an important 'inactivity trap' for women (Kálmán, 2019). Moreover, there is an 'extreme' group, consisting of mothers with low education and weak labour market attachment. Around 8% of women have never been employed prior to childbirth, and their labour market prospects decline further after giving birth. These women are also the main recipients of the childcare allowance (gyes), which is the lowest amount. This group is at increased risk of economic vulnerability, particularly if the partner is unable to fulfil the role of the main breadwinner or if the relationship breaks up. There may also be another selection effect, whereby women for whom the labour market offers limited prospects turn to having children as an alternative career path. These women could make up the 8% group mentioned above, where the lack of job opportunities contributes to a shift towards motherhood as a more stable option.

However, the majority of women do not fit neatly into these two categories, but rather occupy a position in between. This category includes women who have work experience but are moderately attached to the labour market. They often return to work after two or three years of childcare or only after the birth of another child. For this group, the nature of their employment, sector or type of contract has little impact on the timing of their re-entry.

Overall, the results suggest that stronger labour market attachment and certain background factors – such as additional childbearing, income and educa-

tional attainment – have a greater impact on return to work than individual job characteristics such as sector, contract type, or form of employment. It is also important to bear in mind that the research took place during a specific period that was significantly influenced by the measures introduced in response to the COVID-19 pandemic, which had a notable negative effect on the reintegration of mothers into the labour market after childbirth. Another limitation of the study is that it was not possible to take into account a number of potentially influential factors, such as the exact date of a new childbirth, the exact partnership history, or the availability of crèches (Bauernschuster & Schlotter, 2015; Kapitány, 2020; Nollenberger & Rodríguez-Planas, 2015; Szabó-Morvai & Lovász, 2018; Ulker & Guven, 2011). Addressing these aspects in future research would provide valuable insights into further factors influencing mothers' employment patterns.

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