# Temporary Work and Fertility: Evidence from Norway

Sara Cools

Hans Henrik Sievertsen

Marte Strøm

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#### Abstract

Fertility rates have been declining in many high-income countries, a trend that has coincided with a rise in flexible work arrangements. While these labor market changes may increase overall employment and provide greater flexibility, they often come at the cost of reduced job security. As a result, their net effect on fertility decisions remains ambiguous. In this study, we use detailed Norwegian register data spanning three decades to examine patterns in labor market attachment and fertility. Although women's employment rates have grown steadily over this period, a notable trend emerges: women are reaching their peak employment rates at earlier ages than in the past. We find that current employment is positively correlated with subsequent fertility, but this positive association is weaker for women holding temporary contracts compared to those with permanent positions. Further analysis shows that women whose first job is temporary have lower fertility rates than those whose first job is permanent, suggesting a potential causal link between flexible work arrangements and fertility outcomes. Exploiting policy variation across Norwegian municipalities and over time, we find that increases in the availability of temporary jobs are associated with lower fertility rates. Taken together, our analyses indicate a causal relationship between work arrangements and fertility decisions.

## 1 Introduction

Flexible work arrangements are on the rise in high-income countries across the world

(Katz and Krueger, 2019; Boeri et al., 2020). At the same time we observe declining

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Cools: Institute for Social Research. E-mail: sara.cools@samfunnsforskning.no

Sievertsen: VIVE & University of Bristol. E-mail: hhs@vive.dk

Strøm: Institute for Social Research. E-mail: marte.strom@samfunnsforskning.no

fertility rates (Bloom et al., 2023) in many high-income countries. In the "New Era" of the economics of fertility, flexible work-arrangements are considered key for the compatibility of women's career and family goals (Doepke et al., 2022). However, flexible work-arrangements may both imply increased flexibility for the family (flexible working hours, remote work, job sharing, compressed workweeks) and for the employer (hybrid work models, project-based schedules and pay, temporary contracts). In this paper we focus on the latter and ask: what is the link between temporary work arrangements and fertility?

Using detailed population-wide register data from Norway we address our research question using three approaches. First, we describe the aggregate patterns in employment, education and fertility in Norway for the period 1995 to 2019. Second, in an event-study analysis we show compare fertility outcomes for women whose first job is a permanent contract to women whose first job is a temporary contract. Third, we exploit variation in employer's access to temporary contracts driven by a reform in 2015 in Norway, where some municipalities increased the access, while others did not. In the ideal experiment, we would randomly allocate families to environments with temporary jobs or permanent jobs, to test the impact of permanent jobs on subsequent fertility. While none of our analyses mimics the ideal experiment perfectly, they complement each other by answering the question using three different approaches.

Our first analysis shows that while female employment rates have increased over the last three decades, the most striking pattern is that women reach their peak employment rate at much younger ages. In the mid 1990s the employment rates of 30y women was 65 percent and the employment rate of 45y women was 74 percent. In 2019 30y and 45y women have almost identical employment rates at 80 percent. In other words, for 30y women the employment rate has increased by almost 25 percent. In comparison, the employment rate among 45y has only increased by about 7 percent. While temporary jobs are still a smaller part of the Norwegian labor market, the rate of temporary jobs has increased over the period 1995 to 2019, especially among the youngest women. Over the same period we observe declining marriage and cohabitation rates across all age groups

and clear declines in fertility, especially among the youngest. In 1995, 38 percent of women aged 25 had at least one child. By 2019, that figure had declined to 15 percent, representing a drop of more than 60 percent. A similar trend is seen among 30-year-old women, where the rate fell from 70 percent to 51 percent, a reduction of 30 percent. To sum up, among the 30y women we observe an increase in employment by about 25 percent and decrease in fertility by about 30 percent. So is there a causal link between these two trends? In a cross-sectional analysis we first document that employment (compared to no employment) today is correlated with an increased likelihood of having a child in the next year. However, this link is about half as strong for temporary jobs compared to permanent jobs.

In the second analysis we shed more light on the potential causal link between contract type and subsequent fertility. We do so by comparing fertility trends for women whose first job is a permanent contract to women whose first job is a temporary contract. We consider three outcomes: having a child in the given year, having any children, and the number of children. Across all three outcomes we observe no differences between the two groups of women before they start their first job. They are statistically equally likely to have a child in the given year, to have any children and they have statistically the same number of children. However, after the first job the two groups diverge and women whose first job type was temporary contract have significantly lower fertility. Ten years after the first job, the likelihood of having any children is 2.2 percentage points (x percent) lower for women who started their labor market trajectory with a temporary contract compared to women who started the labor market with a permanent contract. If the first job type is as-good-as-random, we can consider these effects as causal. Even though the pre-trends are very similar across these two groups, fertility rates are relatively low in these cohorts and it is difficult to rule out any selection into contract types. We therefore also approach the research question using the third approach.

In the third approach we compare fertility in municipalities that increased the access to temporary contracts in 2015 to municipalities that did not increase the access in a difference-in-differences design. Holding the population constant we find that increased access to temporary contracts is linked to significantly reduced fertility, for both men and women. Taken together with the first two analyses, these findings suggest temporary jobs are linked to lower fertility rates.

This paper contributes to the growing literature on the economics of fertility, as reviewed by Doepke et al. (2022). Our main contribution is that we empirically assess the link between temporary contracts and fertility using three different approaches that all point to a negative association.

The rest of the paper is organised as follows. In section 2 we present the Norwegian register data used for all three analyses. In section 3 we present the trends in employment and fertility over the last three decades. In section 4 we present the results from the event-study analysis and the difference-in-differences analysis of the 2015 policy change. Section 5 concludes.

### 2 Data

#### 2.1 Data Sources and Sample Selection

We consider all individuals born in Norway who are aged 18 to 45 years and residing in Norway on January 1st, as registered in the National Population Register, during the years 1996–2019. We exclude individuals older than 45 years as fertility is less likely to respond after that age. We focus on individuals born in Norway, because changes in the immigrant population could potentially drive time trends and patterns in temporary work and fertility, since immigration to Norway increased considerably during the period of study (ref) and immigrants are more often temporarily employed and also have different fertility patterns than natives. Using unique personal identifiers, we link these individuals to the birth, tax, employment, and education registries, to measure fertility, earnings, labor market status and highest degree completed.

In the first and descriptive part of the analysis, we use the full sample of individuals to look at time trends in work and fertility. In the second part of the analysis, the event study, we narrow the sample to the individuals who turn 18 years old within our time window, to make sure that we look at their actual first job. In the third part of the analysis, using the labor regulation reform, we only use the years 2011–2019 in order to focus on the years close to the reform date (in July 2015). We define treatment status based on the municipality of residence in January 2015, and the resulting estimates are therefore intention-to-treat estimates.

#### 2.2 Variable Definitions

**Fertility** We use two variables to capture fertility. First, an indicator variable that takes the value of one if the individual has had his or her first child by the year in question. Second, a numeric variable counting the number of children the individual has had so far.

**Employment status** We use labor earnings from the tax register to define employment. We use labor earnings reported both by individuals who are employed with an employer, and individuals who have their labor earnings from business activity. Employment is measured using a dummy variable, which takes a value of 1 if annual labor earnings exceeds 1,5 times the basic amount (BA) provided in the social security system<sup>1</sup>.

Temporary employment is not defined in the register data during our observation period<sup>2</sup>. We therefore make a proxy for temporary employment using information about the length of the employment relationship (start and stop dates). We define an employment relationship as temporary if it lasts shorter than a year. We also apply the same earnings threshold as for employment; the individual has to earn more than 1,5 BA during the year.

<sup>&</sup>lt;sup>1</sup>The basic amount provided in the welfare system ('Grunnbeløp i Folketrygden') is a price- and wage-growth-adjusted measure used to decide public transfer amounts. In 2024, the basic amount was 124,028 NOK (approximately 12,000 euro). To qualify for unemployment benefits, an individual has to earn more than 1,5 BA during the year, and we use this same threshold to measure employment.

 $<sup>^{2}</sup>$ From 2021, there is information in the employer-employee register about work arrangement.

### 3 Trends in employment and fertility 1996–2019

### 3.1 Aggregate trends

We start our analysis with showing the aggregate trends in employment rates, enrollment in education, marital status and fertility. These aggregate trends provide a first insight into the changes in the relationship between work and fertility over the last three decades.

In Figure 1a we observe a clear difference between the mid 1990s and the post 2015 period. In mid-1990 there was a clear age gradient, where employment rates increased motonotically by age. In the mid 1990s women aged 25 years had an employment rate just below 60 percent. That rate was about five percentage points higher for the 30 years old and again about 2.5 percentage points higher for the 35 year old women. The pattern continued until the 45 year old who had an employment rate of about 75 percent. After 1995 the age gradient beyond age 25 years has disappeared. The 30 year old women an employment rate similar to the 45 year old women today.

Moreover, 1a also shows that employment rates have increased for all age groups. The increase is strongest for the younger age groups. Together these patterns suggest that women have higher labour market participation in general and that they converge to the peak level at younger ages.



Figure 1: Female employment rates 1995-2020

While Figure 1a considered all types of employment, Figure 1b shows the trends only for temporary employment. We observe a clear reverse age-pattern, where younger women have higher rates of temporary employment. Moreover, temporary employment rates have mainly increased for the two youngest age groups, while the development for the older age groups have been more or less constant. It is worth noting that the y-axis scale is limited to up to ten percent in Figure 1b, so that the clear changes in that Figure are considerably smaller in magnitude compared to the general employment rates shown in Figure 1a.

The patterns highlight two major labor market trends over the period. First, women in fertile ages are working much more today than they did 25 years ago. Second, a considerable share of young female workers have an insecure attachment to the labor market through temporary contracts, and the share has increased over the period.



Figure 2: Female fertility trends in Norway 1995-2020

Figure 2, panel a, shows that the share of women with at least one child was fairly constant for the women aged 35 and older throughout the period, with a downward-going trends. The clearest change is observed for the youngest cohorts. In 1995 38 percent of the women aged 25 years had a at least one child. In 2019 that share was down to 15 percent. A drop of more than 60 percent. We also observe a clear drop among the 30 year old women, where the rate dropped from 70 percent to 51 percent, a 30 percent drop. Panel b shows the same pattern in number of children. The largest drop in number of children happens among women who are 25 years and 30 years, while the number of children for 40 year olds and 45 year old stays pretty constant over the period.

Together these trends suggest that over the last three decades women have higher

employment rates, they reach high employment rates at younger ages, a larger share of the young female workers have temporary contracts and they are less likely to have children aged 30 years or younger. While the causal link between these series are unclear, it is clear that both employment and fertility has changed over the last three decades.

#### 3.2 Correlations between employment status and fertility

The time trends suggest a negative correlation between employment and fertility. However, the increase in temporary work contracts suggests that the negative trend in fertility may depend on the type of contract. Three separate time trends are not directly informative of the direct correlation and we therefore estimate the correlation directly using a linear model. The dependent variable in our model is an indicator for giving birth in period t+1 and on the right-hand side we have an indicator for being employed in period t and an interaction between employed and having a temporary contract. The results from estimating this model with ordinary least squares is shown in column (1) of Table 1. Both the coefficient on employment and on the interaction between employment and temporary contracts are positive, suggesting that being employed is linked to a higher probability of having a child in the next period, compared to being unemployed. This link is positive and in line with theoretical predictions that fertility is increasing when the economic situation is improving. However, it is somewhat surprising that the coefficient is also positive and significant on the interaction term suggesting that the likelihood of having a child is about 50 percent higher if the job is a temporary contract. Controlling for calendar year does not affect these associations, as shown in column (2).

The positive link between temporary contracts and fertility is likely driven by selection. Younger workers are more likely to be in temporary jobs and also more likely to have children. Indeed, as we control for age the sign on the interaction term flips and becomes negative and significant as shown in column (3) of Table 1. Controlling for education (column (4)) has little impact on the coefficient on the interaction, but reduces the coefficient on employment somewhat. Adding controls for immigrant status (column (5)), or municipality (column (6)) does not affect the point estimates. Comparing individu-

	(1)	(2)	(3)	(4)	(5)	(6)
Employed	0.021***	0.021***	0.028***	0.021***	0.021***	0.021***
	(0.00032)	(0.00032)	(0.00032)	(0.00033)	(0.00033)	(0.00033)
Employed X Temporary	$0.013^{***}$	$0.012^{***}$	-0.0092***	-0.010***	-0.010***	-0.010***
	(0.00066)	(0.00066)	(0.00066)	(0.00065)	(0.00065)	(0.00065)
N	3354732	3354732	3354732	3354732	3354732	3354732
$R^2$	0.002	0.002	0.039	0.042	0.042	0.043
Year		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Age			$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Education				$\checkmark$	$\checkmark$	
Immigrant					$\checkmark$	$\checkmark$
Municipality						$\checkmark$

 Table 1: Current period employment status and next period's probability of giving birth

als living in the same municipalities, with similar age, immigrant status and education, being in employment is associated with a two percentage point higher likelihood of having a child in the next period, compared to not being in employment. However, if the contract is a temporary contract, this association is reduced by 50 percent. Even when comparing individuals with similar age, education, immigration and locality, selection into temporary contracts might be associated with other unobserved factors, and it is therefore difficult to assess whether this link is causal. We address this in the the next section using two different approaches.

## 4 Causal relationships between work arrangements and fertility

## 4.1 Conceptual explanations for causal links between work arrangements and labour supply

The idea that families make decisions about the desired number of children based on economic considerations is well-established in economics at least since Becker (1960). Children give utility, but are expensive both in terms of direct costs and in terms of opportunity costs. In Becker's treatment of fertility the link between fertility and the labor market primarily works through maternal labur supply. Recent changes in norms and policies means that work arrangements might affect fertility both through paternal and maternal channels (Doepke et al., 2022).

Children require both financial and time investments. Labor market participation requires time investments, but provides financial resources. There is therefore an obvious link between fertility and labor market participation. On one side, having children increases the cost of living, both in terms of running costs (food and clothing) and in terms of larger investments, such as buying a larger place to live. As these costs are not isolated to one time period, families need stable income prospects for their family planning. Covering these costs will for most families require labor income and therefore make working necessary. On the other hand, having children likely makes families less mobile and might reduce the job-search area. The decision to try for a baby might therefore depend on the individual labor market status, the business cycle of the labor market and on labor market regulations and institutions.

Focusing on the role of expected costs involved in having children, there are several ways in which temporary work might affect fertility. Starting with the extreme scenarios where either all jobs are permanent (meaning no end-date in the contract) or all jobs are temporary (meaning the employment terminates at a given date) the former will everything else equal - imply larger job security. In a setting where all jobs are permanent families face less insecurity about their future income streams and which makes investments in children more likely.

The everything else equal assumption in the comparison between only permanent and only temporary jobs is critical. Temporary jobs are used by employers for a reason. Temporary jobs are less binding and involve fewer expected costs for employers. The option to offer a temporary job might therefore increase employment. Indeed as shown in ? there is evidence that increased access to temporary jobs for employers might increase employment. The net effect of temporary work reform is therefore ambiguous: the reduced job security due to more temporary jobs would suggest a reduction in fertility. However, the potential positive employment effects would work in the opposite direction.

Based on theory, the causal link between employment and fertility is ambiguous.

In the next two subsections we therefore study this link empirically using two distinct approaches. First, we study the link between the type of the first job and fertility in an event-study approach. Second, we study the effects of the reform making temporary work arrangements more accessible.

#### 4.2 Empirical evidence from event study designs

#### 4.2.1 Intuition

The conceptual framework presented in the last section both predicts that there is a causal link between work arrangements and fertility and that work arrangements and fertility are correlated with other observable and unobservable variables.

Empirically identifying the causal link from temporary work on fertility is therefore challenging. We apply two approaches to address this.

First, we assume that whether the first job is permanent or temporary contract is constant. We then test whether this type has an effect of subsequent fertility in the following years, using an event-study design. While this identifying assumption is bold, the design has two advantages. One, as we focus only on the type of contract of the first job, the assumption is arguably less strict than the type of contract of a job at a given age, implicitly used in the previous section. Two, by following individuals over time, both before and after the first contract, we can compare levels and trends in fertility between individuals with a temporary job and individuals with a permanent job.

Second, we exploit a policy-driven variation in the availability of temporary jobs across time and municipalities in a difference-in-differences approach. This approach has the advantage that it exploits variation that is unrelated to the individual couple. The drawback of this approach is that essentially is a reduced form approach not identifying the effect of temporary jobs, but the effect of policies allowing more temporary jobs.

In this section we first present the results from the event-study design followed by the differences in differences approach.

#### 4.2.2 Data and empirical specification

We consider all those who are at most 18 years old the first time we observe them. We further restrict the sample to be balanced, so that every individual is observed in every pre- and post-period. We then estimate the following equation using ordinary least squares:

$$Y_{it} = \alpha + \sum_{k \neq -1} \beta_k EventTime_{it}^k + \gamma_i + \lambda_t + \varepsilon_{it}$$
(1)

Where  $EventTime_{it}$  is the years to the first job for individual *i* in calendar year *t*.  $\gamma_i$  is a vector of age indicators capturing the individuals age at the time of the first job and  $\lambda_t$  is a vector of calendar year indicators capturing year fixed effects. We thus control for individuals having a different age when they get their first job and for macroeconomic shocks coinciding with the timing of the first job. We estimate the equation above separately for individuals, whose first job is a permanent job and for individuals whose first job is a temporary job.

We consider two measures of fertility. An indicator for having any children (extensive margin), and a count of the total number of children (intensive margin). The coefficients of interests,  $\beta_k$ , show the differences in the fertility measure in year k since the first job compared to the year of the first job.

To capture the difference between these two, we also estimate the following equation with ordinary least squares:

$$Y_{it} = \alpha + \sum_{k \neq -1} \beta_k EventTime_{it}^k \times Temporary_i + \gamma_i + \lambda_t + \varepsilon_{it}$$
(2)

Here the coefficients,  $\beta_k$ , capture the difference in the fertility measures between individuals whose first job was permanent and individuals whose first job was temporary, in year k compared to the same difference in the year of the first job.

#### 4.2.3Results

Figure 3 shows the results from estimating equation (1) (Figures 3a to 3b) equation (2)(Figures 3c to 3d) using the three described measures of fertility.

For both outcomes, we observe that the trends prior to the first job are very similar across individuals who later get a temporary job and individuals who later get a permanent job. This suggests that for our sample the selection into job type appears unrelated to our outcomes of interest. After the first job, a difference arises. We observe that individuals who entered a permanent job are significantly more likely to have a child. Ten years after the first job, the differences is 2 percentage points (x percent).

First job permanent



Figure 3: Event study charts

Notes: This figure shows coefficients and 95 percent confidence intervals for the beta coefficients from estimating equation (1) (Figures 3a to ??) and equation (2) (Figures 3c to ??) on the sample of everyone who is at most 18 years old the first time we observe them and who we can observe in all periods 1995-2019.

Considering the intensive margin, Figure 3d, suggests that for 100 individuals in a temporary job, they have four fewer children than 100 individuals in a permanent job.

Together, these patterns suggest that individuals who enter the a temporary contract in their first job have lower subsequent fertility compared to those who entered a permanent job. Given that trends and levels in fertility were very similar before the first job it seems unlikely that this is only driven by selection.

#### 4.3 Empirical evidence from a Temporary work reform

#### 4.3.1 The 2015 Temporary Work Reform

In July 2015, the Norwegian government implemented a reform that lowered employment protection in Norway. Before the reform, temporary contracts were only allowed under special circumstances, such as seasonal work or temporary replacement for a worker on leave. After the reform, temporary contracts of up to one year were allowed for all regular jobs.  $^{3}$ 

Although the reform changed national legislation, there is local variation in how it was implemented in municipalities. Municipal political majority could overrule national policy, leading to the so-called 'refusing municipalities'. As a result, the reform was only partially implemented in Norway, yielding quasi-experimental variation between municipalities in the share of temporary jobs. A map of the refusing municipalities are included in Figure A.1 in the Appendix, and shows that the municipalities are spread

<sup>&</sup>lt;sup>3</sup>The employment legislation is regulated in the Work Environment Act (WEA). A basic principle of the law is that an employment contract is permanent and open-ended (§14-9, a)). Before July 2015, temporary employment was allowed under specific conditions, listed in §14-9 b)-e), such as replacement for employees on temporary leaves (illness, parental leave and others) or if the work was of a fixed duration, such as seasonal work and projects. Also, employers who experienced a temporary increase in production had access to hire temporarily, or if the tasks performed was outside the core-activities of the firm. Additionally, temporary contracts were available for internships, apprenticeships and labour market training, and certain jobs in sports, culture and among top-leaders. Provided that the job satisfied one or more of these conditions, a temporary position could last for a maximum of four years, after which the employment was considered permanent. The main regulatory principles of temporary contracts, namely the nature of the activity and the fixed duration, had been unchanged since 1977.

With the July 2015 reform, the WEA was deregulated by an amendment f) to §14-9 that granted unconditional access to hire workers on temporary contracts of up to 12 months. Although the new amendment was a significant deregulation, certain limitations were set on the number of employees on temporary contracts based on the amendment f), as well as quarantine periods after the contract had expired; i) up until 15 percent of the workforce, but at least one employee, may be temporary employed on this basis, ii) the contract is fixed with a duration of up to 12 months, after which is it either continued as a permanent position or terminated, and iii) if the contract is terminated, the employer is subject to a 12 month quarantine where temporary contracts are unavailable for tasks and work performed by the previous temporary worker (this quarantine does not hold if the employee resigns or declines a permanent offer).

over the whole country.

#### 4.3.2 Empirical Strategy

Our goal is to identify the causal effect of increasing access to temporary contracts, Treated, on fertility y, for individual i. We estimate the following difference-in-differences model

$$y_i = \alpha_0 + \alpha_1 Treated_i + \alpha_2 After_i \alpha_3 After_i \times treated_i + e_i \tag{3}$$

The variable *Treated* takes value of 1 if an individual in January 2015 lived in a municipality increasing access to temporary contracts in July 2015. The individual is thus exposed to a labor market where employers have greater access to offer jobs on temporary contracts compared to the case where *Treated* is 0 and employers have limited access to offer temporary job contracts. On an individual level we can think of this as a reduced form effect, but from a policy perspective the level of treatment is not the individual but the labor market and therefore the object of interest. In other words an individual might be classified as treated even if the individual has a permanent job because in our setting what matters is the status of the labor market the individual is exposed to. The variable *After* is one if the observation is from after the adoption of the policy in 2015 and the interaction between *After* and *Treated* thus capture the difference in the difference in fertility outcomes between municipalities that adopted the policies before and after 2015.

Since moving municipality can be a direct effect of the reform, we define treatment on the basis of municipality of residence before the reform. The estimated effect is therefore an intention-to-treat effect.

#### 4.3.3 Results

In Table 2 we show the results from estimating equation (3) using the described outcome variables. We observe a significant reduction in fertility for both outcomes for both women and men, suggesting that the adoption of the reform was related to lower fertility.

Figure 4 shows the results in an event-study graph. It shows that the difference in

	Women		Men		
	Has child	Number of children	Has child	Number of children	
Treated post reform	-0.012***	-0.0069***	-0.0093***	-0.0053***	
	(0.00061)	(0.0015)	(0.00063)	(0.0015)	
ymean	0.56	1.16	0.45	0.89	
ysd	0.50	1.20	0.50	1.13	
Ν	5865934	5865934	6144289	6144289	
Year	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Municipality	$\checkmark$		$\checkmark$		
Age	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Education 2015			$\checkmark$		
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 Table 2: Difference-in-Differences estimation results



Figure 4: Fertility outcomes in treated and control municipalities

Notes: This figure shows the difference in the number of births for the treated and control groups, using the 2015 municipality of residence to define treatment. The solid line shows the difference in births in treated and control municipalities. The dashed lines show the 95 percent confidence interval.

fertility outcomes in the treatment and control municipalities is quite stable before the reform, and not significantly different from zero. The estimated coefficients for the "has child" outcome indicates however that the negative effects are a continuation of an already started trend. For the "number og children" outcome, there seems to be a clearer break in the trends after the reform, and the results suggest that those who lived in municipalities that got more access to hire temporary had 0.02 fewer children than the municipalities that didn't get that access 4 years later. In percent, the effect is 0.02 percent of the pre-reform mean (1.16, see Table 2). This is the average effect for all individuals in that municipality, and we might expect that the effect is larger for those who were actually affected by the reform and got a temporary job instead of a permanent job.

## 5 Conclusion

Fertility rates have been declining in many high-income countries, a trend that has coincided with a rise in flexible work arrangements. While these labor market changes may increase overall employment and provide greater flexibility, they often come at the cost of reduced job security. As a result, their net effect on fertility decisions remains ambiguous. In this study, we use detailed Norwegian register data spanning three decades to examine patterns in labor market attachment and fertility. Although women's employment rates have grown steadily over this period, a notable trend emerges: women are reaching their peak employment rates at earlier ages than in the past. We find that current employment is positively correlated with subsequent fertility, but this positive association is weaker for women holding temporary contracts compared to those with permanent positions. Further analysis shows that women whose first job is temporary have lower fertility rates than those whose first job is permanent, suggesting a potential causal link between flexible work arrangements and fertility outcomes. Exploiting policy variation across Norwegian municipalities and over time, we find that increases in the availability of temporary jobs are associated with lower fertility rates. Taken together, our analyses indicate a causal relationship between work arrangements and fertility decisions.

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## A Additional results



Figure A.1: Geographic-variation in the adoption of the temporary work reform of 2015

Notes: The municipalities that refused to implement the new rules are: Drangedal, Horten, Hamarøy, Skaun, Selbu, Levanger, Hemne, Strand, Øyer, Sel, Rendalen, Malvik, Vagan, Kvæfjord, Nesodden, Jevnaker, Søndre Land, Kongsberg, Harstad, Salangen, Overhalla, Fredrikstad, Løten, Nord-Odal, Tyndet, Folldal, Lillehammer, Gran, Fla, Nome, Risør, Vindafjord, Odda, Voss, Vaksdal, Ardal, Sunndal, Trondheim, Namsos, Inderøy, Vefsn, Moskenes, Sørreisa, Hammerfest, Batsfjord, Sør-Varanger, Steinkjer, Porsgrunn, Melhus, Karasjok, Lunner, Ås, Oslo, Ringsaker, Bergen, Tromsø, Kragerø, Karmøy, Vestby, Hadsel, Sortland, Sarpsborg, Lørenskog, Høyanger, Gjøvik, Rana, Rælingen, Nord-Fron, Froland, Arendal, Skien, Valer (Hedmark), Hamar, Karlsøy, Bodø, Grue.