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Gaming the System: Side Effects of Earnings-Dependent Benefits

Today policy makers in developing and middle-income countries face tremendous challenges in combating various forms of tax evasion. Increasingly it is proposed to tie social security benefits to the reported income and in this way increase tax compliance incentives. We use administrative data from Latvia to study generous childcare benefits, which depend on the reported wages in the pre-childbirth period. Our analysis reveals pronounced wage growth shortly before the childbirth, which we rationalize by the legalization of previously undeclared wages. Obtained results show that the wage growth is temporary and lasts only until the end of the period, which is taken into account when calculating parental benefits.

Today policy makers around the world are increasingly preoccupied with reducing various forms of tax evasion. To provide tax compliance incentives it is often proposed to tie social security benefits to declared wages. For example, Kumler et al. (2013) show that a reform tying future pension benefits to the payroll tax in Mexico increased tax payments after the reform. Similarly, Cruces and Bergolo (2013) and Bergolo and Cruces (2014) demonstrate that a reform tying health care insurance of children to the reported earnings of parents increased "legal" labor supply in Uruguay.

On the other hand, Kreiner et al. (2016) document inter-temporal wage shifting in Denmark to enjoy significantly lower marginal tax rates. In light of the results by Kreiner et al. (2016), it is possible that employees and employers collude to increase the wage during the period, which is taken into account when calculating social security benefits. If the wage increase is temporary then the result of tying social security benefits to wages might be a net loss to the government finances. Hence, the question of whether tying social security benefits to reported wages is a solution to the problem of payroll tax evasion is still open.

We demonstrate that tying social security benefits to the declared wages can backfire to the extent that it can lead to the excessive payments of social security benefits, while doing almost nothing to reduce payroll tax evasion, in this way producing net fiscal loss to government finances. More specifically, we show that if the contribution period that determines the size of the benefit is relatively short and social security benefits are generous, then by colluding, employees and employers can temporally increase the legal wage to extract generous benefits afterwards. This result can have implications for the design of social benefit systems in many countries, where relatively short contribution periods ensure generous long-lived benefits afterwards.

Institutional background and methodology

We illustrate this phenomenon by studying the childcare benefit in Latvia, which in 2005-2008 depended on parents' declared wage in the pre-childbirth period. This system, introduced in 2005, replaced a universal (very modest in size) childcare benefit. The new rules foresaw that one of the parents could receive a benefit that was equivalent to the parent's previous net wage until the child became one year old. The average wage that determined the size of the benefit was calculated over the 12-months period that ended three months before the childbirth (hereinafter – benefit qualification period) and therefore included 5 months of pregnancy. Initially the benefit was not compatible with employment but as of March 2007 it became possible to simultaneously work full-time and receive the benefit.

Presumably, the 2005 reform created incentives to report higher earnings before the childbirth, because of the generosity of the new benefit and because the benefit qualification period included pregnancy, i.e., the period when the mother knows if/when she will be eligible for the benefit. To uncover the effects of the incentives to report more income, we use administrative data on declared monthly wages and use three sources of identifying variation in a difference in differences setup.

First, we compare wage growth during pregnancy with wage growth of women who did not become pregnant. The identifying assumption is that, in the absence of pregnancy, the wages of women who became pregnant would follow the same trend as the wages of other women. Under this assumption, any difference in the wage growth can be interpreted as a legalization of previously undeclared wages. However, this assumption may not hold because pregnancy is not randomly assigned across women: women can anticipate a wage increase (e.g. anticipate a promotion) and adjust the decision to have a child. Therefore, we use a second source of identifying variation by comparing wage growth during pregnancy for women employed in the private sector with wage growth for women employed in the public sector, where tax evasion is presumably absent. Assuming that promotion anticipation effects in the private and the public sector are identical, this difference in wage growth can be interpreted as the growth of wages resulting from wage legalization.

Our previous assumption might be violated if promotions in the public sector can be easier to predict (which means that anticipation effects in the private and the public sectors are not necessarily identical). To address this challenge, we use a third source of identifying variation coming from the 2005 reform, which tied the childcare benefit to the previous earnings. Since this reform increased incentives to disclose higher earnings during pregnancy, the difference in wage growth in the private sector versus public sector should not be observed before the reform.

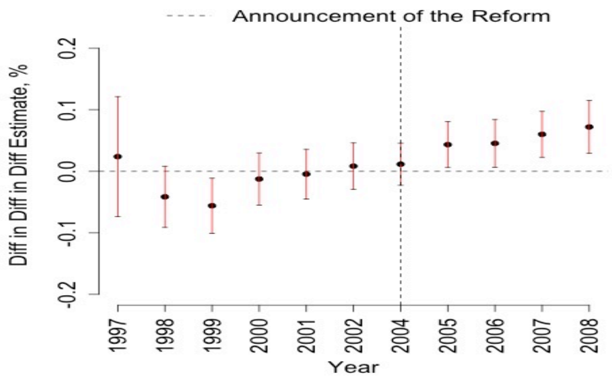
Estimations are based on a matched employee - employer administrative dataset, which covers monthly-declared earnings of all employed workers in Latvia from 1996 to 2010.

Results

There are three main findings. First, wage growth during the first five months of the pregnancy in the private sector is always higher than that in the public sector. If we use this observation to obtain an estimate of the wage growth due to the legalization of previously undeclared wages, we find, depending on the regression specification, that it varies between 5 and 7 percent.

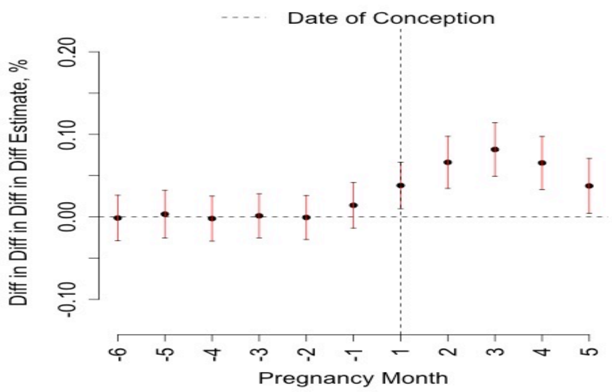
Second, this effect is mainly driven by the time period after the reform of 2005 (see Figure 1). Thus, if we use the time period before the reform of 2005 only to difference out permanent differences in the anticipation effects between public and private sector, our preferred regression specifications provide us with an estimate that varies from 5 to 6 percent.

Figure 1. Difference-in-difference-in-difference estimate by year, %



Note: difference in difference in differences estimate for a given year is calculated by first comparing wages of pregnant women with those of not pregnant before and during first five months of the pregnancy. Then this estimate is compared between public and private sectors. Everything is compared with respect to one year before the reform announcement – 2003.

Figure 2. Difference-in-difference-in-difference-in-differences estimate by pregnancy month, %



Note: difference in difference in difference in differences estimate for a given month is calculated by first comparing wages of pregnant women with those of not pregnant in a given month with respect to one month before the date of conception. Then this estimate is compared between public and private sectors and finally previously calculated difference is contrasted before and after the reform tying parental benefits to reported wages.

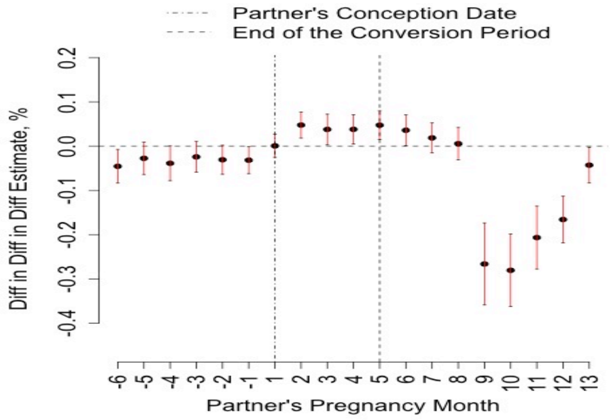
The final finding shows that the sharp jump in the wage growth in private sector versus the public sector starts to appear exactly in the first month of the pregnancy (see Figure 2). It is important to note that we do not see any differential wage growth between the public and the private sector before the date of conception, indicating that potential anticipation effects are limited.

Due to the fact that many women do not return to the same employer after childbirth, it is problematic to make inferences about the wage a woman receives once she returns to the labor market. To overcome this challenge we use the same social security data for men for the time period covering January 2007 until August 2010.

As explained previously, starting in March 2007 the childcare benefit became compatible with full time employment. The outcome of this reform was that many men started to receive the benefit, while continuing to work. This allows us to perform the previous analysis for the sample of men.

Results presented in the Figure 3 show that similarly as in the sample of women we see a sharp increase in the wage during the qualification period. Additionally, we see a slowdown in the wage growth once the qualification period ends. It is important to mention that displayed coefficients describe the difference between public and private sector in the change in wages between men whose partners became pregnant and those who did not with respect to the reference period (here one month before the conception date). We also record a sharp growth in wages in the public sector in the months following the childbirth. On the contrary, wages in the private sector stay the same, hence the large difference in the months following the childbirth.

Figure 3. Difference-in-difference-in-differences estimate for men by month of partner's pregnancy, %



Note: difference in difference in differences estimate for a given month is calculated by first comparing wages of men whose partner became pregnant with those men whose partner did not become pregnant with respect to one month before the date of conception. Then this estimate is compared between public and private sectors

Conclusion

Drawing on the example of the childcare benefit in Latvia, we show that declared wages sharply increase during the period that is taken into account when calculating social security benefits. This wage growth is temporary and does not continue once the benefit qualification period is over. We interpret this phenomenon as the legalization of previously undeclared wages: this temporary legalization of earnings is possible, because the benefit qualification period is relatively short (12 months), and includes 5 months of pregnancy, which makes the average wage during the qualification period relatively easy to affect. Such setting creates bad incentives – an employee and an employer can collude to increase the average wage that determines the size of the benefit.

Additionally, our research casts doubts on policies tying parental benefits to declared earnings with an aim to reduce opportunity costs of high earners and increase their fertility. Researchers analyzing such policies should be very cautious when interpreting their results because the effect that they capture might not come from high earning women, but rather from women who manage to increase their income during pregnancy. Absent monthly data, it might be challenging to disentangle the two.

Many countries implement earnings-dependent benefits. Our results show that even very well designed social security benefits can and will be abused if people are given wrong incentives. Thus to achieve the best outcomes policy makers when deciding whether to tie social security benefits to declared earnings should take into account side effects described in this brief.

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