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The effect of the business cycle at college graduation on fertility

Barbara Hofmann*, Katrin Hohmeyer

University of Mannheim and Institute for Employment Research, Regensburger Straße 104, DE-90478 Nuremberg, Germany

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ABSTRACT

Many studies show that fertility decreases as economic conditions worsen. Evidence on socio-economic subgroups is sparse. We investigate whether a downturn at college graduation affects subsequent fertility. Using data from the German National Educational Panel Study covering a more than 40-years observation period, we find that a recession at graduation affects female but not male fertility timing. A downturn at graduation increases the transition rate to first pregnancy among female graduates significantly. This effect is driven by females older than 24 years at graduation and is strongest in the first years after graduation and then decreases over time. We also find a downturn to decrease the probability of holding a degree-adequate job in the first years after graduation. These findings suggest that female graduates take advantage of decreased opportunity costs in a recession. We do not find an effect of a downturn at graduation on completed fertility.

1. Introduction

Knowledge about potential long-lasting effects of economic downturns has become even more important since the Great Recession hit the global economy in late 2008. Research shows that recessions can have long-lasting effects on an economy. Not only do more individuals lose their job in a recession, but long-run adverse earnings effects of a job loss in a recession are also stronger than of a job loss in a boom (Davis & von Wachter, 2011). Among young individuals, a recession can weaken their labor market entry position: for example, Oreopoulos, von Wachter, and Heisz (2012) show that graduation in an economic downturn reduces future earnings among male graduates. Recessions are also accompanied by lower average fertility (e.g., Adsera, 2004; Goldstein, Kreyenfeld, Jasilioniene, & Karaman Örsal, 2013). In a recent study based on birth records from the U.S., Currie and Schwandt (2014) show that a higher unemployment rate at age 20 to 24 increases female childlessness at age 40, whereas the unemployment rate at older ages does not affect fertility.

We study the effect of graduating in a recession on fertility among college graduates in West Germany. Do graduates postpone parenthood when entering the labor market in economically bad times or do they use an economic downturn to start a family? The evidence on the relationship between labor market entry conditions and parenthood is limited with mixed results. For our analysis, four studies that use variation over time are most relevant.[1] Hershbein (2012) does not find graduating from high school in a recession (between 1976 and 1983) to affect the childbirth probability among women or men in the U.S., though both sexes experience a temporary wage loss due to leaving high school in a recession. Based on

* Corresponding author.
E-mail address: barbara.hofmann@iab.de (B. Hofmann).

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[1] Other studies base identification on cross-national variation. For example, Wolbers (2007) investigates the relationship between employment security and family formation of tertiary education graduates in different European countries using cross-sectional data. He finds that high unemployment among graduates is associated with a lower likelihood of leaving the parental home, getting married and becoming a parent.

U.S. data of 21 graduation cohorts, Maclean, Covington, and Sikora Kessler (2016) find that men who left school in an economic downturn are less likely to be married and to have children at age 45, whereas women are more likely to have children. Using 20 graduation cohorts, Hashimoto and Kondo (2012) show that a recession at labor market entry decreases fertility among less-educated Japanese women, but increases fertility among the higher educated ones. Based on data of the birth cohorts 1960 to 1970 in the U.S., Kondo (2012) finds that bad labor market conditions for women relative to men between the ages of 18 and 20 years accelerate the entry into marriage and to fertility among women in the short run. Nevertheless, she does not find evidence that these effects translate into long-run differences between the ones who experienced adverse labor market conditions and those who did not. In contrast to these studies, we focus on college graduates. College graduates are a group of young and highly-educated individuals at the beginning of their careers, who enter the labor market comparatively late after a period of high investments in general human capital. Bad labor market prospects decrease their job opportunities and increase economic and employment uncertainty and, thus, fertility decisions may be postponed. Alternatively, bad labor market prospects at graduation might increase fertility through decreased opportunity costs of having a child. Overall, theory cannot make a clear prediction on the sign of the effect.

Studying college graduates' fertility is important, because participation in higher education has increased rapidly over the past years in all OECD countries (OECD, 2013a) and women with higher education have fewer children than the less educated (d'Addio & Mira d'Ercole, 2005). In general in Germany, the birth rate has been below the replacement level for several decades (OECD, 2013b), and in Germany, fertility is also lowest among the highly-educated women who have the lowest average number of children and most often stay childless (Federal Statistical Office of Germany, 2013). Particularly because women are currently overtaking men in tertiary education participation (OECD, 2008), these facts are alarming. We shed light on the question of whether college graduates' fertility decisions depend on economic conditions at graduation.

We use survey data from the German National Educational Panel Study (NEPS), which cover a long period of more than 40 years. We investigate the impact of the business cycle in the year of college graduation on the (partner's) probability of becoming pregnant in the years after graduation. Moreover, we do not only consider the timing of the first birth but also the number of children at different ages.

Our study contributes to a broader understanding of how adverse economic conditions shape individual life courses. The results we present add to the yet scarce evidence on the effects of the business cycle at the time of graduation on later life outcomes. Our study contributes to the literature in at least three additional ways. First, we shed light on the effect of the business cycle on fertility decisions for a specific socio-economic group - university graduates. The effect of economic conditions on fertility can differ between socio-economic groups, because some groups are more severely hit by a downturn than others (Goldstein et al., 2013; Kreyenfeld & Andersson, 2014; Sobotka, Skirbekk, & Philipov, 2011) or respond differently to economic shocks. Thus, while economic downturns are found to influence economic and demographic outcomes, more research on subgroup specific responses is needed to understand the mechanisms behind them. Second, to our knowledge, we are the first to present evidence on the effect of the business cycle at graduation on fertility for a European country. The existing evidence is on the U.S. and on Japan, but effects might differ between countries because, for example, social policies might buffer economic uncertainties that could cause individuals to postpone fertility without these policies. Third, we can exploit more variation over time than the previous studies, because our observation period spans graduations from 1970 to 2010.

We find that a downturn in the business cycle at graduation accelerates the transition rate to the first pregnancy among female graduates significantly. This effect is driven by female graduates aged 25 years or above at graduation. Further, the effect among women is strongest in the first years after graduation and then decreases over time. Although we find a somewhat stronger negative response among women who graduated after 1990, we do not find any statistical evidence that the effects differ between graduation cohorts. We do not find the average number of children born to women or men who graduated in a recession to differ significantly. Because we also find a decreased probability of holding a degree-adequate job in the first years after graduation, overall, our findings suggest that female graduates take advantage of decreased opportunity costs in a recession.

2. Institutional background: Germany

2.1. The German welfare state

We provide some institutional background information on Germany, because country-specific institutions are likely to shape the effects of interest (Kondo, 2016). In a general classification of welfare states, (West) Germany can be classified as a *conservative welfare state* featuring strong status protection through income-related social insurance benefits in the case of unemployment (Esping-Andersen, 1990). In contrast, in *liberal welfare states*, such as the U.S., means-tested benefits with a relatively low level of protection against economic hardship are more prevalent. *Social democratic welfare states*, such as the Scandinavian countries, provide high levels of state benefits combined with a universal insurance system. When focusing on social policy generosity, Germany - as a conservative welfare state - ranges in the middle between the Nordic countries (more generous) and the U.S. and other English speaking countries (less generous) (Gornick & Meyers, 2003). For example, the share of the previous net income paid out as benefits in the case of unemployment (replacement rate), was 69% for 12 months in 2004 in Germany, which is more generous than in the U.S. with a rate of 54% for 6 months, but less generous than in the Nordic countries with an average of 71% for 34 months (OECD, 2006). In Germany, moreover, before it was replaced in 2005 by a means-