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Assumptions on fertility

Why is fertility falling in Norway? An analysis of parity transitions over the last decade

Note by Statistics Norway[1]

Summary

Since 2009, the Norwegian TFR has declined steadily. We assess whether changes in fertility from 2004-2014 vary by socio-demographic characteristics, and examine contributions of compositional changes. Knowledge of the pattern of change is vital for policy makers and community planners, and relevant for countries attempting to counteract falling fertility levels.

Transitions to a 1st, 2nd and 3rd birth from 2004 to 2014 are analyzed separately using discrete time hazard regression on national registry data on women age 16-45 (N=1.8 mill). Focus is directed towards differences by age, education, labor market attachment and immigrant status.

Birth ages rose consistently during the period under study. After 2009, a slight fertility decrease was observed for all transitions, regardless of women's level of education and educational activity. Fertility was relatively stable for women not attached to the labor market, but they comprise a decreasing share. From 2004 to 2014, the first birth probability increased for immigrant women, whereas the second and third birth probabilities fell.

Significant fertility declines are mainly found for younger women – and for third births in particular. Many of the other fertility declines are surprisingly consistent across different female groups, and compositional changes thus contribute relatively little to the overall fertility decline. The preference for one or two children does not appear to have weakened markedly over time. The coming years will show whether younger women actually prefer fewer children – or merely postpone family addition(s) to a later point in time.

NOTE: Charts and tables related to this paper are presented in the addendum WP 11/Add.1

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I. Introduction

1. There has been a relatively sharp decline in the total fertility rate (TFR) in Norway from 2009 (1.98, peak) to 2014 (1.76, lowest point) (Statistics Norway 2015). For the period 2004-2014, the average TFR was 1.88. The decline in fertility from 2009 is mirrored in several other Western countries, and has been linked to increasing unemployment and economic uncertainty (Goldstein et al. 2003). The economic downturn in Norway has been very modest (Statistics Norway 2015). While fertility rates in Norway are still relatively high compared to other countries in Europe (Population Reference Bureau 2015), the Norwegian fertility fall remains somewhat of a puzzle, perhaps indicating that the recent downturn is Western fertility may not be due to changing economic conditions alone. To explore the Norwegian fertility decline, we investigate how the fall varies with well-known fertility determinants – age, educational attainment, educational enrollment, labor market attachment and immigrant background. Women who differ on these characteristics are likely to vary in their time and monetary constraints, and pinpointing the subgroups the fertility decline is concentrated in may shed light on the social mechanisms underlying the recent developments in fertility. Furthermore, we investigate whether compositional changes on these characteristics have contributed to the decline, perhaps giving us an idea of the likely future impact of changes in women's characteristics.

2. Women have increased their educational level, activity and labor market participation over the last decade, and this development is likely to continue also in the future. As women's fertility levels vary with level of education and enrolment (Berrington et al. 2015, Lappegård and Rønsen 2005, Kravdal and Rindfuss 2008), changes in educational patterns may alter fertility levels. The same holds true for labor market attachment, known to facilitate childbearing in the Nordic context (Andersson et al. 2014, Hart 2015, Jalovaara and Miettinen 2013, Koelet et al. 2015). Immigration is on the rise in Norway. As fertility is higher (but declining) in general among immigrants (Tønnessen 2014), the increasing proportion of women with immigrant background may have contributed to reduce the fertility fall.

3. In this study, we focus on fertility changes within and between groups over the last decade, i.e. five years prior to the fall and the five year period of decline, and address compositional changes in the groups of women according to the aforementioned characteristics. More specifically, we provide a description of patterns in the probabilities of transition to a first, second or third child in 2004-2014 for women born in the period 1959-1998, in the age group 16-45 years, according to different characteristics of the women. Shedding light on factors likely to contribute to the observed fertility decline over the last five years appears warranted. A better understanding of the pattern of change in fertility is helpful for policy makers and community planners, as knowledge of whether fertility is likely to decline further, stabilize or pick up again is imperative for their work. It may also provide an indication for possible actions that may be taken if one were to want to slow down or reverse the fertility decline. Such knowledge may be particularly crucial for low fertility countries attempting to counteract further falling fertility.

4. Norway is part of the 'Nordic fertility regime', with near replacement or 'highest-low' fertility in combination with high female labor force participation (Frejka and Sobotka 2008). The high birth rates are due to a combination of factors – relatively few women remain childless and one-child families are comparatively rare. The Norway has a comprehensive set of family policies that facilitates childbearing, mainly by easing the combination of paid work and parenthood. The primary aim for these policies has been to ensure gender equality and a high labor supply of mothers, as well as equal opportunities for children. However, evading low fertility has not been completely absent as a political

aim (Vollset 2011). Almost a full year of complete wage compensated parental leave has been available to new parents throughout the period of study. In relative terms, the variations in the total length of parental leave has been minor, with gradual extensions from 43 fully compensated weeks in 2004 to 49 fully compensated weeks in 2014. Again in relative terms, the changes in number of weeks reserved for the father have been more substantial, from 5 weeks in 2004 to 14 weeks in 2013, with a subsequent 4 week reduction in 2014. To the extent that increased gender equality in the care for small children increases fertility (which is still an open question, see McDonald 2000 and Kravdal 2016), this should contribute to an increase in fertility. From 2004 to 2010, there has been a substantial increase in kindergarten slots and enrolment in Norway (Statistics Norway 2015a), in particular increasing the proportion of toddlers (1-2 year olds) enrolled in kindergarten from about half (48%) in 2004 to 79% in 2014. During the same time period, the proportion of older children (3-5 year olds) enrolled in kindergarten increased from around 87 to 96%. As availability of kindergarten slots is found to increase fertility (see Rindfuss et al. 2010 for Norway and Bauernschuster et al. 2013 for Germany), this development should, all else equal, contribute to higher fertility. While the main focus has been on increasing compatibility of work and family life, two policies reduce the monetary cost of children: First, a universal child allowance has been available throughout the period (Syse 2015). While Galloway and Hart (2015) find indications for that child allowances increase fertility among young unmarried women, there is little indication that child allowance is an important fertility driver in Norway. In absence of adjustment for price increase, the real value of the child allowance has declined over the period of study. While this does increase the direct cost of raising a child, we consider it unlikely to have had a major impact on fertility. With the aforementioned exceptions, there have been relatively few changes in the area of family policies in Norway over the last decade.

5. As our purpose is to understand the decline in TFR in Norway, compositional change in fertility determinants is also an important piece of the puzzle. Here, we consider changes in proportions in educational attainment and enrolment, labor market attachment, and immigrant background. Despite diminishing educational differences in Norway, highly educated women still have slightly smaller families than their peers with less education (Kravdal and Rindfuss 2008). Furthermore, as fertility is low during educational enrolment (Lappegård and Rønsen 2005), longer enrolment should thus contribute to lower fertility, all else equal. Hence, the sharp upsurge in the length and level of Norwegian women's education could have contributed to the fertility decline. From 2004 to 2014 the share of women with an education beyond high school has increased from 25 to 35% for all age groups combined. If we only consider women age 20-24, the increase is around 7 percentage points. From 2004 to 2014, the share of women 19-23 years old enrolled in education at college or university levels increased with around 6%, whereas modest changes were seen for older ages.

6. As in other Nordic countries (Andersson et al. 2014, Jalovaara and Miettinen 2013), employment and fertility correlates positively in Norway (Hart 2015, Kravdal 1994). Getting a foothold in the labor market before having children is also in line with the incentives in the Norwegian parental leave system. Over our period of study, Norwegian women's labor force participation has increased among women who have completed their education (Statistics Norway 2015a), which in itself should facilitate childbearing. Importantly, Kreyenfeld (2010) finds that not only employment, but also perceived job security, affects fertility behavior. This may have resulted in a fertility decline among employed women.

7. Finally, it is well known that the fertility patterns of immigrants differ from those of the majority population (see Sobotka 2008 for an overview). Hence, the sharp increase in immigration to Norway over the last decade may have contributed to changed fertility patterns. Towards the end of 2014, around 670 000 immigrants resided in Norway, whereas

the number at the beginning of 2004 was only around 290 000 (Statistics Norway 2015a). In general, immigrant (foreign-born) women have somewhat higher fertility than Norwegian born women (Lappegård 2006, Tønnessen 2014). We thus assess whether the trends for immigrants have mirrored those of Norwegian-borns.

II. Theoretical framework

8. Our theoretical starting point is the fertility analysis framework of Easterlin and Crimmins (1985), which distinguishes between supply, demand and regulation costs.

a) Supply

9. Supply refers to the ability to conceive and bear a child. This implies that one is sexually active and physically able to have children. For our purpose, the supply of children will mainly vary with the mother's age as fecundity, also known as the biological ability to become pregnant and carry a child to term, declines with age. The steep fall in fertility for women in their late 30s and early 40s is most likely due to age-related subfecundity. As medical treatment for subfecundity has improved over the study period, this pattern may have changed somewhat. Updated numbers show that around 3.4% of children in Norway are born after the use of assisted reproductive technology (Directorate of Health 2015). This is almost a doubling compared to the situation ten years ago. While the number of infertility treatments has been stable at around 7000 per year for the past few years, the quality of treatment has improved and more children are born as a result. At the same time, an increasing proportion of Norwegian women travel abroad for help, particularly single women and women who need egg donation, as such measures were unavailable during the period in question. This number is not, however, easily quantifiable. In sum, increased availability and quality of medical treatment for subfecundity may contribute to increasing fertility rates, particularly among women towards the end of the fertile ages. Another factor related to supply, is partnership status. Due to data scarcity, partnership status is generally not included in analysis of first births, but commonly included for later births. According to Statistics Norway (2015a), only minute changes have been observed in the proportion of women with and without partners during the study period. We do not have access to partnership data for this study, but from the minor changes that have taken place in this area, it is unlikely that this would alter the overall results significantly. Lastly, international studies have shown that fecundity may be lower among immigrant women than the majority population (Chandra and Stephen 1998, Tuntiseranee et al. 1998). This has been hypothesized to relate to health status (Wilcox and Mosher 1994), sexual or health behaviors (Bolumar et al. 1996, Mosher and Bachrach 1996) or economic constraints (Phipps 1996). These findings, however, apply mainly to countries where fertility treatment is not freely available to all, which is not the case in Norway.

b) Demand

10. Demand explanations refer to the desire for having children, and consist of several components. In the Western world, where regulation costs are low and the supply of children changes relatively little over (period) time, falling fertility indicates a decline in the demand for children. We start our discussion by assessing economic determinants of the demand for children, including income effects and effects of costs of children, and then move to non-economic demand explanations, including preferences, norms and ideals. Regarding income effects on fertility, i.e. the notion that fertility increases with purchasing power (Becker 1991), Kravdal (2002) suggests a minor impact in Norway historically. There is, however, some quasi-experimental evidence that improved economic circumstances increased fertility young unmarried women in (Northern) Norway (Galloway

and Hart 2015). While Norwegian wages are high, high prices means that overall purchasing powers is in line with those of several other OECD countries (Statistics Norway 2015b), rendering high wages an unlikely explanation of the relatively high fertility in Norway. Over the last decade, purchasing power in Norway has increased, which should, if anything, lead to increased fertility. Despite the minor importance of purchasing power, a strong and positive correlation is found between earnings and parity progression in Norwegian women (Hart 2015), a pattern mirrored in other Nordic countries (see e.g. Andersson et al 2014 for Denmark and Jalovaara and Miettinen 2013 for Finland). This indicates that Nordic women may prefer an ordering of life course transitions where entry into paid work precedes childbearing (Matysiak 2009, Ellingsæter and Pedersen 2013). If employment opportunities or job security weaken, a fall in birth rates may follow. Furthermore, this mechanism points toward a sharper fertility fall among women who are not currently employed.

11. Increases in the direct (pecuniary) and indirect (time) cost of raising a child may also cause a fertility decline (Becker 1991, Walker 1995). For highly educated and/or high earning women, pecuniary costs are presumed to be less pressing, while the indirect cost or income loss may weigh heavy in childbearing decisions. Family policies that reduce the indirect cost of childrearing have improved over the last decade (see Section 2.2). Hence, we do not expect a particularly sharp fertility fall among highly educated and/or employed women. However, increased direct costs of childrearing should decline fertility mainly among female students and those with a low education or outside paid work.

12. Moving beyond economic determinants, there is ample evidence of a two-child ideal throughout Europe, including Norway (Sobotka and Beajoulan 2014). We explore indirectly whether this ideal has eroded over the last ten years by assessing whether second birth probabilities fall faster than those at higher and lower parities. The theory of the Second Demographic transition suggests that the demand for children falls as the preferences for leisure and self-realization, in conflict with childrearing, are strengthened (Lestaeghe 2010). Lestaeghe proposes that the highly educated are ‘forerunners’ in this development. Hence, if the fertility fall is preference driven, we expect it to be most marked among women with higher educational attainment.

c) Regulation costs

13. Regulation costs refer to the access to and the acceptance of use of regular and emergency contraceptives (and less frequently, elective abortion). High-quality easily accessed public health care means that regulation costs are comparatively low in the Norwegian context. Currently, around 64% of women age 15-25 use some form of hormonal contraceptive. Furthermore, condoms and diaphragms may be used during sexual intercourse. Regular contraceptive use is not easily quantifiable, but is reported to have increased for all age groups during the period of study. In summary, regulation costs seem to have been relatively stable or declined only modestly from 2004 to 2014. Lower regulation costs are thus unlikely to explain the fall in fertility after 2009. To the extent that unwanted or unplanned pregnancies have contributed to fertility in Norwegian, this contribution may, however, have declined over time.

III. Material and methods

a) Data

14. We use data from administrative registers provided by Statistics Norway, including all women born 1959-1998 in the age group 16-45 years residing in Norway during (parts

of) the period 2004-2014. We have information on the women's birth year, as well as the birth year of any live born children. We also have data on censoring, i.e. dates of emigration or death. Information on the women's highest educational level, educational activity, labor market attachment (all yearly), and immigrant background was linked to the file. As we are only interested in first, second and third birth transitions, women who already had three (or more) children in 2004 were excluded. Altogether, 307 493 first births were available for analyses for 2004-2014. A total of 908 182 women contributed in the 1st birth analyses, contributing an average of 6.8 person-years (pyrs). For 2nd births, the corresponding numbers were 249 129 births, 461 342 women and 4.4 pyrs. For 3rd births, the numbers were 98 570 births, 468 189 women and 5.7 pyrs.

b) Method

15. Parity transitions were analyzed separately, for 1st, 2nd and 3rd births using discrete-time event analyses with time-varying covariates. As our main interest lies in absolute effect sizes, we present predicted probabilities, hereafter referred to as probabilities. This also facilitates cross-model comparisons (Mood 2010). Predictions are made separately for each year, on the average for the other control variables. Predicting on the average of categorical variables implies that the weight given to each subgroup is proportional to its size. In all models, observations were censored at age 45, emigration, death, or the end of the follow-up period (December 31 2014). In the analysis of 1st births, we followed childless women from age 16 (or from first residence in Norway). For 2nd and 3rd births, women were followed from the birth of their last child (or from first residence in Norway with parity one or two).

c) Control variables

16. We estimate basic and full models. All basic models are either estimated separately by age group or adjusted for age. Age is included as a set of dummy variables for three-year age categories, ranging from 16-18 (19-21 for 3rd births) to 43-45 years. In the basic models for 2nd and 3rd births, we also include a set of dummy variables for the age of the youngest child (i.e. time since last birth), as shown in Table 1.[2] The fully adjusted models add a set of socio-demographic control variables, all well-known fertility determinants, to the basic model. We control for educational attainment in five categories: Primary school, high school, lower college education (through Bachelor level), higher college education (above Bachelor level) and missing. Moreover, we include a dummy variable for being enrolled in education. Lastly, knowing that immigrant women have a different fertility pattern than Norwegian-born women, we include a dummy variable for being born abroad. We are also interested in possible differences between women having a minimum income and women outside the labor market, but this is not included as a control in the adjusted models.

d) Model specifications

17. All models have been run separately for 1st, 2nd and 3rd parity transitions using Stata. The statistical significance level was set at 5%. Results are presented as predicted probabilities with 95% confidence intervals. Model 1 examines the overall probability of getting a 1st, 2nd or 3rd child. It is estimated in a basic form ('null', i.e. with control only for mothers' age in all models, and also the age of the youngest child in models of 2nd and 3rd

[2] All Tables and Figures are available upon request. Due to space constraints, they have not been included in this draft paper.

births), and a fully adjusted form (including also controls for level of education, educational activity and immigrant background). The predicted probabilities with confidence intervals for 2004, 2009 and 2014 are included in the Appendix (Table A1), whereas the absolute and relative changes for the time periods (2004-2009, 2009-2014 and 2004-2014) are shown in Table 2. Model 2 is run separately by age group to examine variations in fertility trends by age. The absolute and relative changes for the three time periods (2004-2009, 2009-2014 and 2004-2014) are shown in Table A2, whereas the predicted probabilities with confidence intervals for 2004, 2009 and 2014 are included in Table A3. To explore how the fertility change varies by socioeconomic characteristics, we run the full model for 1st, 2nd and 3rd births separately for several subgroups (Models 3-6). The predicted probabilities with confidence intervals for 2004, 2009 and 2014 are included in Table A4, whereas the absolute and relative changes for the three time periods (2004-2009, 2009-2014 and 2004-2014) are shown in Table 3. We define women as employed if they have earned a minimum income (i.e. sufficient to warrant parental leave benefits). All subgroup classifications were lagged one year. Compositional effects are shown graphically, by how the distribution of the control variables varies by period time. The distribution of women by educational attainment and enrollment, labor market participation or immigrant background is shown in Table A5.

IV. Results

a) Overall patterns and variation by age

18. Many of the characteristics hypothesized to influence fertility appear to have only a minor effect on the predicted probabilities overall. From 2004 to 2014, the probability of getting a first child has declined slightly (around 0.2 percentage points, albeit statistically significant), due to a 0.5 percentage points decline from 2009 to 2014. The likelihood of a second birth has increased with 0.3 percentage points over the full period, as the increase from 2004 to 2009 (0.9 percentage points) was sharper than the decline after 2009 (0.6 percentage points). We observe a 0.5 percentage points fall in third birth probabilities from 2009 to 2014. When comparing 2014 to the baseline year 2004, the decrease is moderated to 0.4 percentage points, but still statistically significant. We find a consistent shift toward later birth ages throughout the period. This is mainly a consequence of falling first and third birth probabilities among younger women in combination with increasing birth probabilities among women in their late 30s and early 40s. Throughout the period, women aged 28-36 have the highest probability of a first birth. The probability of getting a first child stays very low among women right at the end of the childbearing age (43-45 years), at a level comparable to that of teenagers (16-18 years). Broken down by age, we find that the decline in first birth probabilities is concentrated only among women in their 20s and younger. Second birth probabilities are remarkably stable across age groups. For third births, a consistent statistically significant decline is observed for women age 25-39. This may point towards a combination of tempo and quantum effects, where younger women postpone parenthood, while older women increasingly choose not to have a third child.

b) Level of education and educational activity

19. Educational attainment influences fertility choices through multiple channels, and educational choices may also carry information of preferences relevant for childbearing (Lappegård and Rønsen 2005). Separate models of educational enrollment and attainment may hence provide insight into potential drivers of the fertility fall. The probability of having a first child increased (albeit not statistically significant) among women with the highest education over the period as a whole. For all other groups of women, a significant

decline was observed for the period overall due to a sharp decrease from 2009 to 2014. In absolute terms, the decline was fairly similar across educational groups, but in relative terms the decline was most pronounced for women with only basic or high school education (16-17%). For second births, no statistically significant changes were observed for women in any of the educational attainment groups for the period as a whole. Overall, there was a tendency towards an increase in second birth probabilities, due to an increase from 2004 to 2009. However, from 2009 onwards, a decline in second birth probabilities is found among women at all educational levels, statistically significant among women with a high school or lower college education only. For third births, a decline over the period is observed among all women with education beyond primary school, mostly driven by a statistically significant decline from 2009 onwards. For women holding the highest education, the decline is not statistically significant for the period as a whole – only from 2009 to 2014. For women with high school and lower college education, the decline is statistically significant also for the full period. In sum, we see a particularly sharp fall in birth probabilities among women with high school or a lower higher education. It is noteworthy that the women with the highest educational attainment display the overall least pronounced fertility decline. The variation in fertility probabilities by level of education implies that alterations in women's level of education may influence TFR. We therefore examined how the proportion of women at each educational level varied over the period. For childless women, the level of education has been relatively stable over the period. At the same time, the educational levels of mothers have increased: The proportion of mothers with one or two children with only primary and secondary education has gone down, while the proportion with higher education (both undergraduate and graduate) has increased. The increase in educational attainment is highest for mothers of two children. As second and third birth probabilities are highest among women with higher education, the increasing educational attainment of mothers should counteract the fall in TFR.

20. To assess whether the increasingly long periods young women spend enrolled in the educational system lead them to postpone motherhood, and perhaps forego a second and/or third birth altogether, we examine fertility patterns for women enrolled in the education system separately. Across most parities, the drop in fertility from 2009 to 2014 was statistically significant regardless of student status, but more pronounced for those enrolled in education. For first births, the fall in fertility over the full period was statistically significant for students only, where it amounted to a 0.5 percentage point decrease in absolute terms. In relative terms, this corresponds to a 23% reduction in student fertility. An increasing proportion of childless women enrolled in education over the period (from 33% to 42%). As the level of first birth probabilities is by far highest among women who have completed their education, the increased educational enrollment of childless women contributed to the fall in fertility. The second birth probability increased from 2004-2009, regardless of educational enrollment. It decreased from 2009-2014 (0.9 percentage points for students and 0.6 percentage points for non-students). As the decline was smaller than the initial increase, we see a non-significant increase for the period as a whole across student status. The third birth probability for students was fairly stable from 2004-2014. Hence, the decrease in third birth probabilities observed earlier is driven by women who have completed their education, where the fall is statically significant. Among mothers of one or two children, the proportion of students is fairly stable across the period.

c) Employment

21. Labor market attachment means economic independence, signals that the transition to adulthood is completed, and qualifies women for means-tested parental leave benefits. We thus examine birth probabilities by whether or not women have a minimal labor market attachment, hereafter referred to as work activity. Throughout the period, employed women

were more likely than their non-employed peers to have a first or second child. The probability of a third birth was, however, highest among women without work. The decline in first birth probabilities after 2009 is by far more marked among employed women (1.3 percentage points), than among women without work (0.06 percentage points). Both when using 2004 and 2009 as a baseline year, the fall in fertility is statistically significant for working women only. The sharp increase in the proportion of working childless women over the period means that working women's lowered fertility plays an increasingly important role for total fertility. For second births, a slight, albeit statistically significant, incline is observed for the period as a whole for working women, as the increase from 2004 to 2009 was sharper than the decline after 2009. Second birth probabilities have been relatively stable for women not working during the time period. Finally, the decline in third birth probabilities observed over the period applies to working and non-working woman alike. Also for women at risk of having a second and third child, the proportion out of the workforce is steadily declining. The combination of falling first birth probabilities among working women and an increasing proportion of women in the workforce seems to be among the drivers of the fall in fertility after 2009. For first births, the small minority of women without work appear to be relatively untouched by the fertility decline after 2009. However, as fewer women are without work, this will not have contributed much to uphold fertility.

d) Immigration background

22. We observe at a clear decrease of around 1.0 percentage points in the probability of first births among Norwegian-born women from 2009 as well as for the period as a whole, while there has been a corresponding clear increase among immigrant women, throughout the period. At the same time, the proportion of childbearing women of childbearing age with immigrant background has dropped markedly, from 33% in 2004 to 21% in 2014. As such, their increased first birth probability aids successively less in upholding or raising fertility levels over the period. The second birth probability has been relatively stable for both immigrant and Norwegian-born women over the period. Immigrant women make up an increasing proportion of mothers with one child, but as fertility patterns are similar, this compositional change will not have impacted total fertility. Third birth probabilities decreased for both Norwegian-born and immigrant women from 2004 to 2014, but both in absolute and relative terms, the change was more pronounced for immigrants. The decrease from 2009 onwards was, however, most marked for Norwegian-born women. Overall third birth probabilities remain highest among women with immigrant background. An increasing proportion of immigrant mothers with two children may thus have dampened the fertility decline from 2009.

e) The fertility fall: Postponement of parenthood and fewer three-child families

23. The decline in first birth probabilities from 2009 is concentrated at younger ages, and among women who are enrolled in education. This indicates a postponement process, where an increasing proportion of young women aim to complete higher education before they enter parenthood. Furthermore, women who hold the highest educational degrees comprise the only educational group who does not display a fall in first birth probabilities, representing a clear indication of having completed the transition to adulthood. Interestingly, the fall in first birth probabilities is stronger among women who are in the workforce. Throughout the period, first birth probabilities are substantially lower for women who are outside the workforce. Hence, the small subgroup who considers having a child without any attachment to the labor market is likely selected on being less work

oriented, and may hence to a lesser extent care about obtaining stable employment before having a child. Among women with immigrant background, the propensity to have a first child increased from 2009 to 2014. Overall, second birth probabilities do not decrease significantly from 2004 to 2014 and the pattern of constancy remains when results are broken down by subgroups. While there is a fall also in second birth probabilities from 2009 to 2014, this is more than cancelled out by an increase in second birth probabilities from 2004 to 2009. If anything, our results for second birth probabilities underlines that 2009 stands out as a peak year, meaning one should seek explanations for the high fertility in this year, rather than for the fertility decline in the years that follow. There is a significant fall in third birth probabilities, for the period as a whole, and from 2009-2014. The fall is concentrated among women in their late 20s and early 30s. It is of similar magnitude for students and non-students, statistically significant both for working and non-working women, and (with the exception of women with primary education), consistent across groups of educational attainment and enrolment. Hence, it seems that a slight decline in the proportion of women who want to have three children, across society, was among the drivers of the fertility fall.

V. Conclusion

24. From 2009 to 2015, the TFR rate in Norway fell from 1.98 to 1.73. Whether this decline will continue, or whether birth probabilities will recover or stabilize, is an important question for future community planning and policy making. Even though high(er) fertility rates have not been an explicit aim for the Norwegian government, generous family policy schemes are in place and have improved steadily. While the stated aim of these policies is to encourage female labor participation and ensure equal opportunities for children, there is some evidence that they have had an effect also on fertility levels (see e.g. Rindfuss et al. 2010, Galloway and Hart 2015), and contributed to the 'highest-low' fertility in Norway (Frejka and Sobotka 2008).

25. We observe a slight decrease in fertility for all parity transitions after 2009. Measured on an absolute scale, the declines are quite similar at around 0.5-0.6 percentage points across the parity transitions. On the relative scale, we see a somewhat different picture: The downturn is largest for third births (12%), and smallest for second births (5%). The sharp fall in third birth probabilities points towards a quantum effect, giving an expectation of somewhat smaller families and lower cohort fertility in the future. For first and third births, the fertility decline was relatively independent of level of education, educational activity and work activity. Because the fertility reductions were surprisingly consistent across different groups of women, compositional changes have contributed relatively little to the overall fertility decline. The fertility decline was most marked for younger women. The decline in first birth probabilities among younger women is easily interpreted as a postponement of family formation. The sharp decline in third birth probabilities, on the other hand, points towards that women in the younger birth cohorts may prefer slightly smaller families. Whether younger women will prefer fewer children in the future, or if they are just postponing family addition(s) to a later time, will be interesting to follow in the years to come. For first births, we find a more pronounced decline among women enrolled in education. As women spend increasingly long durations in the educational system, this will likely continue to contribute to future lower levels of fertility. To date, the women who complete higher education have 'caught up' almost all the fertility postponement like a long study time often involves (Kravdal and Rindfuss 2008). As postponement becomes more marked, the same recuperation may be harder for today's students to attain. Norwegian men and women who become parents while enrolled in education receive an income compensation that is low relative to their expected lifetime earnings. Hence, policy makers concerned with low fertility may want to consider making it

more attractive to have children while enrolled in education. The combination of increased immigration and increased likelihood for (especially) first births among immigrant women will probably help raise future fertility levels in Norway. At the same time, it is important to have in mind that immigrant women's contribution to the overall Norwegian fertility is modest (Aase and Kaldager 2014). However, all else equal, increasing immigration will counteract the falling birth rates in Norway.

26. Our analysis shows that the (revealed) preference for two children remains strong in Norway. The low proportion one-child families appears to drive much of the difference in fertility between the highest-low Nordic fertility regimes and the low fertility regimes of Continental Europe. The stability of second birth probabilities leads us to expect fertility to perhaps stabilize at a new, slightly lower level – rather than continue to decline towards the lowest-low fertility levels observed in some other European contexts.

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