ÖAW AUSTRIAN ACADEMY OF SCIENCES

VIENNA INSTITUTE OF DEMOGRAPHY

WORKING PAPERS

08/2016

REALISATION OF FERTILITY INTENTIONS IN AUSTRIA AND HUNGARY: ARE CAPITALS DIFFERENT?

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Abstract

The study of fertility intentions has gained importance in the literature during the last decades. Nevertheless, research focussing on their realisation is still scarce due to limited availability of longitudinal data. Although a bulk of existing studies demonstrated regional variation and rural-urban differences in fertility, respective differences in the realisation of fertility intentions have not been addressed in prior research. We address this shortcoming by analysing the realisation of short-term fertility intentions in Vienna and Budapest as opposed to the remaining parts of Austria and Hungary, using two waves of the Generations and Gender Survey (GGS). Results clearly demonstrate that those two capitals are different: Although short-term childbearing intentions are very similar in capitals and other parts of the countries, probabilities of realisation are lower in capitals. These differences in realisation are at least partly explained by individual characteristics of inhabitants. There are, however, also factors that affect realisation differently in metropolitan than in less populated regions.

Keywords

Fertility intentions, realisation of intentions, urban-rural differences, Austria, Hungary, Generations and Gender Survey (GGS).

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Acknowledgements

This research was supported by a grant from the City of Vienna (MA 7 der Stadt Wien – Kultur und Wissenschaft). We want to thank Caroline Berghammer, Zuzanna Brzozowska, Inga Freund, Lisa Janisch and Krystof Zeman for valuable comments on an earlier version of the paper. Moreover, we are grateful to Gabriella Branyiczki for providing fertility indicators for Hungary.

Realisation of Fertility Intentions in Austria and Hungary: Are Capitals Different?

Bernhard Riederer and Isabella Buber-Ennser

1. Introduction

Capitals are of great relevance as major cities often play a key role in explaining the spread of new trends and changes in social behaviour. Cities are centres of economic activity (Scott and Storper 2015) and capitals in particular are also political centres. In addition, urban growth is still ongoing, with more people than ever in human history living in urbanized environments. In an historic perspective, urbanization and demographic transitions seem to be highly interrelated (Bocquier and Costa 2015; Jaffe 1942; Sharlin 1986). In times of industrialization, for instance, child mortality initially often increased in overcrowded cities due to harsh living conditions (e.g. Wrigley et al. 1997). Later, major factors accounting for fertility decline like improvement in (female) education and increasing female labour force participation were usually operating in urban settings (e.g. Galloway, Lee and Hammel 1998). As a result, fertility decreases started earlier and went on faster in cities than in rural regions. Focussing on the last decades, cities were also at the forefront of the structural change of industries and the growth of information and service sectors (Scott and Storper 2015). Changes on the labour market contributed to less stable careers complicating life and family planning. Though fertility differentials between urban and rural areas are smaller than in the past, they do still exist (Kulu, Vikat and Andersson 2007).

Capitals and larger cities have usually lower fertility rates than rural areas (e.g. de Beer and Deerenberg 2007; Hank 2001, 2002; Kulu 2013; Kulu et al. 2007; Kulu and Washbrook 2014). The current study focuses on regional differences in the realisation of short-term fertility intentions. Fertility intentions have gained importance in the literature during the last decades, with intentions analysed from different perspectives and in different country contexts (e.g. Billari, Philipov and Testa 2009; Hagewen and Morgan 2005; Liefbroer 2009; Sobotka 2009). Few studies have focused on the link between intentions and their realisation, mainly due to the scarce availability of longitudinal data. Early US studies date from the 1960s and 1970s (Freedman, Coombs and Bumpass 1965; Westoff and Ryder 1977), and were followed by research in France (Monnier 1989) and Norway (Noack and Østby 2002). Recently, the Generations and Gender Surveys (GGS), a European panel study, has initiated research on short-term intentions (in this context, intentions to have a child within three years) and their realisation in several European countries (Régnier-Loilier and Vignoli 2011; Spéder and Kapitány 2009; Toulemon and Testa 2005).

Despite regional variation and rural-urban differences in fertility (Kulu 2006; Kulu and Boyle 2009; Kulu et al. 2007; Statistics Austria 2014), to our knowledge this aspect has not been addressed in the realm of realising fertility intentions. We aim to contribute to the literature by differentiating between a country's capital and the remaining parts of the country. In order to address this issue we study Vienna and Budapest as opposed to the remaining parts of Austria and Hungary, using two waves of the Generations and Gender Survey (GGS). Vienna is the only city in Austria with more than one million inhabitants (1,766.746 in 2014). The second largest city is Graz, with much fewer inhabitants (269,997 in 2014) (Statistics Austria 2015b). The situation is similar in Hungary, where Budapest is by far the largest city and the only one with a population above one million (1,759,407 in 2015), whereas Debrecen, the second largest city, has a substantial lower population (203,059 in 2015) (HCSO 2016). As research on fertility variation between urban and rural areas has been based mainly on data from Nordic countries (Kulu and Washbrook 2014), our study provides valuable insights for two Central European countries.

2. Fertility in Austria and Hungary

After the baby boom in the early 1960s with the total fertility rate (TFR) amounting to 2.81 children, fertility remarkably declined in Austria until the mid-1980s (Prskawetz et al. 2008; Sobotka 2015b). Since then, TFR is between 1.33 and 1.51 children (being lowest in 2001) (Figure 1). Vienna, the Austrian capital, saw the decrease in fertility earlier and at a different level, as compared to the whole country: Already in the 1960s, fertility was low in Vienna (between 1.74 and 1.89) and reached the lowest value of 1.24 in 1977 (Figure 1). In the 2000s, TFR was slightly increasing in Vienna and close to the Austrian TFR. During the last years (i.e. 2010-2015), TFR was between 1.40 and 1.42 in Vienna whereas we observe a rise in TFR in Austria reaching 1.46 in 2014 and 1.49 in 2015.

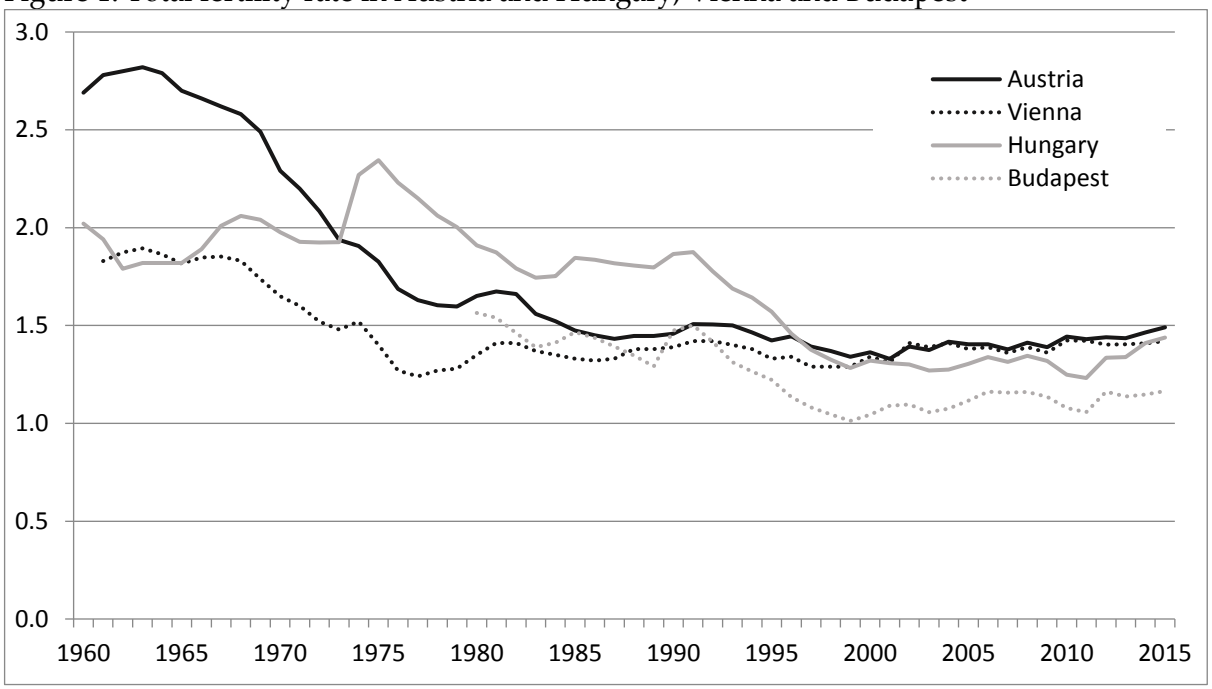
As the conventional total fertility rate suffers from tempo and parity composition distortions, Bongaarts and Sobotka (2012) suggest to concentrate on the tempo- and parity-adjusted total fertility rate (TFRp*). Their findings imply that the recent upturns in TFR in Europe are to a large extent explained by a decline in the pace of fertility postponement (Bongaarts and Sobotka 2012). With this adjusted measure, fertility rate in Austria is rather stable (see Figure A1), oscillating at 1.6-1.7 in the 1990s and 2000s, which is about 0.2 above the conventional TFR (Sobotka 2015a). As TFRp* is not available for 2012-2015, it remains to be seen if this adjusted indicator also reveals a modest increase in fertility.

During the 1960s, fertility was higher in Austria as compared to its neighbouring country Hungary. Whereas fertility decreased in Austria in the 1970s, it increased in Hungary, reaching highest fertility rates in the mid-1970s (1975: TFR 2.35). After the fall of the Iron curtain in 1989 and the societal changes thereafter, uncertainty was high and births were often postponed. The fertility decline in the second half of the 1990s and during the 2000s was however not only due to timing of births (i.e. postponing) but also reflected structural changes as the adjusted fertility rate was also decreasing in this period (see Figure

A1). Contrary to Austria and other Western European countries, there was long time "no sign of increasing fertility rates" in Hungary (Berde and Németh 2015, p. 102). Hungary witnessed lowest TFR in 2011 (1.23). In recent years, however, fertility rates in Hungary were about the same level as in Austria. It remains to be seen whether the small upward trend starting after 2010 will continue (Figure 1).

When comparing the metropolitan area of the capital with the overall country, Hungary differs from Austria: Whereas fertility rates for the whole Austrian country and Vienna are almost equalling since the 2000s and only slightly lower in Vienna as compared to Austria in total, differences between Hungary in total and Budapest remain, revealing no sign of convergence. During the last years, the distance between the fertility rates even widened (Figure 1). In 2015, TFR was 1.49 in Austria, 1.42 in Vienna, 1.44 in Hungary and 1.16 in Budapest (Figure 1).

Figure 1: Total fertility rate in Austria and Hungary, Vienna and Budapest

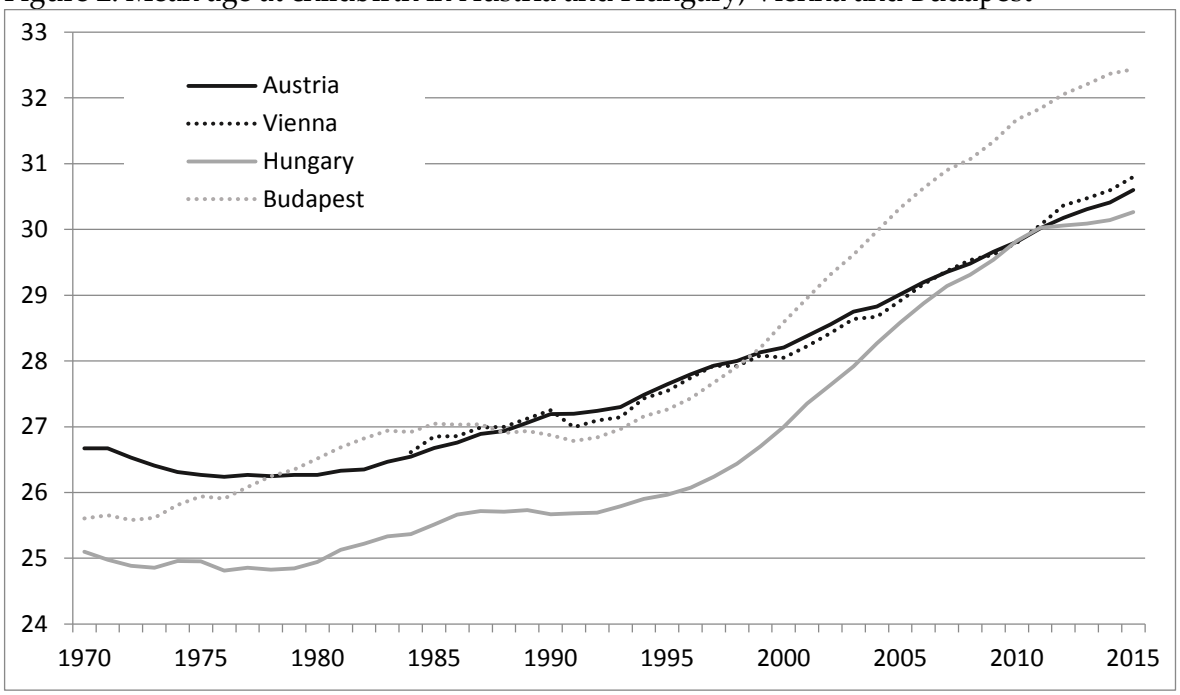


Note: The figure gives the mean number of children per woman.
Source: Eurostat (2016), Statistics Austria (2015a, 2016), Hungarian Central Statistical Office (HCSO).

In both countries, mean age at birth was steadily increasing during the last decades. Mean age at childbirth was lower in Hungary until the 1990s, but numbers converged rapidly since the mid-1990s and reached a level of about 30 years in 2014 (Austria: 30.4; Hungary: 29.5). Especially after 1995, mean age at childbirth increased at a fast pace in Hungary. According to Spéder and Kamarás (2008), the birth of the first and second child at a later age played the most significant role in the increase in the mean age of mothers in the country.

Regarding regional differences, age at childbearing is similar in Vienna as compared to Austria in total, but substantial differences exist between Budapest and Hungary in total: Women who gave birth in Budapest were on average one year older than mothers in Hungary in total since the 1990s. This difference was gradually increasing to more than two years in 2012-2015 and in 2015, mean age at childbirth was 30.3 in Hungary and 32.4 in Budapest (Figure 2). Interestingly, mean age at childbirth was slightly higher in Austria as compared to Vienna for a long period (1990-2010), but during the last five years this order changed and mothers in Vienna were on average slightly older (Figure 2). In 2015, mean age at childbirth amounted to 30.6 years in Austria and 30.8 years in Vienna (Figure 2). Apart from differences in mean age at childbearing these also exist for age at first birth (2014: Austria: 28.9; Vienna: 29.3 (numbers for 2015 not yet available for Vienna); 2015: Hungary: 28.4; Budapest: 31.2) (numbers for Hungary provided by the Hungarian Central Statistical Office) (VID 2015).

Figure 2: Mean age at childbirth in Austria and Hungary, Vienna and Budapest



Note: The figure gives the mean age of mothers at childbirth in years.
Source: Statistics Austria (2015a, 2016), Hungarian Central Statistical Office (HCSO).

3. Regional Differences in Intentions and their Realisation

While much is known about the variation in childbearing patterns across countries and across areas within a country, far less research was done with respect to regional variations of childbearing intentions and their realisation. Studies on regional differences in intended family size, childbearing intentions or ideal family sizes usually focus on cross-country comparisons. For instance, Goldstein, Lutz and Testa (2003) reported that Austria is

amongst the European countries with lowest average personal ideal family size due to a comparably high share of women who do not want to have any children at all. Testa and Grilli (2006) employed multilevel modelling evincing that regional fertility positively affected the personal ideal number of children of younger generations. But though some regional differences between European countries exist, Sobotka and Beaujouan (2014) demonstrated that the average number of children perceived to be "ideal" for a family is around two almost everywhere.

Studies conducting cross-country comparisons of realisations of fertility intentions are even sparser than those researching intentions alone. Régnier-Loilier and Vignoli (2011) compared France and Italy and included the aspect of certainty. In both countries, more than 60% of couples had a child if they were sure that they wanted to have one within the next three years. If couples stated that they probably want to have a child, realisation rates went down close to 50% in France and below 40% in Italy. Kapitány and Spéder compare realisation in four countries (Kapitány and Spéder 2012; Spéder and Kapitány 2012): While three in four two-year intentions were realised within three years in the Netherlands, the ratios of realisation were much lower in Switzerland (55%), Hungary (40%), and Bulgaria (38%).

To our knowledge, studies of within-country differences in realisation of childbearing intentions have not been conducted before. Our theoretical discussion is thus based on the literature on actual fertility differentials. This literature usually distinguishes four different reasons why fertility differentials between regions exist: (a) differences in regional opportunity structures, (b) local patterns of social interactions/cultural norms, (c) differences in the distribution of individual characteristics, and (d) selective migration (c.f. Hank 2002; Kulu 2006; Kulu and Washbrook 2014; Trovato and Grindstaff 1980). In principle, these theoretical arguments regarding fertility differentials per se can also be applied to the question of realising existing childbearing intentions.

Urban and rural regions usually differ in several aspects that are relevant to reproductive behaviour and fertility. This refers to opportunities that are offered (see (a) above). Opportunity structures might affect chances of realisation as they influence the ability to provide the appropriate environment seen as a prerequisite for parenthood. Sufficient income, enough space for the (additional) child in the flat/house, and availability of formal or informal childcare might matter. Urban environments usually offer more service infrastructure including possibilities of formal childcare enhancing the reconciliation of family and professional life. But proximity to relatives on the countryside and their support might counterbalance availability of formal services in the city. In any case, career opportunities leading to postponement of childbearing are more frequently found in the cities.

Differences in norms and attitudes towards parenthood refer to the second point (see (b)). As fertility rates are higher and thus higher numbers of children are probably more common in rural regions, young adults in rural environments may be influenced to want more children than their urban counterparts (cf. Kulu and Washbrook 2014). This, however,

would affect the building of fertility intentions and not their realisation. Moreover, as the literature does not find large differences in intended fertility between European countries, there might also be no reason to expect remarkable differences between cities and rural areas. If, however, traditional views on the family are stronger in rural than in urban areas, this could in turn result in higher significance of parenthood for individuals' life plans and higher appreciation of parents compared to childless people. Then, a postponement of realisation intentions becomes less likely in rural settings.

Furthermore, characteristics of individuals living in cities and on the countryside likely differ from each other (see (c)): In urban areas people are usually higher educated. Longer periods of education encourage postponements of parenthood; another argument in favour of lower realisation rates in cities than in rural areas.

Compositional effects on fertility may also result from perceptions of urban living environments and corresponding mobility of subgroups (see (d)). On the one hand, cities with higher rates of crime and less open green space than rural areas are usually not perceived as ideal places to raise children. Thus, many people move from cities to rural areas shortly before or after the birth of a child.[1] On the other hand, young people often move to cities to obtain education and training (especially university degrees) and these higher educated have often less traditional attitudes and want to pursue careers such that their investment in education pays off. Both examples demonstrate two aspects: First, migration is likely to strengthen the already existing difference between rural and urban areas without essentially modifying it. Second, opportunities, values, population composition and migration (factors (a) to (d)) are not independent from each other. Context (opportunities/values) affects composition via migration.

Summing up, it follows from the theoretical discussion that realisation of childbearing intentions is likely to be lower in cities than in rural areas. This should also hold for Vienna and Budapest as compared to the respective other parts of Austria and Hungary, as both capitals are the only large cities (with more than one million of inhabitants) and the only centres of international importance in the two countries under study.

Regarding differences in the realisation of fertility intentions, it has to be mentioned that the two neighbouring countries have a shared history as well as a separated one. Commonalities and differences between them are thus of special interest. Regional fertility differentials within and between the two countries were researched as early as from the census of 1880 onwards (c.f. Demeny 1968). After the Second World War, however, the countries found themselves at different sides of the iron curtain. Nowadays, existing evidence suggests that post-communist societies have lower realisation rates due to past social features of political systems, discontinuity and resulting feelings of anomie, the specific character and the accelerated pace of social change after 1989/90 (Spéder and Kapitány 2012). This would suggest to assume higher realisation rates in Austria than in

[1] If these aspects matter for (future) parents, they might also move to city districts neighbouring the usually more expensive suburbs or postpone the realisation of their intentions until they can afford to do so.

Hungary. Data for realisation in Austria, however, was collected after the economic turmoil of 2008. As economic insecurity in course of the financial crisis could have triggered postponement (Sobotka, Skirbekk and Philipov 2011; Testa and Basten 2014), this difference might not be as pronounced as expected.

4. Data, Method and Variables

The current study is based in the Generations and Gender Survey (GGS), a panel study with detailed information on family formation and fertility (UN 2005; Vikat et al. 2007). First and second wave of the GGS were carried out in 2004 and 2008 in Hungary and in 2009 and 2013 in Austria. Due to national financial circumstances, the survey was not carried out at the same time in the two countries.[2]

Our comparison is restricted to the age group 21 to 45 years, since in Hungary respondents aged 21 years and older were interviewed, whereas in Austria 18 years was the lower but 45 years the upper age bound. We exclude persons expecting a child at wave 1 due to missing information on short-term fertility intentions. Moreover, we exclude men whose female partner was 50 years or above as well as persons with a same-sex partner, as they were not asked for their fertility intentions. Persons who were pregnant at wave 2 and did not have another new-born between interviews at wave 1 and wave 2 were also excluded from the current study.[3] The final sample includes 10,270 persons (Table 1).

Fertility intentions are key in this paper. Apart from the intended number of children, the time frame of intentions is crucial: Do respondents intend to have a child within the near future, or later, or do they want to have no (further) children? For studying the realisation of short-term fertility intentions, we focus on the intention to have a child within the next three years, as stated in wave 1. We analyse whether this intention was realised, postponed or abandoned at the time of the second wave, taking into consideration births between the two interviews as well as childbearing intentions at wave 2.

Whereas intended number of children and differences therein between capital and the other parts of the country include all eligible wave 1 respondents, analyses on the realisation of short-term fertility intentions are based on panel respondents only, i.e. those participating at both waves. In the two countries a large proportion of wave 1 respondents participated at wave 2 (eight in ten) (Bartus and Spéder 2013; Buber-Ennser 2014). In Austria, attrition was higher among young persons and among those with migration background, whereas traditional attitudes towards family and marriage were associated

[2] The exact months of data collection were as follows: In Hungary, the first wave was carried out between November 2004 and May 2005, the second wave between October 2008 and February 2009. In Austria, the first wave was conducted between September 2008 and April 2009, the second one between September 2012 and April 2013. For better readability, we use 2004 and 2008 for Hungary and 2009 and 2013 for Austria.

[3] About 1% of respondents in Hungary and 0% of respondents in Austria who did not have a(nother) new-born between wave 1 and wave 2 were pregnant at wave 2. We excluded them from our analyses because it is not clear whether these pregnancies result in life births or not.

with lower panel dropout (Buber-Ennser 2014). In Hungary, dropout was comparably high among men. To add, in both countries low education was associated with higher attrition (Bartus and Spéder 2013).

The comparison of fertility intentions at wave 1 and wave 2 is based on 7,879 panel respondents aged 21 to 45 years at wave 1, among them 3,406 in Austria and 4,473 in Hungary (Table 1). In total 616 were living in Vienna and 520 in Budapest at the time of the first interview, thus allowing detailed analyses for the capitals.[4] Analyses on the realisation of short-term fertility intentions are based on 2,161 panel respondents who intended a child within three years at wave 1. Among them, 184 were residing in Vienna and 170 in Budapest, whereas 760 and 1,047 were living in the other parts of Austria and Hungary, respectively (Table 1).

Table 1: Sample by country

		Wave 1 respondents	Panel-respondents	Panel-respondents intending a child within 3 years
Austria		4,477	3,406	944
	Vienna	876	616	184
	Other parts of	3,601	2,790	760
Hungary		5,793	4,473	1,317
	Budapest	743	520	170
	Other parts of	5,050	3,953	1,047
Total		10,270	7,879	2,161

Source: GGS (waves 1 and 2), persons aged 21 to 45 years, unweighted data.

In multivariate analyses we focus on men and women intending a child within three years at wave 1. Childbearing behaviour between the two waves was coded as a dichotomous variable equalling 1 if the respondent reported a new-born child between wave 1 and wave 2 and 0 otherwise. Logistic regression models were employed to estimate probabilities of realisation. Our main explanatory variable is regional context (i.e. capital versus remaining part of the country). Apart from the country (Austria versus Hungary), various socio-demographic and economic characteristics were included as explanatory variables:

(a) gender,
(b) age (broad age groups 21-24, 25-34, 35-45 years),
(c) partner status (married, cohabiting, living apart together (LAT), no partner),
(d) parity (childless, 1 child, 2 children, 3 or more children),
(e) education (primary or secondary education, tertiary education),

[4] Especially in young and middle aged adulthood, mobility is high, due to education, entry into the labour market and family formation. However, numbers were too small for specific analyses of persons moving between waves from metropolitan areas to the remaining part of the countries or vice versa.

(f) employment status (employed, self-employed, unemployed, student, maternity leave, other).

Existing literature has repeatedly shown that these variables affect the realisation of fertility intentions (e.g. Kapitány and Spéder 2012; Philipov, Spéder and Billari 2006; Régnier-Loilier and Vignoli 2011; Spéder and Kapitány 2009; Spéder and Kapitány 2014).

We also controlled for financial situation, using self-perceived economic constraints captured via "Thinking of your household's total monthly income, is your household able to make ends meet?" Possible answers were (1) with great difficulty, (2) with difficulty, (3) with some difficulty, (4) fairly easily, (5) easily and (6) very easily. For multivariate analyses we collapsed the scheme to differentiate between a bad economic situation (values between 1 and 3), a situation that is okay (value 4) and a good economic situation (values 5 and 6).

Moreover, we took into consideration the association between realising short-term intentions on the one hand and attitudes towards parenthood on the other. Therefore, we used agreement or disagreement towards the statements "A woman has to have children in order to be fulfilled" and "A man has to have children in order to be fulfilled". Possible answers ranged from (1) "Strongly agree", (2) "agree", to (3) "neither agree nor disagree", (4) "disagree" and (5) "strongly disagree". In our analyses, we used the average rating on both items or the only rating available in case that respondents did not answer on both of them. This allowed to include respondents who answered only with regard to one of the sexes. Answers were then collapsed into three categories as follows: Values between 1.0 and 2.5 indicate agreement to the statement that a child is necessary to lead a fulfilling life and values between 4.0 and 5.0 stand for disagreement to this statement (meaning that children are not perceived as necessity of a fulfilled life). Values in-between (i.e. 3.0 and 3.5) were interpreted neither as agreement nor as disagreement.

Our modelling strategy included hierarchical model build up where additional controls were stepwise included. The method developed by Karlson, Holm and Breen (KHB-test) was employed to prove whether adding explanatory variables changes the difference between capitals and other parts of the country (Breen, Karlson and Holm 2013; Karlson, Holm and Breen 2012). If so, it can be assumed that these added variables are responsible for differences between capitals and other parts. Logistic regressions were carried out for the pooled sample, as well as for both countries and four regions separately (Vienna, other parts of Austria; Budapest, other parts of Hungary). Tables provide the average marginal effects (AME), as these coefficients are comparable across different models (cf. Best and Wolf 2012). AMEs represent the average effect of a variable on the probability of realisation. Positive coefficients indicate that the corresponding group more often realised short-term fertility intentions, negative coefficients indicate that these were less often realised. For testing the difference between two models for different subgroups (e.g. Vienna vs. other parts of Austria), we employ the method proposed by Allison (1999) and Hoetker (2007). In addition, we compare ratios between two coefficients across models as suggested by Hoetker (2007).

5. Results

5.1. Children and Intended Children at Wave 1

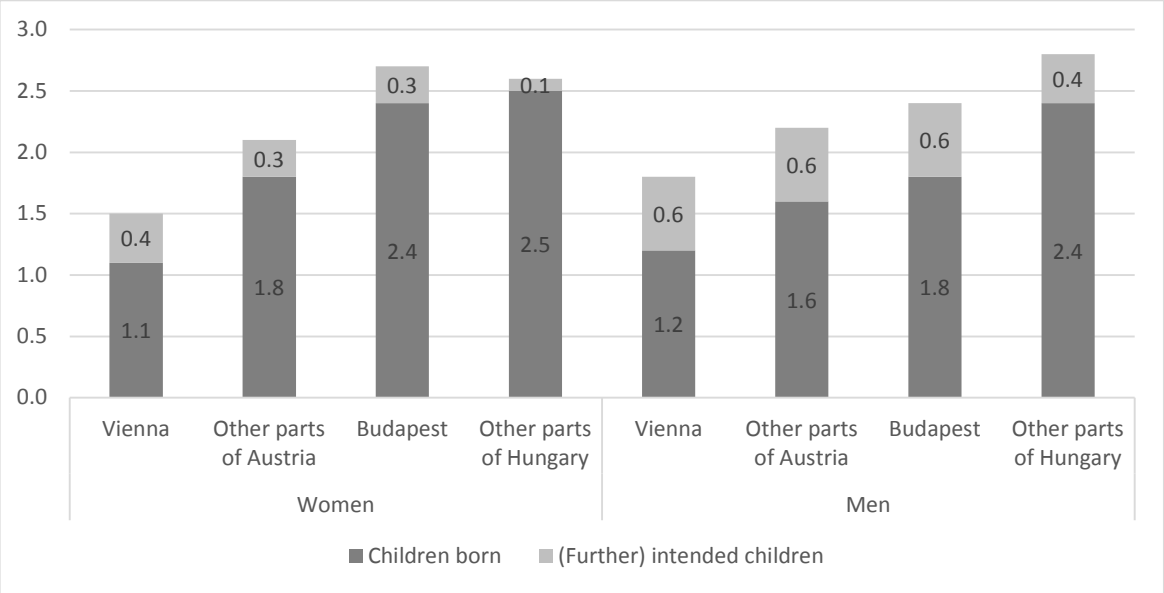
In a first step, we provide insight in the number of children already born and childbearing plans. In analysing and interpreting the results, two aspects have to be taken into consideration: First, the total number of children reflects already realised intentions plus the number of (further) intended future children. Second, "pure intentions" alone that are probably not independent from the already existing number of children.

In Austria, women and men living in the capital Vienna had less children as compared to those in the remaining parts of the country (Figure 3, Table A2). When adding the (further) intended number of children, Vienna is well behind the remaining parts of Austria. A difference between capital and others parts of the country is observable also among Hungarian men, but not so among Hungarian women: Whereas women living in Vienna intended to have less children as their peers in the other parts of Austria (1.8 versus 2.2), women in Budapest wanted similar family sizes as those in the other parts of Hungary (2.6). Among Hungarian men, mean intended number of children is lower in Budapest than in the other parts of the country (2.2 and 2.5 respectively; cf. Table A2). Differences between the capital and the remaining part of the country are larger in Austria than in Hungary.

These findings suggest that differences between regions exist with regard to the total number of children intended (existing children plus intentions): Overall, capitals show lower intended fertility than the other parts of the country (especially in Austria). This difference, however, pertains realised fertility. Looking at intentions for (further) children alone and disregarding the already realised number of children, we see that these regional differences disappear. Intentions alone are comparable between capitals and other parts. Intentions are even slightly higher in capitals (Figure 3, Table A2).

The number of children born is higher in Hungary than in Austria. A distinction in two broad age groups, 21-34 and 35-45 years, reveals that interviewed persons in Hungary started family formation earlier: Young women below age 35 had on average 0.5 children in Vienna and 0.7 in the remaining parts of Austria. Their peers in Budapest and remaining part of Hungary had 1.0 and 1.4 children (Table A2). These differences in children born prevail also in the age group 35 to 45 years (Figure 3). Our results show that women aged 35+ in Vienna and the remaining part of Austria as well as women in Budapest more often intended to have (further) children compared to women aged 35 to 45 years living outside of Budapest. Men aged 35-45 years residing in Vienna intended to have substantially fewer children than those in the other parts of Austria (1.8 versus 2.2) and their plans were far from men in Budapest and the other parts in Hungary, where interviewed men aged 35-45 years wanted on the average 2.4 and 2.8 children respectively. In general, men aged 35 to 45 years intended more further children (0.4 to 0.6) than their female counterparts (0.1 to 0.4) (Figure 3).

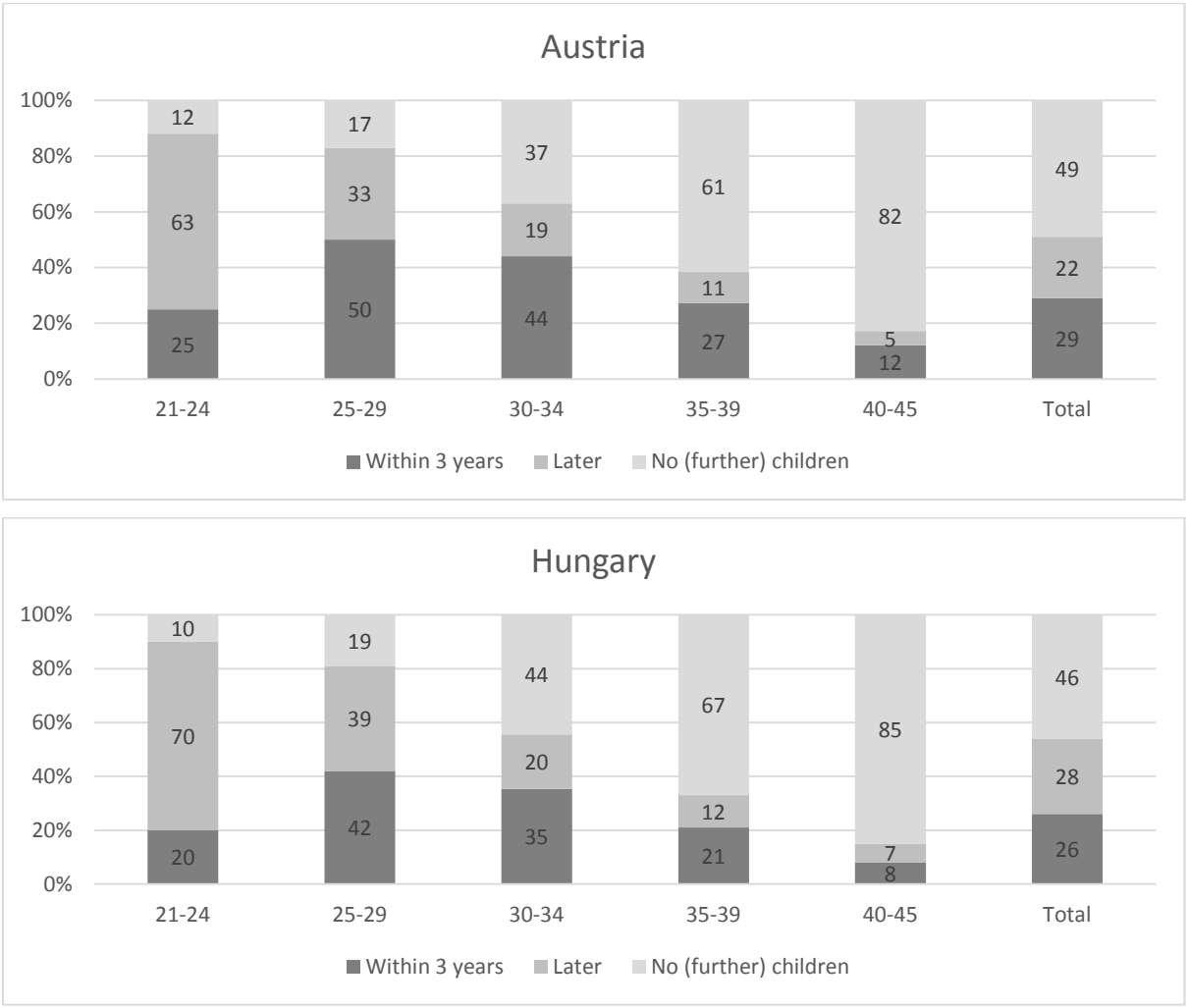
Figure 3: Mean born and further intended number children, persons aged 35-45 years



Source: GGS wave 1 (own calculations, weighted data), N = 4,434 persons.

We now turn to the temporal dimension of fertility intentions, differentiating between intending a child within the next three years, wanting a child later or stating no further family plans. Results are quite similar for Austria and Hungary (Figure 4). Three in ten women and men aged 21 to 45 years intended to have a child in the near future, about one in four wanted a child or children later and one in two did not want to have (further) children (Figure 4). In Hungary, interviewed persons less often had completed family formation than in Austria (46% versus 49%). Childbearing intentions for the coming three years were stated by 26% respondents in Hungary and 29% in Austria. Responses are similar in Austria and Hungary also across age groups: Persons in their late twenties most frequently wanted to have a child within the next three years (Austria: 50%; Hungary: 42%). Women and men in their early thirties also frequently intended to have a child in the near future in Austria (44%), but less often in Hungary (35%). Similar to the number of (further) intended children, capitals do not differ much from other parts of the countries in the pattern of three-year-intentions by age groups (Figure A2). If there is a difference, then intentions are again even a little bit larger in cities (especially in Hungary).

Figure 4: Temporal dimensions of fertility intentions



Source: GGS wave 1 (own calculations with weighted data); N = 10,270 persons.

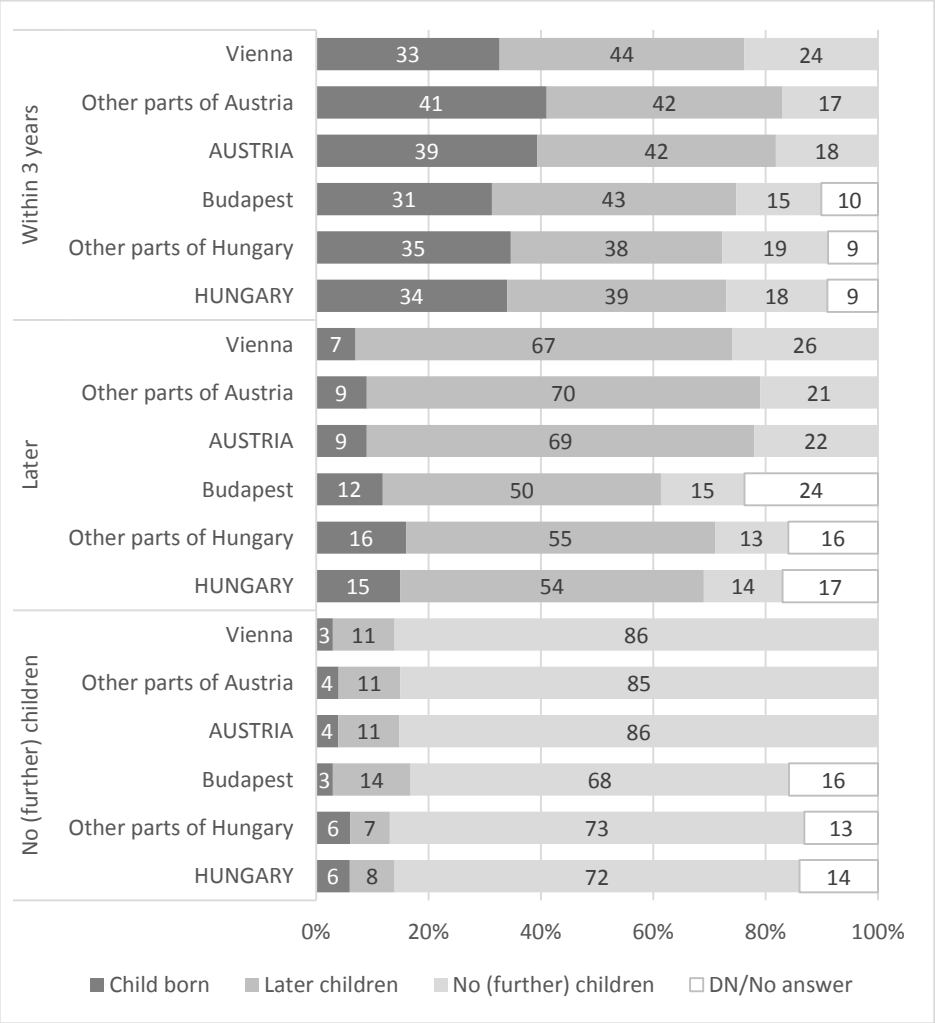
5.2. Fertility Intentions at Wave 1 And Wave 2

Four in ten Austrians intending a child within the next three years at wave 1 had a new-born child at wave 2, in Hungary one in three realised their short-term fertility intention (Figure 5). Among persons intending a child not within three years but later, some realised their intentions somewhat earlier as initially stated, namely 9% in Austria and 15% in Hungary. A small but not negligible group of men and women wanting no (further) children at wave 1 had changed their plans at wave 2, as they became parents meanwhile (4-6%) or wanted (further) children (8-11%).

In Hungary, a substantial share of persons (13%) answered with „don't know" when asked about their childbearing plans at wave 2. In Austria, interviewers were trained to avoid such answers and to further ask if the initially stated "don't know" might be regarded

as a "probably yes" or a "probably no". In this way, the proportion of respondents finally answering with "don't know" was less than 1% in Austria.

Figure 5: Childbearing intentions in wave 1 and wave 2



Source: GGS wave 1 and wave 2 (own calculations with weighted data); N = 7,879 persons participating in both waves.

We now turn to postponing and abandonment of short-term fertility intentions: In both countries, four in ten have postponed their short-term intentions, two in ten abandoned their previously stated intention to have a child within three years and did not want to have children any more. In Hungary, one in ten persons intending a child in the near future did not have a new-born meanwhile and was undecided about further childbearing plans at wave 2. Fertility plans for a later point in time were mostly further postponed and partly abandoned.

The regional differentiation reveals that short-term fertility intentions were less often realised in the capitals Vienna and Budapest (33% and 31%) than in the remaining parts of

the countries (41% and 35%). This difference is larger in Austria, amounting to 8 per cent points, than in Hungary (4 per cent points) (Figure 5). In addition, fertility plans for a later point in time were more often realised "earlier" in non-metropolitan areas than in capitals (16% versus 12% in Hungary; 9% versus 7% in Austria). The share of persons wanting further children in the more distant future at the first interview and being undecided about future childbearing plans when re-interviewed was substantially higher in Budapest as compared to the remaining part of Hungary (24% versus 16%). Responses and behaviour of persons intending no further children at wave 1 were almost identical in Vienna and the remaining part of Austria. In Hungary, some variation becomes evident with people somewhat more often "changing their mind" in Budapest than in the other parts of Hungary. In this group 17% had a new-born child at wave 2 or wanted further children, as opposed to 13% in the other Hungarian regions.

5.3. Realisation of Short-Term Fertility Intentions

In multivariate analyses we focus – as mentioned earlier – on men and women intending a child within three years at wave 1. The reader should thus be aware that the group under study in this section of the paper is a specific one. Those who do not want to have any children at all are left out as well as a substantial share of respondents that has already finished childbearing activities.[5] On average, respondents who did *not* want a (further) child within the next three years were more than three years older (30.8 vs. 34.1 years; all aged 21-45). If only those with short-term childbearing intentions are considered, the shares of childless respondents are much higher than in the total panel sample: In Vienna it increases from 49 to 64%, in the other parts of Austria from 36 to 55%, in Budapest from 51 to 69%, and in the other parts of Hungary from 39 to 58%. It is thus also likely that within the specific sample those who have postponed childbearing are over-represented. Two extreme numbers may further illustrate the argument. While in Budapest the share of tertiary educated in the panel sample increases from 36% to 51% if only those with childbearing intentions are considered, the share of those married and living together in the same household decreases from 51% to 36% in other parts of Austria.

In a first step, we analysed the pooled sample with both countries. In line with our descriptive findings, results confirm once more that short-term intentions were less often realised in capitals as compared to the remaining parts of the countries (Table 2, Model 1). Moreover, short-term intentions were more often realised in Austria than in Hungary. The difference between Austria and Hungary remains when controlling for various socio-demographic and economic characteristics, whereas the difference between the capitals and the other parts of the countries is no longer statistically significant in the multivariate model (Table 2, Model 4). Nevertheless, a KHB-test does not reveal a significant difference between the coefficient indicating differences between capitals and other parts of the countries in Model 1 and the corresponding coefficient in Model 4.

[5] Findings in Figure 3 indicate, for instance, that groups with higher average numbers of already existing children are characterised by a lower average number of intended (further) children.

Table 2: Regional differences in the realisation of childbearing intentions (average marginal effect, AME)

	Model 1		Model 4	
Region				
Capital	-.06	*	-.04	
Other parts of the country (reference)	0		0	
Austria	.06	**	.09	**
Hungary (reference)	0		0	
N	2,147		2,147	

Note: Model 4 controls for sex, age, partnership status, parenthood (parity), educational level, economic situation, and subjective opinion on the relevance of children for personal fulfilment. For the full model we refer to Table A3 in the Appendix.
† p < .1; * p < .05; ** p < .01; *** p < .001.

As expected, age and partnership circumstances were crucial for realising short-term fertility intentions (Table A3). Especially at later reproductive age (35-45 years) childbearing intentions are significantly less often realised. Living apart together with the partner is a less favourable for context for realising fertility intentions. Also persons without a partnership (cohabiting or LAT) who wanted to have a child within the coming three years, rarely realised their intentions. Parity mattered in the sense that parents of three or more children less often realised their wish to enlarge their family in the near future. Regarding the educational level, highly educated persons (i.e. holding a tertiary educational degree) were more successful in realising their previously stated fertility intention as compared to lower educated persons. We find that the economic situation matters, as those perceiving their financial situation as (very) good or okay more often realised their intentions than persons in a difficult financial situation. Finally, attitudes towards the relevance of children are associated with the realisation of childbearing intentions. If evaluating children as necessary to lead a fulfilling life, short-term intentions were realised to a larger extent.

As mentioned earlier, in the multivariate model, the estimated coefficient for region (capital versus other parts of the country) loses statistical significance. Stepwise models reveal that when controlling for gender, age partnership status, parity and education, the estimated regional coefficient changes from -0.06* to -0.05†, indicating that these socio-demographic characteristics partly explain realisation-differences between capital and others parts of the country (Table A3, models M1 and M2). When further including economic constraints, the estimated regional coefficient becomes -0.04, and not only decreases but also loses statistical significance (Table A3, model M3). Therefore, differences in the economic situation between capital and other regions of the two countries partly account for differences in the realisation of short-term intentions. To add, the estimated coefficient for "tertiary education" changes slightly from 0.07** to 0.06*, showing that educational level and economic situation are intervolved. In the final model, with the inclusion of the opinion about the relevance of children the estimated coefficient for the country (Austria versus Hungary) becomes larger. As in the various stepwise models the country coefficient changes from 0.06* to 0.07*, to 0.04† and finally to 0.09**, we might

conclude that the composition of respondents in Austria and Hungary according to socio-economic characteristics, economic situation and attitudes towards parenthood differs.[6]

In a second step, we ran separate models for Austria and Hungary (Table 3). With region as single explanatory variable, we find a difference between Vienna and the other parts of Austria, but no significant regional variation in Hungary (Table 3, models M1). In the multivariate context it turns out that in both countries, men and women living in the two capitals do not significantly differ from their compatriots in the others parts of the countries (Table 3, models M3). As the estimated regional coefficient for Hungary is very small (0.04 in the basic model and 0.02 in the multivariate model), we might conclude that differences between capital and other parts of the country are more or less negligible there. In Austria, the coefficient is -0.08† in the basic model and becomes -0.06 in the multivariate context. Thus, observed lower probability of realising fertility intentions in Vienna as compared to the other parts of Austria, are partly due to a different composition in terms of socio-demographic characteristics, economic situation and attitudes. The KHB-test regarding the difference between the coefficient in Model 1 and the one in Model 2 tends to supports this conclusion ($d = -.16$, $z = -1.80$, $p < .10$).

Overall, results for control variables are similar, with some notable exceptions: In both countries, men and women aged 35 to 45 years less often realised their intentions than younger ones. In Hungary, persons in their early twenties realised their intentions to a higher extent, but not so in Austria.[7] Regarding marital status, differences become evident in the two countries. Whereas in Hungary married persons more often realised their short-term fertility intentions than those cohabiting unmarried, in Austria marital status is not relevant for realising fertility intentions and cohabiting couples realised their intentions to the same degree, whether married or unmarried. Tertiary educated persons were more successful in realising their intentions than lower educated persons, with effects being statistically significant in Hungary only. Compared to childless, parents less often realised their short-term intentions in Hungary, whereas in Austria parents of one child more often realised their stated intention to have another child in the coming three years. The estimated coefficient for parity one is initially significant (Table 3, M2) and becomes insignificant when including employment status (Table 3, M3) with persons on maternity leave significantly more often realising their intentions. In fact, our results indicate that women with one child, who were on maternity leave at wave 1 and wanted to have a child within the next three years, had a comparable high probability of realising their intentions. Austrian parents with three or more children also realised their intentions less often, as was the case in Hungary, although the estimated coefficient is not statistically significant. Finally, a good economic situation is associated with realisation of short-term intentions in Austria, but not so in Hungary, where economic constraints seem to have no influence on the realisation of short-term fertility intentions.

[6] KHB-tests, however, do again not reveal any significant differences between the coefficients of these models.
[7] Different tests show slightly different results. While the general test suggests that there are no significant differences between the model for Austria and the one for Hungary, specific tests for age coefficients (ratio: coefficient for 21-24 years/coefficient for 35-45 years) tend to reveal a difference in the effect of age on realisation ($p < .08$ for model M2 and $p < .06$ for model M3).

Table 3: Realisation of childbearing intentions by countries (average marginal effect, AME)

Country	**Austria**			**Hungary**		
Model	M1	M2	M3	M1	M2	M3
Region						
Capital	-.08 †	-.05	-.06	-.04	-.02	-.02
Other parts of the country (reference)	0	0	0	0	0	0
Sex						
Male (reference)		0	0		0	0
Female		.04	.03		-.04 †	-.04
Age						
21-24 years		.00	.00		.12 **	.13 **
25-34 years (reference)		0	0		0	0
35-45 years		-.27 ***	-.26 ***		-.19 ***	-.19 ***
Partnership status						
Married (reference)		0	0		0	0
Cohabiting		-.03	-.03		-.07 †	-.07 †
LAT		-.23 ***	-.23 ***		-.19 ***	-.18 ***
No partner		-.30 ***	-.30 ***		-.34 ***	-.33 ***
Parenthood/parity						
Childless (reference)		0	0		0	0
1 child		.08 *	.04		-.22 *	-.21 *
2 children		.00	-.03		-.03	-.05
3 or more children		-.05	-.09		-.13 **	-.14 **
Education						
Primary or secondary (reference)		0	0		0	0
Tertiary education		.06	.05		.07 *	.07 *
Unknown		.00	.00		.04	.04
Economic situation						
Situation (very) difficult (reference)		0	0		0	0
Situation ok		.09 *	.09 *		.02	.01
Situation (very) good		.14 ***	.13 ***		.02	.01
Attitudes towards parenthood						
Child(ren) necessary to lead a fulfilling life		.08 *	.09 *		.11 **	.11 **
Neither/nor (reference)		0	0		0	0
Child(ren) not necessary to lead a fulfilling life		-.01	-.01		.03	.03
Employment status						
Employed (reference)			0			0
Self-employed			.04			.07
Unemployed			.12			-.02
Student			-.06			-.14 *
Maternity Leave			.14 *			.05
Other			-.03			-.11
Adj. count R^2	.00	.27	.28	.00	.14	.13
McFadden's adj. R^2	.00	.11	.11	.00	.08	.08
Cragg-Uhler (Nagelkerke) R^2	.01	.23	.24	.00	.18	.19
N	918	918	918	1,213	1,213	1,213

Note: † p < .1; * p < .05; ** p < .01; *** p < .001. Source: GGS wave 1 and wave 2 (own calculation, unweighted data). N = 2,131 persons aged 18 to 45 years who intended to have a child within three years in wave 1 and who participated in wave 2.

Regression models for the capital and the other parts of the country were run for Austria and Hungary separately (Table A4). They reveal differences for socio-demographic control variables. Thereafter, an association between education and realisation of intentions becomes evident for Vienna, but not so for the remaining part of Austria.[8] Instead, the economic situation is relevant in the remaining part of Austria, but not in Vienna. Regarding gender, men in Vienna realised significantly less often their intentions, but in the remaining parts of Austria no gender differences exist. In Hungary, being married seems to be quite important in Budapest, but not in the other parts of Hungary, where married and unmarried couples realised their intentions to about the same extent, without significant differences.[9] Findings of Kapitány and Spéder (2015) show that some districts in Budapest show exorbitantly high rates of first children born in wedlock and thus confirm the relevance of marriage in the Hungarian capital.

6. Discussion

The present paper analysed fertility and realisation of short-term fertility intentions in Vienna and Budapest as opposed to the remaining parts of Austria and Hungary. Although research has repeatedly demonstrated regional variation and rural-urban differences in fertility, this issue has — to our knowledge — not been addressed before in the realm of realising fertility intentions. Taken together, our findings clearly demonstrated the relevance of cities in this respect.

First, we added further evidence to the well-known result that fertility is usually lower in cities. Second, planned family sizes consisting of already born children plus (further) intended children were larger in other parts of the countries than in their capitals. Third, probabilities of realisation were lower in capitals than in other parts of the countries – in particular in Austria. Respondents from Vienna did not only realise their childbearing intentions less often that respondents from the remaining part of Austria, they also abandoned their plan to have a(nother) child more often. A third of those Viennese who reported in 2009 that they want to have a child within the next three years had realised this intention four years later. More than four out of ten postponed the realisation but still wanted to have a child. A quarter, however, did not want to have a child anymore. Fourth, observed differences between capitals and other parts were to some degree explained by individual characteristics of inhabitants.

[8] The general test suggests that there is at least one difference between the model for Vienna and the model for other parts of Austria ($Chi^2=14.42$, df=8, $p < .10$). In addition, a specific test for coefficients (ratio: coefficient for tertiary education/coefficient for 35-45 years) points at a difference in the effect of higher education ($Chi^2=3.09$, df=1, $p < .08$).

[9] This result is supported by a test for differences in coefficients (ratio: coefficient for cohabiting/coefficient for no partner) between the model for Budapest and the model for the remaining part of Hungary ($Chi^2=3.26$, df=1, $p < .08$).

In line with existing research, age, partner status and parity were most relevant for the realisation of short-term childbearing intentions (e.g. Kapitány and Spéder 2012; Philipov et al. 2006; Régnier-Loilier and Vignoli 2011; Spéder and Kapitány 2009; Spéder and Kapitány 2014). These factors showed their impact in Austria as well as Hungary, in the capitals as wells as other parts of the countries, and reduced differences between capitals and other parts, when they were controlled for. But there were also other factors that affected realisation differently in cities (capitals) than rural regions (other parts): In Austria, for instance, education was only relevant in Vienna where lower educated people could realise childbearing intentions less often while in Hungary cohabiting lowered chances of realisation (compared to those being married) in Budapest but not in other parts of the country.

Apart from individual characteristics included in the current study, further aspects might affect the realisation of fertility intentions, like availability of childcare or housing (Fiori 2011; Vignoli, Rinesi and Mussino 2013; Vobecká and Piguet 2012). In metropolitan areas, infrastructure is often better developed: Vienna has an outstanding position in Austria regarding availability of formal childcare facilities, accessibility of full-day early childcare and thus relatively high enrolment in childcare facilities for children below age 3 (Blum and Kaindl 2014; Verwiebe, Troger and Riederer 2014), allowing combining childrearing and employment of mothers. Our findings showed, however, that realisation of short term intentions is not higher in Vienna. In addition, housing and living conditions might be relevant for fertility intentions of couples (Vignoli et al. 2013) and their realisation (Kulu and Washbrook 2014). We did not take housing into consideration because GGS data only includes satisfaction with housing. Satisfaction is however influenced by various factors (not only space but also price, environment/neighbourhood quality, noise, air pollution, light pollution etc.). Therefore, this indicator is not suitable for our purpose. Future research should however address effects of housing and living conditions. Finally, the current paper does not further differentiate smaller towns, villages and rural areas, but focuses on the difference between metropolitan areas and other parts of the country. From our findings we conclude that metropolitan areas matter for fertility and in particular with regard to the realisation of fertility intentions. Future research should thus consider regional differences within countries to a larger degree than previous research did.

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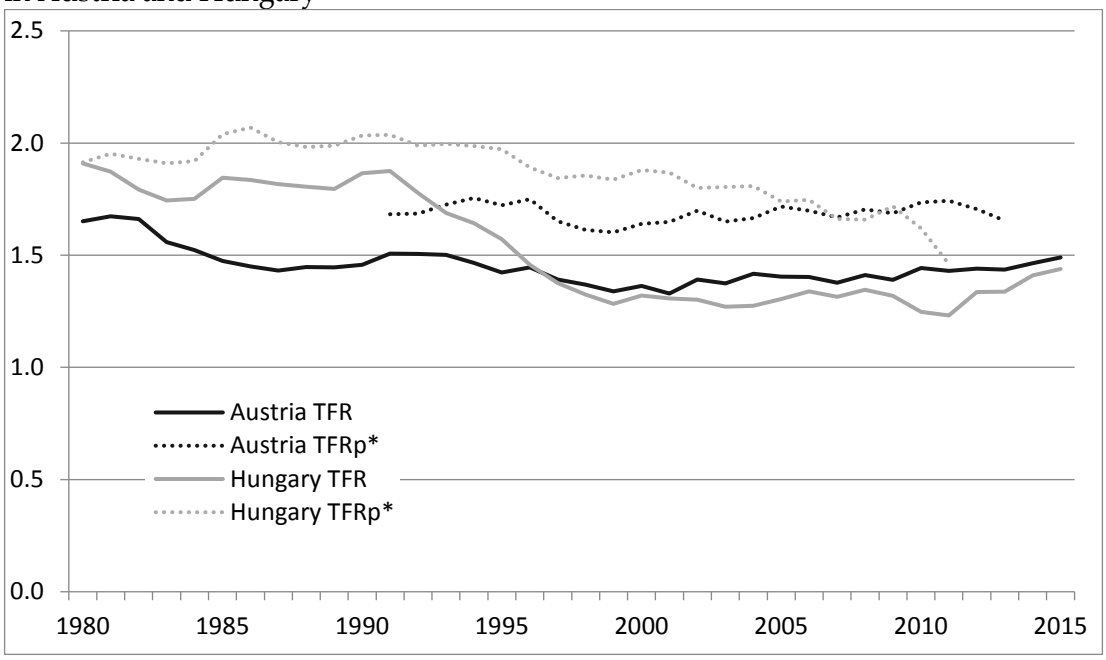
Appendix

Figure A1: Total fertility rate (TFR) and tempo-adjusted index of period fertility (TFRp*) in Austria and Hungary



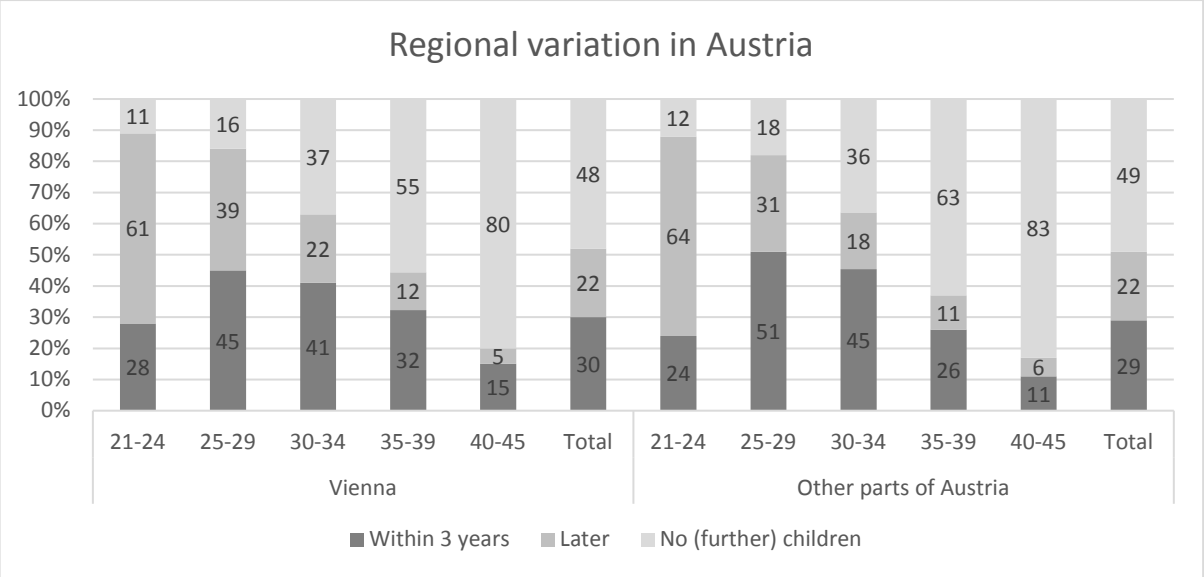
Note: TFRp* is an index pf period fertility controlling for age and parity and adjusted for the changes on the timing of childbearing.
Source: Statistics Austria (2015a, 2016), Hungarian Central Statistical Office (HCSO), the TFRp* was computed by Kryštof Zeman (VID).

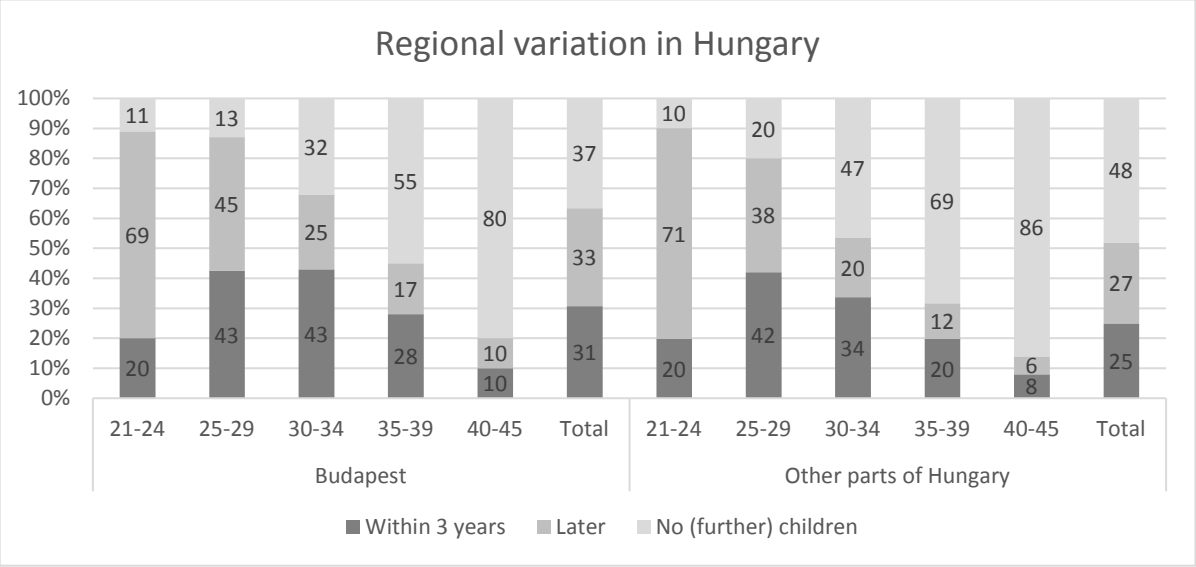
Table A2: Born and further intended children (means) by age, gender and region

			Children born	(Further) intended	Total number of intended
21-34 years	Women	Vienna	0.5	1.6	2.0
		Other parts of	0.7	1.5	2.2
		Budapest	1.0	1.5	2.5
		Other parts of	1.4	1.1	2.5
	Men	Vienna	0.4	1.5	1.9
		Other parts of	0.4	1.7	2.0
		Budapest	0.5	1.6	2.1
		Other parts of	0.9	1.4	2.3
21-45 years	Women	Vienna	0.9	0.9	1.8
		Other parts of	1.3	0.9	2.2
		Budapest	1.5	1.1	2.6
		Other parts of	1.9	0.7	2.6
	Men	Vienna	0.8	1.0	1.9
		Other parts of	1.0	1.1	2.1
		Budapest	1.0	1.3	2.2
		Other parts of	1.5	1.0	2.5

Note: Due to rounding, the sum of "children born" and "(further) intended children" may deviate from "intended family size".
Source: GGS wave 1 (own calculations, weighted data), N = 10,002 persons aged 21-45 years, among them 5.568 aged 21-34 years.

Figure A2: Temporal dimension of fertility intentions by regions





Source: GGS wave 1 (own calculations with weighted data); N = 10.270 persons, among them 876 in Vienna, 3.601 in other parts of Austria, 743 in Budapest and 5.050 in other parts of Hungary.

Table A3: Regional differences in the realisation of childbearing intentions, full model (average marginal effect, AME)

Model	M1	M2	M3	M4
Region				
Capital	-.06 *	-.05 †	-.04	-.04
Other parts of the country (reference)	0	0	0	0
Austria	.06 **	.07 **	.04 †	.09 **
Hungary (reference)	0	0	0	0
Sex				
Male (reference)		0	0	0
Female		-.01	-.01	.00
Age				
21-24 years		.06 †	.07 *	.06 †
25-34 years (reference)		0	0	0
35-45 years		-.24 ***	-.24 ***	-.24 ***
Partnership status				
Married (reference)		0	0	0
Cohabiting		-.05 †	-.05 †	-.05
LAT		-.22 ***	-.22 ***	-.21 ***
No partner		-.34 ***	-.33 ***	-.33 ***
Parity				
Childless (reference)		0	0	0
1 child		.05	.06 †	.05
2 children		-.01	.00	-.01
3+ children		-.09 *	-.08 *	-.09 *
Education				
Primary or secondary (reference)		0	0	0
Tertiary education		.07 **	.06 *	.06 *
Unknown		.04	.04	.03
Economic situation				
Situation (very) difficult (reference)			0	0
Situation ok			.04 †	.04 †
Situation (very) good			.09 **	.09 **
Opinion about the relevance of children				
Child(ren) necessary to lead a fulfilling				.09 **
Neither/nor (reference)				0
Child(ren) not necessary to lead a				.01
Adj Count R^2	.00	.18	.19	.19
McFadden's Adj R^2	.00	.09	.10	.10
Cragg-Uhler (Nagelkerke) R^2	.01	.18	.18	.19
N	2,159	2,159	2,159	2,159

Note: † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Source: GGS wave 1 and wave 2 (own calculation, unweighted data). N = 2,159 persons aged 18 to 45 years who intended to have a child within three years in wave 1 and who participated in wave 2.

Table A4: Realisation of childbearing intentions by regions (average marginal effect, AME)

	AUSTRIA		Vienna		Other parts of Austria	
Sex						
Male (reference)	0		0		0	
Female	.03		.13	*	.00	
Age						
21-34 years (reference)	0		0		0	
35-45 years	-.28	***	-.16	*	-.30	***
Partnership status						
Married (reference)	0		0		0	
Cohabiting	-.01		.07		-.03	
LAT	-.21	***	-.38	***	-.19	***
No partner	-.30	***	-.27	**	-.31	***
Parenthood						
Childless	-.07	†	-.05		-.07	†
Parents (reference)	0		0		0	
Education						
Primary or secondary (reference)	0		0		0	
Tertiary education	.05		.17	*	.01	
Unknown	-.02		.03		-.02	
Economic situation						
Situation (very) difficult (reference)	0		0		0	
Situation ok	.08	**	.02		.08	*
Adj. count R^2	.25		.33		.27	
McFadden's adj. R^2	.10		.14		.09	
Cragg-Uhler (Nagelkerke) R^2	.20		.35		.18	
N	943		183		760	
	HUNGARY		Budapest		Other parts of	
Sex						
Male (reference)	0		0		0	
Female	-.03		-.01		-.03	
Age						
21-34 years (reference)	0		0		0	
35-45 years	-.25	***	-.23	*	-.25	***
Partnership status						
Married (reference)	0		0		0	
Cohabiting	-.06	†	-.22	*	-.04	
LAT	-.18	***	-.35	**	-.15	**
No partner	-.37	***	-.44	***	-.36	***
Parenthood						
Childless	.07	*	.17	†	.06	†
Parents (reference)	0		0		0	
Education						
Primary or secondary (reference)	0		0		0	
Tertiary education	.06	†	.05		.06	
Unknown	.05		-.03		.06	†
Economic situation						
Situation (very) difficult (reference)	0		0		0	
Situation ok	.01		-.09		.03	
Adj. count R^2	.08		.26		.06	
McFadden's adj. R^2	.08		.04		.07	
Cragg-Uhler (Nagelkerke) R^2	.15		.21		.15	
N	1.216		170		1.046	

Note: † p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001.

Source: GGS wave 1 and wave 2 (own calculation, unweighted data). Persons aged 18 to 45 years who intended to have a child.

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