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Life course decisions in Central and Eastern Europe: A gendered connection between family formation and moving intentions?

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Abstract

Objective: This paper investigates the association between family formation intentions of marriage and childbearing in connection to moving intentions in early life course in Central and Eastern Europe.

Background: While connections between intentions in Western Europe has received some scholarly attention, the link between marriage, having children and moving intentions has been largely overlooked in Central and Eastern Europe. We look at the connection between these intentions in the region.

Method: We hypothesise that intentions to marry, have children and move may be positively related, negatively related or not related at all; and that gender serves as a channel through which the connection between family formation intentions and intention to move is expressed. In order to verify the hypotheses, we use Generations and Gender Survey data round 1 wave 1 focusing on the analytical sample based on individuals between 17 and 49 year olds from 5 Central and Eastern European countries. We run seemingly unrelated bivariate ordered probit regressions to estimate the relationship between the intentions.

Results: We find a positive association between family formation intentions and intention to move. However, there is no evidence suggesting this association is channelled through gender.

Conclusion: There exists an indication that intentions of marriage, childbearing and moving are joint.

Key words: joint intentions; fertility; marriage; partnership; moving; Generations and Gender Survey

1. Introduction

In recent decades intentions have served to better understand the de-standardisation of the life course in Europe which has received steady interest from social scientists. With life course increasingly shedding its traditional linear patterns, new life models and their combinations have become more evident over time. Marriage lost its attractiveness as a dominant motivation to leave the parental home (Billari et al., 2001; Sobotka & Toulemon, 2008). Destinations after home leaving became more varied including single living and cohabitation blurring the line linking home leaving and marriage. The connection between marriage and childbearing has changed too. It is no longer necessary to be married before childbirth. Change in the role marriage plays in life has made space for other family arrangements such as cohabiting with children and single parenthood. Conversely in the most recent period from 2000, spatial mobility became a more pronounced part of the life course in Europe. People started moving more often than before whether for work, family-related events or retirement (Viry et al., 2015; van Mol & de Valk, 2016).

The life course is also structured by substantial gender inequalities. Single parenthood is consistently higher among women. In Europe single parenthood is 15 per cent more common among women rather than men (Sobotka & Toulemon 2008). Conversely, more men than women tend to raise children in wedlock. In general, women experience a faster transition to adulthood that is manifested through earlier marriage and parenthood than men (Bruckner & Mayer, 2004). The link between family formation events and moving is also tighter for women. Women leave home at younger ages than men, predominantly to live with a partner (Billari & Liefbroer, 2007). This links to the phenomenon of women factoring in moving together and marriage as decisive elements for making their migration decisions (Kley, 2010). For men, these aspects are less relevant.

Parts of Central and Eastern Europe (CEE) remain arguably defined by a traditional life course. Compared to North Western Europe, a considerable proportion of youth leave home after their first marriage while the marriage remains closely linked to childbearing (Kulu & Milewski, 2007; Sobotka & Toulemon, 2008; Perelli-Harris & Lyons-Amos, 2015). Spatial mobility also has a more important role in the life course of Central and Eastern Europeans than other Europeans. Aside from well-documented intra-European migration from east to west and from east to south (van Mol & de Valk, 2016), spatial mobility or internal migration within a country, has defined a considerable share of personal movement in CEE, largely from rural to urban areas (e.g., Kulu, 2006; Zhekova, 2006; Okólski, 2012; Rowe et al., 2019; Laurinavičius et al., 2021).

In the region characterised by low and lowest-low fertility (Kohler et al., 2002; Billari & Kohler, 2004; Billingsley, 2010) and pronounced tendencies of subnational region depopulation (Kashnitsky & Schöley, 2018), coupling between family formation and moving may not only indicate a natural wish to live with a partner, but allude to willingness to move. That could have grave consequences for population size at subnational levels and contribution to regional inequalities where national urban centres exhibit population growth whilst rural areas chiefly depopulate (Kashnitsky & Schöley, 2018). The existing discussion around low fertility, changing patterns of family formation and moving has not yet touched upon the relationship between the intentions of these processes in the post-socialist context. Expanding knowledge in the field would allow to better understand and address the population change in CEE. Therefore, the central question is the following: what is the relationship between family formation event intentions and moving intention in CEE?

We address the question by looking at correlations between the dyads of life course event intentions of marriage-moving and fertility-moving in post-socialist EU member states of Bulgaria, Czechia, Estonia, Lithuania and Romania. The analyses are inspired by theoretical deliberations based on the Theory of Planned Behaviour and empirical literature on the connection between these life course event intentions (Ajzen & Fishbein, 1973; Ajzen, 1991; Testa & Rampazzo, 2018; Dommermuth & Klüsener, 2019). Prior work has demonstrated the role intentions play in marriage formation (e.g., Guzzo, 2009), fertility (e.g., Vidal et al., 2017) and internal migration (e.g., De Groot et al., 2011). Yet, there has been a limited number of empirical papers analysing and reconciling life course event intentions in a joint manner (e.g., Testa & Rampazzo, 2018; Testa & Bolano, 2019; Dommermuth & Klüsener, 2019). This scarcity is much more pronounced in the context of CEE where specific research addressing joint intentions of family formation and moving has not yet been conducted. The contribution to the literature is therefore as follows. To the best of our knowledge this is an original effort to investigate the correlational relationship between family formation and moving intentions in CEE. Looking at the connection between the intention dyads permits to

generalise rather than specify the relationship between family formation and moving. Moreover, we use a novel in the field estimation strategy of the seemingly unrelated bivariate ordered probit approach. It allows to see whether intentions of marriage and mobility as well as fertility and mobility are interrelated after controlling for a set of exogenous variables. This approach focuses on the connection between intentions rather than treats intentions as one another's predictors.

This study focuses on associative relationship only and finds a statistically significant positive correlation between intention dyads of marriage-moving as well as fertility-moving. The positive correlation is robust to the addition of control variables including the highest level of education achieved, number of previous children and partnership status. We find no significant differences between genders, nor educational gradient that explains the connection. Our results suggest that family formation intentions are joint with moving intentions.

The remaining part of this paper is organised as follows. The next section provides background for the study and develops five hypotheses. The subsequent part describes the data and introduces seemingly unrelated bivariate ordered probit empirical model and estimation in detail. The following section reports the results. In the concluding section, we provide a discussion of the limitations and implications of the findings.

2. Family formation and moving intentions through the lens of the Theory of Planned Behaviour

In this paper, we rely on the Theory of Planned Behaviour (TPB) as the main theoretical framework to better understand the potential interconnectedness of intentions to marry, have children and move (Ajzen & Fishbein, 1973; Ajzen, 1991). In the following paragraphs, we discuss the literature that analyses determining factors in relation to intentions to marry, have children and move. We also expand on the previous theoretical and empirical contributions to adapt TPB framework to the context of linked intentions.

TPB postulates a conceptual framework to handle complex human social behaviour. According to TPB, intentions play a vital role in determining behaviour. For reliable prediction of behaviour, measures of intentions must correspond to or be compatible with the behaviour, they must remain stable between the point at which intentions are expressed and fulfilled, and prediction of behaviour must improve if intentions or behavioural controls reflect actual behaviour. Said intentions are accountable for a considerable share of variance in actual behaviour and can be used to approximate actual marriage, fertility and spatial mobility behaviour (Ajzen, 1991).

TPB also provides insight into how intentions are formed. It particularly asserts that three key variables, also known as "proximate determinants", define an individual's intention to engage in a certain behaviour (Ajzen, 1991). First, attitudes toward the behaviour. That is, an assessment of the benefits and drawbacks associated with engaging in a particular behaviour. Second, subjective norms can be defined as perceived approval or disapproval of significant others regarding a particular behaviour. Third, perceived behavioural control that can be understood as the perception of exogenous barriers and opportunities that are perceived as impeding or facilitating the particular behaviour and the degree to which a behaviour can then be performed successfully.

TPB assumes that other effects referred to as "background factors" are indirectly connected to intentions through the channels of attitudes, subjective norms and perceived behavioural control (Ajzen, 1991). In the research literature, the background factors refer to variables capturing demographic, gender and socioeconomic aspects (e.g., Hayford, 2009; Billari et al., 2009; Stecklov et al., 2010). In terms of marriage, childbearing and moving, examples of age, gender and education are particularly applicable (e.g., Blossfeld & Huinink, 1991; Berrington, 2004; Billari et al., 2009; Liefbroer, 2009; Stecklov et al., 2010; Wiik et al., 2010; Mills et al., 2011). To expand and build on Schwanitz et al. (2021), there are two pipelines through which background factors can determine marriage, childbearing and moving. To start, background factors are important elements for individual evaluation of opportunities and limitations. When approaching the matters of marriage, having children, or moving, individuals weigh their income, education, socioeconomic and other variables (e.g., Avery et al., 1992; Kerckhoff & Macrae, 1992; Mulder et al., 2002; Aassve et al., 2002; Billari, 2004; Iacovou, 2010; Aassve et al., 2013; Schwanitz et al., 2017; Testa &

Stephany 2017; Lewin, 2018). Moreover, background factors can serve as tools to infer normative expectations that individuals may hold vis-a-vis demographic decisions (Liefbroer & Billari, 2010).

TPB has a considerable body of empirical literature behind it. In the case of intentions related to different forms of partnership, partly or in full TPB has been instrumental in facilitating understanding of how intentions to change partnership arrangements are shaped. In particular, TPB has inspired studies exploring living apart together (e.g., Vidal et al., 2017), cohabitation (e.g., Hiekel et al., 2014), and marriage intentions (e.g., Guzzo, 2009). In fertility intention scholarship the empirical applicability of TPB can be illustrated by numerous works analysing intentions to have a(-nother) child (e.g., Billari et al., 2009; Dommermuth et al., 2009; Testa et al., 2011) or no children at all (e.g., Sobotka & Testa, 2008). In terms of intentions to move, TPB has been utilised in studies shedding light on intentions to leave the parental home (e.g., Schwanitz et al., 2021), move (e.g., De Groot et al., 2011) and migrate to another country (e.g., Williams et al., 2018).

In its original form, TPB does not pertain to the notion of a connection between intentions. However, by synthesising the concepts in TPB with the empirical literature on intentions, we argue that there are two reasons why intentions might be linked. First, according to the theory, attitudes, subjective norms, and perceived behavioural control all have an impact on behaviour, but if we take intentions into account, those impacts should be reduced or eliminated. Oftentimes in empirical practice opportunities to obtain measures for attitudes, subjective norms, and perceived behavioural control are limited. This is even more pronounced when seeking for measures of linked intentions. In light of these considerations Dommermuth and Klüsener (2019) utilised intentions as determinants of other intentions. More specifically to address the limitation of non-existent data on whether intention to move is linked to plans to have children, the authors controlled for fertility intentions. Second, using TPB's notion of subjective norms, we reason that subjective norms may not only stand behind singular intentions, but also intention combinations. For instance, research finds a link between partnership status and fertility intentions suggesting that having a partner plays a role in planning children (e.g., Kuhnt et al., 2021). Arguably this holds for individuals intending to partner in order to have children, too. To expand, having a child is embedded in a setting of partnership. In order to have a child, it is important to have a partner with whom one would have a child. However, fertility is no longer strictly a result of marriage. Union formation or marriage can come before or after the birth of a child exposing a more relaxed association between the timing of marriage (if any) and fertility (Huinink & Kohli, 2014). A connection between intentions to marry and move or move to marry has also been analysed before (e.g., Lauser, 2008). In this context, marriage may be seen as a prerequisite for moving or moving may be necessary in order to marry. In the broader literature on family formation, marriage is often linked to moving. A change in marital status leads to residential relocation whether that is due to moving in with one's spouse or upgrading the housing (Clark & Dieleman, 1996). However, individuals in the process of getting married are much more likely to change their residence in comparison to the ones who are unmarried or have been married for some time (Mulder & Wagner, 1993). To put it differently, in the framework of joint processes of marriage and relocations, marriage has a positive impact on moving in the short run and no long-term effects (Jang et al., 2014). This is why short-distance moves are likely to happen in relation to expected marriage. Anticipating family formation, moves take place shortly before a wedding (Michielin & Mulder, 2008). From a longer perspective marriage can be a deterrent from 'long-stay housing' that requires a stronger commitment between partners and financial stability. Both of these factors are relevant determinants of family formation. Not only marriage but moving gets postponed in favour of cohabitation and (affordable) housing (Feijten & Mulder, 2002). Moving does not necessarily affect marriage (Jang et al., 2014). In reverse, it can have a disrupting effect where the migration of one of the partners leads to divorce (Ferrari & Macmillan, 2019). In general, some intentions may be linked because of the normative meaning assigned to them in certain cases. In empirical practice, intentions can be used as determinants of other intentions potentially linking them together.

Nevertheless, the demographic literature exploring connections between multiple intentions remains scarce. Noteworthy exceptions however are as follows. Having stated that fertility intentions are often analysed in isolation from other life domains, Testa and Rampazzo's (2018) findings indicate that among couples living together, the desire to move is directly connected with wanting to have a child, and that among single men, the intention to form a partnership is correlated with wanting to have a child. Additionally, the authors discover that the intention to change employment has a direct correlation with an unintentional childbearing but an inverse correlation with an intended childbirth. In a similar vein Testa and Bolano (2019) findings demonstrate that plans to become pregnant are frequently a component of a

multidimensional life course and that gender and parity are particular to cross-domain impacts. Cross-domain occurrences also have more of an impact than cross-domain intentions. If a move is the result of a previous plan and the couple has already made the transition to parenting, it is directly tied to the birth of a child. In a piece focused on moving intentions, Dommermuth and Klüsener (2019) discovered that persons' living together apart desire to cohabitate with a spouse is a significant driver of their relocation intention during the course of their lives. Additionally, they show that short-distance residential migration is more heavily influenced by union and family-related objectives, whereas longer-distance moves tend to be more influenced by job-related intentions. Overall, these findings imply that a multi-dimensional approach to intentions should be adopted when analysing single and multiple intentions.

3. Hypotheses

As discussed, TPB has been applied in understating the connection between life course events intentions and actual behaviour. First, when individuals start cohabiting with their partners, they usually have intentions to marry later (Guzzo, 2009). That is especially strong in the case of the first cohabitation. Predictably having the intention to marry contributes to the probability of actually getting married. Second, fertility intention is a good approximation of actual fertility. Work that has adopted the TPB in fertility intentions analyses in Europe has found the theory predictive (Billari et al., 2009; Dommermuth et al., 2009). Third, intentions have explanatory power in the context of residential mobility. De Groot et al. (2011) found that having intentions to move makes individuals four times as likely to actually change houses than not.

There is considerable evidence to argue that intentions capture a substantial share of actual behaviour ex ante. Together with the previous research on the connection between marriage, fertility and moving intentions in the life-course, the TPB permits to postulate the following hypotheses. The first hypothesis assumes a positive relationship between marriage and moving intentions as well as fertility and moving intentions. Here marriage-moving intention and fertility-moving intention dyads are life-course event intentions that individuals treat as connected. They either link marriage to moving, fertility to moving or vice versa.

H1: Family formation intentions and moving intentions are positively related

The second hypothesis suggests that family formation and moving intentions are negatively related. The connection between marriage and moving intentions as well as fertility and moving intentions is negative. This hypothesis arises from the gradual decoupling of life-course events that have been taking place in Europe (Buchmann & Kriesi, 2011). A disconnection between marriage and childbearing has been gaining momentum (Thornton & Philipov, 2009) whilst serial cohabitation has been found to have a significantly strong negative association with intentions to marry in younger cohorts (Vespa, 2014). These tendencies can also be exacerbated by socioeconomic deprivation (e.g., Aassve et al., 2013; Schwanitz et al., 2017; Testa & Stephany 2017; Lewin, 2018). Therefore, the following hypothesis says:

H2: Family formation intentions and moving intentions are negatively related

The third hypothesis assumes a scenario in which marriage, childbearing, and residential mobility intentions are not related and function completely parallelly. Similarly to the second hypothesis, this hypothesis is associated with the disconnection of life-course events in the sphere of family formation (Buchmann & Kriesi, 2011). However, it suggests that individuals may sometimes plan family formation and moving arrangements separately with no connection between them.

H3: Family formation intentions and moving intentions are not related

Women and men exhibit differences in their family life planning. Women have more pronounced intention to have children than men. The intention becomes stronger with age which is connected to biological and "age deadline" perseverance which is more important for women (Hayford 2009). For women, marriage is an important channel to realise their fertility intentions. The realisation of intentions

among married women is higher than among unmarried (Hayford 2009). Family formation events have a stronger impact on women's spatial mobility decisions too (Kley, 2010). Moving in together or getting married encourages women to migrate more often than men. Hence, in line with TPB we hypothesise that in case there exists a non-zero relationship between family formation intentions and moving intention, gender would moderate the link. In other words:

H4: Women rather than men establish a stronger association between family formation intentions and moving intentions

Education, as a measurable component of a broader socio-economic context, delineates the de-standardisation of life course and serves as a background factor as formalised by TPB. Moreover, the gendered gap in educational attainment deepens the differences of life course for women and men. Lack of educated men in areas characterised by lower educational attainment drives women to move to areas where men are more educated (Kröhnert & Vollmer, 2009). This type of moving usually takes place towards cities where marriage factors combine with female labour market participation. In urban areas not only women find better employment, but also more suitable men with whom they can potentially marry and have children (Edlund, 2005). However, education is known to supress fertility intention realisation for women (Berrington & Pattaro, 2014), but increase chances of getting married for men (Kalmijn, 2013). Higher levels of education are associated to more spatial mobility in general as university graduates prioritise jobs over residential stability (Venhorst et al., 2011). That is why, we suggest that education should serve as a tempering factor for the gender effect in connection to family formation and moving.

H5: Education reduces the gendered differences in association between family formation intentions and moving intentions

4. Data variables and methods

4.1 Data

To study the relationship between marriage and moving intentions as well as fertility and moving intentions, we use the Generations and Gender Survey (GGS) round 1 wave 1. The GGS data was collected to study the demographic behaviour and social developments in developed countries that are mostly located in Europe (GGP, 2019). The main goal of the Generations and Gender Programme is to initiate analyses on the developments and the determinants of a plethora of demographic and social phenomena that are related to family formation processes, demographic change, intergenerational relationships and relationships between partners. The first wave of the GGS provides variables capturing fertility and partnership aspects. Together with demographic variables, the intentions of respondents are included in the survey. The first wave of the GGS was carried out between 2002 and 2013. The GGS Wave 1 data represents 20 countries from respondents aged 17 - 85.

The focus of this paper is CEE countries that joined the EU in the two Eastern Enlargement waves in 2004 and 2007. Not all of the new member states have participated in the GGS wave 1. Due to data quality concerns Bulgaria, Czechia, Estonia, Lithuania and Romania have been chosen as countries that have data on respondents' intentions to marry, have children and move. In these countries, the GGS surveys were performed between 2004 and 2006.

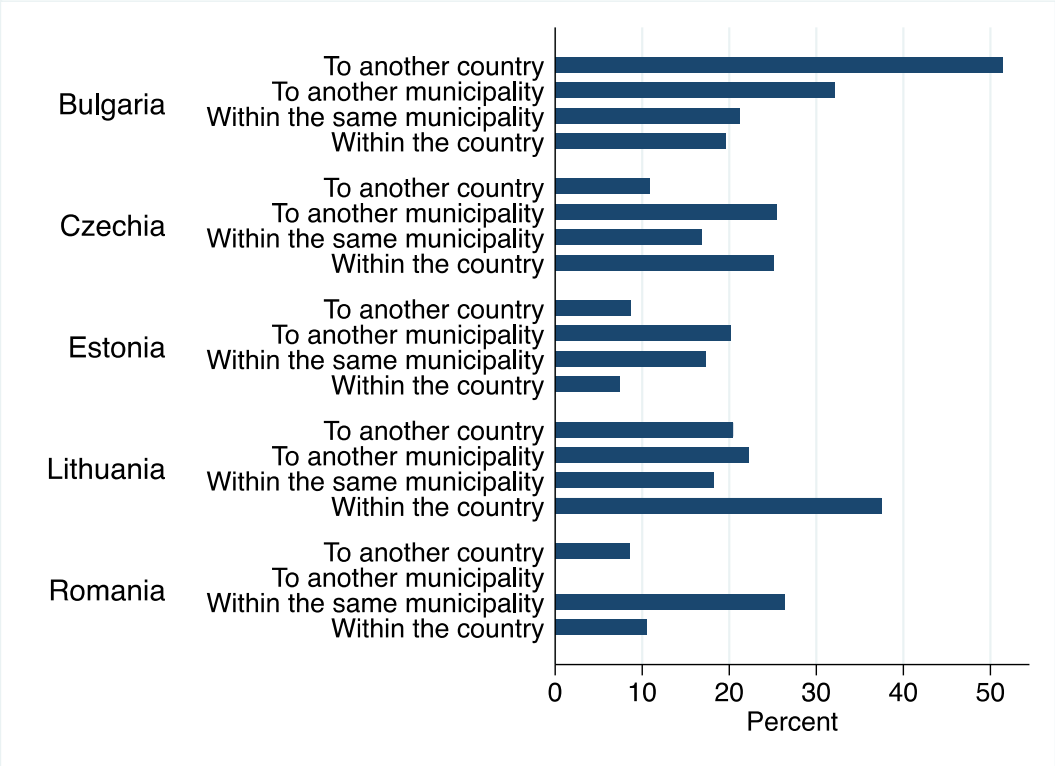
The selection of these five countries in particular allows for an inclusive analysis of marriage, fertility and moving intentions in five CEE countries. After selecting individuals aged from 17 years-old to 49 years-old for dependent variables of interest, the sample size varies from 20,754 to 3431 observations depending on selected specifications.

4.2 Variables

We have chosen three focal dependent variables from the GGS wave 1 all of which are dichotomised for the sake of the analysis. The first focal dependent variable captures respondents' intention to marry.

Respondents were asked if they intend to marry within the period of three years with values ranging from 1 to 4. Values 1 and 2 indicate no or low intention (definitely not, probably not) whereas 3 and 4 show higher and definite intention to marry (probably yes, definitely yes). The second focal dependent variable is intention to have children which is measured on a 1-4 scale with respective labels of definitely not, probably not, probably yes, definitely yes assigned to each numeric value. The third focal dependent variable is intention to move. The question asked whether respondents intended to move within the next three years on a scale from 1 to 4 (definitely not, probably not, probably yes, definitely yes). We focus on moving rather than migration because most respondents indicating positive intention to move specify their willingness to move predominantly within the same municipality, however this information is self-reported and does not necessarily take into account cases when moving takes place between municipalities or regions that are geographically close. Intention to move to another municipality is less pronounced whilst very few respondents are willing to move abroad with an exception of Bulgaria. For more see Figure 1.

Figure 1: Frequency statistics of destinations of intended move



Notes: Due to no data reported on the intention to move to another municipality in Romania, the corresponding bar remains empty.
Source: Generations and Gender Survey round 1 wave 1, author's calculations.

There are seven controls included in the analyses. These are age, gender, highest education level the individual achieved, the father's highest education level, the number of children, and the partnership status (non-cohabiting partner and no partner). Previous studies show that willingness to move and expected family size decline with age (Liefbroer, 2009). Marital, fertility, and moving intentions may differ with respect to gender as well (Berrington, 2004; Stecklov et al., 2010; Wiik et al., 2010). In order to control for gender differences, we include respondent's gender in the estimation where 0 refers to female and 1 to male. Educational level is known to affect fertility, marriage and migration (Blossfeld & Huinink, 1991; Billari et al., 2009; Mills et al., 2011). In this study education is measured in ISCED. Moreover, having children can explain internal migration (Thomas, 2019), reduced likelihood of subsequent pregnancies (Upchurch et al., 2002), and cases when intentions to marry plummet (Guzzo, 2009). General summary statistics of the sample are provided in Table 1 while country-specific summary statistics can be found in Table A1 in the appendix.

Table 1: Summary statistics

	Observations	Mean	Std. Dev.	Minimum	Maximum
Focal dependent variables					
Intention to marry	7,750	0.3945		0	1
Intention to have a child	23,880	0.264		0	1
Intention to move within the country	30,350	0.1557		0	1
Covariates					
Age	30,446	33.666	8.9734	17	49
Gender	30,446	0.4695		0	1
Individual education (ISCED)	30,273	3.2828		0	6
Father's education (ISCED)	26,345	2.7686		0	6
Number of children	30,446	1.1913	1.1737	0	14
Non-cohabiting partner	30,409	0.0707		0	1
No partner	30,409	0.2978		0	1

Source: Generations and Gender Survey round 1 wave 1, author's calculations

4.3 Methods and model

We adopt the seemingly unrelated bivariate ordered probit approach to analyse the relationship between marriage, fertility and moving intentions in life-course. Importantly, the seemingly unrelated bivariate ordered probit approach is equipped to work with endogenous variables (Sajaia, 2008). This feature of the method permits to isolate the connection between variables of interest controlling for relevant background variables that may be responsible for a certain part of common variance.

For the purpose of this paper, seemingly unrelated bivariate ordered probit serves to factor in the endogeneity discussed in the theoretical section covering TPB. When estimating intentions and their determinants, other intentions are frequently used as predictors of other intentions (e.g., intention to have a child can be seen as a product of other life-course intentions of marriage or cohabitation, changing work or residence (Testa & Rampazzo, 2018)). However, seemingly unrelated bivariate ordered probit permits operationalising different types of intentions as equal rather than as each other's determinants. This is especially relevant when intentions are operationalised as proxies for all proximate determinants of TPB which is the case when using GGS data (Dommermuth & Klüsener, 2019).

In the GGS, the respondents report their intentions at the same point in time. These intentions can be tied together in some way or be independent of each other. That is why the relationship between life-course event intentions of marriage, fertility and moving may be biased because of the possible presence of non-observed variables that potentially have an impact on the intentions. In order to overcome this problem, we use a modelling strategy that employs a joint model of intentions in life-course (Sajaia, 2008; Vignoli et al., 2013).

The seemingly unrelated bivariate ordered probit model is made of two equations that constitute a system of two intentions. We focus on two sets of intentions that are marriage-moving and fertility-moving intentions. First model looks at $Marriage$ and $Moving$ that capture individual characteristics i as well.

$$Marriage_i^* = X_{1i}'\beta_1 + \varepsilon_{1i}\ (equation\ 1)$$

$$Moving_i^* = X_{2i}'\beta_2 + \varepsilon_{2i}\ (equation\ 2)$$

Second model focuses on $Fertility$ and $Moving$ of an individual i.

$$Fertility_i^* = X_{3i}'\beta_3 + \varepsilon_{3i}\ \ (equation\ 3)$$

$$Moving_i^* = X_{4i}'\beta_4 + \varepsilon_{4i}\ (equation\ 4)$$

X_{1i}', X_{2i}', X_{3i}' and X_{4i}' are vectors of selected independent variables that capture exogenous variation in respondents age, age squared, gender and father's education. These vectors include such control variables as individual and father's education, number of previous children and partnership status. β_{1i}', β_{2i}', β_{3i}' and β_{4i}' are vectors of unknown parameters whilst ε_{1i}, ε_{2i}, ε_{3i} and ε_{4i} are error terms. The explanatory variables

are assumed to be exogenous. The assumption implies that the unknown error terms and covariates that we can observe are independent. It allows the model to be stripped of all exogenous variation in the model and concentrate the endogenous variation in the error terms. In this way we can estimate the correlation between endogenous factors captured by the error terms that influence both sets of marriage-moving and fertility-moving intentions. In short, this method controls for potential background factors as theorised by TPB that can be observed and leaves the remaining information in the error terms. That is why to answer the research question, we are interested in estimating the correlation between these error terms and treat all the independent variables as controls on which we do not dwell. The correlation between the error terms storing all remaining information on potential links between marriage and moving as well as fertility and moving intentions is the main analytical focus of the paper. The correlation coefficient would indicate the direction (negative, non-existent or positive) and magnitude (from 0 to 1) of a connection between the intentions.

In addition, we have to assume that the error terms ε_{1i}, ε_{2i}, ε_{3i} and ε_{4i} are normally distributed with a zero mean and a unit variance. The connection between the error terms in equations 1 and 2 as well as equations 3 and 4 are expressed by the correlation coefficient ρ. We use the likelihood ratio test to check the existence of independence between the equations 1 and 2 then equations 3 and 4. The H_o for the test is $\rho = 0$. If the H_o is rejected, then we can proceed with estimating a meaningful relationship between marriage-moving and fertility-moving intentions. We use an estimation command *bioprobit* developed for Stata by Sajaia (2008).

5. Results

5.1 Seemingly unrelated bivariate ordered probit estimation for marriage and moving intentions

In this section we outline the estimation results for marriage and moving intentions. Table 2, columns 1 and 2 present the correlation between the focal variables with baseline controls for age, age squared, gender and father's education and full controls that in addition to exogenous variables include individual education, number of children and partnership status. The baseline models present a statistically significant correlation between the error terms. The correlation between intentions to marry and move is 0.199. It confirms the positive relationship between marriage and moving intentions in the life-course hypothesis.

The controls for the estimation have been selected for the following reasons. Accounting for individual social and economic factors matters when analysing marriage intentions, we include the individual highest education achieved as a control in the analysis (Guzzo, 2009). Having children impacts marital intentions (Guzzo, 2009) and residential reallocation (Vidal et al. 2017). Partnership status and cohabitation with a partner affect marital (Guzzo, 2009) and moving (Feijten & Mulder, 2002) intentions. Controlling for individual education, the number of children, and partnership status allows to establish a clearer picture of the connection between marriage and moving intentions and stands in line with TPB. The correlation between intentions to marry and move remains positive 0.182. It is important to note that baseline and full control estimations are not significantly different from one another.

We observe different magnitudes of correlation point estimates between genders. Even if the correlation between marriage and moving intentions remains present in the analyses focusing on female and male subsamples in Table 2, columns 3-6. For women, the correlation between the error terms is 0.244. For men, the correlation between the error terms is 0.149. This shows a considerable 10 per cent difference between genders. The difference is reiterated in the estimation with full controls. The correlations between intentions to marry and move for women and men are 0.217 and 0.143 respectively indicating a remaining difference of 7 per cent between women and men. However, these differences between genders are only indicative of possible direction, but not significant. These results stand against hypothesis 4.

The findings show that including individual education in combination with gender as a moderator has no effect on the positive association between marriage and moving intentions (Table 2, column 7).

In general, the results show that there is a positive association between intentions to marry and move. The association is not affected by inclusion of controls, nor division into gender specific samples.

Table 2: Relationship between marriage and moving intentions

	(1) Baseline	(2) Baseline, full controls	(3) Female	(4) Female, full controls	(5) Male	(6) Male, full controls	(7) Baseline, Full controls + individual education and gender interactions
DV: Intention to marry							
Age	0.269***	0.234***	0.193***	0.163***	0.359***	0.318***	0.212***
	(0.0151)	(0.0156)	(0.0218)	(0.0226)	(0.0216)	(0.0221)	(0.0162)
Age^2	-0.00448***	-0.00380***	-0.00359***	-0.00297***	-0.00560***	-0.00487***	-0.00352***
	(0.000236)	(0.000243)	(0.000343)	(0.000354)	(0.000333)	(0.000341)	(0.000249)
Gender (male=1)	0.0316	0.0225					-0.1353
	(0.0321)	(0.0331)					(0.0728)
Father's education	-0.00354	-0.0102	0.0283	0.0148	-0.0266	-0.0256	-0.0454***
(ISCED)	(0.0132)	(0.0140)	(0.0190)	(0.0205)	(0.0188)	(0.0196)	(0.0159)
Number of children		-0.220***		-0.215***		-0.203***	-0.199***
		(0.0185)		(0.0261)		(0.0267)	(0.0189)
Partnership status (reference=cohabiting partner)							
Non-cohabiting		-0.377***		-0.272**		-0.432***	-0.409***
partner		(0.0588)		(0.0836)		(0.0841)	(0.0592)
No partner		-1.033***		-1.028***		-0.998***	-1.062***
		(0.0542)		(0.0772)		(0.0774)	(0.0546)
Individual education (ISCED)							0.0728***
							(0.0226)
Individual education X Gender							0.0582*
							(0.0304)
DV: Intention to move							
Age	0.0230	0.0192	-0.0153	-0.0131	0.0657**	0.0609**	-0.0049
	(0.0157)	(0.0160)	(0.0218)	(0.0224)	(0.0226)	(0.0232)	(0.0167)
Age2	-0.000914***	-0.000799**	-0.000342	-0.000292	-0.00156***	-0.00146***	-0.000489
	(0.000247)	(0.000253)	(0.000343)	(0.000352)	(0.000358)	(0.000368)	(0.000260)
Gender (male=1)	-0.112***	-0.118***					-0.2463**
	(0.0329)	(0.0333)					(0.1026)
Father's education	0.0805***	0.0571***	0.0770***	0.0427*	0.0845***	0.0685***	0.0223
(ISCED)	(0.0136)	(0.0141)	(0.0192)	(0.0204)	(0.0192)	(0.0198)	(0.0156)
Number of children		-0.0562**		-0.0911***		-0.0146	-0.0339
		(0.0196)		(0.0269)		(0.0292)	(0.0202)
Partnership status (reference=cohabiting partner)							
Non-cohabiting		0.411***		0.450***		0.405***	0.391***
partner		(0.0580)		(0.0820)		(0.0830)	(0.0582)
No partner		-0.0577		-0.109		0.0184	-0.0664
		(0.0544)		(0.0757)		(0.0792)	(0.0545)
Individual education (ISCED)							0.0726***
							(0.023)
Individual education X Gender							0.0471
							(0.0304)
Correlation	0.199***	0.182***	0.244***	0.217***	0.149***	0.143***	0.174***
Coefficient Z test for difference in intention correlations between women and men	(0.0214)	(0.0220)	(0.0305) 0.05	(0.0314) 0.05	(0.0304) 0.05	(0.0312) 0.05	(0.022)
N	6711	6701	3262	3257	3449	3444	6663

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All estimations include country and year fixed effects. In columns (3) - (6) gender is excluded due to multicollinearity. We employ Clogg et al. (1995) methodology for comparing regression coefficients between models to determine if the decreases in the magnitudes of the coefficients are significant. ††Z< 0.05, †0.10 test for difference in intention correlations between women and men.

Source: Generations and Gender Survey round 1 wave 1, author's calculations.

5.2 Seemingly unrelated bivariate ordered probit estimation for fertility and moving intentions

In this section, we present the estimations for fertility and moving intentions. Table 3, columns 1-2, report both baseline estimation and the estimation with controls for age, age squared, gender, father's education and partnership status. In the baseline model estimations the correlation between the error terms of fertility and moving intensions equates to 0.1777.

Taking into account individual socioeconomic factors matter when analysing fertility intentions, we include individual highest education as a control (Billari et al., 2009). Having children is known to have an effect on future spatial mobility (Vidal et al., 2017) and fertility intentions (Schoen et al., 1999) while partnership status can affect both fertility and moving intentions. That is why these controls are included in our estimation and reported in Table 3. In baseline estimation with full controls, the correlation between intentions to have a child and move is 0.134. Even if correlation estimation in baseline and full controls models are not significantly different, our findings verify that there is a positive connection between fertility and moving intentions as hypothesised.

The positive relationship between fertility and moving intentions holds in specifications used for separate female and male subsamples as reported in Table 3, columns 3-6. In the baseline, the correlation between the error terms is 0.207 for women and 0.130 for men. Including all covariates, the correlations between intentions to marry and move for women and men are estimated at 0.158 and 0.0959 respectively. The differences in correlation point estimates between women and men are not significant.

We observe a persistent positive association between fertility and moving intentions (Table 3, column 7). Including individual education interacted with gender does not indicate any difference between full-controls estimation and estimation with education and gender.

Overall, the results that we obtain establish a positive relationship between intentions to move and intentions to have children across different estimations. The positive relationship between fertility and moving intentions holds in specifications used for the baseline sample and separate female and male subsamples controlling for age, age squared, gender and father's education as well as individual education and its interaction with gender, number of previous children and partnership status. Yet we find no strong evidence of gendered connection between fertility and moving intentions, nor we see this connection change when individual education interaction with gender is included.

6. Conclusions

In the paper, we sought to investigate the connection between life course event intentions of marriage, childbearing and moving in Central and Eastern Europe. Using the individual level data from the Generations and Gender Survey round 1 wave 1 we found positive correlations between family formation and moving intentions. The results hold robust across different estimations for the general sample as well as female and male subsamples. In particular, we find a positive association between intentions to marry and move which stands in line with previous findings in the field (Mulder & Wagner, 1993). We too establish a positive connection between intentions to have children and move that is consistent with other literature (Kulu & Milewski, 2007; Testa & Rampazzo, 2018). Our contribution, however is three-fold. First, we hypothesised that family formation and moving intentions may be connected. There were five postulated mechanisms through which marriage-moving and fertility-moving intentions may interact. The findings are consistent with the first hypothesis: marriage and moving intentions as well as fertility and moving intentions are interrelated. Second, we applied an extended version of TPB informed by previous research on intentions and their interconnection to isolate the unique link between family formation intentions and moving intentions in CEE. The links between intention dyads stand in their own right as opposed to having been treated as a determinant of one another. Third, this paper contributed to the growing literature on combined intentions.

Table 3: Relationship between childbearing and moving intentions

	(1) Baseline	(2) Baseline, full controls	(3) Female	(4) Female, full controls	(5) Male	(6) Male, full controls	(7) Baseline, Full controls + individual education and gender interactions
DV: Intention to have children							
Age	0.350***	0.415***	0.329***	0.433***	0.410***	0.440***	0.394***
	(0.0118)	(0.0130)	(0.0177)	(0.0197)	(0.0165)	(0.0180)	(0.0133)
Age2	-0.00635***	-0.00695***	-0.00636***	-0.00751***	-0.00699***	-0.00709***	-0.00669***
	(0.000190)	(0.000205)	(0.000292)	(0.000318)	(0.000261)	(0.000280)	(0.000208)
Gender (male=1)	0.195***	0.0554*					0.0993
	(0.0217)	(0.0233)					(0.0718)
Father's education	0.0557***	-0.0253**	0.0889***	0.00194	0.0245	-0.0508***	-0.0573***
(ISCED)	(0.00890)	(0.00964)	(0.0123)	(0.0133)	(0.0132)	(0.0142)	(0.0105)
Number of children		-0.776***		-0.734***		-0.818***	-0.755***
		(0.0175)		(0.0230)		(0.0274)	(0.0178)
Non-cohabiting		-0.360***		-0.153*		-0.565***	-0.353***
partner		(0.0429)		(0.0599)		(0.0631)	(0.0431)
No partner		-0.767***		-0.652***		-0.875***	-0.746***
		(0.0308)		(0.0416)		(0.0472)	(0.0311)
Individual education							0.0728***
(ISCED)							(0.0226)
Individual education X							0.0582*
Gender							(0.0304)
DV: Intention to move							
Age	-0.0246**	0.00705	-0.0651***	-0.0166	0.0209	0.0370*	-0.0157
	(0.00931)	(0.00994)	(0.0128)	(0.0138)	(0.0137)	(0.0145)	(0.0103)
Age2	-0.000247	-0.000583***	0.000305	-0.000278	-0.000863***	-0.00098***	-0.00031*
	(0.000143)	(0.000150)	(0.000196)	(0.000208)	(0.000210)	(0.000219)	(0.000153)
Gender (male=1)	0.0379	0.00501					-0.175***
	(0.0211)	(0.0215)					(0.0658)
Father's education	0.0881***	0.0655***	0.0759***	0.0505***	0.103***	0.0843***	0.0298***
(ISCED)	(0.00857)	(0.00878)	(0.0114)	(0.0117)	(0.0130)	(0.0133)	(0.00956)
Number of children		-0.104***		-0.106***		-0.0930***	-0.0796***
		(0.0129)		(0.0166)		(0.0207)	(0.0132)
Non-cohabiting		0.494***		0.587***		0.406***	0.501***
partner		(0.0393)		(0.0543)		(0.0584)	(0.0395)
No partner		0.0133		0.0535		-0.0111	0.0415
		(0.0267)		(0.0347)		(0.0430)	(0.0269)
Individual education							0.787***
(ISCED)							(0.0133)
Individual education X							-0.0602***
Gender							(0.0188)
Correlation	0.177***	0.134***	0.208***	0.158***	0.130***	0.0959***	0.125***
	(0.0140)	(0.0148)	(0.0148)	(0.0192)	(0.0148)	(0.0192)	(0.0148)
Coefficient Z test for difference in intention correlations between women and men			0.31	0.33	0.33	0.35	
N	20754	20745	11618	11614	9136	9131	20654

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All estimations include country and year fixed effects. In columns (3) - (6) gender is excluded due to multicollinearity. We employ Clogg et al. (1995) methodology for comparing regression coefficients between models to determine if the decreases in the magnitudes of the coefficients are significant.

Source: Generations and Gender Survey round 1 wave 1, author's calculations.

There are notable limitations of the study that provide an avenue for further research. The lack of detailed follow-up data on fulfilled marital, fertility and moving intentions in the sample restrict causational inference. Therefore, the extent to which it is possible to identify mechanisms that stand behind the connections between marriage-moving intentions and fertility-moving intentions is limited as tracking the realisation of intentions would encounter decreased sample size. As a result, this study only focused on associative relationships and abstained from making causational claims. Moreover, dichotomisation of dependent intention variables strips data of variation, future explorations of categorical dependent variables could provide a more nuanced picture of the relationship we find. We do not explicitly treat the distance of moving as an object of our study as this stands outside the scope of this paper. Further examination of the role the distance of move plays in the association would clarify the picture. Lastly, in the event of international migration, there is no data that would allow tracking whether individuals fulfil their initial intentions abroad, therefore the study could be set in the context of moving intentions rather than migration intentions.

Largely, the findings suggest that moving, marriage, and fertility intentions go hand-in-hand. This may be of particular importance in the context of CEE as the region has been experiencing population change since the 1990s. Joint family formation and moving intentions could indicate that marriage and childbearing take place after moving or vice versa. Therefore, our findings can have the following implications. At the level of planning and intentions, moving remains an important variable in family formation. It is suggestive that Central and Eastern Europeans perceive their moving in together either as a prelude to (Michielin & Mulder, 2008) or the result of (Jang et al., 2014) marriage as opposed to preferring other arrangements. Childbearing wise moving may play a role in planning a child (Billari et al., 2009) or as a result of a growing family (Kulu & Milewski, 2007). On a broader scale, these findings also hint at processes that encompass internal migration as well. If marriage and fertility intentions are coupled with moving intentions, this could exacerbate population change in subnational regions of CEE countries if measures are not considered.

Generally, for policymakers and practitioners, it is important to note that moving and family formation are planned together even if it is undefined which intention comes first and which comes second.

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Data availability statement

This paper uses data from the Generations and Gender Survey round 1 wave 1 (DOI: https://doi.org/10.17026/dans-z5z-xn8g); see Gauthier et al. (2018) or visit the Generations and Gender Programme website (https://www.ggp-i.org) for methodological details. The data that supports the findings of this paper is available from the Generations and Gender Programme website or DANS (https://doi.org/10.17026/dans-z5z-xn8g).

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Information in German

Deutscher Titel

Lebensverlaufsentscheidungen in Mittel- und Osteuropa: Ein geschlechtsspezifischer Zusammenhang zwischen Familiengründung und Umzugsabsichten?

Zusammenfassung

Fragestellung: Dieser Beitrag untersucht den Zusammenhang zwischen den Absichten zur Familiengründung (Heirat und Kinderkriegen) und den Umzugsabsichten im frühen Lebensverlauf in Mittel- und Osteuropa.

Hintergrund: Während der Zusammenhang zwischen den Absichten, zu heiraten, Kinder zu bekommen und umzuziehen, in Westeuropa eine gewisse akademische Aufmerksamkeit erfahren hat, wurde diese Verbindung in Mittel- und Osteuropa weitgehend vernachlässigt. Wir untersuchen einen derartigen Zusammenhang für diese Region.

Methode: Wir vermuten, dass die Absichten, zu heiraten, Kinder zu bekommen und umzuziehen, positiv, negativ oder überhaupt nicht miteinander verbunden sein können. Weiterhin gehen wir davon aus, dass das Geschlecht als Kanal dient, durch welchen die Verbindung zwischen Absichten zur Familiengründung und Umzugsabsichten zum Ausdruck kommt. Zur Hypothesenprüfung verwenden wir Daten aus der ersten Runde der ersten Welle des Generations and Gender Surveys und konzentrieren uns auf die analytische Stichprobe, die 17- bis 49-Jährige aus fünf mittel- und osteuropäischen Ländern enthält. Wir führen Seemingly Unrelated Bivariate Ordered Probit Regressionen durch, um die Beziehung zwischen den Absichten zu schätzen.

Ergebnisse: Wir beobachten einen positiven Zusammenhang zwischen der Absicht zur Familiengründung und der Umzugsabsicht. Es gibt jedoch keinen Hinweis darauf, dass dieser Zusammenhang durch das Geschlecht vermittelt wird.

Schlussfolgerung: Es besteht ein Hinweis darauf, dass die Absichten, zu heiraten, Kinder zu bekommen und umzuziehen, in Verbindung stehen.

Schlagwörter: gemeinsame Absichten; Fertilität; Ehe; Partnerschaft; Umzug; Generations and Gender Survey

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