Feedback Loops on Regional Partner Markets

EXTENDED ABSTRACT FOR THE EUROPEAN POPULATION CONFERENCE 2016: DEMOGRAPHIC CHANGE AND POLICY IMPLICATIONS

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Introduction

The decreasing stability of marriages during the last decades remains puzzling for scholars of the sociological discipline (Wagner et al., 2015). It is understood as a part of a more general transition of industrialized countries which includes rising divorce rates, an increase in female labor force participation, and declining fertility rates in the aftermath of the second demographic transition (Esping-Andersen & Billari, 2015). Recent evidence suggests that the previous common trend among industrialized countries transformed into two distinct paths, depending on the diffusion of gender-related norms. New norms affecting fertility and divorce have diffused in some countries (i.e. Sweden), while not in others (i.e. Germany). As Esping-Andersen and Billari (2015) suggest, Germany can still be assigned to the traditional path of declining fertility rates and marriage stability, even if the crude divorce rate has recently been stagnating (DESTATIS, 2015).

This study investigates the previous increase of the divorce rate (Wagner et al., 2015) and its current stagnation in Germany with a focus on regional processes. Is the decline in marriage stability a result of self-perpetuating processes at the regional level? We use regional data between 2003 and 2012 and calculate a simultaneous equation model to estimate the interdependence of the sex ratio and the divorce rate within labor market areas in Germany over time.

State of the Field – compositional effects and partner market disequilibria

The macro trend of decreasing marriage stability has been traced back to micro level processes and a changing composition of micro level predictors of the divorce rate. In addition, the sex ratio as part of the demographic structure has been analyzed as a predictor of women's power and of partner market opportunities. Micro level explanations for the rising divorce rate stress the changing demographic composition with regard to individual and dyadic characteristics (Wagner et al., 2015). Dyadic characteristics binding spouses to each other and constituting barriers of a divorce have declined (i.e. the decline of the male breadwinner model (Ostner, 2010)). The changing composition with regard to these barriers results in higher divorce rates at the aggregate level. Therefore, different components of macro-level trends (i.e. declining fertility rates, rising divorce rates, fewer marriages, and higher female employment) reinforce each other and may lead to feedback loops. These mutually perpetuating processes result in "spirals" of divorce (Diekmann, 1994). For instance, employment of women decreases their economic dependence on their spouse and lowers the barriers to separate. However, employment secures women's livelihood against the perceived risk of divorce. The employment of women is a result of perceived divorce risks, while the overall divorce

risk is affected by employment decisions of women (Johnson & Skinner, 1986; Ressler & Waters, 2000). Both are endogenous and have been analyzed with simultaneous equation models (Johnson & Skinner, 1986; Miladinov, 2015; Ressler & Waters, 2000). In addition, the increasing occurrence of divorces reduces the probability of stigmatization. Increasing divorce rates diminish the normative obligations to break up marriages and increase the likelihood of individual divorces. This mutual endogeneity is supposed to be part of these "spirals" of divorce (Diekmann, 1994).

Besides dyadic and individual characteristics and their composition on the aggregate level, some researchers stress the importance of macrostructural contexts as a "(…) a multidimensional space of social positions among which people are distributed and which affect their social relations" (Blau, 1977, p. 28). The ratio of men to women (sex ratio), thus, the relative scarcity of men to women is a relevant indicator for the relationship between the sexes at different levels of aggregation. On the macro level, the sex ratio predicts various aspects of women's leverage across societies (Guttentag & Secord, 1983; South & Trent, 1988). It is assumed that women utilize their relative scarcity as a source of power vis-a-vis their male counterparts. By contrast, a situation with "too many women" (Guttentag & Secord, 1983) relative to men may lead to a lower valuation of women (South & Trent, 1988, p. 1112). Within national settings, regional variations of the sex ratio have been analyzed with regards to power asymmetries between the sexes as well as partner market (dis)equilibria.

Partner or marriage markets constitute the pool of accessible mates. Hence, the outcomes of matching processes depend heavily on the accessibility of potential partners with certain attributes as education and age (Kruger, 2009). Even after getting married, attractive alternative opportunities within partner markets sorely tempt the spouses to improve their match and quit from a current suboptimal match. This "temptation" thesis (Lyngstad, 2011) states that favorable partner market opportunities for one spouse lower the barriers for partnership or marriage dissolution. A deviation from a balanced sex ratio increases the probability to meet a better match for one of the two spouses, who might reconsider and reevaluate the current partnership or marriage (South et al., 2001). Imbalanced sex ratios represent favorable partner market opportunities leading to higher divorce risks. This hypothesis has been tested for diverse types of partner markets.

Åberg (2009) used Swedish data to show positive effects of the amount of co-workers of the opposite sex on the hazards of divorce for men and women. Svarer (2007) found similar results for the dissolution of romantic relationships in Denmark. Approximating

the sex ratio at the workplace with the sex ratio at the occupational level, McKinnish (2007) demonstrated a positive effect on divorce for both sexes, while South et al. (2001) found only evidence for women to have higher hazards for marital dissolution. Employing German survey data, Häring (2014) found a positive relationship between the age-specific sex ratio in the circle of friends and the intention to separate. Rapp et al. (2015) detected a positive effect of regular opposite sex contacts within different partner market contexts (workplace, cycle of friends, pubs) on marital dissolution for Germany. Häring et al. (2010) analyzed survey data to detect bivariate effects of different conceptualizations of the sex ratio (on the regional level and in concrete contexts) on separation for Germany without looking for statistical inference.

Warner et al. (2011) investigated the effect of the sex ratio for young adults at the survey tract level within one labor market area. Even if they found no effect on relationship formation, the relationship stability was significantly and negatively altered by favorable sex ratios for men. For U.S. labor market areas, Trent and South (2003) found a positive effect of sex ratio imbalances in favor of women on marital happiness and negative effects on the perceived likelihood of divorce. The effects of the sex ratio virtually vanished after controlling for the race of the respondents. South et al. (2001), South (1995) , and South and Lloyd (1995) detected positive effects of sex ratio imbalances on the level of U.S. labor market areas on the hazard of marital dissolution for both sexes. Surprisingly, Lyngstad's (2011) analysis of administrative data revealed a negative effect of sex ratio imbalances on the risk of divorce for Norwegian communities. He argues for a "commitment" effect. Favorable sex ratio imbalances for one spouse reflect unfavorable opportunities for the other, who might invest more in their marriage. In sum, most studies indicate a negative effect of imbalanced sex ratios on the stability of marriages and romantic relationships. Nevertheless, recent evidence (Lyngstad, 2011) suggests a more complex process in which both partners evaluate their opportunities and act accordingly. In both cases, partner market opportunities and divorce rates are interdependent.

Operationalization and Control Variables

In order to detect self-reinforcing processes, we use simultaneous equation models. The sex ratio of available spouses is modeled as a function of the divorce rate and the divorce rate is modelled as a function of the sex ratio. In the case of joint causality, single equation models suffer from simultaneity bias (Ressler & Waters, 2000). The divorce rate is operationalized as the regional crude divorce rate of 2011 (divorce rate). The sex ratio is operationalized as the ratio of unmarried men to 100 unmarried women older than 14

years (sex ratio). Regional characteristics are controlled for. Labor market characteristics are approximated via the number of part time employees per 100 working-age inhabitants (part time employment), employees per 100 working-age inhabitants (employment), percent of employed women per all employees (female employment), and the number of women in part time employment per 100 working-age women (female part time employment). In order to approximate demographic characteristics, the fertility rate is operationalized as the number of births per 1,000 inhabitants (fertility), children as the number of children younger than 6 years per 1,000 inhabitants (child), widowed people as the percent of widowed people to all inhabitants (widow), and the mean marriage rate with the arithmetic mean of all marriages from 2003 to 2011 (marriage). Religion is operationalized as percent Christians (religion). All controls were assessed for the year 2011 unless otherwise noted. The final model will utilize longitudinal data and a within subject design to account for further (time constant) unobserved heterogeneity.

Data & Unit of Analysis

Since the model uses labor market areas as the unit of analysis, regional data from the Federal Statistical Office of Germany ("Statistisches Bundesamt Deutschland") for German districts ("Landkreise" and "Kreisfreie Städte") is assessed for the years 2003 to 2012. This data is aggregated to labor market areas. Two or more districts are merged to labor market areas if 65% of the inhabitants are employed in this area, 65% of the jobs are occupied by inhabitants, and the commuting time does not exceed 45 minutes. Thus, labor market areas make use of information about the spatial mobility and the commuting of inhabitants (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2015). Labor market areas do not reflect partner market opportunities at the local or even neighborhood level (Lengerer, 2001). South and Crowder (2000) show that local neighborhoods have a higher relevance for the matching of younger white adults compared to older ones. Therefore, the analysis of divorce might require broader partner markets and social contexts. Indeed, Stauder (2015) provides moderate evidence that regional contexts constitute the individual opportunity structure as perceived by the inhabitants. The conceptualization of labor market areas as closed spatial units is another controversial issue, since it neglects residential mobility, which leads to a self-selection of married couples into rural areas and singles into urban areas (Gautier et al., 2009) and hampers a straightforward interpretation of the results.

Preliminary Results

The preliminary results from a cross sectional two-stage least squares analysis seem promising. The sex ratio and the divorce rate are interrelated and affect each other in the expected direction, while the effect of the divorce rate on the sex ratio is insignificant due to weak instruments. In sum, favorable sex ratio imbalances for men lead to higher divorce rates and higher divorce rates lead to stronger imbalances of the sex ratio. In our sample, the sex ratio is skewed and unfavorable for women, which is due to a high proportion of widows – an issue which will be solved in the final analysis with more appropriate data. Following the instrumental variable approach, the arithmetic mean of the marriages per 1,000 inhabitants between 2003 and 2011 and the proportion of Christians are used as instruments for the divorce rate. We used the "raw" sex ratio of all men to all women (regardless of age and marital status) as an instrument of the imbalance of the sex ratio of unmarried men to unmarried women older than 14 years. While this instrument is a strong predictor of the sex ratio of available partners, it might be related to the error term of the divorce rate. To underpin our results, we tested the assumed effect with the weaker instrument of the "raw" sex ratio of 2003. The direction of the effect is not altered, while the effect became insignificant (p=.302). For the longitudinal analysis this instrument will be certainly reassessed. The estimated functions of our first preliminary analysis are:

sex ratio = f(divorce rate, part time employment, employment, female employment, widow, child)

divorce rate = f(sex ratio, child, fertility, religion, marriage, female part time employment, employment, part time employment, female employment, widow)

Both functions were able to explain a rather large amount of the variance of the sex ratio ($R^2 = .34$) and the divorce rate ($R^2 = .38$), respectively. In our final analysis, we will be able to analyze the regional variation of the sex ratio within certain age ranges. Furthermore, we will employ more information on the marital status and limit our definition of availability further to singles and living apart together relationships. More regional controls, particularly the regional population density and home ownership will be added. Moreover, we will have to account for the autocorrelation of our regional units. Finally, it should be kept in mind that our preliminary results lack the control for unobserved heterogeneity, which demonstrates the need to back the results with longitudinal data and a within subject design.

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