

Association, Aggregation, and Paradoxes: On the Positive Correlation Between Fertility and Women's Employment

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Brehm and Engelhardt (2015) revisited the cross-country correlation between total fertility rates (TFR) and female labour force participation rates (FLFP), that turned from negative to positive after 1985. They contribute an important analysis by age groups. However, the pre-1985 negative correlation is taken as support for the hypothesis that for women having young children and being employed are (partially) incompatible, implying that the correlation turning positive contradicts that hypothesis regarding the later period. This note provides three comments on why this cross-country correlation is not informative to critically test hypotheses on the degree to which women combine motherhood and employment.

First, the trend in the cross-country correlation between TFR and FLFP might not be as 'curious' as Brehm and Engelhardt (2015, p.691) state. Figure 1 shows this association in 5-year intervals around 1985. Although such heterogeneity in space and time was already noted by various authors (Brehm and Engelhardt, 2015; Engelhardt et al., 2004; Kögel, 2004), observing the

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country-specific trajectories is informative. The Nordic countries initially showed low TFR and high FLFP, and little change over time. Mainly southern European countries drove the change in the correlation, due to their marked drop in fertility combined with a relative small increase in female employment. The cross-country correlation turned positive, but these trajectories do not support the notion that within countries higher fertility was associated with more employment.

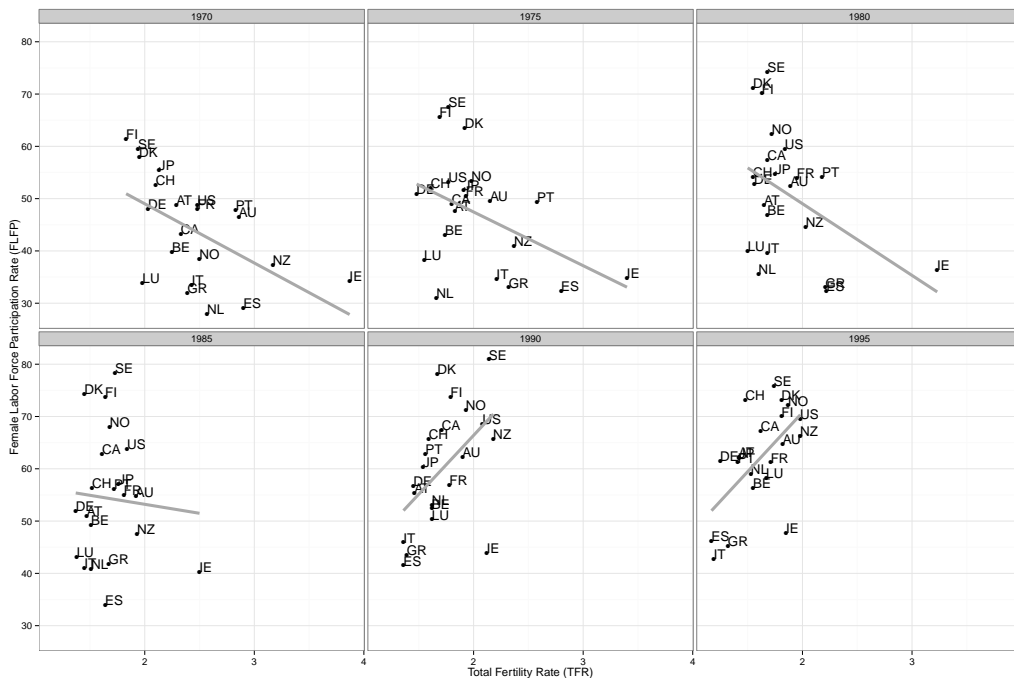


Figure 1: Trends in the Association Between TFR and FLFP.
Source: Comparative Family Policy Database, Gauthier (2010)

My second comment pertains to aggregation paradoxes. Associations have been observed to paradoxically change at different levels of aggregation (Pearson, 1896; Galton, 1896; Yule, 1903), which was popularised by (Simpson, 1951, For more details, see: Nieuwenhuis (2014)). Mittal (1991)

summarized that a positive correlation at the macro-level can coexist with no correlation (A. Association Paradox), a reversed correlation (B. Reversal Paradox), or a weaker/stronger correlation (C. Amalgamation Paradox) on the micro level. This is illustrated in Figure 2, and suggests that the positive association between TFR and FLFP can be observed together with positive, negative, or no association between motherhood and employment on the individual level.

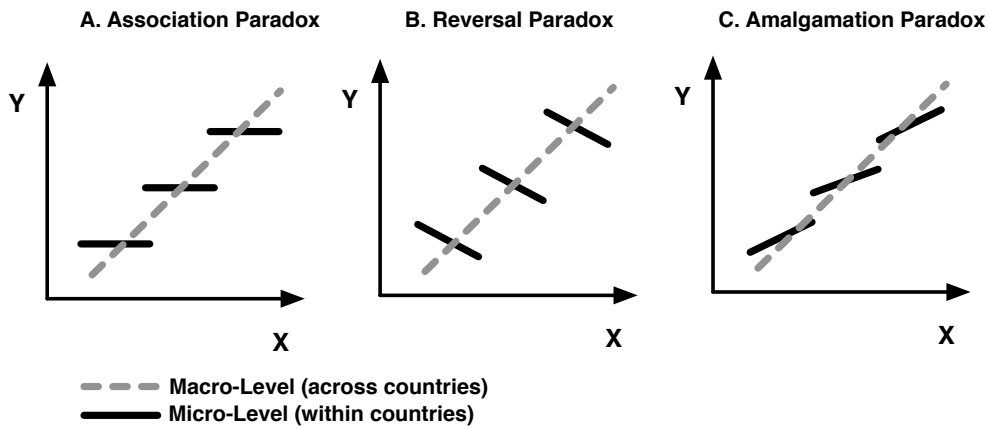


Figure 2: Schematic Representation of Three Aggregation Paradoxes

Third, Nieuwenhuis et al. (2012) used micro-level survey data to study the association between motherhood and employment at the individual level, covering 18 OECD countries from 1975 to 1999 (see also : Matysiak and Vignoli, 2008). They found that the negative association between motherhood and employment decreased somewhat over time, but in no country turned positive. Moreover, a great variety in trends across countries was found, with the association becoming less negative in for instance the Netherlands and Ireland, being stable and only weakly negative in the Nordic countries, and becoming more negative in Germany and Portugal. This variety in trends

within countries cannot be observed using country-level data.

Conclusion

From the positive cross-country correlation between TFR and FLFP it cannot be inferred to what extent motherhood and employment are (in)compatible. This suggests that it is more fruitful to advance scholarship on the compatibility of motherhood and employment using cross-nationally comparable micro-level data.

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