



On the Relation between Fertility, Development, and Gender Equality: A Comparison of Western and MENA Countries

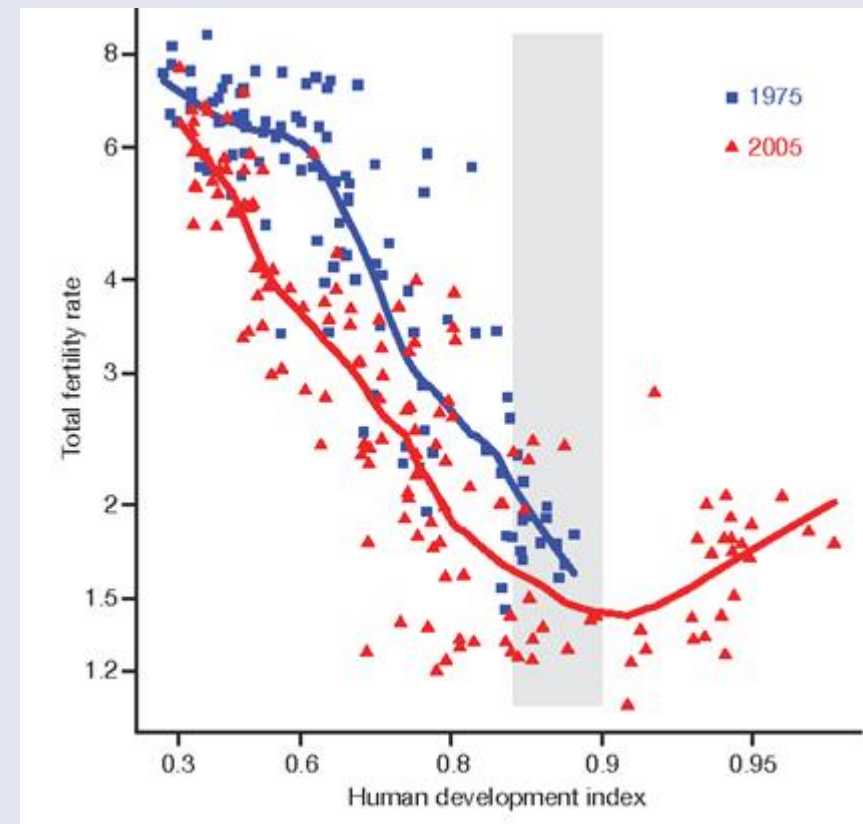
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Background

- The association between fertility and development has received considerable attention since Malthus (1888).
- Seminal demographic theories such as the theory of demographic transition have argued that in countries undergoing modernization, long-term economic growth should lead to a transition from high to low birth and death rates (Davis 1945; Notestein 1945).

Background

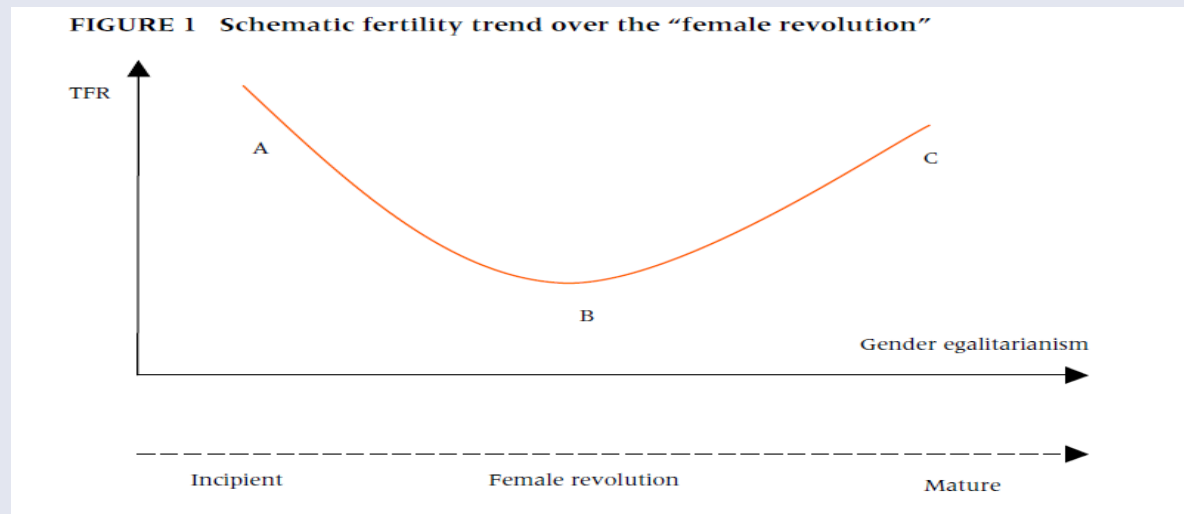
- Myrskylä and colleagues (2009) have shown that negative correlation between fertility and development has changed for the most advanced economies into positive



Myrskylä et al. (2009). Advances in development reverse fertility declines.

Background

- New theoretical considerations have been offered to explain that the development-fertility reversal (Anderson and Kohler 2015; Goldscheider et al. 2015).
- Burgeoning hypotheses have recurrently emphasized the rising levels of gender equality with development as the potential driver of the emerging positive association between fertility and development (Esping-Andersen and Billari 2015; McDonald 2000).
 - Institutions that can support increasing fertility in a society (McDonald 2000).
 - Male involvement in family life (Goldscheider et al. 2015).



Esping-Andersen and Billari (2015)

Empirical Support

- Luci-Greulich and Théveonen (2014) further linked this relationship between development and fertility to gender equality by identifying female employment as a co-varying factor for the fertility rebound.
- Myrskylä and colleagues (2011) also argued that the reversal of fertility trends is conditional on gender equality.

Motivation

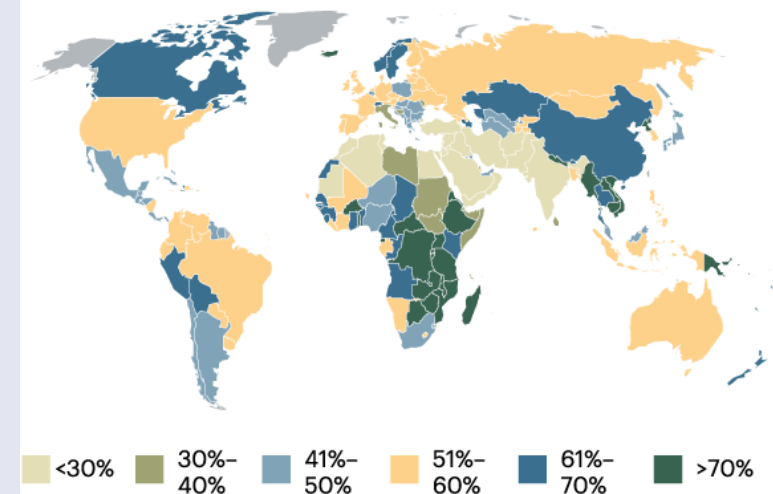
- The prevailing association between fertility and development may not necessarily hold for every country.
- Countries of the Middle East and North Africa (MENA), for instance, showed considerable improvements in standard of living, education, and health.
- At the same time, they do not clearly follow the demographic patterns suggested by the demographic transition theory (Engelhardt et al. 2018)
 - with their lowest levels of gender equality in the last decades (World Economic Forum 2017).

Motivation

- MENA countries fall considerably short on indicators of gender equality such as women's labor force participation and political empowerment (Nabli and Chamlou 2004).
 - with an average remaining gender gap of 40%
 - at the current progress, it will take another 157 years to close the gender gap.
- If the relationship between fertility and development mainly operates through gender equality, it is plausible that fertility-development link of MENA countries shows different patterns than the typical association found in previous studies.

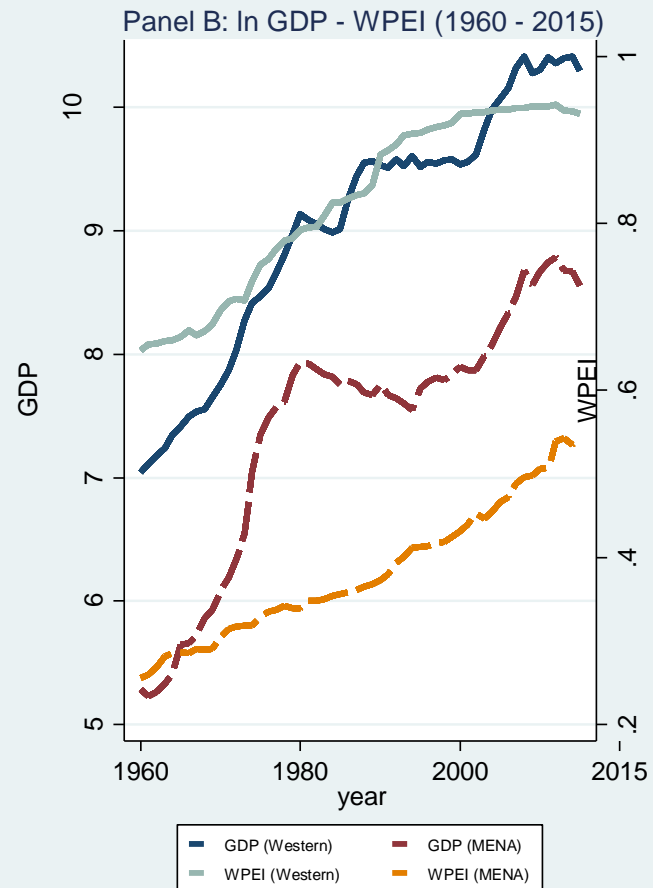
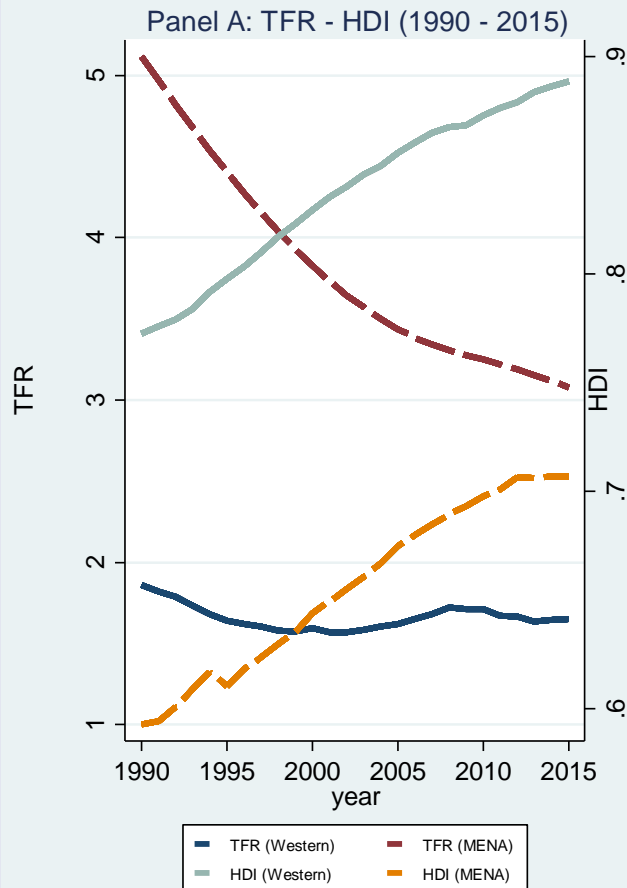
Female labor participation ratio

2013, %



Sources: World Bank statistics; A.T. Kearney analysis

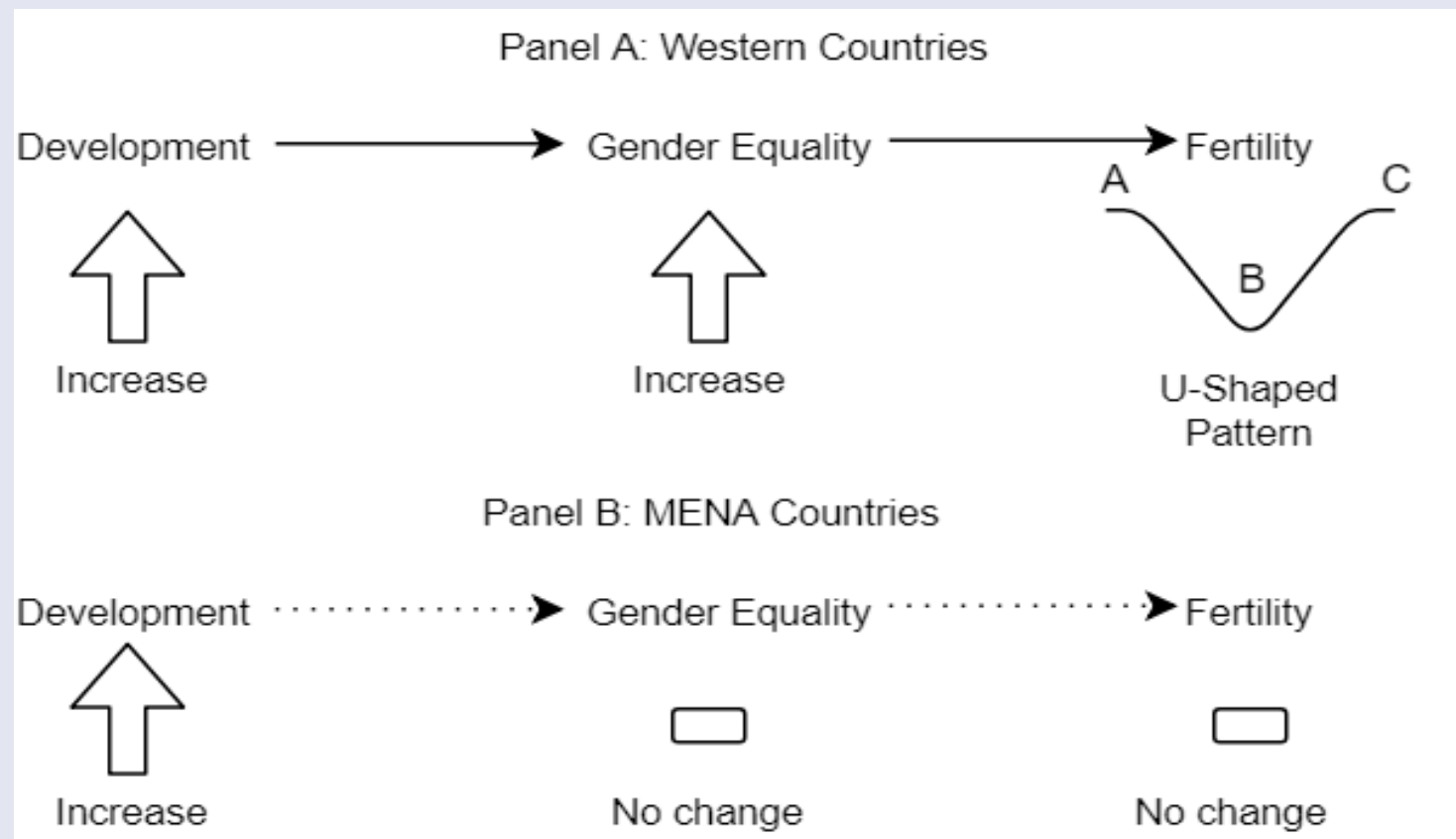
Motivation (2)



Aim of the Study and Hypotheses

- We examine how the interrelations among fertility, development and gender equality of MENA countries evolved over time and compares these associations with the interdependencies among Western countries
- Transitions from the male breadwinner/female housewife regime to a model where work-family conflicts emerged with the increasing involvement of women in economy has not yet started entirely in MENA countries.
 - This will be the case in the future with decreasing work-family conflicts.
- The relationship between fertility and development in MENA countries does not follow the negative relationship proposed in earlier studies (e.g., Davis 1945; Notestein 1945)
 - as developments in MENA countries do not surge gender equality considerably that leads to a work-family conflict and decreasing fertility at the first phase (McDonald 2000).

Hypotheses



Analyses

- Compare Western and MENA countries and examine the record of trends in fertility together with the measures of social and economic development, and indicators of gender equality between 1960 and 2015.
 - a longer time horizon allows us to include traditional male breadwinner as a benchmark for Western countries to assess long-term trends.
 - increasing involvement of women in economy – that accelerated in 1960s among most Western countries (Esping-Andersen and Billari 2015)
- By not only considering measures of development and its components as it is done in most other studies but also gender equality measures, we test the relevancy of development and gender equality on fertility separately
- This allows us to assess whether the U-shaped pattern suggested for the relationship between fertility and development is, indeed, driven by gender equality.

Data

- We include 23 MENA and 33 Western countries.
- Most commonly used MENA countries: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, State of Palestine, Qatar, Saudi Arabia, Somalia, Syria, Tunisia, United Arab Emirates (UAE), and Yemen
 - + Djibouti, Sudan, and Turkey.
- Western countries: Argentina, Australia, Austria, Belgium, Canada, Chile, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and United States of America (USA).
- Countries with diverse economies are selected as MENA countries comprise very heterogenous countries

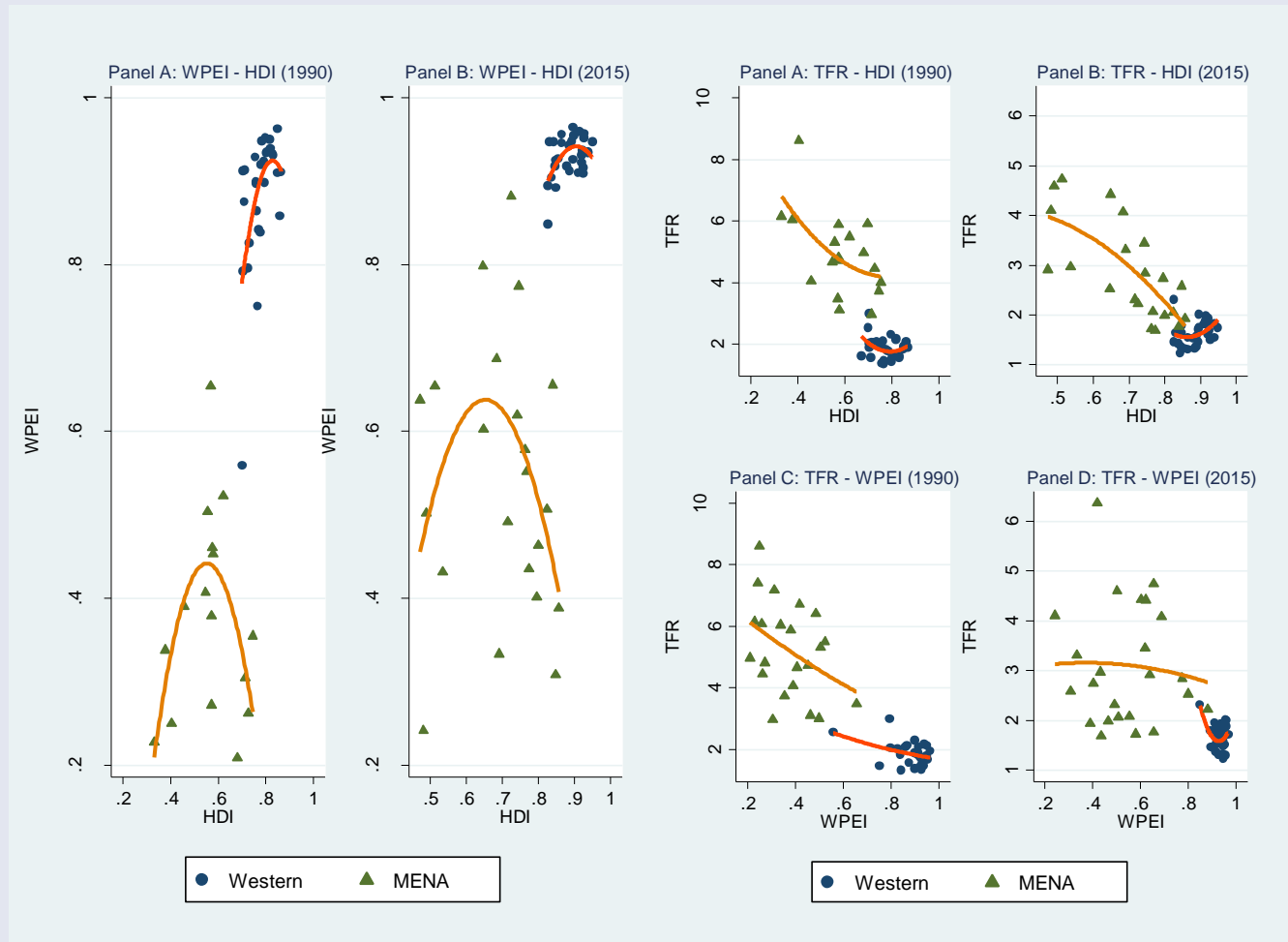
Data

- Fertility, human development, and socioeconomic development data from the International Human Development Indicators database (UNDP 2017).
 - TFR, HDI, and GDP
- Revised version of HDI in which the calculation method was changed into the geometric mean.
- The HDI revision provided consistent measurements that are comparable over time, and this time consistent index included:
 - GDP
 - Life expectancy at birth
 - Education

Data

- Gender equality data is based on the Varieties of Democracy dataset (Coppedge et al. 2015).
- Women Political Empowerment Index (WPEI) which is a measure based on women's fundamental civil liberties, civil society participation and open discussion of political issues (Coppedge et al. 2015).
 - Leading to increasing choice, agency, and participation in societal decision-making.
- The variable is also available for a long period of time for the countries included in the sample. As explained by Sundström and colleagues (2017), WPEI is superior in temporal scope and coverage of less advanced societies (from 1800s onwards), and it provides more precise estimates than other gender equality measurements such as the Global Inequality Index (GII) or Gender-related Development Index (GDI).

Cross-country differences



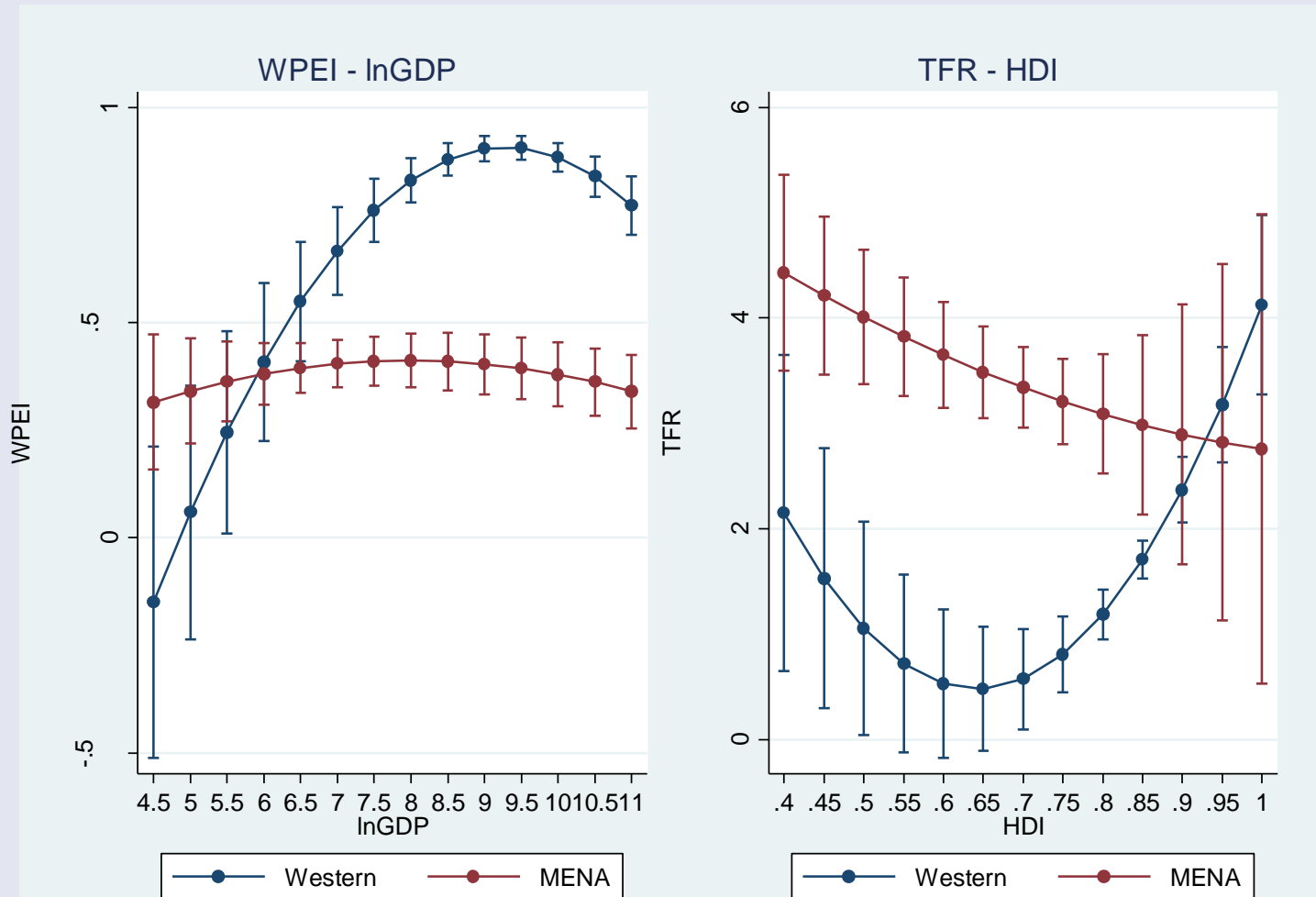
Note: Estimated curves are based on fractional polynomials.

Panel FE- and RE-models

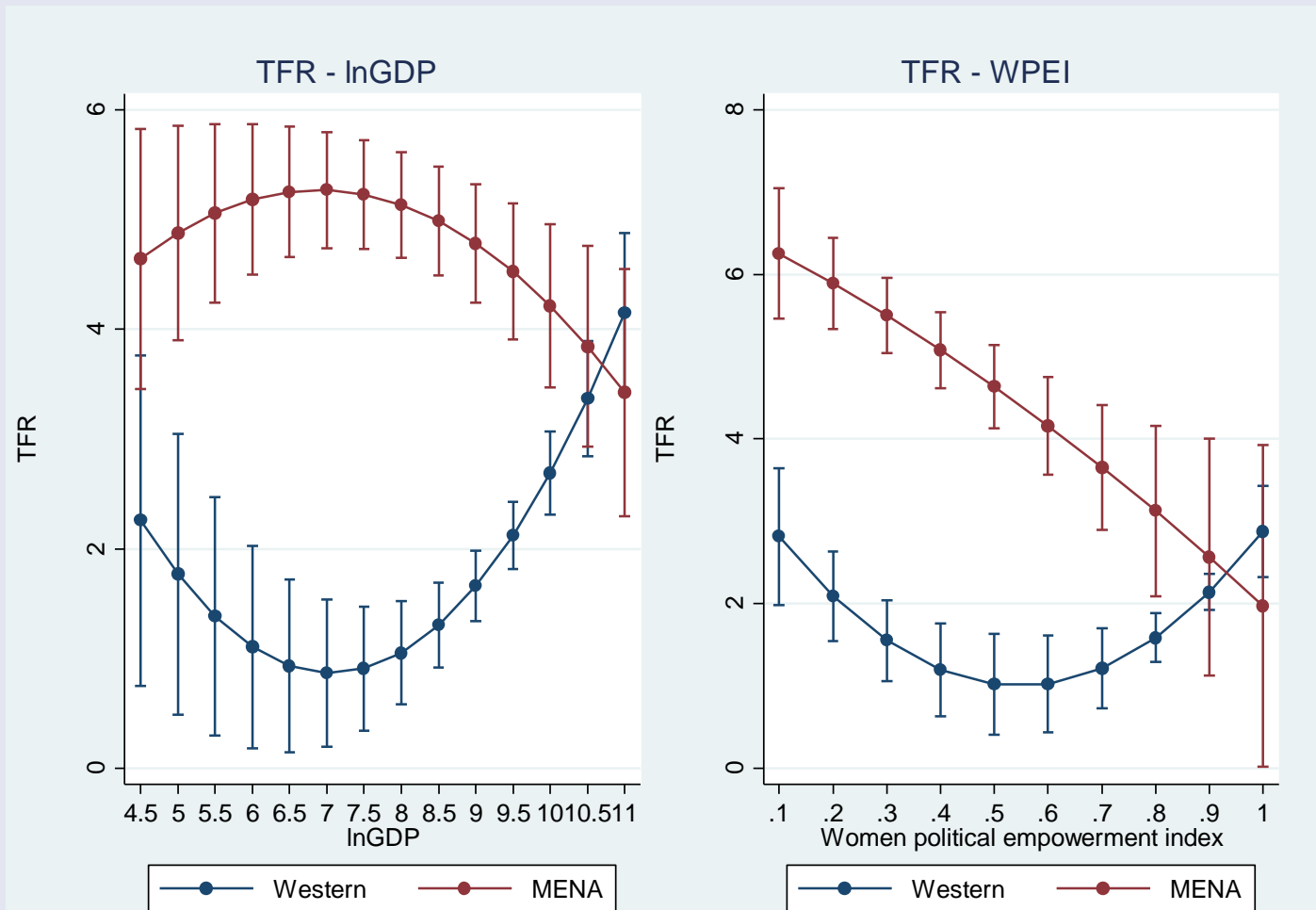
- With year fixed-effects and random effects at the country-level.
 - With robust standard errors.
 - Hausman also suggests to use random effects rather than country fixed effects.

$$Y_{tc} = \beta_1 X_{tc} + \beta_2 X_{tc}^2 + \gamma_c + \lambda_t + \varepsilon_{tc}$$

Main Findings (1)



Main Findings (2)



Conclusion

- The positive development-gender equality link found among Western countries does not hold in MENA countries.
 - Rising levels of development was not significantly associated with gender equality in the region.
- Increasing levels of development did not decrease fertility among MENA countries significantly.
- We found the typical U-shaped pattern for Western countries.

Conclusion

- Increasing gender equality significantly reduced fertility rates among MENA countries.
 - Emphasizing the importance of gender equality on the fertility-development link.
- We found evidence for a U-shaped pattern between fertility and gender equality among Western countries.
- Cross-country differences are similar to the within-country differences among Western countries.
- Cross-country and within-country differences showed very different patterns among MENA countries.