

SEMINAR 4 FERTILITY THEORIES

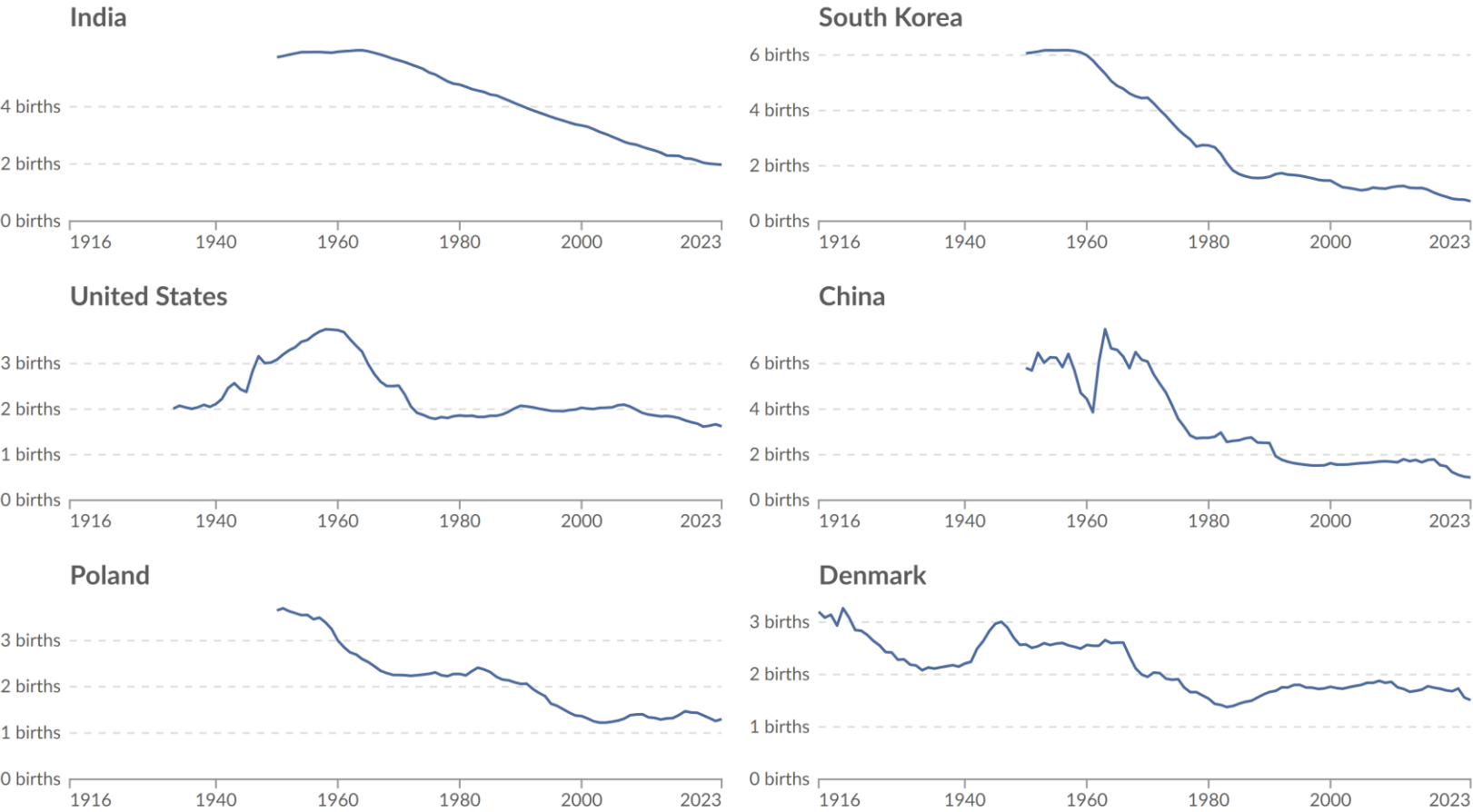
Chen Luo (l.chen7@uw.edu.pl)

Interdisciplinary Centre for Labour Market and Family Dynamics (LABFAM)
Faculty of Economic Sciences
University of Warsaw



Total fertility rate: births per woman

The total fertility rate¹ summarizes the total number of births a woman would have, if she experienced the birth rates seen in women of each age group in one particular year across her childbearing years.



Data source: UN WPP (2024); HFD (2024)

OurWorldinData.org/fertility-rate | CC BY

1. Fertility rate: The total fertility rate is a period metric; it summarizes data from one particular year. For a given year, the total fertility rate represents the total number of children born to a hypothetical woman on average, if she (1) lived to the end of her childbearing years, and (2) experienced the same age-specific fertility rates throughout her whole reproductive life as the age-specific fertility rates seen in that particular year. It is different from the average number of children born to women that eventually have across their childbearing years, which is the cohort fertility rate.

Read more in our article: Why the total fertility rate doesn't necessarily tell us the number of births women eventually have and on our page on the Fertility Rate.

BACKGROUND

Figure 1. Total fertility rate in the selected countries 1916-2023

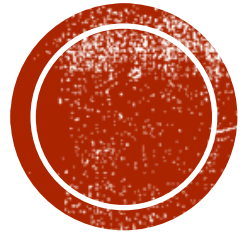
Source: Our World in Data.



BACKGROUND

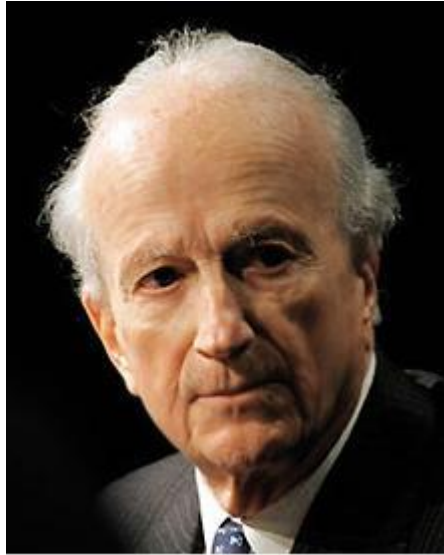
- Fertility 1 | Present mode (sli.do)





ECONOMIC THEORIES OF FERTILITY

We are getting richer, but with fewer children. Why?



GARY BECKER

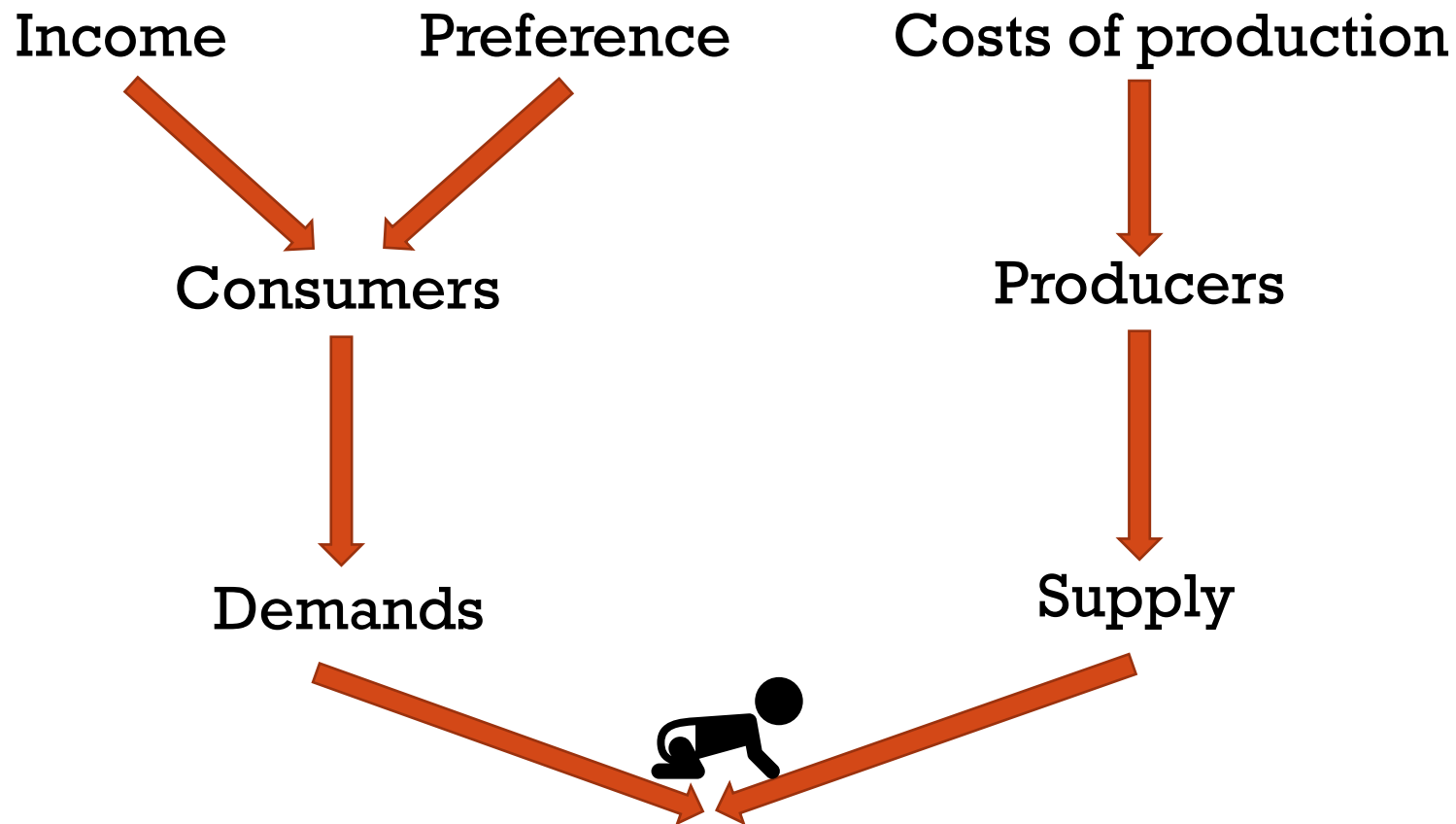
(1930-2014)

Gary Becker was awarded the Nobel Prize in Economics in 1992 for “having extended the domain of microeconomic to include **a wide range of human behaviour and interaction, including non-market behavior**”



NEOCLASSICAL ECONOMIC MODEL

Figure 2. A Brief Overview of Microeconomic Theory



DEMAND FOR CHILDREN

- Each family has at least some control over both the **number** and **spacing** of its births
 - With the prevalence of modern contraceptives, environmental factors became increasingly important in explaining variation between households in family size



DEMAND FOR CHILDREN

- **Preference**

- Quantity of children
- Quality of children
 - ✓ Living conditions, education, etc
 - ✓ Higher quality does **NOT** mean morally better



DEMAND FOR CHILDREN

- **Income**

- An increase in income → an increase in expenditures on children
- Expenditures on quantity or quality?
- Becker (1960)
 - ✓ A small increase in expenditure on quantity
 - ✓ A substantial increase in expenditure on quality
 - ✓ Child mortality was already very high → changes in income had little effect on the number of survivors
- But why do high-income families seem to have fewer children?



TABLE 1
Children Ever Born per 100 Couples in Indianapolis Classified by
Husband's Income and Planning Status
(native-white Protestants)

<i>Income</i> (1)	<i>All Couples</i> (2)	<i>Relatively Fecund</i> (3)	<i>Number and Spacing Planners</i> (4)	<i>All Planners</i> (5)	<i>Desires of Relatively Fecund</i> (6)
\$3,000 +	159	180	149	175	171
2,000-2,999	149	176	182	161	170
1,600-1,999	163	194	91	126	153
1,200-1,599	189	229	97	144	175
1,200 and less	227	266	68	146	193

Source: *Social and Psychological Factors Affecting Fertility*, P. K. Whelpton and C. V. Kiser, eds., N.Y., Milbank Memorial Fund, 1951, Vol. 2, part 9. Columns (2) and (3) from Table 4; columns (4) and (5) computed from Figure 8; column (6) computed from Figures 8 and 21.

Notes: The median annual wage or salary for men was around 1000\$ in the US during the period that the data of this table was collected

DEMAND FOR CHILDREN

Table 1

Source: Becker, G.S. (1960)
 "An Economic Analysis of
 Fertility," In: Becker, G.S.
 (ed.) *Demographic and
 Economic Change in
 Developed Countries*.
 Princeton University Press.



DEMAND FOR CHILDREN

- Becker (1960)
 - Argued that income has a small but positive effect on the number of children.
 - Suggested that the positive correlation between income and knowledge of contraceptives may contribute to a negative relationship between income and fertility.
 - Proposed that higher-income families primarily allocate additional expenditures on children toward improving their quality rather than increasing their number.



DEMAND FOR CHILDREN

- Becker (1992) *Mortality*
 - The mortality of infants, youth, and adults is lower in developed countries than in developing countries
 - How does the decrease in mortality of infants and youth affect the demand for children? why?
 - Decrease in mortality of infants
 - Pregnancy is costly → lower infant mortality reduces the costs of having children → higher demand for children
 - Decrease in mortality of youth and adults
 - Higher expected return on education → more investment in education (quality) → lower demand for children



DEMAND FOR CHILDREN

- Becker (1992) *Uncertainty*
 - Uncertainty with respect to the support from children to elderly parents
 - Quantity and quality of children are a form of the portfolio of „assets” the return to which is the support from children to elderly parents
 - Two available strategies: a lot of poorly educated children, and a few well-educated children
 - The risk associated with the portfolio: some children can prematurely die
 - In developing countries mortality is higher – the first strategy is better



DEMAND FOR CHILDREN

- Becker (1992) *Uncertainty*
 - Uncertainty with respect to children's sex
 - It is observed that in developing countries boys are more desired as children than girls, whereas in developed countries there is a preference for a variety of sexes
 - The probability of giving birth to a boy is about 50 percent (105:100)
 - What if a girl is born? Possibly another pregnancy, with the hope that this time a boy will be born

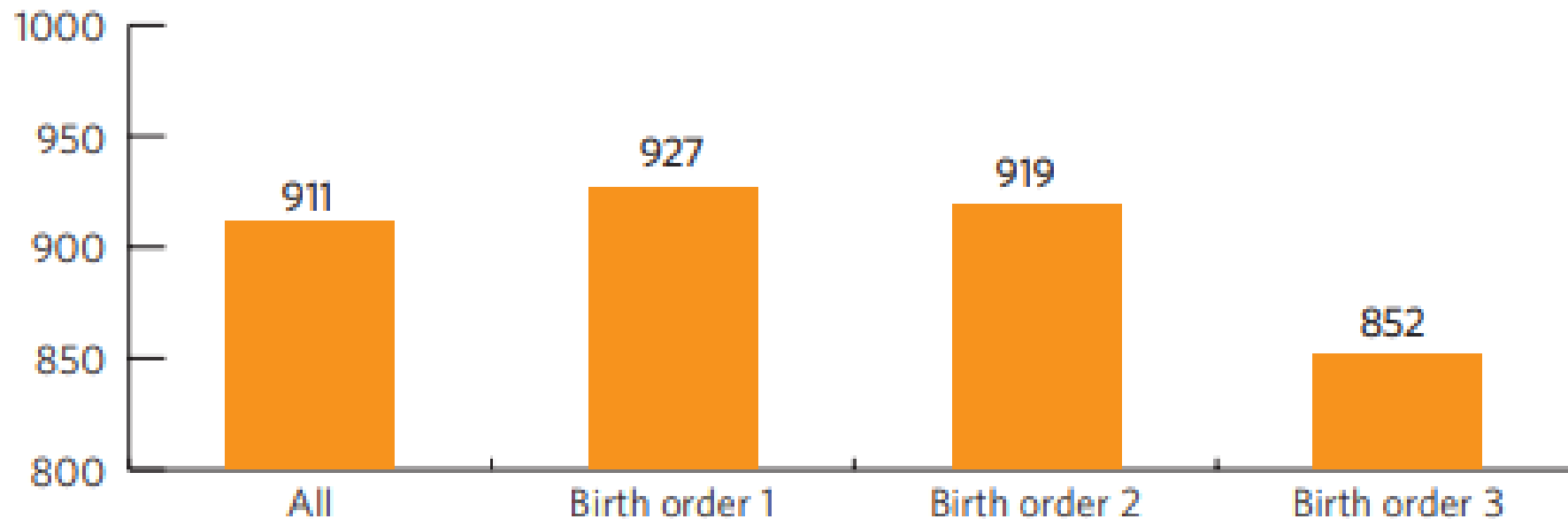


DEMAND FOR CHILDREN

Figure 3. Sex ratio by birth order, NFHS-4, India, 2010-14

(Female births per 1000 male births)

Source: Table 6



Source: United Nations Population Fund 2020. 'Sex Ratio at Birth in India: Recent Trends and Patterns' 2020. UNFPA, New Delhi, India



SUPPLY FOR CHILDREN

- **Supply**
 - Children cannot be purchased on the market but must be produced at home.
 - Uncertainties of the ‘production of children’: sex, intelligence, height, etc.
 - There is a difference between desired and realized number of children.
 - That difference has repercussions for the expenditures on the quality of children, as the number of children and their quality are substitutes



SUPPLY FOR CHILDREN

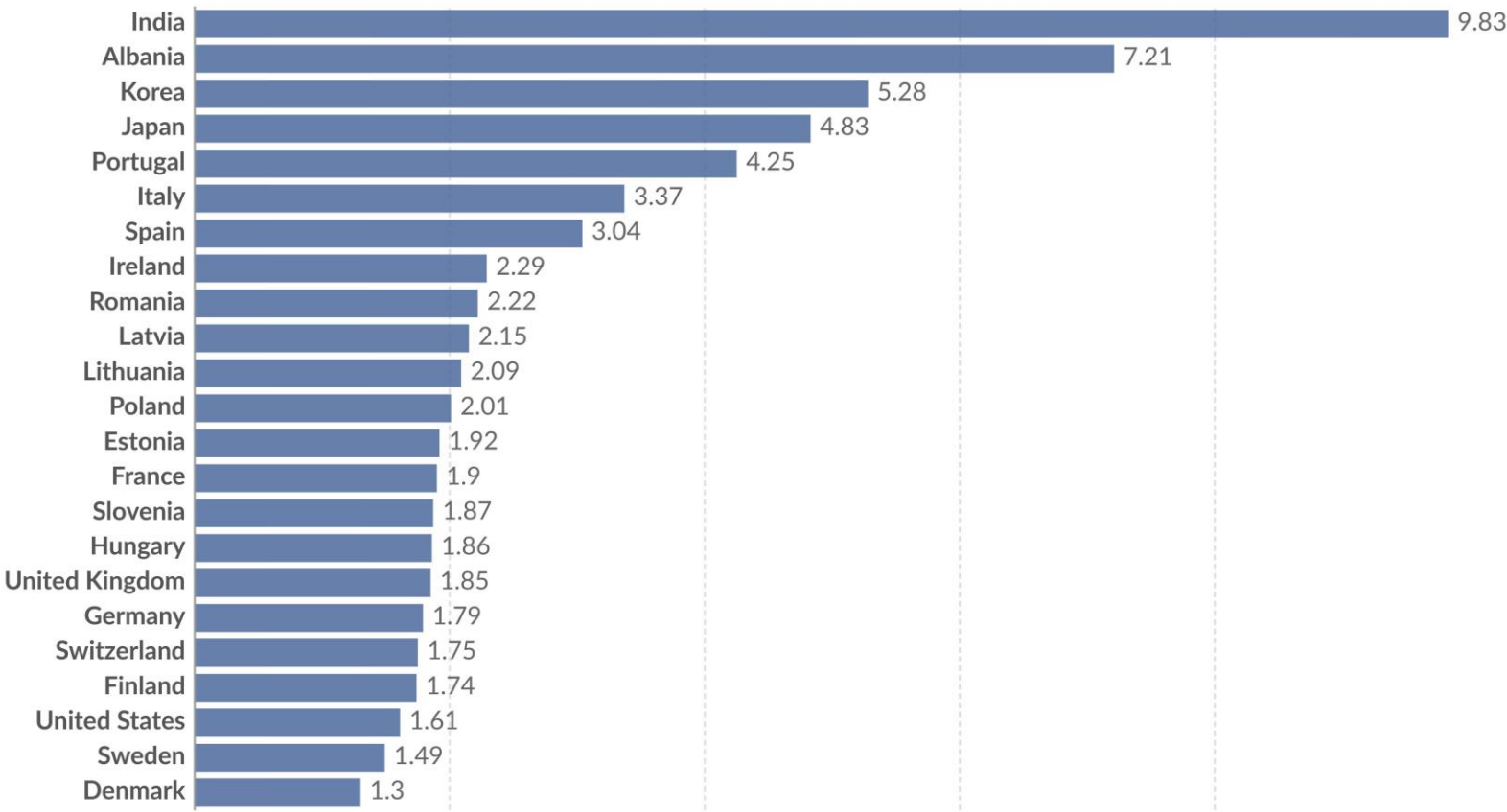
- **Becker (1965); Mincer (1963)**

- The production of children requires not only financial resources but also *Time*
 - Time is limited, creating a constraint on childbearing.
 - The model is based on **traditional gender roles**: the male-breadwinner, female-homemaker model
 - Women contribute the majority of the time required to "produce" children.
 - Women's wages thereby represent the opportunity cost of childbearing.
 - Empirically, this implies that an increase in female labor force participation and/or an increase in women's wages should have a negative effect on fertility.



Female-to-male ratio of time devoted to unpaid care work, 2014

Female to male ratio of time devoted to unpaid care work. Unpaid care work refers to all unpaid services provided within a household for its members, including care of persons, housework and voluntary community work.



Data source: OECD Gender, Institutions and Development Database (2014)
OurWorldInData.org/women-in-the-labor-force-determinants | CC BY

WOMEN AS HOMEMAKERS

Figure 4. Female-to-male ratio of time devoted to unpaid care work, 2014

Source: Our World in Data



SUPPLY FOR CHILDREN

- Opportunity cost:
 - The loss of potential gain from other alternatives when one alternative is chosen
 - Assuming the best choice is made, it is the "cost" incurred by **NOT** enjoying the *benefit* that would have been had if the second best available choice had been taken instead.



Change in children per woman and female labor force participation, 1960 to 2021

The labor force participation rate corresponds to the proportion of the population ages 15 and older that is economically active. Fertility corresponds to the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with the age-specific fertility rates of the specific year.



Data source: International Labour Organization (via World Bank); UN, World Population Prospects (2022)
OurWorldInData.org/female-labor-force-participation-key-facts | CC BY



OPPORTUNITY COST OF CHILDBEARING

Figure 5. Change in children per women and female labor force participation, 1960-2021

Source: Our World in Data



WOMEN' JOBS AND CHILDBEARING

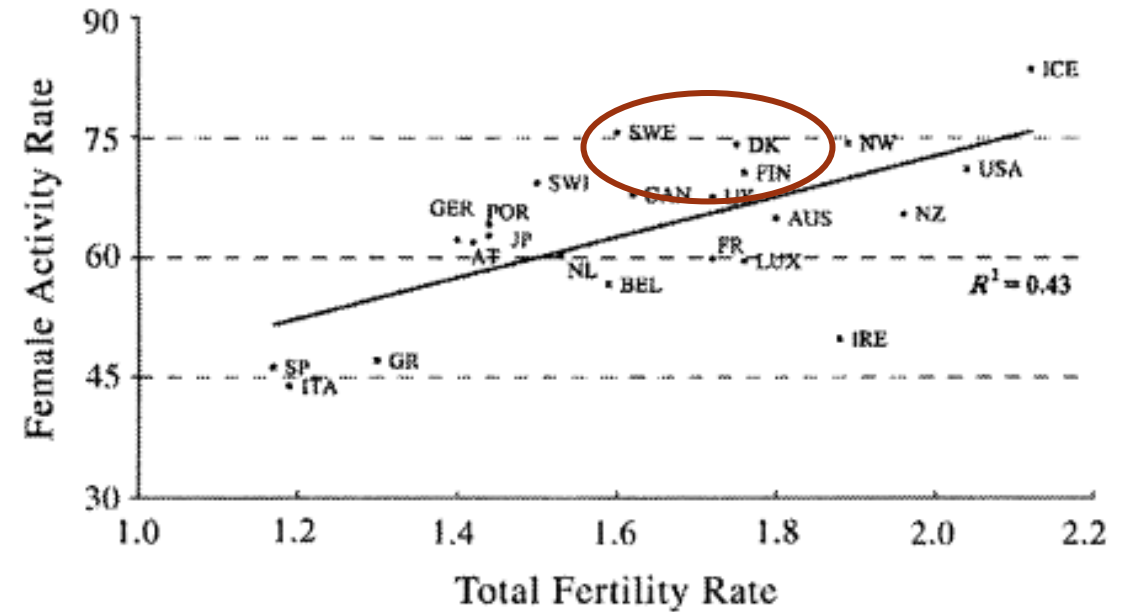
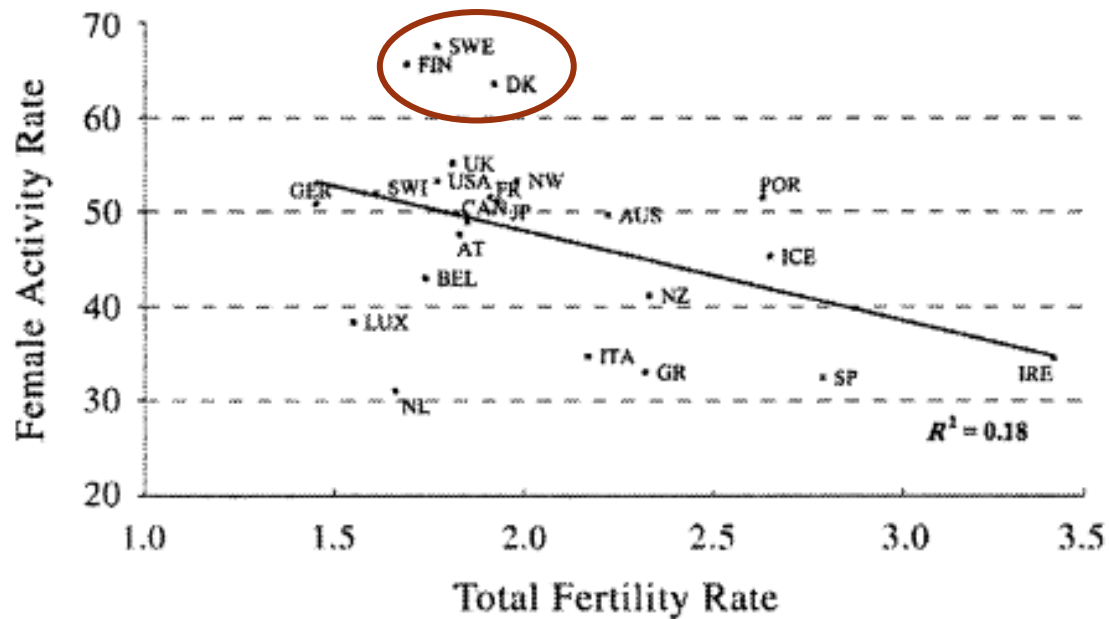
■ Oppenheimer (1994)

- An increase in female labor force participation indicates a transformation of women's roles outside the households, but do males' roles also change over time?
- The **deterioration** in young men's labor market position is substantial. As a result, women's employment and income have become much more important for marriage and childbearing.
- Women's professional work may stabilize marriages and allow families to support more children



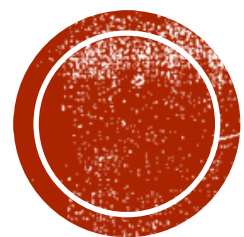
WOMEN' JOBS AND CHILDBEARING

Figure 6. Female activity rate and total fertility rate in OECD countries, 1975 and 1996



Source: Adsera, A. (2005). Vanishing children: From high unemployment to low fertility in developed countries. *American Economic Review*, 95(2), 189-193.





GENDER AND FERTILITY



GENDER AND FERTILITY

- Sex vs gender
 - Sex is ascribed by **biology**: anatomy, hormones, and physiology
 - Gender is “*an emergent feature of **social situations**: both as an outcome of and a rationale for various social arrangements and as a means of legitimating one of the most fundamental divisions of society*” (West & Zimmerman, 1987)
 - The gender system is “the **socially constructed expectations for male and female behavior** that are found (in variable form) in every known human society”. “A gender system’s expectations prescribe a **division of labor** and responsibilities between women and men and grant different rights and obligations to them” (Mason 1997:158; McDonald 2000)



GENDER AND FERTILITY

MCDONALD (2000)

- Sustained very low levels of fertility in advanced countries can be explained by **incoherence between the levels of gender equity applying in different social institutions.**
 - Institutions are “*the **humanly devised constraints** that structure political, economic, and social interaction*” (North, 1991)
 - According to McDonald (2000), social institutions are categorized as:
 - **Individual-oriented institutions** are institutions that deal with women as individuals such as the education system and labor market institutions
 - **Family-oriented institutions** deal with women as mothers or members of families. These are policies and infrastructures related to family services, taxation systems etc



GENDER AND FERTILITY

MCDONALD (2000)

- Nowadays, we have achieved a high degree of gender equity in the individual-oriented institutions
- However, family-oriented institutions haven't moved away from the assumption of the male breadwinner model of the family
- When women have to choose between children and employment, they may not be able to have as many children as they would like to



Country/Region	EU (28 countries)	France	Austria	Denmark
Average hourly earnings, in euro (2014)				
Female	13.75	15.87	13.65	25.35
Male	16.6	18.78	17.55	30.16
Gender wage gap	20.73%	18.34%	28.57%	18.97%
Employment by sex, age group 20-64 (2018)				
Female	67.4%	67.6%	71.7%	74.5%
Male	79.0%	75.2%	80.7%	81.5%
Part-time employment as percentage of the total employment, age group 15-64 (2018)				
Female	31.3%	28.8%	46.9%	34.8%
Male	8.7%	7.8%	10.0%	15.6%
Indicators of education and political power				
Tertiary education graduates (women per 100 men) (2012)	-	128.2	122.2	136.1
Proportion of seats held by women in national parliaments (2018)	31%	40%	34%	37%

Notes: statistics are retrieved from the Eurostat: <https://ec.europa.eu/Eurostat/data/database>. All data is the latest. Gender wage gap is calculated as: (male wage - female wage)/female wage.

GENDER AND FERTILITY

Table 2. Indicators on individual-oriented institutions for EU and selected countries

Source: own calculation



Country/Region	EU	France	Austria	Denmark
Total Fertility Rate (2017)	1.59	1.9	1.52	1.75
Crude Birth Rate (2018)	9.7	11.3	9.7	10.6
Children in formal childcare or education (at least 30 hours per week), percentage (2017)				
Less than 3 years old	17.2%	30.7%	4.3%	66.0%
From 3 years old to minimum compulsory school age	49.9%	56.3%	23.7%	76.9%
Children in formal childcare or education (1 to 29 hours per week), percentage (2017)				
Less than 3 years old	17.2%	19.8%	38.8%	5.7%
From 3 years old to minimum compulsory school age	35.0%	13.9%	64.3%	17.5%
Expenditure on family and child benefits (2016)				
Euro per Inhabitant	690.57	817.3	1132.92	1676.12
Percentage of GDP	2.4%	2.4%	2.8%	3.4%
Maternity leave, paternity leave and payments during the leave (2019)				
Maternity leave, (prenatal+postnatal)	-	3+13	8+8	4+14
Payment during maternity leave	-	100%	100%	* see note
Paternity leave	-	2	-	2
Payment during paternity leave	-	100%	-	100%
Proportion of time spent on unpaid domestic and care work per day				
Female	-	16.0%	19.0%	16.0%
Male	-	9.0%	10.0%	11.0%
Gender ratio, male/female	-	0.56	0.53	0.69

GENDER AND FERTILITY

Table 3. Fertility and indicators on family-oriented institutions for EU and selected countries

Source: own calculation

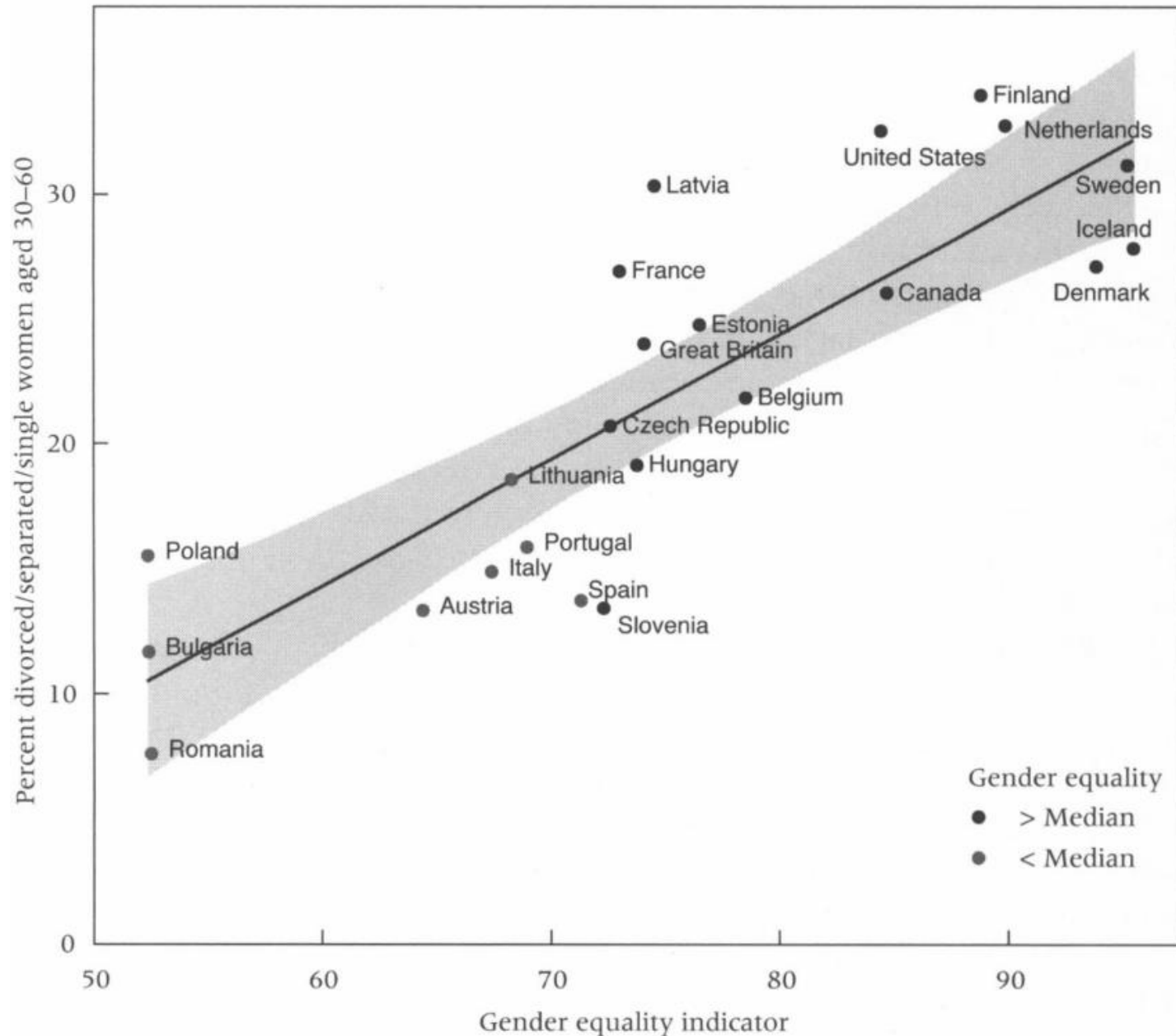


GENDER AND FERTILITY

GENDER REVOLUTION THEORY

- Goldscheider, Bernhardt, Lappegård (2015) theorized fertility decline and future recovery based on gender revolution. They argued that there are two stages of gender revolution:
 - The first stage featured a dramatic rise in labor force participation among women
 - They had taken on substantial economic support responsibilities, with **little relief** from their family responsibilities (a “second shift” after work)
 - As a result, women compromise by delaying the major family roles of marriage and parenthood and reducing their completed fertility
 - The second stage refers to the increased involvement of men in the private sphere of home and family
 - Consequently, a new balance may finally emerge, based on a more equal relationship between men and women, together with increased commitment to each other and men’s increased commitment to their children



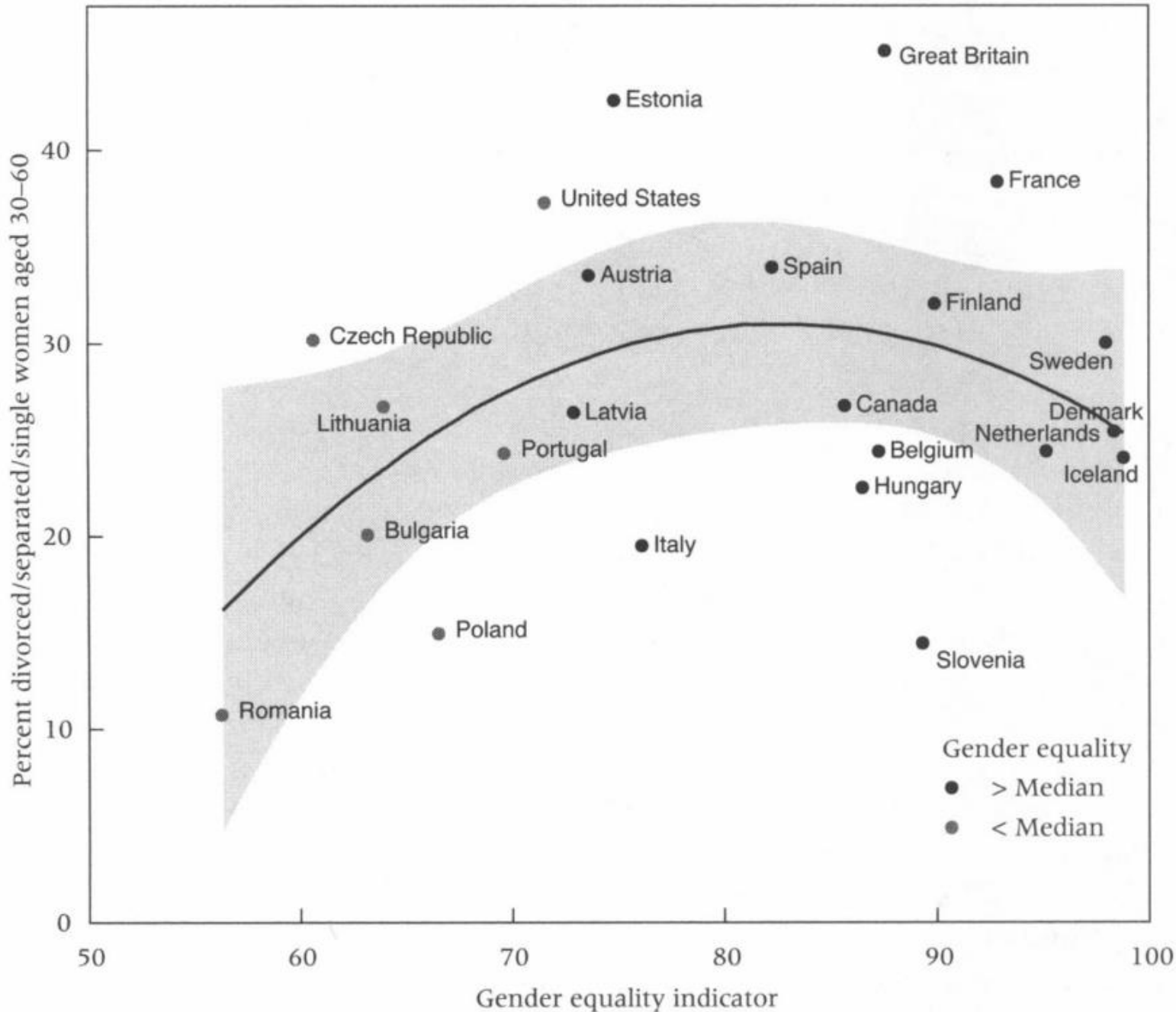


GENDER AND FERTILITY

Figure 7. Relation between gender egalitarianism and partnership stability, late 1980s

Source: Esping-Andersen, G., & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, 41(1), 1-31





GENDER AND FERTILITY

Figure 8. Relation between gender egalitarianism and partnership stability, late 2000s

Source: Esping-Andersen, G., & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, 41(1), 1-31



French Respondents		Austrian Respondents	
Mean	Std. Dev.	Mean	Std. Dev.
<i>If woman earns more than partner, not good for relationship</i>			
4.02	1.24	3.57	0.93
<i>On the whole, men make better political leaders than women</i>			
3.90	1.24	3.59	1.00
<i>When jobs scarce, men more right to job than women</i>			
3.75	1.50	3.65	1.00

Notes: The answers are on a scale of 1 to 5, implying “strongly agree”, “agree”, “neither agree nor disagree”, “disagree”, and “strongly disagree” respectively. Since the three statements discriminate against women to some extent, the higher the value of the answer, the stronger the tendency towards gender equality.

GENDER AND FERTILITY

Table 5. Value-oriented Questions on Gender Equality, Gender Generation Survey



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