

Economic Perspective on Non-economic Phenomena

5) Fertility and family policies

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Plan for today

When people got richer, families got smaller; and as families got smaller, people got richer

(The Economist, Oct 29th, 2009)

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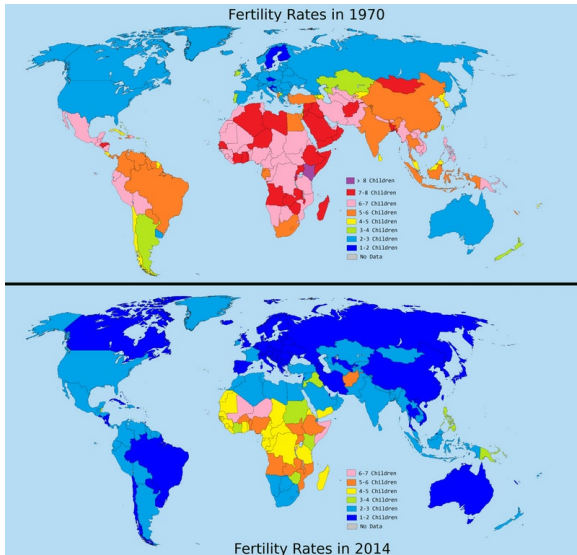
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- Fertility evidence and development
- Models of fertility
- Population control policies
- Family policies
- Review of family economics



Changes



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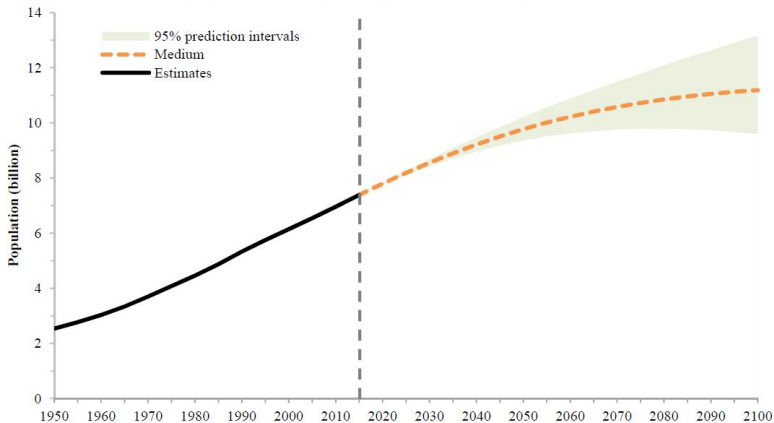
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- In rich countries it is about 2.1.
- In poor ones it can go over 3.0.
- Global fertility is projected to fall from just over 2.5 births per woman in 2010-2015 to around 2.4 in 2025-2030 and 2.0 in 2095-2100 (*2017 UN World Population Prospects, Revision*)

Reflected in the projected population size

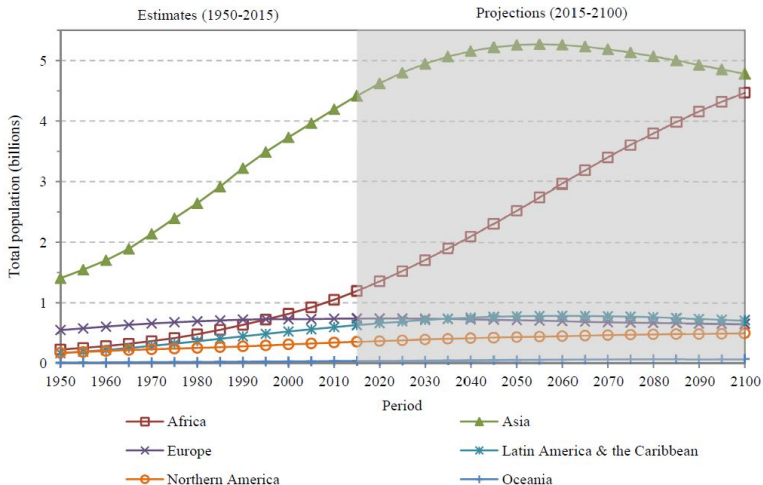
Figure 2. Population of the world: estimates, 1950-2015, and medium-variant projection with 95 per cent prediction intervals, 2015-2100



Source: United Nations, Department of Economic and Social Affairs, Population Division (2017).
World Population Prospects: The 2017 Revision. New York: United Nations.

...by continents

Figure 3. Population by region: estimates, 1950-2015, and medium-variant projection, 2015-2100



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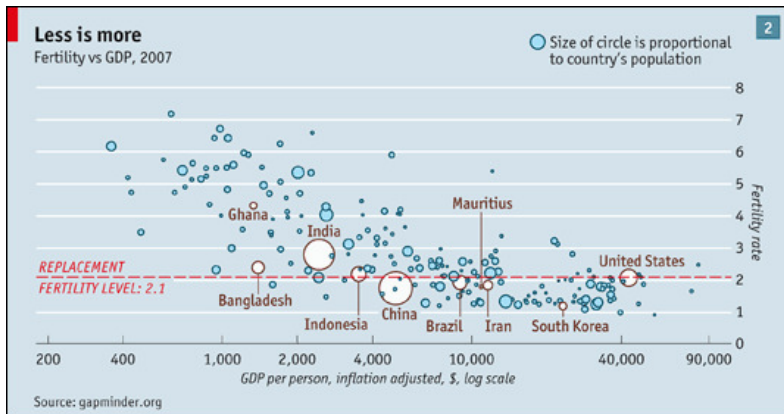
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 - South Korea: 1965 -> 1985 (20 years)

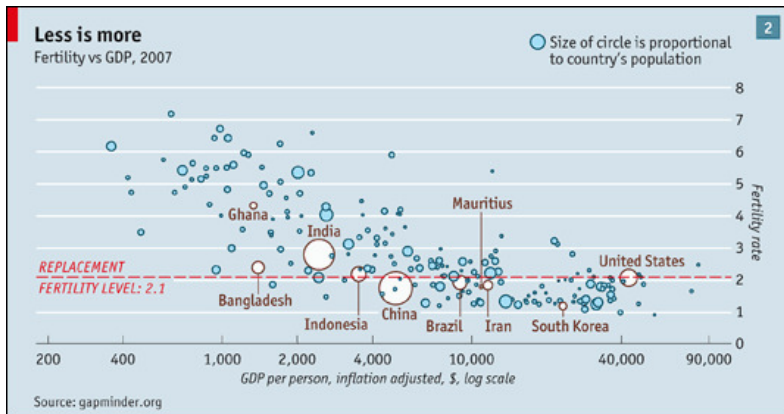
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 - Britain: 1800 -> 1930 (130 years)
 - South Korea: 1965 -> 1985 (20 years)
- Interesting story in Iran: After the clerical revolution in the fertility rose to 7 in 1984, then by 2006 it fell to 1.9.

Link between GDP and fertility



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- Fertility starts to drop at an annual income per person of \$1,000-2,000 and falls until it hits the replacement level at an income per head of \$4,000-10,000 a year.
- Video

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- Ghana: The wanted rate in 2003 were 3.7, and the actual one, 4.4.

Economic consequences of fertility change

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- More rapid economic growth
 - if a larger fraction of the population is of working age, output per capita increases.
 - working - age people tend to save more than non - working - age people -> increase in savings -> increase in investments
 - with small family size, both public and private (family) investment into education can rise
 - per capita public and private expenditures on child health care -> better learners and workers
 - greater labor force participation of women

Economic consequences of fertility change

Consequences arising after the demographic transition

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Consequences arising after the demographic transition

- labor force shortages
- pressure on the pension systems and health care systems
- reduced pressure on infrastructure, education

Approaches to fertility

1. Demographic transition theory

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2. Institutional and ideational perspectives

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3. **Economic models**

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- The decline of fertility, awaited the gradual obsolescence of age-old social and economic institutions.
- The new ideal of the small family arose typically in the urban industrial society.

Institutionalist and ideational perspectives

Institutions

- Institutional differences are important.
- Fertility transition followed linguistic and cultural boundaries Lesthaeghe (1980).
- Diffusion of "fertility control as an innovation" affects the change in fertility rates (Cleland and Wilson 1987).

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Ideational theories

- Differences in religious beliefs, individualism and secularism explain variations in fertility level

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- Demographic and economic behaviors depend on the household stocks of human and physical capital.
 - differences across individuals in their relative advantages of engaging in specific market
- Many models for the demand for children incorporate an explicit life-cycle perspective.
 - choices of individuals about human capital accumulation, marriage, saving, etc., are therefore considered as interrelated decisions

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- Market income is equal to lifetime wage rate, received by each member of the family, times their market labor supply.

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- "Demand for children" depends on
 1. Tastes
 2. Quality of children
 3. Income
 4. Cost

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- If more is voluntarily spent on one child than on another, it is because the parents obtain additional utility from the additional expenditure.

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Cost

- Net cost of children can be computed
 - It equals the present value of expected outlays plus the imputed value of the parents' services, minus the present value of the expected money return plus the imputed value of the child's services.

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 - Primary care givers (usually mothers) usually have less bargaining power than parents whose contributions simply take the form of financial support.

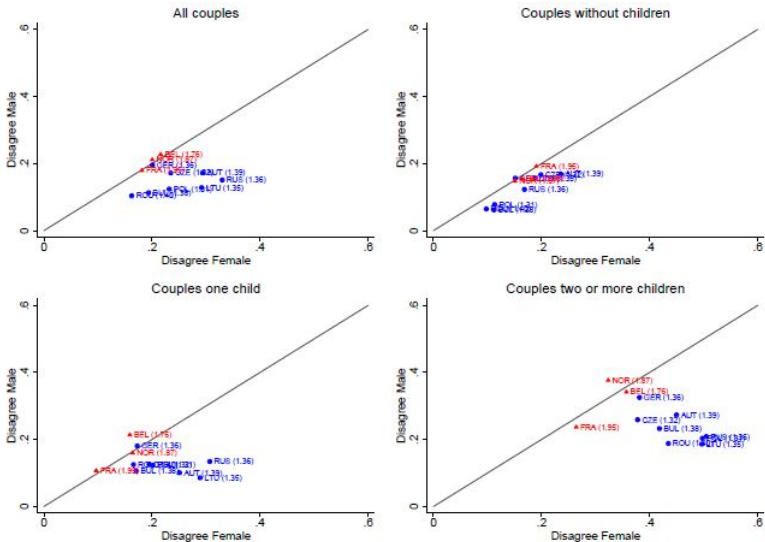
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- *What would be outcome of the bargaining power for mothers ?*
 - Primary care givers (usually mothers) usually have less bargaining power than parents whose contributions simply take the form of financial support.
- McDonald (2000) argues that an increase in gender equity—and thus more gender-equal bargaining power within families—is a precondition of a rise in fertility from very low levels in developed countries.

Doepke, Kindermann (2016)

- For a birth to take place, the parents should first agree on wanting a child.
- Babies are likely to arrive only if both parents desire one, and there are many couples who disagree on having babies.
- The distribution of the burden of child care between mothers and fathers turns out to be a key determinant of fertility.
- Policy that lowers the child care burden specifically on mothers can be more than twice as effective at increasing the fertility rate compared to a general child subsidy.

Disagreement over having a baby across countries

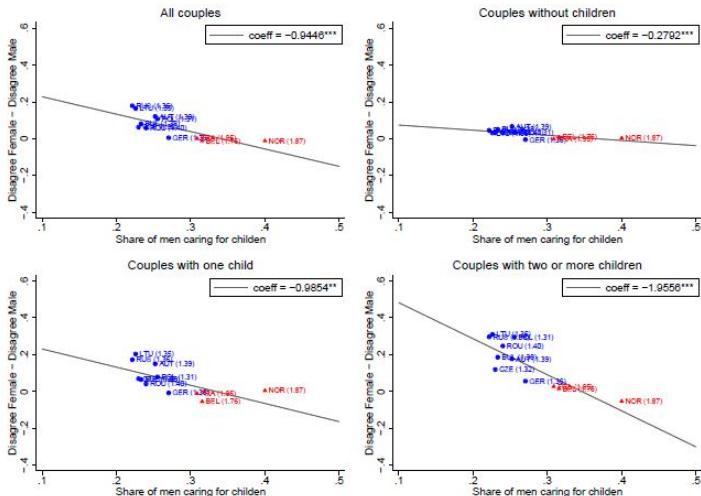


Impact of fertility intentions on probability of birth

	Whole Sample	By Number of Children		
		$n = 0$	$n = 1$	$n \geq 2$
SHE YES/HE NO	0.115*** (0.024)	0.026 (0.042)	0.160*** (0.052)	0.082** (0.032)
SHE NO/HE YES	0.061*** (0.017)	0.030 (0.037)	0.020 (0.032)	0.024 (0.022)
AGREE	0.350*** (0.015)	0.266*** (0.029)	0.325*** (0.026)	0.340*** (0.038)
Constant	0.055*** (0.004)	0.124*** (0.019)	0.109*** (0.011)	0.033*** (0.003)
Observations	6577	1227	1608	3742
R^2	0.167	0.081	0.128	0.115

Notes: Robust standard errors in parentheses. *: $p < 0.10$, **: $p < 0.05$, ***: $p < 0.01$. Each column is a linear regression of a binary variable indicating whether a child was born between Wave 1 and Wave 2 (i.e., within three years after Wave 1) on stated fertility intentions in Wave 1. Countries included (i.e., all countries where data from both waves are available) are Bulgaria, Czech Republic, France, and Germany.

Disagreement over fertility and men's share in caring for children



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 - This leads to a dynastic utility function (Becker and Barro, 1988)
- The utility of the parents depends on the utility of its immediate offspring, and recursively on all future generations.

Empirical applications of the models

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- Rosenzweig (1990) and Rosenzweig and Wolpin (1980) provide evidence for the quality-quantity trade-off in developing countries.

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- In 1996: 80 countries had policies to lower their fertility levels and 23 desired higher fertility levels
- Effort to decrease fertility rates in developing countries.
- Effort to increase fertility rates in developed countries.

Policies to decrease the fertility levels

- From 2017 to 2050, it is expected that half of the world's population growth will be concentrated in just nine countries: India, Nigeria, Democratic Republic of the Congo, Pakistan, Ethiopia, the United Republic of Tanzania, the United States of America, Uganda and Indonesia (ordered by their expected contribution to total growth)

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Larger, more rapidly growing populations have fewer natural resources per person, less physical capital per worker, more dependents, and greater needs for new social infrastructure. Of course they must be economically worse off.
-Lee (2009)

Tools to decrease the fertility rates

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Recent estimates, for example, suggest that additional annual expenditure of \$3.6 billions would allow expansion of family planning services to all women who currently have an unmet need.

Evidence

Table 3: Benefits resulting from modern contraceptive use among women who want to avoid a pregnancy, according to contraceptive use scenario, 2008

Source: Singh et al. (2010)

Measure (000s)	Current use of modern methods	Fulfillment of unmet need for modern methods	Total
Unintended pregnancies averted			
Unplanned births	187,800	53,460	241,260
Abortions	53,550	21,820	75,370
Miscarriages	112,310	24,800	137,100
	21,940	6,840	28,780
Deaths averted			
Newborn	1,170	640	1,810
Maternal	230	150	380
Children who would not become orphans			
	740	600	1,340

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Immigration: tool how to increase population

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Replacement migration in Europe: total immigrants for period 2000–2050 and average annual number of immigrants (in 1,000) for different replacement goals

Scenario	1	2	3	4
	Medium variant	Constant total population	Constant age group 15–64	Constant ratio of 15–64 to 65 years or older persons
<i>A. Total number, in 1,000, for period 2000–2050</i>				
France	325	1,473	5,459	89,584
Germany	10,200	17,187	24,330	181,508
Italy	310	12,569	18,596	113,381
Russian Federation	5,448	24,896	35,756	253,379
United Kingdom	1,000	2,634	6,247	59,722
United States	38,000	6,384	17,967	592,572
Europe	18,779	95,869	161,346	1,356,932
European Union	13,489	47,456	79,375	673,999

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- *Housing subsidies*, including periodic cash payments such as housing benefits, first-time home-buyer grants or mortgage reductions, tax rebates or deductions for housing costs, or subsidies to housing-related services.

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- *Anti-discrimination legislation* and gender equity in employment practices.

Broad social change supportive of children and parenting

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- *Gender equity*, including non-gender specific workplace policies, gender-neutral tax-transfer policies in social insurance, removal of institutional remnants of the male breadwinner model of the family, acceptance of fathers as parents by service providers...
- *Development of positive social attitudes* towards children and parenting without creating inequities to the childless.

Empirical impact of policies

	Total fertility rates	Timing of births	Specific birth order	Age of mothers	Other individual characteristics
Family cash benefits	Small positive effects in most countries		Contradictory results on whether effects of policies are larger for first or subsequent births	Small positive effects, or contradictory results, on the effects of welfare benefits on teenage births (but evidence limited to few countries)	Some evidence that effects of policies differ among ethnic groups
Tax policies	Positive effects in the US and Canada	Larger effects of policies on the timing of births than on completed fertility			
Family-friendly policies	Positive effect of part-time and flex-time work		Small or no effect on probability of having a first child		
Child care availability	Weak or contradictory effects of maternity leave Positive effect, weak in some countries				

Source: Sleebos (2003)

Suggested readings

- Becker, Gary S. "An economic analysis of fertility." Demographic and economic change in developed countries. Columbia University Press, 1960. 209-240.
- Kohler, Hans-Peter. "Copenhagen Consensus 2012: Challenge Paper on" Population Growth"." (2012).
- Doepke, Matthias, and Fabian Kindermann. Bargaining over babies: theory, evidence, and policy implications. No. w22072. National Bureau of Economic Research, 2016.

Gains from the marriage

1. The sharing of public (non rival) goods.
2. The division of labor to exploit comparative advantage and increasing returns to scale.
3. Extending credit and coordination of investment activities.
4. Risk pooling.
5. Coordinating child care, which is a public good for the parents.

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 - cooperative
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- Most models of family behavior allow two decision-makers-the husband and the wife, children are excluded from decision making

Marriage markets - types of the models

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3. Search models

Marriage and labor supply

- Intra- marriage allocation of market work hours (two models)

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- Policies affecting marriage specific labour supply- joint taxation



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Evropské strukturální a investiční fondy
Operační program Výzkum, vývoj a vzdělávání



Národohospodářská fakulta VŠE v Praze



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