Introduction

Two types of externalities

Cash for condoms and family planning

Carrots and sticks: India and China

Mind the (gender) gap

Conclusion: development, the best contraceptive?
Three perspectives on fertility and population growth:

- **The planet:** in Chapter 1 we saw population growth can be good or bad for mankind depending on the balance between positive ("the genius principle") and negative (population pressure) externalities.

- While in most of history positive externalities have been stronger (Kremer, 1991), ecosystems are now under heavy pressure. Hence, reducing fertility akin to contributing to an international public good.

- To put it differently, rich countries would love to see poorer countries reduce their fertility and are ready to fund population control policies ("cash for condoms"). Analogy with pollution and climate change negotiations.
At the country level: most governments in developing countries now see fertility as "too high". Three types of policies:

- Provide information and means of contraception to couples so they can have their desired number of children (family planning, cash for condoms)
- Provide information (e.g., promotion of smaller families) and financial incentives (e.g., fiscal sanctions) to reduce desired fertility: cooperation and coordination
- Change the opportunity cost of children through women’s education and labor force participation, and the balance of power within the couple through women’s empowerment
At the household level, two issues:

- High fertility may be optimal given information incompleteness (e.g., not internalizing the decline of death rates) and optimal ex ante in a context of missing markets (no insurance) but not ex post. In both cases, too many surviving children, but under the same circumstances people would make the same decisions.

- Intra-household bargaining: who has a say? Men and women may not have the same preferences over quantity and quality (altruism, prestige). Non-unitary household models predict lower fertility when the share of household resources held by women is higher.
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The fundamental justification of a population policy is that the level of fertility resulting from individual choices may be socially suboptimal (too high or too low): there is a "market failure" due to the presence of "externalities", i.e. the fact that people do not internalize the consequences of their fertility decisions on others.

There are two types of externalities that lead to two very different policies: my children impose costs and benefits on others (objective), as when there is a fiscal externality (pension systems, public education) or congestion in access to public resources (environment, infrastructures, land fertility); the utility I derive from having high or low fertility depend on what others are doing (subjective).
Two types of externalities

**Externality 1:** private and social costs (inter/intra–family externalities)

- Assume first the following problem: the marginal utility derived from having children is 350 for the first child and 250 for the second, the marginal cost of a child is 200 while having a child imposes a negative externality on others, the value of which we set at 100.
- How many children will people have? (Nash) equilibrium and (Pareto) optimum – PD
- Policy responses: sanctions on having a second child (China), raising the (opportunity) cost of children through women’s education and labor force participation
Two types of externalities

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Externality 1: Imposing costs on others
Two types of externalities

Externality 2: people have social preferences (suffer a loss if they deviate from a social norm).

- Same data but assume now that people suffer a loss of utility (say of 120) if they have a second child (high fertility) while all the others (the second player is "society") have only one child.
- How many children will people have? Which social norm will prevail: high or low-fertility? (Nash) equilibria, (Pareto) optimum and mixed strategies – CG
- Policy response: it takes a lot of time for norms to evolve (conformism such as ancestor worship through having many (male) children, polygyny, prevalence of the group – enlarged family or community – over the individual; habits and conservatism) – need to reach a certain threshold of "mutants", ie induce enough people to adopt the new norm by setting an example, campaigns, etc.
## Two types of externalities

### Externality 2: Social norms

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(Harvard Kennedy School)
Two types of externalities

A more general formulation of the coordination game: $b =$ benefit from low fertility (as everybody is better off), $c =$ individual cost of lowering fertility, with $b > c > 0$

### Externality 2: Social norms

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The international community has advocated contraceptives and family planning as a way to avoid population crises.

- UN International Conference on Population and Development, Cairo 1994: "make family planning universally available by 2015".
- Follow-up in 1999: "over 150 million couples still have an unmet need for contraception".
- Kofi Annan (1999): "What could be more important than the chance to help the world’s people control their numbers".
Cash for condoms and family planning

Donor Support for Condoms

Year

Total number of condoms donated


0 500,000,000,000 1,000,000,000,000 1,500,000,000,000 2,000,000,000,000 2,500,000,000,000 3,000,000,000,000

All donors
The "cash for condoms" strategy is based on two premises: (i) that many births are not wanted, and (ii) that would people have access to contraceptives they would reduce fertility.

- The "myth of unwanted births": Pritchett (1994) shows that 90 percent of total fertility is explained by desired fertility.
- To avoid "ex-post rationalization bias", Pritchett uses the share of women who have 4 surviving children and want no more children to instrument for desired fertility; fitted desired fertility values are very good predictors (even stronger magnitude) of total fertility than survey responses.
- Contraceptives are very cheap compared to the cost of children – difficult to imagine that entrepreneurs would not seize profit opportunities if there was an unmet solvable demand for condoms.
Cash for condoms and family planning

The MATLAB project, Bangladesh, 1977

- 70 villages "treated", ie served by a birth-control/family planning program, 70 villages in the control group
- Result: contraceptive use in the treatment villages jumped from 7 to 33 percent in 18 months
- In 1980, the fertility rate in the treatment group had declined to 2/3 that of the control group.
Cash for condoms and family planning

Interpretation of the results of the MATLAB project:

- Is it that people wanted to decrease their fertility by one third but could not do so due to the unavailability (or the cost) of contraceptives?
- Or is it that the program sent a strong signal that smaller families are not only tolerated but also encouraged by society at large, serving as coordination device?
- Which interpretation is correct? Are they complementary?
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India had a policy of sterilization with small financial incentives (carrots) in the 1970s; in practice targeted poor rural women. Many issues:

- Ethical: information, regrets, inalienability
- Medical: poor hygiene led to many health complications for sterilized women
- Efficiency: did not target enough people to make a real difference, turned out much less efficient than family planning in neighboring Bangladesh.
- Equity and social justice: why poor rural women.
China started its "one-child" family policy in 1979; initially intended to be a short-term policy before small families become a voluntary choice.

- **Context:** market reforms after the failure of the cultural revolution, population control seen as a pre-condition for improving living standards.

- **Regulations:** restrictions on family size (one child), age at marriage, spacing of births (in case a second child is permitted).

- **Institutional setting:** the State Family Planning Bureau sets the targets and directions, family-planning committees at the provincial and county level deal with implementation.
Enforcement: strict for urban residents and government employees (a minority of the population), with few exceptions, second child generally allowed after 5 years in rural areas (sometimes possible only if the first child was a girl); third child possible in remote, unpopulated areas.

Carrots and sticks: combination of rewards and penalties set discretionarily at the local level (hence a lot of variation across space).; include heavy fines, asset confiscation, dismissal from work for noncompliance.

Means: universal access to contraception and abortion. Resulted in 87% of women using contraception (against on average 30% in similar developing countries), mainly long-term (intrauterine devices, male and female sterilization); short-term means like pills or condoms account for less than 10%. No choice: 80% of women followed recommendations by the family-planning worker.
The population target of 1.2 million by 2000 has been reached; it is estimated the policy prevented 200-300 million births.

The total fertility rate decreased from 2.9 in 1979 to 1.7 in 2004 (1.3 in urban areas and 2.0 in rural areas).

Question: what is the counterfactual? The previous policy of "late, long, few" resulted in a decrease of fertility from 5.9 to 2.9 between 1970 and 1979, and fertility declines occurred everywhere in Asia.
Sex-ratio rose from 1.06 in 1979 to 1.11 in 1988 and 1.17 in 2001, with local ratios up to 1.3 in some rural areas. The differences are on first child in urban areas and second child in rural areas: sex-selection after ultrasound, but also non-registration of female births.

Long-term consequences of such imbalances: men are unhappy! (and women trafficking and prostitution on the rise)

Counterfactual: sex-selective abortion occurs in other countries in Asia which also have high sex-ratios.

Other long-term consequence: aging and rising dependency ratios; lead to recent relaxation of the policy in 2002, with more relaxations to come.
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Mind the (gender) gap

- Women are central to understand the demographic transition, not just because we are talking about fertility.
- Virtuous circle: women labor force participation brings incentives to have fewer children (opportunity cost) and invest in their own education; more educated women have more "say" and more incentives to have more educated children (preferences plus lower costs).
- Thus, whatever contributes to women’s empowerment is good news for growth.
Mind the (gender) gap

At a macro level, both historically and in today’s developing countries, there is a joint tendency for rising women’s participation and wages and declining fertility.

Is the relationship causal? After all, it may well be that thanks to declining fertility, women could seek for paid work and then enjoyed the general rise in wages.

Were these evolutions induced by changes "on the supply side" (women lowering their fertility for some reason, starting to work and invest in education, thus getting higher wages) or "on the demand side" (exogenous rise in the demand for women’s labor, which increased women’s wages and induced the decline in fertility)?
Empirical answer: Sweden, 2nd half of the 19th century. Drop in world prices for grains led to a collapse of Swedish grain exports and to a reallocation of agriculture toward dairy farms (exports of milk and butter soared).

Demand for female labor is much higher in dairy production than in grain production.

Schultz (1985) shows that in the regions of Sweden specialized in dairy farming, relative wages of women were much higher and fertility rates much lower. He attributes about a quarter of the decline in total fertility in Sweden between 1860 and 1910 to the rise in relative female wages.
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Conclusion: development, the best contraceptive?

- Yes, to the extent that development translates into incentives to have fewer, more educated children (which is usually the case).
- Shift from a "high-fertility poverty" equilibrium to a "low-fertility prosperity" one
- The answer for those worried about population growth is to raise the incentive to invest in people
Conclusion: development, the best contraceptive?

- If the return to human capital increased as a result of worldwide technological progress, why hasn’t "intensive growth" taken place everywhere (yet)?
- Poverty-traps: if you start from too low, you can stay stuck; also a matter of beliefs (coordination)
- The returns to human capital may be captured by predatory, rent-seeking governments, hence no private incentives to invest without protection rights.
Conclusion: development, the best contraceptive?