

Intergenerational transmission of education in Latin America: Private vs public determinants and consequences

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Winners and losers in Medicare-type public spending for elderly health care

- Within person: Medicare redistributes from early life to late life. Because Medicare is “in-kind”, credit markets can’t be used to smooth public transfer. So “later life self” is winner at expense of “early life self”.
- Within cohort: Medicare is mildly progressive, redistributing from high income to low income (not generally true in Latin American social security systems that exclude informal sector).
- Between cohorts:
 - Usual story: early Medicare cohorts receive PAYGO benefits without paying in, at expense of later cohorts who will pay.
 - But more complicated in extended-family overlapping generations (OLG) model.

Counterfactual alternative:

Invest in kids education vs elderly medicine

- Public debates pit elderly advocates vs. child advocates. But in family OLG model, concern is not generational conflict, but instead efficiency of spending.
- Why? Without Medicare, young and old negotiate different private steady state contract for elderly health care. Instead may choose:
 - Higher utility consumption elsewhere in lifetime instead of elderly medicine.
 - To buy old-age medical insurance anyway, if market not missing.
 - Investments in more productive non-medical or early life inputs to elderly health.
 - Alternative household investments with higher return: e.g., kids education.

Substitute education for Medicare: Efficiency effects

- Government in theory (depending on level of state failure) could:
 - Replicate outcomes of private contracts
 - Redistribute, and relieve credit constraints on optimal early life education investment.
 - Improve over misinformed/myopic private decisions.
- But: What do we know about *upstream* intergenerational implications of education investment?

Substitute education for Medicare: Intergenerational effects?

- New transfers to parents of schoolkids. How much crowded out?
- Kids get later life benefits if relaxing credit constraints expands education; their kids benefit also; some social externalities.
- Future public spending reduced if education decreases poverty, improves health.
- **Does kids education also affect total and public spending on health and welfare for elderly parents?**

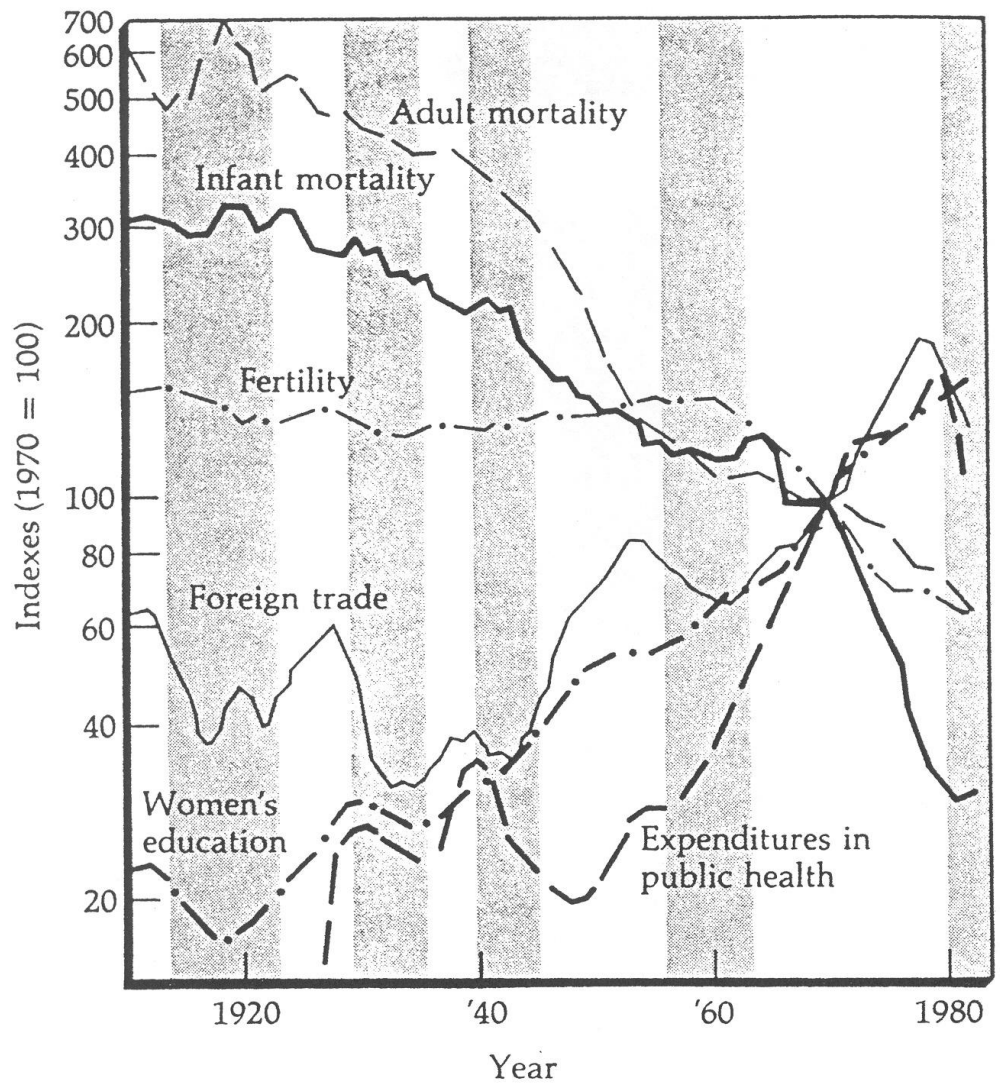
This paper

- How do changing investments in children affect later life public/private spending for their parents?
 - Much research on productivity of education investments for own current/later-life health, and for kids... much less for elderly parents.
 - We examine changes in both quantity of children (fertility decline with demographic transition) and quality of children (average education level).

Setting: Costa Rica

- Rapid fertility drop in the 1960s.
- Public education expenditures:
 - Female investments late 19th century.
 - Large increases 1950-1980.
- National health insurance (all ages, but elderly comprise much of spending).
- Prior research has found perplexing mixed education gradients in elderly health.

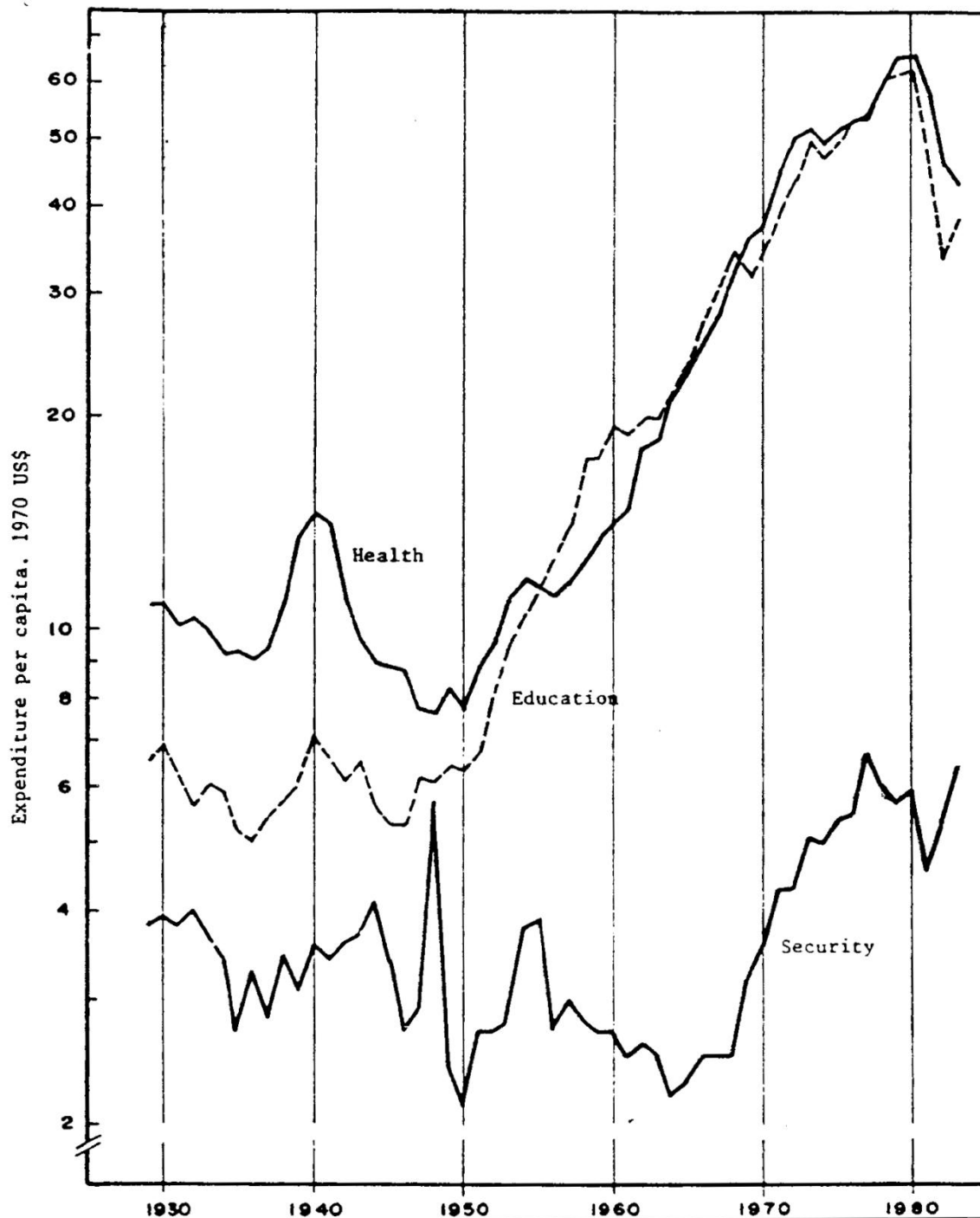
development, Costa Rica, 1910–1982



Note: In the indexes used above, 100 is equal to the rate given as follows: for adult mortality, 100 = 2.3 deaths per 1,000 persons aged 20–49 years; for infant mortality, 100 = 62 deaths per 1,000 births; for fertility (i.e.,

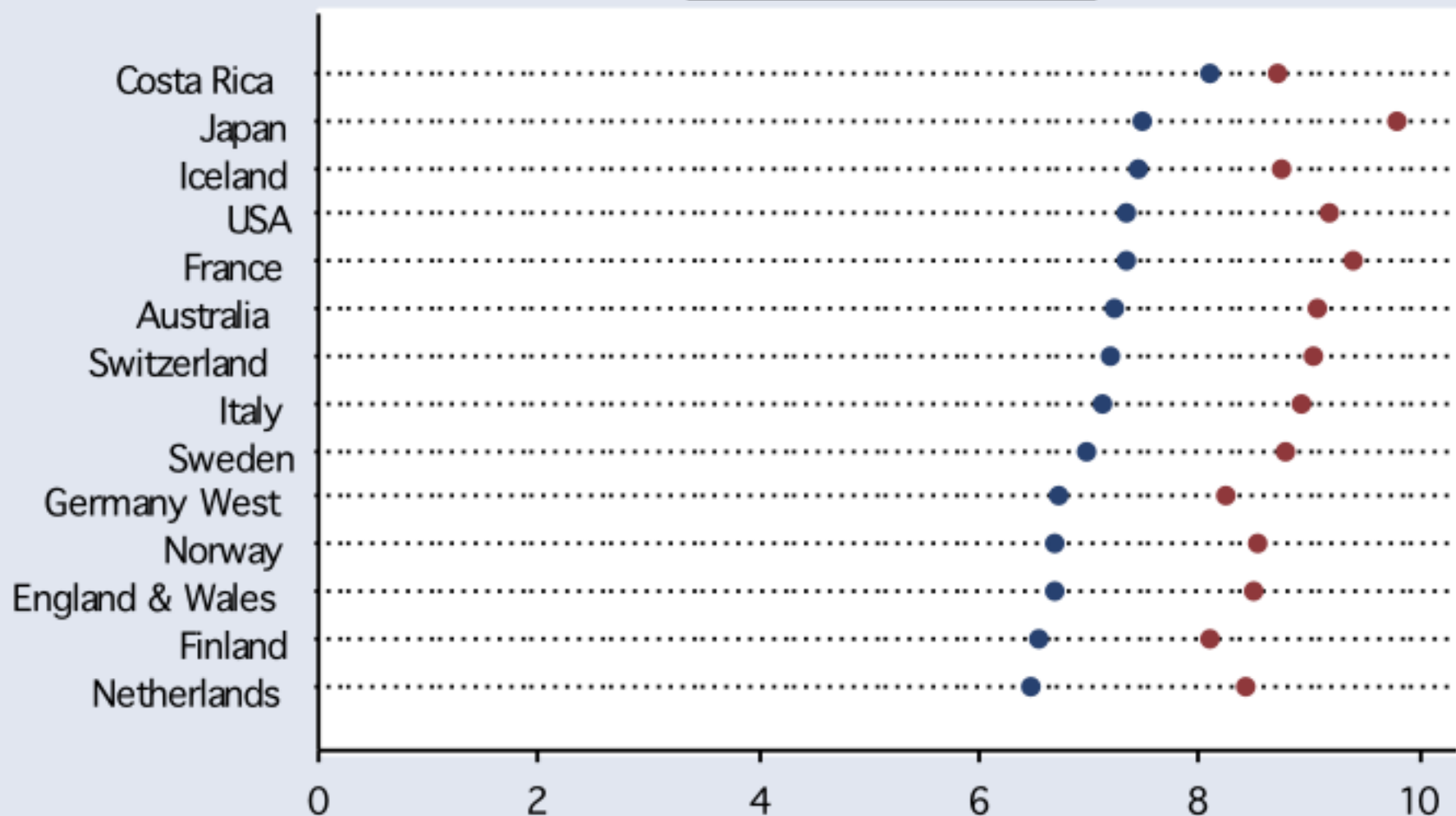
Gasto social y militar per cápita en Costa Rica 1929-1983.

Las fuerzas armadas son abolidas por la Constitución de 1949

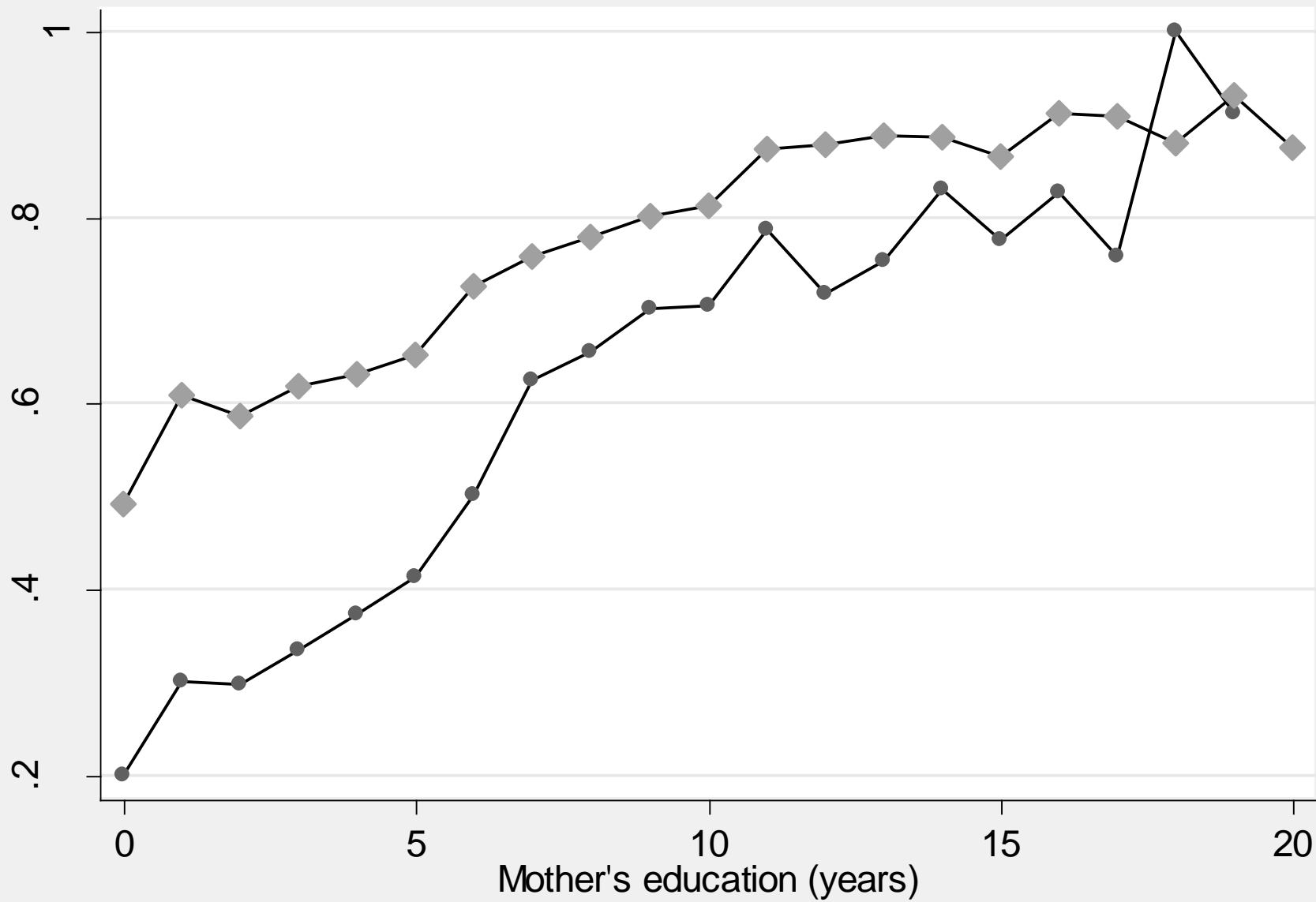


Life expectancy at age 80 in the 1990s

● Males ● Females

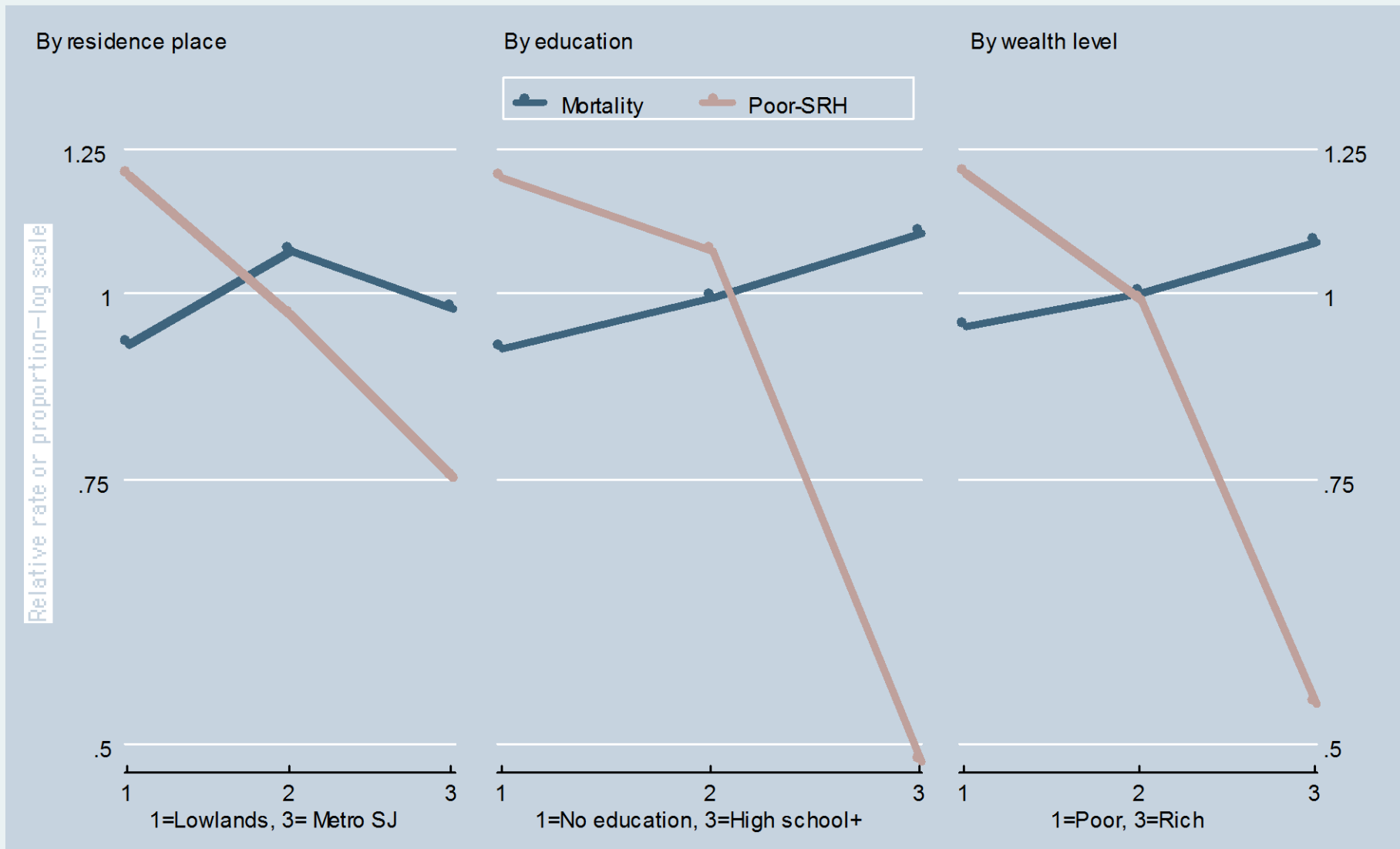


Sources: Kannisto database of the Max Planck Institute and life tables of the Central American Population Center



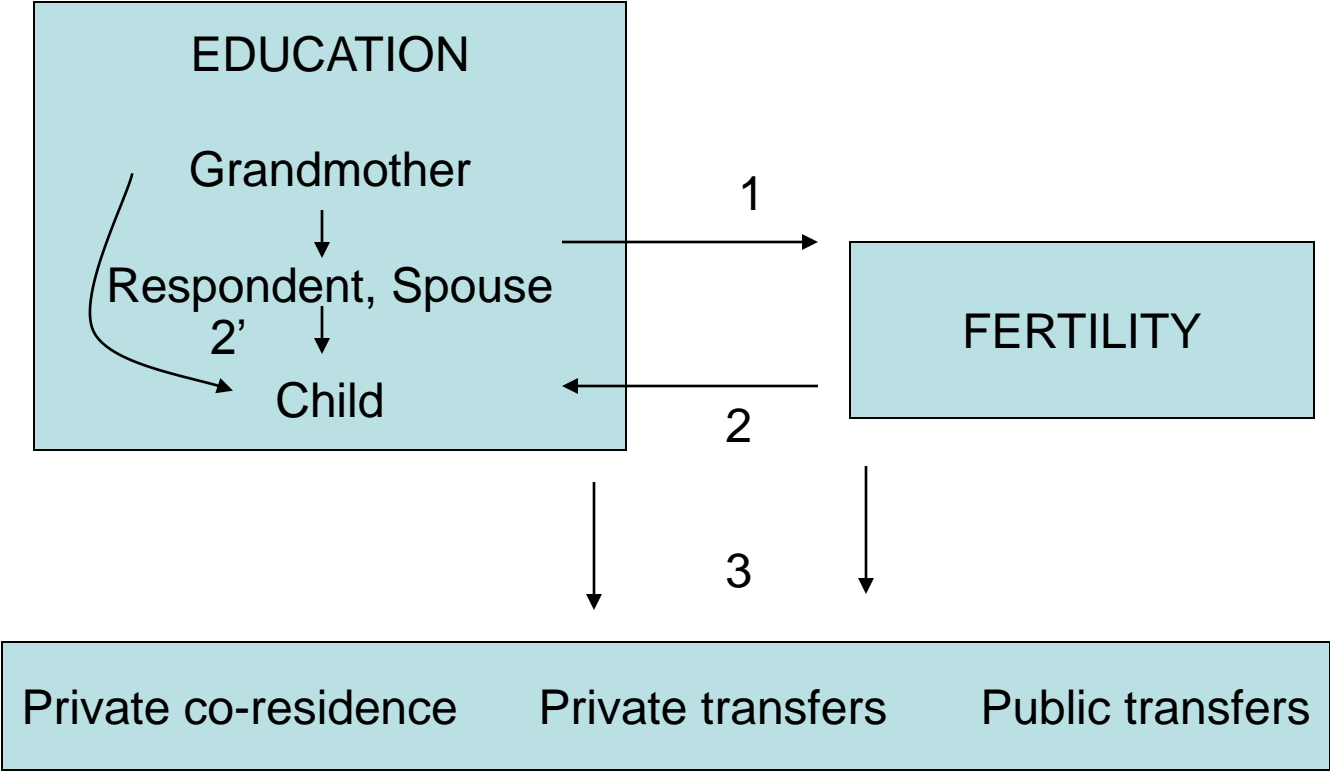
—●— 1973 insurance —◆— 1984 insurance

The puzzling SES gradient: mortality vs. self-reported health (controlling for age, sex, marital)



Data: CRELES

- Costa Rican Study on Longevity and Healthy Aging (CRELES)
- Nationally representative sample of ~2,800 Costa Ricans ages 60+ in 2005.
- Data on
 - Own, spouses's, mother's, and children's education.
 - Public and private transfers.
 - Health and economic well-being.



Methods

- Today present mainly descriptive results to establish stylized facts for causal analysis.

E=education, Z=controls (age, sex, canton [current, 1973, or birth], main lifetime occupation)

Fertility \sim # Live Kids = $f(E^{\text{self}}, E^{\text{spouse}}, E^{\text{mother}}, Z)$

Mean Child Educ = $E^{\text{kids}} = f(\#\text{LiveKids}, \text{"})$

Transfers, Outcomes = $f(E^{\text{kids}}, \#\text{LiveKids}, \text{"})$

Caveats

- Censoring due to mortality
- Endogeneity of child quantity and quality (and everything else).
 - Models generally robust to inclusion of fixed effects for canton of current residence, 1973 residence, or birth.
 - Also used IV models using mean canton*cohort fertility and child education as instruments (controlling for main canton and cohort effects, so identifying off of changes across cohorts in canton-level fertility and child education). Reduces threats from individual preferences, but not from canton-level shocks. E.g.:

$\#LiveKids = f(E^{self}, E^{spouse}, E^{mother}, Z, CantonFE, Cohort, CantonFE * Cohort)$

$E^{kids} = (\#LiveKids, E^{self}, E^{spouse}, E^{mother}, Z, CantonFE, Cohort)$

Fertility Determinants (# children still living)

- As expected, education is strongly predictive of fertility.
 - Going from no education to completed primary reduces # live kids by 20%.
 - Similar magnitude for spousal education, due to assortative mating.
 - Maternal education effect is half as big, but significant. Clue to potential long-term importance of Costa Rica's early education investments.
- Effects attenuate only slightly in models with fixed effects for canton of birth.

Child Quality Determinants

(mean years education of live kids)

- Usual quantity/quality inverse relationship holds. Statistically significant but moderate magnitude: each additional child lowers mean education by 0.15 years.
 - Effect is nonlinear: no effect under 5 births.
- Own, spousal, and mother's education effects are all strong. Public education subsidies have not led to full intergenerational mobility; grandmother family background effects are still important.
- Results robust to:
 - Canton fixed effects.
 - IV fertility: point estimates similar, but low power to reject null.
- Child sex composition has no effect on mean education.

Effects on Private Transfers: Elderly co-residence with children

- Child quality (mean education) is unrelated to coresidence among Costa Rican elderly, as is own education.
- Child quantity has expected sign: lower fertility elders less likely to coreside with kids (controlling for SES etc).
 - Biggest jump (40 percentage points) is from 0 to 1 live kids. If fertility decline outpaces adult child survival, implies more public long-term care needs.
 - Results robust to IV for fertility (power is strong).
 - Results do not vary by child sex.

Effects on Private Transfers: Financial Support

- Upstream from kids:
 - Higher fertility increases probability of financial support from kids.
 - Male children more likely to support financially
 - Child quality (mean education) also increases support.
 - Important for public-private substitution issues.
 - Receipt of support not related to own, spousal, or maternal education.
- Downstream to kids:
 - Probability support kids is unrelated to child quantity, child quality, or own education. But does increase with maternal education. Interpretation unclear.

Effects on Receipt of Public Transfers

- Indigent status in social security program: Child quality matters, not quantity
 - 10% less likely to be indigent for each 1 year increase in mean kid education. Number of children has no effect.
- Medical (which is paid by national health insurance):
 - Hospital inpatient care: also decreases with child quality, but quantity has no effect.
 - Health care relationship partly explained by worse General Health Status among those with low child education (child quantity has no effect).

Effects on Post-Transfer Elderly Poverty

- Being in lowest quartile on index of basic household durables:
 - Child quantity helps, but only when holding constant average child quality.
 - Again, most important are child quality (education) and own education.
- Similar results hold for an index of unmet basic needs: the main significant associations are with own and child education.

Summary

- Child education is positively related to private financial transfers to elderly and their post-transfer well-being; child education is also related to lower public transfers to elderly.
 - To extent this is causal, it indicates that elderly generations do indeed benefit from increased child investments. Further work should quantify the net effects on each generation if Medicare-type spending were reallocated to education, after accounting for these intra-family mechanisms.
- Debates about intergenerational effects of public spending decisions need to focus more on:
 - Productivity of investments for self and both downstream AND upstream dependents.
 - Nature of redistribution. What types of public spending most promotes intergenerational mobility? Future work will explore effects of education mobility on well-being of parents' generation, comparatively across Latin American settings.