

I am a development economist and economic demographer with interests in the evolution of the family over the course of economic development, as well as the determinants and consequences of human capital, mostly in the form of health. A key feature of my research is its emphasis on combining microdata from around the developing world to uncover statistical regularities and link them with economic theories of fertility, family formation, and human capital. This focus on documenting and understanding new facts distinguishes my work from that of other development economists in my generation, who typically prioritize causal inference. Some of my studies do estimate causal effects of specific conditions or interventions, but as a whole, my research program is contextually broader and more descriptive than most. My work takes the implicit view that facts are essential to building and verifying theories of development and demographic change, complementing findings on causality. Conceptually, my research is differentiated by its attention to generational and lifecycle dynamics. The work on family stresses how fertility in one generation reshapes the next, and how it varies with age; the work on human capital deals with the effects of early-life conditions over the lifecycle.

Family and Demographic Change My work on family and economic development relies on the broad, descriptive approach, tracking changes in fertility patterns within and across countries. Fertility more than halved in the developing world over the last half-century; this research seeks to understand how and why.

“Escaping Malthus” (*American Economic Review*, with Chatterjee) studies how fertility responded to economic growth during this episode. In 255 surveys from 81 developing countries, we find that careful treatment of time and lifecycle horizons is crucial. In the short run, fertility falls during recessions, and fluctuations late in the reproductive period permanently affect lifetime fertility. In the long run, growth is associated with fertility decline and delay. The existing literature provided limited evidence on these links for a broad set of developing countries over any horizon, so we contribute novel facts on the economics of fertility decline. We argue that they are consistent with a lifecycle extension of models of demography and long-run growth. An extension in progress studies demographic responses to climate fluctuations and trends.

“Differential Fertility, Human Capital, and Development” (*Review of Economic Studies*) shifts attention from aggregate fertility across populations to differential fertility within them. Survey data from 48

developing countries suggest that prior to 1960, children from larger families had better-off parents and obtained more education, but rising returns to child investment later reversed these patterns. As a result, differential fertility raised mean education early in the growth process (by a quantitatively important 15%) but now reduces it. Previous research overlooked how recently fertility rose with income or skill, leading to the erroneous conclusion that differential fertility reduced average human capital throughout recent history.

“Intergenerational Associations and the Fertility Transition” (r&r, *JEEA*) considers implications for the path of aggregate fertility. In theory and data, reversals in differential fertility diminish and then raise intergenerational fertility associations, reshaping the population to speed and then slow aggregate fertility decline. The study is the first to document how compositional change from the fertility transition feeds back into the pace of aggregate decline. Work in progress explores intergenerational persistence in mortality risk.

Human Capital over the Lifecycle My research on the determinants and consequences of human capital is more varied, dealing with both education and health, using both descriptive and quasi-experimental approaches. However, its focus on tracking effects over the lifecycle provides a unifying theme.

One thread in this research agenda coincides with my interests the family, dealing with the human capital consequences of constraints imposed by traditional family institutions. **“Marriage Institutions and Sibling Competition”** (*Quarterly Journal of Economics*) examines how parents trade off their daughters’ interests in systems of arranged marriage. In a model of marriage search, parents with multiple daughters accept less desirable grooms for older daughters to marry them early and leave time to search on behalf of their younger sisters. Multiple datasets from South Asia confirm that the presence of a younger sister causes a girl to marry earlier, match with a lower-skill spouse, and—because marriage pulls girls out of school—attain less education and lower literacy. Viewed alongside the literature on how siblings compete for family resources, the study offers original evidence of sibling rivalry that is not captured by a conventional budget constraint.

Another thread in this research agenda considers the health burdens of ecological risk factors. **“Early-Life Malaria Exposure and Adult Outcomes”** (*A EJ: Applied Economics*, with Cutler, Fung, Kremer, and Singhal) studies malaria eradication in India, leveraging cross-sectional variation in pre-eradication malaria endemicity to estimate adverse effects of child malaria exposure on adult economic outcomes, consistent

with research on other countries' eradication programs. **"Agriculture, Fire, and Infant Health"** (r&r, *Review of Economics and Statistics*, with Rangel) shifts to air pollution, asking whether the age-old use of fire in agriculture harms health. Linking satellite, air monitor, and administrative health data from Brazil, we use wind direction to isolate the effect of smoke from confounding business cycle variation, finding that late-pregnancy exposure to upwind fires decreases birth weight, gestational length, and *in utero* survival. Other fires positively predict health, showing the value of untangling pollution from the economic activity driving it. Work in progress extends our approach to Africa's savanna, the largest source of fires globally.

Expanding my human capital research in a new direction, **"Do Conditional Cash Transfers Improve Economic Outcomes in the Next Generation?"** (working paper, with Parker) assesses the lasting impact of childhood exposure to cash transfers, an anti-poverty tool with rising popularity despite scant evidence on long-term effects. We focus on Mexico's famed *PROGRESA* program, whose earliest beneficiaries are now old enough to observe in the labor market. Combining spatial variation in early rollout with age variation in eligibility, we estimate that program exposure improved educational, labor market, and household economic outcomes in early adulthood for both men and women.

Returning to a descriptive approach, **"Height, Skills, and Labor Market Outcomes"** (*J. Development Economics*) uses height as a proxy for early-life conditions to learn about their economic consequences in adulthood. Beyond genetics, physical growth also depends on health, which is correlated with parental investment. The study confirms previous findings that taller workers earn more and then explores why using Mexican data. Matching patterns in rich countries, much of the height premium can be attributed to the greater education and higher-skill occupations of taller workers, suggesting that the link between growth and parental investment is key. Even in an economy heavily reliant on manual labor, brawn plays a limited role.

Other Research A secondary line of research deals with US political economy. **"Race and Close Elections"** (*J. Public Economics*) analyzes vote returns in interracial elections, uncovering signs of a black mobilization advantage in the South after the Civil Rights Movement. **"Habit Formation in Voting"** (*AEJ: Applied Economics*, with Meng and Fujiwara) uses Election-Day rainfall as a natural experiment to show that increases in current turnout raise future turnout: innovative evidence that voting is habit forming.