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BIOLOGICAL BASICS AND INTERGENERATIONAL TRANSFERS

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Abstract. How do considerations of gender and reproductive biology figure into intergenerational transfer behavior? Does a parent's support for a child depend upon whether the parent in question is a father or mother, or whether the child is a son or daughter? Despite recent progress in attempting to understand the economics of intergenerational transfers, the standard economic focus to date has been limited to income effects and/or human capital investment, with far less attention to demographic effects. The latter contribute much to the variation in intergenerational transfers, but are usually given short shrift in economic analyses. In the typical economic study of transfers, demographic variables are entered as controls, but not given much attention beyond that. Some high-profile economic studies do not even report the estimated coefficients for these variables, never mind attempt to interpret them. Studies that do interpret them usually chalk up demographic effects to the effects of "preferences," but this is not much of a theory since preferences can be invoked to explain just about any demographic pattern. My research seeks to remedy this deficiency by paying more attention to the distinct constraints and interests of mothers, fathers, sons and daughters that emanate from biological considerations. It focuses on two prominent themes in reproductive biology: The first is paternity uncertainty. How might it affect incentives to provide for children? Might paternity uncertainty generate differences in the transfer behavior between, say, maternal grandmothers (whose biological relationship to grandchildren is always certain) versus paternal ones? The second theme is reproductive and economic prospects of male versus female offspring. A well-provisioned son can in principle "go forth and multiply" by having children with several mates. But a daughter can only "go forth and add." Might these considerations spur sex-biased parental investments? I find that a maternal/paternal advantage in the provision of childcare persists even after controlling for the obvious covariates that would be implicated in such care (e.g., distance from the grandmother). Further, I find that a wife's self-reported strictness of attitudes concerning marriage are positively associated with child care provided by her mother-in-law (i.e., the paternal grandmother) which is consistent with the idea that concerns about paternity affect the provision of child care. I also present some preliminary findings concerning self-reports of paternal resemblance and subsequent paternal childcare, and sex-biased paternal investments.

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1. Introduction

This paper is concerned with the relationship between intergenerational transfer behavior and two distinct but related "biological basics." The first is that, barring extraordinary events like maternity ward mishaps, a biological mother always has complete certainty that her offspring are genetically related to her. Conversely, barring extreme behavior such as sequestration of his mate or the ordering of a DNA-based paternity test, a father can never be completely certain about his relatedness to his children. The second "biological basic" is that differential gamete size between the sexes (the plentitude of cheap sperm relative to the scarcity of expensive eggs) implies that, at least in principle, a well-provisioned, ambitious man can literally "go forth and multiply," while a woman can only "go forth and add."

How might these "basics" affect intergenerational transfer behavior? Consider first paternity confidence. William D. Hamilton's (1964) kin selection model, a mainstay the biological approach to parental investment, posits that genetic relatedness is a key determinant of transfers from parents and other relatives. The incorporation of paternal uncertainty into "Hamilton's Rule" implies a possible shortfall in paternal relative to maternal solicitude.

Of course, fathers and mothers differ for reasons unrelated (or only indirectly related) to biology—most notably, Gary Becker's sexual division of labor. For this reason I back up a generation to consider grandparents, and in particular maternal versus paternal grandmothers. The former is the only one of four grandparents with complete certainty of relatedness to grandchildren. The others, including her paternal counterpart, might harbor some flicker of doubt. (Note that this "grandparental gambit" might

attenuate but by no means completely finesses the problem of household division of labor; perhaps arranging for babysitting is "my wife's department," for example, and she is more inclined to call upon her own mother for assistance than mine.)

My strategy for analyzing the potential effects of paternal uncertainty is to contrast transfers to grandchildren made by maternal versus paternal grandmothers, and in particular to investigate how maternal-paternal differences in grandmotherly care vary with circumstances that might be credibly implicated with paternity confidence. Such factors might include cultural practices and traditions (for example, marriage customs, women's rights) as well as socioeconomic status. The challenge (as always!) is identification: isolating, if at all possible, the conditions under which paternity confidence might vary in ways that can credibly be argued to be orthogonal to unobservable forces impinging on child transfers. The logic of identification, in turn, hinges on questions surrounding the practices themselves: Why did they originate? Do original rationales prevail? If not, what sustains these practices?

While the first "biological basic" concerns differences between grandmothers, the second—potential differences in the reproductive prospects of males and females—concerns differences between treatment of sons and daughters. Suppose you were from the poorest household in your community, which (let's assume) has a semi-polygynous marriage market where well-provisioned husbands can take more than one wife (concurrently or serially). Suppose further that you were concerned with the perpetuation and extent of your future family line, and that you could only have a single child, and that you could somehow choose the sex of your child—would you prefer a son or a daughter? A son with little resources to offer might get closed out of the mating sweeps, seeing how

his richer counterparts tend to monopolize females. By contrast a daughter would stand a better chance of producing offspring and perhaps advancing in socioeconomic status as well. Conversely being from the richest household would tilt your preferences toward a son, who stands a chance of dominating the mating sweeps, perhaps producing several offspring by multiple wives and/or concubines.

Such is the logic of the so-called "Trivers-Willard" effect, named after biologist Robert Trivers and his collaborator Dan Willard for their work in 1973 on parental sex preferences. The Trivers-Willard effect forges a link between the treatment of sons versus daughters, parental wealth, and the nature of marriage markets. (Below, I report some preliminary results pertinent to this effect for the United States.)

(##) Analysis of Trivers-Willard effects will eventually comprise about half of my research, but for now, the bulk of what I report below concerns the implications of the first "biological basic," paternity confidence and its potential connection to transfers and care provided by maternal versus paternal grandmothers.

My jumping off point is the simple descriptive results reported in an earlier paper of mine (Cox (2003)). There, I reported simple descriptive statistics about maternal versus paternal grandmotherly care. Those simple unconditional results indicate (roughly) a 25 percent maternal "advantage" with respect to grandmotherly solicitude, across a wide variety of measures: hours of care, frequency of sleepovers, frequency of contact, and even frequency with which grandmothers reported feeling "extremely emotionally close" to grandchildren.

A natural next step is to explore commonsensical possibilities for how and why these unconditional differentials exist. Maternal grandmothers, for example, tend to be

younger and healthier than paternal grandmothers. Distance from grandchildren, demographic and labor force characteristics of parents, the number and age distribution of grandchildren, and many, many more are left uncontrolled for. The first order of business in continuing to describe the data therefore was to condition on the obvious covariates thought to be implicated in provision of contact and care.

Because this is indeed description, the language that I use to describe the multivariate results will be couched in terms of partial correlations as opposed to a causal model. I simply investigate whether maternal (grandmotherly) status remains positively correlated with transfers to grandchildren once a set of ordinary, commonsensical covariates are controlled for, and the answer is "yes": conditional maternal-paternal differences are smaller but remain substantial.

(##) My long-term aim is to investigate whether (1) by accounting for economic and other non-biological determinants of maternal-paternal differences, the null hypothesis of paternity uncertainty can be backed into an ever-shrinking corner, and (2) to explore whether maternal-paternal differences vary by cultural and institutional forces that could be construed to affect paternity confidence. (Of course, the obvious challenge is to find forces that can credibly be advanced to affect paternity confidence and yet be independent of grandmotherly generosity. I argue below that this formidable-looking task might actually be less daunting than it appears.)

My methods exploit parallels from a well-established and distinct but nonetheless isomorphic empirical problem—measuring labor market discrimination in male-female wage differences. Like discrimination, paternity uncertainty is unobservable and can only be inferred indirectly at best. Like wage differences, maternal-paternal differences are

affected by many other (and far more important) things. Further, the pitfalls of the approach—that some putative determinants may be endogenous, that the list of determinants may be incomplete, that the method entails index number problems—are well recognized.

With this backdrop, I proceed to report an especially intriguing recent finding from studying the National Survey of Families and Households Data. I took a sample of husbands and wives who with (1) children living at home and (2) whose mothers were alive (but not residing with them). I examined a binary variable related to grandparental child care—whether such care was received in the past year—controlling for several characteristics of parents, grandparents and children (e.g., labor force status of parents; ages of children; age, health, and distance from grandmothers).

A further covariate I added to the regression was an attitudinal variable (collected five years previous to the other information) concerning husbands' and wives' attitudes toward marriage as reported privately in separate, self-enumerated questionnaires. I was drawn to this variable in light of the unique perspective on marriage advanced in some quarters within evolutionary biology: the distinctively unromantic notion that marriage is synonymous with "mate guarding," a system by which mutually suspicious spouses monitor one another's activity with the aim of monitoring and preventing infidelity. The question had to do with whether how strongly respondents agreed or disagreed with the statement that "Marriage is a lifetime relationship and should never be ended except under extreme circumstances." The answer to this question bore a statistically significant relationship to grandmotherly care in only one instance: paternal grandmothers were

significantly more likely to provide care when their daughters-in-law reported a strict (as opposed to lenient) attitude toward the permanence of marriage.

This is precisely what would be expected under the paternity uncertainty hypothesis: paternal grandmothers are the ones who are predicted to be concerned about the fidelity of their daughter-in-law.

Of course, such preliminary, descriptive correlations must be labeled with banner-sized warnings of *caveat emptor*. It is all too easy to read causal explanations into spurious correlations. For instance, my mother-in-law turns out to be a wonderful babysitter, which fuels my appreciation for the benefits of monogamy. (Though note the temporal sequence; reported attitudes predate reported care by five years.)

Continuing the spirit of *caveat emptor,* I report two additional descriptive findings. The first comes from the Fragile Families data set, a survey of single mothers and (in 75 percent of the cases) fathers as well, taken soon after the birth of the child. One question asked of both fathers and mothers in the first wave concerned the resemblance of the child to parents and other relatives. Two-thirds of the fathers reported that the child looked like them or their side of the family; the other third reported resemblance to the mother, the mother's side of the family, or something else (e.g. "looks like him (her) self"). In the second wave, conducted a year or more later, mothers were asked (in the case of non-co resident fathers) how many days during the last month the father spent with the child. I uncovered statistically significant and large differences by self-reported resemblance. (But intriguingly, only for fathers of boys.)

What we make of such a finding, at this point, would constitute pure speculation. One could make a logical case for causality in either, both, or no directions. (Just one consideration: imagine that men who are intrinsically more altruistic are inclined to see themselves in their infant sons.)

Causality notwithstanding, however, the focus on biological basics confers an advantage, even at this descriptive stage, by pointing the way toward demographic variables of interest that more standard approaches might ignore.

The potential benefits of the roadmap that biological basics provide can be illustrated in another, completely different, finding—one that concerns, as alluded to earlier, the treatment of sons versus daughters as predicted by the Trivers-Willard effect. Using the Health and Retirement Survey, I examined differences in educational attainment of the sons and daughters of a sample of parents who had (1) exactly one son and one daughter and (2) whose children were old enough to have been likely to have completed their education. I plotted the frequency with which the education of daughters exceeded that of sons and *vice versa* against the rank of parental net worth in the sample. I found a result consistent with the Trivers-Willard hypothesis: daughters tend to be "favored" over sons at net worth below the 75th percentile, where the advantage crosses over to sons.

Is this really due to Trivers-Willard, or does it emanate from something else entirely? Even one of the most biologically minded economists, Ted Bergstrom, expresses strong doubt that anything like Trivers-Willard effects are generating this result. Nonetheless, I would not have thought to undertake the estimation had I not been pondering such effects, and the results themselves, for whatever reason they occur, are

somewhat surprising and interesting, and are worth exploring further. I contend that this is the primary benefit of the "biological basics" approach: whether in the end it turns out to matter for intergenerational transfers or not, it points the way toward a systematic and falsifiable means to explore and analyze demographic patterns in such transfers. It is for this reason that I believe the "biological basics" approach is likely to continue to generate interesting directions for empirical work.