

Stark, Oded

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# The Asset Demand for Children during Agricultural Modernization

Oded Stark

In developing societies, grown children as rural to urban migrants may assume the unique role of financial intermediaries in an economy in which the introduction of modern agricultural methods is constrained by inadequate institutional (as well as noninstitutional) sources of credit and a high aversion to risk. This role of the migrant may be an element conducive to an increase in the value of and the demand for children in the early stages of economic development. This note discusses the implications of this hypothesis for John Caldwell's intergenerational wealth flows theory and suggests some of the more general implications of the role of children as migrants for farm households.

In a series of thoughtful contributions John Caldwell has meticulously advanced and carefully examined the "wealth flow theory" of fertility transition, relating a decline in fertility to a change in the direction of the intergenerational, intrafamilial transfers.<sup>1</sup> He points out that: "In terms of its ultimate impact on fertility, the significant aspect of the economy is whether production is based on the familial organization of labor or whether there is a free and monetized labor market (i.e., capitalist production). A declining chance of an economic return from children in later life, together with the fact that their productive usefulness when young has crumbled, turned the wealth flow downward and made low fertility inevitable." Education (or mass education) is cited as having assumed a crucial role here since "invariably educated children cost more and give less."<sup>2</sup>

The picture that emerges is that *in the transformation* from "familial production" to "capitalist production" children (and educated children in particular), hence fertility, become "less economic," or "contrary to the family's economic interest." This tallies well with other views. For example, Eva Mueller argues that the advent of high-yielding varieties of grains has enhanced

the need for purchased modern inputs rather than for the kinds of human capital that are embodied in household labor.<sup>3</sup> Consequently, it is probably more important for farmers to economize on family expenditures than to have extra working hands. The opportunity cost of supporting children, who compete with the externally produced input, is thus raised, exerting downward pressure on fertility.

The hypothesis advanced here is that the same “situational variables” pointed out by Caldwell may have exactly the opposite effect. Since “familial production” and “capitalist production” are imperfect substitutes, grown children *as migrants* may assume a specific positive role in an economy where the range of financial and insurance markets is less than full. In many cases this may account for the considerable variability (“lags” as Caldwell puts it) around the secular change so forcefully described in Caldwell’s paper. The hypothesis has added appeal in that it responds to one of Caldwell’s main criticisms of recent research on the economics of fertility: namely, that analysts have given relatively little attention to the importance of other demographic variables in explaining fertility change. The hypothesis focuses on rural-to-urban migration and its likely repercussions for desired fertility and fertility behavior.

Consider a modal agricultural family, assumed to be the decision-making entity,<sup>4</sup> that attempts to transform its “familial production” into “capitalist production.” It usually faces two major constraints. First, there is the “investment capital” constraint; the transformation (e.g., to high-yielding varieties of grains) requires investment funds that a small farmer family with its existing resource endowment and a “pre-capitalist” mode of production is unlikely to possess or generate. It is both relevant and interesting to note that most of the recent “relevant technological transformations” depend crucially on new factors and inputs—elements in which the very transformation, the new technology, is embodied. This in itself (apart from the component-complementarity that characterizes these technologies) creates strong discrete needs for investment capital and produces a new pattern of technological change, different from traditional technological progress, which involves gradual increments to the quantities of *existing* factors, facilitated, in turn, by a continuous accumulation of savings.

The second constraint is that of risk. The transformation to a new technology magnifies the subjective risks involved in agricultural production, and the family unit is assumed to be risk-averse. Thus, the major obstacles encountered are bridging the gap between the family’s desired investment capital and its necessary cash outlays (including existing savings) and, once this is accomplished, resolving the conflict between the family’s aversion to risk and the increased risk element in its portfolio.

In the absence of smoothly functioning credit markets or appropriate institutional facilities, and when insurance markets either do not exist or charge prohibitive premiums, the family must reorganize the utilization of its *own* resources. It is here that rural-to-urban migration by the most suitable family

member—a mature son or daughter (especially if educated)—comes into the picture. In bypassing the credit and insurance markets (with their bias against small farmers), migration facilitates the transformation; it succeeds in doing this via its dual role in the accumulation of investment capital (acting as an intermediate investment, between technological investments, which have a certain lumpiness, and investment in financial assets, which—if feasible—have a low, or even negative return), usually generating significant urban-to-rural flows of remittances,<sup>5</sup> and through diversification of income sources, in controlling the level of risk. This “portfolio investment” in urban earning activity (migration by a maturing family member) as a risk-alleviating device assumes, in particular, that the urban sector is statistically independent of agricultural production.<sup>6</sup>

In an economy in which the transformation of production cannot be performed directly, grown children *as migrants* thus assume the unique role of financial intermediaries. From a private, parental point of view, and considering lifetime utility, children are generally seen to yield various direct and indirect utilities that may be conveniently designated “consumption utility” (children are a source of personal pleasure and satisfaction), “income utility” (children directly contribute to the family’s income by working), and “status, security, and insurance utility” (status, e.g., when position and power are established through children-generated familial ties; security—especially old-age security; insurance—an extra child can generate various utilities if other children fail to do so mainly because of early mortality). The alleged role of children as migrants implies that a new element is added to the utilities-from-children vector, namely, facilitating the transformation of production. This element is distinct from the others, especially from the income utility element, in that children’s primary role as migrants is not to generate an income stream *per se*, but to act as catalysts for the generation of such a stream by precipitating an income-increasing technological change on the family farm.<sup>7</sup>

The hypothesis is enriched by allowing for education. Take, for example, the credit crunch. Whereas the small farmer has no effective (or sufficient) access to institutional or other credit—nor can he expect this situation to change<sup>8</sup>—his children usually do have access to some sort of state education, which is often a pure public good, one largely financed by government subsidies and not (directly) by the pupils’ parents. Thus, a small farmer’s vicarious entrance into a less discriminating market can be viewed as a surrogate for participation in one into which his entrance is effectively barred. Banking on the expectation of a high cross return to the joint decision of educating a child and then “expelling” him or her to the urban sector, migration (and the education preceding it) thus remedy the credit deficiency whose alleviation is mandatory in facilitating technological change on the family farm. Farmers therefore deliberately use the educational system to prepare for their children’s migration.<sup>9</sup>

This extension of the hypothesis reinforces its pro-fertility implications. As indicated, children can be a source of several different benefits. But not all

children—or any particular child—can efficiently provide *all* utilities, especially in a less developed economy. Specialization by children in the production of different utilities increases total utility from children; and specialization *and* indivisibility often imply that the same child cannot provide “supply side” competing utilities. Children’s capacity to generate different utilities becomes a planning variable, and children are prepared differentially to perform competing tasks. Thus, one child may be singled out for preparation for eventual migration (possibly with other children contributing to this preparation). The potential migrant will receive more (or better) urban-oriented education whereas his or her siblings are likely to be intensively engaged in farm production.<sup>10</sup> Finally, a high degree of specialization by children in the provision of different utilities sharply reduces the possibility of cross-substitution among children; this, in turn, increases the risk involved in losing a particular child. In these circumstances, the number of children becomes crucial to the risk-averse household. This once again favors a high level of fertility. Thus, although the effects of economic development eventually lead to a decrease in the demand for children, the very generation of economic development may initially increase the asset demand for children.

Although the hypothesis set forth here requires thorough testing and verification before introduction into the policy arena, and although the policy implications are beyond the direct concern of this note, it is tempting to speculate on the possible repercussions of the hypothesis for induced fertility reduction efforts. It seems that policies directed at reducing the incentives for greater reproduction would have to take into consideration the prevalence of an additional pronatalist factor. Children are seen to yield a specific new benefit—removal of some of the risk and credit constraints inhibiting the transformation of production in the agricultural sector. Thus, just as a social security tax (on workers) and transfer (to the retired) system, which socializes the within-family, young-to-old, intergenerational transfers, is an essential device in depressing the “provision for old-age security” motive for having children, so may an institutional arrangement catering to the effective supply of credit and hedging against risk be required to defuse the “migration motive” for bearing and rearing children.

There is also an interesting social-welfare implication. If the modernization of agricultural production is deemed socially desirable, then there are *social* (not only private) returns to the bearing and rearing of children; the necessary expenditures can thus be regarded as a social investment, and the family as an effective social institution. Given the institutional structure of the economy, it may prove to be a very efficient one, too; privately (familial) optimal behavior may therefore not diverge from socially optimal behavior.

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## Notes

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1 Most recently, John C. Caldwell, “The mechanisms of demographic change in historical perspective,” *Population Studies*, 35

(March 1981): 5–27; but see also “Toward a restatement of demographic transition theory,” *Population and Development Review* 1, no. 3–4 (September/December 1976): 321–366; “A theory of fertility: From high plateau to destabilization,” *Population and Development Review* 4, no. 4 (December 1978): 553–577.

2 The quotes are from Caldwell, “Mechanisms,” cited in note 1, pp. 8, 13, 21.

3 Eva Mueller, “The economic value of children in peasant agriculture,” in *Population and Development*, ed. Ronald G. Ridker (Baltimore: Johns Hopkins University Press, 1976).

4 I have detailed empirical and theoretical reasons for this assumption elsewhere. See Oded Stark, *Economic-Demographic Interactions in Agricultural Development: The Case of Rural-to-Urban Migration* (Rome: Food and Agriculture Organization of the United Nations, 1978); “Rural-urban migration and surplus labour,” *Oxford Economic Papers* (forthcoming); and “Game theory, migration theory and the family” (mimeo., 1981).

5 Significant urban-to-rural transfer of remittances is one of the most important observed regularities of rural-to-urban migration in developing countries. See Oded Stark, “On the role of urban-to-rural remittances in rural development,” *The Journal of Development Studies*, 16 (April 1980), 369–374.

6 For formal and fuller treatments see, Stark, *Interactions*. Appendix II, and Oded Stark and David Levhari, “On migration and risk in LDCs,” *Economic Development and Cultural Change* (forthcoming).

7 In a lifetime utility-maximization exer-

cise, where discounted stream of benefits and costs associated with bearing and rearing children are considered, a lower net price (cost minus benefit) of children implies that more of them will be desired (through the positive impacts of both the substitution and the income effects, assuming that children are a normal good).

8 Credit markets are imperfect, not fully formed, and highly fragmented; the quantity of marketable assets as collaterals for credit possessed by the small farmer is very limited, and so forth.

9 Nathan Keyfitz has pointed out to me that “to the motivation of parents to have children and then educate them one could add the notion of upward mobility; quite aside from the financial benefit, there is a basic aspiration common to all instances of industrialization [and economic transformation] that is satisfied by children rising to a higher social status.”

10 Preferences are generated for children of specific characteristics that are assumed to be positively and closely associated with their urban-market productivity and likelihood of success as migrants. If the possession of these characteristics is (at least to some extent) exogenously determined, and if the probability of a given birth having these traits is independent of that of an earlier birth having them, desired fertility will tend to increase as will family size and population growth. (Note, though, that if through learning, experience, and technological progress the possession and production of these characteristics gradually become endogenized, the alleged effect on fertility will be weaker.)