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Endogenous coresidence and program incidence: South Africa's Old Age Pension ☆

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ABSTRACT

We investigate whether living arrangements respond to an arguably exogenous shift in the distribution of power in family economic decision-making. In the early 1990s, the South African Old Age Pension was expanded to cover most black South Africans above a sex-specific age cut-off resulting in a substantial increase in the income of older South Africans and potentially their say in the economic decisions of their families. Beneficiaries of the program are more likely to coreside with adults who have less human capital as measured by height and education. Since height and education are fixed for adults, this cannot be an effect of the pension income but reflects selective changes in living arrangements resulting from the pension. The findings highlight the endogeneity of living arrangements and illustrate the potential value of moving beyond theory and data that are confined to a spatially determined definition of the household.

1. Introduction

The literature is replete with efforts to measure welfare impacts of public programs implemented in a non-experimental setting; these require innovative approaches to isolate the program's causal impact on welfare.[1] In this paper, we examine impacts on living arrangements of the South African Old Age Pension (OAP)—a generous, publicly financed cash transfer program. We present evidence that the program impacts family living arrangements in a manner that is selective on human capital characteristics. The findings shed light on an area of family economic behavior about which very little is known—namely, how living arrangements respond to changes in family income. The findings also have important implications for previous studies that have investigated the impact of the program on welfare indicators such as the human capital of children.

Studies have found, for example, that the South African OAP is positively associated with nutritional status of coresident young children as measured by height and weight (Case and Deaton, 1998; Duflo, 2000, 2003). The OAP is also positively associated with educational attainment of coresident older children (Edmonds, 2006), negatively associated with the market labor supply of coresident working-age men (Bertrand et al., 2003), and negatively associated with private remittances into the household (Jensen, 2004). One conclusion that emerges from these studies is that the public transfers have benefited individuals other than the primary recipient. However, this inference relies critically on the assumption that families' living arrangements—and therefore household composition—do not change in response to the OAP. If families do change their living arrangements, then time allocation and consumption choices of a household are a potentially misleading reflection of allocation decisions by the family. The broader point reflected in this case is that analyzing household rather than family data, without accounting for family-level responses, can lead to inappropriate conclusions about the impact of a program or resource. In an important paper about the OAP, Case and Deaton (1998) highlighted this point, but concluded that the data available at that time were "unlikely to be informative about this question."

When more data became available, studies documented that the demographic composition of the household did in fact respond to the OAP. For example, Posel et al. (2006) reported that adult coresidence is correlated with pension eligibility. Edmonds et al. (2005) reported that households with pension-eligible women tended to have more young children, more women in their early twenties, and fewer women in their thirties. Ardington et al. (2009) extended these analyses to examine change over time. They used two rounds of data collected by the Africa Center in rural KwaZulu-Natal. In those surveys, the household informant may name anyone—even nonresidents—as a "household member." A household's pension availability can change between waves if living

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[1] For discussions, see for example Moffitt (1991), Moffitt (2005), and Heckman et al. (1999).

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arrangements change, if an elderly household member dies, or if an older member ages across the eligibility threshold. Ardington and coauthors related these changes in household composition to changes in whether adults are identified as "members" of the household, and where they reside. They found that after a household starts receiving pension income, prime age adults who coreside with the pensioner are less likely to be working, whereas those who reside outside of the rural area but are identified as "members" of the household are more likely to be working. Further, they reported that adults who have recently come to reside in a household tend to be older, less educated, and more likely to be unemployed, sick, or injured if that household receives pension income.

This paper extends the literature by reaching beyond documenting that living arrangements change with receipt of the OAP. Our results establish that prime age adults who coreside with pensioners are negatively selected in terms of their own level of human capital. The nature of this human capital selectivity is different for men relative to women, and for older versus younger prime-age adults. Adult human capital is measured by height and educational attainment—two indicators that are largely fixed by early adulthood. Associations between these fixed markers of human capital and receipt of the OAP cannot be attributed to the impact of pension income on human capital investments, since the program was implemented after the height and education of the adults were already determined. Rather, these associations result from selective changes in living arrangements in response to the OAP. This evidence provides important new insights into the impact of arguably exogenous changes in income in the hands of older adults on their own living arrangements and those of their families. It has important implications for interpreting evidence of the impact of the OAP on the human capital of coresident children and labor market outcomes of coresident adults.

For example, a clever study by Bertrand et al. (2003) reports a negative association between prime-age adult labor supply and the pension income. In the absence of selective changes in living arrangements, it would be natural to infer from this pattern that the OAP causes a reallocation of adults' time from wage work to leisure, indicating that the benefits of the OAP are shared with these workers. On the other hand, Ardington and coauthors suggest that the pension income may have financed labor-related out-migration of household members. An economic model of family migration predicts that those members with higher expected wages in other locations would be more likely to be the ones who leave. Our finding that adults who coreside with pensioners tend to have lower levels of fixed human capital is consistent with this prediction, assuming that older South Africans are more likely to live in areas where the return to human capital is relatively low. It is plausible that the difference in human capital reflects changes in the pensioners' demand for services provided by coresident family members. The challenges in identifying the causal effects of the program are exacerbated if one further allows for the possibility of selective in-migration.

More generally, our results shed light on ways in which living arrangements reflect economic choices. This is an area that remains under-investigated in the literature. Means testing of the South African OAP takes into account only income and assets of the potential recipient him or herself. Thus, older adults have no incentive to change their living arrangements just to qualify for the pension income—for example, by not coresiding with higher income or wealthier family members. This feature of the program provides an opportunity to examine more nuanced aspects of family decisions over living arrangements. The economic character of living arrangements may be especially strong in South Africa, in part because of the legacy of apartheid. Historically, South African living arrangements have been fluid, with family members moving between multiple households. Migrant labor has played a significant role in determining family coresidence patterns. Many rural households depend for their income on remittances sent by family members working in urban or mining areas; married couples often live apart. It is common for family ties to remain strong across households, even when the households are separated by long distances or have been living apart for a long time. Since these are also features of life in most of the world, albeit magnified by the legacy of apartheid in South Africa, the dynamics explored here are likely to be relevant in many other contexts.

The next section provides a brief overview of the South African OAP, highlighting the features of the program used to empirically identify welfare effects in a non-experimental setting. Section 3 outlines the framework for our analysis. We sketch a model of decision making at the level of the extended family (as opposed to the single household, which we characterize as a subset of the family). In Section 4, we provide the specifics of our empirical approach. Our empirical findings are in Section 5. In concluding, we discuss what our results reveal about family economic decisions regarding living arrangements and the implications for empirical research.

2. The South African OAP

The OAP is a generous public transfer of resources to older men and women in South Africa. It is non-contributory and the means test is sufficiently generous that the transfer is available to almost all of South Africa's majority black population when they reach the age of eligibility; for this population, receipt of pension income is unrelated to past work and savings decisions and is effectively determined by sex, age at last birthday, and take-up behavior.

The pension program was introduced in 1928 as an income supplement for elderly low income whites. In 1944, eligibility was extended to the "colored" and black population groups, with payment schedules dependent upon the recipient's race and location of residence. In 1965, differentiation based on residence was abolished but the racial gaps were maintained so that in 1975, for example, eligible whites received over R1200 (in 2004 prices), while coloreds received about R600 and blacks received less than R200. The racial gaps were reduced during the 1970s and 1980s and, with the fall of apartheid in the early 1990s, payments became race-blind. In 1993, the payment was set at R370 (R1200 in 2013 prices) and the payment remained approximately constant in real terms thereafter.

At the time of our study, all women age 60 and older and all men age 65 and older who satisfied a very generous income and assets means test were eligible for the pension. In 2004, for example, a single person was eligible for the grant if his or her monthly income was R1502 or less and if the value of his or her assets was less than R266,400 (excluding owner-occupied housing). Only income or assets of the pension recipient are taken into consideration; few age-eligible blacks had assets (or income) that approach these levels. In the 2000 Income and Expenditure Survey, about 80% of age eligible black women and about 75% of men reported receiving pension income. Although the size of the benefit is designed to vary according to the means of the recipient, the generosity of the means test meant that among those who reported any pension income in the year 2000, over 90% reported receiving the maximum allowable payment of R740 (or about US$120). This benefit level was very high since it is approximately equal to the median income of black 20–50 year old income earners in South Africa, and about the 70th percentile in rural areas at that time. More than 25% of recipient black households in rural areas reported that the OAP was their only income source, and in urban areas it accounted for over 85% of total income for more than a quarter of recipient black households. The expected present discounted value of the pension was substantially greater for women than men, due to the age eligibility rule, and the fact that a man who survived to age 65 could expect to live an additional 7 years while a woman who survived to age 60 could expect to live an additional 10 years. In 2010, the criteria were changed so that both men and women became eligible at age 60,