The Economics of Polarization and the
Design of Public Policies to Mitigate Inequality*

Michael R. Carter
University of Wisconsin-Madison

Prepared for the Workshop
"Problems of Inequalities in the Developing World"
Project on Democracy and Development
Princeton University

21 September 2007

_____

**The Economics of Polarization and the
Design of Public Policies to Mitigate Inequality**

1. There and Back Again[1]

John Williamson (2003), who coined the term Washington Consensus in 1990, has

recently suggested that we jettison the term given that it has to come to take on multiple

and ideologically charged meanings. While Williamson's recent suggestion surely has

merit, the term Washington Consensus continues to be useful shorthand for the set of

policies that Williamson argued (as an empirical proposition) constituted shared

economic wisdom in the early 1990s. A quick review of those policies reveals them to

constitute the core of a macroeconomic reform agenda, with scant attention to matching

or sequenced microeconomic reforms. That said, the Washington Consensus does

implicitly contain an intellectually coherent structural approach to broadly-based

(inequality-reducing) growth based on both enhancing the returns that poor households

receive to their assets or endowments, and facilitating their accumulation of productive

assets. More specifically, the macro reforms of the Washington Consensus can be

hypothesized to combat poverty by:

1. 'Getting prices right' through trade liberalization which according to conventional trade theory should be expected to raise returns to unskilled labor, the most abundant factor in poor countries and the most abundant endowment of poor households within those countries;

2. 'Getting institutions right' by assigning secure, private property rights to land and other productive assets, a move hypothesized to bolster investment and accumulation, especially by poor households that most often experience insecure ownership rights; and,

3. Deregulation and elimination of financial market interventions in order to open the way to private sector providers able to meet the capital and risk management needs of poor households, further spurring savings and accumulation by poor households.

---

[1] This section draws extensively on Carter (2006).

While Washington Consensus policies thus contain an intellectually coherent theory of pro-poor growth, the accuracy of this theory will depend on the economy's underlying microfoundations. If the economist's fictive world of full and complete markets is more or less correct, and financial markets respond to the demands of low wealth households, then the Washington Consensus theory of poverty alleviation should effectively work.

But does it? In the September 2003 issue of its popular periodical *Finance & Development*, the International Monetary Fund published a set of papers that revisit the wisdom of the Washington Consensus. Included among them is a piece in which Trevor Manuel (2003) argues that government needs to take a more pro-active stance than foreseen in the Washington Consensus, and must now take affirmative steps to ensure that citizens are positioned to be able to respond to the new opportunities provided by the liberalized, post-apartheid economy. In the same issue of *Finance & Development*, John Williamson more pointedly says that governments must assure that citizens have the minimum asset base and market access required to save, accumulate and succeed in a market economy (Williamson, 2003).

The goal of this brief note is to complement these remarkable observations by thinking through when and why we might observe polarizing income distribution dynamics that preserve and deepen economic inequality. After considering both political and economic evidence that such polarizing dynamics are operative, this note will close with some considerations on the range of public policy options that might mitigate polarization and inequality.

2. Economic Theory of Polarizing Growth[2]

As with nations, individuals may also have intrinsic characteristics (skills, savings propensities, discount rates, and geographic locations) that condition their desired level of accumulation and ultimate equilibrium level of well-being. However, there may also be analogues to the locally increasing returns to scale that generate multiple equilibria and thwart the ability of initially poor households to catch-up and converge with their wealthier neighbours. This section focuses on forces that can create locally increasing returns at the individual level and draws out their implications for poverty traps and asset dynamics.

When returns are locally increasing, there will be a positive relation between wealth (level of assets) and the marginal returns to assets. At the microeconomic or household level, a positive relationship between wealth and marginal returns can exist for at least three reasons:

1. The underlying income generating process may itself directly exhibit increasing returns to scale, either because the primal technology exhibits locally increasing returns or because input (output) prices or transactions costs are negatively (positively) related to scale over some significant range;
2. Some high return production processes may require a minimum project size such that only wealthier households can afford to switch to and adopt the high return process; and
3. Risk and financial market considerations may cause some lower wealth households to allocate their assets so as to reduce risk exposure, trading off expected gains for lower risk, thereby making expected marginal returns to wealth lower for lower wealth households.

For expository purposes, we will examine the second of these three reasons in detail.

Consider the case where a household can allocate its productive wealth to two distinct productive activities, L_1 and L_2. Both activities exhibit diminishing returns to wealth, as under the canonical neoclassical growth model. However, activity L_2 has a

---

[2] This section is lifted from Carter and Barrett (2006).

minimum scale of operation due to sunk costs of operation or of switching into L_2 (that is, it generates no returns if the wealth dedicated to this activity is below this minimum level). Figure 3 graphs these two production technologies as well as the steady state asset values that a household would choose if it were exogenously restricted to one technology or the other. Note that the graph is drawn for a given set of intrinsic characteristics (individual time preferences, technical efficiency or skill, and so forth).

For an individual with these characteristics, the value A_1^* denotes the steady state value for a household restricted to livelihood activity L_1, yielding income or material well-being level U_L^*. The value A_2^* denotes the same thing for L_2, yielding the higher level steady state income, U_H^*.[3] For illustrative purposes, Figure 3 places the asset poverty line, $\underline{A}$, between A_1^* and A_2^*. Note that this implies that any individual who settles into equilibrium at A_1^* would be caught in a poverty trap even though in principle a higher, non-poor equilibrium exists.

So how would a household sort itself between activities and their implied equilibrium asset and well-being levels. Assuming that no risk or other constraints limit the adoption of the technologies, Figure 3 shows that the optimal livelihood choice for households is activity L_1 for households with asset stocks up to A_S, and L_2 for households with assets in excess of A_S. Although each of these livelihood functions exhibits diminishing returns, there are locally increasing returns in the neighbourhood of A_S, the threshold at which households optimally switch from L_1 to L_2. There are plentiful

---

[3] Note that the household restricted to $L1$ would choose a lower steady state level because the marginal returns to further accumulation (given by the slope of the production function) do not warrant additional savings. As illustrated in Figure 3, households restricted to either technology accumulate assets only up to the point where marginal returns are equalised.

empirical examples of such patterns, for example, households possessing more assets who adopt higher-return crop varieties or agronomic practices, wealthier households who get skilled salaried employment rather than unskilled casual wage labour, or households who graduate from poultry or small ruminants to indigenous cattle to improved dairy cattle and advanced animal husbandry practices (for example, artificial insemination, supplemental feeding, and so forth) as wealth grows and these methods become affordable.

While it thus seems reasonable to postulate that poorer households might utilise technology L_1, the key dynamic question is whether or not the pattern of locally increasing returns would impede the ability of this household to accumulate, cross over asset level A_S, and catch up with wealthier households. Consider an individual with assets between A_1^* and A_S. Two features of this problem are relevant to the long-term accumulation choices of this individual. First, the individual will be earning relatively low rates of return on their modest asset holdings, a factor which further perpetuates their poverty because they earn less investible surplus, after meeting immediate consumption needs, than do richer households. Second, the marginal short-term, or myopic, incentives to save are depressed. If household accumulation decisions were driven by these depressed returns and liquidity constraints, then the household would indeed be expected to reach an equilibrium asset holding at the relatively low level, A_1^*.

The key question then becomes whether or not household savings and accumulation behaviour will be driven by these low marginal returns. A forward-looking household would know that while the marginal returns to further accumulation are low, increased accumulation has strategic value in moving the household closer to the asset

level(s) where returns sharply increase. Clearly the household's first best option would be to borrow sufficient funds so that it could leap forward to a higher return asset level. Increasing returns would therefore not suffice by themselves to trap poor households at low asset levels.

If, however, poor households are rationed out of credit markets, as a now voluminous literature suggests, or if they lack socially mediated access to capital, as Mogues and Carter (forthcoming) suggest occurs in many polarised societies, then discrete jumps enabled by strategic borrowing may not be possible. In the face of exclusion from financial markets, a poor household's only option would be to move forward slowly with an autarchic savings strategy. This approach would require substantial short-term sacrifice (diminished consumption) with little return even in the medium term (as marginal returns to new assets are low until the household reaches A_S). If the poor household finds it desirable and feasible makes this sacrifice, then it will—with sufficient time—reach the asset level necessary to achieve the higher returns and will eventually converge toward the asset and income levels of initially wealthier households. But many very poor households cannot afford to reduce consumption further, or at least the opportunity cost of tightening their belts further – for example, in terms of foregone energy for work, withdrawing children from school, and so forth – make autarchic accumulation unattractive. If the poor household opts not to undertake extraordinary savings, it then settles into a poverty trap.

A somewhat complex theoretical literature explores the conditions under which each of these two outcomes is most likely to occur (for example, Loury 1981, Banerjee and Newman 1993, Galor and Zeira 1993, Mookherjee and Ray 2002). The basic

intuition is, however, simple. It would seem likely that if a household was not 'too far', in some sense, from the asset level where increasing returns occur, then it would be likely to pursue the autarchic accumulation strategy. However, as the distance from that level increases, it seems less likely that households would find it feasible and desirable to pursue the autarchic accumulation strategy. Zimmerman and Carter (2003) identify a Micawber Threshold, the critical asset threshold below which it is no longer rational or feasible to pursue the autarchic accumulation strategy. If it exists, the Micawber Threshold thus constitutes a dynamic asset poverty threshold, analogous to the static asset poverty line discussed in the previous section. Households whose assets place them above that threshold would be expected to escape poverty over time, while those below would not. One needs to identify this dynamic asset poverty threshold in order to disaggregate the structurally poor into those expected to escape poverty on their own over time through predictable asset accumulation and those expected to be trapped in poverty indefinitely.

As with the existence of multi-equilibria in macro growth models, the existence of the Micawber threshold has important policy implications (some of which we discuss in the conclusion to this paper). While the theoretical literature offers insights as to when such a threshold will occur, the really important question is the empirical one of whether such a threshold exists and, if so, where. As a first step in this direction, we now consider testable implications of such a threshold if it exists.

For illustrative purposes, denote $A^* < A_S$ as the critical dynamic asset poverty threshold. As discussed before, households with assets in excess of A^* will choose to save and accumulate (despite low marginal returns to accumulation) until they reach the

point A_S where it becomes optimal to switch to livelihood strategy L_2 and to grow to a steady state level of capital, A_2^*. Households below this threshold will by definition not find it optimal to make the sacrifices needed to reach A_S. Absent access to intermediate capital, such households will thus revert to a steady state level of capital, A_1^*.

Figure 4 portrays this scenario and its implication for asset dynamics. The top panel depicts Figure 3's two distinct livelihood strategies, L_1 and L_2. The bottom panel shows the asset dynamics that ultimately drive the system. Now we can better see how the critical threshold for poverty dynamics is neither $\underline{A}$, the static asset poverty line, nor A_S, the point at which households rationally switch from L_1 to L_2 in the static model, because while adoption of improved livelihood strategies is indisputably important, such choices are also reversible. Rather, the critical threshold is A^*, the unstable dynamic asset equilibrium, the threshold at which accumulation dynamics bifurcate. A household with initial wealth just above A^* will naturally accumulate assets, at some point pass A_S and switch from L_1 to L_2, and ultimately settle at a long-term equilibrium asset stock of A_2^*, yielding steady state utility U_H^* above the income poverty line. By contrast, a household with initial wealth just below A^* will naturally shed assets down to A_1^*, never switch to the more remunerative livelihood strategy, and settle ultimately at an equilibrium welfare level of U_L^*, well below the income poverty line. Note that in this particular case illustrated in Figure 4 ($A_1^* < A^* < \underline{A}$), the structurally poor at any point time (those with assets below $\underline{A}$) can be divided into those who will be persistently poor ($A < A^*$) and those who will eventually surpass $\underline{A}$ on their way to the high level equilibrium, A_2^* ($A^* \leq A < \underline{A}$).

While Figure 4 was drawn with $A_1^* < A^* < \underline{A}$, other configurations are possible. Adato *et al.* (this volume) estimate that $A_1^* < \underline{A} < A^*$ in South Africa. In this case, all the currently structurally poor, and a subset of the non-currently structurally poor would be expected to gravitate to the low level equilibrium.

Figure 3: Asset Poverty With Multiple Livelihood Options

Figure 4: The Dynamic Asset Poverty Line
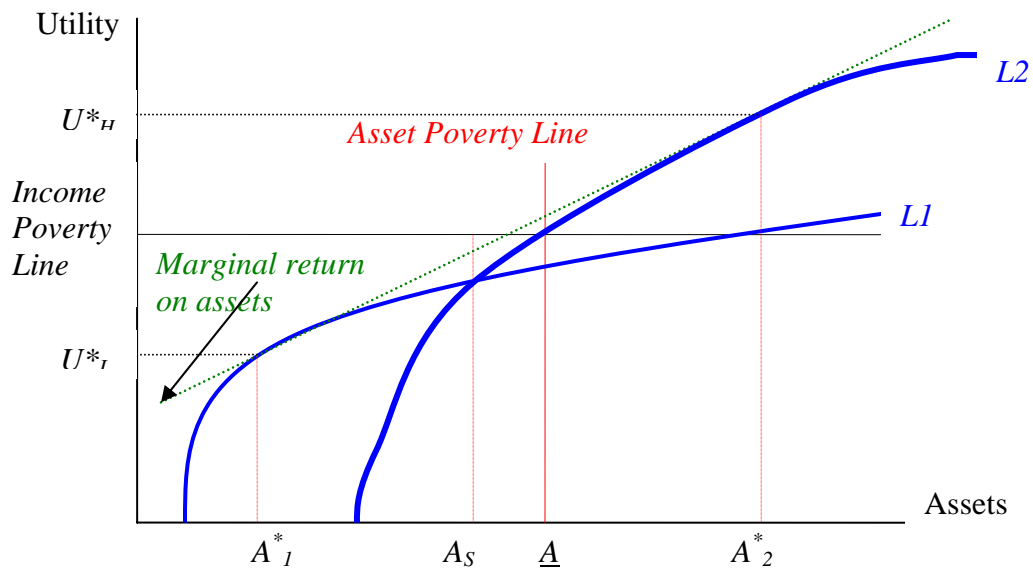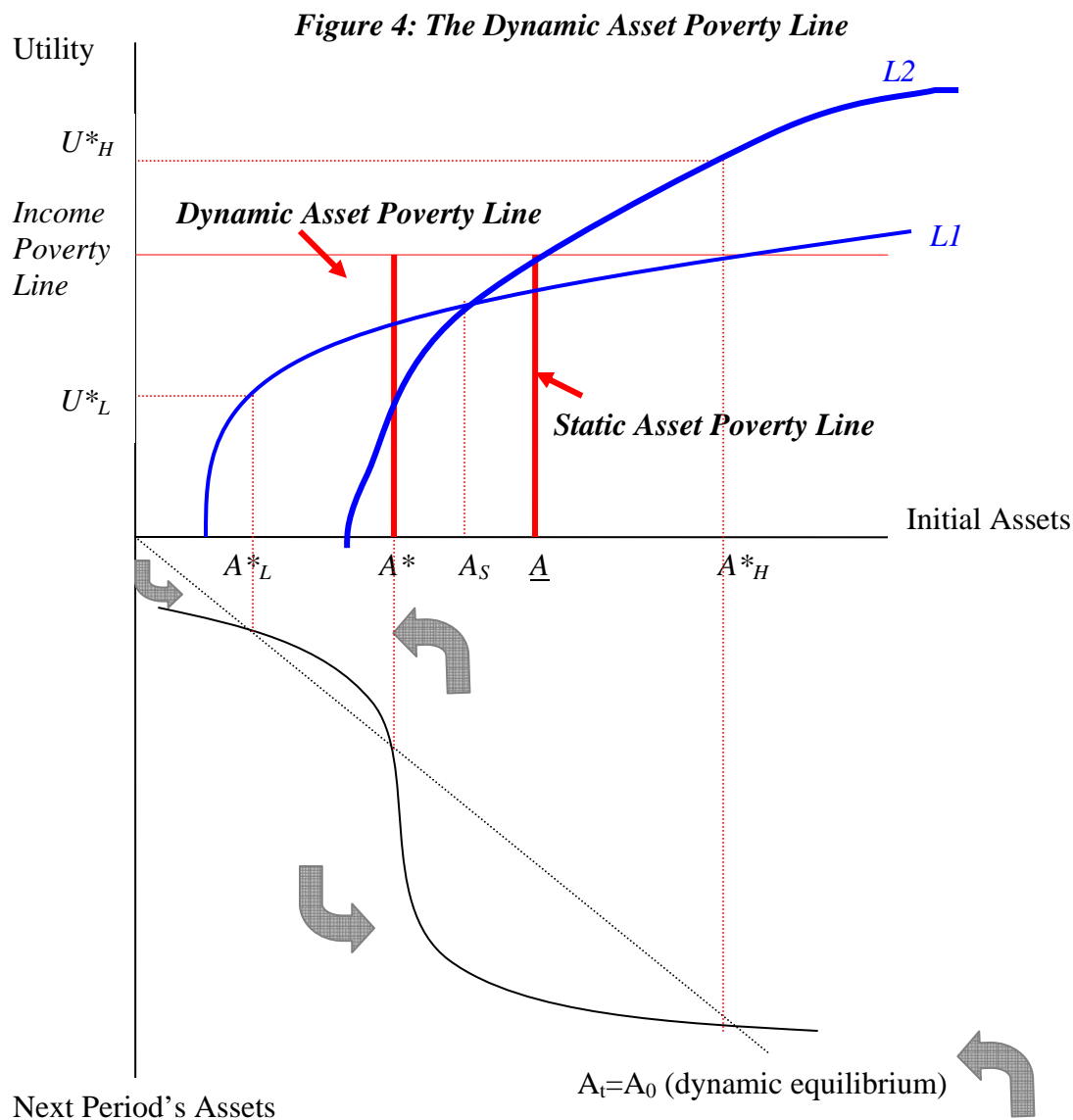
3. Evidence of Polarizing Income Distribution Dynamics

While the theory of bifurcated dynamics is well established, the empirical evidence to date is thin. This section summarizes two kinds of evidence. The first kind is comprised of studies that have tried to directly estimate income dynamics using panel data sets. The second, and less conventional kind of evidence, considers the implications of bifurcated versus convergent income distribution dynamics for political preferences. While this work is still very much in progress, the apparent shift left (and apparent polarization) in

recent Latin American elections suggests that the underlying income distribution process is itself a polarizing one.

3.1 Estimate of Income Distribution Dynamics

This sub-section reviews some of the recent empirical evidence on the existence of such thresholds. One set of studies directly explores asset dynamics, searching for indications that asset accumulation bifurcates around a threshold value. A second set looks at behavioral response to shocks, again searching for an asset threshold around which behavior bifurcates.

The studies that have directly tested for poverty traps have modeled household welfare dynamics either fully parametrically or fully nonparametrically. Three parametric studies (Jalan and Ravallion 2004; Lokshin and Ravallion 2004; Barrett et al. 2006) have estimated the level of household welfare (either income or assets) in one period through a polynomial autoregression. The first two of these studies find only one dynamic equilibrium and no poverty trap. However, the parametric estimation methods used in these studies assume globally decreasing returns to scale, thus assuming away one of the key features for which one ostensibly wishes to test, i.e., locally increasing returns that could give rise to poverty traps. In contrast, Barrett et al. (2006), using a more flexible specification, find evidence of multiple dynamic equilibria consistent with the presence of a poverty trap.

One problem with these parametric specifications is if the unstable threshold lies in an area with few observations, as theory suggests it will, it can be difficult, at best, to fit a polynomial function through the unstable equilibrium. Two alternative approaches have been utilized. A set of three studies have used nonparametric estimation (Lybbert et

al. 2004; Adato et al. 2006; Barrett et al. 2006). All three find evidence of multiple equilibria and a Micawber threshold. For example, the Adato et al. study of South Africa finds that households with assets less than those needed for a living standard of twice the official poverty line tend to collapse back to a low level standard of living equal to 90% of the poverty line.

Carter et al. (2007) take an alternative approach and employ Hansen's (1999) threshold estimator to directly test for the existence of a threshold around which accumulation behavior bifurcates. Drawing on longitudinal data collected around two environmental shocks (a 1998 hurricane (Mitch) in Honduras and a prolonged drought in Ethiopia over the late 1990's and early 2000's), they find evidence of a Micawber threshold around which asset accumulation bifurcates. While their analysis is subject to limitations, it does suggest that shocks that push households below critical threshold levels can have permanent consequences.

In addition to these initial efforts to directly test for the existence of poverty traps borne of multiple equilibria by estimating expected welfare dynamics, two other studies explore the asset smoothing implications of asset thresholds. The study by Carter et al. (2007) of drought in Ethiopia weakly reveals a pattern of asset smoothing among the lowest wealth households, meaning that the households at the bottom try to hold on to their few assets even as income and consumption possibilities dwindle during the period of severe losses in agricultural production. Similarly, among pastoralists in northern Kenya the variability of household expenditures exceeds that of income below an apparent dynamic asset poverty threshold, but not above it (Barrett et al., 2006). The poor appear to manage their herds so as to smooth assets, not consumption.

Finally, in perhaps the most compelling demonstration of asset smoothing, Hoddinott (2006), using data from rural Zimbabwe, shows that households above a threshold (of two cattle) sell livestock so as to smooth consumption in the face of drought-induced income losses. Below that threshold, however, households are much less likely sell livestock, and instead cope with income loss via decreased consumption, i.e., they asset smooth.

3.2 Political Evidence: The Political Economy of Polarization

In a seminal paper, Benabou and Ok (BOK) examine the implications of the Prospect of Upward Mobility (POUM) hypothesis for redistributive preferences (Benabou and Ok, 2001). The POUM hypothesis has been advanced as an explanation for the fact that the poor tend to reject redistributive policies on the basis that once such policies are in place they may be detrimental to poor individuals in the future if their financial position improves.

BOK demonstrate that a necessary condition for less well-off individuals to oppose redistributive policies is for the income transition function to be concave, or exhibit the sort of convergent (non-poverty trap) dynamics discussed in the prior section. Morrow and Carter (in progress) analyze political preferences for the case when distributional dynamics are divergent or polarizing. In this case, forward-looking individuals below their societies average income level will tend to favor redistributive policies. Morrow and Carter label this the POZUM (prospect of zero upward mobility) hypothesis. Poor POZUM individuals can rationally expect that redistribution will always benefit them since there is no prospect of ever climbing the income ladder to a point where they will be on the wrong end of a redistributive policy.

Beyond these initial observations, Morrow and Carter go on to model the acquisition of information by individuals in a world where (1) The objective structure of the economy is not well understood (especially in the wake of major economic policy changes); (2) Political parties offer their own interpretation about income distribution dynamics; and, (3) Individuals are characterized by initial ideological priors and by the intensity of their ideological commitment to one vision of the economy or another; and, (4) Finally, over time individuals learn about the income distribution process by observing the income transitions of other individuals like themselves.

Assembling these pieces yields a model with rich political dynamics. In particular, the model seems to track the experience of Latin America over the last 15 years as politics has moved increasingly left, despite a liberalization TINA (There Is No Alternative) starting position that bought into the notion of convergent income distribution dynamics. The recent string of elections (Brazil, Bolivia, Chile, Ecuador, Mexico, Nicaragua, Peru …) suggests a society that has been learning about a divergent, inequality preserving income distribution dynamics.

4. Public Policy to Mitigate in the Face of Polarization

The observations by John Williamson cited at the beginning of this note are broadly consistent with the economic theory summarized in section 2 above. Getting more people onto a convergent income path requires either (1) Asset transfers that lift them above the Micawber Threshold; or, (2) A change in the structural conditions (financial market imperfections) that generate bifurcated asset and income dynamics. In addition,

the theory suggests that size may matter—grants that are too small to lift individuals over the threshold will prove to be self-defeating.

In this final section, I will briefly reflect on both of the public policy implications of both of these options, emphasizing cash transfers that build human capital (section 4.1) and threshold targeted social protection that crowds in individual savings and accumulation. As will be seen, there is still much to learn about how to make both types of programs effective.

4.1 Basic Asset Grants: Land and Human Capital[4]

Redistributive land reform has of course been a key instrument of asset redistribution in many countries. Land reform continues to have its place, and continues to invoke significant debate (both between opponents and proponents, and amongst proponents). I have written so many papers over the years on the topic, that I thought I would bypass it for purposes of this note. I do think that one important area for research is to understand if land redistribution facilitates future accumulation by beneficiary households, including of their human capital. There is much work suggestive of this outcome (my favorite is Birdsall *et al.*, 1995), but additional work is needed if the case is to be made. Current reforms in South and Brazil offer that opportunity.

Enough said on land reform for this paper. However, if anyone wants to discuss the topic, just let me know!!

In an effort to break this intergenerational transmission of poverty (poverty which "lays its own eggs," in the words of an informant quoted in the (CPRC 2005), some middle income countries have adopted cash transfer programs designed to bolster the

---

[4] This subsection draws on Aguero, Carter and Woolard (2006).

nutrition, health and education of the children of poor families. South Africa, in 1998, instituted a new program called the Child Support Grant (CSG). Unlike Mexico's *Progresa* program (and the many other programs based on it), the CSG is an unconditional transfer program (transfers are made without any evidence of school attendance, clinic visits, *etc.*). The CSG benefit was initially limited to children under seven (unlike the SMG which covered children up to age 18). In proposing the CSG, the Lund Committee emphasized that the grant must "follow the child," meaning that the benefit should be independent of the child's family structure. This approach represented a move from a family-based benefit to a child-focused one. Legally, however, the grant must be paid over to an adult and it is the intention that the person to whom the grant is paid is the "primary care giver" of the child for whom the benefit is intended. In cases where the applicant is not the biological parent of the child, a sworn affidavit from the parents or guardians is required to confirm that the applicant is indeed the primary care giver. In practice, the designation of the primary care giver as the grant recipient has effectively targeted women. In the data used here, 98% of designated primary care givers are female.

When the Child Support Grant (CSG) was introduced it was intended to cover the poorest 30% of children and was means-tested, i.e. the child had to be residing in a household with a household income below a certain threshold. The threshold was set at R800 (approximately US$110) for children living in urban areas and at R1100 (US$150) for those living in rural areas or in informal settlements. In 1999, due to a low take-up rate, the Department of Welfare altered the income test from a household based measure to one which considered only the income of the primary caregiver plus that of his/her

spouse (net of other state transfers). The means test has remained unchanged in nominal terms since 1998, despite the fact that the Consumer Price Index rose 40% between April 1998 and September 2004. Despite this increasingly stringent means test, about half of age-eligible children were in receipt of the grant by this latter date.

The government has increased the age limit for eligibility in recent years. In April 2003 the age limit was raised to nine years old and a year later this was increased to eleven years. In April 2005 the age limit was raised to fourteen. The amount granted has also changed since 1998 and the increases have outstripped inflation. While the initial monthly benefit was R100 in 1998, it is currently R180. During the time of the survey which we discuss, the monthly benefit was R170 which equates to approximately to US$25 using the market exchange rate (or, PPP US$50).

To determine the impacts on human capital accumulation, Aguero et al. (2006) analyze the impact of CSG transfers on the height-for-age z-scores (HAZ) of a sample of South African children. Through clever econometrics (!) that allow the estimated impact to vary with the extent of CSG support received by the child (expressed as the fraction of the child's window of nutritional vulnerability in which she or he was covered by the CSG), these authors find that for treatments covering less than 20% of the window there are no gains. The gains are at a maximum when the treatment covers around two-thirds of the nutritional window. A child receiving treatment for two-thirds of the windows, on average, has 0.25 more HAZ than a child with a treatment covered for only 1% of the window. This gain is statistically significant when we include the confidence intervals (shown as dashed lines). The portion of the impact curve for which we can reject the hypothesis of zero impact are demarcated with rectangles. The decline of the gains on

HAZ after a dosage of 80\% cannot be interpreted as an indicator that treatment is less effective after that level, since this decline coincides with a growth of the width of the interval estimator provoked by a small number of dosage levels beyond that point (as shown by the distribution function).
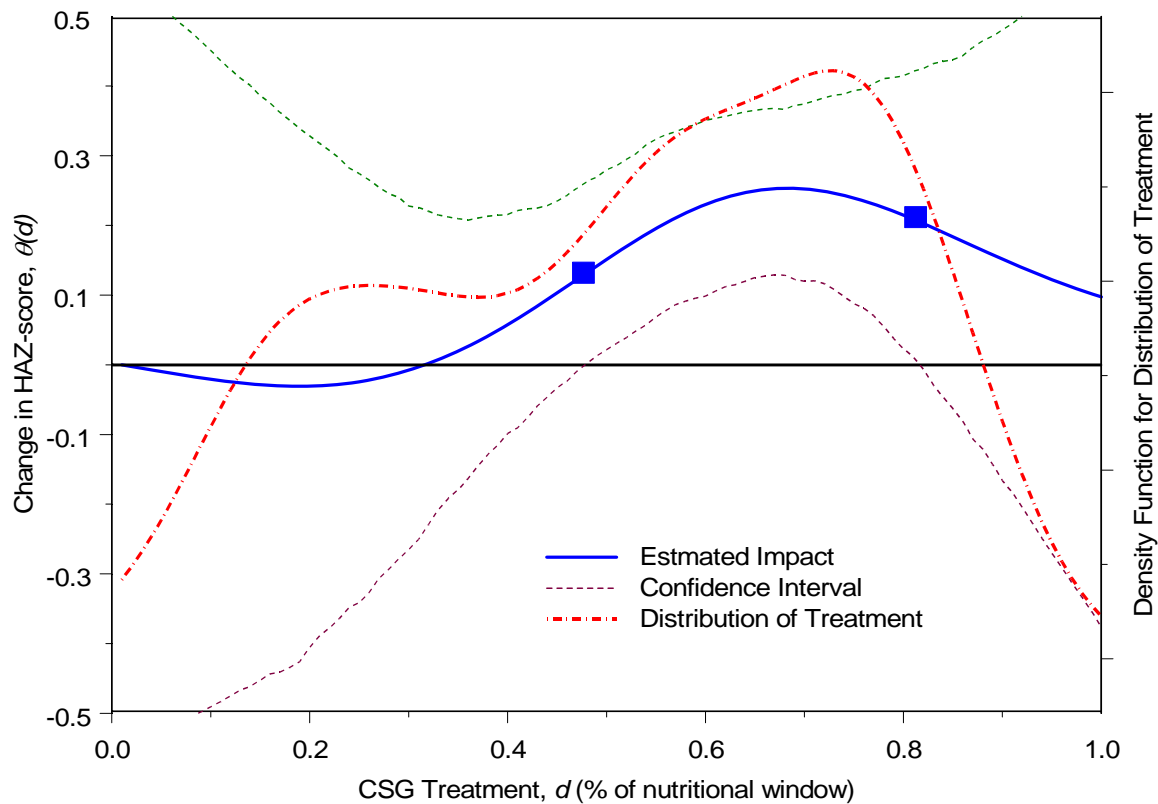
The nutrition of young children is of importance not only because of concern over their immediate welfare, but also because nutrition in this formative stage of life is widely perceived to have substantial, persistent impact on their physical and mental development. This is turn affects their school success and later labor market productivity. Improving the nutritional status of malnourished infants and small children may, therefore, have important payoffs over the long term \cite{behrman05}. Drawing estimates of the impact of adult height on labor market earnings, Aguero et al. calculate that average estimated z-score gain of z-score gain of 0.4 translates into a 3.5 cm.

increase in adult height. This height increase in turn is estimated to yield a monthly

income increase of between R190 to R262 (ignoring general equilibrium effects). To

compute the returns to the CSG payments, we calculate the present discounted value of a

flow of R190 (and R262) from age 25 to 65 when retirement is expected. Note that this

assumes that the individual is fully employed throughout this time period. At an annual

real discount rate of 5\% it yields a discounted present value of R11,123 (R15,357) at

birth. Given the cost of 20 months of the CSG (20*R170), our calculations show a

Benefit-Cost ratio between 3.3 and 4.5. If we instead more realistically assume that the

individual is unemployed 50 percent of the time (with unemployment spells randomly

distributed across the life cycle), then these figures are cut in half, with the estimated cost

ratios falling to between 1.6 and 2.3.

*4.2 Productive Social Protection to Crowd-in Savings and Accumulation*[5]

Exposure to risk and shocks play especially pernicious roles when poverty traps exist. *Ex*

post, realized shocks can have irreversible consequences for intermediate skilled agents if

the shocks push them below the critical Micawber Threshold. In addition, the *ex ante*

anticipation of shocks shifts out the Micawber Threshold, making it less likely that

intermediate skilled agents will sacrifice and strive for a higher equilibrium standard of

living given their knowledge that future shocks may render such sacrifice useless.

Combined, these two effects indicate that shocks can increase the incidence of avoidable,

chronic poverty. Social protection and relief programs that either compensate individuals

for the effects of realized shocks, or insure them against future losses, would seem to

---

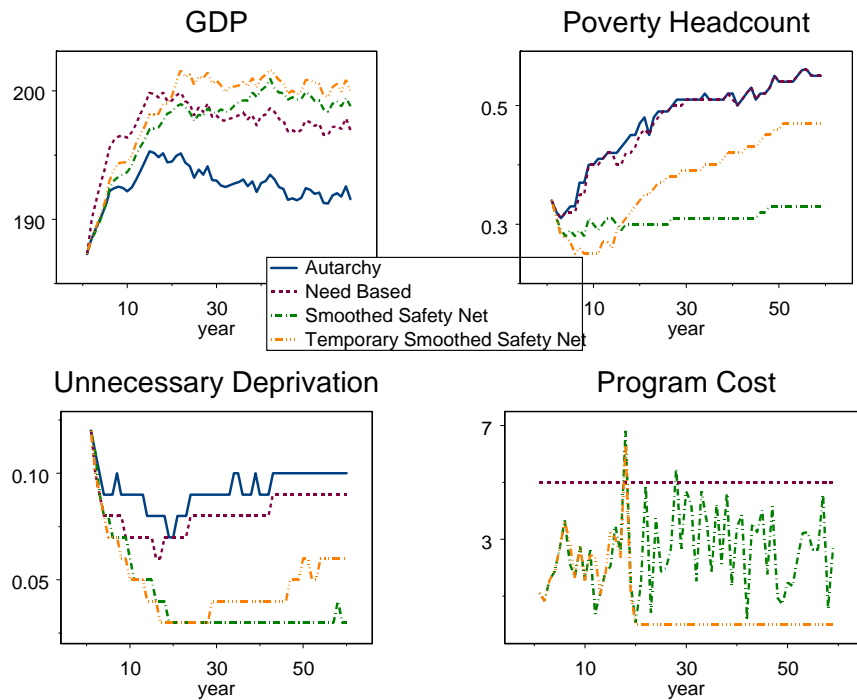[5] This subsection draws heavily on Barrett, Carter and Ikegami (2007).

have the potential to have a major effect on income distribution dynamics, even taking into account agents' behavioral response to insurance (i.e., moral hazard).

Barrett, Carter and Ikegami (2007) employ a stochastic dynamic programming model of individual asset accumulation to explore this potential with a series of policy simulations that starkly illustrate the complexity of social protection in a world characterized by poverty traps. A first series of policy simulations are used to explore the design of programs intended to aid the poor, either by making progressive, needs-based transfers or by offering (at least partial) insurance against potentially catastrophic asset losses. These experiments are perhaps best characterized as relief programs in that they are ex post and they are not anticipated by agents in the economy.

Their analysis shows that while needs-based assistance to the poorest results in lower headcount and poverty gap measures over the first 10 to 15 years of the simulation, a triage policy based on an productive safety net dominates needs-based assistance over the remaining 45 years of the simulation and generates higher GDP per capita and improved technology adoption rates as well as sharply lower rates of needless deprivation, a new measure we introduce. In the long-term, because the triage policy stems the emergence of needlessly chronically poor individuals due to economic shocks, it yields a poverty headcount less than half of that under the needs-based transfer policy. Similarly, the long-term poverty gap (the income shortfall experienced by the poor relative to the poverty line) is cut in half by the triage policy. Expanding the early period budget by borrowing against future year budgets can lessen, but not eliminate, the near-term/long-term tradeoff between policy regimes.

GDP · Poverty Headcount · Poverty Gap · Unnecessary Deprivation

triage
needbased
autarchy
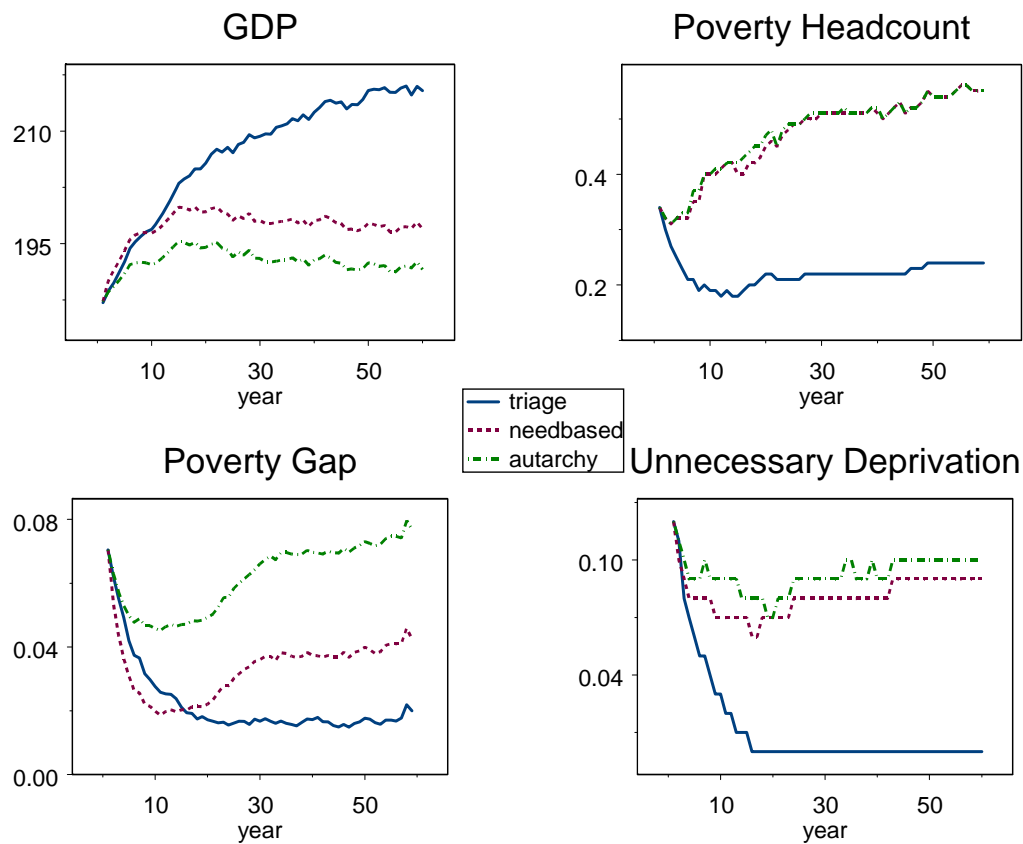
The second set of policy simulations are better conceptualized as systematic

social protection programs whose effects are fully anticipated by the affected individuals.

While the anticipation of social protection can potentially crowd-in private accumulation

(what we term positive dynamic moral hazard) by reducing the ex ante costs of risk, it

may also induce more conventional negative moral hazard. While the effects of negative

moral hazard appear substantial, we show how modest changes in program structure can

markedly reduce their effects.

GDP
Poverty Headcount
Unnecessary Deprivation
Program Cost

Legend:
- Autarchy
- Need Based
- Smoothed Safety Net
- Temporary Smoothed Safety Net

Ultimately, the key finding of the Barrett et al. paper is that poverty traps can have a pronounced effect on the performance and appropriate design of policy intended to stimulate poverty reduction, economic growth and uptake of improved production technologies. Thus there are potentially large returns to developing and using knowledge about critical asset thresholds to target assistance in economies characterized by poverty traps. Whatever its analytical complexity, the analysis here has nonetheless massively oversimplified the real world. While there are always improvements to be made in the modeling, the more substantive research agenda here involves empirically identifying critical asset thresholds (the Micawber Frontier, as we have called it) and then seeing if threshold-targeted assistance can really liberate human potential to craft pathways from poverty. It is time to get to work.

References

Adato, M., M.R. Carter and J. May (2006), "Exploring Poverty Traps and Social Exclusion in South Africa Using Qualitative and Quantitative Data", *Journal of Development Studies*, 42 (2): 226-247.

Aguero, J.M., M.R. Carter and I. Woolard (2006). "The Impact of Unconditional Cash Transfers on Nutrition: The South African Child Support Grant" working paper, University of Cape Town.

Barrett, C.B., M.R. Carter and M. Ikegmai (2007). "Poverty Traps and Social Protection," University of Wisconsin.

Barrett, C.B., P.P. Marenya, J.G. McPeak, B. Minten, F.M. Murithi, W. Oluoch-Kosura, F. Place, J.C. Randrianarisoa, J. Rasambainarivo and J. Wangila (2006), "Welfare Dynamics in Rural Kenya and Madagascar," *Journal of Development Studies* 42(2):248-277.

Banerjee, A.V. and A.F. Newman (1993), "Occupational Choice and the Process of Development," *Journal of Political Economy* 101: 274-298.

Benabou, R. E. Ok (2001). "Social mobility and the demand for redistribution: the POUM hypothesis," *Quarterly Journal of Economics.*

Birdsall, Nancy, David Ross and Richard Sabot (1995). "Inequality and Growth Reconsidered: Lessons from East Asia," *The World Bank Economic Review* vol. 9, no. 3, September (1995): 477-508.

Calvo, C. and Dercon, S. (2004), Measuring Individual Vulnerability,

Carter, Michael (2006). "Sequencing Micro and Macro Reforms for Pro-poor Growth: Forward-looking Reflections on the South African Experience," in V. Padayachee (ed.) *The Development Decade? Economic and Social Change in South Africa, 1994-2004* (Cape Town: HSRC Press)

Carter, M.R. and C.B. Barrett (2006), "The Economics of Poverty Traps and Persistent Poverty: An Asset-Based Approach," *Journal of Development Stud*ies 42(2): 178-199.

Carter, Michael, Peter Little, Tewodaj Mogues and W. Negatu (2007). "Poverty Traps and the Long-term Consequences of Natural Disasters in Ethiopia and Honduras," *World Development*.

CPRC (2005). *The Chronic Poverty Report.*

Dercon, S. (1998). "Wealth, Risk and Activity Choice: Cattle in Western Tanzania." Journal of Development Economics **55**: 1-42.

Galor, O. and J. Zeira (1993), "Income distribution and macroeconomics," *Review of Economic Studies* 60 (1): 35-52.

Hoddinott, John (2006), Shocks and their consequences across and within households in rural Zimbabwe, Journal of Development Studies, 42(3), 301-21, February.

Jalan, J. and M. Ravallion (2004). "Household Income Dynamics in Rural China", pp. 108-124 in S. Dercon (eds.) Insurance Against Poverty, Oxford University Press: Oxford.

Lokshin, M. and M. Ravallion (2004) "Household Income Dynamics in Two Transition Economies", Studies in Nonlinear Dynamics and Econometrics 8(3), Article 4.

Loury, G.C. (1981), "Intergenerational Transfers and the Distribution of Earnings," *Econometrica* 49: 843-867

Lybbert, T. and C.B. Barrett (forthcoming). "Risk Responses to Dynamic Asset Thresholds," *Review of Agricultural Economics.*

McPeak, J. (2004) "Contrasting Income Shocks with Asset Shocks: Livestock Sales in Northern Kenya." *Oxford Economic Papers* 56(2):263–84.

Mogues, T. and M.R. Carter (2006), "Social Capital and the Reproduction of Inequality in Socially Polarized Economies", *Journal of Economic Inequality*.

Mookherjee, D. and D. Ray (2002), "Contractual Structure and Wealth Accumulation," *American Economic Review* 92 (4): 818-849.

Morrow, J. and M.R. Carter (in progress). "The Political Economy of Polarization," University of Wisconsin working paper.

Santos, P. and C.B. Barrett (2006), "Heterogeneous Wealth Dynamics: On The Roles of Risk and Ability", Cornell University working paper.

Williamson, John (2003). "From Reform Agenda: A Short History of the Washington Consensus and Suggestions for What to Do Next," *Finance & Development* (September): 10-13.

Zimmerman, Fred and Michael Carter (2003). "Asset Smoothing, Consumption Smoothing and the Reproduction of Inequality under Risk and Subsistence Constraints," Journal of Development Economics 71(2):233-260. (August).