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Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics, and policy implications

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Abstract

Asset, activity and income diversification lie at the heart of livelihood strategies in rural Africa. This paper introduces a special issue on the topic "Income Diversification and Livelihoods in Rural Africa: Cause and Consequence of Change." We concentrate on core conceptual issues that bedevil the literature on rural income diversification and the policy implications of the empirical evidence presented in this special issue.

Keywords: Employment; Off-farm earnings; Rural development

Introduction

Diversification is the norm. Very few people collect all their income from any one source, hold all their wealth in the form of any single asset, or use their assets in just one activity. Multiple motives prompt households and individuals to diversify assets, incomes, and activities. The first set of motives comprise what are traditionally termed "push factors": risk reduction, response to diminishing factor returns in any given use, such as family labor supply in the presence of land constraints driven by population pressure and fragmented landholdings, reaction to crisis or liquidity

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constraints, high transactions costs that induce households to self-provision in several goods and services, etc. The second set of motives comprise "pull factors": realization of strategic complementarities between activities, such as crop-livestock integration or milling and hog production, specialization according to comparative advantage accorded by superior technologies, skills or endowments, etc.

These micro level determinants of diversification are mirrored at more aggregate levels. From the "push factor perspective", diversification is driven by limited risk-bearing capacity in the presence of incomplete or weak financial systems that create strong incentives to select a portfolio of activities in order to stabilize income flows and consumption, by constraints in labor and land markets, and by climatic uncertainty. From the "pull factor perspective", local engines of growth such as commercial agriculture or proximity to an urban area create opportunities for income diversification in production- and expenditure-linkage activities.

The consequence of the ubiquitous presence of the above factors in rural Africa is widespread diversification. Despite the persistent image of Africa as a continent of "subsistence farmers", nonfarm sources may already account for as much as 40–45% of average household income and seem to be growing in importance (Bryceson and Jamal, 1997; Reardon, 1997; Little et al., 2001).

Perhaps more importantly, nonfarm activity is typically positively correlated with income and wealth (in the form of land and livestock) in rural Africa, and thus seems to offer a pathway out of poverty if nonfarm opportunities can be seized by the rural poor. But this key finding is a double-edged sword. The positive wealth–nonfarm correlation may also suggest that those who begin poor in land and capital face an uphill battle to overcome entry barriers and steep investment requirements to participation in nonfarm activities capable of lifting them from poverty.

Hence the rapid emergence of widespread attention paid these issues by scholars, policymakers and donors.[1] Poverty policy generally aims to improve the asset holdings of the poor, either by endowing them with additional financial, fixed, human, natural, or social assets, by increasing the productivity of assets they already hold, or both. Diversification patterns reflect individuals' voluntary exchange of assets and their allocation of assets across various activities so as to achieve an optimal balance between expected returns and risk exposure conditional on the constraints they face. By providing a window into households' revealed preference among livelihood strategies and the feasible set of strategies among which different households can choose, the study of diversification behavior offers important insights as to what sorts of interventions might be effective in reducing poverty and vulnerability. This can happen through identification of either effective means of targeting transfers to the poor or the food insecure, or impediments to the smooth functioning of factor markets in labor, land and capital that condition households' on- and off-farm investment.

This paper introduces a special issue of *Food Policy* on "Income Diversification

[1] For surveys of the evidence and literature, see Haggblade et al. (1989); von Braun and Pandya-Lorch (1991); Bernstein et al. (1992); Saith (1992); Reardon (1997); Ellis (1998); Reardon et al. (1998); Reardon et al. (2000); Ellis (2000).

and Livelihoods in Rural Africa: Cause and Consequence of Change." The seven papers that follow offer an unprecedented collection of case studies based on detailed primary data from across Africa. The striking consistency of the papers' findings across space, time and analytical methods suggests empirical regularities with respect to the determinants and effects of diversification behaviors that can and ought to inform policymaking in Africa. This introductory paper aims to call attention to several core conceptual issues that continue to bedevil the existing literature on rural income diversification, so as to place the seven subsequent papers in a broader context, and then to draw out the policy implications of the accumulated empirical evidence.

Conceptual issues

Several conceptual issues lurk just beneath the surface of the rapidly growing literature on nonfarm rural economies and livelihood diversification. The most mundane, yet essential, concern foci and definitions: is one inherently interested in assets, incomes, or shares of land or time in alternative activities? What distinguishes "farm", "non-farm" and "off-farm" categories? The next subsection briefly addresses these questions in the interest of helping foster greater standardization of terms and accounting conventions, and thereby resolving some methodological questions that plague the existing literature and improving comparability across studies.

The subsequent subsection addresses conceptual questions about the causal origins of observed diversification patterns. Many published studies of the nonfarm economy focus on a single reason to diversify (most commonly, risk management) and thereby fail to consider all plausible pathways of diversification. We therefore review the range of credible explanations to be found in the literature.

Definitional questions

The extant literature on diversification lacks common definitions or well-established conventions on the collection or classification of data or on the use of indicators to capture observed diversification behaviors. This lack of standard approaches impedes effective comparative analysis and too often leads to mistaken inference. We therefore offer some basic rules of thumb drawn from our own work and the papers in this special issue.[2]

The first issue relates to the variable(s) of interest in the study of diversification behavior. Individuals[3] own assets, some of which (non-productive assets, such as household valuables) generate "unearned" income directly and others of which (productive assets, such as human capital, land, livestock) generate "earned" income

[2] Barrett and Reardon (2000) present a more detailed treatment of these methodological issues, addressing data collection and measurement questions as well.

[3] The analysis can be repeated at any higher unit of analysis (e.g. household, clan, village, region, nation) simply by aggregating across individuals.

only indirectly through their allocation to activities such as farming, weaving or commerce. Assets, activities, and income are thus complementary measures in the study of diversification behaviors. Income offers a measure of direct interest because of its clear interpretation as a welfare outcome. But it can be difficult to distinguish (constrained) choice from chance in income draws. Assets offer a store of wealth as well as sources of income, and portfolio theory focuses on asset allocation. But assets can be very difficult to value accurately in rural Africa, where secondary asset markets are often poorly developed, especially since asset fixity (assets specific to certain activities (e.g. plows for crop cultivation)) generates highly variable returns to assets. Activities are ex ante flows of services that map the stock concept of assets into the ex post flows of income, and thereby help identify individuals' explicit diversification choices, detached from the effects of shocks to productivity and income. Yet activities are of no direct theoretical relevance themselves, can be likewise difficult to value, and necessarily miss the generation of income from nonproductive assets, so they too offer imperfect measures of diversification behaviors.

None of the three variables is unambiguously better than the others, so we advocate the use of multiple indicators as cross checks on inference based on any single one. The papers in this special issue demonstrate this approach, commonly tying observations of one sort of indicator to data on another. The difficulty here lies in capturing the dynamics of change and directions of causality.

The prevailing practice is to emphasize income diversification measures, but in almost every case these are directly linked to household asset stocks and the feasible activity choices faced by different households. For example, in two papers on Ethiopia, Woldehanna and Oskam study off-farm labor supply decisions (an activity allocation) as a function of household asset holdings, while Block and Webb explore the effect of alternative asset mixes on income diversification. Barrett et al. similarly study Ivoirian households' choice of activities as a function of their asset endowments.

Inconsistent terminology is another common source of confusion in this literature. The terms "off-farm", "non-farm", "nonagricultural", "nontraditional", etc. routinely appear in seemingly synonymous ways. The basic distinctions among activities and incomes are to be made along sectoral and spatial lines.[4] One must follow standard national accounting sectoral classifications in order to maintain a logical correspondence between micro and macro level analyses. Table 1 depicts the components of rural household income using a three-way classification of earned income (i.e. income from productive assets) by sector (e.g. farm vs nonfarm), function (wage vs self employment), and space (local vs migratory).

The most basic classification of activities follows the sectoral distinctions of national accounting systems: primary (agriculture, mining, and other extractive), secondary (manufacturing), and tertiary (services). This leads directly to the distinction between "agricultural" or "farm" income (derived from the production or gathering

[4] Saith (1992) similarly emphasizes "locational" and "linkages" approaches to defining diversification patterns.

Table 1
Three-way classication of activities: sectoral, functional, spatial[a]

	Primary sectors				Secondary sectors		Tertiary sectors	
	Agriculture	Mining and other extractive			Manufacturing		Services	
Wage employment	Local Migratory	**Local**	**Migratory**		**Local**	**Migratory**	**Local**	**Migratory**
Self-employment	Local Migratory	**Local**	**Migratory**		**Local**	**Migratory**	**Local**	**Migratory**

[a] Farm or agricultural = all activities in the agriculture sector, regardless of location or function (columns in roman). Nonfarm or nonagricultural = all activities outside the agricultural sector, regardless of location or function (columns in bold). On-farm or at-home = all activities on one's own property, regardless of sectoral or functional classification; almost always self-employment (i.e. bottom row). Off-farm or away-from-home = all activities away from one's own property, regardless of sectoral or functional classification; can be wage or self-employment.

of unprocessed crops or livestock or forest or fish products from natural resources) and "nonagricultural" or "nonfarm" income (all other sources of income, including from processing, transport or trading of unprocessed agricultural, forest and fish products). So sectoral farm/nonfarm assignment concerns only the nature of the product and the types of factors used in the production process. It does not matter where the activity takes place (in the domicile, on the farm premises, in town, abroad), at what scale (in a huge factory or by a single person), with what technology, or whether the participant earns profit or labor income (wages or salary) from the activity. Perhaps the most common error is classifying agricultural wage employment income as nonfarm rather than as agricultural (sector) and off-farm (location) income.

The next distinction, depicted as separate rows in Table 1, concerns functional classifications. Here there exists a continuum from "clearly wage-employment" (i.e. involving a wage or salary contract), through a grey area where an activity could be classified as either wage- or self-employment, to "clearly self-employment" (e.g. entrepreneurial activity). A distinction between these two is typically drawn for both data collection and analytical reasons. First, data collection on income from self-employment typically involves different questions, and is far more complicated than collecting data on wage or salary income. Second, as the papers in this special issue consistently emphasize, labor market opportunities vary enormously between poorly compensated unskilled wage labor in any sector, well compensated, generally more dependable skilled wage or salary labor (almost always in the nonfarm sectors) and self-employment in skilled or unskilled trades or commerce in the nonfarm sectors or in farming.

Finally, given the sectoral and functional categorization of an activity, there is spatial classification into two broad categories with some important subcategories. First, an activity can be "local", with two sub-categories: (a) at-home (or the more

ambiguous term "on farm");[5] and (b) local away-from-home, with subcategories of (i) countryside or strictly rural, (ii) nearby rural town, and (iii) intermediate city. Second, an activity can be "distant away-from-home" (or the simpler but sometimes ambiguous term, "migratory"), with subcategories: (a) domestic rural (e.g. inter-zone migration), (b) domestic urban (such as to a distant metropolitan area), and (c) foreign. The local versus in-country versus foreign distinction permits one to judge how dependent the household is on the local economy and its vicissitudes, to study local intersectoral linkages between the farm and nonfarm sectors, to study rural-urban linkages within the country, and to marry micro-level observations with macro-level observations of workers' remittances and other unrequited transfers in the balance of payments. A household can be "rural" (located in the countryside) but its activities may be a mix of urban and rural. There is unfortunate ambiguity in the way researchers use terms such as "rural nonfarm income" because at times they mean the nonfarm income (earned anywhere) by rural households, and other times they mean the nonfarm income earned only in rural areas by rural households. One needs to be clear about the definitions used in the study of diversification behaviors.

The causal origins of diversification

The literature already shows that nonfarm earnings account for a considerable share of farm household income in rural Africa, typically moreso than in other world regions (Reardon, 1997; Reardon et al., 1998). Most of the papers in this special issue confirm widespread reliance on nonfarm income sources by African farm households. The first logical question is: why do households diversify?

Farm household diversification into nonfarm activities emerges naturally from diminishing or time-varying returns to labor or land, from market failures (e.g. for credit) or frictions (e.g. for mobility or entry into high-return niches), from ex ante risk management, and from ex post coping with adverse shocks. Where returns to productive assets vary across time (e.g. land, labor or livestock across dry and wet seasons) or among individuals within a household or households within a community, data aggregated across time, individuals, or households will exhibit diverse assets, activities and incomes even if there is complete Ricardian specialization according to comparative advantage at the level of individuals. Such aggregation likely accounts for a substantial proportion of the diversification reported in empirical studies.

Additional explanations turn on incomplete markets (e.g. for land, labor, credit, or insurance). Missing land markets, for example, can help explain why a skilled blacksmith who inherits land spends scarce time farming although his comparative advantage lies in smithwork. Were land markets operative, he might rent out or sell

[5] In rare circumstances, one comes across rural African households whose real property is scattered quite widely in space, so that one could work on real property operated by the subject but beyond daily commuting distance from the (principal) home. In such unusual cases, one can add a fourth spatial category, distant on-farm. Hereafter we ignore the possibility of this category since it is rare in rural Africa.

his land and devote all his time to blacksmithing. But in the absence of land markets,[6] and in the presence of labor market imperfections that preclude his simply hiring others to work his land for him,[7] his optimal use of labor time may well include time spent on relatively less productive farming, else his land asset returns nothing to him. Observed diversification of labor activities and income for this hypothetical individual would then be attributable primarily to the absence of markets.

Similarly, a smallholder household endowed with much labor but relatively little land will, in the absence of well-functioning land markets, typically apply some labor to its own farm, and hire some labor out for off-farm wage employment in agriculture. Because individual factors of production face diminishing returns in most productive activities, when individuals or households are not endowed with the ratio that maximizes profits at prevailing shadow prices and there are not well-developed asset markets through which they can exchange assets to achieve the optimal mix, diversification becomes the natural response. Individuals rationally allocate assets across activities to equalize marginal returns in the face of quasi-fixed complementary assets (e.g. land) or mobility barriers to expansion of existing (farm or nonfarm) enterprises. For the poorest, this typically means highly diversified portfolios with low marginal returns, or desperation-led diversification (Barrett, 1997; Reardon et al., 2000; Little et al., 2001).

In remote areas where physical access to markets is costly and causes (household-specific) factor and product markets failures, households diversify production patterns partly to satisfy own demand for diversity in consumption (Omamo, 1998). This is the microeconomic analogue to the classic trade-theoretic model in which movement from free trade to autarky reduces specialization so as to satisfy local demand for multiple goods and services.

Missing markets can also discourage diversification. For example, missing credit markets can impede diversification into activities or assets characterized by substantial barriers to entry. Smallholders typically cannot afford to purchase a truck and enter the long-haul transport niche of the food marketing channel, no matter how profitable it might be (Barrett, 1997). On the other hand, if non-farm or off-farm options can be accessed easily, but credit markets are thin or missing, non-farm earnings can be a crucial means for overcoming working capital constraints to purchasing necessary variable inputs for farming (e.g. fertilizer, seeds, equipment, labor) or to making capital improvements (e.g. bunds, ridges, irrigation) to one's farm (Reardon et al., 1994; Pietola et al., 1998; Reardon et al., 1999). Or credit may be available, but land is unacceptable as collateral while evidence of steady off-farm cash income will suffice to enable one to borrow. Relatedly, some farmers may feel a deep attachment to agriculture as a way of life and are willing to pay, in the form

[6] We use the concept of "absence of markets" in the sense of de Janvry et al. (1991), meaning that for the household under study, risk premia, transport and search costs, etc., would make it irrational to participate in the market even if it exists in the area.

[7] Moral hazard problems that necessitate labor supervision are the typical issue here, but in some places with low population densities, there might not be enough labor available even were the moral hazard problem entirely absent.

of foregone profits, to maintain the family farm. In the presence of working capital constraints, off-farm earnings may be essential to maintaining a viable farm that requires purchased inputs or that cannot generate enough cash income to satisfy the household's cash requirements (for taxes, consumption goods purchases, school fees, medicines, etc.).

In the absence of complete credit or insurance markets, individuals are typically unable to smooth consumption in spite of a strong desire to do so. When financial markets (for credit and insurance, in particular) are complete, economic theory suggests that individuals consume only the permanent portion of their income and save (dissave) any transitory positive (negative) earnings. Or, if they are risk averse they purchase insurance to relieve themselves of income risk. For many institutional, infrastructural, technological, and informational reasons, financial markets are routinely incomplete in rural Africa, so individuals must act outside of financial markets in order to reduce consumption variability driven by real income variability. Diversification is a primary means by which many individuals reduce risk.

Diversification is widely understood as a form of self-insurance in which people exchange some foregone expected earnings for reduced income variability achieved by selecting a portfolio of assets and activities that have low or negative correlation of incomes (Alderman and Paxson, 1992; Reardon et al., 1992, 1998, 2000). Note that the notion of self-insurance is an ex ante concept of risk mitigation. Coupling weakly covariate pursuits diversified across sectors (e.g. crop production and seasonal metalworking) or space (e.g. migration) can reduce household income variability. If, as is widely believed, risk aversion is decreasing in income and wealth, then the poor will exhibit greater demand for diversification for the purpose of ex ante risk mitigation than do the wealthy. The fact that diversification rises with wealth or income in both absolute and proportional terms in rural Africa (Reardon, 1997; Reardon et al., 1998; Barrett et al., 2000) underscores that risk mitigation cannot satisfactorily explain observed patterns of nonfarm activity on the continent. We return to this core finding in the next section.

A related, but distinct role of diversification is to cope ex post with shocks to income. When crops fail or livestock die, households must reallocate labor to other pursuits, whether formal employment off-farm (e.g. wage labor), informal employment off-farm (e.g. hunting), or nonagricultural activities on-farm (e.g. weaving, brewing). Reardon et al. (1992) and Webb and Reardon (1992) find that households' capacity to cope with the drought shocks of the mid-1980s in Burkina Faso were strongly associated with the extent of their non-farm diversification patterns. Barrett and Arcese (1998) similarly show that wildlife poaching in Tanzania in part responds to agroclimatic shocks that affect farm labor productivity. Much as risk preferences and differential access to wealth likely contribute to greater demand for ex ante diversification by poor people, so too are the poor more likely to diversify ex post as a coping response to shocks. They simply have less ability to self-insure through cashing in nonproductive assets than do the relatively wealthy.

One implication of the "diversification as risk management" rationale is that the need for self-insurance is a function of the availability of substitute social insurance, provided through transfers by the government, by non-profit agencies, by community

or family members. Since social insurance can at least partly substitute for self-insurance, one would expect greater need for asset, activity, and income diversification where social insurance is relatively scarce. This may help account for the unusually high dependence of African farm households on non-farm income, as governments, communities, and relief agencies offer meager and frequently tardy safety nets, and the social fabric of traditional safety nets appears to be stretched or unraveling in many places.

While diversification is a natural response to substantial climatic risk and transactions costs in lower potential agricultural areas, the evidence from Africa largely finds non-farm activity highest in areas of better-than-average agricultural productivity and incomes, underscoring the importance of familiar intersectoral linkages (Haggblade et al., 1989; Reardon, 1997). Similarly, the purchasing power concentrated in larger urban areas often stimulates more vibrant non-farm activity in peri-urban rural areas, although these effects are often absent in the vicinity of smaller cities and towns, as Lanjouw et al. demonstrate in their paper on Tanzania in this issue.

The final explanation for diversification patterns is the existence of economies of scope in production. Economies of scope exist when the same inputs generate greater per-unit profits when spread across multiple outputs than when dedicated to any one output. The concept differs from that of economies of scale, in which per unit profits are increasing as the amount of all inputs to production grows. Economies of scale tend to favor specialization. Most empirical studies of African agriculture find no significant economies of scale beyond a very small farm size, attributable in large part to the absence of sophisticated water control or mechanization. In this setting, there is little pressure to concentrate production in a single crop. Given widespread recommendations for crop rotation and integrated crop-livestock systems, there are likely significant economies of scope, although we are unaware of formal empirical tests of this hypothesis in the context of African agriculture. Diversification across crops is less likely attributable to risk management (since the yields of different crops are highly, if imperfectly covariate) than to economies of scope due to soil and water management and to heterogeneous land quality (fertility, drainage, slope, etc.).

The accumulated evidence, both in the previous literature and in the papers of this special issue, provide ample evidence in favor of each of these explanations of farm households' motivations to diversify their incomes: seasonal and interpersonal aggregation, diminishing returns to productive assets, missing or incomplete markets, economies of scope, risk reduction and coping with shocks. With these conceptual issues as backdrop, we turn now to consider what patterns exist in the accumulated empirical evidence on nonfarm income diversification in Africa and what implications one might draw from these regularities for policy purposes.

Determinants and effects of nonfarm income diversification in Africa

While reliance on nonfarm income diversification is widespread in rural Africa, not all households enjoy equal access to attractive nonfarm opportunities. Reardon's

(1997) review of the available data in Africa found a strong positive relation between nonfarm income *share* and total household income, and therefore an even more pronounced relationship between the *level* of nonfarm income and total income. The same holds true in general for household landholdings. Consequently, even in countries such as Rwanda, where farm incomes and landholdings are unequally distributed, those with the least agricultural assets and income are typically also least able to make up this deficiency through nonfarm earnings because they cannot meet the investment requirements for entry into remunerative nonfarm activities. That implies a vicious and self-reinforcing circle of unequal distribution of land and nonfarm earnings (Barrett et al., 2000; Reardon et al., 2000). In other low- and middle-income regions, such a relation is far less common (Reardon et al., 1998; Reardon et al., 2000). This suggests that features unique to or especially pronounced in the rural markets of Africa impede the entry of marginalized subpopulations into higher-return niches, thereby causing the nonfarm sector to have distributionally regressive effects on incomes in rural Africa. Reardon et al. (1992); Dercon and Krishnan (1996); Dercon (1998); Carter and May (1999) and Barrett et al. (2000), among others, have previously found direct evidence of such wealth-differentiated barriers in Burkina Faso, Côte d'Ivoire, Ethiopia, Kenya, Rwanda, South Africa, and Tanzania.

The finding of a positive relationship between nonfarm income and household welfare recurs regularly in this special issue. Block and Webb find more income diversification associated with higher welfare measured in both income and nutritional terms in Ethiopia, and that the least diversified fight hard to increase their diversification over time. Nonfarm income shares in peri-urban Tanzania rise sharply and monotonically with per capita food consumption quantiles according to Lanjouw et al. Barrett et al. report a strong association between greater income diversification and higher wealth and income in Côte d'Ivoire and Kenya. Canagarajah et al. show that nonfarm earnings fuel increased income inequality in Uganda. The poor, uneducated, women, recent immigrants to a community, and others lacking social ties rarely enjoy the same access to remunerative opportunities as do educated males with strong social networks in the community.

Given the apparent empirical regularity of a positive association between nonfarm income and aggregate income or other welfare indicators in Africa, the central question regarding the rural nonfarm economy then revolves around causal dynamics. Are attractive nonfarm opportunities presently accessible to just a limited subpopulation of rural Africans that are already relatively comfortable, i.e. higher incomes open the door to attractive nonfarm opportunities? This is a critical question in the context of operational interventions aimed explicitly at enhancing opportunities for income diversification in settings across Africa; can the poor be targeted by such interventions? And even if the poor are reached, can they successfully exploit such externally-provided opportunities? Does the nonfarm sector presently offer a ladder out of poverty, i.e. do nonfarm opportunities cause greater improvement in household income or well-being? Or are both of these hypotheses true, creating a positive feedback loop, but one that is at present inaccessible to many of the rural poor? The answers to these core questions lead directly to the next section's discussion of what

governments and donors can do to harness the apparent opportunities offered by the rural nonfarm economy in the struggle for poverty reduction in Africa.

The evidence presented in this collection of papers echoes the previously cited findings: there seem to exist substantial entry or mobility barriers to high return niches within the rural nonfarm economy. These barriers manifest themselves in labor market dualism of the sort discussed by Woldehanna and Oskam's paper on Ethiopia and Smith et al.'s on Uganda, wherein the skilled and educated are self-employed or can secure stable long-term employment at relatively high salaries, while the unskilled and uneducated depend disproportionately on more erratic, lower paying casual wage labor, especially in the farm sector. Constrained access to credit and financial savings, where access is an increasing function of ex ante income and wealth for reasons familiar in the development economics literature, can impede acquisition of livestock necessary to diversify out of crop agriculture (Dercon, 1998; McPeak and Barrett, 2001) and of lumpy assets (e.g. machinery, trucks, warehouses) essential to many remunerative nonfarm activities in manufacturing and commerce (Barrett, 1997). Abdulai and Crole-Reese document such barriers in southern Mali, as do Woldehanna and Oskam in northern Ethiopia and Barrett et al. in Côte d'Ivoire and north central Kenya.

These entry barriers tend to leave the poor with less diversified asset and income portfolios, thereby forcing them to bear both lower expected returns and higher variability in earnings.[8] As Barrett et al. emphasize, when ex ante wealth conditions subsequent investment patterns and aggregate returns distributions, an asset poverty trap emerges in which the poor have trouble breaking out of a diverse set of low-return activities, being able to enter only unremunerative activities where entry and exit are reasonably frictionless, while the wealthy are able to diversify into more lucrative ones (Dercon, 1998; Carter and May, 1999; Barrett et al., 2000; Reardon et al., 2000; Carter and May, 2001; McPeak and Barrett, 2001). In the medium run, it is probable that this will lead over time to an increasingly skewed distribution of land and other assets in rural Africa (Reardon et al., 2000). There is already evidence of this in western Kenya (Francis and Hoddinott, 1993) and in Rwanda (André and Platteau, 1998).

In almost every one of the papers in this special issue, educational attainment proves one of the most important determinants of nonfarm earnings, especially in more remunerative salaried and skilled employment. Just as in high-paying professions (e.g. law, medicine) in post-industrial countries, skills and educational attainment serve as substantial entry barriers to high-paying nonfarm employment or self-employment in rural Africa.

Greater physical access to market likewise consistently improves nonfarm earnings opportunities, as shown in Uganda by Smith et al. and in Tanzania by Lanjouw et al. It nonetheless remains difficult to disentangle regional fixed effects associated with agroecological, cultural, historical, and other spatial attributes from market-

[8] Bardhan et al. (2000) explain this phenomenon as the natural by-product of wealth constraints and incomplete contracting in the presence of imperfect information.

access measures. Although the returns to market infrastructure via improved access to nonfarm opportunities are therefore difficult to establish with any precision, the qualitative point seems to stand: public services such as education, communication, and transport infrastructure matter significantly to participation in nonfarm activities. Most importantly, the benefits of such investments thus come not just from reducing transactions costs on existing activities but, perhaps more importantly, from opening up whole new opportunities previously inaccessible to rural populations.

The fact that ex ante endowment of financial capital, skills, education, or market access appear to increase the probability of participation in higher-return nonfarm activities must not be misinterpreted as suggesting that all the wealthy move out of farming. Shifting prices or policies and inter-household variation in the composition—as distinct from the aggregate value—of asset endowments generate cross-sectional and intertemporal variability in the relative returns to farm and nonfarm options, and therefore in portfolio choice by households of some means. The key point is that the wealthy have greater freedom to choose among a wider range of options than do the poor. One therefore finds the wealthy bifurcating into two groups: full-time farmers and those with attractive nonfarm enterprises, as the paper by Barrett et al. points out. The poor, meanwhile, have little choice but to diversify out of farming into unskilled off-farm labor, whether in agriculture or not. This distinction can easily be missed when one aggregates too coarsely across nonfarm activities without paying attention to striking differences in the returns distributions offered by alternative livelihood strategies differentially accessible to households according to their ex ante endowments.

The answer to the first question posed at the outset to this section thus seems an unambiguous "yes!": attractive nonfarm opportunities are indeed accessible only to a select few among the many poor rural Africans and typically to those who start off in a better position. So what about the second question, do nonfarm opportunities cause greater improvement in household income or well-being? The papers collected here make unprecedented use of repeated observations on households in Côte d'Ivoire, Ethiopia, and Uganda. The story that emerges clearly from the Barrett et al., Block and Webb, and Canagarajah et al. papers is that nonfarm earnings indeed lead to more rapid growth in earnings and consumption. Those households endowed with the education, financial capital, or market access necessary to take advantage of relatively remunerative opportunities in the nonfarm economy are able to take better advantage of policy reforms (e.g. the FCFA currency devaluation in 1994) or to recover from aggregate shocks—e.g. the Ethiopian famine of the 1980s. These findings are consistent with Reardon's findings from Burkina Faso, where off-farm employment provided cash enough in labor earnings or savings to weather the effects of drought, thereby giving those with rural nonfarm incomes superior coping capacity. That work showed that food aid targeting in the 1984 drought tended not to take into account that many households in the less-drought prone Mossi Plateau were actually more hungry than those in the drought-struck northern Sahelian zone because the latter had much more diversified incomes—diversified precisely because of the high probability of drought. Yet ten times more food aid per person went to

the northern zone, based solely on crop yields rather than on income criteria (Reardon et al., 1988; Reardon and Matlon, 1989; Reardon and Taylor, 1996).

Where the results reported in this special issue with respect to heterogeneous access to attractive nonfarm opportunities corroborate enough previous findings to support the interpretation that this is an empirical regularity, those on the relationship between nonfarm opportunities and income or welfare dynamics break new ground and thus should be treated as provisional results. Still, the consistency of the findings across the different data sets and methods suggests reasonable likelihood that this result will prove robust to further examination.[9]

Implications for policy

The empirical regularity of a positive association between income diversification and wealth, consumption or earnings leads too many analysts to the facile conclusion that promoting diversification is equivalent to assisting the poor. Yet diversification can rise through increased off-farm, unskilled labor that does little to reduce household risk exposure or increase expected income. More commonly, and absent explicit efforts to reach marginalized subpopulations, stimulus to the nonfarm sector benefits those already possessing the assets—financial savings, skills, education, social contacts—necessary to take advantage of emerging market opportunities.

Given the evidence that there exist significant barriers to entry into remunerative nonfarm opportunities in rural Africa and that such opportunities afford significant opportunities for income growth and improvement in other welfare indicators, what are policymakers to do? With enough time, the benefits of rapid growth among the ex ante wealthy will likely trickle down to the poorer subpopulations initially excluded from the more lucrative nonfarm subsectors through increased demand for hired labor and increased supply of a wider range of goods and services. Nonetheless, a laissez faire approach to the rural nonfarm economy seems unlikely to generate substantial poverty reduction in the current generation since few poor, unskilled and uneducated from more remote areas are likely to participate.

The first challenge in designing an effective policy to make more attractive livelihood strategies available to the rural poor lies in investing a particular body with a sense of ownership over research and policy on the rural nonfarm economy since the theme presently falls in the gap between the institutional walls of governments, research institutions, and NGOs. Being nonfarm means that agricultural researchers and policy institutions do not usually believe that it is in their "mandate." Being rural, informal, and usually small-scale means that those involved with industry and employment policies and research usually eschew it for urban, medium-large scale, and formal enterprises. This lacuna has forced many NGOs to shoulder a disproportionately active role in the promotion of nonfarm enterprises in rural Africa,

[9] Carter and May (forthcoming) report similar findings from South Africa although they do not look explicitly at the relationship between nonfarm economic activity and income growth.

despite their often fragile financial and institutional sustainability in these environments. Perhaps most importantly, NGOs typically lack capacity to scale up local successes or to produce and disseminate careful assessments of successful interventions so that others can replicate them elsewhere. Establishing a clear constituency for the rural nonfarm economy within African governments, donor organizations and research institutions, is likely prerequisite to making any substantial progress on this front.

The second challenge rests in stimulating rural financial systems. The microfinance revolution underway over the past decade shows some promise in extending financial services—credit, insurance, savings—to historically underserved areas and households. The efficacy of these efforts nevertheless remains uncertain, especially the extent to which microfinancial institutions allow populations previously unable to undertake higher-return nonfarm activities access to sufficient working capital to permit productive nonfarm investment. Without more widespread access to financial savings and credit, however, binding working capital constraints will continue to trap the poorest subpopulations of rural Africa in low-return, high-risk livelihood strategies.

The third challenge revolves around human capital formation in the face of the HIV/AIDS pandemic and recurring violence in many African nations, as the Smith et al. paper in this issue discusses with reference to Uganda. HIV/AIDS and conflict both rob rural communities of young adults to whom valuable skills are handed down through apprenticeship with older tradesmen. The medium-to-long-term impact on skilled self-employment, perhaps especially among the uneducated, is likely to prove great. HIV/AIDS and conflict also compete for scarce public funds with underfunded primary and secondary education systems necessary to train students capable of taking on more remunerative jobs in towns. One continues to see the unfortunate but widespread practice of staffing rural outposts with cityfolk for want of qualified locals in less-favored lands. There is also the difficulty of securing adequate post-crisis reconstruction investments in areas hit by shocks such as HIV/AIDS, conflict or natural disasters. The prior absence of institutions and skill-based diversification opportunities is rarely remedied through conventional rehabilitation packages. Yet, those who survive do learn from crisis, and new skills can be derived in the context of upheaval, skills that may yet be used to diversify household incomes in productive ways.

The fourth and final challenge to making attractive nonfarm opportunities accessible to the rural poor concerns improving market access. This includes not only the usual physical infrastructural fare of road building and maintenance, improved inter- and intra-regional communications, and rural electrification, but also institutional innovations to reduce entry costs through the introduction of grades and standards and public price reporting systems, and the relaxation of burdensome licensing and regulatory requirements on microenterprises.

Conclusions

As development scholars and practitioners pay increasing attention to the rural nonfarm economy for a variety of reasons, our understanding of the etiology and effects of income diversification behavior among African farm households must likewise increase. In introducing an exciting set of seven papers on the topic "Income Diversification and Livelihoods in Rural Africa: Cause and Consequence of Change", this paper has reviewed the core conceptual issues at the heart of research on diversification behavior. More importantly, we lay out three empirical regularities identifiable not only in the papers of this special issue, but also in the existing published and "grey" literatures. First, there exists a positive relationship between nonfarm income and household welfare indicators across most of rural Africa. Second, substantial entry or mobility barriers to high return niches within the rural nonfarm economy limit access to a subpopulation of relatively well-endowed households. Third, panel data evidence from across the continent suggest that greater nonfarm income diversification causes more rapid growth in earnings and consumption. These latter two regularities, combined, foster a positive feedback loop, wherein those participating in the rural nonfarm economy enjoy faster income growth, thereby providing the resources to plow back into expanded nonfarm activity.

The policy challenge lies in making the opportunities extant in much of the nonfarm economy accessible to the majority of rural Africans who haven't the education, skills, or financial or social capital to get into the many lucrative niches available across the continent. We argue for (i) creating clear institutional ownership over rural nonfarm matters within government and research institutions, (ii) investing in sustainable rural financial systems that can reach previously excluded subpopulations, (iii) redoubling efforts in education and health to stem the serious threats posed by HIV/AIDS and violence in rural areas already deficient in skills and education, and (iv) increased investment in the physical and institutional infrastructure necessary to make markets accessible to all, including the need for post-crisis reconstruction. It is difficult to imagine an effective rural poverty reduction strategy for Africa that does not aim to harness the potential of the nonfarm sector. Yet absent well-targeted interventions, stimulus of the rural nonfarm economy is likely to bypass most of the poorest rural Africans.

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