EVANS SCHOOL OF PUBLIC POLICY & GOVERNANCE
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Review of Pathways Out of Poverty   Pierre Biscaye, Brian Hutchinson, Melissa LaFayette
Phase 1: Outcomes Associated with Poverty Alleviation
EPAR Technical Report #316   C. Leigh Anderson & Travis Reynolds

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Purpose

The following report is a broad review of the empirical evidence on different pathways proposed to help individuals move out of poverty. It was prepared for the Financial Services for the Poor (FSP) team of the Bill & Melinda Gates Foundation (BMGF) to help them identify potential entry points and complementary investments to digital financial service products and their applications for financial inclusion and poverty alleviation.

Abstract

EPAR is conducting a two-phase literature review on pathways out of poverty for low-income households in developing countries. The initial phase of the review consists of identifying and categorizing general strategies and outcomes empirically demonstrated to be associated with poverty alleviation. The second phase of the review will evaluate the available evidence on the identified pathways and explore possible areas where interventions using financial services, and digital financial service (DFS) in particular, might most impact poverty alleviation. This report summarizes initial findings from the first phase of the review.

Introduction

The literature on poverty's causes and cures in developing countries posits a variety of contributing factors. At the macro- or national level, Collier (2008) points to the roles of conflict, natural resource endowments, governance, trade, investment, and infrastructure in creating poverty traps. Acemoglu & Robinson (2012) argue for the importance of fostering inclusive institutions that support economic and political rights and processes. Grindle (2007) and Deaton (2013) similarly highlight the role of good governance and strong institutions. Meanwhile at the micro or individual/household level, Banerjee & Duflo (2011) present evidence that the poor often lack access to information and markets that would allow them to make decisions supporting movements out of poverty. Stiglitz (2002) states that markets do not operate effectively in developing countries, and that imperfect information and incomplete markets are key barriers to households' exit from poverty. Collins, Morduch, Rutherford & Ruthven (2009) add that risk, time, security, and access to financial services are also important barriers keeping poor households from improving their livelihood conditions. In addition, De Soto (2000) and Easterly & Easterly (2006) both point to the importance of individual property rights in allowing the poor to accumulate and gain value from their assets.

Most researchers acknowledge that a sustained exit from poverty is complex and no single causal pathway from poverty to non-poverty exists. Many, including Sachs (2005), De Janvry & Sadoulet (2005), and Nemes (2005), advocate for addressing poverty through integrated development approaches, with interventions simultaneously addressing a spectrum of needs including health care, education, agriculture, and infrastructure.

In this review, we present a summary framework for categorizing the various theorized pathways out of poverty, and evaluate the empirical evidence for which interventions and resulting outcomes are most frequently and most strongly associated with poverty alleviation.

Methodology

Conceptual Framework

Based on an initial review of the theoretical and empirical literature on poverty alleviation, we develop a review framework organized around four core categories of assets commonly hypothesized to contribute to individuals and households moving out of poverty: human assets, natural assets, built/financial assets, and social/political assets.

The specific **human assets** that we include in our framework are health, education, information/training, social networks, reduced risk, and time. Under **natural assets**, we consider land, soil, water, environment/resources, and climate. **Built/financial assets** include financial assets, machines/mechanization, infrastructure, and technology. Finally, **social/political assets** include political institutions, economic institutions, and informal policies/norms. Our choices of asset categories in our framework may not be exhaustive but reflect the primary factors presented in the literature as influencing movements into or out of poverty for low-income households in developing countries. We especially considered which assets were most important for rural and farming households, so some of the assets, for example natural assets, may be less relevant for urban populations (and hence, in some cases, relatively under-studied as drivers of impoverishment and poverty alleviation).

For each of the assets included in our theoretical framework, we consider two different margins on which changes may take place. First, we look at what scale poverty may be affected, from the individual level, to the household level, to the community level, to the national level. For example, improvements in health (a key human asset linked to poverty alleviation) may be targeted at the individual level by providing a bed net or vaccine, at the community level by training community health workers in providing preventative care services, or at the national level by subsidizing vaccination programs or investing in health infrastructure. All of these interventions may support an individual or household to move out of poverty or keep them from becoming poor by helping them to maintain or improve their health.

Second, for each human, natural, built/financial, and social/political asset we consider whether pathways out of poverty involve increasing the stock (quantity) of an asset, increasing the productivity (quantity produced for a given level of inputs) of that asset, or increasing the returns (realized value) from that asset. For example, pathways out of poverty for farming households targeting land assets may include increasing their stock (area) of land that they can farm, increasing the productivity of their land (e.g. by providing tailored inputs), or increasing the returns from their land (e.g. by linking them to markets to sell their crops at higher prices).

We use this theoretical framework as a basis for reviewing the empirical literature on pathways out of poverty.

Literature Search and Review Methods

We conducted a series of searches to identify relevant literature from Google Scholar, Scopus, EconLit, and PAIS International, using search strings that included terms related to poverty reduction. We first conducted general searches for pathways out of poverty, then searches for pathways in specific sectors such as agriculture, health, finance, and education, and finally searches that included terms related to each of the assets in our theoretical framework.

We considered search results relevant for this review if they met the following screening criteria:
- *Poverty alleviation component*: The article discusses approaches to poverty alleviation or other outcomes related to poverty.
- *Empirical evidence*: The article presents empirical evidence for the association between poverty and a given factor or set of factors.
- *Published*: The article is published in a peer-reviewed journal.
- *Full-text availability*: The document is available in full-text and in English.

Though our searches focused on evidence of pathways out of poverty in developing countries, we also included high-quality evidence from developed countries. In addition, though the focus is poverty, we did not focus on any particular measure of poverty. We include articles that report on consumption levels, income, asset ownership, and multi-dimensional concepts of poverty, for example.

Seventy-five articles met our screening criteria. For each of these articles, we code the general sector discussed (e.g. finance, health, agriculture, trade), the country or region of study, the unit of analysis (i.e. individual, household, community, or national), and the specific measure of poverty used. We then review and code evidence on the association between poverty and each of the assets in our theoretical framework. If an article discusses a particular asset, such as health, we analyze whether the study reports on increases in the stock, productivity, or returns to the asset, and rate the methodological rigor as well as the significance and direction of the findings. Several articles report on outputs that affected multiple different asset types. For example, increasing the mechanization of agriculture involves increasing the stock of physical capital assets (machines) as well as increasing the productivity of human assets (time), and may also increase the stock of time if increased productivity decreases time spent in agricultural work in addition to increasing agricultural production.

The next section presents our initial findings on the empirical evidence for pathways out of poverty. We summarize our body of evidence and provide an example of an in-depth analysis of the evidence of targeting land assets as one pathway out of poverty. Our complete report will include comparative analyses of the various pathways discussed in the empirical literature, as well as an appendix table detailing the methodologies of the studies reviewed.

Our final spreadsheet will include one line for each article identified, summarizing the evidence presented on particular pathways out of poverty. We will submit this coding spreadsheet along with the final report as a source of additional detailed findings.

Summary of Body of Evidence

Geographies Included

Fourteen of the studies in our review are cross-country studies of pathways out of poverty, including three studies focused on African countries. Of the remaining 61 studies, over half (32) use data from countries in Sub-Saharan Africa. Nineteen studies examine countries in Asia, seven look at Latin American countries, and four are studies from developed countries (*Figure 1*).

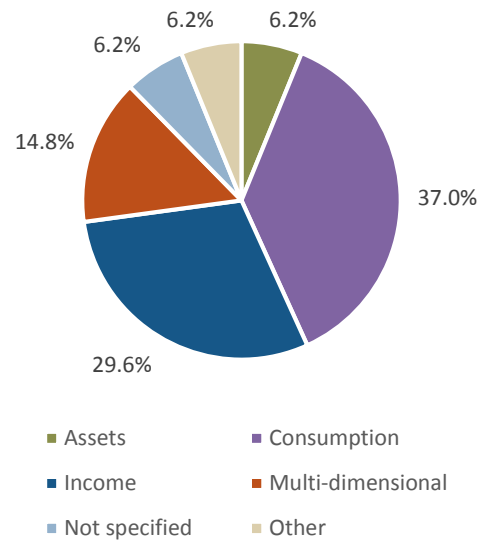*Figure 1. Map of Countries Included in Reviewed Studies*
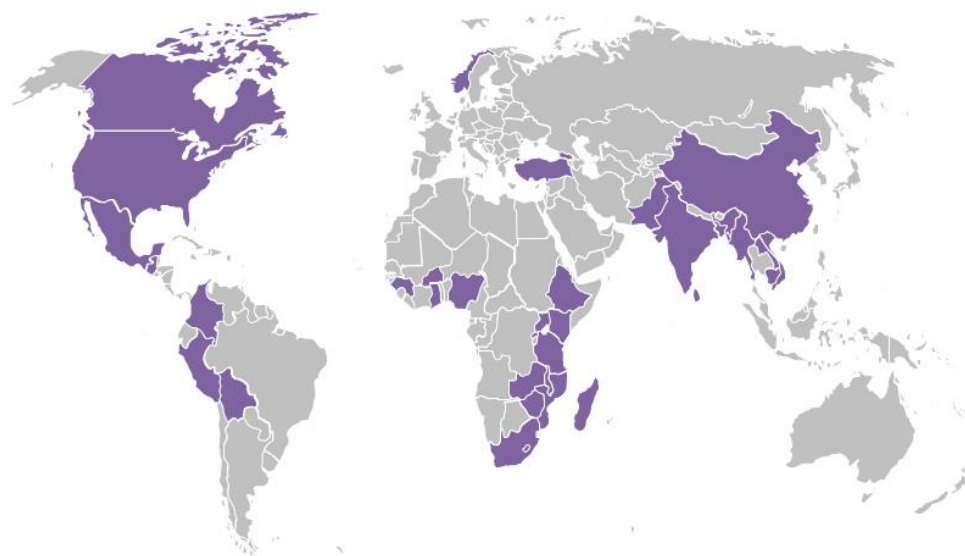
Measures of Poverty Used

Measurements of poverty differ widely among the 75 studies we review. We identify four primary categories of poverty measures (*Figure 2*):

- **Stock of assets** – Measures of holdings such as land, livestock, or productive tools.
- **Consumption** – Measures of the use of goods or services, often accounted for by tallying expenditures or counting purchases for food and non-food items. Other examples include whether a household can purchase essential goods like housing and clothing, or the degree to which individuals consume forest resources or homegrown crops.
- **Income** – Measures of income sources such as wages, remittances received, and money from selling crops or livestock products.
- **Multi-dimensional** – Several studies incorporate multi-dimensional conceptions of poverty. As Nussbaum (2001, p.12) writes: "Instead of asking about people's satisfactions, or how much in the way of resources they are able to command, we ask, instead, about what they are actually able to do or to be." Following this definition, studies in this category use broad welfare indicators that factor in characteristics such as access to electricity and water, education levels, vulnerability, rates

Figure 2. Percentage of Studies Using Different Measures of Poverty

of unemployment, available time, and health. In addition, four of these studies create locally defined poverty lines that are multi-dimensional. A community in India, for instance, established that households are poor if a household either cannot buy enough food to eat; cannot send their children to school; does not possess clothes for members to wear outside the house; or cannot pay off debt in regular installments (Krishna, 2004).

Consumption-based measures of poverty are the most common, with 37 percent of the articles using expenditures or purchases to indicate poverty. Most of the remaining studies use either income (29.6%) or multi-dimensional (14.8%) measures of poverty.

A few studies (6.2%) fall outside of these four categories. These articles, in the "Other" category, tend to use proxy measures of poverty. For example, one examined whether individuals embarked on making household improvements as a measure of wealth. Two others used social assistance indicators (whether individuals received poverty grants or welfare) to identify "poor" households, rather than directly measuring direct consumption or income levels.

These differences in how poverty is measured complicate comparisons of effectiveness in alleviating poverty.

Methodological Approaches

We categorize the wide variety of methodologies used by the authors into three levels of rigor: descriptive evidence, non-experimental evidence, and quasi-experimental evidence. "Descriptive evidence" indicates that studies use descriptive empirical evidence to point to an association between a given asset and a measure of poverty, but without formally testing the association. This group of studies includes several that use focus groups, interviews, and observations to examine pathways into and out of poverty. Studies coded as "non-experimental" do test for associations between assets and measures of poverty, but do not test for causality. The majority of non-experimental studies use various forms of regression analysis, from relatively simple linear models to more complex modeling techniques with multiple controls. Studies coded as "quasi-experimental" use a variety of techniques such as instrumental

*Figure 3. Number of Studies Using Different Methodological Approaches*
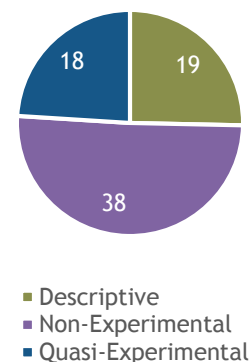
variables, propensity score matching, or other forms of regression analyses to identify factors that are *causing* movements into and out of poverty. *Figure 3* illustrates the number of articles using each type of evidence.

Initial Findings

<u>Availability of Evidence</u>

Figure 4 shows the total number of articles discussing each of the different asset types, as well as the methodological rigor of the evidence. Pathways with the most evidence include financial assets, land, education, and infrastructure. The evidence is limited for certain asset types, such as soil and climate, indicating that these asset types may more frequently be studied in terms of their effect on intermediate outcomes correlated with poverty, rather than in terms of their direct relationship to measures of poverty.

Figure 4. Number of Studies and Methodology for Each Asset Type
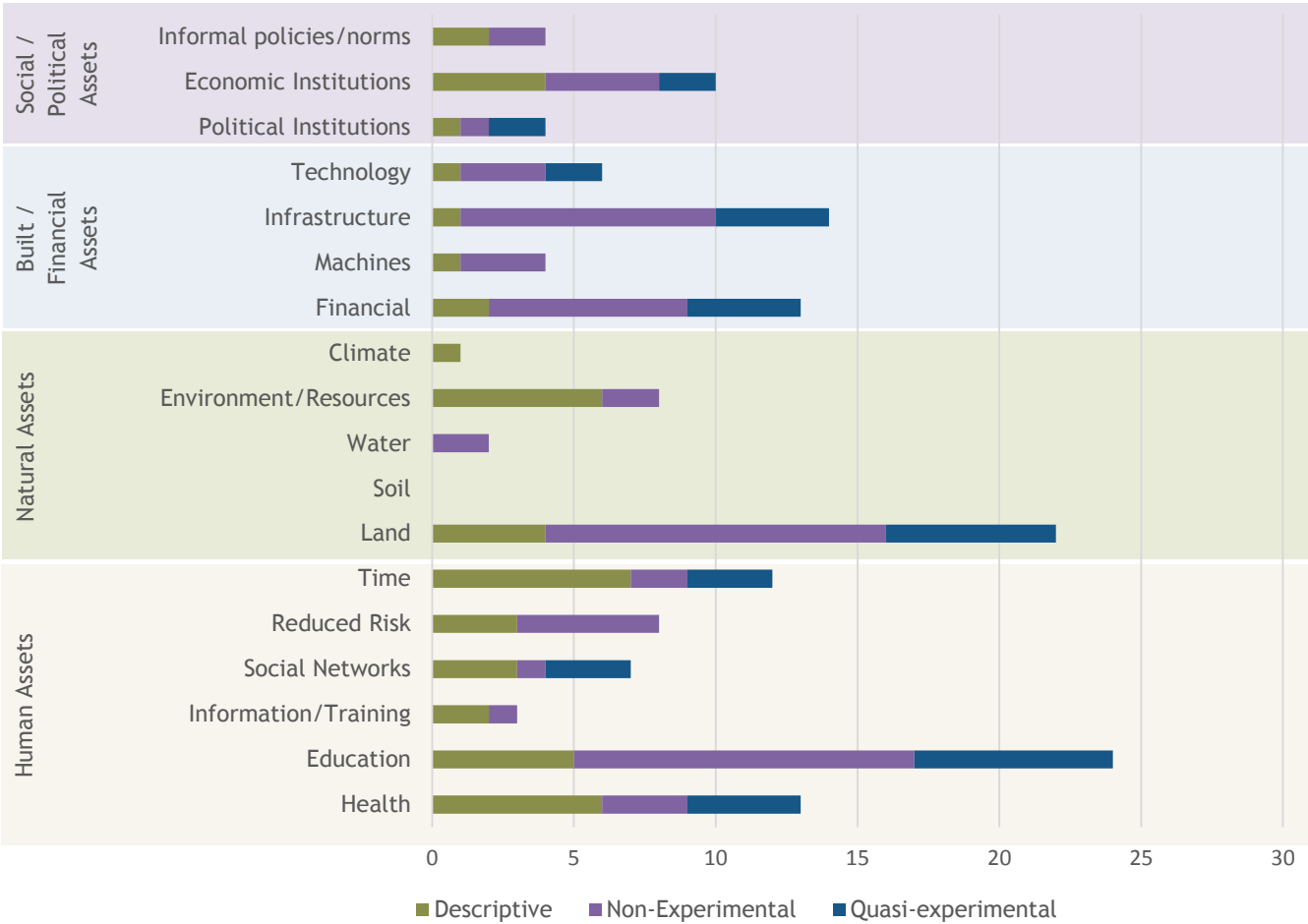
<u>Increasing asset stocks, productivity or returns</u>

We consider three different ways that assets can be enhanced (or conversely, that the constraints can be lowered) to create potential pathways out of poverty: increasing the stock of the asset, increasing its productivity, or increasing its returns. The majority of articles discuss the stock, or quantity, of a particular type of asset. For example, Godlonton & Keswell (2005) find that households with more unhealthy individuals, that is, a lower stock of household health, are more likely to become poor.

Increasing an asset's productivity includes increasing the quantity of outputs or decreasing the inputs required for the same level of output. For example, Christiaensen, Demery, & Kuhl (2010) find that increasing agricultural productivity, that is, increasing productivity of land/soil/labor assets, is significantly associated with reductions in poverty.

To increase the returns to an asset means increasing the value or price of outputs or decreasing the cost of inputs. The converse can contribute to falling into poverty. For example, Inchauste et al. (2014) note that the potential poverty-reducing impact of increased movement into manufacturing and service jobs in Thailand was negated by decreased wages in these sectors, that is, decreased returns from time assets (labor).

Many studies consider the effects on poverty of multiple asset types and several studies consider different types of changes to these assets, but the majority of the findings concern increases in the stock of different assets. Our body of evidence includes 125 discussions of increasing stock, 10 increasing productivity, and 20 increasing returns (*Figure 5*).

Figure 5. Levels of Effect

Asset Group	Asset Type	Increasing Stock	Increasing Productivity	Increasing Returns
Human	Health	13	0	0
Human	Education	19	0	5
Human	Information/Training	3	0	0
Human	Social Networks	7	0	0
Human	Reduced Risk	8	0	0
Natural	Time	2	3	7
Natural	Land	11	7	4
Natural	Soil	0	0	0
Natural	Water	2	0	0
Natural	Environment/Resources	6	0	2
Natural	Climate	1	0	0
Built/Financial	Financial	12	0	1
Built/Financial	Machines	4	0	0
Built/Financial	Infrastructure	13	0	1
Built/Financial	Technology	6	0	0
Social/Political	Political Institutions	4	0	0
Social/Political	Economic Institutions	10	0	0
Social/Political	Informal policies/norms	4	0	0

Direction of Effects on Poverty

Our coding framework captures whether each study found a positive, negative, or insignificant relationship between particular asset types and measures of poverty. The majority of the findings are positive and significant, which may reflect a publication bias in favor of positive results (*Figure 6*). However, a few studies report negative and significant or mixed findings, indicating that changes in constraints related to certain asset types may not always have positive effects on poverty alleviation. In addition, some studies report insignificant effects on measures of poverty.

Figure 6. Direction of Effect on Poverty

Asset Group	Asset Type	Negative and Significant	Not Significant	Positive and Significant	Mixed
Human	Health	0	1	11	1
Human	Education	1	2	20	1
Human	Information/Training	0	0	3	0
Human	Social Networks	0	0	8	0
Human	Reduced Risk	0	0	5	1
Human	Time	0	0	10	2

Natural	Land	0	1	21	0
Natural	Soil	0	0	0	0
Natural	Water	0	1	1	0
Natural	Environment/Resources	0	1	6	1
Natural	Climate	0	0	1	0
Built/Financial	Financial	0	0	12	1
Built/Financial	Machines	0	0	4	0
Built/Financial	Infrastructure	0	1	12	1
Built/Financial	Technology	0	0	5	1
Social/Political	Political Institutions	0	0	4	0
Social/Political	Economic Institutions	0	0	10	0
Social/Political	Informal policies/norms	0	0	3	1

As the majority of reported findings are positive and significant, the types of assets most frequently discussed in our body of evidence are also those with the highest number of positive findings for associations with poverty alleviation. However, as the studies use data from different countries and employ different methodological approaches and poverty measures, it is difficult to compare the findings and determine whether the evidence is stronger for certain pathways out of poverty, or whether there is a greater impact magnitude for certain pathways.

In the next section we go into greater depth in our analysis of the findings for one specific asset type: land. Our full report will include additional comparisons where we have sufficient evidence.

<u>Evidence of Effects on Poverty of Changes in Land Constraints</u>

This section looks at reviewed evidence that specifies the relationship between poverty and land. Land is an important production component for the world's poor. Around 75 percent of the world's poor, measured as those living at consumption levels below $1.08 per day, live in rural areas (Ravallion et al., 2008). As agriculture is the primary livelihood for these households, increasing the stock, productivity, or returns to land is believed to improve rural livelihoods and alleviate the incidence of poverty (World Bank, 2007).

Increasing Stock
Empirical evidence in our review shows strong correlations between the quantity (or stock) of available land and poverty. We find 11 articles that discuss increases in the stock of land, and 10 show positive gains reducing poverty. In Mexico, an additional hectare (ha) of land for farmers who previously had only one hectare to farm is associated with 880 pesos in additional monthly income, an increase of about 26 percent in total income (Finan, Sadoulet, & De Janvry, 2004). Further evidence from Ethiopia, using a model of determinants of household consumption, found that increasing landholding size from 1-1.65 ha "would reduce the incidence, depth, and severity of poverty by 3.3%, 8.4%, and 11.7% respectively" (Hanjra, Ferede, & Gutta, 2009, p. 1602). In Ghana owning land is associated with 4 percent less likelihood of being poor when compared to landless populations (Sackey, 2005).

While the empirical links between access to stocks of land and poverty are strong, finding ways to redistribute or increase landholding is more challenging. Besley & Burgess (2000) examine land reforms in India, using instrumental variables to isolate the impact on poverty. Two reforms in particular—land consolidation and land ceilings—were implemented as poverty reduction strategies. Land consolidation allowed for "disparate landholdings" to be brought together, while land ceilings capped the amount of land that could legally be owned, allowing excess land to be redistributed to the poor. The authors find that neither policy had a significant impact on poverty headcounts or the poverty gap. They write that while land consolidation does promote output increases, "on the whole [it is judged] not to have been progressive in its redistributive impact given that richer farmers tend to use their power to obtain improved holdings" (p. 394).

Increasing Productivity
Seven articles in our review identify raising productivity as having positive implications for poverty reduction. Looking at macro- or national-level data, Christiaenson, Demery, & Kuhl (2010) find that "agricultural growth [is] found to be more than five times as poverty reducing than growth outside agriculture. For [sub-Saharan African] countries, it was more than 11 times more poverty reducing" (p. 251). They conclude that increasing agricultural productivity is a necessary starting point for poverty reduction. A second global study in our review echoes this finding. It identifies the correlation between

yield improvement and poverty reduction, estimating that a one percent improvement in yields is associated with 0.91% reduction in the poverty headcount of individuals living on less than one dollar per day (Irz, Lin, Thirtle, & Wiggins, 2001).

Dropping down to the community level, in Madagascar, Barrett & Minton (2008) estimate associations between rice yields and proxy measures of poverty (food insecurity and length of lean periods). They find that "A doubling of the rice yields in the commune is associated with a reduction of the number of food insecure by 38% and a 1.7 months shorter lean period, or, expressed differently, a reduced average length of the lean period at the national level by about one-third" (p. 807).

Increasing Returns

Increasing returns to land can also reduce poverty. Evidence in our review cites higher value cash crops, road paving, higher education, and land reforms as channels through which land can achieve higher returns. In Mexico, the association between paved roads and poverty is strong. "With access to a paved road, households only need less than one [hectare] of land to reach the poverty line, compared to households without access who need eight" (Finan, Sadoulet, & De Janvry, 2004, p. 48). Especially with roads providing access to markets, production of higher value cash crops can increase welfare. In Madagascar households selling cloves or vanilla had significantly better food security, suggesting that the sale of high value crops led to higher incomes that in turn boosted consumption (Barret & Minten, 2008).

Please direct comments or questions about this research to Principal Investigators Leigh Anderson and Travis Reynolds at epar.evans.uw@gmail.com.

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