Research Report

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Integrated Poverty Assessment of Livestock Promotion: The Case of Viet Nam

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Abstract

The main theme of this paper is that livestock production can make a significant contribution to the livelihoods of the poor and offers substantial scope for expansion to alleviate poverty. This potential is far from being realized, however, and there is much wider scope for the promotion of livestock, especially among poor rural communities, by national and international policy makers.

Using Viet Nam as case study, this paper describes how information distilled from a variety of sources can be combined in an analytical approach termed 'integrated poverty assessment of livestock promotion' (IPALP), which aims at improving the general understanding about the role of livestock in poverty alleviation, while at the same time strengthening the basis of evidence on how policies can best support pro-poor development.

Using a national and a sub-national social accounting matrix, policy experiments are conducted to assess the impact of an economy-wide policy of WTO-style trade liberalization, with and without concomitant livestock promotion. The results indicate trade liberalization with concomitant livestock promotion has higher overall positive impacts and plays an important role in offsetting adjustment costs.

Tools for this kind of ex ante assessment can support more effective policies for outward oriented growth and poverty alleviation.

1. Introduction

It is widely recognized that expanding capacity for livestock production and marketing can be a potent catalyst for rural poverty alleviation in developing countries. Livestock have a variety of characteristics that make them important contributors to sustainable rural development. They produce marketable products (meat, milk, eggs) from scalable household and community production systems, which are generally less vulnerable to critical harvest timing than many crops. By providing agricultural products with relatively high income elasticity, livestock are particularly attractive as a means for rural households to participate in urban-based economic growth trends. Livestock are also productive assets, contributing directly to output through animal traction and indirectly as a store of wealth for future investment. Finally, they can contribute to soil fertility and recycling of agricultural waste. With these and other advantages in mind, the aid community has consistently promoted livestock, especially among the poorer rural communities, and the FAO's Pro-Poor Livestock Policy Initiative (PPLPI) is a prominent example of this commitment.

In this short paper, we provide an overview of the economic assessment tools under development by the Pro-Poor Livestock Policy Initiative. The paper summarizes analytical techniques that have been brought together for evaluating Pro-Poor Livestock Policy Interventions, referred to as integrated poverty assessment of livestock promotion (IPALP) and reports on their application to Viet Nam as a case study. We realize that every country has characteristics that make it unique, and each will yield special insights under the proposed analysis, but it is hoped that uniform standards for economic assessment will help identify the general properties of pro-poor livestock policy interventions that most effectively contribute to poverty alleviation and sustainable rural development.

2. Overview of the IPALP Facility

To improve general understanding about the role of livestock in poverty alleviation, while at the same time strengthening the basis of evidence on how policies can best support pro-poor livestock development, a suite of analytical techniques is being developed covering four component areas of economic assessment:

- **Analysis of initial macro-economic conditions**
  This component surveys the recent history of aggregate indicators to set the stage for examination of the more detailed determinants of household welfare.
- **Micro-economic analysis of initial conditions**
 This component provides a systematic survey of existing patterns of household

production, employment, asset holding, expenditure and other conditions. The micro results are further divided into three parts:

a. Summary statistics and tables extracted from LSMS survey samples and other detailed data.
b. A synoptic atlas of digital maps presenting selected micro-economic results.
c. Models of household-level production systems, labour supply, and consumption geared to better understand the behavioural basis of household economic activity.

- **Dynamic simulation of policies and external economic conditions**
  These include, but are not be limited to, pro-poor livestock policy interventions, development strategies, trade policy, WTO accession, market reform, tax policies, etc. Emphasis is on the estimation of the local impacts of these policies.
- **Microeconomic assessment of PPLPI and Related Policies,**
  in concert with national and international policies and market forces, to more clearly identify patterns local economic adjustment and, in particular, their implications for poverty alleviation. In this component, a broad spectrum of poverty assessment tools will be implemented.

The basic objective of this approach is to support more evidence-based livestock policies with deeper insight into economic conditions, behaviour, and market linkages.

3. Applied Household Analysis

Amongst other sources, data from the second Vietnamese Living Standard Measurement Surveys (VLSS II) carried out in 1997-98 and 2002 were used to assess patterns in livestock and land ownership, household income and its components. In the larger urban areas, livestock ownership is relatively low, but higher in small urban areas (Figure 1). On the other hand, most households in the rural areas own livestock with the exception of the rural Southeast region where the proportion declines to 1 in 2 families. Livestock ownership is particularly high in the mountainous areas, in the Red river delta region and along the Central coast. Households mostly own pigs and chicken, followed by cattle, ducks and other animals. Pigs are owned by 47.6 percent of households and 51.6 percent of households own chicken. More than 7 out of 10 households own pigs in the rural Northern mountains, Red river delta and central coast areas. The same trends arise for chicken ownership in these regions and also for the rural Central highlands.

**Figure 1** Proportion (%) of households owning livestock by region
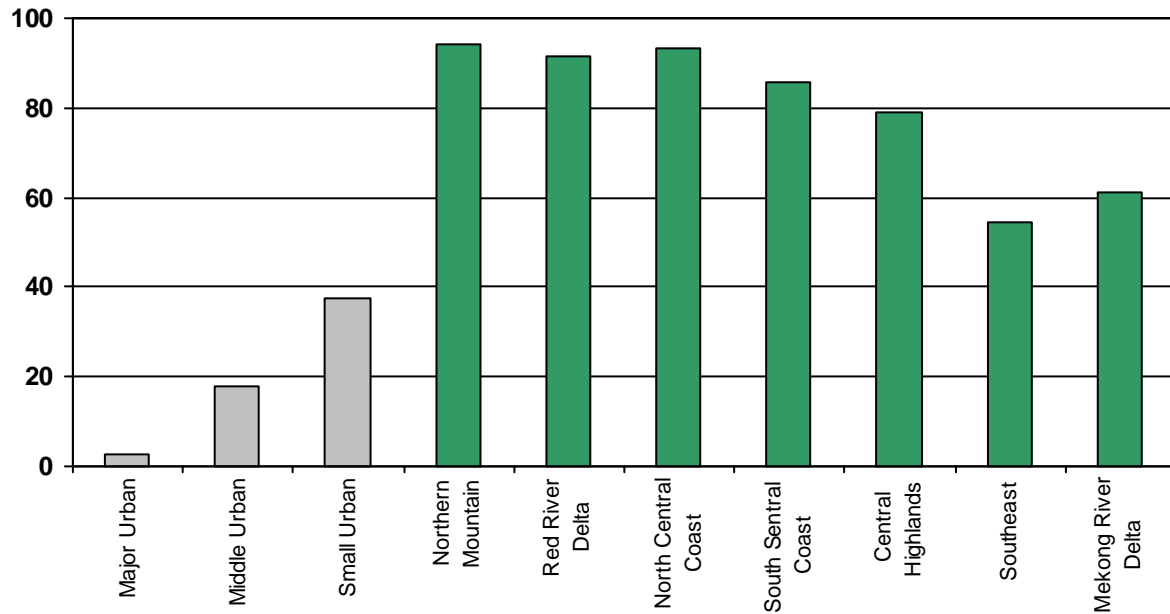
Urban incomes are generally higher and more diversified than in rural areas, and in the latter livestock plays an important role generally and for lower income groups in particular. Regionally, the wealthiest rural areas are the rural Southeast region and the rural Central highlands, while the poorest rural populations are the Mekong river delta and the North-Central coast. In urban areas the main contributors to total household income are self-employment and other income sources. This starts to change in urban transition areas, and agricultural income in the rural sector eventually ranges from 41 percent in the rural Southeast household income to 70 percent the Central highlands.

Livestock income has important distributional characteristics, both geographically and especially in equity terms. As a share of household income, livestock income is highest in the rural Northern Mountains, Red river delta, Central coast and Central highland areas. More importantly for our purposes, livestock ownership and income is more important for (non-marginal) poor households than for others in Vietnam. Figures 2 to 7 make this dependence clear from several perspectives. Firstly, figures 2 to 5 demonstrate that ruminants (mainly water buffalo) and pigs are more prominent in the asset portfolio of the lower income households. Figure 6 shows that livestock is a larger portion of household expenditure requirements for households with lower incomes, while figure 7 indicates the same pro-poor aspect of income from livestock.

For policy analysis, figures 2 to 5 are particularly important. This is because of the simple fact that economic policies will benefit the poor if they raise returns to asset classes that belong to

them. Clearly, livestock is especially important to the poor, and thus properly formulated livestock policies will be pro-poor.
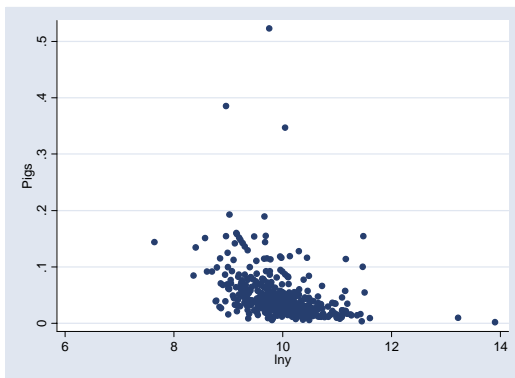
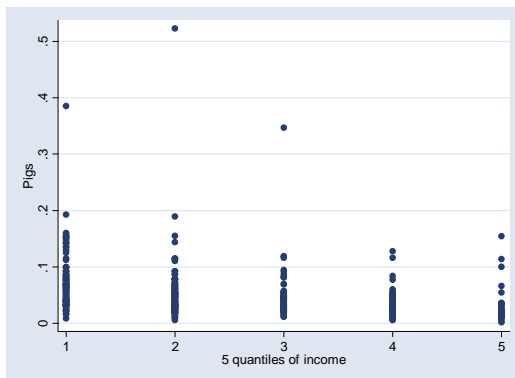**Figure 2**: Value of buffalo as multiple of household income (lny = ln of hh income)
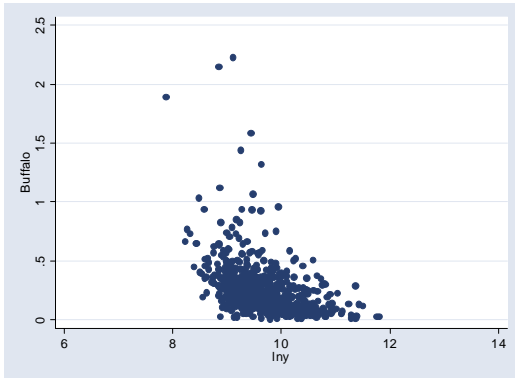
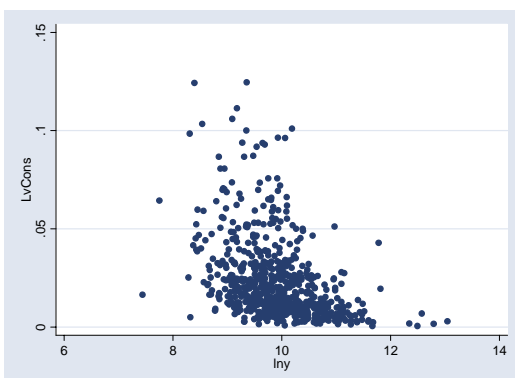**Figure 3**: Value of buffalo as multiple of household income
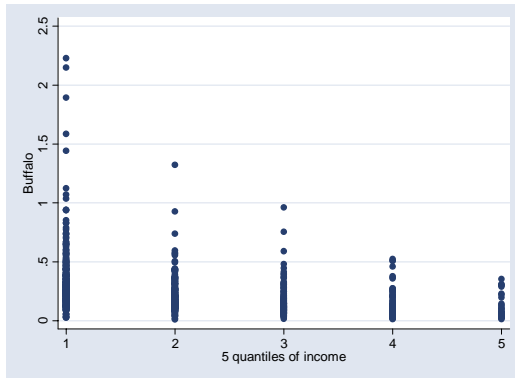
Figure 4: Value of pigs as multiple of household income (lny = ln of hh income)
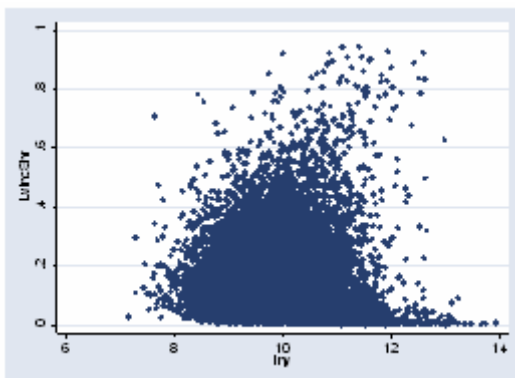
Figure 5: Value of pigs as multiple of household income

Figure 6: Share of household income expended on livestock products (lny = ln of hh income)

Figure 7: Share of household income from livestock (lny = ln of hh income)

# 4. Modelling Household Responses to Policy Change

Rural households are integrated production and consumption units, and interactions between these two kinds of behaviour need to be well understood by those targeting incomes or other economic characteristics of this group. In the IPALP, we use econometric methods to estimate both production and consumption functions, integrating them on the analytical platform of simulation models to reveal how they interact to determine local outcomes. The prototype versions of both macro and micro simulation models are calibrated to production and consumption functions from the underlying Social Accounting Matrices and survey data.

An important channel for improving rural incomes is the labour market, which can provide cash employment for farm residents locally and, if they are willing to migrate, regionally, nationally, and even internationally. Direct local earnings are important and many rural communities exhibit complex markets for off-farm employment, including both cash and in-kind compensation. Generally speaking, however, the primary driver of rising living standards in this channel is remittances from workers who migrate to regional or national urban markets. Not only does this migration provide rural households with access to more dynamic economic growth trends, but cash remittances overcome many obstacles to local capital accumulation, investment, and enterprise development. These new sources of savings also reduce the vulnerability of rural households to economic shocks and thereby reduce their relative risk aversion, promoting adoption of new practices and other forms of entrepreneurial risk taking. This latter category surely includes livestock development.

Thus, the labour-livestock link is a two-way street, and policies to promote livestock development should be grounded in a better understanding of the ways in which household allocate labour across its alternative uses. We do precisely this with the econometric component of IPALP, using detailed occupational choice models. Ultimately, these are intended for use in micro-simulation, where individual household responses to external policies and events are modeled.

General equilibrium models are used to assess the local impacts of national and international polices, evaluating how these events can be influenced by pro-poor livestock policies and related development initiatives. In an era of globalization, there is a generally held belief that greater external orientation can confer aggregate growth benefits. Despite this apparent consensus, however, the detailed incidence of trade and growth, among many economy-wide trends, is not so easy to generalize. Indeed, policies targeted at poverty alleviation in particular need a solid empirical basis to identify the detailed components of the adjustment process. Although it may be widespread in many developing countries, the experience of poverty is ultimately microeconomic in nature and policies designed to overcome it need to trace incidence to the household level. Figure 8 provides a schematic overview of the IPALP modeling approach.

Figure 8: IPALP Flowchart
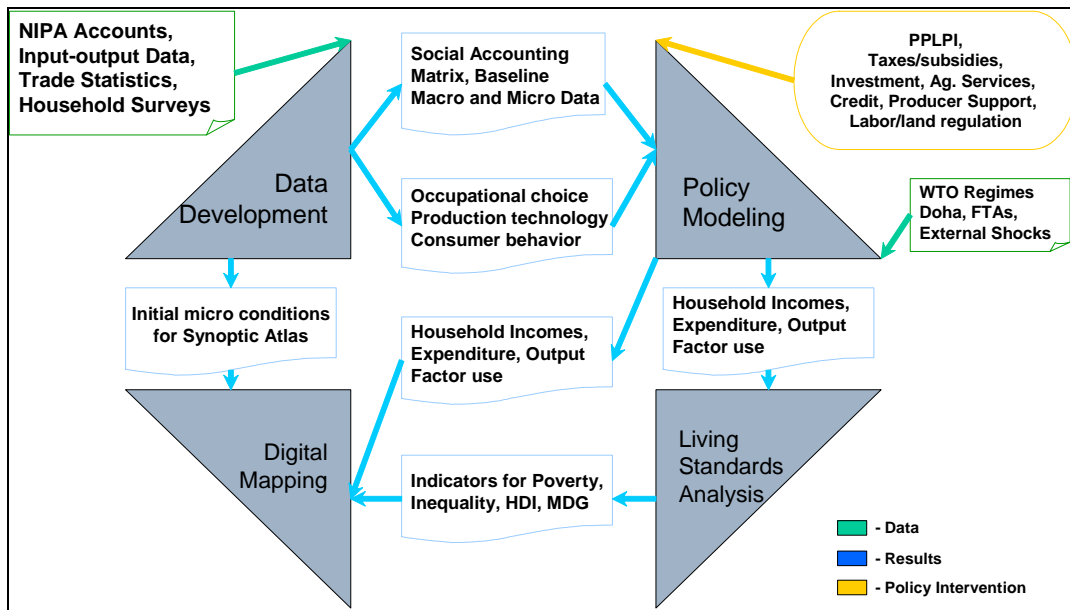
5. Predicting the Impact of Selected Policy Scenarios

The model is dynamic and covers the period 2004 to 2010 in the present application to Viet Nam's Northern mountain region (NMR). In the first case, we examine a dynamic baseline situation, representing 'business as usual' or no change in status-quo policies. The second scenario simulates Viet Nam's accession to the WTO, assuming that all tariffs and export subsidies are abolished over the period 2005 to 2007 (equal steps). Finally, we assume that a livestock policy is implemented over the same period that increases productivity in that sector by about 25 percent over five years.

It should be emphasized that the predictions are preliminary and cannot be considered definitive until the prototype model is more completely tested. Having made this caveat, however, these results indicate the complexity of the adjustment process facing policy makers, as well as the potential for pro-poor intervention. Comparison against the baseline scenario, the WTO scenario confers most of its benefits on urban populations, where significant poverty reduction occurs. Some of these gains are propagated to the rural poor, but to a low degree, and the result for the NMR is quite small since rural populations dominate. By contrast, when WTO accession is coupled with livestock promotion, poverty reduction is less in urban areas, but very significant gains are conferred upon the poor rural majority, while gains for the urban poor are reduced. The fall in rural poverty headcounts is more than 30% higher, and measures of poverty depth (p1) and severity (p2) are mitigated even more dramatically, relative to the WTO accession only

scenario. Across the region, over 27 percent of the population are predicted to escape poverty (over 1.8 million people from a 2002 NMR population of 10.76 million).

The main reason the third scenario is significantly more pro-poor is that rising agricultural productivity increases rural household participation in the WTO-induced economy-wide expansion. Clearly, national level policies combined with local interventions can sharply alter patterns of poverty incidence. It is equally clear form these results, however, that increasing the scope of poverty alleviation (the Livestock Promotion scenario) can entail tradeoffs for other groups (urbanites in the WTO scenario), complicating policy choices.

6. Conclusions

For PPLPI, Integrated Poverty Assessment (IPA) of this kind can serve as an important evaluation tool both *ex ante* and *ex post*. Analysis of initial conditions can improve identification of target groups and anticipate their needs for effective program support and market access. Whether the desired policy changes will actually take place depends, to a large extent, on how effectively proponents can present their arguments to policy and decision makers at various levels, within the context of the prevailing political economy. Tools such as these will support the design, promotion, and implementation of more effective policies for equitable and sustainable economic growth.

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