



The Contribution of Livestock to Household Income in Vietnam: A Household Typology Based Analysis

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EXECUTIVE SUMMARY

Introduction

The poverty analysis and assessment carried out by the World Bank (1999) reports that although overall Vietnam has witnessed a significant reduction in poverty, poverty levels still remain relatively high. Poverty in Vietnam, as in many other developing countries, is found to be strongly correlated with location, households located in rural areas being more likely to be poor. Approximately 90 percent of the poor in Vietnam reside in the rural areas and over 80 percent of poor households are farm based. Poverty in Vietnam also has marked regional characteristics and among the regions, poverty is clearly higher and deeper in the upland regions of the Northern Mountains and the Central Highlands compared to the coastal areas and river deltas.

Given that poor rural households have repeatedly been found to over-proportionally rely on livestock for their subsistence, the main objective of this paper is to assess the role that livestock plays for poor households in Vietnam and to identify which households might effectively be targeted for poverty reduction through policies affecting the livestock sector.

Background Analysis and Typology Groups

The analysis is based on data collected by the second Vietnamese Living Standard Measurement Survey (VLSS II) carried out in 1997-98 under the technical assistance of the World Bank. The analysis in this document only draws on selected sections of the household questionnaire and focuses on agricultural and livestock production activities. The data in the VLSS II is analyzed according to a ten region subdivision that allows to further distinguish amongst urban and rural areas.

In the major and middle-sized urban areas, livestock ownership is relatively low, starting to increase in small urban areas. 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. Approximately 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.

Total household income in rural areas is considerably lower than household income in the urban areas. Average urban income is more than three times as high as average household income in rural areas. Households living in rural areas report a mean annual total household income of 743 USD per year or 163 USD per capita per year while total household income in urban areas on average

amounts to 2,497 USD per annum or 584 USD per capita per year. The proportion of poor people in rural areas is 5 times as high as the proportion of the poor in the urban areas.

We classify households hierarchically according to two criteria, namely the reliance of the household on agricultural income (2 categories) and the share of own home production consumption in total household income (3 categories). The latter is used as a proxy for the level of market integration of the household. Thus five typology groups were set up, ranging from households less/not involved in agriculture to more agriculture oriented households and, within these two groups, from more market integrated households to more subsistence based ones.

Urban households, in their vast majority (>90%), generate income from diverse sources, while agricultural income only represents an average share of 3% of total income. Nonetheless, seven percent of urban households fall into the category of agricultural households and, for another 1.6 percent of urban households, agriculture still constitutes a significant source of income (33 percent).

In the rural areas slightly more than half of the households (55.6 percent) fall into the 'agricultural household' classification. More specifically 33 percent of the rural sample still show a strong reliance on own production consumed in household. On the other hand, a relatively large share of the households (34.8 percent) belongs to the more market integrated and income diversifying households.

Highest mean agricultural incomes are achieved by the more market-integrated agricultural households. These households also dispose of the largest mean plot sizes but not of the largest herds / flocks. The second highest mean agricultural incomes are achieved by agricultural households with intermediate market integration, 30% of which is derived from livestock. The remaining rural households earn slightly lower incomes from agriculture, of which around 25% is derived from livestock (they also have similar plot sizes of 0.4 to 0.5 ha), but have less income from non-agricultural activities. Pigs generate the highest average livestock income across all household types, the difference in income per pig across household types however being extremely marked, followed by poultry (chicken, ducks and geese). The ratio of income from pigs to poultry is 2.7 across all agricultural household types.

With the exception of more market-integrated households, more than half of the agricultural income is represented by home consumption of agricultural produce. The proportion of income from livestock represented by home consumption ranges from 10 to 30 percent and is considerably lower than the corresponding share of agricultural income, indicating a higher market integration for livestock than for crops. Most income generated by pigs is realized through sales while home consumption constitutes 10 percent or less of income from pigs across all household types. For chicken the opposite is the case with home consumption accounting for 64 to 95 percent of the income derived from chicken. Virtually all (>90%) cash revenue from livestock are derived from the sales of live animals rather than livestock products.

Econometric Analysis

In order to investigate the relationship between poverty and livestock activities, a qualitative binary choice model is specified and estimated utilising data from the survey. The probability of falling below or above the poverty threshold is hypothesized to depend on household characteristics such as involvement in agriculture, livestock ownership, production efficiency, the household's exposure to markets and regional location.

The estimated coefficients are statistically significant and suggest that as the share of income derived from livestock decreases, the probability of a household lying above the poverty line increases. More importantly, a higher number of pigs and chicken increases the probability for a household to lie above the poverty threshold. In fact, the marginal effect, or slope, of the number of pigs on the probability is relatively large. This suggests that pigs are important in determining the position of households relative to the poverty threshold and indicates that policies that aim to increase the number of pigs will be more efficient in alleviating poverty than policies that aim to increase the number of chicken.

The findings in the data also suggest a strong relationship between the level of household income and the degree of market integration. Amongst the agricultural based households, the least commercially oriented group constitutes the poorest group of households. This group on average earns household incomes of around one eighth of the income achieved by the highest income group. Furthermore, households that generate more than 50 percent of their income from agriculture and can be characterised as less market oriented also depend more strongly on livestock for their livelihood.

We also find that the more commercially oriented households use land and livestock resources more efficiently and the data indicate that there exists a clear relationship between the degree of market integration and production efficiency. Production efficiency is found to decrease by 74 percent in the case of livestock and by 40 percent in the case of land as households are less market integrated. This suggests that there may be more potential to improve livestock production efficiency than to increase land productivity.

Conclusions

Both the typology group analysis and the econometric testing of the data indicate that improved market integration and strategies enhancing production efficiency could be effective in the reduction of poverty. Most rural households are found to own livestock and to earn a considerable portion of their income from livestock. More specifically it was shown that pigs contribute most to household income from livestock. The poorest of the poor are found to have proportionally more access to livestock than land but are also the least market integrated and least production effective. Thus, policies oriented at improving smallholder pig production could significantly contribute to poverty alleviation, while, alternatively, for the poorest households diversification might be a more suitable pathway out of poverty.

Pro-Poor Livestock Policy Initiative (PPLPI)

Website: <http://www.fao.org/ag/pplpi.html>

Working Paper: <http://www.fao.org/ag/againfo/projects/en/pplpi/docarc/wp21.pdf>