

# Poverty and Inequality in Vietnam: Spatial Patterns and Geographic Determinants

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In Vietnam, where regional disparities in poverty are large, information about the spatial distribution of poverty is especially important because it helps policymakers and program designers understand the causes of poverty and target programs to the poorest regions. This study provides estimates of poverty and inequality for small areas of Vietnam and explores the geographic determinants of poverty.

## SPATIAL PATTERNS IN POVERTY AND INEQUALITY

This study uses a relatively new method, called “small-area estimation,” to measure poverty and inequality, not only at the provincial level but also at the district and commune levels. The method combines information from the 1997–98 Vietnam Living Standards Survey (VLSS) and the 1999 Population and Housing Census to estimate various measures of poverty and inequality for small areas. First, the VLSS data are used to estimate an equation describing the relationship between per capita expenditure and various household characteristics. The equation is then applied to data on those same characteristics from the Census, generating poverty estimates for each household. These results are then aggregated to generate estimates of poverty and inequality for each of 61 provinces, 614 districts, and roughly 10,747 communes.

The results indicate that the poverty rate is highest in the remote areas of the northeast and northwest regions, the upland areas of the north central coast, and the northern part of the central highlands. Poverty rates are intermediate in the Red River and Mekong River deltas. The lowest poverty rates are found in Hanoi and Ho Chi Minh City, in other urban areas, and in the southeast region. An analysis of the density of poverty reveals that most of the rural poor live in the lowland deltas, areas where the incidence of poverty is relatively low but the population density is quite high.

The study compares these results with district-level poverty estimates generated by the field staff of the Ministry of Labor, Invalids, and Social Affairs (MOLISA).

The correlation between the two estimates is quite low. The small-area estimates agree more closely with conventional wisdom regarding the distribution of poverty in Vietnam. One possible explanation is variation in the methods used by MOLISA from one district to another, but further research is needed.

The analysis also reveals that the level of inequality in Vietnam is relatively low by international standards, in spite of wide disparities in poverty rates from one region to another. Inequality is greatest in the large cities and (surprisingly) in parts of the rural upland areas. Inequality is lowest in the Red River Delta, followed by the Mekong Delta. A decomposition analysis indicates that just one-third of the inequality is found between districts and two-thirds within them, suggesting that the targeting of anti-poverty programs should go below the district level to the commune level.

The results also indicate that district-level poverty rates are closely correlated with the level of average per capita expenditure. This implies that differences in inequality across districts do not play a significant role in determining district poverty rates. If this cross-sectional pattern reflects the changes that occur over time, then the implication is that poverty reduction occurs largely as a result of broad-based economic growth rather than improvements in income distribution.

## GEOGRAPHIC DETERMINANTS OF POVERTY

This study also explores the geographic determinants of poverty using two types of models. The first is a standard regression analysis to predict district-level poverty in urban and rural areas. In this global model, geographic determinants—including agro-climatic variables and market access—explain about three-quarters of the variation in district-level rural poverty. Poverty is higher in districts with sloped land, bare and rocky land, and poor soils (sandy, saline, or containing high levels of acid sulfate), and also in districts that are far from towns. However, these variables do not explain urban poverty well.

The second model is a spatially-weighted local regression model of rural poverty in which coefficients are allowed to vary over space. This model reveals that flat land and high road density are associated with lower poverty throughout Vietnam. But other variables, such as rainfall and forest cover, are positively associated with poverty in some areas and negatively associated in others. Overall, the relationship between agro-climatic variables and poverty varies significantly from one area of Vietnam to another.

## IMPLICATIONS FOR POLICY

Many anti-poverty programs are geographically targeted in Vietnam using MOLISA estimates. The results from this study indicate that it may be possible to improve the targeting of these programs by adopting more precise estimates of poverty at the district and commune levels, though further research is needed to better understand the discrepancies between estimates produced by different methods.

The study also highlights the difference between areas where the incidence of poverty is high and areas where the density of poverty is high. Programs that concentrate

exclusively on areas with high poverty rates will not reach the majority of the poor.

Since three-quarters of the variation in district-level rural poverty is explained by variables linked to low agricultural potential and lack of market access, enhancing market access (through road improvements, for example) seems important. Poor agroclimatic conditions are not easily remedied, however, so in some cases migration out of disadvantaged regions may be the best strategy. Current policies to restrict migration may prevent families in these regions from pursuing this strategy.

Finally, the study notes that the small-area estimation method is not very useful for annual poverty monitoring because it relies on census data, but it could be updated every five years. In addition, it could be used to show detailed spatial patterns in other variables of interest to policymakers, such as income diversification, agricultural market surplus, and vulnerability. Finally, it could be used to estimate poverty rates among vulnerable populations too small to be studied with household survey data, such as the disabled, small ethnic minorities, or those in fishing communities.

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