Hundanol Kebede

The gains from market integration: The welfare effects of new rural roads in Ethiopia

This paper estimates the welfare gains from market integration due to new rural road construction. Using a large-scale rural road expansion project and a detailed agricultural dataset from Ethiopia, I provide evidence that rural road constructions increased household consumption. The roads also improved market integration, that is, road connectivity weakened the inverse relationship between village prices and yields of crops, and reduced the price gap between urban centers and the surrounding villages.

I then develop a multi-sector multi-location Ricardian model of trade with heterogeneous land quality to identify the mechanisms through which roads improve household welfare. I use the model structure to derive a sufficient statistic for the welfare effects of roads on household welfare. Importantly, the sufficient statistic can be inferred from household land allocation and model parameters alone, without data on trade flows between households. I estimate a reduced-form effect of the roads on household welfare of about 13%. Using the sufficient statistic derived from the model, I show that about half of the reduced-form welfare effect is attributed to new trading opportunities.

A notable feature of my model is the prediction that increased road connectivity would cause household production decisions to be dictated by market prices rather than consumption preferences – thus providing a novel test for separability. This separability between household production decisions and consumption preferences leads to efficiency gains because land is reallocated to crops that have higher productivity and higher prices. I provide robust evidence that support these predictions. First, I find a significant correlation between household land and budget allocation across crops, and that this correlation significantly: (i) increases with household’s distance from market centers and roads, and (ii) decreases over time for households that reside in villages that get road connectivity, relative to households in villages that did not get roads. Second, I show that more land is reallocated to crops in which villages have a comparative advantage when they gain access to new roads.

Overall, the results in this paper suggest that in areas that are near-autarky, road connectivity leads to significant welfare gains through improved trade opportunities and the resulting reallocation of land and labor based on market values rather than own consumption preferences.

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