

BRAZIL

The Economy of Land Conflict in Brazil

By F. Daniel Hidalgo and Neal P. Richardson



Photo by César Muniz

Outside the Mario Lago Landless Workers Movement Camp in Ribeirão Preto, Brazil.

In the early 1990s, rural northeastern Brazil faced a severe economic crisis. Droughts led to crop shortfalls, which paralyzed sugarcane refining facilities throughout the region, threatening the livelihood of workers dependent on the agrarian economy.

In Água Preta, a municipality hard hit by the crisis, newly unemployed plantation workers turned to one of the few options they had left: direct

collective action. With the support of the Movimento dos Trabalhadores Rurais Sem Terra (MST) — the Landless Workers Movement — the plantation workers organized and invaded unused land. The workers, as recounted by geographer Wendy Wolford, forced the government to expropriate moribund plantations and redistribute the land.

As the social movement with the largest membership in Latin America,

the MST has captured the imagination of activists and scholars throughout the world. By challenging the extremely unequal distribution of land in Brazil — the world's eighth most unequal nation, according to the Food and Agriculture Organization — through a two-decade-long campaign of land invasions, the MST has successfully kept land reform on the national political agenda, even under governments with pro-market economic programs.

According to the Pastoral Land Commission (CPT), a church-based rural organization, over 660,000 families — more than 3 million individuals — participated in land invasions in Brazil between 1988 and 2004. Roughly 440,000 families received land from the government during this period. These invasions have in many cases been accompanied by violence and intense political conflicts.

Given the scale and prevalence of land conflict in Brazil, it is important for social scientists and policymakers seeking to best serve the needs of the rural poor to understand its origin. Economic deprivation led to rural conflict in Água Preta, yet how true is this for Brazil in general? Where is rural conflict most likely to occur?

Building on the valuable insights of anthropologists and sociologists, we describe here our recent efforts, co-authored with Suresh Naidu and Simeon Nichter, to understand the link between economic conditions and rural conflict using statistical analysis. Despite the complexity of land politics, we believe that through careful research design, modern quantitative tools can shed light on important facets of rural conflict.



Photo from Associated Press.

Landless workers build housing after a land seizure.

The Challenge

Even with good data at hand, evaluating the causes of rural conflict through quantitative analysis is challenging. If we collect data on rural conflict and economic conditions, can we accurately infer the relationship between economic trends and land invasions?

While the raw data may say that poor economic conditions and increased rural conflict go together, correlation is not causation. Economic downturns may be associated with other, unobserved events that increase conflict, and those other events could also be driving rural mobilization. If we could measure and control for all of these factors, there would be no problem. But unfortunately, we cannot. Furthermore, land conflict may be both cause and effect of economic disruptions, making it difficult to untangle one from the other.

If social scientists, like biologists and chemists, could perform experiments, it would be more straightforward to answer these questions quantitatively. In an imaginary (and clearly unethical) experiment, we could randomly select a few dozen communities, apply an economic shock (the “treatment”), observe the amount of rural conflict that occurs, and then compare these selected communities to a

randomly chosen group of other communities (the “control”) that did not receive the shock. Because the treatment was assigned randomly, we could be sure that the difference between the two groups was caused by the economic shock. Of course, this kind of experiment is impossible. Hence, social scientists must find other ways to investigate the roots of rural conflict.

Natural Experiments

One approach is to get nature to do the randomizing for us. Social scientists accomplish this by seeking out research opportunities called “natural experiments,” which can be powerful aids for establishing causation. In our case, we reasoned that variation in annual rainfall is basically random, but can have potent effects on the agrarian economy of rural communities. Thus, random fluctuations in rainfall year to year acted as our experiment.

Following the pioneering work investigating the economic causes of civil wars by UC Berkeley economist Edward Miguel, we collected rainfall data from across Brazil and examined how randomly applied economic shocks — derived from fluctuations in rainfall — led to increased rural unrest. Moreover, we investigated the kinds of communities in which these economic shocks cause the most conflict.



Our Findings

The analysis confirmed that sudden drops in rural income, caused by drought or flood, lead to land invasions. When rural workers are faced with economic hardships, they are more likely to be mobilized to invade land because they have few alternatives.

Our statistical method required two steps, using a procedure known as instrumental-variables regression. First, we examined the relationship between rainfall and agricultural income: how did too little or too much rain affect income within municipalities? We found that deviations from normal rainfall, both positive (floods) and negative (droughts), led to lower agricultural income.

Second, we took our first-stage estimates of agricultural income as caused by rainfall and examined the effect on land conflict. This method allowed us to exploit the random variation in income caused by nature.

We found that a drop in agricultural income by one standardized unit increases the chances of a land invasion by around 15 percent, on average. Income shocks affect not only the incidence of land conflict but also its intensity: greater drops in income lead to more land invasions and more families participating in them

Yet the average effect we estimated masks huge regional

differences in how likely the rural poor are to organize. Why do hard times in some places lead to so much more conflict than in others? To answer this question, we examined how the effects of our “experiment” varied across different kinds of communities. We found that by far the most important characteristic that predicts where conflict will occur in hard times is inequality in land ownership.

For example, the effect of an income shock is six times greater in Pará, one of the most unequal states, than in São Paulo state, which has one of the least unequal distributions of land ownership. Água Preta, the example we began with, also typifies this relationship. The concentration of land in that municipality is high even for Brazil, making it particularly ripe for rural mobilization.

We interpret this result in two complementary ways. On the one hand, land invasions are costly to organize and implement. Consequently, the MST may target its activities on larger landholdings, allowing it to concentrate on one big invasion rather than multiple, scattered efforts. On the other hand, the concentration of landownership means that a greater share of the population is asset poor. Without land or other possessions, the rural poor are more vulnerable to economic shocks because they lack the means to sustain themselves through a bad growing season. Joining a landless movement and occupying land is also a relatively more

An MST demonstration in Pernambuco.



Photo by Felipe Canova.

attractive option when one does not have assets to leave behind.

In addition to land inequality, we find that different patterns of land tenure also mediate the effect of income shocks. For example, tenant farmers, with their rent determined prior to the growing season, suffer greater hardship from a failed harvest. Regardless of whether a drought hits, the rent must be paid. When owners cultivate their land, by contrast, they have one less expense to pay — as well as an asset to borrow against in order to make it through the year.

Conclusion

Our research identifies two economic factors — income shocks and the structure of rural landholding — that contribute to causing land invasions across Brazil. Understanding the causes of conflict can suggest solutions to reduce tensions in the Brazilian countryside and to improve the lives of the rural population.

Conflict over land is costly in terms of time, money and human life. Social movements expend great effort organizing and defending land occupations, and landowners spend immense resources to counter the invasions. Even if an invading group can hold onto their claim through the initial process of occupying the land, the legal battles that follow can drag on for years. More importantly, land invasions can turn violent. The CPT reports that in the past decade, 367 people have been killed in conflict over land.

Our findings have several policy implications for reducing rural conflict. First, social assistance programs in rural areas would be one way to limit the vulnerability of rural workers to income shocks. Targeted transfer programs, particularly during periods of drought, could provide a form of income insurance to the rural poor so



Photo by Roberto Vinicius.

A young boy plants an MST flag as his family unloads their belongings.

that joining a land invasion seems less attractive. Indeed, anecdotal evidence suggests that the success of the targeted antipoverty program, Bolsa Familia, may explain a recent fall in conflict.

Second, reducing the extreme concentration of landownership would also ease rural tensions. Currently, the vast majority of land redistribution is ad hoc, occurring only in direct response to land invasions. This is unlikely to be the best way to reduce enduring inequalities and diminish conflict. A

coherent, institutionalized program of land reform that targets the neediest could be more efficient at achieving both goals. While historically such efforts at comprehensive redistribution have stalled, our research highlights the mounting costs of failing to address stark inequalities.

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