Insights from the Impact Metrics Dashboard

A New Multivariate Analysis of Factors Driving High Intent to Migrate in Guatemala

Stacey Ruiz and Patricia Geli • June 2023

The Americas Hub of the Reform for Resilience Commission (R4R) at Harvard Chan School is proud to collaborate with the Partnership for Central America (PCA), the public-private-academic partnership assembled by the White House in 2021 to address the root causes of migration in Central America. To date, the PCA has secured $4.2 billion in commitments to create economic opportunities for the residents of El Salvador, Guatemala, and Honduras, and increase their sense of "rootedness," or the connection they feel to their community and country.

As leaders of the PCA's metrics pillar, we worked with Fraym and Gallup to develop the Impact Metrics Dashboard, a novel tool that enables a detailed analysis of data at the neighborhood level in both Guatemala and Honduras. The Dashboard allows decision-makers to identify migration hotspots, craft evidence-based interventions to improve local conditions, and evaluate their impact over time.

In this research update, we share the most recent findings of our analytical work and explain how these new insights can guide the work of policymakers and investors wanting to support underserved populations in Northern Central America.

New Insights from the Impact Metrics Dashboard

The insights presented in this report were made possible by the Impact Metrics Dashboard, powered by artificial intelligence and machine learning (AI/ML) technologies. The Impact Metrics Dashboard provides a holistic view of the local dynamics, enabling us to identify the key drivers of migration at a local level. In addition to traditional metrics such as demographics, employment, and educational attainment, this innovative dashboard also includes a comprehensive range of indicators, including health access, digital access, access to food and clean drinking water, domestic violence, financial inclusion, and perceptions of future household and country economies, drawn from a variety of sources including the Guatemala Demographic Health Survey, CID Gallup, and the Institute of Migration of Guatemala, dating from 2000 to 2022.

A white paper we published in June 2022 shed light on the correlations between education, unemployment, and domestic violence with intent to migrate in Guatemala. We have now taken the analysis a step further by conducting a multivariate analysis, exploring the associations between all variables available on the Dashboard and the probability of migration. We conducted quantitative analyses including linear regression modeling for four hotspot departments, which are units of government analogous to a U.S. state.

We identified broad shared patterns driving the desire to migrate in these departments, including factors related to economic status, access to clean drinking water, and domestic violence. Digging deeper, we see that those factors are weighted differently in each department. Those disparities suggest that policy interventions and investments should be tailored differently in each region to reduce the likelihood of migration.

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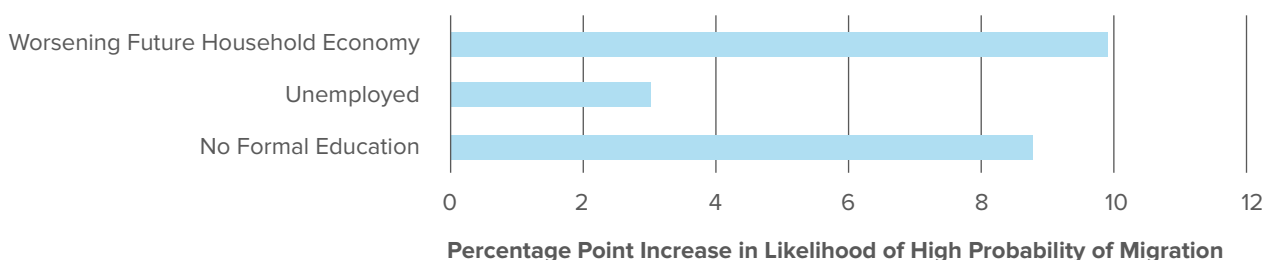
Department of Huehuetenango

Within the Northwest region of Guatemala, one hotspot for high probability of migration is the department of Huehuetenango, where over 36% of adults indicate a high probability that they would emigrate if they had the resources. Our analysis of those who self-identified their potential migration as "high probability" found several significant predictors associated with that desire to leave their home country, including a lack of formal education, unemployment, and negative perceptions of future household economy.

For example, all other factors being equal, individuals in Huehuetenango with lower levels of formal education than the national median were found to have an 8.7 percentage point higher likelihood of having a high probability of migrating when compared to the more educated half of the population.

Additionally, levels of unemployment above the national median are associated with a 3.3 percentage point increase in having a high probability of migrating. Similarly, individuals who are more likely than the national median to perceive their household economies worsening are associated with a 9.9 percentage point increase in the likelihood of having a high probability of migration, all other factors being held equal. This finding suggests that as individuals' perceptions of their future household economy becomes more hopeless, their likelihood of considering migration increases.

FIGURE 1

Statistically Significant Drivers of High Probability of Migration in Huehuetenango

Percentage Point Increase in Likelihood of High Probability of Migration
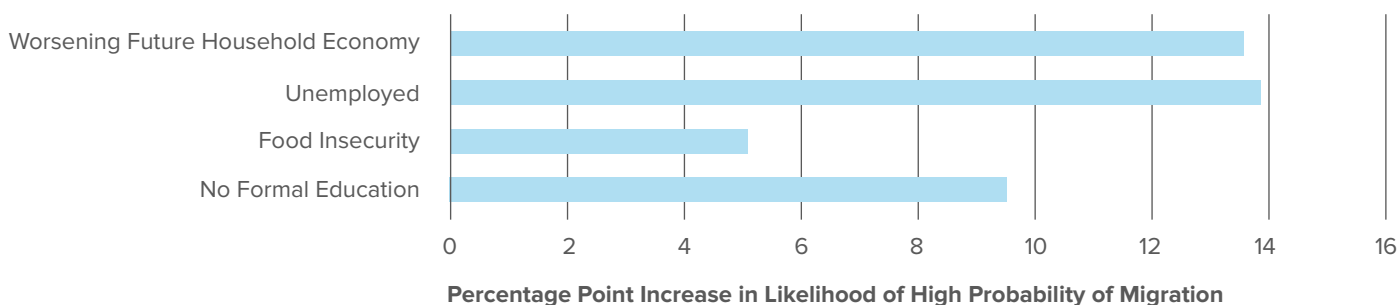
Department of San Marcos

The Impact Metrics Dashboard White Paper also flagged the Department of San Marcos as a migration hotspot. Our analysis provides additional evidence on the dynamics of migration in San Marcos by identifying significant predictors, including no formal education and negative perceptions on the future economy of the country. For instance, individuals with lower levels of formal education than the national median were 9.6 percentage points more likely to have a high probability of migrating, independent of any other factor. Individuals living in San Marcos who had a strong negative perception of the national economy are 13.6 percentage points more likely to have a high probability of migration, highlighting the need to foster economic growth.

Furthermore, levels of unemployment above the national median are associated with a 14.0 percentage point increase in having a high probability of migrating. Food insecurity is another factor driving migration in San Marcos, with a 5.2 percentage point increase in having a high probability of migrating. The economic push factors present within this migration hotspot reflect the multifaceted challenges that could benefit from private firm investments under the PCA.

FIGURE 2

Statistically Significant Drivers of High Probability of Migration in San Marcos

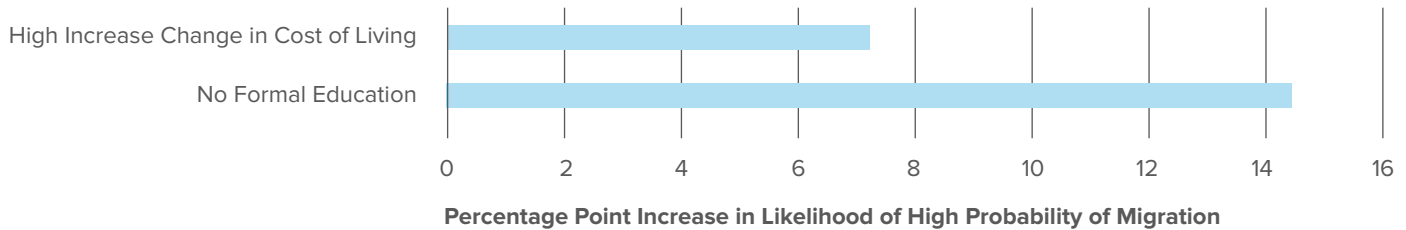Percentage Point Increase in Likelihood of High Probability of Migration

Department of Totonicapán

In the Department of Totonicapán, significant factors associated with migration include lack of formal education and concern about buying power.

Similar to Huehuetenango and San Marcos, individuals living in Totonicapán with lower levels of formal education than the national median were 9.6 percentage points more likely to have a high probability of migrating. Among adults who have experienced a high increase in the cost-of-living (above the national median), there was a 4.7 percentage point increase in the likelihood of having a high probability of migration. These findings emphasize the critical need to improve access to education and address inflation in Totonicapán.

FIGURE 3
Statistically Significant Drivers of High Probability of Migration in Totonicapán

Percentage Point Increase in Likelihood of High Probability of Migration
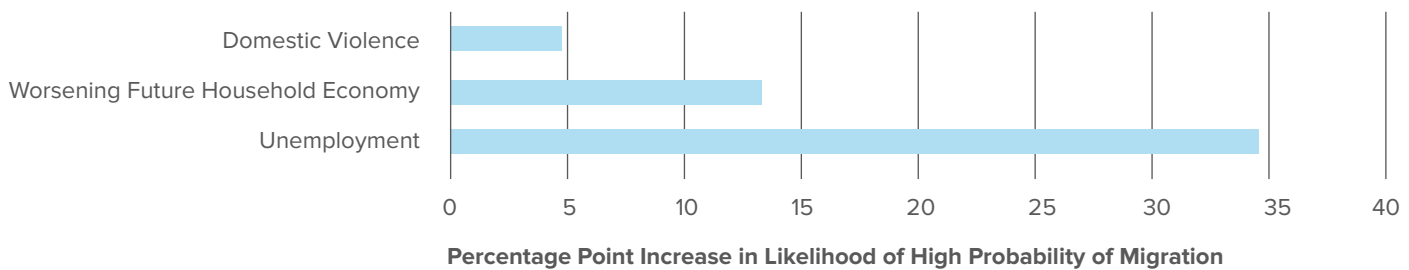
Department of Sololá

Within the Department of Sololá, significant predictors associated with migration include unemployment, negative perceptions on future household economy, and domestic violence. All other factors held equal, unemployment levels above the national median are associated with a substantial 35.1 percentage point increase in the likelihood of having a high probability of migration. Individuals whose perception of worsening household economies is above the median are 13.5 percentage points more likely to have a high probability of migration, highlighting the need to foster local economic growth. Another significant factor observed in Sololá is domestic violence, with a 5.0 percentage point increase in the likelihood of having a high probability of migration, highlighting violence as a driver of migration in this region.

FIGURE 4
Statistically Significant Drivers of High Probability of Migration in Sololá

Percentage Point Increase in Likelihood of High Probability of Migration

Next Steps

Together, these subnational analyses demonstrate that, while general patterns hold true across the country, specific factors associated with high probability of migration vary at the department level in Guatemala. These findings can be used to inform strategic region-specific interventions aimed at addressing the complex intersection of factors associated with root causes of migration in different regions. Implementing localized responses that improve access to basic needs, promote economic development, and address domestic violence may be more effective than one-size-fits-all national policies at improving the well-being of communities across Guatemala.

The Impact Metrics Dashboard has demonstrated its efficacy in providing insights on the migration dynamics in Guatemala. Using this tool, R4R has identified regions within Guatemala that are most in need of education, economic, and employment resources, which could benefit from strategic investments in job creation, capacity building and other initiatives launched by the PCA's public private academic partnerships.

Acknowledgments

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