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Brain Drain or Brain Gain? Recent Evidence and Policy Implications

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State of Knowledge

For decades, academics and policymakers have been concerned about "brain drain." Since the 1960s, policy proposals have sought to avert the emigration of the highly educated based on the premise that this would deplete countries of the "brains" that support economic development, while also implying the loss of public investment in education.

However, there are well-recognized positive consequences of the emigration of highly educated individuals to their country of origin. Financial remittances from skilled emigrants often constitute a significant portion of foreign financial inflows, particularly in small and low-income countries. Skilled emigrants who return home also provide important inflows of human and financial capital to their countries of origin, thereby boosting business creation and capacity building, which improves public institutions.

Additionally, the "brain gain" hypothesis is a less obvious possible positive consequence of high-skilled emigration. Proposed in the 1990s, the "brain gain" hypothesis suggests that the prospect of future emigration—and the higher returns to education abroad—could incentivize young individuals in origin countries to invest more in education. Since not everyone who acquires additional education ends up emigrating, this could lead to an increase in domestic human capital instead of a loss.

Beyond remittances, incentives, and migrant returns, high-skilled emigration can generate additional non-obvious benefits that are also important. For example, skilled diasporas transmit political and social norms to their home countries, thereby strengthening institutions and supporting economic development. They can also foster transnational links that boost foreign direct investment and international trade.

Historically, concerns about "brain drain" and related policy responses have mostly been pushed forward without rigorous supporting evidence. It was not until the 2000s that the first empirical evidence began to emerge. Our recent article, published in Science (Batista et al., 2025), summarizes the latest rigorous causal evidence on how high-skilled emigration can benefit countries of origin. The article discusses related challenges and opportunities for policymakers.

Two Exemplary Tales of Brain Gain

Two recent case studies stand out for their ability to convincingly identify and quantify the brain gain effect. By exploiting selective migration shocks and rich administrative data, these studies demonstrate how emigration opportunities can substantially increase domestic human capital.

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The first study focuses on the emigration of Filipino nurses to the United States (Abarcar and Theoharides 2024). Between 2000 and 2006, the United States expanded its visa quota for foreign nurses. Consequently, the number of Filipino nurses migrating to the US surged. However, rather than depleting nursing talent, the Philippines experienced a dramatic rise in nursing enrollment and licensing. For every Filipino nurse who left for the U.S., nine more obtained licenses domestically, resulting in a substantial net gain in the number of trained nurses in the Philippines. Much of this expansion was made possible by the growth of private nursing schools in response to rising demand. This case powerfully demonstrates the brain gain mechanism: when migration opportunities incentivize investment in skills, more individuals pursue education, and not all of them end up emigrating. It also illustrates the importance of educational supply-side flexibility in converting migration incentives into development gains.

The second example focuses on the emigration of IT engineers from India to the U.S. and its implications for India's IT sector (Khanna and Morales 2024). When the U.S. expanded H-1B visa caps in the early 2000s, Indian students and professionals responded by increasingly acquiring IT skills. For every 10% increase in the earnings of Indian IT workers in the U.S., IT employment in India increased by 5.8%. This demonstrates a significant brain gain effect, as the migration opportunity prompted a substantial expansion of domestic human capital. Furthermore, returning IT migrants helped establish and expand India's world-renowned tech sector. These returnees brought skills, experience, international business networks, funding, and improved corporate governance practices. These globally mobile Indian professionals directly enabled the offshoring of tech services to India.

Main Findings and Policy Lessons

Recent empirical research has reshaped our understanding of high-skilled migration. Key takeaways include:

- **Human capital gains at origin**: Selective migration opportunities can raise domestic education levels by increasing the returns to skill acquisition. The idea is simple, yet compelling. When individuals in low- and middle-income countries see a credible opportunity to work abroad, particularly in higher-income countries, they are more likely to invest in acquiring education or vocational skills that will improve their prospects. However, not everyone who invests in these skills ultimately migrates. Consequently, the net effect can be a larger and more skilled domestic workforce—an outcome that benefits both origin countries and destination countries facing labor shortages. In order to make this feasible, education systems must have the capacity and flexibility to absorb rising demand.

- **Broad development spillovers**: Skilled migration supports development through remittances, return migration, diaspora engagement, and norm transmission, thereby strengthening institutions and markets.

- **Policy focus shift**: Rather than deterring emigration, policies should aim to harness its benefits. Efforts should prioritize educational investment, engagement with diaspora communities, and the reintegration of returnees.

Future research needs to better measure general equilibrium effects, including important factors such as labor market distortions or mismatches between skill acquisition and domestic needs. Additional causal evidence

is also needed especially in small and fragile states, where the brain gain mechanisms may face more pronounced barriers.

Moving forward

The brain gain hypothesis highlights a powerful complementarity between the prospect of selective emigration and investment in education and skills within a country. This mechanism is also relevant for vocational training and technical education (TVET) programs that aim to provide employment-related skills. By linking these programs to well-managed labor mobility pathways, governments and development partners can enhance the attractiveness, participation, and effectiveness of training initiatives. These policies can then support economic development, reduce irregular migration, and empower individuals—including women—through greater employment opportunities.

Therefore, a promising policy direction is to use the possibility of post-training emigration as an incentive to increase enrolment and completion rates in vocational training programs. The idea is to strategically leverage mobility prospects to build human capital. Evidence suggests that many of those who invest in skills in response to migration incentives will stay and contribute to the local economy. Others may return after acquiring experience abroad with enhanced capabilities and resources.

To test this approach, we propose piloting an evidence-based program in Cape Verde, a country with a growing training infrastructure and a long history of labor migration. Cape Verde's characteristics—its middle-income status, strong diasporic ties, and demonstrated brain gain dynamics—make it an ideal setting to explore the developmental returns of linking TVET programs to selective migration opportunities. Previous studies have shown that the country benefits from brain gain mechanisms (Batista and Vicente 2011; Batista et al. 2012, Batista et al. 2025). An experimental evaluation would help validate this policy approach and refine it for broader implementation in other contexts.

Based on:

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Khanna, Gaurav and Nicolas Morales (2025). The IT boom and unintended consequences of chasing the American Dream. Working Paper of the Federal Reserve Bank of Richmond, 25-01. doi: https://doi.org/10.21144/wp25-01

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