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THE LAUDER GLOBAL BUSINESS INSIGHT REPORT | 2024

Innovation and Leadership for a Sustainable Future

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Innovation and Leadership for a Sustainable Future

Sustainable development has moved up the priority list, from a set of ideals adopted by all United Nations member states in 2015 to an international imperative as the world experienced its hottest year on record in 2023. Certainly, sustainability is about preserving natural resources and mitigating climate change. But the definition has grown to include strategies that improve health and well-being, reduce deprivation and poverty, elevate education and job opportunities, eradicate inequality, and create a world where all living beings can thrive. It is daunting work that requires the very best of human ingenuity, collaboration, and community building.

In this special report, students from the Joseph H. Lauder Institute for Management & International Studies take readers on a trip around the globe to reveal the myriad ways in which nations, institutions, and individuals are working toward a more sustainable future. Learn how digitization is driving greater financial inclusion in Latin America and India. Find out how consumers in Japan are destigmatizing the purchase of used luxury goods. Read about how Senegal and Argentina are struggling with the transition to renewable energy. And take a behind-the-scenes look at the 2024 Summer Olympics in Paris, which promises to set a new standard for going green.

The mission of the Lauder Institute is to develop outstanding business leaders who look globally, engage locally, and act responsibly to have a powerful impact in the world. This mission is embodied in each member of the Class of 2025, who present the following articles based on firsthand interviews, observations, and in-country research. They have identified these topics recognizing the diversity of experience globally and because they care deeply about forging a sustainable future for present and future generations. We hope that you find this report to be a source of information and inspiration in helping to change the world for the better.

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Balancing Act: How Will Brazil Manage Alliances with China and the US?

Brazil faces a unique set of challenges as it prioritizes its economic interests while managing political alliances within an increasingly complex world order. This article explores the dynamics shaping the nation's future.

Brazil has long been seen as a key participant in the complex web of international relations with the ability to have a significant influence on global decision-making. While the country has chosen to maintain a position of neutrality in the face of multipolar conflicts over past centuries, determinedly refusing to take a side in open conflicts of interests between hegemons, its increasing economic interdependence with China and simultaneous alignment with the U.S. on key policy issues will likely put this neutrality to an unprecedented test. As the only member of both BRICS and G20, while also taking significant steps toward joining the Organisation for Economic Co-operation and Development (OECD), Brazil's position will potentially be influenced by the powers of each of those groups.

Brazil's strength as a major regional and global player stems from its extensive territory, abundant and varied natural resources, and thriving economy, as well as from its long history of multilateral diplomacy and soft power. The country has a history of fostering peace and cooperation, and has frequently served as a bridge between countries, settling disputes in Latin America and beyond, while also supporting multilateralism in forums such as the United Nations and G20 summit. Brazil's ability to maintain a carefully balanced foreign policy and forge a variety of diplomatic partnerships is due to its foreign policy of neutrality. Yet, the country's neutral status has come under increasing scrutiny in recent years, as the world watches Brazil's increasing economic alignment with China and its support for expanding the BRICS under the leadership of President Ignacio "Lula" da Silva.

Examining the historical impact of foreign forces on Latin America is essential to comprehend the significance of Brazil's growing position on the world stage. The region has been an area of geopolitical conflict for centuries, still bearing the scars of European colonial empires, particularly Spain and Portugal. In later years, tacit imperialism continued under the guise of the Monroe Doctrine, wherein the United States formally proclaimed its dominion over the Western Hemisphere, followed by covert interventions and proxy wars fought in the region during the Cold War.

External forces have significantly shaped the fates of numerous Latin American nations, sometimes at their expense. The impact of outside parties has been, at times, harmful to the sovereignty and stability of the area, ranging from economic exploitation to political involvement and military incursions. These historical events highlight the continued importance of foreign powers in Latin America and the necessity of exerting caution when managing their foreign policy interests.

At present, the key nations seeking to exert hegemonic influence over the region are the U.S. and China. International power dynamics have shifted over past decades as a result of China's emergence as a major economic force, and the U.S. has sought to counteract growing foreign influences in "America's backyard." Eager to preserve its sphere of influence, Washington has already expressed alarm about China's growing influence in the region due to its ambitious Belt and Road Initiative (BRI) and economic investments in Latin America. With both the U.S. and China seeking to boost their influence in the region to counteract each other, Brazil is caught at the center of this geopolitical clash as the biggest and most powerful nation in the region.

Shifting Tides in Trade and Foreign Investments

The most notable shift in Brazilian trade relations over past decades has been the surge of Chinese influence since 2003. This period marked a pivotal moment wherein both exports and imports between China and Brazil radically changed relative to historical patterns, according to trade balance information available in Bloomberg. Whereas the bulk of Brazilian exports were headed to the U.S. leading up to the early 2000s, exports to China surpassed those to the United States in 2003 onwards. There is some overlap of Brazilian exports to U.S. and China; the former receives iron and crude petroleum, while the latter gets crude petroleum and soybeans. In addition, while the margin is narrow, Brazilian imports of Chinese goods, mainly machines and chemical products, also surpassed imports of U.S. goods in recent years, primarily refined petroleum. The upward trend of China's relevance in Brazil's trade balance continued until the first half of 2021, at which point supply chain disruptions and stringent COVID zero-tolerance policies in China led to a slowdown of trade between both countries.

Exhibit 1: Brazilian Trade Ties as a Fraction of Total Exports

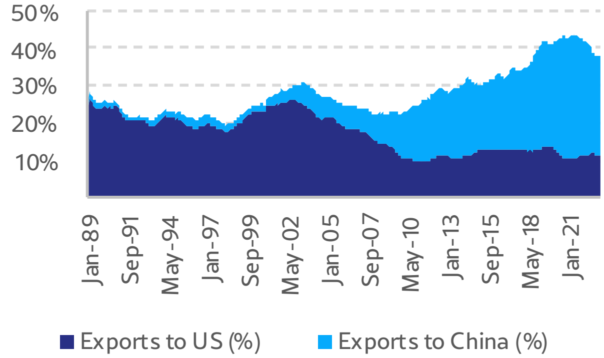
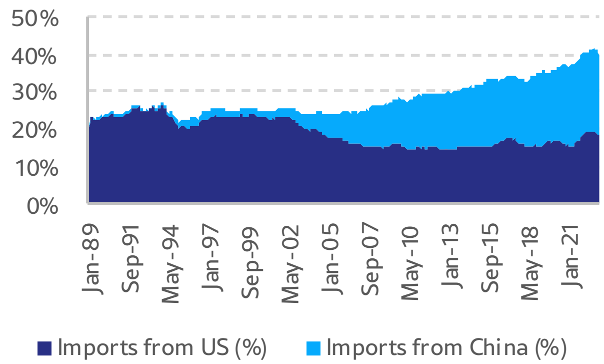


Exhibit 2: Brazilian Trade Ties as a Fraction of Total Imports



Data taken from Bloomberg

> "At present, the key nations seeking to exert hegemonic influence over the region are the U.S. and China."

As for foreign investments, it is evident that China has sought to make significant inroads via contributions to Brazil's energy and infrastructure sectors. Between 2005 and 2021, Chinese commercial banks funded nine projects in Brazil, with 14 substantial investments exceeding $280 million by Chinese policy banks, according to the Inter-American Dialogue. Out of these 23 ventures, 20 (or 86.9%) targeted the energy and infrastructure domains. This strategy isn't exclusive to Brazil, however; while many Latin American governments recognize China's support as veiled predatory lending, they view it as a preferable alternative to traditional partners such as the U.S. Shoujun Cui, director of the Research Centre for Latin American Studies at Beijing's Renmin University, told the South China Morning Post that China has treated Latin American countries as equal partners and "does not meddle in their internal politics or try to control the local economy," contrasting with U.S. objectives. Argentinian scholar Ariel Armony and Mexico-based researcher Enrique Peters further argue in their book, "Building Development for a New Era: China's Infrastructure Projects in Latin American and the Caribbean," that "the evidence does not support accusations that Chinese loans or businesses are detrimental to political or economic development," and "the investment fills a crucial gap in infrastructure needed for the region while establishing a new ally that will help further their economies and standing on the global stage."

American-Brazilian Alignment and Collaboration

In stark contrast to his predecessor, President Lula has sought to reject isolationism and reinsert Brazil in the global stage, most notably as a champion of environmentalism and protection of the amazon rainforest. This objective is closely aligned to U.S. President Joe Biden's current agenda, which has in turn led to a strengthening of U.S.-Brazil relations in the realm of environmental policy.

> "Brazil must decide if continuing to be a part of an alliance that is moving more toward authoritarianism is in its best interests…"

Alignment between both nations has extended to humanitarian topics as well. In May 2023, Brazil and the U.S. initiated the rejuvenation of the U.S.-Brazil Joint Action Plan to Eliminate Racial and Ethnic Discrimination and Promote Equality (JAPER), aiming to address societal challenges faced by marginalized racial and ethnic groups in both nations. According to the U.S. State Department, the collaboration extends to various summits and organizations such as the Organization of American States, the Inter-American Development Bank, the G20, the International Monetary Fund, the World Bank, and the World Trade Organization.

In addition to alignment on policy, the U.S. and Brazil have consistently sought to collaborate on matters of national security and militarization. For instance, in 2015, the U.S.-Brazil Defense Cooperation Agreement was ratified, promoting joint military exercises and facilitating the sharing of advanced weapons capabilities. In 2019, the Technology Safeguards Agreement was approved by the Brazilian Congress, ensuring the protection of U.S. technologies and supporting potential U.S. satellite launches from Brazil's Alcantara Space Center. Following the 2021 signing of the Artemis Accords, Brazil became the first South American country to establish "a common vision for governance in the civil exploration and use of outer space" with the United States. These collaborations persisted post-COVID and into President Lula's term. In March 2022, a new pact — the Research, Development, Test, and Evaluations (RDT&E) Agreement — was ratified, fostering collaboration between U.S. and Brazilian defense sectors. According to the State Department, "Brazil is the only South American country to ratify such an agreement with the United States."

Tensions and Conflicting Interests

Despite Brazil's strong alignment with the U.S. in the realm of public policy and national defense, its role in the face of evolving international pressures and shifting trade dynamics is a multifaceted puzzle. Ever since the BRICS (Brazil, Russia, India, China, and South Africa) arose as a global trade coalition in the early 2000s to sidestep the roadblocks faced in the U.S.-dominated World Trade Organization and other multilateral institutions, Brazil has sought to maintain strong ties with other regional powers as a means to boost its economic development. While this partnership was initially conceived as a conduit for economic collaboration among states experiencing steep growth trajectories, its recent expansion — colloquially referred to as BRICS+ and set to include Saudi Arabia, Iran, Ethiopia, Egypt, Argentina, and the UAE as of 2024 — is expected to have a more political focus with Chinese-centric leadership and anti-Western motivations.

Unlike Brazil and India, which have long sought to maintain a policy of nonalignment with respect to multipolar tensions and thus served as a counterweight to Chinese and Russian politics within the BRICS, it is likely that the new member states, most of which are autocratic, will be more amenable to anti-Western rhetoric. Having recently discussed aspirations to dethrone the dollar as the dominant world currency, BRICS is already proving a challenge to U.S. institutions and economic interests.

The Belt and Road initiative, President Xi Jingping's signature foreign policy project, is another initiative that illustrates China's efforts to spread influence across the Global South. The project, which began a decade ago as a quest to connect East Asia, Europe, and Africa through strategic investments in infrastructure, has become a global effort, with China helping build critical infrastructure in over 145 countries, including many in Latin America. While the BRI has proven beneficial to many partner countries, its proliferation across the developed world has signaled China's growing influence; many Western powers have expressed concern over the foothold China has gained across the Global South over the past decade, and have sought to adopt containment policies to prevent this spread.

Despite ongoing speculation that Brazil will join the BRI, the country has yet to join China's broadest enterprise. Of the countries in South America, only Brazil and Colombia have not joined. While some speculate that Brazil is unwilling to side so publicly with China at the risk of infuriating the U.S., Brazil's official stance (as informed by an interview with a Brazilian diplomat who requested anonymity) is that unlike its neighbors, Brazil possesses adequate infrastructure to support exports to key trade partners, including China. Additionally, Brazil's own institutions are capable of developing infrastructure developments without having to negotiate conditions with China. For example, the Investment Partnership Program (PPI) developed over R$1 trillion in such projects. Brazil's aspirations for development and governance may not always align with China's, creating challenges and opportunities for cooperation in the long term.

A Rocky Road Ahead

Brazil must seriously consider if its objectives are in line with the emerging BRICS+ alliance's new focus on politics and a more China-centric leadership style. Brazil must decide if continuing to be a part of an alliance that is moving more toward authoritarianism is in its best interests, since the addition of autocratic countries among new members creates issues for a country that appreciates democratic ideals. Brazil must carefully assess the advantages and disadvantages of its participation while BRICS+ pursues ambitious global goals, taking into account the need to protect its values and sovereignty in the face of a changing geopolitical environment.

Furthermore, Brazil needs to consider more than just geopolitical factors. In making this decision, economic aspects are also important. Brazil's economic environment, marked by sluggish GDP growth and domestic difficulties, necessitates a careful analysis of how its participation in this alliance aligns with its economic revitalization goals, even though BRICS+ presents opportunities for improved trade, investment, and technological collaboration. Brazil now finds itself in a tricky situation where it must pursue economic growth while maintaining its unwavering adherence to democratic ideals. Brazil is now at a crucial crossroads where the decisions it makes about its participation in BRICS+ will have significant and far-reaching ramifications, influencing not only its global importance but also its economic comeback and the future of its core democratic values.

This article was written by Manuel Alvarez, Jaime Cabrera, Michael Huckaby, Tommy Maddox, and Jennifer Pulido, members of the Lauder Class of 2025.

The Bioceanic Corridor: South America's Answer to the Panama Canal?

This article outlines the sociopolitical and economic ramifications of the Bioceanic Corridor, an ambitious rail and road project to connect four South American countries to greater prosperity.

Transcontinental railroads have epitomized regional integration for generations. From the Trans-Siberian Railway to the Channel Tunnel, and even the visionary Cape to Cairo railway, these ventures have always been at the center of political discourse, international investment, and popular imagination. Brazil, Paraguay, Argentina, and Chile have commenced a modern-day iteration of the same, hoping to link their two oceans through a combination of rail and road. Even though the final stretch is to be laid in the coming year, this Bioceanic Corridor has barely made international headlines, and even some experts in the region are unaware of its existence. Why is it not at the forefront of global discussions?

Source: Ministry of Public Works and Communications, Republic of Paraguay

The Bioceanic Road Corridor is a dual-carriage motorway, both rail and road, that will stretch east to west across South America, through Argentina and Paraguay, with its termini in Chile and Brazil. A railway system of this significance provides transportation alternatives to the Panama Canal, which is being affected by both climate change and geopolitical instability. Drought has already depleted enough water to reduce operation of the canal's locks, resulting in a significant shipping bottleneck in 2023. One only needs to remember the global economic ripples that were caused when the container ship Ever Given ran aground in the Suez Canal in 2021, blocking traffic for six days at an estimated cost of up to $10 billion a day, to understand the global seismic shift that would occur if the Panama Canal were to lose even a fraction of its viability.

To comprehend why the Bioceanic Corridor has not garnered the same limelight as its renowned predecessors, even as its significance to the entire South American continent reaches a level of vital import, we must delve into the challenges it faced from its inception. Perhaps more importantly, however, is a look towards the future in a changing world, with the corridor becoming a solution for a problem whose ramifications we are only now beginning to comprehend.

Origins

The geographical remoteness of South America underscores the significance of this project. The Southern Cone, as the southernmost portion of the continent is known, is considerably isolated; Africa, the nearest populated landmass, is a staggering 7,000 kilometers away. Exports from eastern South America destined for the Asia-Pacific are heavily reliant on the Panama Canal, sometimes requiring circumnavigation of the entire South American continent, and Brazil is particularly reliant on the Panama Canal for access to the Pacific. Bolivia, too, expressed interest in the project early on, yet the country was bypassed in favor of Argentina because of logistical and political challenges. Argentina still sends around 90% of its Asia-destined exports through the mid-Atlantic and into European ports, according to Nicolas Merener, an expert in South American economics at the University of Buenos Aires. This option is more attractive than competing with other nations for Panama Canal transit or braving the treacherous waters of the Drake Passage at South America's southernmost tip. The importance of the Asian market for this region is one of the founding inspirations for this corridor: The proposed railway promises a quicker, more direct route to the Pacific for all nations involved.

Furthermore, the corridor promises to enhance connectivity for Paraguay. As one of the only two landlocked nations in the Americas, Paraguay has consistently depended on river navigation treaties with Argentina to maintain its vital artery to global markets. The final piece of the agreement, Chile, relies on the Panama Canal in the other direction, with its European trade relations making it the fourth-highest user of the Panama Canal by tonnage. An alternative crossing route of the South American continent from both sides, for all involved, would be a net benefit. This railway can foster national development within each participating country. Envisioned as a supercharger for their respective economies, the corridor might just become their lifeline.

Economic Implications

A venture of this scale requires substantial investment. The economies of Latin America, largely dependent on commodities, are susceptible to fluctuations that could affect the railroad's profitability. Moreover, political risks, including corruption and political instability within the member countries, pose significant threats to the project's viability. Diverging interests among the nations involved could further undermine its success.

Despite these challenges, the economic benefits for all of the nations involved are clear, especially when one looks at the structures underpinning global trade itself. One of the most transformative innovations of the 20th century is the container ship. Ton for ton, shipping remains one of the most efficient methods of transporting goods. Ports and coastal cities, critical to a nation's economic well-being since ancient times, have only grown in their importance in the modern globalized world. How one reaches these ports, however, requires some form of overland transportation. Compared to maritime shipping, shipping by freight rail is the next-best efficient method for the transportation of goods over long distances.

As mentioned, the corridor would facilitate faster trade routes among Mercosur (the trading bloc comprising the aforementioned nations except Chile) and the Asia-Pacific in particular, bolstering the existing trade relations and fostering growth. The most obvious winner would be landlocked Paraguay, which stands to gain direct access to Brazilian markets, a reduction in reliance on less efficient river-based cargo transportation, and a connection to both of oceans that surround the Americas, when before it had none.

As the nation with one of the most stable economies in the region, it is poised to make full use of its newfound connection to world markets. Currently, to export to Asia, Paraguayans must ship goods south through the Paraná and Paraguay rivers, loop around northeastern Argentina, and then navigate north to the Panama Canal, with the operating cost that such an endeavor implies. The corridor will save two weeks of travel. The Borgon Project, an anti-poverty nonprofit, reported that agriculture producers in southern Paraguay will save an estimated 14 days and $1,000 per container shipment. The financial appeal of this project becomes clear when considering a single commodity, such as pork. Paraguay increased its exports of pork to Tawain sixfold in the first six months of 2023, after Tawain opened its market to Paraguayan produce. It may be able to move even more with the completion of the corridor.

> "The proposed railway promises a quicker, more direct route to the Pacific for all nations involved."

Brazil would be the next biggest winner of this corridor, given that its close economic ties to China and the Asia-Pacific originally inspired this project. As with Paraguay, the corridor would reduce travel time to Asia and shave billions off of trade costs. Economically, as with the other nations, there is the opportunity for the country to diversify its export markets and improve its competitiveness in global trade. The infrastructure improvements throughout Brazil's vast interior would also increase economic connectivity in the relatively isolated and underdeveloped regions through which the corridor runs, according to a published study.

Chile's gains would be rather straightforward and direct, with the increase of traffic through its ports creating a moderate economic benefit through transit fee collection and the increased traffic to its northern port cities. The benefits from its Atlantic-oriented exports are more difficult to extrapolate.

Argentina, however, is the most curious case for myriad reasons, and not simply because it is the newest addition to the agreement. Jujuy, the northwestern Argentine province through which the corridor will run, is even more isolated from the rest of the country than Tierra del Fuego in economic terms. Merener said Argentina's existing infrastructure, including its massive Atlantic ports and the pipelines directed towards them, imply limited incremental benefit for shipping its agricultural produce or natural gas through the corridor. Therefore, this project for Argentina today amounts mostly to political points in the region, especially considering the construction costs for its portion of the infrastructure would be quite minimal.

> "The full significance of the corridor to the region requires looking beyond mere economics."

Mining operations in Jujuy, however, could entirely change this equation. The region holds one of the largest reserves of lithium on the planet. Once completed, this corridor could be the most direct way for Argentina to export its precious green-energy element from this isolated northwestern corner into every corner of the globe. The operative word is "could," because while Argentina's construction commitments for the corridor are mostly assured, the development required to fully harness these mineral deposits is far from certain under the country's current turbulent politics and economics. While such an ideal reality for Argentina's portion of the corridor is possible, for now, it exists only on paper.

Overall, the project presents an opportunity to redefine the economic landscapes of the involved nations, positioning them as key players in global trade networks. But the full significance of the corridor to the region requires looking beyond mere economics.

Geopolitical Importance

Over the last five centuries, South America has been at the mercy of the whims of those from the outside who have held power on a global scale. The export-driven and extraction-heavy economic models imposed by the Global North would survive independence movements and continue into the modern era. At the forefront of this struggle could be the Panama Canal. What would South American leaders do if they suddenly no longer had access to such an important waterway?

The Panama Canal underwent a century of U.S.-led ownership and was ceded to Panama only by American consent. Even today, the canal is of great economic importance to the United States, which accounts for two-thirds of the canal's annual volume as of 2019. China is a distant second at 13%, but that proportion is rising, and fast. Clearly, both superpowers are well aware of the canal's significance.

The Panama Canal will continue to mount in geopolitical significance not only for these superpowers but also for the Latin American nations that rely on the waterway. Its importance to the Americas, and the regional hegemon, cannot be understated: The United States has previously unilaterally seized the Canal Zone and the surrounding waters when it intervened against Manuel Noriega's government in 1989, violating both its own Canal-Neutrality Treaty (1979) commitments and *jus cogens*. The military conflict and seizure severely disrupted global trade for the surrounding nations. When under threat, the most vital choke-point for American trade could devolve into a stranglehold that the United States has over the entire Western Hemisphere.

Even the current Russian invasion of Ukraine highlights just how real a potential conflict over the Panama Canal could be. Ukraine, one of the largest grain exporters in the world, for centuries has relied on its deep-water Black Sea ports to facilitate its trading. One of Russia's first moves in its invasion was to cut off this economic lifeline. In response, Ukraine turned to its European neighbors to ship its grain via road and rail — an expensive endeavor in both cost and time that would ultimately prove untenable. Even as Ukraine clawed back some of its Danube river ports, Russia continued to harass its oceangoing vessels. As of October 2023, Ukraine managed to open its port at Odessa to trade through a winding, arduous, mine-laden path that, instead of sailing out of its southern coast straight to the Bosphorus, hugs the shoreline of its neighbors to the west. The main comparative point is twofold: Both economically and militarily, contemporary warfare's emphasis on oceanic travel has only intensified. And perhaps most crucially, oceanic trading is so vital that a nation currently under attack would rather shift its military priorities and move shipping lanes to less efficient routes, potentially under fire, instead of relying on safer overland or river-based routes. With this glaring example in mind, it is not difficult to imagine a modern-day power struggle over the Panama Canal, a waterway that handles 6% of the entire world's trade, when so much life and material has already been spent on a body of water whose impact is objectively more regional than global.

But we do not have to go as far as catastrophic military conflict to reach this eventuality. Climate change has driven multiple droughts in the reservoirs that supply the Panama Canal's locks in 2023 alone, causing weeks-long backlogs. Droughts are not the only climate-related problem facing the canal. In 2010, heavy rains inundated a feeder lake, causing a flood that forced authorities to cease canal operations until the water receded. As the world continues to change at an alarming rate, there is a credible threat to the United States' status as a two-ocean nation with global power projection. Given the American history of involvement in the region, the threat and its ramifications are serious.

The Panama Canal cannot simply be replaced by a road and rail network that spans thousands of miles in a less-central corner of the southern world. This is something with which even regional experts including Merener agree. But that replacement, ultimately, is not the goal of the Bioceanic Corridor. What the corridor *can* do is provide an alternative to the nations of South America. Optimistically, this project can supercharge the entire region's economic well-being. More reasonably, it can provide an alternative to dependence on the Panama Canal. Rather than being forced to choose sides in a great-power conflict, or be shunted out into the periphery as climate change takes its toll, South America could potentially gain what it has long yearned for — some control over its own global destiny, and the means to achieve it.

This article was written by Andrés Armada, Manuel Figueroa, and Arunabh Singh, members of the Lauder Class of 2025.

Tunisia's Brain Drain: What is Driving Youth Emigration?

Tunisian college graduates dream of a better life that lies beyond the country's borders. This article examines the factors contributing to the mass exodus of young Tunisians from the place they call home.

While Europe is mired in political crises due to the influx of immigrants from sub-Saharan Africa, Tunisia faces a unique migrant crisis of its own. Not only is it in the middle of this wave of migrants passing through, destined for Europe, but it also is dealing with a constant outflow of young, educated Tunisians heading northward to find work in France, Germany, and elsewhere. For a country that once had a strong economy to now see a significant level of youth emigration signals that something is wrong, and this will have a detrimental impact on the future of Tunisia.

Even a cursory glance at the /r/Tunisia subreddit shows a substantial number of Tunisians asking how to move to Europe, how to meet the minimum language requirements for work in Germany, and general complaints about life in Tunisia. A Tunisian Forum for Social and Economic Rights (FTDES) study in 2016 found that 55% of Tunisian youth wish to emigrate, with 31% of them ready to do so illegally, a figure that undoubtedly has increased since the COVID-19 pandemic and the economic and political crises of the past several years.

> "Tunisia's monetary policy also stifles economic growth."

There are several major reasons why, including the troubled economy, high unemployment particularly for college graduates, and an overall negative sentiment about the direction of the country since the Tunisian Revolution of 2011. This "brain drain" is a phenomenon happening in many countries, particularly in the Middle East and North Africa region, but Tunisia provides a glimpse into the problem from a country that once had the most promising story in the Arab World.

Educated Youth Face Economic Woes

The Arab Spring began in December 2010 when Mohamed Bouazizi, a Tunisian street vendor, set himself on fire to protest his mistreatment at the hands of police. What followed were protests around the country, culminating in the removal of the president. These protests spread to countries around the region with earth-shattering effects. The Arab Spring was supposed to bring renewed hope and prosperity to Tunisia, but after 10 years, some say life is worse than before. High unemployment, especially among college graduates, and rigid economic policies are making it harder to be successful in a country once praised for starting a revolutionary movement.

Tunisia has a long history of encouraging students to pursue higher education. However, recent graduates are entering into a workforce where there aren't jobs available for them. In 2020, Tunisia had an average unemployment rate of about 16%, according to Statista. But the unemployment rate for those with higher education was 28.7%. Experts have said that up to 80,000 Tunisians are graduating each year from universities where the training and education they received does not match the needs of the economy. The majority of students are enrolled in humanities, health, and social services, but these graduates are usually the least employable, and even those who do find work are often underemployed, according to an analysis by the World Bank.

In an attempt to mitigate rising unemployment, Tunisia has grown its welfare state through government employment, adding to a bloated bureaucracy that is slow to provide even basic services. One Tunisian who now lives abroad described the experience of dealing with the government at home: "Due to the excessive bureaucracy, starting a business can take six months. There is so much paperwork, so many ministries, and so many steps to do the simplest things." The degree of difficulty chokes local entrepreneurship, which further encourages young, educated Tunisians to seek opportunities elsewhere.

Tunisia's monetary policy also stifles economic growth. The government has imposed tight capital controls over the country, making it difficult for citizens and foreign firms to do business there. For example, citizens are only able to export 6,000 Tunisian dinar per calendar year, which is approximately $1,900. Tunisian law dictates that e-commerce companies operating in the country must be Tunisian with their headquarters located in Tunisia. More importantly, the Tunisian dinar is nonconvertible, meaning online purchases using foreign currency are not allowed. Being unable to use the dinar for purchases outside the country makes hard currency like the dollar and the euro even more important. It also prevents Tunisians from working remote jobs for foreign countries, as the payments become too complicated, if not entirely forbidden.

It is also not a country conducive for foreign investment. With a complex legal framework, uncertain geopolitical situation, and often overlapping customs processes, foreign investors are unable to see the benefits of investing in Tunisia. These types of investments that are vital for potential entrepreneurs to create new and innovative companies are nonexistent in the current economy.

The unemployment challenges combined with domestic and foreign financial difficulties incentivize Tunisians to leave their home country and to seek a new life abroad. This has turned into what one young Tunisian called a "mania of migration," where youth are leaving not only for a better life, but also for a fear of missing out on opportunities abroad that their expat friends and family are experiencing.

Europe Is an Attractive Destination

Among all the destinations to emigrate to, Europe emerges as a popular choice due to its geographical proximity, economic opportunities, strong social welfare programs, and the cultural familiarity that makes for easier integration. Furthermore, government policy incentivizes Tunisians to emigrate to Europe — and send much needed remittances back to the country.

Geographically, access to Europe is affordable and easy, with flights and ferries operating between Tunis and Palermo, Italy, daily. Economically, Europe offers Tunisians drastically increased employment opportunities, with the ability to send extra income back home to support their families. Personal remittances received currently make up approximately 6.6% of Tunisia's GDP, significantly higher than the average rate of 2% in the Arab world. Despite this, a World Bank report about brain drain found that while some high-skilled emigrants would send remittances back to their home country, there tend to be significant fiscal costs, particularly for smaller countries.

"Government policy incentivizes Tunisians to emigrate to Europe — and send much needed remittances back to the country."

European citizenship also grants Tunisians what they have long yearned for — a robust government that is able to support its citizens. With Europe's substantial welfare programs encompassing health care, education, and labor protections, Tunisians find a place that provides a sense of long-term stability, a stark contrast to the political and economic turbulence at home. A Tunisian woman who works with community organizations described to us a collective desire: "People want to live a middle-class life and not have to worry about job security, social security, and have government support in case anything goes wrong."

From a cultural perspective, Tunisia's location along the Mediterranean Sea and its historical ties with French colonization has led to many cultural similarities with France and Italy, making it relatively easy for Tunisians to transition and integrate once they move abroad.

The enduring legacy of French colonialism continues to exert significant influence on various aspects of Tunisian society, influencing even architectural styles and culinary traditions. Tunisians listen to French music and watch French TV shows. Within the city, street signs and shop names are in French. Within restaurants, menu items are primarily in French. Official government statutes are published in both Arabic and French. Even the colloquial Arabic spoken by Tunisians today includes French phrases.

In fact, the International Organization of Francophonie reported that more than half of all Tunisians possess a fluent command of the language, with proficiency continuing to be a symbol of "elitism." French is also the official language of instruction in schools and universities.

> "The dreams of the revolution have made way for the realities of a corrupt government..."

We spoke to a Tunisian emigrant about why Tunisians look to migrate towards Europe. He said, "In Tunisia, France is like the model. They're the best in the world. High schools — even our street names — are modeled after France. Almost all Tunisians speak French, and so Tunisians look for the opportunity to move to French cities, whether that be Paris or Quebec. People go where they can integrate, and friends help each other out." The emergence of these micro-communities in the diaspora reduces hurdles for those considering emigration.

On the political front, Tunisian President Kais Saied has been actively working with the European Commission to promote Tunisian emigration to Europe through the development of a Comprehensive Partnership. This partnership outlines the creation of Talent Partnerships, which enables Tunisians to access a new visa program to be able to work in the EU.

The partnership also enables Tunisians to study in Europe more easily, with €10 million (US $11 million) dedicated to student exchange programs, and the opening of a "Tunisia" window under the Erasmus+ programme, which was expected to have 300 places for Tunisians looking to study in Germany, Belgium, and France in 2023.

In return, the Tunisian government is expected to support the European Union to prevent illegal migration towards Europe from Tunisian shores — a popular route for asylum seekers looking for refugee status under the Dublin Regulation.

A New Era of Emigration

A Tunisian woman now living in the United States told us in an interview, "We are just not a country of migration, and I think we are becoming one. I don't think the future is looking bright, and I think we'll continue to leave." She attributed the rising trend of emigration not only to the economic and political situation in the country, but also popular trends fueled by social media. She described younger cousins and siblings who are "obsessed" with getting their resumes just right so they could go to college abroad, something those graduating from secondary school just a decade ago did not do.

"The earlier generation — many of them had been raised in an era when [Former President] Habib Bourguiba gave them many resources, and so felt obliged to stay in Tunisia to give back to the country," she said. "The current government, however, is failing many Tunisian youth, who do not feel this sense of commitment." Now, there is a "generational trench" in the country, where only the very old, less skilled workers, or very young are left.

The dreams of the revolution have made way for the realities of a corrupt government that does not respond to the issues affecting everyday people. The same FTDES study found that 43% of young people viewed their current condition as worse than before the revolution. A researcher at the University of Tunis interviewed Tunisian youth in 2019, with one respondent stating, "Young people live in a prison without walls."

For those without the luxury of higher education, emigration (mostly illegal) has come to be known as harka, which means "to burn" in reference to documents to prevent repatriation if caught by EU authorities. Even for those that do, the choice to leave feels like a one-way ticket. The Tunisian in America told us that, “All of us have this bitterness and frustration that we can’t go back,” referring to the difference in the basic standard of living in Europe and the U.S.

Though we have analyzed some of the causes of Tunisia’s brain drain, the long-term effects are still unknown. At least in the short term, emigration from Tunisia appears to be accelerating, adding to the country’s economic woes and begetting yet another wave of those seeking opportunity on distant shores. With emigration explicitly supported by the Tunisian government, a complete shift to policies encouraging educated youth to stay in the country seems remote. For now, these youth remain adrift.

This article was written by Rehaab Ali Raza, William Misitano, and Nadir Tekarli, members of the Lauder Class of 2025.

The Knowledge Quotient: Education Policy's Role in Economic Development

This article examines the proportional relationship between education and economic development through a case study of South Carolina, Vietnam, and South Africa.

When businesses think about expanding their operations to new geographies, they must ask a range of probing questions: What competitive advantages do we gain from entering this market? What taxes will we have to pay? Will the government safeguard our property rights? Is the existing infrastructure sufficiently developed to handle our operational needs?

> "Classrooms are the building blocks of society."

Yet step in a classroom in South Carolina, Vietnam, or South Africa and you will find one of the most critical variables that determines the attractiveness of a potential business environment. Classrooms are the building blocks of society. Not only do they create informed citizens, they also train the future workers and leaders who enable states to compete in the global economy. Education is the generator of human capital, which is the lifeblood of economic activity.

Human capital underpins the success of any enterprise, no matter the size or sophistication. Its presence determines not just if enterprises choose to invest in a particular market, but also the avenues of economic development available to a society.

South Carolina, Vietnam, and South Africa are about as different historically, culturally, and politically as possible. However, they are similar in that they play an important role in their respective regions: South Carolina as one of the top recipients of foreign direct investment (FDI) per capita in the U.S.; Vietnam as the economic engine of Southeast Asia; and South Africa as one of the financial capitals of the continent. Each tells a compelling story of why states must invest in human capital to achieve economic development.

From these examples, we see that one of the most impactful actions governments can do to promote the prosperity of its citizens is creating and investing in programs that increase the supply and quality of human capital.

South Carolina

South Carolina's development trajectory since the 1970s exemplified the profound impact of government-backed educational programs on local human capital development. Throughout the late 19th century and early 20th century, South Carolina's manufacturing production mostly relied on a prosperous textile industry. Its success gave rise to multiple company towns including Greenville and Spartanburg. Because the industry employed numerous local workers, the state's overall human capital was highly focused on textile skill sets. However, the rapid growth started to face significant challenges in the mid-1950s. As the post-war world expanded its appetite for free trade, competition from abroad intensified. National demand started to be satisfied by imports from Japan and other developing countries at much lower costs. Textile manufacturing opportunities dwindled. By the 1960s, the state government faced the questions of where to allocate the labor force that had been heavily textile focused and how to sustain economic development.

Recognizing the need to reinvent its industry and workforce focus, the state implemented two key strategies: establishing education programs for advanced technical skills, and embracing foreign direct investment. In an interview with us, Stephen Astemborski, director of SC Aerospace, part of the South Carolina Council on Competitiveness, provided context on the development. In terms of education, the state first turned its attention to technical colleges, establishing the South Carolina Technical College System in the 1970s, as well as supplementary programs supporting 16 colleges. As we learned in our site visit to South Carolina Aeronautical Training Center, for example, ReadySC, a division of the technical system, was designed to provide recruiting and training solutions to companies that are bringing new jobs to South Carolina through relocation or expansion. The goal is to attract new companies to the state by alleviating their concerns on workforce expansion and management. Since its founding in 1961, ReadySC has trained over 300,000 people, mostly for free. In the 1990s, Clemson University International Center for Automotive Research was established. And in the 2010s, the Ronald E. McNair Center for Aerospace Innovation and Research was founded, aiming to support South Carolina's industries through aerospace education across composites, combustion, maintenance, and unmanned vehicles.

In addition to the training and research programs, South Carolina also embraced FDI, leading the nation in terms of jobs created by non-U.S.-based enterprises and matching the high-skilled workforce into such opportunities. The establishment of a new International Strategy and Trade Division in 2015 signaled this initiative. When the division launched, former South Carolina Department of Commerce Secretary Bobby Hitt said, "We believe that now is the time to build on recent successes abroad, and to not only continue strengthening ties with important international companies, but also to evaluate the state's existing and future trade agreements."

From 2015 to 2020, South Carolina's employment from foreign direct investment increased by 20.9%. Currently, more than 8.2% of its total private sector employment is due to FDI, which is the highest proportion in the U.S., along with New Jersey.

With these two strategies, industry boom followed. From the late '60s, South Carolina witnessed an influx of manufacturing companies, notably the establishment of a General Electric $55 million gas turbine plant in Greenville in 1967. The setup of Michelin North America's headquarters in the '70s was another milestone. The game-changer, however, came in the '90s with the arrival of BMW. This prestigious company's decision to set foot in South Carolina not only bolstered the state's reputation but also stimulated the advanced manufacturing sector as a whole. This move signaled a clear message to the global business community: South Carolina was "open for business." The state's proactive approach to attracting FDI through human capital repositioning demonstrated its commitment to fostering economic growth and repositioning itself on the global economic stage.

Vietnam

On the other side of the world from South Carolina, Vietnam stands out as another economic development success story propelled by human capital. Since market reforms began in the 1980s, Vietnam's economy has grown rapidly, with GDP per capita increasing by an average of 5.5% per year from 2000 to 2019. Today, Vietnam is best known as a critical manufacturing hub in global supply chains. It benefits from its proximity to China and smoother relations with Western countries, in contrast to its powerful northern neighbor.

> "…Vietnam's test scores in STEM subjects have risen to rival those of developed countries."

Far less widely reported is Vietnam's success in incubating high-value additive industries, including an emerging technology sector. In August 2023, communications and payment startup VNG made news as the first Vietnamese tech company to file for an IPO on the New York Stock Exchange, aiming at a valuation exceeding $1 billion. Other domestic tech players, such as payment solution Momo, which serves over 30 million Vietnamese users, are seeing impressive growth. Vietnam is also building its reputation in gaming services. We saw this firsthand at Glass Egg, a development studio based in Ho Chi Minh City with 400 employees working with industry heavyweights Activision, Electronic Arts, and Ubisoft. The gaming industry has grown rapidly from developer Dong Nguyen's creation of indie sensation Flappy Bird in 2013 to Vietnam's current status among the top five countries worldwide for mobile game production.

Vietnam's success in this area is no accident. According to local investors and NGO stakeholders, government investment in STEM education has fueled this homegrown tech boom.

Since implementing Resolution 29, a robust education reform in 2013, Vietnam's test scores in STEM subjects have risen to rival those of developed countries. A recent World Bank study shows that Vietnamese students now outperform peers in Britain and Canada (countries that are more than six times wealthier in terms of GDP per capita) across subjects. David Do, managing director at Vietnam Investment Group, offered a view of opportunities opening up after graduation: "Tertiary institutions [including private universities and vocational schools] attract high school students already strong in STEM subjects and turn them into talented professionals serving both domestic needs and specialized IT, AI, and design outsourcing." These pathways are particularly attractive for students due to high employment rates and a fast payback rate once they are employed.

In Vietnam, government initiatives to nurture human capital haven't just attracted foreign businesses to its shores, akin to South Carolina's experience. More notably, they've ignited domestic industries, setting a virtuous cycle that could help Vietnam escape the middle-income trap.

South Africa

South Carolina and Vietnam stand as notable success stories, showcasing the crucial role that governments can play in fostering economic development through strategic investments in human capital development. However, what happens when governments obstruct rather than facilitate the progress of their citizens? South Africa, despite its abundant human and raw material resources, serves as an unfortunate example of how government shortcomings in educational institutions impede a nation's economic trajectory.

On the surface, South Africa appears to invest substantial resources in its public education system, with an expenditure of 6.4% of GDP. That's notably higher than the average of 4.8% in countries of the European Union. But the reality is an alarmingly poor-quality education system replete with shortcomings. First, schools have concerningly short hours, with many public schools concluding classes as early as 1:30 p.m. The problem has been exacerbated by the ongoing power crisis. In 2022, the nation endured nearly 200 days of rolling blackouts. Additionally, many schools that were forced to close during the COVID-19 pandemic have yet to reopen at all.

Second, the quality of education is a significant problem. A study conducted in 2007 revealed that a staggering 79% of sixth grade mathematics teachers failed the tests designed for their own students. More recently, a 2022 study on Bachelor of Education graduates uncovered profound mathematics literacy deficiencies. A staggering 1,575 teachers in public schools have been identified as under-qualified to teach, which perpetuates a viciously destructive cycle.

Third, corruption within the South African Democratic Teachers Union (SADTU) has allowed unqualified individuals to secure positions within the education system through bribery. The SADTU wields considerable influence, and investigations have unveiled lobbying efforts by the union to eradicate standardized testing, as well as requiring a one-year notice before school inspections can be carried out. In 2020, Amnesty International released a report about the country's broken education system, highlighting inadequate infrastructure and overcrowded classrooms as some of the conditions perpetuating poverty and inequality. "The repeated failure of government to address the issues is not only a question of accountability, it has consequences for the life chances of thousands of young people and the future of this country." Shenilla Mohamed, executive director of Amnesty International South Africa, said.

The culmination of the aforementioned factors results in disheartening statistics. In South Africa, a staggering 78% of school children do not learn to read for meaning by age 10. Among all OECD countries, South Africa holds the unenviable distinction of ranking last in PISA standardized testing scores (Programs for International Student Assessment). These educational deficiencies persist into higher levels of education. Just 48% of adults age 25 to 64 have completed upper secondary education, materially lower than the OECD average of 79%. On the world stage, South Africa similarly underperforms, ranking 135 out of 173 on the Human Capital Index. In an interview with the Daily Maverick, Ann Bernstein, executive director of the Centre for Development and Enterprise, said that South Africans have "not acquired the essential skills that they will need to continue learning, and as a result, they will almost always fail to achieve the overall education they need to succeed in an increasingly technological world."

In the absence of a viable mechanism for cultivating a highly skilled workforce, South Africa grapples with a remarkably high unemployment rate of 32.6% and an even more staggering youth unemployment of 45.3%. As the financial and corporate hub of the continent. South Africa has an inherent need for highly skilled workers. Due to the structural failures in public education, the country has had to rely on importing foreign talent, particularly in IT and finance. However, with pessimism shrouding South Africa's economic, political, and social outlook, there has been an exodus of human labor capital. While the South African Revenue Services reported that more than 6,000 individuals emigrated from South Africa in the prior tax year, anecdotal evidence from our visit to South Africa suggested the numbers were orders of magnitude higher. The pace is so stark that the government has instituted a tax on expatriating funds to slow down domestic capital flight. Against this backdrop of economic uncertainty, entrepreneurship continues to migrate to more promising countries like Nigeria and Kenya. The result is a material shortage of highly skilled workers and innovators within South Africa, depriving the nation of important engines for economic growth.

South Africa's structural failures in education also hinder economic development through second-order effects. Although the causes of corruption are multifaceted, inadequacy in education can play a big role by perpetuating ignorance, limiting opportunities, and fostering weakened governance. A contemporary example is the case of Eskom, the national power provider. Due to mismanagement, corruption, and state capture, South Africa is currently at the peak of its 16-year-long energy crisis, with power output being the lowest since 2002. Energy rationing referred to as load-shedding has been synonymous with de-industrialization and has severely curtailed critical industries including mining and manufacturing. Other high-profile examples such as Transnet and South African Airways further underscore the devastating impact that corruption has had on South Africa's largest corporations and consequently its economic prospects.

South Africa continues to grapple with a complex web of interconnected social crises that in many ways are the legacies of apartheid. These challenges extend to inequality, unemployment, crime, corruption, and economic stagnation. While education may not bear sole responsibility for all these issues, our discussions with politicians, business leaders, political activists, legal advocates, entrepreneurs, and newspaper editors revealed a common and ubiquitous truth: Not only is education at the core of improving the economic trajectory of the nation, but it is also at the center of addressing most other social crises.

"As the financial and corporate hub of the continent. South Africa has an inherent need for highly skilled workers."

Conclusion

Assessing the development trajectory of the state of South Carolina, Vietnam, and South Africa, the role of education in fostering economic growth cannot be understated. As illustrated through the growth of South Carolina and Vietnam, governments' strategic investments in public education can drive economic growth, technological innovation, and industry diversification. These places exemplify how governments can nudge their economies toward prosperous cycles by facilitating the creation of skilled workforces. In contrast, South Africa highlights the detrimental effects of governmental flaws in educational development. Mismanagement and corruption, often perpetuated by educational inadequacies, can severely hinder economic development. Therefore, to stimulate economic growth and navigate the challenges of the global economy, governments must prioritize investing in their institutions of education. This reaffirms that education is more than just a social good, but also a critical economic enabler, shaping the paths of the local population, and ultimately the country as a whole.

This article was written by Roland Spier, Doris Xu, and Sebastian Prieto Vasquez, members of the Lauder Class of 2025.

Can Energy Save Argentina's Economic Crisis?

Argentia's economic woes are deeply entrenched. This article considers whether the nation can use its abundant natural resources, specifically lithium and shale oil and gas, to climb out of the financial crisis.

Argentina is in the midst of an economic crisis that has ravaged the country for decades. A history of debt defaults has resulted in a downgrading of its S&P Global credit rating, which today sits at CCC-, a level considered "junk" or speculative grade. In October 2023, the Central Bank of Argentina raised its benchmark interest rate to 133%, the highest in the world. Natural resources have historically been the country's economic backbone, and this is no different today. Agriculture remains a top export, and the primary energy company, YPF, is majority state-owned. Significant lithium deposits as well as huge shale oil and gas reserves within Argentina's borders are considered among the most promising avenues to growth in the coming decades and possibly the panacea to the country's economic struggles. While both shale oil and gas and lithium present ample financial opportunities for the country, there are fundamental social and political barriers that require reform in order to reap the full benefits that these resources can offer.

Today, Argentina is deeply entrenched in economic malaise, but this has not always been the case. In the late 19th and early 20th centuries, Argentina was among the 10 wealthiest nations in the world, with a record-setting 6% annual GDP growth rate from 1870 to 1914 and wages comparable to those in the United Kingdom. The promise of Argentina's robust agriculture-led economy drew high levels of foreign direct investment and millions of European immigrants to its shores. Since its golden age, Argentina's growth has oscillated between years of boom and bust, and it currently lags behind its peers significantly. Per-capita income is less than half that of the richest countries, cumulative GDP growth over the past 10 years is just 0.3%, and 40% of the country is currently experiencing poverty. Many scholars attribute Argentina's fall from greatness to its reliance on commodity exports, lack of industrialization, and limited economic diversification, which left the country vulnerable during periods of volatility and deglobalization. Regardless of the origin of its problems, the country is desperate for ways to generate economic value and reestablish itself in the global arena.

For decades, leaders from across the political spectrum have attempted to reignite, or at least stabilize, Argentina's economy. Government spending currently hovers around 40% of GDP, on par with developed-world spending rates, but more than half of this budget funds social programs rather than being invested into growth-stimulating initiatives. Industrialization remains relatively low — agriculture comprises over half of exports — and the value of those exports has failed to keep up with increased government spending. Additionally, the prevalence of the informal economy, in which half of the country's labor force is employed, diminishes tax revenues and further thwarts the government's ability to cover its costs. As a result, the Argentine government has run a budget deficit every year since 2010. According to the IMF's latest data, government spending as a percentage of GDP sat about 4% above revenues in 2021. Since the 1980s, the country has printed money to bridge the gap, which causes crippling levels of inflation. President Alberto Fernandez's government has printed the equivalent of 18% of GDP since he took office at the end of 2019. The government has also looked to external creditors for assistance, but due to a long history of debt payment defaults, foreign investors' confidence in the nation is low and foreign direct investment has dropped by 50% in the past decade. Today, the IMF is the country's primary lender, to which Argentina owes US$40 billion.

To alleviate its chronic deficit and solve its debt crisis, Argentina must find ways to generate incremental economic value internally. The country is highly familiar with commodity exportation and is rich in lithium, a critical input to the energy transition, as well as shale oil and gas. Politicians across party lines may not agree on much, but all have hope for what these resources can do for their country. Thus, Argentina has set its sights on achieving energy sovereignty and becoming a key global supplier of natural resources.

Is Lithium a Green Silver Bullet?

Lithium is essential to a world that is increasingly focused on renewable energy and electrification. Most cellphones and laptops use lithium-ion batteries, and the mineral is also used to produce important materials such as ceramics and steel. As of 2023, the largest industrial consumers of lithium are electric vehicles and battery storage, both of which are rapidly growing sectors. As a result, worldwide consumption of lithium nearly quadrupled from 2010 to 2021. This trend is anticipated to continue: Under the "Sustainable Development Scenario" forecasted by the International Energy Agency (IEA), physical demand for lithium could grow by as much as a factor of 40 between 2020 and 2040. Given this context, countries with access to lithium could be expected to benefit economically from their natural resource endowments.

> "The Argentine government has run a budget deficit every year since 2010."

Fortunately, Argentina is home to the world's second-largest lithium resource, located primarily in a region known as the Lithium Triangle, an area that spans Argentina's northwest and continues through neighboring Chile and Bolivia. In total, the Lithium Triangle is home to 52 million tons of lithium, more than half of the world's supply. Argentina alone contains approximately 20 million tons or around 20% of global resources. However, in extractive industries, the existence of a resource does not necessarily guarantee wealth. Instead, a more accurate way to understand the true economic potential of lithium is by examining reserve totals, which represent only the quantities that can be extracted profitably using current methods. Through this lens, Argentina has only 2.7 million tons of reserves, a more modest 10% of the global supply. Nevertheless, the country is already the world's fourth-largest producer of lithium, processing 40,000 tons annually, a figure which is expected to triple by 2025 as new projects begin. Even with this promising near-term outlook, though, it is unlikely that Argentina will be able to rely on lithium as a major solution to economic development for reasons including political instability, popular resistance, and lack of scale.

Argentina has suffered in recent decades from significant political turmoil. In our interview with Ivo Sarjanovic, an Argentine commodities executive and professor at the University of Geneva, he said that macroeconomic stability is necessary before capital allocators will be willing to invest in resource development, and the Argentine government has been unable to achieve such required stability. Controls applied to local currency markets, restrictions on U.S. dollars, remarkably high inflation, and import limitations are all politically linked issues that stand to harm the country's ability to attract domestic and foreign investment. Beyond economic considerations, local indigenous populations have also expressed concerns about lithium extraction's environmental impact on local water resources. Magdalena Cornejo, professor of economics at Argentina's Universidad Torcuato di Tella, affirms that current Argentine extraction methods are more environmentally friendly than traditional methods, but that residual waste may still damage water aquifers until new technologies are implemented. This panorama of social and political considerations is significant and must be examined before lithium can be deemed a sure bet for Argentina's future.

> "In extractive industries, the existence of a resource does not necessarily guarantee wealth."

The scale of the lithium industry is a final concern. The global lithium market is currently worth approximately US$7 billion per year. Even assuming significant future growth, the total market size is small compared to Argentina's GDP of over US$600 billion. In the IEA's "Base-Case Scenario," lithium demand in 2040 will have grown by 13 times, which at constant prices represents a US$91 billion global market. This is significant but not revolutionary for a country like Argentina, which would still share the market with other lithium-producing countries. Unless Argentina is able to climb up the value chain to complement extraction with processing or higher-value production, lithium on its own is unlikely to be a silver bullet for the economy.

Are Shale Oil and Gas a Thing of the Past?

In the western part of Argentina, bordering the Andean Mountain Range and close to the Chilean frontier, lies the Neuquén Basin. An important region for traditional oil and gas extraction and the backbone of the Argentine economy since the early 20th century, the basin received increased media attention in the late 2000s as a major location for shale oil and gas production, a primary substitute for traditional fossil fuels. While there are numerous geological formations in this 120,000 km^2 area, Vaca Muerta is the poster child of the region. The site holds the world's second-largest shale gas reserve (11% of global supply), and the fourth-largest shale oil deposit (8% of global supply), representing enormous potential value for the Argentine economy. The latest estimates indicate a potential for production of up to 1 million barrels of oil per day by 2030. In June 2023, Vaca Muerta produced 300,000 barrels per day. If used domestically, these reserves would fulfill the country's energy demands for the next 85 to 150 years.

The President Néstor Kirchner Gas Pipeline was built to transport resources from the remote Neuquén Basin to Buenos Aires — the country's capital, where roughly a third of the nation's population lives — as well as to other harbors on the Atlantic coast. The first section of the pipeline was inaugurated in July 2023, and the next milestone is expected to be completed between March and April 2024. Extraction sites and the pipeline are being built and supported by a wide network of organizations, including state-owned YPF and TGS, as well as multinationals such as Chevron, ExxonMobil, Shell, and TotalEnergies, among others.

The benefits appear straightforward: Argentina can develop and use its own resources, become less reliant on foreign energy imports, and potentially become a net exporter of oil and gas. This would alleviate pressure on its reserves of U.S. dollars, stabilize the country's currency, and generate positive momentum for other projects, including lithium extraction. It would also remove the need for government energy subsidies. But, similar to lithium, there are several concerns surrounding the momentous shale oil and gas extraction project. First, in a world that is undergoing a green revolution and shifting towards renewable energy, future demand for petroleum products is uncertain. A lack of appetite for its key resource is a worrying outlook for an economy under distress. Secondly, it appears unlikely that the next phase of the pipeline will be completed on time, and any delay in progress will have an impact on the benefits that the country needs. Finally, there is substantial backlash from local indigenous inhabitants of the Neuquén Basin, the Mapuches, and their allies regarding land rights and public health violations. Similar to lithium extraction, the Vaca Muerta project presents serious societal conflicts that could halt its progress in its tracks.

Big Challenges and Gaps to Close

Both lithium and shale oil and gas have been advertised by the current government and presidential candidates as the panacea to Argentina's economic problems, but a more sober assessment of their potential is required. Many aspects of the economy — including inflation, credit rating, and export taxes — deter the foreign investment needed to carry out the massive projects required for resource extraction and transport. Argentina's political fabric also dulls the prospects of the energy industry as a cure to its economic situation. First and foremost, Argentina's politicians currently do not have the luxury to think beyond solving the country's basic issues, such as its record high poverty rate and imminent debt payments. The country's political polarization and its historical tendency to forcibly nationalize private industries, especially in the energy sector, also lessen corporate appetite to do business in the field. Finally, before Argentina can expect to reap large-scale benefits from energy production, it must find solutions to the high levels of social unrest regarding indigenous rights and environmental concerns. Unless Argentina is able to stabilize its society and politics, the great opportunities presented by its natural resource abundance may be squandered at a pivotal moment in its history.

This article was written by Allie DiPietro, Gregory McLean, and David Ehmke, members of the Lauder Class of 2025.

Going for Green: Pioneering Sustainability through the Paris 2024 Olympics

Paris is planning to make the 2024 Olympics the most environmentally friendly in history. This article showcases the efforts that are underway to ensure the city earns a green medal.

What do most people think of when they think of Paris? Berets and baguettes, *n'est-ce pas*? Well, it's time to add sustainability into the mix. Paris will host the world's most anticipated international sporting event: the 2024 Olympic Games. A total of 10,500 athletes and 9.7 million spectators will descend upon the City of Lights to watch the best athletes from across the globe compete for their country's glory. And the French hosts are determined to make it the most sustainable Olympics yet. Yes, it is impossible for the Olympic Games to be good for the environment, as such a large-scale event naturally causes urban disruption and significant waste. Often after the closing ceremonies, stadiums and venues built for the Games are abandoned. For example, the historic Maracanã stadium fell into disrepair only six months after the conclusion of the Rio 2016 Olympics. But the French are pioneering a new approach. The Paris 2024 Olympics will frameshift expectations and set new standards for sustainability with concrete goals related to the impact on the environment, the community, and the future.

> "The Paris 2024 Olympics will frameshift expectations and set new standards for sustainability..."

The event will build off the International Olympic Committee's existing sustainability framework and be the first Olympic Games in accordance with the 2016 Paris Agreement, the international treaty on climate change. In 2017, the International Olympic Committee (IOC) established a formal Sustainability Strategy to guide the development and execution of sustainable Olympic Games. Among the guidelines, the IOC demands that sites "have a net positive impact on local communities," "respect protected natural areas," and promote "urban green spaces." In terms of sourcing and resource management, the IOC outlines that product and service sources ought to "take account of environmental and social impacts" and that the lifecycle of each product and material be "optimized." The IOC, too, demands that carbon reduction strategies be implemented and that such strategies are in line with the Paris Agreement. While the IOC's efforts in this arena are admirable, there is a lack of concrete rules to follow to promote sustainability and durability when putting on the Olympic Games. So, Paris has taken on the challenge.

In a conscious effort to raise the bar, the Paris 2024 Organizing Committee is establishing the most progressive standards around sustainability and durability that have the potential to change the management of international sporting events permanently. As noted by Prince Albert II, IOC member and chair of the Sustainability and Legacy Commission, 2024 represents a "new era" marked by "energy conservation, innovation and creativity." The Paris 2024 Olympics exemplifies this new era, as environmental and community considerations are being woven into a comprehensive sustainability strategy for the first time.

Environmental Impact

From the athletes village to the Seine, the city of Paris is taking the Olympic Games as an opportunity to re-imagine itself and evolve into a more environmentally friendly and sustainable city. The Paris 2024 Olympics is planned to be the first Games to rely 100% on renewable electricity. For context, the London 2012 Olympic Games used 4 million liters of diesel fuel. An objective, too, has been set to reduce carbon emissions by 50% compared to London 2012. With marathon swimming, triathlon, and para-triathlon events set to take place in the Seine, the city is investing €1.4 billion into cleaning up the famous river not just for the Games but for perpetuity. In an interview with BBC News, Pierre Rabadan, deputy mayor of Paris in charge of Sport and Olympic and Paralympic Games, said, “When people see athletes swimming in the Seine with no health problems, they’ll be confident themselves to start going back in the Seine.” For the first time in 100 years, people will be able to safely swim in the Seine again. Further, SOLIDEO (Société de Livraison des Ouvrages Olympiques), the body responsible for building infrastructure for the Olympic Games, is building banks and pathways along the river as viewing galleries for the Games, which will be turned into public spaces thereafter.

Transport is also a major point of reform. During the Olympic Games, Paris will ban nonessential through-traffic to and from its city center. Entrances for all the Games’ events will be accessible by foot or by public transport. Three delegations, too, have agreed to send their athletes to Paris by train: the Netherlands, Belgium, and Great Britain. This mandate, which is expected to halve the number of cars that drive through Paris each day, is in line with the city’s goal to reduce traffic congestion.

The Olympic Games has also allowed Paris to accelerate its development of new metro lines and highways to the outer suburbs of the city. This €22.6 million project, known as *Grand Paris*, precedes the preparations for the 2024 Olympic Games. But the speed of its completion is due to the fact that such forms of transportation need to be available in time for the Games. The project aims to add 200 kilometers of pathways to Paris’ existing public transportation system, effectively doubling the number of existing routes. Districts of Greater Paris, which will hereafter be referred to as the *Plaine Commune*, will benefit tremendously from this project, as four of the six lines being added are within its borders. Through *Grand Paris*, previously disjointed parts of the city and its suburbs will finally be connected. Not only are travel times and traffic congestion expected to reduce, but such an expansion of the public transportation system will increase the number of economic opportunities available to the citizens of the *Plaine Commune* and lower the average carbon emission of daily commuting.

In addition to promoting environmentally friendly methods of travel to and from the Games, the athletes village, which is expected to house more than 10,000 athletes, is being constructed with a goal of keeping carbon emissions low. As the site is on an old industrial estate, 31,600 tons of concrete from the deconstructed buildings are being recycled and reused to build the floors of the new buildings and roads. Eco-friendly mechanisms to move goods, such as river transport, and local and renewable energy are being used to control the village’s impact on its surrounding neighborhood. For example, 494,061 tons of material were moved via the Seine, which would have required 24,703 trucks for transport on the roads of Paris. Buildings are also being constructed to both meet current energy efficiency requirements and withstand future rising temperatures.

“…the Paris 2024 Organizing Committee has made this sporting event into an opportunity to tackle social issues that plague the local community…”

SOLIDEO is prioritizing the use of bio-materials: Buildings shorter than 28 meters will be made of wood, 30% of which will be sourced exclusively from sustainably managed forests. Using wood and bio-engineered cement allows the athletes village to be in line with the Paris Climate Plan’s goal of hitting carbon neutrality by 2050. Architecturally, the buildings in the village were designed with hot summer temperatures in mind: Layouts allow for air circulation that optimizes for sunlight and ventilation, and natural cooling systems are being installed to promote energy efficiency. Further, green roofs will foster biodiversity, store water, and limit solar radiation in order to keep the buildings cool. In terms of biodiversity, 9,000 trees and saplings will be planted in the 15 hectares of public space in the athletes village. And after the culmination of the Olympic Games, the Paris 2024 Organizing Committee aims to hand over “a new, eco-responsible, functional neighborhood, which will blend into the city of the future, to the community in 2025.”

Community Impact

The sustainability initiatives of the Olympic Games expand beyond these environmental considerations. In working with key political stakeholders, the Paris 2024

Organizing Committee has made this sporting event into an opportunity to tackle social issues that plague the local community, particularly in the *Plaine Commune*. The *Plaine Commune* is the focal point of activity for it is home to four Olympic sites, including the aquatic center, the athletes village, and the *Stade de France*, where the closing ceremony is set to take place.

"It stands to be seen whether the 2024 Paris Olympics will succeed in making an inherently environmentally disruptive event less so."

According to official estimates, the Olympic Games will spend €12 million on infrastructure and urban development in the *Plaine Commune* over the next 10 years. While this accelerated economic growth is welcome, district officials are taking concrete measures to ensure that as many local residents as possible can reap the benefits. In partnership with the National Agency for Urban Renovation (ANRU), they have set quotas for the number of required local hires per project. According to Xavier Villard, head of ANRU's Employment and Insertion Committee, residents of the *Plaine Commune* — including underrepresented groups such as women, new graduates, and people over 50 — must be hired for at least 10% of all labor hours for these projects. Given that these hires will retain their employment after the completion of these projects for the Olympic Games, the objective of this targeted initiative is not only to encourage hiring of diverse, local talent but also to invest in the long-term professional development of the *Plaine Commune.*

In a similar vein, the *Plaine Commune* is prioritizing integration of micro- and small businesses to ensure that they, too, can benefit from the increase in economic investment from the Olympic Games. Given the scale of such large urban projects, contracts often go only to large, multinational corporations. As a result, the *Plaine Commune* has mandated that 25% of all new construction projects directly benefit micro- and small enterprises in the region. The Chamber of Commerce and several partner organizations have been working together to consolidate a list of the region's micro- and small businesses with which larger corporations can partner on the urban projects for the Olympic Games. Such an approach has already proven successful: A total of 100 local construction workers were hired to aid in the demolition of the *Tour Pleyel*, a skyscraper in St. Denis, and an estimated additional 700 people will be hired to complete the renovation. Boris Litty, vice president of finance at the real estate development group *Quatre Rives*, said that these new employment opportunities provide job security to novice apprentices and encourage them to work in the region, multiplying the positive effect of the economic investment of the Olympic Games in the *Plaine Commune*.

This commitment to durable improvements to the *Plaine Commune* includes the construction of the athletes village. Post-Olympics, its facilities will be transformed for residential and commercial use: two new schools will open (with state-of-the-art sports equipment), 120,000 square meters of commercial real estate will become available, and more than 2,800 new housing units will hit the market, 40% of which will be set aside as social housing for individuals with lower incomes.

Legacy Impact

However, not all organizing efforts for the Games have been well-received. Critics have noted the decision to hold the surfing competition in Tahiti — a 22-hour flight from the French capital — as going against the values of a more responsible Games. According to the BBC, the 2024 Organizing Committee evaluated other locations in France, including Biarritz, Lacanau, Les Landes, and La Torche, and ultimately concluded that all locations incurred the same cost and environmental impact. Public outcry occurred, too, when plans came to light to remove more than 40 trees near the Eiffel Tower in order to create spectator areas around the landmark. In a petition with 35,000 signatures, environmentalists stated they "reject the felling and endangerment of dozens of healthy trees, in particular the 200-year-old and 100-year-old trees, which really are the city's green lungs." This backlash led the Mayor's Office to abandon the plan and pivot to creating a new garden around the Eiffel Tower.

It stands to be seen whether the 2024 Paris Olympics will succeed in making an inherently environmentally disruptive event less so. Still, the city's effort is setting precedent for Los Angeles, which has already begun to get ready for its Olympic Games in 2028. Los Angeles is aiming for "radical reuse" in order to make its Games more sustainable. In fact, Los Angeles' bid to host leaned on its ability to leverage existing facilities: stadiums, arenas, training facilities, and residences. According to Tania Braga, who heads the International Olympic Committee's legacy department, the Games in Los Angeles will use "100% of existing or temporary venues. In this regard, the 2024 Paris Games is currently at 95%." There are also improvements in progress to better LA's public transport system. Not only will these projects allow for spectators to access the Games in more cost-efficient and eco-friendly manners, but they "will bring faster, more frequent transit and better mobility to important areas of Los Angeles County that are long overdue to receive," said Glendale City Council Member and Metro Board Chair Ara J. Najarian. In this way, LA is using the Olympic Games much like Paris is, to fuel investment in its public transportation system.

The French have gone to great lengths to make the Paris 2024 Olympics more sustainable. Their goals span from increasing biodiversity along the Seine all the way to transforming athlete accommodations into social housing. Only time will tell whether these measures are successful in their pursuit of improving the sustainability of the Olympic Games.

This article was written by Lucy Friedmann, Joselyn T. Salazar Garcia, Dhriti Kamat, and Natasha Urbany, members of the Lauder Class of 2025.

Energy Transition: A Comparable Study of South Africa and Vietnam

This article looks at the energy problems plaguing South Africa and Vietnam, two very different countries facing a similar uphill battle to secure a reliable energy supply.

South Africa and Vietnam have both been struggling with blackouts, yet they desperately need more power to develop their economies. South Africa has been experiencing up to 16 hours of load shedding, and northern Vietnam had a series of blackouts in summer 2023 because drought and extreme heat strained the grid during high demand. Both countries rely heavily on coal-fired plants. According to the International Energy Agency, 73% of South Africa's and 53% of Vietnam's energy supply is from coal.

Although both countries have economic and political relevance in their respective regions, it's important to understand their different histories and the reasons that brought them to today's challenges. According to the World Bank, Vietnam has been on an impressive path with a GDP growth rate of 8% in 2022, while South Africa has been suffering from crises in every sector of its economy — including energy, water, health care, and mining. In both cases, their need for energy is immediate. According to the International Trade Administration, Vietnam will face an increasing power demand in the next decade because of its fast-growing population and robust industrialization process. On the other hand, South Africa needs energy to develop industry and start to turn around the crisis in the country.

> "Rapid industrialization and urbanization in recent years have significantly increased the demand for energy across Vietnam."

Although the context for the two countries' energy crises differ, the solutions involve a common theme — energy transition. Given that climate change has become a global problem requiring multinational collaboration, Just Energy Transition Partnerships (JETP) were established by the International Partners Group (IPG) and the Glasgow Financial Alliance for Net Zero (GFANZ) Working Group. The IPG consists of Japan, the United States, Canada, Denmark, France, Germany, Italy, Norway, the European Union, and the United Kingdom. The GFANZ Working Group includes multilateral and national development banks and finance agencies, such as HSBC and CitiBank.

These partnerships were created to provide financial, technical, and capacity-building support to developing countries, with the final ambition to "help a selection of heavily coal-dependent emerging economies make a just energy transition," according to the nonprofit International Institute for Sustainable Development. South Africa, Vietnam, and Indonesia are the first three countries to receive funding through the partnership.

Under the terms of each partnership, Vietnam and South Africa could achieve net zero by 2050, i.e., when all emissions released by human activity are counterbalanced with removal. Their challenges are exacerbated by climate change, which is a crisis affecting each nation and every person. As the United Nations has stated, it is a collective responsibility to take action and leave "no one behind in the transition towards a low-carbon economy."

How Did the Two Countries Get Here?

Vietnam

Rapid industrialization and urbanization in recent years have significantly increased the demand for energy across Vietnam. Surging consumption has strained the energy infrastructure, which remains underdeveloped and is still heavily reliant on traditional energy such as coal. According to data from the U.S. International Trade Administration, coal-fired power accounts for the majority of Vietnam's total power production. The Ministry of Industry and Trade indicated that the northern region is expected to have a 10% power shortage to meet demand in 2024, according to a report by Xinhua News Agency.

The Wall Street Journal reported in June 2023 that the "combined hydroelectric capacity was less than a quarter of designed capacity owing to low water levels," and "rolling blackouts and power disruptions have become a part of daily life in Vietnam." Businesses also have been profoundly affected by the energy crisis, which includes a lack of hydropower generation, an unstable supply of coal, and lack of maintenance for power plants. Production facilities for Apple suppliers, as well as Samsung Electronics sites in northern Vietnam, were "receiving requests from local electricity companies to consider rolling power cuts or at least to cut usage at peak times," The Wall Street Journal reported.

Global climate change has also had a considerable impact on the stability of Vietnam's energy supply. According to the U.S. Agency for International Development (USAID), Vietnam is one of the world's five most vulnerable countries. Professor Dang Kieu Nhan, from the Mekong Delta Development Research Institute at the Can Tho University, highlighted this in his lecture: "Environment & Socioeconomics in Vietnamese Mekong Delta: Pressures, Impacts & Responses." He said rising temperatures, the rise of sea levels, saltwater intrusion, and changes in weather patterns around the Mekong Delta region are putting pressure on the local energy supply, while hindering the process of energy transition.

South Africa

The energy crisis in South Africa is considered one of the most pressing issues hampering its economic development. According to the Council on Foreign Relations, the causes are complex and involve a range of sociopolitical and developmental factors — including aging infrastructure, high dependency on coal-fired power plants, unreliable coal supply, lack of maintenance of existing power generation facilities, inadequate investment in new energy infrastructure, inefficiency by state-owned energy companies, and systemic corruption. Notably, since state-owned energy companies generate almost 95% of the electricity supply in South Africa, these companies' mismanagement and alleged involvement in state capture have been the main factor plaguing the country's energy system.

In particular, Eskom, the largest electricity producer in South Africa, has been at the center of several high-profile corruption scandals in which the company's senior executives allegedly colluded with government officials to grant lucrative contracts to interest groups with links to the South African President at the time, Jacob Zuma. These sociopolitical factors have severely disrupted South Africa's energy transition process and increased the unpredictability of the country's energy supply.

> "The energy crisis in South Africa is considered one of the most pressing issues hampering its economic development."

The Solution Is Energy Transition

Vietnam

In 2023, Vietnam released its Eighth National Power Development Plan (PDP8), after three years of discussions. According to the plan, Vietnam is undertaking a substantial energy transformation to increase its total generation capacity from 69GW in 2020 to 150GW by 2030, and surpass 500GW by 2050. Manh Dao, a researcher at University of California, San Diego, who has been studying Vietnam's clean energy transition, has a positive view on effort. "The Vietnamese government has demonstrated its proactiveness by formulating a political declaration, launching an implementation plan, and diligently collaborating with an extensive array of experts."

Nearly 50% of this energy mix by 2030 is set to come from renewables, with 6GW of offshore wind capacity projected for 2030, growing to a remarkable 70GW by 2050. Gas, including liquified natural gas (LNG), will comprise 24.8% of the energy mix (37GW) by 2030, with ambitious plans for hydrogen conversion, targeting

7GW for gas plants and 16GW to 21GW for LNG plants by 2050. Coal's role will decrease to 20% of the energy mix by 2030, with a commitment to eliminating coal dependency by 2050 by converting coal power plants to run on ammonia or biomass.

Vietnam also plans to import 5GW of electricity from Laos by 2030, potentially increasing this to 8GW by 2050, further signaling its commitment to a sustainable and diversified energy future. Required investments from 2021 to 2030 are estimated at $134.7 billion, and from 2031 to 2050 are estimated at $399 billion to $523 billion, with 90% designated to power generation and 10% to grid infrastructure. "For Vietnam, the energy transition isn't merely about sustainability," Manh Dao said. "It's about forging a pathway to transform the nation's energy sector into a more eco-friendly paradigm."

The Vietnam JET partnership was announced in 2022 after a lengthy negotiation, with $15.5 billion for the next three to five years. Vietnam's key targets are: 1) reduce the volume of emissions generated by the electricity sector, 2) reduce the number of coal-fired power plants, and 3) develop more renewable energy infrastructure.

South Africa

South Africa aims to increase renewables to 41% by 2030 and decommission all coal plants by 2035, although many experts have cast doubt that the country will reach these targets because of the powerful coal lobby. According to a report by Climate Home News, "the nation's coal sector has exerted a significant pushback to this plan, partnering with politicians and even managing to water down or delay key policies, such as the Climate Change Bill and the Carbon Tax Act."

> "There remain questions about the sincerity of the South African government's commitment to energy transition."

Nevertheless, one example of implementation is the Eskom Just Energy Transition Project, approved by the World Bank to decommission the 56-year-old Kamati coal-fired plant. In the case of South Africa, a big risk will be to continue investing in coal in the short term as a temporary fix to the energy crisis. Like in Vietnam, gas will also be a transition fuel for South Africa. In 2022, President Cyril Ramaphosa said the country needs $84 billion for the energy transition in the next five years.

The South Africa JET partnership was announced in 2021 with a $8.5 billion package of grants and loans to help the country transition to a low-emission, climate-resilient economy. The partnership is expected to prevent up to 1.5 gigatons of emissions over the next 20 years. In addition, South Africa's National Business Initiative (NBI), in partnership with Business Unity South Africa (BUSA) and the Boston Consulting Group (BCG), has launched the Climate Pathways project to develop research-based policy to reach net zero. The initiative focuses on a just transition, which they define as "a way that serves to address present and historical inequality, creates jobs, relieves poverty, restores our natural systems to build resilience, and, critically, leaves no one behind."

The prospects for South Africa's energy supply remain complex. Climate financing will likely continue to be a major obstacle to its energy transition plan. While South Africa has been demanding greater access to grant-based financing and believes that developed countries should shoulder more climate responsibilities, the Global North has been pushing for more loan-based financing, which could put increased pressure on South Africa's long-term financial stability. However, without reliable and low-risk financing sources, it will be challenging for South Africa to make meaningful progress on its energy transition.

Further, there remain questions about the sincerity of the South African government's commitment to energy transition. The coal industry has been an important source of employment in the country. Considering the soaring unemployment rate, it remains questionable whether the government has enough incentives to move forward with energy sector reforms that will result in jobs losses for those working in coal. In addition, the government needs to address the systemic corruption plaguing the national energy system. If the government does not dissolve the murky ties between state-owned energy companies and politicians, it will become increasingly difficult to move forward with energy reform in a direction that benefits society instead of certain interest groups.

The Path Forward

For both countries, many challenges lie ahead to successfully transition to a greener energy matrix and secure a reliable energy supply. Vietnam and South Africa both suffer from deficient grid infrastructure, and the need to expand and develop smart grid equipment is a big roadblock. This area generally lacks interest from private investors and relies on public sector efficiency.

The solution will need to include not only robust energy transition plans, but the right implementation and financing. In addition, an updated and expanded grid is key to ensure that energy is well distributed across both countries and that it copes with the power supplied by renewables, which can be intermittent, another problem still to be solved.

This article was written by Gabriela Vodopives Caselli, Aimee (Ai) Chu, Rodrigo Trotta Yaryd, and Jane (Xiaozhu) Zhang, members of the Lauder Class of 2025.

Oil and Gas in the Climate Change Era: Senegal's Path to Development

Senegal's recently discovered oil reserves hold the promise of economic prosperity, but it may come at a steep price. This article looks at the variables the country must weigh as it moves forward.

The path to prosperity is rarely linear. Since 1960, when Senegal gained independence from France, the African nation perched at the westernmost point of the continent has struggled to find viable economic growth. Oil and gas resources are often viewed as a shortcut to prosperity, as embodied in the glittering skyscrapers of the Gulf States. Upon discovering large offshore oil reserves in 2016, Senegal is investing heavily in an oil-rich future, touting the multifaceted transformation that oil riches would allow. Energy production is slated to bring a wave of development, industrialization, job creation, and energy security.

The World Bank projects the economy of Senegal to grow by 10.5% in 2024, largely due to the energy sector. That would surpass the historical high growth rate of 8.9% set in 1976. However, as the world looks to accelerate a transition towards sustainable energy, there is increased pressure on oil- and gas-producing nations to follow the same trend. Investing in fossil fuels is increasingly unfashionable, and there is a growing concern that the massive upfront costs of these projects come with a heightened risk of creating "stranded assets" that may never be recovered in a carbon-conscious world.

> "Senegal is investing heavily in an oil-rich future, touting the multifaceted transformation that oil riches would allow."

The ongoing war in Ukraine highlights a real need for oil and gas from diverse sources, and Senegal will benefit from this need in the short term. While investing in oil and gas production can help Senegal meet critical energy needs and spur development, this should be done with a wary eye towards the long term, where a carbon-conscious energy transition is inevitable.

Keeping the Lights On

Senegal has some of the highest electricity costs in Africa. To be competitive, it must meet the energy needs of a young, growing, and increasingly urbanized population. According to the International Trade Administration of the U.S. Department of Commerce, electricity generation in Senegal costs 34 to 38 cents per hour. Even with government subsidies, Senegalese consumers pay around 24 cents per kilowatt-hour compared to 11 cents in Côte d'Ivoire, 6 cents in Nigeria, and 9 cents in Ghana. Aware of the importance of energy, universal access to electricity by 2025 is a socioeconomic development priority for the government. The government's "Plan Sénégal Emergent 2023" aims to achieve strong, inclusive, and sustainable growth for the well-being of the people and reach middle-income status by 2035. Energy plays a key role in this plan.

Senegal hopes for a structural transformation of the economy through investments in oil and gas exploitation. The International Energy Agency estimates that energy investment needs to amount to $33 billion through to 2040 to unlock the potential for gas, expand power networks, and increase electricity access. This plan is being spearheaded by Petrosen, Senegal's 99% state-owned petroleum company. African Business reported that phase one of Petrosen's large Grand-Tortue Ahmeyim (GTA) oil and gas project and its neighboring field, Sangomar, which are operated respectively by the British oil company BP and the Australian company Woodside, are anticipated to come on stream by the end of 2023. The projects could turn Senegal into a major hydrocarbon giant with export revenue generation of nearly XOF900 billion ($1.5 billion) from 2023 to 2025, according to government projections. According to the commercial director of the port operator in Senegal, Fulgence Codjodeguenonvo, the new port "will help enable Senegal to increase the amount of freight it is able to process by around 5% a year," which will enable it to become a regional logistics player capturing up to 85% of exports from neighboring Mali. The forthcoming exploitation of oil and gas opens the opportunity to expand energy access and lower electricity production costs, allowing energy to serve as an engine for economic development.

Funding the Future

Fueled by the increase in economic activity and the rise in energy access created by the development of fossil fuel assets, the decision to exploit these resources has the potential to drive short-, medium-, and long-term economic growth. In the short term, the increase in investment activity has already helped expand Senegal's financial services and insurance industries. According to the World Bank's 2023 economic report on Senegal, the aforementioned sectors grew 10.4% from 2021 to 2022, driven in large part by oil and gas activity. Given Senegal's relative political stability and its position as host of the West African Central Bank, this increase in financial activity could help it become a regional banking leader.

The same World Bank report also noted that the increase in economic activity created by the oil and gas production should help the industrial sector grow by a further 9.9% in 2024. In the medium term, the development of oil and gas should help increase energy access and lower energy prices, in turn increasing the competitiveness of Senegal as a manufacturing hub for the region. In a 2018 report from the IMF reviewing Senegal's industrial framework, Mor Kane, the executive director of the Senegalese National Confederation of Employers, noted the high price of energy, which can represent up to 60% of a business' input costs, as one of the main constraints to industrial growth. However, with the development of Senegal's oil and gas resources, the country expects to be able to buy gas at less than half of its current price. According the head of Senegal's National Institute for Oil and Gas, Aguibou Ba, and William Davis, an economic analyst with the Natural Resource Governance Institute in the United Kingdom, these lower gas prices will enable Senegal to lower the price of electricity and to hit its goal of universal electricity access by 2025.

> "Offshore drilling is complex, and mistakes can have far-reaching ecological consequences."

In the long term, the World Bank believes the increased revenue will be used to invest in infrastructure projects and social programs, allowing the country to accomplish its goal of becoming a regional manufacturing and logistics hub. For example, in 2021 Senegal announced the construction of a new deep water port 50km south of Dakar that will drastically increase the container tonnage the country can process. This increased capacity will allow Senegal to better export goods it manufactures and play a major role in transportation for neighboring countries and the hinterland. While the benefits of oil exploitation are typically thought take years to materialize, Senegal has already started to see benefits of its decision to begin oil production while also laying the foundation for a competitive regional economy.

The Energy Transition

Despite the numerous economic and social benefits that oil and gas production is slated to bring to Senegal, in the context of climate change and the energy transition, the long-term viability of these investments is unclear. Pressure to transition towards sustainable energy systems continues to increase not just for larger, industrialized economies, but also for new entrants like Senegal, even if the country bears little responsibility for climate change and historically has not been a significant contributor to global greenhouse gas emissions. Going forward, the climate policies of other countries will impact demand, and consequently prices, for oil and gas. According to McKinsey & Company, if countries follow their current trajectory, global oil demand could peak by 2027, while global gas demand could peak by 2040. This transition could accelerate to peaks as soon as 2024 and

2030, respectively, if leading countries achieve their net-zero commitments through targeted policies.

Given Petrosen is still in developmental stages and commercial production is not projected to begin until the 2030s, the global energy market will likely look very different when investments start producing returns. According to the United Nations, renewable sources could provide 65% of the world's total electricity supply by 2030 and could decarbonize 90% of the power sector by 2050. A steep decline in demand heightens the risk of Senegal's significant energy investments facing a premature devaluation, becoming "stranded." According to OpenOil, which provides data and financial analysis on natural resources to supranational entities, there are scenarios in which Petrosen's revenues would be insufficient to pay back loans, slated to be over $1 billion, to exercise its right to equity participation in both the Sangomar field and GTA. Furthermore, according to their analysis, income from the offshore sector will reach 2% of the annual budget, and only in the 2030s.

> "Oil and gas development is not the golden ticket to prosperity that many countries hope for."

Social Impacts: Red Light Districts and Empty Boats

In addition to economic concerns, the complexities of offshore drilling come with environmental uncertainties. Offshore drilling is complex, and mistakes can have far-reaching ecological consequences. The 2010 Deepwater Horizon oil spill in the Gulf of Mexico wreaked havoc on the Gulf's delicate ecosystem, with consequences still being felt today. According to the National Wildlife Foundation, the Gulf will take over a century to fully recover. Local fisheries were devastated by high levels of pollution, but there were also secondary effects, such as the rapid erosion of coastlines due to the killing of protective sea grasses. In the 13 years since this disaster, some of these environmental consequences have been mitigated, but at a high political and economic cost. BP recovery efforts in the Gulf will cost the company more than $20 billion. The environmental cleanup efforts have been extensive but also costly, and it is doubtful that a country like Senegal would have the political and economic power to replicate similar restoration efforts. In Senegal, the ecological devastation of an oil spill would have incredible consequences in a country that relies so heavily on the ocean for its livelihood. Indeed, some of those effects are already being felt today, as development is in its nascent stage.

The city of Saint-Louis depends on fishing for roughly 90% of its economy, and the ongoing construction of oil infrastructure right off of the city's coastline has led to growing exclusion areas where fishing is not permitted. The location of the oil wells is historically one of the richer fishing grounds in the region, and local fishermen have felt significant impacts from reduced access to fishing grounds. An AP report cites the social impacts of these fishing restrictions: While fishing is traditionally done by men, the processing of fish is done by women. The reduction of fish brought to market has forced fishermen to search for new jobs through migration and left some women to resort to prostitution to provide for their families. While prostitution is legal in Senegal, it still retains a strong stigma in the majority-Muslim country, and many of these women are engaging in sex work without the knowledge of their families.

The jobs that have been promised by the oil industry have yet to materialize, and much publicized retraining programs intended to employ the local population have been hard to come by. Because Senegal has no pre-existing oil industry, there is no local base of knowledge to draw from and many high-skilled positions require foreign labor. With social and environmental impacts already taking their toll, the long government timeline to prosperity is looking more like a dark tunnel.

Conclusion

Oil and gas development is not the golden ticket to prosperity that many countries hope for. Given the pressures of climate change mitigation and adaptation, Senegal must position its investments in oil and gas within the larger context of the energy transition. With the additional spillover effects on people and traditional livelihoods, it is important that Senegal develop an energy strategy that considers social conditions and ensures sustainable outcomes. A complete development plan for the country will look at these challenges as a whole and ensure lasting development for the future.

This article was written by Jeb Beard, Jennifer Bryan, Julien Guiot, and Mallika Patkar, members of the Lauder Class of 2025.

The Risks and Rewards of China's Venture Capital Market

This article takes a comprehensive look at China's burgeoning venture capital market and why foreign investors must tread carefully into a country brimming with possibilities.

China's venture capital history is relatively short, transforming from a nascent, regional landscape into a global powerhouse in less than a decade. Various estimates suggest that China "has already developed into the second-largest VC market in the world and produced the second-largest number of $1 billion valuation unicorns, trailing only behind the U.S.," according to a published study. By 2018, the U.S. and China were neck-to-neck in terms of venture capital raised, and Chinese VCs have successfully adopted the U.S. venture playbook. Within the VC ecosystem, Chinese startups have surpassed U.S. companies in innovation in certain subsectors such as mobile payments and AI. The remarkable growth in China's VC market is driven by several factors, including supportive government policies, strong economic growth, vibrant entrepreneurial spirit, global integration, and a rising middle class.

China's venture capital market was robust and growing, raising $136 billion across 7,500 deals in 2021. However, beginning in late 2020, President Xi Jinping clamped down on consumer technology firms, most notably Alibaba and Didi Global, accusing them of transgressions such as anticompetitive behavior and poor data security, according to The Wall Street Journal. Regulators blocked IPOs of high-profile companies (e.g., Ant Financial), imposed giant fines, and forced companies to restructure business models. These acts wiped out more than $1 trillion of market value and rattled investors. In 2022, total venture dollars invested in China dropped 49% from 2021 levels to $69.5 billion across 6,200 deals, according to an Axios report.

While an increasingly complex regulatory environment is a red flag to many investors, there are other concerns that are dampening investor enthusiasm on China — a slowing Chinese economy, macro headwinds, geopolitical tensions, and China's previous zero-COVID approach. The combination of these factors has lowered investor confidence and led to de-risking, prompting investors to pull out of China.

This paper seeks to assess the investment conditions, trends, influence of tech giants, and regulatory challenges in the Chinese venture capital market. We believe that while the short-term investment outlook remains uncertain and is unfavorable for foreign investors, China still has long-term potential given its emphasis on innovation, manufacturing capacity, and strong talent pool.

Venture Capital's Tech-fueled Rise

Venture capital investment boomed in 2018, with Chinese companies seeing significant growth led by blockbuster deals. As reporter Jason Rowley wrote in a 2018 Crunchbase article, "Chinese startups raised 47 percent of all reported VC dollar volume last quarter compared to the 35 percent share collectively raised by companies based in the United States and Canada. This is the first time Chinese startups have eclipsed U.S. and Canadian companies in venture fundraising." This boom in venture capital was due largely to the Chinese government's encouragement of funding for entrepreneurial ideas. This encouragement started in 2015, when the government advocated for "mass entrepreneurship," leading corporations, financial firms, and government entities to invest in venture companies. From 2015 to 2018, conditions were highly favorable for those hoping to enter venture capital. As Zhao Chen, a managing partner at a startup incubator, noted to Nikkei Asia in an interview, corporations that hoped to become investors could access "low-interest loans from banks, which gave them spare money to become limited partners of venture capital funds." As a result, money flowed easily from corporations to China's burgeoning landscape of startups.

Two of the major players during this time were Alibaba and Tencent, tech giants who became market-shaping investors with support from the Chinese government's emphasis on entrepreneurship. Savannah Dowling from Techcrunch reported on their investing activities at the time. Though both had been investing as early as 2008, their annual investments grew dramatically from 2014 to 2017, with Alibaba increasing its investments from approximately 25 in 2014 to roughly 40 in 2017, and Tencent increasing its investments from approximately 40 to roughly 70 in the same period. Both companies invested in a number of industries, with subsidiaries in media and entertainment, health technology, and more. They also invested big, often writing checks of $1 billion or more into startups they deemed potential leaders in the tech industry. In Q2 2018, Alibaba raised $14 billion in a Series C round for electronic payments service company Ant Financial, making it the largest venture funding round of the time. In the same timeframe, Tencent invested ¥4 billion (US$621 million) in rental services company Ziroom, buoyed by the Chinese government's promotion of rental housing. These examples show the strategy that Chinese investors often favored: investing big in a few key startups.

> "From 2015 to 2018, conditions were highly favorable for those hoping to enter venture capital."

However, the environment started changing by the end of 2018 after many investments failed to reach expectations. This can be seen by the significant drop of Chinese venture capital funding by the end of 2018. As The New York Times reported in December 2018, data provider Preqin found that "in the 11 months to mid-November, around 70 such funds raised just over $15 billion… that compares to $40 billion or so raised by 330 funds in all of 2016."

This about-face occurred due to a confluence of reasons. According to The New York Times, China's economy slowed in 2018, leading to an age of consumption downgrades and resulting in fewer profits from investments than expected. When investments performed poorly, the government may have decided it had been overly confident in the market and overly lax in regulating funders like Tencent and Alibaba. The New York Times noted in a separate article: "After seeing their subpar results, the vast majority of Chinese unicorns that listed this year, including the takeaways-to-taxis app Meituan Dianping and the smartphone maker Xiaomi, are now underwater. Just a small fraction of those $1 billion-plus companies, including video-streaming companies Huya, Bilibili and iQiyi, have risen above their initial public offering prices." As a result, Reuters reported in 2018 that the Chinese government increased regulations on asset management to help minimize risk. These increased regulations led us to the venture landscape China operates in today.

"China has remained a popular investment destination despite heightened geopolitical tensions..."

Current Investment Trends

China has remained a popular investment destination despite heightened geopolitical tensions, the possibility of financial decoupling between the U.S. and China, and Xi Jinping's iron clamp to rein in China's freewheeling entrepreneurial class. In 2021, The Wall Street Journal reported that China even overtook the U.S. as the "world's leading destination for foreign direct investment." However, the government's increased regulations shifted venture capital's current priorities.

According to Mark Witzhe from the Rhodium Group, an independent research provider focused on U.S.-China relations, the driver behind increased regulations is China's desire to shift investment priorities from consumer technology to hardware. Given the slower macro conditions and tighter investment budgets, China especially wants to direct the capital flow towards targeted key sectors including AI, quantum, hardware and technology (e.g., semiconductors), defense, and biotech — industries that benefit China's national security. These sectors will likely be the most promising and resilient sectors to invest behind in coming years. On the other hand, there are a few sectors that foreign investors should continue to watch but wait to invest in. These include e-commerce, which is especially saturated and competitive; fintech, where companies such as Alibaba-linked Ant Financial have faced especially high scrutiny by financial regulators in China; and cryptocurrency, which has experienced a global decrease in investments after the cryptocurrency bubble burst over the past year. While AI is a key priority for China, this may similarly become a sector for U.S, investors to watch and wait, given Biden's 2023 executive order restricting outbound investments into certain technology sectors in China, including AI.

Regulations and Case Studies

China's government-issued Foreign Investment Catalog plays a critical role in shaping the landscape for overseas investors. It divides industries into three specific categories: encouraged, restricted, and prohibited. Industries labeled as encouraged tend to benefit from more lenient policies and incentives designed to attract foreign investment. Conversely, those in the restricted category may encounter limitations on foreign ownership, sometimes necessitating joint ventures with local Chinese entities. For example, the automobile sector traditionally mandates foreign automakers to form joint ventures with local companies, capping their ownership at 50%.

Regarding intellectual property (IP), China has made significant strides in fortifying its IP protection laws. However, effective enforcement remains a challenge. It's imperative for U.S. investors to not only ensure that their IP assets are appropriately registered but also to be prepared to take legal action in cases of infringement. Moreover, considering the relatively weak legal protection for trade secrets, implementing robust contractual safeguards, like non-disclosure agreements with employees and business partners, becomes indispensable.

Turning to cybersecurity, China mandates that vital data be localized, implying that such data must reside on servers within its territory. This can have ramifications for entities dealing with sensitive or proprietary data. Furthermore, companies may be subjected to industry-specific cybersecurity standards, which might entail undergoing security evaluations and achieving necessary certifications.

China's stance on foreign exchange is also noteworthy, particularly its stringent regulations on capital repatriation and conversion into foreign currency. In the realm of government approvals, certain sectors, such as the financial industry, demand particular endorsements from regulatory bodies. A prime example is the recent establishment of the National Financial Regulatory Administration in March 2023, which emerged to oversee the industry, barring the securities sector, under the direct auspices of the State Council, as reported by Reuters.

The complexities of these regulatory nuances underscore the intricacy of investing in China's startup ecosystem. U.S. investors are advised to undertake comprehensive due diligence, seek specialized legal advice, and craft a detailed market entry blueprint addressing these issues. According to consulting firm McKinsey & Company, equally vital is the need to remain agile and adaptive in the face of ever-shifting regulations to ensure sustained success in the Chinese marketplace.

Diving into specific case studies offers further clarity: Sequoia Capital's trajectory in China's venture capital scene is illuminating. While Sequoia reaped enormous rewards from early investments in tech behemoths like Alibaba and JD.com, it wasn't immune to the country's intricate regulatory landscape. In 2023, amidst escalating geopolitical strains and enhanced governmental oversight, Sequoia's China operations underwent a significant transformation, segregating into an independent entity. Qualcomm's experience was equally instructive. Subjected to a comprehensive antitrust inquiry by Chinese authorities in 2015, Qualcomm's case underscored the importance of readiness and collaborative interaction with regulators. The aftermath saw Qualcomm incurring a hefty penalty and reconfiguring its licensing methodologies. These instances emphasize that success in China demands an adept understanding of local regulations, a forward-looking perspective, and an unwavering dedication to adaptability.

Key Takeaways for US Investors

Navigating the dynamic landscape of China's burgeoning startup ecosystem demands a nuanced approach. U.S. investors eyeing entry into this promising market would do well to internalize several critical takeaways. First and foremost, building robust local partnerships with experts and businesses is paramount, serving as an indispensable conduit for maneuvering through intricate regulatory frameworks and respecting cultural norms. Furthermore, a proactive stance on intellectual property (IP) protection is imperative, ensuring the safeguarding of innovative technologies and intellectual assets. This not only mitigates the risk of IP infringement but also bolsters a competitive edge. In tandem, a keen eye on compliance and transparency is indispensable; staying abreast of evolving regulations and maintaining transparency in business dealings is crucial. U.S. investors must be prepared for potential regulatory scrutiny, emphasizing cooperation with local authorities. To mitigate risks tied to regulatory fluctuations in specific industries, diversifying investments across sectors and stages is a prudent strategy. Lastly, embracing a long-term perspective is essential, recognizing that success in China often unfolds over an extended horizon. Patience, therefore, emerges as a valuable asset, enabling investors to weather market dynamics and regulatory changes, ultimately positioning them for success in China's dynamic startup arena.

"Navigating the dynamic landscape of China's burgeoning startup ecosystem demands a nuanced approach."

In 2018, China's venture capital scene experienced a paradigm shift, with startups surpassing North American counterparts in funding, largely driven by the government's emphasis on innovation since 2015 and the dominant roles of corporate VCs from the likes of Alibaba and Tencent. However, the landscape now is confronted by economic slowdowns, decreased funding, and regulatory shifts, leading to a refocused investment approach towards sectors critical to national security, such as AI and biotech.

Despite the challenges, China remains an influential global venture player, underscored by its continued allure for foreign investment and commitment to innovation. Key regulations like the Foreign Investment Catalog and stringent IP laws guide foreign investors in China, emphasizing a thorough understanding of the nation's unique environment. For U.S. investors, the path forward is about building strong local ties, safeguarding IP, staying updated on regulations, and embracing a long-term perspective. As the future unfolds, China's venture capital realm, informed by its triumphs and teachings, is set to offer abundant opportunities for those who are adept at navigating its complexities.

This article was written by Jing Wang, Ziqin Yuan, and Jenny Zhang, members of the Lauder Class of 2025.

A Beacon of Hope: Rwanda's Road Towards Sustainable Development

This article explores the policies and programs of three government institutions in Rwanda charged with transforming the nation's economy and accelerating growth.

In the aftermath of the devastating Rwandan genocide of 1994, the nation was scarred by physical destruction and deep-rooted socioeconomic and political disparities. However, amid this grim backdrop emerged a beacon of hope — a public-private partnership approach to governance and development that aimed to rebuild the nation and foster innovation and equity. Nearly 30 years since this genocide, we found remarkable progress that many would have considered unfathomable, considering the circumstances following the devastating event.

"A critical question lingers: Can Rwanda's dynamic economic momentum continue?"

At the core of Rwanda's transformation lies Vision 2050, a comprehensive roadmap meticulously crafted to propel the nation through higher standards of living as well as sustainable economic growth and prosperity. With each passing year, Rwanda's economic indicators, including its growing GDP and efforts to reduce income inequality, offer tangible evidence of progress. The African Development Bank highlighted in its recent research that Rwanda was poised to have the highest GDP growth in 2024, "with GDP growth rate by up to 8% in 2024, leading the region, followed by Uganda with up to 7% growth, and Kenya with up to 6% growth."

Yet, a critical question lingers: Can Rwanda's dynamic economic momentum continue? Economists, policymakers, and observers are eager to understand and explain the sustainability of this trajectory. The answer may lie in Rwanda's distinctive government-centered approach to innovation — a strategy that not only sustains current progress but also has the potential to inspire other nations to seek their path to sustainable development.

In this article, we explore the intricacies of Rwanda's journey, navigating the pathways paved by foundational institutions such as the Ministry of ICT, the Kigali Innovation City, and the Kigali International Financial Centre. These organizations are living testaments to Rwanda's commitment to innovation-driven sustainable development. Through their exploration, we aim to uncover how Rwanda's approach is transforming the country from a state of almost complete desolation to one of the fastest-growing economies in the continent.

The Ministry of Information Communication Technology and Innovation (MINICT)

Technology has emerged as a powerful force to drive sustainable development in the 21st century. Rwanda's Ministry of Information Communication Technology and Innovation (MINICT) is an example of how a government-centered approach to science, technology, and innovation (STI) can catalyze such equitable growth. Created with the dual aim of economic expansion and poverty alleviation, MINICT is a cornerstone in Rwanda's innovation ecosystem, designed to help the nation meet its ambitious Vision 2050. The ministry is strategically divided into three departments to carry out this agenda:

- **Digital Government Transformation**: Tasked with aligning ICT policies with sectoral aims, especially skills advancement for the digital era.
- **Innovation and Emerging Technologies**: The hub for fostering local creativity, advancing cashless transactions, and nurturing tech startups.
- **Future Planning Directorate General**: The forward-thinking arm, using data analytics for long-term planning in ICT and innovation.

Underlining MINICT's commitment to digital innovation for societal betterment is its Chief Digital Strategy. During our meeting, Yves Iraukunda, the permanent secretary of MINICT, told us that each Rwandan ministry boasts a chief digital office team responsible for sectoral digitization. They employ data analytics to enhance tracking and information storage, ensuring streamlined governance and informed decision-making. More importantly, the ministry adopts an inclusive approach to digital transformation. For instance, they provide remote villages access to digital tools including smartphones and laptops, focusing on heightening digital literacy nationwide. Iraukunda also said the government is leveraging public-private partnerships through platforms such as Irembo to modernize public service delivery. Irembo has a 25-year agreement with the Rwandan government to work with various agencies to digitize public services on a single platform. For example, registering a birth at a hospital and obtaining a birth certificate has been reduced from a procedure involving weeks of waiting to a matter of hours. Irembo also encourages citizens to provide feedback, which allows for continuous improvement and adaptation, making the services more aligned with the population's needs, especially those at the grassroots level.

MINICT's achievements are measurable and aligned with Rwanda's broader sustainable development goals:

- **Digital inclusion**: With 96.6% of the population covered by 4G LTE services and an 81% mobile phone penetration rate, Rwanda is rapidly becoming a digitally inclusive society.
- **Financial growth**: The number of mobile payment transactions has ballooned from 800,000 in 2010 to 700 million in 2020.
- **Health care**: A total of 100% of health centers are now connected to the internet, which helps support Rwanda's health objectives.

MINICT also plays a central role in catalyzing Rwanda's ICT startup ecosystem — garnering over $50 million in local investments. Its $200 million expenditure for the 2018-2024 ICT Sector Strategy has yielded over 1,000 local tech-based startups and is expected to generate over 50,000 ICT jobs by 2025. Through recent endeavors, including tax exemptions for crucial ICT hardware and connecting schools to high-speed internet through Starlink, MINICT has further reinforced its commitment to digital inclusion.

Kigali Innovation City

With Rwanda's goal to become a leader in innovation within the region, Kigali Innovation City (KIC) serves as a key case study of successful public-private partnerships. KIC is a new development in Rwanda's capital, built to provide companies, universities, and entrepreneurs space to collaborate and create tangible solutions for existing obstacles. The Government of Rwanda is partnering with Africa50, an infrastructure investment platform, to create this multi-use city. KIC will cover 61 hectares of land and is expected to generate around $150 million in ICT exports annually by bringing office space, universities, startup incubators, and research and development facilities. Some companies and universities are already present in KIC, such as Carnegie Mellon University's Africa campus (the only one in the continent), Africa Leadership University, and BionTech.

> "The fruits of these strategic initiatives are already ripening, evident in Rwanda's remarkable progress toward sustainable development."

One key aspect of this ecosystem is the four world-class learning institutions that would provide skilled talent to the ecosystem. This fact impacts the whole economic environment of the country, which struggles to recruit and retain qualified professionals. During our discussion with Hortense Mudenge, chief strategy officer of the Kigali International Financial Centre, she said: "The biggest challenges companies face in Rwanda and other parts of Africa is attracting high-skilled professionals." Building KIC will help the country get closer to solving this challenge.

Additionally, this innovation hub will allow for major technological advances within the primary industries of the countries, such as productivity gains for the agribusiness industry. According to the 7 Years Government Programme: National Strategy for Transformation (NST1), with nearly 70% of the workforce still in agriculture, the potential for productivity gains from structural transformation, urbanization, and industrialization is significant. KIC is expected to generate 50,000 jobs and promote the modernization of the country's economy in sectors such as agriculture, health care, and financial services. This achievement would be aligned with one of the stated goals in the government's National Strategies for Transformation: to create 1,500,000 productive jobs.

One significant feature of this project is its sustainable design. As part of the development, Africa50 and the Government of Rwanda are creating the city with eco-friendly constructions, a system to use rainwater, and green spaces to minimize environmental effects. Linda Mutesi, tourism marketing division manager of the Rwanda Development Board, said, "One distinguishing feature of the project is its sustainable features, with 50% open spaces and green areas to reduce carbon footprint." Through this project, the government aims to combat global warming and promote sustainable management of natural resources to lead Rwanda towards a greener economy.

Kigali International Financial Centre

In addition to public-private partnerships, a solid regulatory framework, transparency, and compliance have allowed for rapid and sustainable economic growth in Rwanda. These conditions have provided a strong value proposition for Rwanda to position itself as a financial hub for international investment. The Kigali International Financial Centre (KIFC) was launched in early 2020 to transform the country into an attractive financial destination for investors. This initiative was achieved through a collaborative effort between the federal government and Rwanda Finance Limited. RFL was created in 2006 to help boost and promote the country's financial services sector.

Our interviews with Chief Strategy Officer Hortense Mudenge, Chief Information Officer Jean-Marie Kananura, and Capacity Building Program Manager Anita Mutesi offered insight into how KIFC is executing a visionary approach to innovation and sustainable development. The centre's three pillars are policy advocacy, investment promotion, and skills and talent. These pillars align with Rwanda's Vision 2050 for the country to become a high-income and knowledge-based economy, which requires a strong financial services sector. Kananura said the KIFC underwent significant policy reform, market research, and partnership to position the country as a viable fund domicile for companies. For example, RFL and KIFC created anti-money laundering laws in collaboration with other organizations to ensure compliance with global standards. Creating 19 rules within three years is a testament to Rwanda's agile and dynamic governance. RFL can lobby governmental authorities to rapidly implement laws that facilitate establishing new partnerships, such as the one with Aktif Bank from 2022, in which the largest privately owned investment bank in Turkey joined the KIFC membership.

RFL and KIFC also attempt to position Rwanda as a niche with sustainability and fintech at the forefront. Through a promotional agreement between KIFC and Norrsken — a venture impact accelerator with its African base in Rwanda — local and international fintech companies established their presence and developed partnerships. In October 2022, KIFC released a Sustainable Finance Roadmap, painting its vision for Rwanda as a leading pan-African hub for local, regional, and international sustainable finance given its "strategic location, efficient and cost-effective financial system, and first-class human capital." Mudenge said this niche, along with other conditions, will enable the country to attract more foreign capital and domiciles.

Through sustainable finance, KIFC directs capital towards poverty alleviation and health care enhancement projects. RFL is also focused on an aggressive campaign to attract and retain talent within the country to address the gap in skills within the financial sector and for KIFC. Mutesi highlighted how the organization works with institutions such as INSEAD and the CFA Institute to promote relevant education and empowerment of young talent in the country.

Conclusion

Rwanda's approach to sustainable growth and development epitomizes the power of collaboration between the public and private sectors, serving as a testament to the nation's commitment to its transformation. Emerging from the depths of a profound historical context, Rwanda embarked on a journey of reconstruction by laying a foundation for innovation-driven progress. Key milestones in this journey include establishing a Financial Centre, the visionary concept of an Innovation City, and creating a Ministry of Innovation and ICT, all of which have been instrumental in these transformative endeavors.

The fruits of these strategic initiatives are already ripening, evident in Rwanda's remarkable progress toward sustainable development. KIFC has attracted investment and fostered a conducive environment for thriving businesses. KIC stands as a symbol of Rwanda's ambition, attracting talent and innovative enterprises from around the globe. Meanwhile, the Ministry of Innovation and ICT has driven technology integration into various sectors, accelerating the nation's modernization.

As these strategies continue to unfold and mature, Rwanda stands poised to achieve even more remarkable feats in the years ahead. Its journey from the shadows of a devastating past to the forefront of African innovation is a testament to the resilience of its people and the forward-thinking vision of its leadership. The three institutions examined in this article are foundational to a brighter and more prosperous future, reaffirming Rwanda's position as a beacon of hope and progress on the African continent.

This article was written by Vedant Batra, Ignacia Leiva, Billy Kacyem, and James Kakisingi, members of the Lauder Class of 2025.

Can the EU Reach a 20% Share of the Global Semiconductor Market?

The European Union has committed billions to the manufacturing of semiconductors, hoping to capture a fifth of the worldwide market by 2030. This article explores the obstacles to meeting that goal.

The global semiconductor industry is at a critical juncture, and the European Union is entering the ring. The COVID-19 pandemic and escalating trade tensions led by the United States and China have disrupted supply chains, driving a race among nations to bolster semiconductor manufacturing capacity. Among the key players in this race are the U.S., the European Union, South Korea, and China, each investing billions of dollars to reduce their reliance on imported chips. In 2015, as part of its "Made in China 2025" plan, China launched the National Integrated Circuit Industry Investment Fund and has since raised $45 billion over two rounds of funding started in 2014 and 2019. In 2022, the United States rolled out its own semiconductor investment plan by passing the CHIPS and Science Act, including roughly $53 billion in subsidies for semiconductor manufacturing. In July 2023, the European Council gave final approval for its own European Chips Act, which commits €43 billion (about $47 billion) to double Europe's market share of the global semiconductor industry to 20% by 2030. Such investments, regardless of their origin, aim to increase local production of semiconductor chips to create a more robust supply chain and prevent future shortages.

> "The semiconductor industry is highly capital-intensive, and the EU has historically lagged in capital expenditure in this sector."

Of the almost 500 semiconductor assembly and test facilities worldwide, only 24 are located in Europe. Germany is currently the epicenter of Europe's expanding chip manufacturing ecosystem. Although Germany is subsidizing new projects, including plants from Intel and Taiwan Semiconductor Manufacturing Co. (TSMC), these projects alone will not bring the EU to planned capacity, and it is unclear how Germany will attract the labor force necessary to ramp production and meet its demand for skilled workers over time. Looking forward, in order to strengthen its position in the global semiconductor market and meet the European Chips Act 2030 targets, it will be critical for the EU to increase capital investment, focus on talent development and retention, and form strategic partnerships and alliances. Investing in an "open strategic autonomy" in the semiconductor industry will allow the European Union to strike a balance between maintaining an open economy and protecting the EU's strategic interests.

New Investment Drives Growth

The semiconductor industry is highly capital-intensive, and the EU has historically lagged in capital expenditure (capex) in this sector. In 2022, the European Commission estimated that only 4% of global capex in semiconductors was spent by European companies — far from the 66% and 27% invested by companies in the Asia-Pacific (APAC) and North American regions, respectively. In its position paper on the EU Chips Act, ASML, a Dutch provider of chip manufacturing technology, estimates that Europe will need roughly $260 billion in capital investment to reach 20% global market share by 2030. Others, like CEO Kurt Sievers of NXP Semiconductors — a Dutch producer of near field communication (NFC) chips — are more pessimistic. In an address at the GlobalFoundries Technical Summit in Dresden, Germany, Sievers estimated that a "€500 billion investment in Europe" was necessary to achieve the 20% market share goal, as reported by The Register. In a separate speech at the European Semiconductor Conference in October 2023, Sievers said, "The semiconductor industry is a key enabler for Europe's digital transformation and economic growth. We need to invest heavily in semiconductor manufacturing and design in Europe to ensure that we have the chips we need to power our future."

In light of such projections, the €43 billion in public and private investments may seem insufficient. By comparison, Taiwan's TSMC has announced plans to spend $32 billion in capital expenditure in 2023 alone, according to Bloomberg. However, this will not be the only source of investment for the sector. The EU also announced its second Important Project of Common European Interest (IPCEI) focusing on microelectronics and communications technologies, which will provide up to €8.1 billion to incentivize research and private investment in the space. These multinational initiatives are complemented by public investment at the level of member states. In the past two years, Germany has committed nearly €17 billion in subsidies to facilitate investments from companies including Intel, TSMC, and Infineon, according to Bloomberg. Spain has also declared plans to invest over €12 billion in subsidies by 2027 through its PERTE Chip initiative.

These public investments represent a significant step towards the development of a well-functioning semiconductor industry in Europe, but they still fall short of the hundreds of billions required to reach Europe's capacity goals. Ultimately, private sector investment will be a critical component of a successful EU chips program. According to local industry group Silicon Saxony, Germany's industry subsidies have resulted in an estimated €48 billion in total investments within the country. The European Commission estimates that "investment plans towards industrial deployment have reached €90 — €100 billion" in Europe as of April 2023. Countries around the world are courting chipmakers with subsidies and tax breaks. Time will tell whether Europe's incentives are enough to attract sufficient private investment.

Developing and Retaining Talent

Achieving the goal of the European Chips Act hinges on overcoming the significant obstacle of talent development and retention in Europe, especially in Germany. Consultancy Strategy& estimates that Europe will face a talent gap of an estimated 600,000 skilled professionals by 2030, which threatens its ability to scale its operations to compete globally. Several factors contribute to this widening gap. First, many European countries with well-established semiconductor industries are grappling with aging populations, resulting in a shrinking pool of potential talent. Second, while there has been a modest increase in STEM (Science, Technology, Engineering, and Mathematics) graduates, there is often a misalignment between their qualifications and the specialized skills needed in the semiconductor industry. Graduates lack the expertise required to fill critical roles in this sector. Third, semiconductor facilities are frequently located far from major cities, making them less attractive career destinations for young professionals.

> "The average salary for entry-level software engineers at big tech companies is 15% higher than that of any of the major semiconductor players…"

The consequences of Europe's semiconductor talent gap are far-reaching. Without a significant influx of skilled workers, the region could lose a substantial share of potential revenue growth, estimated at up to 60% by 2030. This shortage not only threatens semiconductor manufacturing but also has a cascading effect on the semiconductor equipment market. To achieve the EU Chips Act's goal, Europe should urgently address this talent crisis with a multifaceted approach combining education, immigration policies, and industry collaboration.

Europe needs to invest in STEM education to produce more qualified graduates. Collaborations between semiconductor companies and educational institutions can make STEM education more attractive through initiatives like vocational programs, internships, and scholarships — an example of this is the German automotive industry, which according to consultancy BCG excels as Europe's main "destination" employer for STEM professionals. Long-term efforts should involve collaboration with academic institutions to shape curriculums and establish dedicated majors for semiconductor careers. This proactive approach ensures that the pipeline of skilled workers remains robust.

On the other hand, Germany serves as a noteworthy example with its flexible policies that allow skilled migrants to search for employment for up to six months. The European Union could leverage this approach and implement similar measures to address its skilled talent shortage. Allowing skilled workers with vocational training or university degrees to enter the continent and seek employment without a prior job offer can be an effective way to attract talent. According to the European Commission, unfavorable European demographics --with 55% of habitants over the 50-year threshold — evidence the necessity to promote immigration to secure a skilled talent pool for the future.

> “Currently, the EU imports twice as many chips as it produces.”

From the private sector, major semiconductor players either headquartered in Europe or with vast facilities in European territory — NXP Semiconductors (Netherlands), Infineon (Germany), GlobalFoundries (Germany/Malta), Lam Research (Austria), Aixtron (Germany), Arm (Great Britain), Bosch (Germany), Dialog (Great Britain), and Besi (Netherlands) — should recognize their pivotal role in technology and innovation and position themselves as attractive career destinations. Benchmarks from consultancy Kearney show that the average salary for entry-level software engineers at big tech companies is 15% higher than that of any of the major semiconductor players, and the difference in stock grants is about 140%. Talent competition is not only within the semiconductor industry but also across the tech industry.

In the context of Europe’s talent gap, India emerges as a promising ally. India has set its sights on expanding its global market share in semiconductors and has made substantial progress in attracting investor interest. India’s transition from a bureaucratic “red tape” environment to a “red carpet” one demonstrates its commitment to fostering a competitive business ecosystem. The country offers some of the most attractive incentives globally, positioning it as a key player in the semiconductor supply chain and attracting the attention of the US National Foundation, which is pursuing an agreement on research investigation to expand microelectronics research between the two countries. Collaborating with India could significantly strengthen Europe’s semiconductor workforce and contribute to achieving the EU Chips Act.

Achieving ‘Open Strategic Autonomy’

At a higher level, the European Chips Act is a key part of the EU’s long-term political strategy to achieve open strategic autonomy. This strategy is being discussed in forums such as the European Parliament’s Panel for the Future of Science and Technology (STOA), which has held workshops on the supply chain implications of the dependency of raw materials and critical parts, with the “open” qualifier signaling that the EU will continue to engage with third parties. In this sense, it is important for the region to simultaneously develop strategic partnerships to ensure its own supply of critical classes of semiconductors for its key industries, and incubate its own cutting-edge technologies to reduce geopolitical risk from over-reliance on imports from countries like China.

Currently, the EU imports twice as many chips as it produces. The risk associated with reliance on semiconductor imports became especially apparent during the COVID-19 pandemic, during which the semiconductor shortage resulted in production delays, corresponding to huge losses in sales especially in the automotive industry. Allianz Trade estimated that the EU lost approximately $100 billion in revenue opportunity in the auto industry in 2021 and 2022 due to underestimating consumer demand post-COVID. Although the industry has since recovered, the EU sold only 9.7 million cars in 2021, 3.3 million fewer than the previous year, highlighting its vulnerability to global imports.

To address these risks, the EU has eased limits for subsidies for semiconductor projects, and invested in projects that aim to boost its regional supply of semiconductors, especially for its automotive and advanced industrial sectors. In 2023, TSMC, Bosch, Infineon, and NXP announced the creation of the European Semiconductor Manufacturing Company (ESMC), a joint venture that aims to bring advanced semiconductor manufacturing to Europe to meet high future demands in these rapidly digitizing and electrifying sectors. The venture is 70% owned by TSMC, with the other three companies owning 10%, and the fabrication plant will be operated by TSMC. ESMC plans to begin construction in Dresden in Saxony in the second half of 2024 and begin production by 2027. According to the company, the plant will specialize in "mature nodes," less advanced chips primarily benefiting the automotive industry.

CC Wei, chief executive officer at TSMC, said "Europe is a highly promising place for semiconductor innovation, particularly in the automotive and industrial fields, and we look forward to bringing those innovations to life on our advanced silicon technology with the talent in Europe." TSMC faces its own challenges with increasing costs and access to skilled labor, so it is willing to collaborate in a mutually beneficial way in the European market to produce lower-end chips.

At the same time, the EU's Chips Act reflects an effort to reduce reliance on tech imports, especially from China. In response, the EU is allying itself with other major players including the United States. In May 2023, the Trade and Technology Council (TTC) made a joint statement that outlines the commitment to a strategic alliance for the U.S. and EU. The EU Chips Act also prepares Europe to incubate its own technology and intellectual property to create competitive advantage. Although it is important for the EU to focus on "mature nodes" for its automotive industry and industrial functions, it must not lose sight of investing in leading edge semiconductor technologies to play in other industries. "Advanced node" chips are essential for the deployment of AI applications, data centers, smartphones, and memory. Without investing in advanced node chips, the EU will continue to be highly reliant on importing these chips in these sectors.

Risk and Opportunity

To make progress toward its 2030 goal, the EU must focus on investing through public and private channels, attracting and retaining skilled labor, and developing open strategic autonomy to de-risk critical classes of semiconductors in its value chains. These key elements are interrelated, yet are all critical to expanding the EU semiconductor ecosystem. Without significant capital investment, the EU may miss its opportunity to ramp up as a global player. Skilled labor is necessary for the EU to build and operate fabrication plants and conduct cutting-edge research. Moreover, the volatility of global trade relationships threatens the EU's ability to maintain friend-shoring and near-shoring alliances and access key markets. The future of Europe's technological sovereignty hangs in the balance, and seizing this opportunity will define its competitive position in the new era of fragmented globalization.

This article was written by Mati Alemayehu, Santiago Gonzalez, and Justin Koehler, members of the Lauder Class of 2025.

Farm to Roundtable: The Changing Role of Agriculture in Taiwanese Food Security

Shifting demographics, geopolitical tensions, and climate change are significant challenges for all countries. This article illustrates how Taiwan's innovations in smart agriculture can help mitigate these challenges and establish it as a leader in green agriculture.

Against the backdrop of Russia's invasion of Ukraine, preserving Taiwan's political independence has become a paramount concern. For years, China has hinted at a takeover of Taiwan. While the imminence of a potential attack is hotly debated, Chinese military exercises since August 2022 have raised international concerns about a potential blockade capable of severing Taiwan from critical food imports.

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Ensuring a resilient food supply is now a strategic imperative for Taiwan. While the government has taken steps to bolster domestic food supply and forge stronger international alliances, these measures alone cannot overcome the inherent limitations of Taiwan's current agriculture industry.

As a small, mountainous island vulnerable to extreme weather, Taiwan is hardly an agricultural paradise. Arable land is limited and continues to decrease amid rapid urbanization and industrialization, with the island's population nearing 24 million. Combined with the prevalence of traditional small-scale farming, an aging labor force, and climate change, Taiwan's agricultural self-sufficiency has plummeted in recent decades, down from 56% in 1985 to 31% in 2022, as reported by the Ministry of Agriculture. In 2022, agriculture contributed a mere 1.4% to Taiwan's GDP, compared with a 6% average across East Asia and the Pacific.

Taiwan has consequently relied heavily on imports, bringing in nearly $1 billion worth of agricultural products in July 2023, compared with only $250 million in exports. Taiwan's import dependency is not only highly varied across goods, but also exceptionally high for feed grains critical to livestock production and food processing.

Amid the threat of a potential Chinese invasion, the timeline for Taiwan to solve its impending food security crisis has shortened significantly. In this article, we will explore how Taiwan's recent advancements in smart agriculture may help alleviate these concerns.

Demographic Threats to Food Security

Although Taiwan is recognized as a leading technological powerhouse, its agricultural practices remain steeped in tradition. The main cause is geographical: Mountains cover two-thirds of Taiwan, resulting in fragmented farmlands that force small farm sizes. The average farm in Taiwan occupies only 2.7 acres, compared with 445 acres in the United States. These size constraints have helped small-scale farming persist despite broad industrialization, with family farming continuing to dominate Taiwan's agriculture industry.

However, the modern era has raised concerns about the continued feasibility of relying on household farms. For starters, the aging population crisis and rural flight in Taiwan have severely crippled the agricultural workforce. The average farmer is 64 years old, and rising production costs coupled with low returns have driven rural youth towards higher-paying opportunities outside agriculture.

"The younger generation unfortunately don't want to be farmers," says Chifumi Takagi, an agribusiness professor at National Chung Hsing University in Taiwan. "Even though they study agriculture, they want to get a job in agribusiness. They do not actually want to go back to the farm."

Beyond labor concerns, Taiwan's geography presents significant agricultural challenges from several fronts. Taiwan's small size has led to serious land scarcity as the country has industrialized, resulting in extensive conflict between industrial, housing, and agricultural interests. Its location also makes it a natural disaster hotspot, with more than 70% of its land vulnerable to earthquakes, typhoons, floods, and landslide hazards, according to the World Bank.

Adapt or Perish

Recent years have brought several modern challenges to food security, most notably the threats from global disruptors such as pandemics, geopolitical tensions, and climate change.

The COVID-19 pandemic exposed the underlying fragility of global supply chains, particularly for countries lacking in production resources. At the far end of the spectrum, Singapore, which has just 0.8% arable land and imports more than 90% of its food. When COVID-related restrictions were announced, food prices increased dramatically. While Taiwan managed to avoid similar spikes, Singapore's example highlights the potential risks to food security in the future. Man-made disasters pose another challenge to maintaining food security. After Japan began to discharge radioactive wastewater from the Fukushima nuclear power plant, media outlets including Taiwan News reported that shoppers began to hoard salt in fear that future sea salt would be contaminated.

In addition to large-scale disasters, geopolitical concerns are top-of-mind for food security analysts. When asked about responses to a potential Chinese blockade, Capt. Gustavo Ferreira, a senior agricultural economist at the U.S. Department of Agriculture and agricultural officer at the 353rd Civil Affairs Command, said, "This is truly a logistical challenge. How can we keep Taiwanese society functioning on the food front? Everybody's thinking about supplying their weapons systems, munitions. But nobody is looking into this logistical piece of it." He continued, "They don't have much land; it's a limited resource. So, they have that limitation, but what they can do is expand or increase their stockpiles."

Given China's recent rise in military power, topics such as defense spending and arms often dominate discussions of China-Taiwan cross-strait tensions. In addition to military tools, China relies heavily on its economic clout to fulfill its foreign policy objectives. Over the years, the Chinese government has taken a carrot-and-stick approach in utilizing economic statecraft. This is exemplified by large-scale foreign investments and loans made via the Belt and Road Initiative, China's flagship foreign policy program that has given billions in loans and grants to build infrastructure in developing countries.

> "The aging population crisis and rural flight in Taiwan have severely crippled the agricultural workforce."

China's strategy towards Taiwan is no exception. On the contrary, Taiwan is more likely than any other state to be the recipient of both preferential Chinese policies, as well as negative economic coercion. These actions frequently occur in Taiwan's agricultural and food sectors, industries in which the Chinese central government wields a great deal of direct control. As agricultural imports are easily substitutable by other countries, Chinese import bans on Taiwanese goods are unlikely to significantly affect China's economy.

While the likelihood of escalating conflict between China and Taiwan is an area of debate, Taiwan has begun active measures to ensure its food security under a crisis scenario. In a press conference after China imposed sanctions on Taiwan in the wake of former U.S. House Speaker Nancy Pelosi's 2022 visit to the island, Council of Agriculture Deputy Minister Chen Junne-jih stated, "If Taiwan is blocked and the import of food is banned, we have planned for that. We have increased our food supply, and we have planned for food substitution." He continued, "We also hope our neighboring countries can help us import and deliver food to Taiwan in a more timely manner if necessary."

Beyond geopolitical tensions, Taiwan is also grappling with the effects of climate change. Whereas typhoons and flooding previously posed the greatest threat to crop yields, Taiwan has experienced a serious water shortage since late 2020. For the first time since 1964, no typhoons made landfall on Taiwan in 2020, leading to historically low water levels in reservoirs and subsequent yield losses totaling over $29.7 million. Climate models have predicted further changes in rainfall patterns that raise concerns about chronic water shortages in the future. The consequences of climate change extend beyond just annual yield losses.

"Climate change is a big issue," said professor Takagi. "Two years ago, Taiwan had a very serious drought. Unfortunately, rice farmers had to give up their first harvest at the government's request because rice farming uses a lot of water. Taiwan relies on semiconductor production, which also needs a lot of water. So, the farming and the industrial sectors have to compete."

> "Despite smart agriculture's promising start in Taiwan, widespread adoption is still a work in progress."

The competition has become increasingly one-sided as Taiwan looks to solidify its global presence via semiconductor production. In 2023, Taiwan experienced the worst drought in recent memory. To ensure nearby semiconductor plants had enough water for production, the government paid subsidies to rice farmers to skip this year's growing season.

As part of its food security roadmap, Taiwan aims to increase the land area used for crops, improve the self-sufficiency rate of domestically produced feed, and implement equipment modernization and automation programs. Taiwan additionally reaffirmed its commitment to the Asia-Pacific Economic Cooperation's Food Security Roadmap Towards 2030, a development and cooperation framework targeted at improving food security for Asia-Pacific nations.

Smart Agriculture: A New Recipe for Success

In response to structural challenges and the growing importance of domestic food security, the Taiwanese government has increased investment in "smart agriculture," defined as the application of sensors, smart devices, and big data into traditional farming practices in order to increase overall agricultural productivity and efficiency. This initiative began in 2017 and has seen over $1 billion in government investment to date.

Taiwan is in a unique position to succeed in this space given its existing capabilities in manufacturing drones, semiconductors, and other key enablers for smart agriculture, with domestic output currently accounting for over 4% of the global Internet of Things (IoT) market. Public-private partnerships have since been pivotal to development, such as the collaboration between the Industrial Development Bureau and communications company U-Sync Internet Service in developing a smart solution that will allow dragon fruit farmers to grow crops year-round, with trial results projecting that the technology can increase income by over $20,000 per hectare.

Smart agriculture aims to address some of the main challenges currently faced by the agricultural industry in Taiwan. Increased productivity per farmer helps to offset labor shortages as a result of an aging Taiwanese workforce, while reducing time spent outside in increasingly warmer temperatures. It also provides a competitive edge for generally small-scale and fragmented Taiwanese farmers, who on average have a cultivated land size of 1.1 hectares, compared to 180 hectares for their U.S. counterparts.

Taiwan further plans to use intelligent and AI-driven facilities to mitigate the impact of climate change. Technologies such as an intelligent irrigation system may allow farmers affected by drought to save enough water to continue growing rice without influencing the performance of other industries vital to Taiwan's economic stability.

"Agricultural technology in Taiwan is considered really advanced, and many countries outside Taiwan want to learn about agriculture technology from Taiwan," said Po-yi Hung, associate professor in geography at National Taiwan University. Future cooperation projects with allies such as Eswatini give Taiwan the opportunity to become a leader in developing technology to combat food security issues stemming from climate change.

Despite smart agriculture's promising start in Taiwan, widespread adoption is still a work in progress. A major obstacle facing farmers is the startup cost of obtaining both the technology and required training to operate legally. “Farmers have a motivation to adopt the new technologies, but the limitation is money and know-how,” Takagi said. “But if the government provides enough support, the farmers are willing to adopt.”

For example, pesticide-spraying drones in recent years have quickly become one of the most popular smart technologies in Taiwan due to their ability to generate both massive pesticide, manpower and time savings. However, these drones can only be operated by so-called “qualified remote pilots,” who must obtain both a pilot’s license and pesticide-spreading license in addition to the drone itself. All in, the cost amounts to over $400,000, well over the $30,000 annual earnings for the average Taiwanese farming household. Looking towards the future, improvements in hardware affordability and market access will be key in driving more widespread adoption of smart agriculture.

Conclusion

Faced with limited arable land, an aging workforce, geopolitical tensions and environmental challenges, Taiwan’s agricultural sector has increased in strategic importance as domestic food security becomes a more pressing issue than ever before.

“What happened to Taiwan is not uncommon to industrialized nations,” Ferreira said. “It took a path, a very clear and successful path, of becoming a technological industrial powerhouse. However, Taiwan is a very particular case study because they allowed their agricultural sector to really dwindle to dangerous levels.”

In response to these challenges, the Taiwanese government is working with innovative local players to transform traditional farming practices into smart agriculture. While there are implementation challenges to overcome, this approach could provide a solution to the island’s agricultural constraints and is an example of innovative resilience in the face of a rapidly changing geopolitical and environmental landscape.

Maj. Jamie Critelli, a Civil Affairs agricultural officer who co-authored a paper with Ferreira on Taiwan’s food resiliency, said the nation’s leading position in developing technology and microchips gives it a chance to extend the runway. “If there’s any country who is equipped to do this, it’s Taiwan,” he said. “They certainly have the experience. They have no shortage of the raw materials they would need. And they definitely have a captive audience right now to do it. I think that there is some sort of opportunity for a massive logistical innovation.”

This article was written by Victor Li, Benjamin Parker, and Cindy Wang, members of the Lauder Class of 2025.

The Future of Luxury Resale in Japan is Omnichannel

The sale of used luxury goods is exploding across Southeast Asia, with Japan leading the trend. This article looks at the seismic shift in the industry and the reasons behind Japan's runaway success.

Zelkova trees line the streets of Omotesando, a luxury shopping destination known as the Champs-Élysées of Tokyo. Perched between staples like Gucci and Dior, one store stands out from the rest — the original Amore boutique is a purveyor of vintage Chanel. American TikTok influencer Audrey Peters documents her experience there as "absolutely insane" as she peruses through iconic pieces such as crocodile Chanel and classic flaps. Like millions of other shoppers, she is contributing to the $211 billion global secondhand market.

> "Japanese luxury resellers have carved a niche with their commitment to service excellence."

The Japanese secondhand retail market exploded about a decade ago due to the weakening of the yen. Prices of secondhand goods have risen by about 15%, and resellers have been willing to pay higher prices to women looking to sell and offload their luxury goods. With this market expected to double by 2027 — and Asia accounting for 40% of the pie — Japanese luxury resellers like Amore have doubled down on expanding their business. Certainly, Japan has differentiated itself as a luxury resale market in a region notorious for fast fashion and waste. What factors have contributed to Japan's rise as a market leader in luxury resale? Our research suggests that Japanese luxury resellers have excelled by investing in innovative customer experiences that reflect novel aspects of their culture, while continuously expanding their customer base through omnichannel platforms.

Rise of the Luxury Resale Ecosystem

Despite operating in a region relatively new to resale, Japanese luxury resellers have carved a niche with their commitment to service excellence. This has cultivated a culture of consumer trust towards luxury resale that is unique to Japan, earning them a global reputation for vintage goods and secondhand items. A writer for Japanese culture and language blog Tofugu shares one reason for buying secondhand is that "Japanese sellers tend to describe and post pictures of imperfections [meticulously]," and "this high level of transparency means you're generally less likely to encounter unsightly surprises when buying used clothing in Japan."

An explanation for this level of transparency is Japan's deep-rooted culture of *omotenashi*, which represents a philosophy in Japanese hospitality. This manifests in unparalleled customer service, a key pillar in luxury shopping that has largely evaded resellers in Asia. For example, honesty in transactions is characteristic of Japanese consignment stores. Professor Nobuhiro Ikeda from Otemo Gakuin University in Osaka describes *omotenashi* as the "ultimate spirit of Japanese hospitality" in a mature society. He explains it as a way to provide world-class services through "personal touch," which reflects services that are personalized for each individual guest, and a means for consumers to live a "spiritual rather than materialistic life," transcending the mindless consumption of goods. Secondhand shops such as Amore are dedicated to selling only Chanel bags, and local apparel stores can be curated to target customers looking for specific styles, such as streetwear or international brands.

In contrast, the rest of the Asia-Pacific region has historically been associated with fast fashion, low prices, and unsustainable production models, all of which contribute to impulse buying and indulgent habits. In the West, popular apparel brands such as Shein and Temu (both started in Asia) have been known to supply quantity rather than quality. Additionally, production of luxury counterfeits known as "superfakes" are rampant across Asia with Chinese platforms as some of the global leaders in counterfeit and pirated products, according to the Office of the U.S. Trade Representative.

Because authentication of secondhand luxury has become such a concern, Asian consumers, in particular Chinese consumers, have often turned to Japan to shop.

Shifting to Omnichannel

The 2019 pandemic severely hindered Japan's secondhand luxury market, especially given that before the pandemic, mainland Chinese "accounted for the biggest number of tourists to Japan." They also spent the most," according to a Reuters article. Chinese tourists have contributed so much to foreign shopping in Japan that a new word, *bakugai*, was coined to describe their explosive spending sprees. Despite Japanese resellers continuing to offer top-notch services, the pandemic trapped Chinese spending domestically as they were unable to visit Japan's brick-and-mortar stores.

> "In Asia, investors have also started paying attention to the market, signaling a boom in funding in the space."

As such, secondhand stores needed to discover a way to reach these customers while also ensuring that the quality of their renowned service, products, and experiences were not sacrificed. They ventured into omnichannel, which offered them the platform to reach the mass audience they needed and also keep luxury shopping personalized. To do so, many Japanese resellers have focused on developing omnichannel avenues in Asia Pacific, particularly China given its large market size and explosive growth in the resale market. According to a Business of Fashion report in 2020, the resale market "only accounts for around 5 percent of China's total luxury market" and is expected to quadruple between 2020 and 2025. Japan and the U.S., on the other hand, are more mature markets with a respective 28% and 31% of the total luxury market share occupied by luxury resale.

To achieve the level of scale needed to reach the targeted Chinese audience, luxury resellers have leaned on partnerships with e-commerce platforms, like T-mall. These strategic partnerships focused on launching brand-specific platforms mimic models similar to that of Western luxury resellers like Net-a-

Porter and Farfetch. Brands not only bring in more web traffic to the e-commerce platform but can also fully leverage its diverse resources, such as customer data research, live streaming, and other applications. For Japanese resellers looking to target specific clientele, they have also ventured into omnichannel platforms and have successfully offered a personalized platform that many luxury shoppers seek. This was seen in 2022 when Japanese company Lux.R launched in Singapore with options for customers to book appointments via Whatsapp or personal shopping services for a nominal fee.

An Omnichannel Success Story: Brand Off

Considering all the elements that have made Japanese luxury resellers successful, one notable company comes to mind: Brand Off. Acquired by Japan's largest luxury reseller Komehyo in 2019, Brand Off has had remarkable success and is considered an industry pioneer for their expansion strategy in the Asia-Pacific region. In fact, in 2019, Nikkei Asia reported that Komehyo negotiated to "take over all Brand Off operations, looking to leverage the target's experience and name recognition abroad."

Brand Off has leveraged technology to tap into the core tenets around customer-first that have allowed Japanese luxury resellers to thrive. This includes nurturing trust in a market that "still falls behind other nations due to fears of counterfeit items" by investing in AI that will distinguish authentic products from counterfeits. Using this technology is far more efficient in a large market where manual authentication simply isn't scalable; for example, manual authenticators at American luxury reseller Fashionphile must undergo more than 5,200 hours of training.

Several years ago, Brand Off also partnered with online platform Tmall Global to reach a larger audience. Brand Off Chairman and CEO Yuya Yamauchi said that "eventually, we want to integrate our retail network with our online channels, so stores will no longer be just siloed, bricks-and-mortar stores but omnichannel stores." This strategy was effective during the pandemic, when Brand Off turned to livestreaming to bring the same one-of-a-kind experiences they offer in store, such as sessions with sales associates, online to more shoppers. Yamauchi said Brand Off plans to continue fostering community with "virtual tours of its shops across Japan" and additional personalized services.

Evolution of the Luxury Resale Ecosystem in Asia Pacific

As Japanese resellers continue to thrive, those in other countries are following suit. Luxury resale startups across Asia have started to gain stronger footing, joining a highly fragmented market across "languages, cultures and regulatory environments." In recent years, they have sourced even larger investments and partnerships to compete. Given such competition, it remains to be seen if Japanese luxury resellers, such as Brand Off, will cement their place as a market leader. Several macroeconomic factors are pushing the broader luxury resale ecosystem forward in the region, and forcing early adopters of vintage and secondhand goods in APAC to reconsider their operating strategies.

In particular, new entrants like Kream in South Korea and Hula in Hong Kong have experimented with technology and strategic partnerships to compete with Japanese platforms and attract customers all across Asia. Although the funding environment for startups during the pandemic was weak, the luxury fashion resale market has been booming. A McKinsey report from 2020 estimates that the industry will grow at an annual growth rate of 10% to 15% over this decade. In Asia, investors have also started paying attention to the market, signaling a boom in funding in the space. After a Series C round of funding valuing Kream at $742 million in early 2023, the resale platform is looking to make additional investments in Asia so that it can strategically connect other Asia-based reselling platforms, add more emerging brands and luxury items to its offerings, and expand staff. Korean online platform Nave, SoftBank Ventures Asia, and Korean-founded Altos ventures were notable participants in the round, indicating their confidence in the business and in the luxury resale industry as a whole.

Hong Kong's Hula is another example of a burgeoning luxury resale startup looking to grow and build partnerships in a post-COVID environment. Founded by Sarah Fung in 2017, Hula started as an online platform for luxury resale that eventually transitioned to opening stores and showrooms in major Hong Kong malls. In an interview, Fung said, "Ninety percent of products offline are specific to Hong Kong … our offline business in COVID grew dramatically, [doubling the] size of most years." Asked about the younger generation, she said, "The market is more accepted. They are seeking pre-owned, asking for vintage and creating that trend, which didn't happen in Hong Kong before." Her company saw continued success in 2023, opening a store in Taikoo Place, a major mall owned by property developer Swire in Quarry Bay. Hula also opened a pop-up at the Rosewood Hotel, associating themselves with other luxury brands.

The success of resellers has prompted luxury brands to rethink how to increase their direct control of the market. Historically, these brands have shied away from participating in secondhand sales, fearing that their brand image might be diluted. However, they have started to reassess their business models and reconsider the value in secondhand. By directly participating in secondhand sales, brands can even control the messaging and authenticity regarding their own products. One company helping luxury brands do so is Reflaunt, which focuses on helping brands and retailers resell their existing products to consumers at a discounted price, simultaneously expanding their customer base and brand reach. VP of Brand Partnerships Sofia Gazzotti said she has seen "... a significant increase in the number of brand partnerships within the past few years...this unprecedented level of growth is unlikely to slow down, especially as consumers shy away from buying full-priced luxury products like before."

Over the next few years, it will be insightful to see how Japanese resellers compete with these startups in the secondhand market. Beyond going directly head-to-head with new entrants, Japanese resellers may also need to contend with the possibility of acquisitions and growing platforms in the space. The Korean platform Kream is set to acquire a Japanese limited-edition streetwear trading platform in early 2024, as part of its mission to become a leading e-commerce destination in Asia. As the omnichannel resale experience continues to evolve in Asia, changing consumer sentiments and evolving platforms will redefine the luxury landscape. With the post-pandemic period ushering in a new era of retail, the luxury resale market is poised to play a significant role in Asia, ultimately shaping the future of brand development and luxury commerce in the region.

This article was written by Michelle Li, Emily Zhuang, and Angela Zhou, members of the Lauder Class of 2025.

The Rise of Luxury Goods Consumption in South Korea

Luxury goods are coveted around the world, but perhaps nowhere are they more beloved than in South Korea. This article looks at what is driving luxury consumption among younger South Koreans.

Striding onto the hot island sand of Netflix's hit show 'Single's Inferno," Song Jia quickly turned heads. Throughout the show, her pouty lips, petulant attitude, and impeccable fashion aesthetic created a gravitational attraction around her, sucking in both male and female co-stars into her orbit. As the hottest member of a show that peaked at fourth on Netflix's rankings global, it was clear that no understanding of Korean culture was needed to understand her charms.

However, not long after the show's release, Song's fortunes turned around in the bat of an eyelash. Sharp-eyed viewers noticed that her image wasn't quite what it seemed. Many of her luxury cardigans, handbags, and skirts were, in fact, fake.

> "…Korean culture is marked by two important facets: a love of luxury and significant peer pressure."

The backlash was swift and severe. Despite her deletion of all her Instagram posts containing counterfeit products and a makeup-less and funeral-black-clothed apology video, netizens piled on, with rumors flying about her father's supposed involvement in pornography, and her alleged lack of ownership of her luxury apartment. Only after disappearing from the web for two months did she reappear at a Seoul soup kitchen as the flames of public fury died down.

While some observers were surprised by the sudden fury, a deeper look at Korean society suggests that they perhaps should not have been. Luxury goods occupy a unique place in Korea. According to Morgan Stanley, Koreans spent 230% more than Americans did on luxury goods in 2022, adjusted for GDP. A McKinsey & Company survey found that only 22% of Korean respondents consider showing off luxury goods to be in bad taste, versus 38% of the also luxury obsessed Chinese. Spend some time in Korea and no surveys are necessary for this to become evident: Hermes, Prada, and LV stud Seoul's glistening Gangnam district. Jennie and Lisa of Blackpink K-pop fame respectively flaunt Chanel and Celine in their lyrics and videos.

While we can never truly know the true motivations behind the Song Jia incident, it's clear that luxury goods not only occupy a meaningful place in the Korean economy, they are also a highly emotional subject. Is this a uniquely Korean phenomenon? Is it driven by structural or cultural factors? How does Korea's interaction with the West shape this obsession with luxury goods? In this report on the Korean luxury market, we will attempt to answer these questions.

Cultural and Historical Perspectives

We first examine the phenomenon from the cultural and historical perspectives. Is there something unique to the culture or history of Korea that can help explain the zeal of its present-day luxury goods market?

As detailed in McKinsey's report, "South Korea: Living it Up in Luxury," the Korean culture is marked by two important facets: a love of luxury and significant peer pressure. The proof is in the numbers. In one study, just 5% of Koreans surveyed said they felt guilty spending money on luxury goods, as opposed to averages of 10% to 15% in other countries. How do Koreans justify their ostensible love of luxury goods? In the aforementioned study, a whopping two-thirds of respondents reported "the functional or emotional value of wearing luxury items" as their top reason for purchase.

Historically speaking, one interpretation draws on South Korea's relatively recent dissolution and shake-up of class structure as a root driver of wealth display in modern society. According to Youngseok Kim, global studies scholar at Brandeis University, Korea had distinct social classes through the Joseon dynasty era, and the distinguished classes did not need to flaunt their wealth through material symbols. However, with colonization by Japan and the major wars (World War II and the Korean War) that came after it, the preexisting class system was virtually dismantled, leaving the country and its people with a fresh slate. The democratic South Korea that was born out of the Korean War espoused a Western-style egalitarianism, and this created a free-for-all of sorts with respect to the social hierarchy. Everyone was starting from scratch and had an equal chance to prove their worth and gain social cachet by acquiring the one universally acknowledged indicator of value — wealth. It is this same desire to gain and maintain social status that continues to drive Koreans back to the store shelves of Hermes and Chanel.

Millennial and Generation Z Consumer Behavior

In the world of South Korean millennials, a familiar phrase echoes through Instagram posts: "Oops! I flexed once again," encapsulating the rise of culture that boasts material wealth. This phenomenon, reminiscent of the '90s trend in the United States, has recently gripped South Korea, particularly among the millennial (born 1981 — 1996) and Generation Z (born 1997 — 2012) demographics. But what has caused this shift in attitude among the MZ generation that just a few decades ago prioritized frugality and savings?

To understand this shift, we must first recognize the broader context of the rise in luxury goods consumption among the MZ generation worldwide. Lifestyle magazine Robb Report indicates that luxury brands historically have targeted younger generations for two primary reasons: they were perceived as more willing to spend, and they constituted a significant demographic. Marketing efforts have been concentrated on the MZ generation, leveraging strategies such as social media advertising and e-commerce, tailored to tech-savvy consumers.

We offer three explanations for the particular popularity of luxury goods among South Korean MZs in comparison to other countries.

Explanation 1: The YOLO Mindset — Embracing the Doomsday Scenario

In 2012, the term "YOLO" (You Only Live Once) entered the mainstream lexicon, fueled by Drake's hit song "The Motto." YOLO represents a philosophy marked by immediate hedonism and a sense of living in the present, as there's no guarantee of a future. Recent years have witnessed South Koreans embracing the YOLO mentality. Two conditions are crucial for YOLO to thrive: the perception of insurmountable obstacles to a happy future, and an enticing allure of immediate gratification.

> "Once individuals experience the recognition and compliments that come with displaying luxury brands, the instant gratification becomes addictive…"

South Koreans have faced skyrocketing housing costs, reduced incomes, and job insecurity, leading many to abandon dreams of homeownership and long-term savings. Instead, the MZ generation redefines this mindset as self-care. We see this in 32-year-old Jeon, who reported to the Korea JoongAng Daily that her luxury goods consumption is an "investment" in herself. In embracing the doomsday scenario, Korean MZs have shifted their focus from future planning to deriving immediate happiness from luxury items.

Explanation 2: A Nod to Confucius — a Desire to Conform

Confucian values deeply influence South Korean culture, placing a strong emphasis on conformity and education as a means of imparting the True Way. This commitment to conformity is seen as harmonizing with both nature and the self, shaping the nation's overarching ethos. Notably, a significant number of South Koreans, particularly in the middle class, aspire to emulate the upper class. As income inequality continues to rise, the South Korean middle class continues to dwindle, and members of the MZ Generation are eager to showcase their upward mobility by indulging in the purchase of luxury goods. While it is true that many young South Koreans feel compelled to conform due to social pressures and personal insecurities, this external pressure compounds an already existing layer of cultural conformity (a vestige of Confucianism) prevalent in South Korea.

American sociologist George Homans explains this behavior through the social consistency theory: When one group perceives itself as lower than another, more affluent group, they seek social validation by attempting to "out-purchase" their wealthier peers.

Explanation 3: The Reproduction of Hyperconsumerism

Luxury goods often lead to ongoing purchases. Once individuals experience the recognition and compliments that come with displaying luxury brands, the instant gratification becomes addictive, fostering a cycle of acquiring more luxury items. French sociologist Charles Baudrillard elucidates this addiction through the principle of the unity of collection, wherein individuals become fixated on a single category of luxury goods, forming a unifying theme in their collections.

> "Koreans in their 20s and 30s account for a combined 50% of all luxury good purchases in the country."

South Korea's MZ landscape is fertile ground for the perpetuation of hyperconsumerism. Sociologist Theodore Veblen notes that hyperconsumerism is most likely to flourish in large societies with guaranteed anonymity. Purchasing luxury goods becomes a prominent way to signal wealth and social status in a city like Seoul, where individuals often exist as anonymous figures within a vast social network. The younger generation, raised in a hyper-competitive world, associates hyperconsumerism with success and status, further driving their penchant for luxury goods.

The Black Market and the Blackpink Market

Given the social capital that owning luxury goods confers in Korean society, it is no surprise that some would turn to the counterfeit market as a way to acquire high quality fakes at a fraction of the price of the genuine goods. According to data provided by the Korea Customs Service, the total value of imported counterfeit goods detected by the agency between 2018 and 2022 stood at ₩2.24 trillion (US$1.76 billion). In 2022 alone, this figure was ₩563.9 billion, up 141.1% from a year earlier. Counterfeit watches were the largest category, followed by bags, clothing, and shoes. Authorities are aware of the scale of the problem, and penalties for violating trademark law can be stiff, including prison sentences of up to seven years and fines of up to ₩100 million. Crucially, however, it is not illegal for consumers to purchase counterfeit goods, so absent any change in law, consumer demand for luxury knock-offs should be expected to grow in tandem with the legal market. This, in turn, will only increase the hold that these luxury brands have on defining social status in Korean society among the haves, the counterfeit-haves, and the have-nots.

As per-capita spending on luxury goods has continued to grow in Korea, high-end brands have increasingly turned to Korean superstars to serve as the faces of these brands. To name one such example, the world-famous girl group Blackpink has become a brand ambassador for companies such as Celine, Chanel, and Saint Laurent. Furthermore, each of the four members of the group have individual deals with various brands, including Tiffany and Dior. There are two factors that seem to be driving this trend of celebrity endorsements. The first is that Koreans in their 20s and 30s account for a combined 50% of all luxury good purchases in the country. Luxury brands are hoping to appeal to this demographic by partnering with artists who have established and engaged fan bases. Secondly, luxury brands are hoping to seize on the immense popularity of Korean culture and celebrities in other countries to build brand awareness in those places, which could help turn South Korea into a regional hub for luxury goods shopping excursions. In fact, the French fashion conglomerate LVMH has even partnered with the Korean Tourism Board and Seoul Metropolitan Government to help promote such an initiative to drive tourism to Korea. Initiatives such as this or brand partnerships with groups like Blackpink demonstrate further the increasing centrality of the Korean market not only for brands and governments but also for Korean and foreign consumers of luxury goods.

Were netizens furious at Jia in righteous anger at the damage she'd done to the copyright privileges of luxury brands? Or were they concerned about the black market organizations that create these counterfeit products and their associated social ills? Or did they feel like they'd been personally duped, sold an image, a persona, an identity of Song Jia that wasn't quite what it seemed? Though the exact pathology is difficult to pinpoint here, one thing is clear to see: Korean luxury is serious business.

This article was written by Andrew Kim, Michael Yuan, Sean Reasner, and Ishak Caner, members of the Lauder Class of 2025.

Silver Shackles: Japan's Startups and the Challenge of Aging Demographics

Japan's startup ecosystem isn't what it could be. This article reviews the economic, cultural, and demographic realities that are preventing entrepreneurs from flourishing.

In a nation renowned for its bullet trains, advanced robotics, and consistent technological innovations, Tokyo epitomizes Japan's achievements in technology. However, a striking inconsistency is apparent. Despite Japan's technological acclaim, it's noteworthy that no Japanese startup has risen to global dominance, made its mark on the New York Stock Exchange, or even established itself as an industry disruptor within its home turf. The discrepancy between technological prowess and innovation has been caused by years of disincentives. It is only slated to continue, despite formidable efforts to stoke venture growth, because of an aging and shrinking demographic.

Venture Market Punches Below Its Weight

By most metrics, the Japanese venture ecosystem has notably punched under its weight given the country's economic and technological stature on the global stage. Japanese startups raised a total of JP¥877.4 billion ($6.2 billion) in 2022, according to a report published by Initial, a startup database in Japan. This is a tenfold growth from 2013, where the total value of deals was JP¥87.7 billion ($625 million). The number of startups doubled from 2013 to 2022, increasing from 1,348 companies to 2,224.

> "Japan has a distinct lack of labor market mobility."

While the increase in fundraising within Japanese startups is showing progress, this is not enough compared to its competitor countries. To put this figure in context, New York City alone received $29.3 billion in venture funding in 2022, according to Statista. The implication is that Japan's VC financing as a share of GDP is severely underweight. In 2019, the U.S. allocated 0.64% of its GDP to venture capital investments. In contrast, China dedicated 0.23% of its GDP, and Japan committed a mere 0.08% to the same, according to a Nikkei Asia op-ed written by Benjamin Qiu, a venture capital attorney and arbitrator. Furthermore, with a mere five venture financing rounds over $100 million and two exits over $1 billion between 2012 to 2022, Japan has ostensibly lacked the megarounds or big exits characteristic of the last 10 years of the technology boom cycle, according to a guide on venture capital in Japan published by Preqin in September 2023.

The predicaments confronting Japan's venture market extend beyond mere disparities in funding. A noticeable struggle ensues among later-stage startups vying for substantial financing rounds, particularly in Series D and beyond, faced with a declining support network from foreign investors. According to Initial, this reduction in foreign investment has notably impacted the funding landscape for mature startups, leading to an approximate 30% downturn in the total value of such deals in 2022. Indeed, in 2022, there was a 10% decrease in the overall count of Japanese startups securing investments from foreign venture capitalists, coupled with a decline of JP¥81.6 billion in total funding, marking a 13% year-over-year reduction. This landscape prompts critical contemplation about sustainable growth and long-term viability for startups in Japan amid evolving investor sentiments and global market fluctuations.

Government Initiatives to Spur Growth

It's worth acknowledging that Japan isn't simply neglecting startup cultivation. The government is striving to incubate a robust startup ecosystem. The Kishida administration in Japan has undertaken a concerted effort to revitalize its innovation ecosystem. One illustrative initiative is the Start City Project Japan, which encompasses eight strategically significant cities. This initiative is designed to facilitate collaboration among local governments, universities, and private sector entities, with the specific objective of catalyzing the growth of startups. A noteworthy aim of this project is to nurture the emergence of at least five "unicorns," companies valued at over $1 billion, by the year 2025. These unicorns are envisioned to not only enhance Japan's overseas expansion but also bolster its international competitiveness.

Simultaneously, the Digital Garden City Nation initiative seeks to propel Japan into the digital era. Japan has outlined ambitious plans to increase its telecommuting participation rate to encompass over 30% of its workforce and to implement autonomous driving lanes in more than 10 major cities, with a significant portion of this work expected to be undertaken by startups and private sector entities. The nation's forward-thinking vision extends to the use of drone technology, with aspirations to facilitate drone deliveries in rural areas, potentially benefiting over 20 million residents by 2025. These endeavors underscore Japan's commitment, under the Kishida administration, not merely to keep pace with global competitors but to leapfrog ahead in the global innovation race. Nevertheless, it remains a topic of debate whether these endeavors will be sufficient to significantly bolster Japan's startup ecosystem.

Cultural Issues Hinder the Labor Market

Despite several approaches to encourage innovation, the startup scene in Japan pales in comparison to its global counterparts. In 2023, the United States was home to 56% of global unicorn startups, while Japan was home to only 0.56%, according to Dealroom.co. This lack of successful entrepreneurship is rooted in Japan's unique human capital challenges and consumer behaviors, coupled with labor market immobility and a conservative societal framework.

Japan has a distinct lack of labor market mobility. The country still depends on the permanent employment system, originally designed to encourage retention of skilled workers. According to research by University of Michigan professor Robert E. Cole, who specializes in organizational research that compares Japan with the United States, the system prioritizes fresh college graduates and rewards employees according to their seniority. The permanent employment system hinders employees from leaving their jobs, as they may have to start over at the bottom of a ladder at a new company. Some noted anecdotally that labor market mobility has increased vastly from the 1990s due to Japan's recession in 1989, although academic research in 2010 demonstrated practices associated with the permanent employment system, like lack of involuntary job separation, survived the 1990s. Professor Koji Izumi from Tokyo Metropolitan University, who specializes in social system design in Japan, said that "young Japanese students do not enroll in undergraduate majors in social sciences and instead seek out stability and jobs in established corporations," a phenomenon that hinders young talent from joining startups in Japan. More recently, Japan's Ministry of Health, Labor, and Welfare reported that job mobility declined in 2021: Those switching jobs as a percentage of workers fell to 8.7% from 10%. In addition, 45.9% of workers in Japan have been in the same job for more than 10 years, compared to 30% of workers in the U.S. While there have been some changes over the past 30 years, progress has been too slow.

> "Japanese workers are more likely to be risk averse and emphasize conventionality and consistency."

In addition to the inertia of the labor market in Japan, societal factors play a role in the lack of startups and entrepreneurial activities. Japanese workers are more likely to be risk averse and emphasize conventionality and consistency. The 2020 Global Entrepreneurship Monitor found entrepreneurial attitudes are lowest in Japan among developed countries. These risk averse attitudes are codified into a legal framework that is less conducive to startups. Japan has stringent bankruptcy rules, as explained by Evan Burkosky in the 2016 book "Angel Financing in Asia Pacific: A Guidebook for Investors and Entrepreneurs." Debt financing requires founders of the company to guarantee bank loans and puts them at risk of personal bankruptcy. Even further, debt is transferable to the individual's guarantor or family members. On the other hand, in the U.S., default of a startup rarely leads to seizure of personal property. The framework in Japan interacts with the country's demographic trends that further stunt the growth of startups.

Aging Population Produces Headwinds

Japan is grappling with the additional challenges of a rapidly aging population. Approximately 28% of its citizens are 65 years and above. The nation's birth rate is alarmingly low, standing at a mere 1.3 births per woman, far below the threshold required to maintain a stable population. To compound this issue, a growing number of young Japanese individuals are delaying or forsaking marriage and family life.

> "Japan faces substantial challenges in its pursuit of a thriving startup ecosystem."

This demographic shift profoundly impacts the scalability prospects of startups. With Japan's aging population, startups are restricted in their attempts to quickly establish themselves as market leaders because the older demographic is slower to adoption. Instead, these businesses often find themselves adapting to the demands and preferences of an aging population, giving rise to what is commonly referred to as the "silver market."

While some investors are excited about the prospect of "agetech" — technology designed to assist the elderly — due to the high net savings and market power of older individuals, the slow adoption of new tech by the elderly limits the viability of such startups. For comparison, Denmark, with a 97% IT adoption rate among the elderly, offers a tech-friendly market for startups, while Japan's lower 53.9% IT adoption rate among the elderly makes it a less attractive prospect. With the population skewing older, even startups targeted toward younger demographics face an uphill battle.

The aging population creates additional problems. With a shrinking workforce and a vast majority of the population in low-risk lifetime employment, human capital available to startups is scarce and expensive. As demand for workers continues to increase, the opportunity costs increase and make risky startups less attractive. Shuji Honjo, a prominent Japanese private equity investor, said the agetech ventures market "doesn't really exist. The reason being that it is difficult to make a profit with entrepreneurship that responds to the declining birthrate and aging population. So, things like social enterprises that contribute to and support it are gradually increasing, but there aren't that many of them."

Japan's human capital challenges and skewed demographic landscape, characterized by an aging population, present difficulties for startups. Those that adapt and innovate stand to carve a stable and lucrative niche in the silver market, but headwinds remain intense.

Imperatives for a Startup Revival

For Japan to make significant strides in fostering a thriving startup ecosystem, several critical aspects require attention and improvement. Japan needs to focus on attracting more foreign investors. Foreign investors do not just inject cash into the system, they provide access to other international companies, structure, ideas, and opportunities. Japan has generally become more internationally focused as a result of the aging population: They have opened the borders more, allowing more immigrants and easing work visas. According to The Washington Post, "Workers from overseas have more than doubled in the last decade." With this additional diversity of thought and international connection through funding, Japanese startups have more opportunity to have a global-first mentality. Even the government sees the need for growth, and this creates additional opportunities. As larger Japanese companies have struggled to grow, legislative changes have begun emphasizing the importance of the startup ecosystem as a way to revitalize the Japanese economy.

However, it's important to recognize that the injection of investor capital alone may not be sufficient to reverse the challenging trends in the venture growth landscape. Without substantial changes to corporate governance culture, improved mobility, and an accelerated influx of international human capital to offset the population decline, and without legislative support to incentivize innovative ideas, Japan's startup environment may struggle to break free from the grip of long-standing stagnation.

Conclusion

Japan faces substantial challenges in its pursuit of a thriving startup ecosystem. The aging population, decreasing human capital, and economic constraints act as formidable headwinds that are difficult to overcome. While international investment and government initiatives offer aid, they are unlikely to be sufficient to reverse the deeply rooted issues related to corporate governance, mobility, and the scarcity of international talent. The future of Japan's startup environment remains uncertain, and the road ahead is fraught with difficulties.

In redefining Japan's startup landscape, a profound cultural shift is imperative. It demands a recalibration of societal attitudes towards risk, heralding a new era that values creativity over conformity and encourages the active participation of the elder generation in technological advancements. Embracing these shifts as a society can perhaps unlock Japan's untapped entrepreneurial potential, fueling a dynamic and flourishing startup ecosystem. A cultural evolution might just be the linchpin to unleash Japan's untapped entrepreneurial potential and pave the way for a dynamic and thriving startup ecosystem.

This article was written by July Bok, Tony Wonwoo Choi, Kevin Gottfredson, Yoon Joo Kim, and Sabrina Xu, members of the Lauder Class of 2025.

Cash Is King: Exploring Taiwan's Preference for Cash in a Digital World

This article examines the cultural, business, and governmental factors that contribute to Taiwan's predilection for cash and whether its efforts to go digital will succeed.

What do RUFF TAIPEI, a popular Taiwanese dance club; PX Mart, a national supermarket chain; and the local stinky tofu vendor all have in common? Like most businesses in Taiwan, they all treat cash as king.

> "Taiwanese citizens have maintained a strong preference for physical currency, relying extensively on cash for their daily transactions."

As one of the Four Asian Tigers, Taiwan is historically no stranger to innovation and experimentation, using export-led growth and import substitution industrialization to catch up to the advanced economies. From the 1960s through the 1980s, Taiwan's economy exploded, becoming known as the "Taiwan Miracle," with GNP growing 360% between 1965 and 1986. During this period, Taiwan became a force to be reckoned with, particularly in the advanced technology sector with the rise of semiconductor manufacturing plant TSMC.

Despite Taiwan's penchant for innovation in sectors such as technology and manufacturing, it has been unable to implement noncash systems at scale. Taiwan's preference for old-school cash also contrasts starkly with its East Asian, noncash payment powerhouse neighbors: China and South Korea. Each of these countries accepts a mix of mobile payments, credit cards, debit cards, and more.

This lag is not due to a lack of trying. Taiwan has set a target of 90% mobile payment penetration by 2025 to reduce the logistical barriers to transferring money. Encouragingly, credit and debit card usage finally outpaced cash transactions in 2021 . However, Taiwan is still a highly cash-dependent economy. Even with the advent of digital payment options, Taiwanese citizens have maintained a strong preference for physical currency, relying extensively on cash for their daily transactions. According to a 2022 survey conducted by the Research, Development and Evaluation Commission of the Taipei City Government, 49% of 1,029 respondents from Taipei indicated a preference for cash when shopping. It is important to note that this survey was specific to Taipei, and the percentage could be even higher in more rural parts of Taiwan. Citizens are able to conduct much of their business with a mix of mobile payments available through Line, Taiwan's most popular messaging app and a platform for other digital services, and the cash-paid Easy Card, contactless smartcards used to pay for public transit and at other major retailers. However, they still often reach for cash. The average tourist visiting the country also needs to carry around thousands of new Taiwanese dollars at all times.

Why is Taiwan lagging so far behind in its noncash payment infrastructure? There are three major reasons. Firstly, cultural and historical factors shape Taiwanese attitudes towards cash. Secondly, there are poor business conditions for promoting noncash payments. And finally, there is a lack of government support and coordination for noncash payments.

Cultural Factors

Surprisingly, despite Taiwan boasting one of the world's highest levels of smartphone penetration, mobile payments have not gained significant popularity. In 2018, a mere 13% of the Taiwanese population utilized mobile payments. This is quite surprising to many observers, given the convenience and cost-efficiency these systems offer, especially compared with credit cards.

Many Taiwanese residents we spoke with pointed to the use of cash as a cultural trait deeply ingrained in their society. They highlighted that this preference, especially among the older generation, is difficult to change. However, this explanation falls short, as most countries had similar traditions of using cash before adopting credit cards and other forms of cashless payment.

China, whose population shares a similar heritage and ethnic background with Taiwan, has successfully transitioned towards becoming a cashless society. One significant factor contributing to this difference is China's struggle to combat counterfeit notes. Citizens there have less trust in paper currency as compared to digital payments. As recently as 2014, Chinese authorities seized counterfeit notes valuing ¥532 million (approximately $73 million). This rampant counterfeiting issue prompted the government to issue a new ¥100 bill in 2015. The urgent need to combat counterfeit money proved to be a compelling reason to shift towards digital payments, overriding cultural mores.

In contrast, Taiwan did not face similar reform pressures, and its population maintained a higher level of trust in cash compared to digital alternatives. Furthermore, the ubiquity of ATMs in the country has played a significant role in enabling a cash-reliant culture. According to statistics from the Taiwanese Financial Regulatory Commission, there are 10 ATMs per 157 adults in Taiwan, which is three times higher than the average level in Asia. Paradoxically, this high density of ATMs may contribute to the perpetuation of cash-heavy habits among Taiwanese citizens.

Business Condition Factors

Just as Taiwanese citizens have maintained a strong preference for physical currency, small and medium-sized enterprises (SMEs) in Taiwan are also inclined to use physical payments. To gauge the prevalence of cash payments among both consumers and SMEs, we can examine their usage patterns concerning cards and cash in a day. According to a recent survey conducted in 2019 by Visa Taiwan, with a sample size of 800 participants, even though 80% of respondents possessed a credit card, a remarkable 91% of them still used cash daily. This suggests that despite the high penetration rate of credit cards, cash remains the preferred payment mode for most Taiwanese citizens.

> "Despite Taiwan's penchant for innovation in sectors such as technology and manufacturing, it has been unable to implement noncash systems at scale."

From the perspective of SMEs, there is no compelling incentive to transition from cash to digital payments. Several factors contribute to this stance. Firstly, Taiwan is one of the safest countries in the world, boasting a crime rate of only one reported crime per 1,000 inhabitants, as reported by the Taiwan National Statistics. In contrast, the crime rate in the United States is five reported crimes per 1,000 inhabitants, reported by the World Bank. This exceptionally low crime rate alleviates concerns about the risk of robbery, which reduces the motivation for SME owners to adopt a new payment method.

Secondly, SMEs in Taiwan appreciate the higher profit margins associated with using cash. To address the second argument, it is essential to consider that SMEs typically seek to optimize their profitability and operational efficiency. According to several business owners we interviewed, they are hesitant to embrace higher credit card penetration due to the associated costs, such as merchant discount rates (MDR) incurred for each transaction, with interviewees clearly saying, "I don't accept cards because my business already has a low margin." Notably, Taiwan's MDR is significantly higher compared to other countries. According to Visa, the interchange rate in Taiwan alone varies from 1.5% to 2.4%, adding significantly to the MDR cost, which can range from 1.9% to 4.0%. In comparison, according to the CEO of Visa US, the average MDR in the United States is around 2% to 3%. Likewise, countries with a strong fintech presence, like Brazil, have an average MDR of 2.2%, as reported by the central bank.

> "The adoption rate of mobile payments in Taiwan has been complex, influenced by cultural norms, business conditions, and governmental policies."

The high MDR in Taiwan may discourage the wider adoption of digital payments, as SME owners often pass these costs on to consumers as additional fees for using cards. This practice can reduce the appeal of digital payments for consumers.

Lastly, some SME owners openly acknowledge the possibility of evading taxes by underreporting their revenue when dealing in cash transactions, and therefore are hesitant to accept digital payments due to the increased risk of detection in cases of tax avoidance. There have been recent government measures to strengthen penalties for tax evasion, implemented at the end of 2021.

Another important factor to consider is Taiwan's startup culture and its influence on the adoption of digital payments. Unlike countries such as the United States, China, and Brazil, where startups have played a significant role in driving digital payment innovation, Taiwan's smaller population of 24 million may limit the incentives for startups to invest in the local digital payment landscape, as the small consumer base would not be able to drive great demand for local investment.

Additionally, the preference for cash transactions in Taiwan remains strong, even with a high penetration of credit cards. As a result, startups may find more promising opportunities in markets with larger populations that are more receptive to digital payment innovations, creating a more conducive environment for their growth and innovation. In essence, the limited urgency among small businesses, consumers, and startups to shift away from cash suggests that the digital payment landscape in Taiwan is unlikely to see rapid change in the near future.

Government Factors

Many of Taiwan's neighbors in East Asia have adopted cashless payment systems. The adoption of cashless payments by China and Japan have been helped by varying levels of government influence. For instance, China's government took a hands-off approach, while Japan's government was heavily involved in its cashless transition process.

The rise of digital wallets in China stemmed from lack of credit cards and low currency denominations. The Brookings Institute found that Chinese society did not adopt a card-based system because of seller opposition against merchant card fees and the high technology costs associated with card terminals. At the same time, the use of cash for high value transactions became impractical as the largest note is only ¥100 (worth $13.68 as of 9/6/23). These two factors, combined with the rise in e-commerce, helped shift the Chinese economy directly into digital payments, which have dominated the country, being utilized by 60.7% of the population as of 2019, according to Cambridge University. As noted by the Cato Institute's Andrew Liu, the rise of the digital wallet in China was helped by a hands-off government approach to regulating mobile payment transactions in the initial stages of adoption. The lack of regulation led to explosive growth in this disruptive sector, as digital payments brought convenience to consumers and merchants.

Japan, a country historically known for its heavy utilization of cash, has adopted cashless payment systems with a push from the government in 2019 through a cashless payments promotion, following the heels of a formal goal set by the Ministry of Economy, Trade and Industry in 2018 to reach 40% cashless payments by 2025. The government ran a campaign that offered financial support to stores for setting up the digital payment infrastructure and 5% rebates to consumers who made cashless purchases. SME Japan reported that this system was further solidified during the pandemic as local governments adopted digital payments and consumers shifted to online shopping to mitigate infection.

Taiwan's government is taking a middle-of-the-road stance when it comes to involvement in the cashless transformation. Similar to Japan's initiative, Taiwan's National Development Council has put out a formal goal of 90% mobile payment penetration by 2025 and has been involved in setting up payment infrastructure, but it lacks Japan's robust incentives. A significant infrastructural milestone occurred in 2021, when Financial Information Service Co. (FISC財金公司), a partially government funded entity, launched a mobile phone number money transfer system similar to Zelle in the United States. This transfer system linked 30 Taiwanese financial institutions. Until that point, part of what held back Taiwan's cashless payment adoption was the lack of a universal money transfer system. In an article by the Taipei Times, the Financial Supervisory Commission found that transfers were limited to the same e-payment service providers (i.e., Jko Pay users couldn't transfer to Line Pay users), which was a source of inconvenience given the complications of managing accounts of various platforms. Now that interchange is possible, the extent of mobile payment adoption stemming from this achievement remains to be seen.

Conclusion

The adoption rate of mobile payments in Taiwan has been complex, influenced by cultural norms, business conditions, and governmental policies. Looking towards the future, it is likely that Taiwan will develop greater access to mobile wallets and digital payments. Whether they will serve to replace the role of cash in society is hard to say, particularly given the extensive ATM network already in place and cultural preference for cash transactions. A high merchant discount rate and low crime rate, combined with low instance of tax evasion continue to support the cash ecosystem. While the Taiwanese government seeks to achieve 90% mobile payment penetration by 2025, it has not taken a particularly active stance, especially when compared with Japan, a nation with similar economic and cultural considerations. Given the government's current strategy, it is highly unlikely that Taiwan will see a rapid enough shift to mobile payments to reach their 90% goal. Moreover, with a slowing economy and increasing anxiety in the Taiwan Strait, the Taiwanese government and populace have more pressing issues to worry about.

This article was written by Zoroastro Alves de Souza Neto, Neha Jain, Jason Togut, Jessica Lin, and Lloyd Soh, members of the Lauder Class of 2025.

Financial Inclusion in Latin America

This article delves into the diverse realities of financial inclusion across Latin American countries, contrasting their unique socioeconomic circumstances and their innovative approaches.

Financial inclusion unlocks opportunities for everyone to access financial services and products. It empowers individuals to save, borrow, and manage risks, enabling them to participate in the economy and ultimately improve their overall well-being.

In Latin America, the quest for financial inclusion has been both an aspiration and a challenge. While the region has made notable improvements in recent years, with increased access to banking services and a growing digital economy, disparities persist. High levels of income inequality, limited financial literacy, and a vast unbanked population are among the biggest barriers to widespread inclusion.

> "The region has a large unbanked and underbanked population, creating a significant market for fintech companies."

Although many countries in the region face similar challenges, their approaches to addressing the issue of financial inclusion vary significantly. The disparities in socioeconomic factors, cultural norms, regulatory environments, public policy, and technological landscapes among countries explain the differences in approaches towards financial inclusion. Therefore, it is crucial to identify each country's unique circumstances to understand the rationale behind the customized solutions offered by regional startups and companies.

This article delves into the diverse realities of financial inclusion across Latin American countries, contrasting their unique socioeconomic circumstances and their innovative approaches. Through case studies of Brazil, Peru, and Mexico, we illuminate how tailored approaches, shaped by the distinct challenges and opportunities in each nation, are making a difference in the quest for greater financial inclusion.

The Varied Landscape of Financial Inclusion

The World Bank's Global Findex 2021 Database reported that 27% of adults in Latin America did not have access to financial services. According to the IMF and the Economic Commission for Latin America (ECLA), low-income populations in Latin America face several challenges:

1. Imperfect enforcement of the rule of law reduces trust in financial institutions.
2. Lower levels of education contribute to financial exclusion.
3. High poverty rates, with 32.1% of the region's total population living in poverty and 12.9% living in extreme poverty as of 2022.
4. Greater rates of poverty among certain population groups, such as children, adolescents, and women.

What can be done to combat these challenges? According to the Development Bank of Latin America and the Caribbean, fintech companies can bridge the financial inclusion gap and provide access to financial products and services to the underbanked in Latin America. Furthermore, the Inter-American Development Bank (IDB) argues that innovative financial technology instruments can be a catalyst for promotion of financial inclusion and reduction of poverty in the region.

The factors affecting the digitalization and innovation in financial inclusion in Latin America include:

1. Demographics: The region has a large unbanked and underbanked population, creating a significant market for fintech companies.

2. Macroeconomics: Economic and political shifts in recent years have increased access to fintech services in Latin American countries.
3. Regulatory development: The regulatory environment in Latin America plays a crucial role in the growth and adoption of fintech solutions.
4. Market size and concentration: As of April 2022, the fintech ecosystem in Latin America has grown rapidly, with 80% of fintech platforms concentrated in Brazil, Mexico, Colombia, Argentina, and Chile.

To address financial exclusion in Latin America, it is essential to develop tailored and innovative solutions that consider these diverse factors and to focus on improving access to financial services for low-income populations.

Case Studies: Innovative Approaches in Three Countries

Brazil

For decades, Brazil has confronted challenges such as inflation, large unbanked and underbanked populations, and high costs of borrowing that have contributed to inequality and slower economic growth. Brazil and its neighbors in Latin America have some of the highest Gini coefficients in the world outside of sub-Saharan Africa. This is due, in part, to the aging financial infrastructure of the country that has only recently been disrupted by the fintech revolution in Latin America of the past decade.

The majority of the population has historically been underserved by incumbent financial institutions. Traditionally, financial institutions in Brazil and throughout Latin America have had little incentive to bank small- and medium-sized enterprises (SMEs) and low- to middle-income earners. When compared to larger clients, they generate lower revenue per enterprise, often have less data that could be used to make a credit assessment, and typically don't have assets to collateralize, which reduces the range of financing options available. Until recently, domestic banks have also been shielded from competition via regulatory barriers to entry and high capital requirements. For example, it took Nubank, a Brazilian neobank (now the largest neobank in the world), three years to get a banking license in Brazil, and they were only able to do so via a presidential decree that created an exception for them.

These anti-competitive dynamics allowed the top five banks in Brazil to capture 80% market share and, along with inflation, have contributed to an incredibly high cost of borrowing in Brazil. Interest rate spreads in Brazil, at 27.4%, are the third highest in the world, behind only Zimbabwe (97.1%) and Madagascar (35.5%).

More recently, these dynamics have begun to change as neobanks such as Nubank have expanded their foothold in digital credit accounts to new products and services, such as personal loans, investment products, and insurance. Fintechs like Nubank have been incredibly successful in onboarding the country's unbanked and underbanked populations into Brazil's financial system, and they have helped grow the percent of Brazilian adults with a bank account from 56% to 84% between 2011 and 2021, according to the World Bank. However, this rapid expansion has created new challenges. According to Brazil's central bank, 84.7 million Brazilians have unpaid credit card debt as a result of interest rates that remain among the highest in the world. These challenges, accompanied by the success of early Brazilian fintech startups, are driving what is being called Latin America's second wave of digital transformation, in which new startups are becoming increasingly specialized to tackle these second-order challenges. For example, 180, a Brazilian embedded insurance startup founded by prior Nubank employees, is pioneering an insurance-as-a-service model that creates tailored, flexible product options to its customers.

Peru

Historically, a significant portion of Peruvians lacked access to formal financial services; however, Peru has made substantial progress in in recent years. Since 2015, the Multisectoral Commission for Financial Inclusion has been implementing the National Financial Inclusion Strategy, a state policy to promote financial inclusion in the country. Through coordinated efforts among various sectors, Peru has achieved significant advancements. Global Findex data reveals improvement in key financial inclusion indicators in the past years, such as ownership of bank accounts, which increased from 20% in 2011 to 58% in 2021, and ownership of at least one debit or credit card, which increased from 17% in 2011 to 38% in 2021.

Several structural factors in Peru have facilitated the expansion of digital financial services. The widespread use of the internet and mobile phones is one factor, as approximately 94% of Peruvian households have a mobile phone. The youth demographic is an additional boost, with an estimated 50% of Peruvians under 30 preferring digital services. Recent events, including the COVID-19 pandemic and government-imposed mobility restrictions, also accelerated the adoption of digital financial services.

> “Mexico remains one of the most underbanked countries.”

This environment facilitated the growth of mobile wallets — apps or services used to make payments electronically. The Central Bank estimates that 17 million Peruvians use digital wallets. One such app is Yape, launched in 2017 by BCP (*Banco de Crédito del Perú*), the biggest bank in Peru. The app enables customers to transfer money using only the recipient's mobile number. Over time, Yape introduced QR code payments to promote its use not only among individuals but also between individuals and businesses. Through anti-cash advertising campaigns, Yape positioned itself as the preferred payment method among young Peruvians and now boasts more than 13 million users, including 2 million people who had no prior financial product.

Marcelo Alzamora, product owner of financial inclusion at Yape, explained that Peruvians sought simplicity in financial products. “The Peruvian was not demanding products as sophisticated as the client in Brazil probably was. In Peru, the client was not looking for credit cards. It is not something he even had in his imagination.”

The backing of BCP was crucial for Yape's launch and scaling. Additionally, a deep understanding of the Peruvian market, where micro-businesses play a vital role, led to targeted strategies to meet the specific needs of each group. In Peru, it's common to see Yape advertisements and QR codes in taxis, convenience stores, and ice cream carts.

According to Alzamora, the peer-to-peer payment wallet was just the beginning for Yape, which has grown to offer mobile top-ups, bill payments, and microloans. He said the intention is to encourage more people to start using the added-value services available on the app.

Mexico

Mexico remains one of the most underbanked countries. Based on World Bank data, only 49% of Mexicans own a bank account, and only 10% have a credit card, compared with Latin American averages of 73% and 29%, respectively, or the world's averages of 76% and 28%. This trend has not progressed during the past decade, showing that banks have not been able to tackle the country's financial inclusion challenges.

Fintechs have appeared as a promising solution. With a robust venture capital ecosystem and high smartphone penetration, Mexico has become the country with the largest number of fintechs in Latin America. In an article he co-authored, Eduardo Ortiz, country manager at BFA Global's Catalyst Fund for inclusive fintech startups in emerging markets, explained how fintechs have forgotten about the base of the pyramid and instead have focused on offering products to the already served population.

Nonbanks stand out as one of the fastest-growing segments, with their assets growing by almost 10x during the last decade. Further, these financial institutions have contributed significantly to Mexico's financial inclusion. In an interview with El Financiero, Enrique Presburguer, head of ASOFOM, specified that nonbanking financial institutions have reached more than 20 million customers in the country. Microloans, a model that targets populations that would not otherwise have access to financial resources, already served over 52 million Mexicans.

Genetra (aka Compartamos) has emerged as a leader in financial inclusion and as Mexico's leading microloan provider. Since its inception, Gentera has focused on offering financial products and services to the base of the pyramid segments. Its flagship product is Credito Mujer, small loans targeting groups of 10 to 12 women that receive a loan with an average notional of MXN$11,948, and each loan is cross-guaranteed by all group members. Instead of using technology, Gentera has relied on its network of "loan officers" who personally visit the houses of potential customers. The company claims 2.6 million customers, with 90% of its customer base being women.

Comparative Analysis: Commonalities and Contrasts

While significant progress has been made in increasing financial inclusion across Brazil, Peru, and Mexico, the outcomes and levels of success vary significantly across these countries. Brazil's journey towards financial inclusion has been marked by dramatic improvements in the percentage of adults with bank accounts, largely thanks to the emergence of neobanks like Nubank. This success, however, has in itself generated new challenges related to financial literacy, and interest rate spreads remain high. Peru's initiatives such as the National Financial Inclusion Strategy and the growth of peer-to-peer payment platforms like Yape have played pivotal roles in reaching the country's unbanked population. Mexico, despite having a robust fintech ecosystem, has not yet seen a substantial increase in bank account ownership and credit card usage, though nonbanking financial institutions like Genetra have made strides in serving the base of the pyramid.

Despite these differences, Brazil, Peru, and Mexico share some common principles in their effort to promote financial inclusion:

- **Public-private collaborations:** Government-led initiatives, such as Brazil's central bank's push to increase competition in the banking sector, Brazil's PIX payment system, and Peru's ENIF, have been instrumental in driving financial inclusion. Private sector participation from fintechs like Nubank and Genetra have also played a critical role.
- **Addressing the needs of the unbanked:** By understanding the context in which people outside the traditional financial system operate, all three countries have adopted approaches that emphasize accessibility and cater to the diverse needs of their populations.

The unique circumstances in Brazil, Peru, and Mexico have shaped these countries' approaches to tackling financial inclusion, resulting in varying outcomes but with commonalities in the way these problems are addressed. While progress has been made, much work remains to bring the region to the same levels of financial inclusion as developed economies like the United States. By continuing to promote public and private collaboration and focus on the needs of the Latin America's unbanked and underbanked populations, the region can continue its progress towards greater financial inclusion and, in turn, improve the well-being of its people.

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Rural Rupees to Cashless Clicks: Microfinance's High-tech Tale

This article explores how the rise of digitalization in India in the last decade has challenged the microfinance industry and transformed the lives of the rural Indian population.

Microfinance plays a critical role in providing low-income villages in India with financial services, enabling rural residents to sustain small businesses and, however slowly, advance their families' economic status. Microfinance institutions are typically private, for-profit or nonprofit organizations that give collateral-free, small loans, often less than $1,000, to borrowers who otherwise have limited or no access to banking, lending, credit, insurance, and other financial services. Apart from lending and credit services, microfinance institutions may also be involved in various development activities, such as education building and health services. In India, microfinance has long been a means for small shop owners, farmers, and other individuals living below or near the poverty line to access funding. Looking at financial trends, in recent years, India as a society has begun moving towards digitalization of financial services through initiatives such as India Stack and Aadhaar-based digital infrastructure. In the context of microfinance, digital services have become a tool for changing the status quo for both lenders and borrowers. Although digitalization of financial services does not come without its challenges, its recent increase has enabled microfinance institutions to promote greater financial inclusion for the rural Indian population as long as those challenges are addressed effectively.

> "Although there are now 268 MFIs in India, in contrast to 34 nationalized banks, microfinance's future in the country was never certain."

A Brief History of Microfinance

According to PwC's report "Next Generation Microfinance in India," microfinance has previously been viewed as an extension of the Grameen Bank model, with a focus on rural residents, women, and other marginalized groups that have been historically underrepresented in financial inclusion. These microfinance institutions (MFIs) initially disbursed funds primarily through forms of local payment and collection, with the last mile focused on a culture of face-to-face interactions. Financial providers were required to garner trust with their target populations and needed to develop localized knowledge of their customers.

Although there are now 268 MFIs in India, in contrast to 34 nationalized banks, microfinance's future in the country was never certain. Microfinance was effectively outlawed in the Indian state of Andhra Pradesh in 2010 after a spate of farmer suicides were blamed on the usurious and coercive debt collection activities of microfinance institutions. Microfinance activities diminished in Andhra Pradesh until 2023, when the High Court of Telangana ruled in favor of the MFIs. But the effect of the controversies was clear. A paper written by Philip Mader, a research fellow at Institute of Development Studies, and published by the Max Planck Institute for the Study of Societies, found that the total loan portfolio of the Indian microfinance sector shrank from US$5.4 billion in 2010 to $4.3 billion in 2011. The number of borrowers declined from 32.5 to 26.4 million during the same period.

The government of India played an important role in the rise of the digitization of microfinance. As detailed by the federal government's Ranarajan Committee report, India began to consider as early as 2008 the ways in which distribution systems, both conventional and innovative, could spur growth of the economy and that large portions of the population remained unserved by the current system. This report also highlighted that MFIs and non-banking financing companies (NBFC) could lead the way in providing these financial services to the underserved.

The Role of Government Intervention

According to KPMG's "Rejuvenating India — Embracing Digital" report, acceleration of microfinance began in 2016 when the Reserve Bank of India allowed non-banking finance companies to serve as banking correspondents. This allowed NBFCs to serve as banking intermediaries, expand operations, enter new markets, and invest in new technologies. Changes in government regulations were augmented by innovative technological solutions in the IT space that allowed microfinances firms to tailor their products to their rural consumer needs, digitalize the paperwork of the loan process, introduce digital wallets, and link these services to the customer's Aadhaar number. Aadhaar is India's recently implemented, unique national identification system that can serve as both proof of identity and address.

PwC's previously mentioned report further illuminated how the COVID-19 pandemic greatly influenced the average Indian's use of cash for day-to-day transactions, stating, "The COVID-19 pandemic, which immobilized markets, also served as a catalyst for MFIs and customers to adopt technology for use cases such as digital onboarding, credit disbursement, and collections."

The Positive Impact of Digitalization on MFIs

India's digital revolution and widespread use of mobile technology and the internet has transformed India's banking sector and led to significant advancement in NBFCs. This has particularly benefited microfinance institutions and their customers. Borrowers are being connected easily to lenders through an innovative and efficient digital infrastructure framework called India Stack, an application programming interface, which is an integration of data sharing, payment, and identity systems. KPMG's report highlights how the government's Digital India program, propelled by India Stack and the Jan Dhan-Aadhaar-Mobile (JAM) trinity, has been on a mission of financial inclusion. Digital tools like Aadhaar, E-KYC (identification authentication), E-signatures, Unified Payment Interface (for cashless disbursement and repayment of loans), and Digi Locker (verification of documents) have mobilized MFIs to rapidly expand the customer base, making more of the rural India population digitally and financially literate. Through MFIs, rural India is setting up micro-small-medium enterprises (MSMEs) and becoming part of India's growth story.

Another benefit of digitalization is the advanced data collection capabilities. According to KPMG, about 75% of Indian MFIs have been working with fintech companies to better address key issues such as operating costs, credit and default risks, and customer outreach. This type of collaboration is helping MFIs leverage data to facilitate efficient sales and collection. Taking advantage of digitization of data, MFIs are performing risk assessment on customers, analyzing behavioral and social attributes of customers, mapping turnaround time of loan disbursements and repayments, investing in predictive analytics, building new data models, and improving their customer service architecture.

> "Another benefit of digitalization is the advanced data collection capabilities."

In addition to poverty alleviation, a key goal of organizations in the microfinance space is empowering communities, especially where the majority of clients are women. MFIs across India see this woman as the perfect client: responsible, economical, entrepreneurial, and a law-abiding citizen. In this regard, MFIs are providing training and skilling for female customers, giving them financial and digital literacy. Sa-Dhan is one such organization that is a catalyst in bringing financial and digital inclusion to rural India, particularly to women. "Sa-Dhan, with its partners and member organizations, is running projects like digital literacy, depositors' education programs, and programs on water and sanitation, clean energy, and affordable housing to facilitate skill and entrepreneur training to empower women. Sa-Dhan also aims to understand the impact of microfinance in the lives of women," organization leaders said. Others such as Fusion MicroFinance and MircoSave Consulting are also putting rural Indian women first and paving the path for social, financial, and economic inclusion.

The Challenges of Digitalization

There is no denying that technological advancements have catalyzed growth in MFIs. This has shed light on innovative and financially inclusive ways to deliver capital to the unbanked and underbanked low-income groups in India's now demonetized, cashless economy. However, there are three key hurdles that MFIs will need to overcome if the industry is to truly embrace digitalization.

> "The most paramount challenge pertains to trust."

The most paramount challenge pertains to trust. The microfinance sector has been built on a high-touch model. Banking correspondents engage with customers at the last mile, typically through in-person interactions, educating customers about the financial offerings and using this as an opportunity to foster trust. This dependence on last-mile distribution has added to the complexity of how technology can be used to maintain trust among the less digitally and financially literate population of India. The on-the-ground field agents are also crucial in maintaining a regular dialogue to ensure timely repayment of loans.

Capital Trust, a systemically important NBFC, is one such organization that has deployed officers in every village it operates in. In an interview with Mukesh Chandravanshi, a low-income teacher from Rajgarh, Madhya Pradesh, and one of Capital Trust's clients, he emphasized how important word of mouth and constant touch points have been in aiding his seamless loan journey and trust in the MFI system. "Working with Capital Trust has been a pleasure. I always receive money on time and with the aid of their on-the-ground staff, I am able to use their digital platform to make regular payments," he said. "In the past year, I have referred four of my friends, who are now directly working with and benefitting from Capital Trust."

The second hurdle is lack of digital literacy. The Indian government needs to invest in the ability of low-income consumers to adopt digital solutions. Customers of MFIs are still largely unfamiliar with digital modes of transacting. According to the "India Inequality Report 2022: Digital Divide" by Oxfam, only 38% of households in India are digitally literate, and only 31% of the rural population uses the internet compared to 67% of the urban population. Currently, only consumers with less volatile income are eligible to use more advanced platforms like mobile wallets and internet banking. Partnerships with technology providers and improving technical literacy will be key.

Poor digital infrastructure and lack of clear IT regulations for MFIs, such as cybersecurity and data protection, are other impediments that MFIs will need to overcome. According to a World Bank assessment, about 33% of villages lack access to all-weather roads, with India's northern and northeastern regions least well connected to electricity and the internet. This coupled with the lack of transparency around protecting personal information and maintaining encrypted databases will require extensive investment and execution by the Indian government.

The Future of Microfinance

Looking ahead, there is potential for technology advancements to further transform the microfinance industry in India and benefit both borrowers and lenders. However, as with the initial waves of digitalization, these tools will only be beneficial if adoption challenges can be overcome. One such example is artificial intelligence (AI) and machine learning (ML). According to The Economic Times, "AI and ML are enabling financial service providers to leverage data and analytics, creating affordable and convenient financial solutions for the underrepresented section of the society." For example, machine learning-driven data processing can hyper-customize financial advice for each microfinance users' specific financial goals after analyzing individual financial status, loan repayment history, and small business market potential.

For the rural population, where personal financial literacy is lacking, such a service can lead to intentional loan borrowing, higher rates of repayment, and nonfinancial outcomes such as increased education for the borrower's children. Additionally, AI can support disbursement of a greater number of microfinance loans at a faster rate by automating borrowers' credit assessments and default risk evaluation, paving the way for low-income rural areas to experience sustainable economic growth. Finally, AI and machine learning can take predictive analytics within microfinance to a new level, not only by giving more accurate information about which borrowers are likely to repay loans and to what extent, but also by forecasting trends in crop harvests due to weather, small business store sales due to economic factors, and other indicators of microfinance success each year.

Additionally, while fingerprinting technology is already common within microfinance, other biometrics have the potential to make a significant impact in the coming years. In April 2023, India's neighbor, Pakistan, mandated financial institutions to implement facial recognition and verification services in their digital operations as a means of decreasing fraud. In Latin America as well, a U.K. government report describes how biometrics are used to verify ATM transactions and reduce inefficiencies due to limited literacy and multilingualism. While India's economy is different from Pakistan's and Latin America's in many ways, shared similarities of economically struggling rural regions, intense language diversity, and slow literacy indicate that using facial recognition, iris scanning, and other biometrics may be beneficial to India's microfinance landscape as well.

The last decade has transformed India's microfinance industry, particularly as MFIs adopted digital tools to enhance their services. The Indian government has played a pivotal role in paving the way for MFIs to embrace digital banking, which has bolstered financial inclusion in rural India and helped women become more financially independent. However, the advent of digitalization has come with its own challenges as low-income borrowers are used to the high-touch, last-mile distribution framework and struggle with basic infrastructure, connectivity, and digital literacy, hampering their ability to trust digital services. Looking ahead, it will be interesting to see how MFIs harness the power of data-driven analytics to overcome these challenges and provide better, more efficient customer care, rapidly evolving technology and the expansion of MSMEs across India.

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Card vs. QR: Comparative Insights from Fintech Disruptors in South Africa and Vietnam

Digital payments are gaining ground in both South Africa and Vietnam, but the fintechs carving a niche for themselves in each market are using a tailor-made, hyper-local approach.

Among the bustling stalls of Cape Town's Oranjezicht City Farmer's Market, shoppers foraged for small-batch organic produce, fresh-baked pastries, and handcrafted trinkets. When they found something they liked, most shoppers whipped out cards to pay. Halfway around the world, in Ho Chi Minh City's Ben Thanh Market, shoppers locked on their intended purchase grabbed their phones and scanned one of the merchants' many QR codes. In both markets, even the smallest transactions are increasingly digitized, and yet the methods by which this digitization is occurring could not be more different. Vietnam has embraced smartphones and QR codes, while in South Africa, compact point-of-sale (POS) machines facilitating card transactions now dangle from many merchants' necks.

> "The global digital payments market is expected to reach $20 trillion by 2026, representing a 24% per annum growth rate."

In both countries, we argue, the largest fintech companies grew in spaces where traditional players, such as consumer banks, were lagging. However, as Oranjezicht and Ben Thanh illustrate, the strategies deployed were very different based on the constraints of the markets in which they operated. In Vietnam, traditional banks did not sufficiently reach consumers, so companies such as Momo and Zalopay began offering basic consumer propositions, then expanded. In South Africa, consumers were mostly well served, but banks struggled with increasing merchant card acceptance, so startups such as Yoco and iKhokka entered on the merchant side to create the small business acquiring market. In the following sections, we expand on the market conditions that led to these differences in core business models of large fintechs in both countries.

The Infrastructure Behind Two-sided Payment Systems

The payments ecosystem has undergone a remarkable global evolution over the last few years, transforming the way we pay for goods and services. Beyond basic cash payments, the ecosystem now includes traditional credit and debit cards, as well as emerging technologies like e-wallets and cryptocurrencies. There are several key players within this ecosystem enabling these transactions, each with distinct roles and incentives.

Historically, card payments emerged as a convenient alternative to cash, where banks provided consumers with credit or debit cards, facilitating payments to merchants. When someone uses their card to make a purchase, the merchant's point-of-sale (POS) terminal facilitates the transaction by verifying the payment through a card's network technology (e.g., Mastercard, Visa). These networks allow cardholders worldwide to make payments to any merchant that accepts cards, including online. In the digital age, fintech solutions such as PayPal, Apple Pay, and Google Pay have disrupted the card landscape by introducing e-wallets that store users' bank information digitally to facilitate seamless payments.

The incentives in this ecosystem are multifaceted. On the one hand, card issuers profit from cardholder fees, interest on credit balances, and interchange fees paid by merchants, while merchant acquirers earn fees for processing transactions. Merchants benefit from increased sales, reduced cash handling costs, and fraud protection. On the other hand, while e-wallet providers can charge transaction fees, they also gather valuable user data for targeted marketing and monetization.

The global digital payments market is expected to reach $20 trillion by 2026, representing a 24% per annum growth rate, according to Finextra. Multiple players are likely to continue to compete for a share of the market, affecting the existing dynamics among all aforementioned players in the ecosystem. Fintech companies have found opportunities to enter the space as traditional players move more slowly to solve the evolving necessities of their clients. Though these disruptors are threatening incumbents, they also create opportunities to drive new value and improve payment experiences for their customers. As the technology continuously develops, the landscape will continue to transform, facilitating the way payments flow to improve people's financial lives.

South Africa: Digitization through Merchant Card Acceptance

South Africa provides a unique case study for the path to payments digitization. Its population is 61 million, and its economy is the third-largest in Africa by measure of GDP. Its size makes it an appealing market for fintechs, yet firms offering digital wallets have been unsuccessful in spurring adoption. Multiple telecommunication companies and fintechs, including homegrown SnapScan and pan-African telco Vodacom (parent company of MPesa), have attempted to disrupt consumer payments. However, competition from consumer banks and the stickiness of cash in the market have diminished the potential for a digital noncard champion to emerge. In South Africa, cash usage is still growing at a rate of 6% to 10% per annum. Conversely, banks have lagged in their capacity to reach the merchant segment, creating a space in which fintechs could penetrate.

SnapScan, a QR-based app that first launched in 2014, was eventually acquired by Standard Bank in 2016. It claimed moderate success, becoming South Africa's largest mobile money provider reaching "hundreds of thousands of customers." It boasted over 32,000 physical and online merchants at the time of acquisition, yet little has been reported on the company since its sale. Around the same time when SnapScan was acquired, Vodacom stopped offering mobile money services in the country, citing a "lack of demand and South Africa's advanced banking sector."

> "South Africa's banked population rate is both impressive and puzzling."

South Africa's banked population rate is both impressive and puzzling. Against a backdrop of rampant inequality — South Africa has the highest Gini coefficient in the world at 0.63 – and a stagnating, heavily cash-based economy, South Africa's banked population has risen from 46% in 2004 to about 84%. The strength of the consumer banks in the country explains part of the growth. Per a 2017 Publisher Audience Measure Survey (PAMS), about 37 million South Africans out of an adult population of about 43 million now hold their primary bank account with one of the country's "Big Five" (Standard, FNB, Nedbank, Absa, or digital bank Capitec). In South Africa, bank accounts have even become a condition of employment and a requirement for receipt of social payments.

Today, there are over 50 million bank cards in circulation in South Africa. Of these, about 17 million are debit cards tied to the South African Social Security Agency (SASSA). However, usage of bank accounts is low. Most people withdraw money as soon as they receive it and use notes and coins day-to-day. A survey conducted with social security recipients found that 90% of fund recipients withdrew all funds from their bank account as soon as they became available. This was confirmed in a 2022 Mastercard survey that found that South African respondents believed low-cost cash withdrawals to be a more important banking feature than a good mobile banking app, clearly reflecting a dire lack of card acceptance by a majority of merchants throughout the country. In South Africa, cash is still king.

According to PwC Strategy&'s 2022 Open Banking and Payments Survey in Africa, 50% of South African respondents pay with cash because there is no alternative, or merchants request it. Notably, rural and township residents were found to use cards for 60% of their transactions at formal retailers, but only 4% of transactions were card-based at informal retailers. A Mastercard study titled "Insights into the [South African] Informal Economy" suggests that while about 51% of South Africa's informal enterprises had customer interest in card payments, about 90% of them remain cash-only businesses. These initial conditions of a highly banked population paired with low rates of card acceptance by merchants created the environment in which fintechs could develop to service the apparent gap. According to Yoco co-founder Lungisa Matshoba, "More than 80% of the businesses who sign up for Yoco have never previously accepted card payments… we are opening the space and creating access rather than moving customers off incumbents."

> "The key to the success of these fintech giants lies in their symbiotic relationship with traditional financial institutions."

South Africa's biggest barrier to digital payments adoption thus appears to be its merchants, particularly its informal sector with an estimated 3.3 million small and micro businesses. By the end of 2022, only 2% offered a card machine and 1% offered a contactless QR code. In South Africa's quest to digitize payments, change may first need to stem from increased card acceptance rather than from new generations of payment technologies. It is within this space that a new generation of fintechs are finding success. Two examples include Yoco and iKhokha, which both seek to reduce barriers for merchants by offering point-of-sale (POS) terminals with no fixed nor startup fees. Rather than positioning themselves as competitors to the Big Five, solutions offered by these firms are complements to the consumer banking infrastructure, keeping an increasingly larger share of payments volumes digital and benefiting the country's large consumer banks. Katlego Maphai, CEO of Yoco, said in an interview with fintech investor and Lauder Institute ('23) alum Miguel Armaza that the company had to take a partnership mindset towards incumbent banks from inception. "We founded the company in 2013, but we only launched at the end of 2015," he said. "A lot of that gap was actually convincing one of the [local] institutions to sponsor us. South Africa is a bank-led regulatory environment, so we had to convince an institution [to work with us in order to enter the market]."

Ultimately, South Africa will need to compel merchants to enter the formal economy quickly. Long-term impacts of seemingly innocuous cash usage are high. A study presented at the World Economic Forum (WEF) on Africa in 2017 by Genesis Analytics and MasterCard found that cash cost consumers in South Africa about R23 billion, or 0.52% of GDP. Diana Bresendale, researcher at the University of Stellenbosch Business School, cautions: "It is the lowest-income earners that show the highest incidence of cash usage and therefore bear the burden of hidden and unhidden costs more frequently."

The case of South Africa clearly demonstrates that successful fintech players tailored their strategy based on the initial conditions created by the banking system. A highly serviced banked population with low merchant acceptance informed companies like Yoco's strategies focused on developing POS terminals rather than going after the consumer market. The ways in which these banking conditions informed fintech development in South Africa can be contrasted with differing strategies in countries such as Vietnam.

Vietnam: Leapfrogging Cards to Universal QR Adoption

Over the past decade, Vietnam has emerged as a beacon of economic growth in Southeast Asia with GDP soaring to nearly USD$360 billion by 2022 and an impressive annual growth rate of over 5%. However, this rapid ascent masks a financial landscape fraught with challenges. As recently as 2021, a staggering 70% of Vietnam's population remained unbanked, having been consistently deprived of basic banking services and access to credit. Though Vietnam boasts over 90 banks, the sector is highly fragmented with the four largest institutions holding 40% of total assets. Cash traditionally dominated Vietnamese transactions, but as the nation's economy and middle class grew, so did the need for more efficient digital transaction methods. Interestingly, Vietnam maintained a relatively even wealth distribution, evidenced by its Gini coefficient of 0.36, indicating balanced purchasing power throughout its population. However, as the country witnessed rapid economic expansion since the turn of the century, it became evident that a traditional cash-based system would not suffice. The country was in dire need of modernization, yet the traditional financial institutions were bureaucratic and slow. New players were needed.

Against this context, fintech startups M Service's Momo and VNG's ZaloPay emerged as pioneers in Vietnam's digital payment landscape. Founded in 2007 and 2016 respectively, the two have grown to dominate the Vietnamese market. In a country of 97 million people, with user bases of 31 million and 15 million for Momo and ZaloPay, respectively, and reported usage rates of 86% and 64%, their success can be attributed to a deep understanding of market needs and strategic collaborations with traditional financial institutions. (Usage rates are defined as the proportion of people who have used the two apps over a three-month period in 2022.)

Recognizing the nation's heavy reliance on cash transactions, both Momo and ZaloPay introduced digital solutions tailored to the unique preferences and habits of the Vietnamese populace. M Service initially gained traction as a mobile airtime top-up provider. Before the rise of smartphones, Vietnamese people had to go through a cumbersome offline process to pay for their phone bills or "top-up" (purchase additional) minutes and data. Throughout this process, the company recognized the difficulty of collecting, managing, and transferring cash from customers. As a result, Momo, the SIM-card based e-wallet, was introduced. Michael Duyen, a local tour guide, recalled that a decade ago, bill payments were fully processed through inefficient offline channels. Now, this process is simplified to easy clicks on his phone. Mobile top-ups remain one of the top usage occasions for Vietnamese digital wallets, with 77% surveyed indicating this feature as the primary reason for using digital wallets. VNG, on the other hand, witnessing the success of China's WeChat Pay, introduced ZaloPay as an integral feature of its wildly popular messaging app, Zalo. ZaloPay leveraged its integration with the widely used messaging app Zalo, which boasts about 73 million active users. This allowed them to quickly amass users who benefited from the inherent trust in the brand and the ease of setup, as there was no need for additional registration. Both platforms have since expanded their services beyond simple merchant and peer-to-peer transactions to include insurance products and investment services.

Perhaps most importantly, the key to the success of these fintech giants lies in their symbiotic relationship with traditional financial institutions. Rather than positioning themselves as competitors, they've sought collaboration that benefits both parties. For the incumbent institutions, these partnerships not only extend their reach to underserved populations but also enhance financial literacy. Momo, for example, enables even those without formal banking documentation to transact using just a phone number. Specifically, it has established key strategic relationships with Vietcombank, one of the top banks in the country, to offer over-the-counter financial services. As Momo's vice chairman Ba Diep told The Asian Banker, the company provides financial resources such as payment and money transfers to the unbanked population living in the rural areas, helping traditional banks reach customers that would have been otherwise difficult and costly to cover. ZaloPay's newly launched securities trading feature is a direct result of its partnership with DNSE securities. In essence, these fintech platforms are expanding the market for traditional financial institutions, while the latter provide the resources for the fintechs' sustained growth. This collaborative and nonconfrontational approach ensures that Vietnam's digital payment revolution is inclusive, benefiting consumers, fintechs, and traditional financial institutions alike.

All Roads Lead to Digitization, But with Local Flavor

The digital payment landscape in different countries reflects not only the evolution of financial technology, but also the unique market conditions and challenges that shape the strategies of different fintechs. South

Africa's case demonstrates how a highly banked population, combined with a lack of merchant acceptance, can lead to the emergence of fintechs like Yoco and iKhokha, which focus on addressing the merchant side of the equation. With most transactions still dependent on cash, these companies saw the opportunity to close the gap and encourage small and micro businesses to adopt digital payments. The challenge of reducing cash dependence for economic inclusivity remains an important goal in South Africa.

In contrast, Vietnam's rapid economic growth and a predominantly unbanked population presented a different set of opportunities. Fintechs like Momo and ZaloPay recognized the unique preferences of Vietnamese people and decided to focus on simplifying transactions and offering digital solutions tailored to local needs. Their strategic collaborations with traditional financial institutions, rather than competition, played a crucial role in their success. By expanding the reach of these institutions and enhancing financial literacy, these fintech platforms are contributing to shape Vietnam's digital payment revolution in an inclusive and mutually beneficial way.

These two case studies highlight how fintechs can adapt and thrive by aligning their strategies with their market's specific conditions. Whether it's addressing the merchant acceptance gap or tapping into the unbanked population, fintechs continue to evolve and transform the global payments ecosystem, ultimately improving the financial lives of people.

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