

The Impact of Trade and Globalization On the Economic Development of Nations

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ABSTRACT

The rise of globalization has exacerbated disparities between developing and developed nations. This economic imbalance may be explained through the different export strategies (e.g., commodity vs non-commodity) that countries employ. This paper explores how trade and globalization impacts the economic development of nations with a specific focus on how different export strategies impact outcomes. Focusing on one developing nation, Bolivia in Latin America, and one developed nation, the United States, this paper provides an explanation of why exporting non-commodities leads to greater development. Fundamental learnings to support this include the promotion of more diversity in a workplace, higher rates of innovation, higher-skilled jobs, higher national wages, better working conditions, and non-value detracting FDI. It also enables countries to specialize in goods or services that they have comparative advantage in, in order to foster greater revenue. This research allows for essential insights into notions for development trajectories; developing nations can adapt their export strategies by diversifying into manufactured goods, increasing government expenditure into the secondary sector, and capitalizing on natural resources by revising resource-extracting trade agreements.

Introduction

Globalization in today's society has become an essential component which helps intertwine nations, forging the global network seen in our contemporary world. Globalization refers to the free flow of goods and services, people, capital, and information among countries (Levitt, 1983; Held et al., 1999; Petras, 1999; Bordo, 2002). However, the rise of globalization has exacerbated disparities between developing and developed nations. This economic imbalance may be explained through the different export strategies (e.g., commodity vs non-commodity) that countries employ. This paper explores how trade and globalization impacts the economic development of nations with a specific focus on how different export strategies impact outcomes.

It is only within the last twenty-years that globalization has become wide-spread and heavily discussed. The 1990s played a pivotal role in the history of globalization; in fact, globalization is often classed as the defining term for the 90s due to the vast increases in international trade and financial flows (Terrill, 2007). However, while many industrialized nations experienced considerable growth during this period, Africa and Latin America – accounting for over 60 countries, roughly 20% of the world population, and holders of a major share of natural resources – were left behind (Belli, 1991). Today, these regions are among the least developed countries in the world, while the industrialized nations (who benefitted extensively from the 90s international trade expansion) are considerably more developed.

Focusing on one developing nation, Bolivia, and one developed nation, the United States, this paper compares and contrasts how globalization in conjunction with trade strategy impacts the countries' respective growth trajectories. The paper also analyzes key economic theories, export strategies, and economic/social/environmental outcomes of trade. Improvements to trade strategies can be made to aid developing countries in accelerating their economic growth. On a more global scale, this research is critical for further expansion of the world economy and strengthening of international trade.

Literature Review

On Export and Economic Growth in The Case of the Manufacturing Industry: Panel Data Analysis of Developing Countries

A study by Kılavuz & Topcu, 2012, supports the hypothesis of this paper by stating that, when two countries are in a trade agreement (comparative advantage model), developed countries specialize in high-tech goods and developing countries specialize in low-tech goods. The difference in these export strategies (commodity vs non-commodity) leads to greater growth in developed countries and less substantial growth in developing due to the positive and dynamic externalities that accompany high tech exports. The authors use the Export Led Growth Model to support this claim which involves observing the correlation between growth in exports and economic growth.

This study proves that the higher-tech manufacturing industry exports have a positive and significant effect on growth. It also suggests that low-tech manufacturing industry exports have an insignificant effect on growth. Among the major drivers for this are the dynamic externalities caused from high-tech manufacturing exports. The article also looks at a study by Chuang (1998), that shows the chain effect of how experienced and skilled laborers can create demand for new technologies, which increases both international competitiveness and, subsequently, development.

One of the most interesting findings of this study is that it suggests foreign trade is not relevant for developing countries as a means of growth. In an analysis of the theoretical literature, the authors mention that trade presents countries with a comparative advantage by providing specialization in production. However, this theory cannot be applied for dynamic conditions – e.g., poor countries that want to develop as they export simple substances. This suggests that export dependence as a means of growth may hinder development for developing countries. It also supports the thesis that commodity-led exports may hinder growth, but suggests export dependence in general—regardless of commodity or non-commodity—can cause growth to slow.

On Globalization and Development

A study by Executive Secretary, 2002, also supports the hypothesis that commodity-led exporting countries will generally be less developed. This is analyzed through the relationship between market competition and raw material prices, which portrays how globalization has decreased the price of raw materials globally. The author mentions that commodity and natural resource-based countries experience a rather slow growth in trade which contrasts the much higher growth rates incurred by manufacturers producing machinery or equipment.

The study explores these international inequalities through asymmetries. The author suggests that, despite technology being a key driver in augmenting development, it is generally extremely concentrated in highly developed regions and therefore inaccessible for many nations. The core-periphery theory is touched upon which brings to light agglomeration, an explanation for the plateauing of many economies around the world. Another point that was discussed within asymmetries was the immobility of factors, which can hinder the distribution of income and therefore lead to an abundance of cheap labor in developing countries due to the disproportionate effects incurred. Overall, this study points to the underlying explanations of disparities between levels of globalization and subsequent development of countries across the world.

Methodology

This paper explores two in-depth case studies to answer the research question – how does trade and globalization impact the economic development of nations with a specific focus on how different export strategies impact outcomes? These case studies focus on the United States and Bolivia, which have been chosen to exemplify developed and developing countries from different regions, respectively. Both case studies delve into the countries' export strategies, their economic development from trade, and the societal and environmental impacts of trade.

The hypothesis of this research suggests that commodity-led exporting countries (e.g., Bolivia) will generally be less developed and experience a slower growth trajectory whereas manufactured-led exporting countries (e.g., US) will be more developed and experience greater future growth. Within this hypothesis, the impacts of trade on environmental and social factors will also be explored. A degree of trade-off exists between fostering good societal health and environmental sustainability whilst engaging in globalization. With climate change becoming an increasingly discussed topic, globalization can play a key role in prevention but also could be said to have a negative effect on the climate and subsequent societal health. However, this paper will discuss the scale of impacts and whether globalization could have a net positive outcome on development.

This paper analyzes globalization through the lens of trade using both developing and developed countries. Although, distinguishing between developing and developed is a rather debated topic due to the vastity of parameters that it can be based upon. For the purposes of this study, data from the World Bank (2022) is used, which categorizes economic development using the GNI per capita of the previous year in USD and is determined using conversion factors derived from the Atlas method.

Theoretical Framework

The case-studies will be supported using a theoretical analysis of comparative advantage/absolute advantage, dependency theory, and new trade theory. While each of these theories will be applied to the case studies and explored in depth, the following provides an outline of each.

The first theory used to support this research is that of comparative and absolute advantage. Absolute advantage exists when a country produces a commodity with the best quality and at a faster rate than another (Segal, 2022), whereas comparative advantage is achieved when a country can produce a good or service with a lower opportunity cost than the other country (CFI Team, 2022). This suggests the reasons for global free trade: even if one country has absolute advantage, trade can augment economy-wide productivity by allowing countries to focus on their comparative advantage which is beneficial for both nations involved (Poole, 2015). Countries engage in trade as it is beneficial to specialize in goods and services in which they have a comparative advantage, but to import those in which they do not.

The second theory used to underline my research is the dependency theory by Raúl Prebisch. This approach can be used to explain why certain countries remain undeveloped due to the global economic and political order. It suggests that a select group of developed nations (core) benefit from the resources that flow into them from a periphery of underdeveloped countries (Perera, 2023) – this coincides with the core-periphery theory. Therefore, this can be used to show the interdependence between countries.

The third theory used to support my research is the new trade theory. This can be defined as a modern approach by Paul Krugman to international trade based on the following factors: economies of scale, network effects, and first-mover advantage (Team, 2022). It can mostly be used as an explanation for globalization, trading between similar economies, and the monopolistic nature of multinationals. This theory can be utilized when looking at the contrast between developing and developed countries in terms of access to economies of scale, the network effects, and the first-mover advantage.

Case Study - United States

The United States (U.S.) is a developed nation producing and trading primarily non-commodities. The U.S. serves as the second largest contributor to global GDP after China (O'Neill, 2019), making it one of the most highly developed countries in the world. Trade plays a significant role in its development. In fact, the export of goods and services in the U.S. was 10.89 % of GDP in 2021 (*United States - Exports of Goods and Services (% of GDP) - 2023 Data 2024 Forecast 1960-2021 Historical*, n.d.) and the country was declared the world's second largest trading nation, with over \$7 trillion in exports and imports of goods and services in 2022. The U.S.' development can be explained alongside the parallel expansion of the country's exports as they have grown as a percentage of GDP over time. In 1993, exports (as a percentage of GDP) were 9.55% and expanded to 13.64% in 2012. This puts the developed country in a better position than other developing nations as it allows for greater trade alliances and influence in trade agreements.

As a result of trade, the country has become significantly globalized, having trade relations with more than 200 regions across the world (*Countries & Regions | United States Trade Representative*, n.d.). In order to pinpoint how trade and globalization have contributed to the country's development, it is critical to determine the U.S.'s export strategy.

Export Strategy

The U.S.' trade strategy is built upon exporting primarily non-commodities (secondary, tertiary, and quaternary sector goods and services), having a trade surplus, and benefiting from the resources that flow in from the periphery (developing) regions. The U.S.' top 10 exports in 2022 include an array of secondary sector goods such as: petroleum refining (\$158bn), brand name pharmaceutical manufacturing (\$83.1bn), and automobile & light duty motor vehicle manufacturing (\$66.1bn) (*America's Top 10 Exports*, 2017). Due to these exports being in the secondary sector (i.e., manufactured goods) they are classed as non-commodities. Therefore, the U.S. represents a developed country producing non-commodities as its export strategy to promote economic growth.

It is interesting to look at the notion of trade balance, as having a trade surplus (higher exports than imports) is not always necessary to be highly developed. It is often considered desirable for a country to have a trade surplus in order to maximize economic growth (*Trade Surplus and Deficit: Difference, Definitions & Causes*, n.d.). Yet, this does not always have to be the case, as exemplified by the U.S., which has a trade deficit where imports are significantly greater than exports but is still considered a developed nation. An explanation of this could be explored through the core-periphery theory and dependency theory.

The U.S. acts as the core when looking at the core-periphery theory and is heavily reliant on the periphery regions due to its trade deficit. When looking at the year 2022, U.S. exports were \$3,009.7bn and imports were \$3,957.8bn (*U.S. International Trade in Goods and Services, December and Annual 2022 | U.S. Bureau of Economic Analysis (BEA)*, 2023). During 2022, the U.S. imported \$459.18bn from Mexico and \$135.88bn from Vietnam (*United States Imports by Country*, 2018) – both developing countries. These significant imports emphasize the dependence on these periphery regions. This is furthered by the dependency theory as the U.S. benefits greatly from these resources that flow in from the periphery (developing) regions (e.g., Mexico and Vietnam which make up a considerable amount of U.S. imports). Therefore, the interdependence between the core and periphery regions is illustrated.

This trade strategy that the U.S. employs allows it to have an advantage over developing nations as they have a more robust trading network, a greater ability to negotiate trade terms, and can more freely put up trade barriers. This can be exemplified by the North American Free Trade Agreement (NAFTA) trading alliance which the U.S. is member of; this provides benefits for the U.S. that many smaller, developing nations may not have the opportunity to be a part of.

Impact on Economic Development

It is widely known that exporting manufactured goods is generally synonymous with economic growth (Torayeh, 2011). This can be explained by the positive impacts that the U.S. experiences from being a developed nation producing non-commodities. This position and export strategy can establish a greater comparative advantage in relatively higher value goods due to technology and economies of scale. It can further allow the nation to have the ability to increase wages more efficiently in order to benefit society as a whole, while attracting more Foreign Direct Investment (FDI) for the various types of manufacturing. These aforementioned benefits from having a manufactured-led export strategy and being developed allows the nation to experience rapid growth.

The positive impact of the U.S. ' export strategy and development status can be explained by the fact that countries will specialize in what they have comparative advantage in, so for the U.S. this is sophisticated goods or investment opportunities (due to the lower opportunity costs incurred in comparison to other countries) (Hayes, 2023). This specialization allows the U.S. to reduce its average capital-output ratio, which lends it to the possibility of output growth for any given rate of investment (Gallardo, 2005). This lower average capital-output ratio is due to the increased access to economies of scale that accompany the exportation of manufactured goods, which helps drive down prices and allows for a more consistent revenue stream due to lower price volatility. Additionally, the U.S. can produce a range of manufactured goods at a lower comparative advantage simply due to the magnitude of available human capital and developed technology. Technological advancement is another benefit that accompanies being a developed nation producing manufactured-exports. It goes without saying that the spread of knowledge and technology between countries has intensified as a result of globalization. The U.S. plays a pivotal role in global influence when it comes to technology due to the vast amount of research and development that takes place within this industry. The U.S. is responsible for producing advanced aerospace and defense technology (Deloitte, 2021) which is in high demand and desired in many other areas of the world. It is this transfer of technology which helps boost not only innovation and efficiency, but also productivity (Aslam et al., 2018). Additionally, the exportation of advanced technologies helps to strengthen diplomatic and economic trading relationships which helps the U.S. avoid conflicts.

Furthermore, exporting non-commodities contributes considerably to increasing economic development due to rising incomes (Poole, 2015). Through globalization, the expansion of America's most competitive industries for exports has caused a shift in the most efficient areas of the economy, which raises the productivity of American workers and therefore what they earn. The effect of rising incomes as a result of manufacturing-led exports can be seen in the airline industry. The Boeing company (based in the U.S.) is one of the world's leading commercial aircraft manufacturers and uses high-value manufacturing as the aircrafts require skilled labor and advanced production processes. This results in a significant high-income workforce of engineers, manufacturing specialists, technicians, designers, and pilots being employed which generally contribute to increased incomes in the regions where companies like Boeing operate. The average Boeing salary starts from around \$62,968 per year for an Aircraft Mechanic (Wambua, 2022) to \$209,000 per year for an Aviation Consultant (Indeed, n.d.). These numbers are significantly higher than the average nationwide annual salary of \$59,428 per year (Mushtaque, 2023). These rising incomes from manufactured-exports then give higher skilled workers within the manufacturing sector greater purchasing power which increases the flow of money in the economy, contributing to economic growth. Furthermore, the labor force in the U.S. only consists of 16% of workers who are low-skilled as of 2020 due to many of the workers specializing in producing skill-intensive goods, such as the aircraft industry (COVID-19 would have also influenced this statistic). This is because competition by imports may lower the price of the products low skilled workers produce; therefore, domestic firms tend towards producing skill-intensive goods which could actually lead to lower wages for the majority of the workforce who are unskilled - e.g., those from developing countries (*Globalization and the Labor Market*, n.d.). The notion of the core-periphery theory can be used to support this as the U.S. (core) rely heavily on those

periphery regions for low-skilled work and goods. Alongside globalization creating job opportunities, increasing efficiency, and increasing FDI, trade flows can also lead to changes in the demand for labor due to more workers being required in newly profitable firms (rather than the unprofitable ones). If the labor supply is fixed then this can also cause nationwide increases in wages.

Another explanation for economic growth as a result of manufactured-led exports is that it can promote high rates of investment into profitable economic activities by fostering closer connections with international firms. The U.S. is responsible for considerable exports in the secondary, tertiary, and quaternary sectors, with significant investments into the last two sectors (particularly quaternary which comprises research and development). In 2022, the manufacturing sector received the highest levels of FDI, accounting for 31.1% of total FDI at \$55.2 billion. Within manufacturing, FDI was greatest in chemical manufacturing (\$21.5 billion) and machinery (\$9.9 billion) with notable expenditures in the information sector (\$28.2 billion) (*New Foreign Direct Investment in the United States, 2022* | U.S. Bureau of Economic Analysis (BEA), 2022). Investment into these non-commodity sectors drives up the economy and therefore lends itself to economic development. The FDI is higher for nations producing non-commodities in comparison to commodities because investment into developing nations generally involves the extraction of value from the economy, whereas investments into developed nations doesn't detract value. Figure 1 (Mazachek, 2020) depicts the FDI into high-tech positions in the U.S. – it can be observed that it is expanding exponentially, meaning that America will continue to see increased innovation, continue to employ highly-skilled workers, and further its international competitiveness.

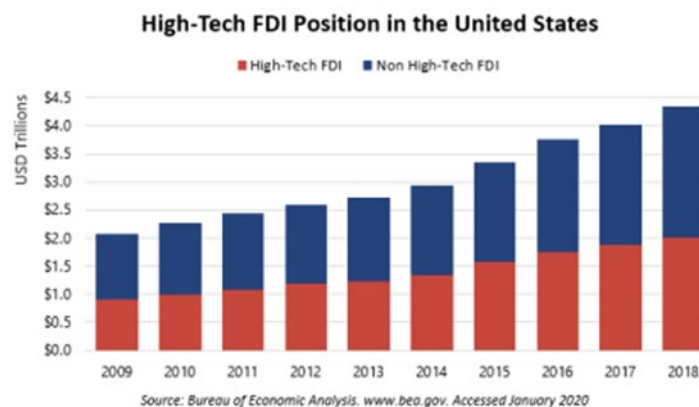


Figure 1 - (Mazachek, 2020)

Figure 1. Mazachek, 2020) – High-Tech Position in the United States

Environmental and Social Impacts

Environmental Impacts

One of the primary consequences of globalization and trade is its impact on the environment. The U.S. is a huge contributor to global warming, producing five billion metric tons of carbon dioxide in 2022 as a result of trade and globalization (Tiseo, 2023). A key driver in their contributions to worsening climate change is the significant volumes of imports flowing into the country. As aforementioned, in 2022, the U.S. imported \$3,957.8bn (*U.S. International Trade in Goods and Services, December and Annual 2022* | U.S. Bureau of Economic Analysis (BEA), 2023). The transport of these goods across the world has an array of negative impacts on the environment: namely increased emissions, habitat destruction, and the creation of invasive species. However, the impacts of mass production and importation don't end here; the U.S. is the second largest carbon emitter in the

world but concerningly, 21% of people see climate change as “not a threat at all” (*The Majority of People around the World Are Concerned about Climate Change*, n.d.). The lack of recognition for the environmental consequences—e.g., pollution, habitat destruction, decreased biodiversity, overfishing, deforestation (the list goes on)—is a major concern (Stobierski, 2021). Many countries, such as Denmark, are making substantial progress in combating climate change, for example, undertaking a 10-year plan to decrease carbon emissions to 70% below 1990 levels and by 2050, becoming carbon neutral (its net emissions and absorption of carbon dioxide would equal zero) (Navarre, 2022). Therefore, due to being such a large polluting nation, the U.S. should consider developing its trade strategy by implementing stronger policies and initiatives to combat such damage and compete with leading, sustainably driven countries.

Social Impacts

One of the most standout social impacts of globalization and trade on society is the global connectedness, diversity and inclusion that is fostered. For example, companies from Wall Street and Silicon Valley are all working on building workforces that reflect changing demographics to increase innovation and ideas (Horowitz, 2019). This helps to encourage diversity in the workplace which fosters new ideas, perspectives, and overall productivity. Although, social impacts in the workplace are often brought to light due to the concerns of working conditions, income, and social protections (ILO, 2019). Globalization can decrease the cost of manufacturing, allowing consumers to benefit from lower prices but potentially at a cost of lower wages for workers (National Geographic Society, 2023). This highlights the growing gap between the rich and the poor, which contributes to the worldwide income disparity. As aforementioned, skilled workers tend to benefit from globalization as they experience rising wages, yet those more unskilled incur lower wages. Additionally, globalization can be considered partly responsible for the increasing gap between the more educated and the less educated members of society and subsequent income disparities. Domestic low-skilled workers are often affected by declining wages and substitution to cheaper labor from developing countries, under the constant pressure of globalization.

Case Study – Bolivia

Despite Bolivia being a resource-rich country, with 25% of its total exports being natural gas (*Bolivia Exports | 2021 Data | 2022 Forecast | 2003-2020 Historical | Chart | News*, n.d.), it remains one of the least developed regions in Latin America (*Is Bolivia a Poor Country? | - CountryReports*, n.d.). Bolivia is significantly reliant on trade as a source of revenue; trade (as a % of GDP) made up 59% in 2021 (*World Bank Open Data*, n.d.). Although, despite engaging in many trade agreements, the nation still remains a developing country. This may be explained by the decrease in exports of goods and services over time; in 2013, exports (as a % of GDP) were reported at 47% and decreased to 20.5% in 2020 (*Bolivia - Exports of Goods and Services (% of GDP) - 2023 Data 2024 Forecast 1960-2021 Historical*, n.d.), highlighting the importance of trade for an economy. Furthermore, their export strategy may pose a barrier for development and perhaps explain the plateauing in growth.

While globalization has been established to have a positive impact and acceptance in developed nations such as the U.S., this cannot be said for all types of regions. In 2003, heavy protests occurred against globalization in Bolivia. The New York Times reported that protesters “choked the streets and highways...[they] may be poor and speak broken or accented Spanish, but they have a powerful message” with claims that “Globalization is just another name for submission and domination,” being made by an unemployed worker (Rohter, 2003). Furthermore, many Bolivians blame globalization for the decline in exports, stalling growth and soaring unemployment levels.

Nevertheless, as a result of trade and globalization, unsaturated Bolivian markets have become increasingly more appealing to investors and entrepreneurs wishing to start businesses (Legal Team Bolivia, 2020). This has increased investment (FDI) but economic growth could be augmented faster through a different export strategy as this FDI is extractionary and removes value from the Bolivian economy. In order to pinpoint

how trade and globalization have contributed to the country's development (or contribute to stalling it), it is critical to determine Bolivia's current export strategy.

Export Strategy

Bolivia has a trade strategy built upon exporting primarily commodities; its top 10 exports include goods such as: gems, precious metals (\$3.2bn), mineral fuels (\$3.1bn), and tin (\$511.3mn) (Workman, 2021). Due to these exports being in the primary sector (i.e., industries involved in extraction and production of raw materials), they are classed as commodities. Therefore, Bolivia is an example which represents a developing country producing commodities as its export strategy.

The new trade theory is a significant concept to implement as an explanation for the development status of Bolivia. This theory suggests that international trade is based on economies of scale, network effects and the first-mover advantage. One of the reasons for Bolivia remaining a developing country may be related to the lack of economies of scale available due to the 36.4% poverty rate and subsequent small domestic businesses (Ricci, 2023). In fact, more than 80% of Bolivia's rural population lives below the poverty line; this is primarily due to small-scale farming and rather low productivity (perhaps as a result of little training and education) (Fredette, 2017). Additionally, this theory also points at the benefits of network effects. Bolivia has a large rural area which makes it difficult for domestic transport, let alone international transportation. Altering its export strategy in terms of infrastructure and the type of goods exported could help relieve them of the plateau in economic development.

Impact on Economic Development

Impact of Commodity Trading On Economic Growth

It is widely known that exporting commodities can generally be synonymous with vulnerability to economic shocks. One of the explanations for this is that commodity prices adhere to market demand which fluctuates incessantly. Bolivia has a high commodity dependence (*Escaping Commodity Trap Critical for Landlocked Developing Countries* | UNCTAD, 2019) which lends itself to the notion of the dependency theory. This is not just economic over-dependence on commodities but also over-reliance on trade with wealthier regions that greatly demand Bolivia's raw materials (*Commodity Dependence: Definition & Example* | StudySmarter, n.d.). It is the over-reliance on these wealthier nations which contributes to the extractionary nature of investments and subsequent diminishing of resources.

Furthermore, commodity exports contribute considerably to labor exploitation. The mining industry is the largest in Bolivia and consists of a very labor-intensive process. This industry is known to have rather poor working conditions due to the dust exposure, toxic chemical exposure, and noise levels. In Bolivia, workers face a fatality rate that is almost 90 percent higher than miners in industrialized countries with many small-scale Bolivian miners suffering roughly three fatalities and 15 serious injuries each month (*Small Scale Mines in Bolivia*, 2002). Most horrific is the level of child labor that occurs in industries like mining to produce commodities for exportation. It has been reported that around 3,000 children work in Bolivian mines with children as young as six years old (*NPR Cookie Consent and Choices*, 2021). Both poor working conditions, illnesses and child labor all contribute to lower economic development as they reduce mental and physical health and welfare. Furthermore, producing commodities means that workers specialize in the primary sector which makes the developing nation have a less fluid workforce – ability to shift into other industries – than developed nations. The secondary and tertiary sectors are generally associated with being more developed / bringing in more revenue which makes it difficult for Bolivia to develop without investing in training and education.

However, commodity trading may lead to economic growth by encouraging private investment and ability to finance capital accumulation (Guriev et al., 2009). In the first half of 2023, Bolivia signed three different lithium deals with Chinese and Russian firms, gaining a total of \$2.8bn for the industrialization of their resources (Ramos, 2023). Investments into metals like silver, zinc, and tin already stand but Bolivia are able to make huge gains from their natural resources. Therefore, having a commodity-rich country could lead to economic growth; the Chinese and Russian firms may also expose Bolivia to different mining techniques, technology and innovative ideas which it can adopt. Subsequently, it may be reasonable to infer that having a commodity-rich country is beneficial for the economy, but perhaps these goods cannot solely be relied on as an export strategy. As aforementioned, FDI into developing nations like Bolivia differs from the FDI into developed countries; the Chinese and Russian firms are extracting the metal reserves which removes value from the Bolivian economy. This is not helped by the fact that many of the natural resources Bolivia exports as commodities are finite which means they will not last forever and eventually deplete. To further this, Bolivia's large rural areas lack basic infrastructure such as roads which contributes to the level of poverty in the rural areas as transportation then becomes expensive without the necessary infrastructure. Therefore, Bolivia's stalling growth may be a result of the lack of economies of scale and its exporting of commodities which could also explain why Bolivia remains a low-middle income developing country. Therefore, Bolivia should diversify their exports to guarantee future safety.

Technological Advancement

As of 2023, there have been many technological advancements in the extraction of metals from the Earth. Hexagons mining technology has been implemented in the San Cristóbal mine which is one of the richest in terms of metal volumes. This advancement has augmented health and safety, the preservation of the environment, and has contributed to sustainably developing communities (Keltie, 2023). The funding for many projects like this one can come from the FDI flows into the economy. Furthermore, Bolivia is striving in the sustainable direction through the use of technology. It has chosen a Chinese consortium to invest over \$1bn to develop untapped lithium deposits with the ambition of producing lithium batteries (ZHOU et al., 2023). This type of battery has a much lower environmental impact which can decrease the negative externalities produced.

Furthermore, Bolivian engineers have developed technology called DeltaX which significantly improves the productivity and efficiency of the transportation of goods (DEMPSEY, 2020). This will allow Bolivia to transport goods from more rural areas to help with the development of small-scale domestic businesses so that they can compete with the multinationals who operate in Bolivia. As a result, economic growth and development will rise.

However, access to technology remains a challenge for Bolivians, with only 3% in rural areas having access to the internet (Staff, 2020). This may, in part, be due to the lack of territorial access to the sea which causes isolation from world markets, hindering its development. Furthermore, the lack of computer access with little internet poses a challenge for efficiency in work and schools and may slow development further as many Bolivians may not be up to date with world affairs.

Social and Environmental Impacts

Environmental Impacts

One of the primary consequences of globalization and trade on developing nations in particular is its impact on the environment. As aforementioned, Bolivia receives significant amounts of FDI which plays a part in extracting value - in the form of resources - from the nation. This extraction process contributes to the depletion of resources over time which is supported by the fact that Bolivia's natural resource depletion rate was 6.95% in 2021 (*Bolivia - Adjusted Savings: Natural Resources Depletion (% of GNI) - 2023 Data 2024 Forecast 1970-2021 Historical*, n.d.) whereas that of the U.S. was a mere 0.82% during the same time period (*United States -*

Adjusted Savings: Natural Resources Depletion (% of GNI) - 2022 Data 2023 Forecast 1970-2020 Historical, n.d.). A nation's natural resource depletion is the sum of net forest depletion, energy depletion, and mineral depletion. This suggests that being reliant on commodities as an export strategy can lead to significantly greater natural resource depletion than producing and exporting manufactured goods.

Furthermore, there are significant environmental impacts that accompany Bolivia's largest industry, mining. This has caused Bolivia to become the world's biggest importer of Mercury which is used for gold mining and is subsequently dispersed into the air, water, and soil (Graham, 2022). Particularly, the uncontrolled disposal of mercury causes toxic flows into the river systems which heavily contaminates many species of fish, decreasing the biodiversity (Wroblewski, 2022). Therefore, for a developing country producing commodities, there can be an array of harmful environmental effects that may not only impact the nation now, but also in the future when resources begin to deplete.

Social Impacts

As previously mentioned, the impacts on society from this developing region producing commodities can have harmful effects, namely labor exploitation and negative health implications. It was noted that 'members of one indigenous community reported pains in their muscles, heads, and stomachs after mining intensified upstream (Graham, 2022). The vulnerability of these members of society poses a significant challenge for the government as many of them live in extremely rural areas. Despite the contamination not affecting all of the population, families living near a source of pollution or who bring their work tools home from mines are at a significant risk. Small children in particular are the most vulnerable, due to the dust they inhale. The pressure of globalization and reliance on exports that a developing nation incurs causes them to have no option but to essentially bypass these issues in order to generate income to develop.

Evaluation

Compare and Contrast

The integration of different export strategies can have considerably divergent effects on economic growth, social factors, and environmental factors, as discussed in the case studies. Notably, the impacts of different export strategies on economic growth can explain why Bolivia's development is significantly slower in comparison to that of the U.S.

Despite both countries receiving substantial levels of FDI into key industries as a result of trade and globalization, the way in which this FDI manifests itself within the nations differs. As aforementioned, the U.S. - being a developed country - receives non-value detracting FDI which suggests that investments do not remove value from the economy. This is because the US is in a fiscal position to provide the capital to invest in large projects and businesses, meaning that the US and other developed countries own that business and those resources. Therefore, FDI comes in the form of investment into the equity of those businesses. This can be exemplified by a survey which measured the value of foreign holdings of U.S. securities as of June 30, 2022. The results stated that there was \$25,282 billion, with \$12,238 billion held in U.S. equities (*Preliminary Report on Foreign Holdings of U.S. Securities at End-June 2022*, 2023). These kinds of investments allow investors to make profits without using up or detracting natural resources or value from the economy. Additionally, this market is less volatile than the commodity market which allows for more certainty and confidence among investors, encouraging further investments.

Whereas, in Bolivia and other developing nations, commodity markets are extremely volatile and FDI is substantially value-detracting as foreign firms and countries invest in industries which use up resources. For example, Bolivia is the richest country in terms of lithium reserves which can be used for electric vehicle batteries. This rising industry of electric vehicles could provide Bolivia with substantial economic gains due to its

large quantities of this resource, yet, due to being a developing country, it doesn't have the resources to act on this potential. Economies of scale and network effects play a significant role in this, as without access to significant economies of scale, the nation faces challenges when advancing on this opportunity as they won't be able to get average costs down. Furthermore, the rurality of the nation makes it difficult to transport goods across the country; this is due to the lack of infrastructure which reduces the nation's ability to utilize this opportunity optimally. Therefore, Bolivia is partnering with foreign firms to receive FDI in order to mine for this metal (Rochabrun, 2022). The investors - developed nations such as the U.S., China, Russia, and Argentina - will all make significant returns from this partnership at the expense of the developing nation, furthering the gap between development and exploiting Bolivia's resources. However, Bolivia doesn't have the resources or capacity to take advantage of its situation due to it being a developing nation which leaves countries like this no choice but to be exploited.

Another way in which exporting commodities versus exporting non-commodities implicates economic growth is through the different impacts on wages and labor. For countries exporting non-commodities like the U.S., rising wages can occur due to specialization and the presence of highly skilled jobs within the manufacturing sector. This can be supported by the percentage of citizens who have a higher education. In 2015 the U.S. had a cumulative percentage of 33.44% whereas at a similar period of time, Bolivia had 19.63% (*Educational Attainment, at Least Bachelor's or Equivalent, Population 25+, Total (%) (Cumulative)* | Data, 2022). This data implies that more U.S. citizens will be able to earn higher wages in the future. Additionally, exporting manufactured goods lends itself to more highly-skilled jobs which subsequently have higher wages. Whereas developing countries who export commodities like Bolivia, generally have more low-skilled jobs with lower wages. This suggests that exporting manufactured goods contributes to higher wages throughout the economy, which can increase the rate of development.

The different export strategies employed by these two nations also fosters diverging environmental and social impacts. Both countries experience negative environmental effects as a result of trade and globalization, yet, the toxicity of chemicals released from production differs. As aforementioned, the U.S. is a major contributor to global warming through the release of carbon dioxide as a result of non-commodity production. Whereas, Bolivia is the largest importer of the chemical mercury, which is used in the mining industry. Despite both of these chemicals having negative impacts, they differ in severity; carbon dioxide has an impact more so on the environment whereas mercury affects both the environment and human health significantly. This suggests that developing nations who are exporting commodities - particularly through harmful industries like mining - have a degree of trade off between growing development and protecting social welfare. Furthermore, trade and globalization contribute remarkably to the exploitation of natural resources in developing nations; shown by Bolivia's natural resource depletion rate of 6.95% in 2021 compared to that of the U.S. which was 0.82% during the same time period. This portrays the worse off position developing countries are in as Bolivia is, yet again, facing a trade off between an immediate return or a potentially far better long term investment. The high rate of return they would incur makes developing countries willing to trade off a worse future return for immediate survival as they are not in the financial position to wait for returns as they don't have enough resources presently.

Growth and Trajectories

This paper has addressed how differing export strategies can impact the development of nations. Particularly, the economic, social, and environmental effects of exporting commodities versus non-commodities has led to the understanding that developing countries often have trade offs between development and other economic factors. Bolivia exemplifies a lower-middle income country where over 40% of citizens live under the national poverty line (Kendrick, 2023), and where many experience considerable health risks as a result of the exportation of commodities.

In order to develop, it will be critical for Bolivia to alter its export strategy by diversifying into manufactured goods, like the U.S. Government investments into the secondary sector will enable the nation to maximize its rewards from its resources such as lithium. Lithium is an abundantly rich resource in Bolivia and is one of the key components in electric vehicle (EV) batteries. The EV industry is rapidly growing with the share of electric cars having more than tripled in three years, from around 4% in 2020 to 14% in 2022 (IEA, 2023). Bolivia faces an exceptional opportunity for development due to its abundances of lithium so should capitalize on this prospect.

One of the key starting points for this would be altering the resource-extracting partnerships it has with nations like China and Russia to gain more control over its own resources. Revising agreements to increase domestic ownership of lithium and other commodities will decrease the detracting nature of the FDI Bolivia receives. This in conjunction with government expenditure into the secondary sector may enable Bolivia to produce and export EV batteries which will diversify its exports into manufactured goods and have the potential to increase development. Furthermore, workers will become more skilled within this sector which will drive up national wages as well as development.

Conclusion

This paper provides an explanation of why exporting non-commodities leads to greater development. Fundamental learnings to support this include the promotion of more diversity in a workplace, higher levels of innovation, higher-skilled jobs, higher national wages, better working conditions, and non-value detracting FDI. It also enables countries to specialize in goods or services that they have comparative advantage in, in order to foster greater revenue. Therefore, developing nations, such as Bolivia, can use an export strategy that is more geared towards exporting non-commodities as a model that they can strive towards. This research allows for essential insights into notions for development trajectories; developing nations can adapt their export strategies by diversifying into manufactured goods, increasing government expenditure into the secondary sector, and capitalizing on natural resources by revising resource-extracting trade agreements.

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