

# Local Centers and Their Connectivity: Globalization and the Need of Centralization

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## Abstract

This paper investigates the multifaceted implications of globalization on global production networks, education, and climate change. Globalization has engendered the seamless movement of capital, goods, and ideas worldwide, concentrating economic activities in specific regions. This phenomenon yields advantages such as knowledge exchange and access to new markets, but also poses challenges such as intensified competition. The globalization of production networks profoundly affects education, demanding individuals to possess technical expertise, digital literacy, and intercultural proficiencies in response to evolving labor market needs. Despite digital connectivity, knowledge acquisition remains predominantly localized, thereby emphasizing the delicate balance between digital accessibility and localized educational attainment. Furthermore, global production networks bear significant consequences for climate change, as material and energy flows transcend geographic boundaries, exacerbating environmental impacts. The adoption of sustainable practices and robust environmental regulations assumes paramount importance in mitigating these effects. However, the challenge persists in externalizing environmental and social costs. By comprehending the intricate interdependencies and complexities inherent in globalization, we can navigate the opportunities and address the challenges posed by global production networks.

**Keywords:** globalization, centralization, covid-19, supply chain

## 1. Introduction

Globalization has brought about a myriad of changes and complexities in various aspects of society, particularly in the realm of global production networks (Friedman, 2005). These networks have facilitated the seamless flow of capital, goods, and ideas across geographical boundaries, resulting in increased mobility and the concentration of economic activities (Gereffi, 2018). While globalization has enabled the integration of different regions and the creation of new cultures, it has also raised concerns about fragility and the need for resilience in the face of disruptions (Kaplinsky, 2013).

The interconnectedness of global production networks is exemplified by the concentration of financial centers, production networks, and shared service centers in specific locations. These centers serve as hubs for decision-making, coordination, and the management of non-operational activities, allowing for the coordination of global operations and the creation of value (Dicken, 2015). The benefits of centralized centers of excellence in global production networks are evident, as they enable knowledge transfer, access to new markets, and technological upgrading. However, they also pose challenges such as increased competition, dependence on lead firms, and limited opportunities for local firms to move up the value chain, topic that could be an opening for further research, on how local firms can grow in centralized hubs of excellence.

Furthermore, the globalization of production networks has implications for education in the globalized world (Marginson, 2007). The evolving demands of the global labor market require individuals to possess technical skills, digital literacy, and cross-cultural competencies (OECD, 2018). While the transfer of information has become fast and easily accessible through digital platforms, the acquisition of knowledge remains localized at universities, schools and centers of knowledge transfer. Students still seek localized degrees and cultural experiences through exchanges and interactions with different educational frameworks (Marginson, 2007). The decentralization of communication contrasts with the centralized nature of knowledge validation through degrees

and academic credentials.

Externalities, particularly those related to climate change, are another crucial aspect influenced by global production networks (Kolk, 2016). The material and energy flows in these networks transcend geographical boundaries and contribute to carbon emissions and environmental impacts (Ernst, 2002). Sustainable practices and environmental regulations are increasingly important for companies to mitigate climate change effects and gain competitive advantages (Porter & Kramer, 2011, Pohlmann-Gonzaga, 2022). However, externalization of environmental and social costs remains a challenge, as companies may shift production to regions with less stringent regulations.

## **2. Fragility or Antifragility: Globalization and the Centralization Need**

Globalization brings two contrasting ideas: one is the lack of geographical barriers, increased mobility, flux of capital, goods and ideas, and the other the necessity for concentration. Financial centers, production networks, shared centers, operations, etc. The large flux, together with the necessity of concentration, fusion creates new cultures. One example being Geneva, Switzerland, where according to Adly and Pattaroni (2013) a culture of English speakers develops, impacts the city, its policies and thus segregating locals. In Scandinavian countries, the forces of globalization and Europeanization pose challenges to the traditional model of Scandinavian social democracy (Geyer, Ingebritsen, & Moses, 2000).

Global production networks benefit from the best of all sides, from policies and taxation. The global supply chain adds value by allowing cost reduction, and global logistics suppliers allowing time and mobility improvement, with logistics even contributing to generate value and upgrading dynamics in client sectors (Coe, 2014). Globalization creates ways in which different actors and regions contribute to and benefit from value creation in the global economy (Sturgeon, 2008). Zhang et al. (2022) shows that the integration of various elements within the supply chain has a positive influence on operational performance, leading to enhanced financial outcomes for the participating companies, with Bahrin and Sundram (2014), showing that it's important adopting green practices in supply chain integration for improved performance.

Also, there's the concentration inherent to globalization, a closer supply chain to decrease production lead time, backed up by the logistics suppliers and favorable policies, where, although goods might be produced far from consumer centers, specialized part manufacturers tend to aggregate in close geographic position. The dependency of centralized centers of excellence of its connection to the global production networks, supply chain and centers was highlighted during the COVID-19 pandemic where production and supply chain disruptions were common in many industries (Barman et al., 2021). Gereffi (2015) shows potential risks and vulnerabilities associated with highly centralized systems, emphasizing the need to consider alternative approaches that foster adaptability and robustness. Showing the importance of regional and global strategies for multinational enterprises highlights the need for a comprehensive and adaptable approach to navigate the complexities of international business (Rugman & Verbeke, 2004).

What allows the globally centralized areas of excellence, where a production management team can sit in Germany, controlling a production in China to be sold in USA, with all end customer relationship being outsourced to India. Humphrey, J., and Schmitz, H. (2002) shows that on one hand, participation in global value chains provides opportunities for knowledge transfer, access to new markets, and technological upgrading, on the other hand, it can also lead to increased competition, dependency on lead firms, and limited opportunities for local firms to move up the value chain.

All this is managed by another network of centralized brains, individuals that manage all the non-operational activities, this globally decentralized, locally specialized firms, creates and transform cities, countries, economies, shape policies and merge cultures transforming the local relations. This cultural impact is higher for one group: children of the global mobility, Selmer and Lam (2004) shows that children from expatriated parents are different than locals, developing a higher awareness of cultural differences and being prone to a mobile career in the future, those children also feel distant from their home country and tend to not seek to return.

The modern anthropology will analyze sub-systems, its integration and development, the merger, the locally distant groups. Today's data generation will allow to analyze this phenomenon as we couldn't in the past, with globally produced commodities being shipped to Europe, with an enslaved work force from Africa. Americas saw a globally dispersed industry, centralizing people from different regions, to see the later fusion of cultures that was only possible to happen due to the approximation of people. The success of multinational enterprises depends on effectively managing and leveraging their multiple embeddedness within local contexts (Meyer et al., 2011).

The COVID-19 pandemic has served as a stark reminder of the need to reevaluate the degree of centralization in global supply chains and develop strategies that promote both efficiency and resilience.

The COVID-19 pandemic saw unprecedented disruptions in supply chain and economic activities, besides the global tragedy on human life (World Health Organization, 2020). COVID-19 influence on food and agricultural supply chain brought concerns on global food security (FAO, 2020). The international dependency of some countries in food, or the connectivity to the international supply chain to fulfill manufacturing obligations showed the fragility of globalization during the pandemic.

### **3. Education in the Globalized World**

There are evolving demands and skill requirements in the global labor market. The globalization process, tied with global production networks, is summarized in the knowledge transfer. With unequal distribution of educational resources in a globalized university system (Altbach, 2004). Through creating centers of excellence in certain knowledge areas, seen in smaller scale in Switzerland, with the University of Basel being more focused on healthcare related research, a city where it's possible to find the headquarters of Novartis and Roche, two of the largest pharmaceutical firms worldwide, or at the University of Geneva, with a fast array of courses focused on international development, due to the number of international organizations and the United Nations headquarter in the region. According to Marginson (2012), it's important to understand the dynamic interplay between national and global factors in the realm of higher education competition.

The acquisition of technical skills, digital literacy, and cross-cultural competencies are essential for individuals to thrive in global production networks. To ensure long-term employability in the evolving intelligent economy, schools need to integrate creativity into every subject, establishing the link between creativity, innovation, and every industry in the knowledge-based economy (Jules & Sundberg, 2018).

The transfer of information is fast, but knowledge is centralized, specialized. With massive open online courses (MOOC's) bringing high quality education, sometimes even for free, worldwide accessible, students still seek localized degrees, doing an exchange to explore a different culture and educational framework. The highly decentralized centers require degrees and papers confirming knowledge, in a world where even information travels digitally.

The global production network not only may bring economic development to the region, companies, and all other subsequent countries in the supply chain, alongside to the flow of people, but also shift universities. With more and more public and private universities offering courses and degrees on non-native languages, where students that seek mobility to go to the information center (university building), even though communication is largely decentralized with the internet. Another impact is on flow of capital towards these universities, with Steiner-Khamsi (2004) mentioning that the education systems worldwide engage in complex processes of borrowing and lending, influenced by global politics and shaping educational policies and practices.

The globalization effect on the business environment generates economies dependent on local contexts, even though this local might be overseas, like with Chinese manufactures needing to be compliant with European Union safety regulations on products. Freant (2014) goes further mentioning leaders should learn geography, to better understand sense of scale, spatial thinking and sense of place. Further than geography, leaders should also be able to understand climate, environment and externalities created. The strategic allocation of mandates to subsidiaries plays a critical role in fostering knowledge creation and innovation within multinational enterprises (MNEs) (Cantwell & Mudambi, 2005)

Researchers and universities should also take into consideration local realities of marginalized societies when doing research. With the COVID-19 pandemic which has impacted nearly every student around the world (UNICEF, 2020), and with Mollenkopft et al. (2020) mentioning that research regarding supply chain implications during the COVID-19 pandemic mostly took into consideration western, rich, democratic, and industrialized nations. Considering the global implications of COVID-19, global impact on supply chain, trickling down on local realities, universities should be paying attention on how to maximize the scope of the problematic, with an increased need of schools to have global connections (Zhao and Watterson, 2021).

### **4. Externalities: Climate Case**

In global production networks a material and energy flow model break geographic boundaries (Henderson et al., 2002). Pohlmann-Gonzaga and Akdidach (2022) shows the case on material and energy flow analysis also considering the externalities impacting the system. Corporations will try to be compliant with the local regulations they are operating, and in some instances multinational corporations will comply with the national regulation and internal compliance from the headquarters. With the mining industry facing increasing pressure to

disclose social and environmental information as part of their corporate social responsibility efforts, reflecting the externalities of globalization (Jenkins & Yakovleva, 2006).

With carbon emissions footprint of global production networks increasing and a need exists for sustainable practices to mitigate climate change impacts (Barrientos et al., 2019). Masi et al. (2017) explore the concept of circular economy within global supply chains, showing that there are currently concepts in circular economy that fits the definitions of supply chains. Businesses can create sustainable value by integrating economic, environmental, and social dimensions into their strategies, contributing to long-term success in the face of globalization and its externalities (Hart & Milstein, 2003).

Liability, in global production networks, can become a problem, as seen multiple times in the clothing supply chain with slave labor. In production networks where parts are assembled in different, separated facilities, inside a region, for the final product to be sold not necessarily within the production network, it creates the problem of externalization. With some countries specializing in administrative tasks, outsourcing their manufacturing to production networks, or countries creating policies to minimize environmental impact, while production of goods and services just shift to another place, to serve the same purpose.

Environmental regulations and sustainable practices can lead to competitive advantages for companies, challenging the conventional belief that environmental responsibility comes at a cost to business (Porter & Van der Linde, 1995). The need of global governance to minimize global problems, follow into a discussion of states sovereignty. Global governance for the interconnected world, with mobile people followed by key institutions that are inter-governmental and the civil society, discuss the local impact on the economy and population of the environmental policies itself, but not the long-term problem of externalization.

With the intensity and frequency of climatic events increasing with climate change and global warming, it's already possible to see the effects of the global warming problem in local economies, such as Chile. The Chilean fishing industry suffered the worst season (Reuters, 2016) in 2016 because of El Niño in the Pacific Ocean water, with also the increase on harmful microalgae (which may affect the industry in the short term). Being fish one of the main pillars of the Chilean economy, and there's correlation between fish population and the El Niño effect (Bakun and Broad, 2003), the Chile economy is now suffering from a more intense climatic activity. The impact in local economies can after transcending to global markets, as the Russian harvest for wheat increased, due to increasing temperatures, it decreased the global wheat price in commodities markets, which could in turn bring reduced prices to end consumers in wheat-based products.

Swyngedouw (2010) shows that populist policies are been used of climate change and environmental problems to sustain discourse, especially when tied with economic losses of climate change.

## **5. Conclusion: Fragility, Antifragility and Resilience, the Global Production Networks, and Its Local Realities**

Global production networks fluxes go beyond materials, energy, or other tangible goods. It has impacts on the movement of ideas, information, culture, and people. It creates externalities, impacts being seeing sometimes outside production and consumption zones. These networks of facilitated exchange, happens due to the specialization of regions, to supply the other centers with their product/service, and disruptions as seen during the COVID-19 pandemic can bring unprecedented problems in the supply chain and availability.

The idea of movement of goods and services between production networks, is followed by the movement of people, expatriates, who are then influenced and influencers of local cultures, with changes in cities architecture, local retail and human relations. Seen in the case with Geneva, but in many other global cities such as Singapore, or New York. This movement and specialization create clusters of information production, being reflected in the academic sphere and scientific production.

In economic history have been already seen the global separation of a value chain, using the most efficient, or at least suitable suitable for the operation, but never in such a large scale, where countries or even continents start specializing, where the role of headquarter, administrative and financial centers are not related to the production itself. Which may be even generated by another company, as Apple with the iPhone, designed and administered in US, sold worldwide, produced by the assembling of parts of one company, mostly in China with parts from different countries and suppliers. It's facilitated and delivered through specialization and the facilitation of smaller global physical barriers, due to strong and reliable supply chains and fast communication.

This paper gives a briefly introduction on the contrasting of globalization, where processes are scattered around the globe, but centered in local specialized regions. Where even though everything is made possible due to fast and reliable communication, some areas, as the transfer of knowledge in Universities remains still mostly tied to

fixed places. Another contrasting point of the global production network is the lost sense of belonging, which in turn reflects into poor global policies for tackling non-local issues.

Global production networks are local specialized centers, with strong communication channels and supply chain to allow the connectivity of information and goods, where policies are thought on the local reality, rather than on the global network it's included, and that global disruptions, such as the COVID-19 pandemic can have different local realities, globally impacted by local decisions.

In conclusion, the study of fragility, antifragility, and resilience in global production networks necessitates an understanding of local realities. The COVID-19 pandemic has demonstrated the vulnerabilities of highly centralized global supply chains, underscoring the need to consider local factors and adaptability in supply chain management strategies. Building resilient global production networks requires a comprehensive approach that integrates both centralized coordination and decentralized decision-making. By embracing emerging technologies, adopting sustainable practices, and investing in education and skill development, global production networks can enhance their capacity to withstand disruptions and contribute to economic growth. Understanding the interconnectedness of global production networks, their impact on local communities, and the potential for collaboration between various stakeholders is crucial for designing policies and strategies that promote a more sustainable and resilient global economy.

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