

Global Supply Chains at a Crossroads: Trade Liberalization, Inequality, and Policy Interventions

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Abstract

This study examines the impact of trade policies on global supply chains and their implications for economic inequality. In the first part of the paper, we analyze existing literature on globalization, trade agreements, tariffs, and non-tariff measures. Theoretical insights build a strong foundation for further quantitative research. The second part of the paper draws data from two major economies – the United States, and the European Union. By analyzing major trade policies between these two partners, we assess their impact on supply chain and bilateral trade in goods. And by analyzing the correlation between trade growth rates and GDP per capita growth rates, we identify significant linkage between trade performance and distribution of economic outcomes. In this study we combine theoretical knowledge with empirical approach to assess the role of different trade policies on supply chain and nations wealth. The findings indicate that while trade liberalization improves supply chain efficiency, achieving equitable economic outcomes requires policy interventions that expand access to opportunities, strengthen infrastructure, and promote fairer distribution of benefits. The paper concludes with predictions of trade for upcoming years, and policy recommendations for balancing efficiency and equitable growth.

Keywords

Globalization, Trade Policies, Supply Chain Efficiency, Economic Inequality, Trade.

1. Introduction

With the development of globalization economies have become so interdependent that it is difficult to grasp the scale at the first glance. No country can live in isolation in today's world. Navigating global trade, financial flows, development of technologies, and addressing shared challenges (e.g. climate change, global security) require

cooperation. A telling example of interconnectivity is provided by Gopinath et al. (2024), who suggest that despite the fact that the U.S. has been imposing tariffs and restrictions on Chinese goods since 2018, and their production was relocated to other countries, the U.S. dependence on China has not diminished. Evidence inferred that the reduction in direct trade and investment ties between the U.S. and China has been replaced by a rise in indirect connections. For instance, the economies that gained 1% of U.S. import shares, also experienced 1.6% growth in Chinese export shares. This example allows us to estimate the level of interconnectivity between countries nowadays and evaluate the necessity of international collaboration and strong regulatory instruments.

Global trade is commonly regulated by governments to preserve competition in the market and, consequently, the quality of goods and services. In their goal to boost economic growth, and provide equitable economic outcomes, policymakers follow different strategies, such as trade liberalization, or impose tariff and non-tariffs measures. The problem with policy interventions is that no policy is completely inclusive, which would equally benefit both - businesses and supply chains, as well as different income groups. On one hand, trade liberalization increases the productivity and efficiency of global supply chains, and contributes to lower prices of goods. However, such actions may threaten domestic industries and widen the wage gap between income groups. On the other hand, tariffs usually aim to regulate trade imbalances and generate government revenue, as well as encourage local production and jobs. Ironically, they usually cause more damage as the price burden is passed to the final consumer.

To analyze the impact of trade policies on supply chains, we examine trade in goods over the past years between the U.S. and the EU. Collected data highlights how trade rules directly affect the volume of total trade, as well as trade in specific industries, such as pharmaceuticals or aviation. To evaluate the level of impact of policy interventions on a nation's wealth, we compare trade volume growth rates with GDP per capita growth rates of both partners. A strong correlation reveals: when policies hinder trade expansion, the wealth of a nation, reflected in GDP per capita, is also negatively impacted. This demonstrates that trade liberalization not only strengthens supply chains but also contributes to economic prosperity. However, while trade liberalization drives growth, it does not automatically ensure fair economic outcomes.

Economic inequality often persists because access to opportunities remains uneven across different groups. People with better access to education, technology and infrastructure commonly obtain better careers, while low-skilled labor have to accept lower wages. Thus, economic inequality is usually heightened within one country, rather than between them. Trade policies have a far-reaching effect on inequality. In this paper we argue that trade policies should be reinforced with complementary measures, enhancing access to education, healthcare, technology, infrastructure, and fair distribution systems. Such policies can reduce the skill premium and create better conditions for low-skilled labor, ensuring that the benefits of globalization and open trade are more equitably shared within society.

This study is important because it provides evidence-based insights into how liberalization between the EU and the U.S. have shaped trade volumes and economic growth over the past three decades. By establishing the link between trade liberalization, supply chain efficiency, and GDP per capita, we predict future trends in transatlantic trade. Based on data and trends, we propose policy recommendations that aim to balance trade growth and economic inequality.

1.1. Objectives

The objectives of this study are:

- a) to examine how trade policies affect supply chains and economic inequality, using the example of the U.S.-EU trade in goods;
- b) to provide policy recommendations to balance trade growth and equitable economic outcomes.

2. Literature Review

Through recent years a lot of scholars have been examining the impact of tariffs and other trade policies on businesses, and how they spark behavioral shifts in the supply chain. The rapid development of technology and globalization boosted free trade and contributed to emerging global supply chains (GSCs). Existing literature explores the impact of trade policies on GSCs, and the role of globalized markets in growing economic inequality in the world. However, there is a lack of papers which would evaluate the joint impact of trade interventions on both - supply chain and inequality. Comprehensive literature review allows us to collect knowledge to analyse this impact, and find linkages based on which we will propose balanced trade policies.

2.1. The Impact of Tariffs

There are two major strategies popular among policymakers to navigate GSCs disruption risks. The first suggests that supply chains should become shorter and more domestic to limit exposure to global shocks. The second strategy justifies safe openness as a solution for production efficiency and lowered goods prices. Baldwin and Freeman (2022) highlight the need for more targeted approaches based on the nature of the sector, such as food, finance, defence, etc., and the nature of shocks - supply, demand, or transport-related.

Trade policies usually aim at “reshoring” or diversifying suppliers, often via tariffs, subsidies, or FDI restrictions. They often cause major supply chain disruptions, which also cause significant GDP losses and do not necessarily protect economies from foreign risks (Baldwin and Freeman, 2022). We will also observe confirmation of this statement in the section “Results and Discussions” of this paper.

Different tariffs might have different effects on GSCs. Grossman et al. (2024) provide an example in the manufacturing industry. Authors affirm that critically low tariffs do not induce downstream buyers to relocate their supply points into other countries as they usually involve lower financial losses than searching for new resources and transferring production to other countries. However, low tariffs provide more bargain leverage to suppliers, resulting in higher prices for final consumers. As tariffs rise to a medium level, new searches for suppliers are redirected toward alternative countries - either other low-wage nations exempt from the tariff or back to the home country. Critically high tariffs might lead to immediate sever relations between parties. The market sees a more dramatic shift - relocation of supply chains, loss of the efficiency accumulated in previous relations, and often an increase in average input prices. Empirical evidence confirmed that U.S. tariffs in 2018 were above bearable level, therefore U.S. firms quickly diversified away from China to other Asian suppliers following the announcement of tariffs.

2.2. Non-tariff Measures

Non-tariff measures, including technical barriers such as specific packaging, sanitary and phytosanitary requirements, quotas and licences, are considered to be a better alternative to protect the domestic market, while still allowing goods flow with foreign countries. However, they may hinder international trade when standards and regulations vary significantly across countries. Divergent regulations complicate business operations and reduce efficiency, particularly when they favor domestic producers over foreign competitors to a critical extent. The EU Single Market is one of the most integrated economic areas in the world. However, non-tariff barriers appear to be a major concern for EU exporters, representing 52% of all reported issues (UNCTAD and WTO, 2019). The lack of standardization across member states complicates cross-border service provision and limits the growth potential of integrated trade. As services generate 70% of the EU's GDP, only 20% are traded across borders, and just 2% of EU-wide standards apply to services, with the rest governed by country-specific requirements (European Parliamentary Research Service, 2017). The bureaucratic effect of policies and the lack of mechanisms to counteract restricted market access causes complications in free trade and poses a threat to both the global supply chain and final consumers.

2.3. Trade Liberalization

Trade liberalization benefits businesses as it reduces barriers to trade, allowing countries to access larger markets and specialize in what they produce most efficiently. It boosts supply chain efficiency by lowering costs, increasing competition, and fostering innovation. Ultimately, it drives economic growth, often raises GDP per capita, and expands consumer choice. Trade agreements serve as trade facilitation tools. “A trade agreement summarizes the legal rights between two countries, these rights include but are not limited to, trade, investment and even economic collaboration”. Agreement counterparties tend to simplify standards and lower tariffs for each other, therefore ease the process of trade and investment (Onoriode, 2025).

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is a relatively new trade agreement, involving nearly all industries, between Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, Vietnam and the United Kingdom. From the moment of signing in 2018 until 2021, trade between new intra-CPTPP members (countries which have never signed any free trade agreement with each other before) grew by 13.2%, prevailing the trade with extra-CPTPP members (countries outside of the CPTPP agreement) by 5.8% (Global Affairs Canada, Office of the Chief Economist, 2023). Given the fact that analysis was conducted during years of COVID-19, the example of trade growth among CPTPP partners confirms that trade liberalization is an effective tool in strengthening supply chain resilience and providing access to new markets. Overall, trade agreements demonstrate an economic uplifting effect on all parties of trade agreements, particularly giving the opportunities for development for those never cooperated before.

2.4. Trade and Economic Inequality

Particular interest to the topic of economic inequality has been sparked in the last half of the century, defining globalization as a major driver of increasing regional income disparities, mainly through the actual economic flows it generates, not merely by lifting trade or capital controls (Ezcurra and Del Villar, 2021).

Globalization, marked by increased free trade, capital flows, and migration, has led to a reduction in inequality between countries, primarily due to the rapid economic ascent of nations such as China and India. These countries, representing a significant share of the global population, have experienced substantial growth, shifting many citizens into the middle class and decreasing aggregate global economic inequality. However, this trend is accompanied by a stark increase in within-country inequality across developed and developing economies (Hung, 2021).

GDP per capita index helps to reflect the wealth of the nation, however it does not guarantee equitable income distribution between society groups. Ezcurra and Del Villar (2021) infer that the level of within-country inequality tends to significantly increase when the GDP per capita drops under \$2,407 US dollars, the same as it starts increasing again when the index reaches the threshold of 68,912 US dollars or above. In countries whose GDP per capita reaches a higher threshold, inequality may be driven by three factors: weaker redistribution policies, skill-biased technological change, and capital income concentration. In wealthier countries a larger share of income comes from capital, such as investment, stock ownership, etc. rather than labor. These capital gains disproportionately benefit the wealthy, widening the gap between top earners and the rest.

Economic inequality is not the repercussion of globalisation alone, but rather the result of the combined effect of unequal economic opportunities and unevenly distributed outcomes. Molina et al. (2013) study linkage between inequality and development through unequal economic opportunities. At the individual's level, persons who have better access to education, infrastructure, resources, and live in a more prosperous environment tend to achieve better results in their lives. The author measures educational opportunity using data from PISA standardized test scores, household surveys, and other sources across many countries. The conclusion is made that inequality of opportunity, not inequality of outcomes, is the fundamental barrier to economic development, thus the explanatory power of traditional income inequality (Gini index) diminishes. Investment in expanding and equalizing access to education and basic services is essential for improving growth and social welfare, as it was found that 1% increase in the Human Opportunity Index corresponds roughly to a 2.3% increase in GDP per capita (Molina et al. 2013). Thus, strong distribution policies are important, but without policies promoting equality in access to basic opportunities - better economic results will be tremendously hard to achieve.

3. Methods

This study employs a mixed-methods approach, combining a systematic review of literature with quantitative analysis of trade and economic indicators. The research design was chosen to establish a theoretical foundation, identify gaps in the existing knowledge, and empirically examine the relationship between trade policies, supply chains, and economic inequality. The analysis included two industries - pharmaceutical products, and aircraft and parts due to their strategic importance in the transatlantic trade and security. Although trade relations have never been limited exclusively to these industries, the emphasis that was placed on them from the beginning of transatlantic partnership allowed us to track the impact of trade policies efficiently.

A literature review was conducted using two major academic databases – Scopus and Google Scholar. We focused on publications from the last 15 years to ensure that the research relied on the most recent and relevant literature. Keywords included globalization, trade policies, global supply chains, economic inequality, trade. To incorporate a practical perspective, we reviewed official reports from institutions - including Global Affairs Canada, the European Parliamentary Research Service, and the Bank for International Settlements. The review revealed two gaps:

- a) the absence of studies examining the total impact of different trade policies on both supply chain structure and economic inequality;
- b) the lack of practical recommendations for policymakers seeking to balance these two dimensions.

The quantitative analysis consisted of 3 stages:

- 1) Trade Volume Trends – annual trade volumes between the United States and the European Union were calculated and analyzed to identify shifts in trade. Linear graphs were constructed to highlight key inflection points.
- 2) Policy Mapping – major trade policies were identified through literature and institutional sources and mapped onto trade graphs to evaluate their relationship with observed changes in trade volumes. Based on data and literature, we analyzed two industries in detail - pharmaceuticals and aviation.

- 3) Linking Trade Outcomes and Economic Inequality – growth rates of GDP per capita were compared with trade volume growth rates to explore potential correlations between trade liberalization, supply chain integration, and economic inequality.

All calculations and graphical representations were conducted using Microsoft Excel.

4. Data Collection

Data on U.S.-EU trade in goods were obtained from the U.S. Census Bureau. The dataset spans 1997–2024, a timeframe available on the resource, which also provides both historical depth and coverage of major policy events, including the 1998 Mutual Recognition Agreement (MRA) in different industries. Trade volumes were measured as the sum of exports and imports. The trade volume growth rate was measured using formula:

$$\text{Trade Volume Growth Rate} = \frac{\text{Trade}_t - \text{Trade}_{t-1}}{\text{Trade}_{t-1}} * 100\%$$

where Trade_t = total trade volume (exports + imports) in year t ; Trade_{t-1} = total trade volume in the previous year.

Economic well-being was measured using GDP per capita (current US\$) for the United States and the European Union, sourced from the World Bank Open Data database. The GDP per capita growth rate for each partner was measured using formula:

$$\text{GDP per capita Growth Rate} = \frac{\text{GDP per capita}_t - \text{GDP per capita}_{t-1}}{\text{GDP per capita}_{t-1}} * 100\%$$

where GDP per capita_t = GDP per capita in year t ; $\text{GDP per capita}_{t-1}$ = GDP per capita in the previous year. Industry-specific trade data for pharmaceuticals and aviation were obtained from the TradeMap database, using available records for the period 2001–2024. Pharmaceuticals trade was identified using the 2-digit HS code 30, while aviation trade data were captured under 2-digit HS code 88. This data was used to demonstrate shifts in trade after industry-specific policies were signed.

5. Results and Discussion

5.1. Numerical Results

To properly estimate transatlantic trade development in the coming years, it is important to understand that relations between the U.S. and EU have always been playing a crucial role in different sectors and regional prosperity. Table 1 represents major trade policies and events during designated years and their impact on bilateral trade and supply chains.

Table 1. Major trade policies and events in the U.S.-EU trade relations (1997-2025)

Year	Trade Policy/Event Name	Policy Impact on Trade and Supply Chains
1998	Transatlantic Economic Partnership (TEP) Action Plan; MRAs in sectors: telecommunications, electromagnetic compatibility, electrical safety, pharmaceuticals, medical devices, recreational craft.	Created a stage for further trade standards development and unification; Expanded market access for certain products and boosted trade in strategic fields, optimized the supply chain by reducing regulatory requirements.
2001	Telecommunications and Electromagnetic Compatibility (EMC) Annex of 1998 MRAs entered into force	Eliminated duplicate testing by mutually recognizing conformity assessment bodies, cutting time and expenses for manufacturers while easing market access.
2002	EURO changeover; Guidelines for US-EU Regulatory Cooperation and Transparency;	Trade volume grew by 52.2% from 2002 to 2008, because of reduced currency exchange risks and eliminated financial barriers; Established predictable market access as firms gained earlier insights into upcoming rules, eliminated non-tariff barriers.

2007	Open Skies Agreement	Strengthened transatlantic supply-chains by lowering logistic costs and air cargo freight costs, and enhanced supply chain resilience.
2008	Global financial crisis	Trade volume dropped down by 28.2%.
2011	BASA - Bilateral Agreements on Civil Aviation Safety	Bilateral trade in products under HS digit-code 88 (Aircraft, spacecraft, and parts thereof) grew by 54.5% from 2011 to 2017.
2017	The Pharmaceutical Annex of 1998 MRAs came into operation	Bilateral trade in products under HS digit-code 30 (Pharmaceutical products) grew by 96% from 2017 to 2024.
2018	US tariffs on aluminium and steel under Section 232	Increased costs for metal-intensive supply chains but had limited impact on overall trade growth.
2019	US Section 301 tariffs after WTO authorization in Airbus dispute	Major decrease in bilateral trade in products under HS digit-code 88 by 37.8% in 2019-2020.
2020	COVID-19 pandemic	Severe global supply chains disruptions, caused by factories shutdown, transportation delays and labor shortages. Pandemic shaped a new stage for future market changes by accelerating supply chain diversification and resilience strategies.
2021	Suspension of Section 301 tariffs	Bilateral trade in products under HS digit-code 88 went back to normal.
2022	Russian invasion of Ukraine	Disrupted global supply chains, especially in the energy sector; had given the U.S. an opportunity to replace Russia on the energy market.
2023	EU-U.S. Data Privacy Framework	Facilitated smoother transatlantic supply chain operations by enabling compliant cross-border data transfers.
2025	EU-U.S. Trade deal after imposition of US tariffs	Established a single US tariff ceiling of 15% for EU goods, and abolished additional tariffs on aircraft, chemicals, drug generics, and natural resources.

Trade liberalization in the form of trade agreements, MRAs and strategic frameworks accelerate trade and optimize supply chains, while barriers and tariffs surge supply chain restructuring and higher costs are passed to the final consumers.

5.2. Graphical Results

Figure 1 demonstrates changes in trade volume in goods between the U.S. and EU, mapping major trade policies and world events.

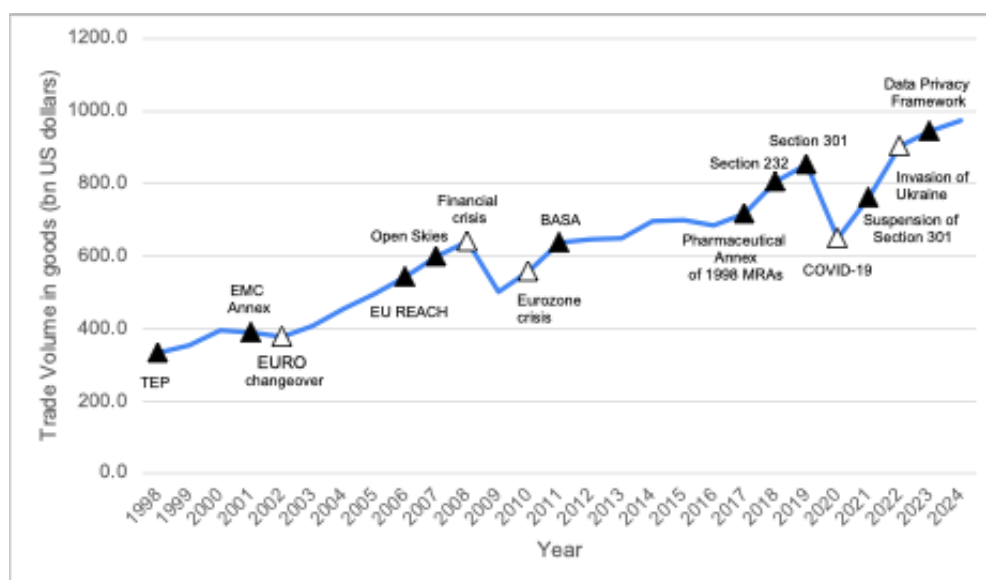


Figure 1. U.S.-EU Trade Volume in 1997-2024 (million US dollars)

As we can see on the graph, the Transatlantic Economic Partnership (TEP) of 1998 and the euro changeover in 2002 together provided a significant boost to the U.S.-EU trade. The TEP created a structured framework for regulatory cooperation, reducing non-tariff barriers and increasing transparency in standards across key sectors, and the introduction of the euro simplified currency exchange, eliminated conversion costs among participating EU countries, and reduced exchange rate uncertainty for U.S. exporters and investors.

Figures 2 and 3 demonstrate changes in trade in absolute numbers in two key sectors - pharmaceuticals and aircrafts. Although trade between partners in these sectors tends to grow steadily, we can clearly see that liberalization instruments, such as agreements and MRAs, accelerate trade and significantly increase volumes compared to previous years.

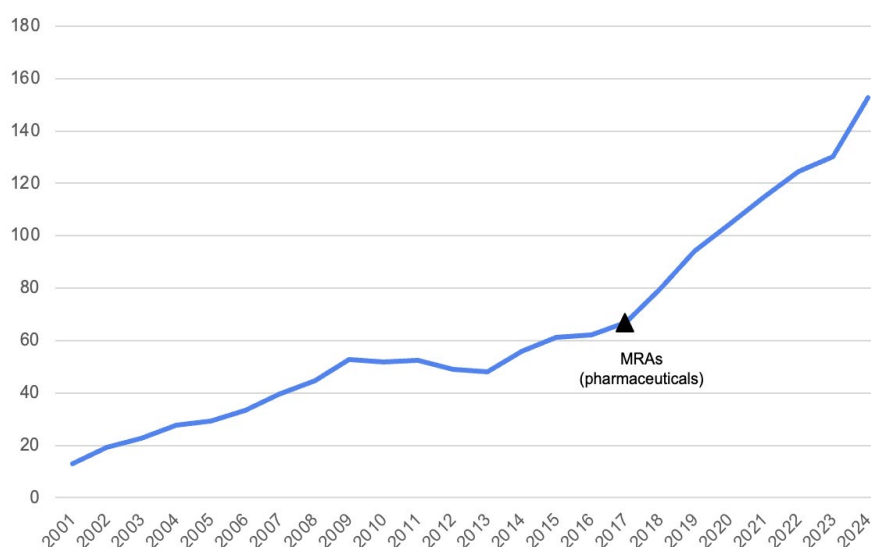


Figure 2. U.S.-EU Trade in Pharmaceutical Products in 2001-2024 (million US dollars)

Figure 2 demonstrates changes in trade in Pharmaceutical Products. The graph shows how MRA in 2017 spurred trade growth.

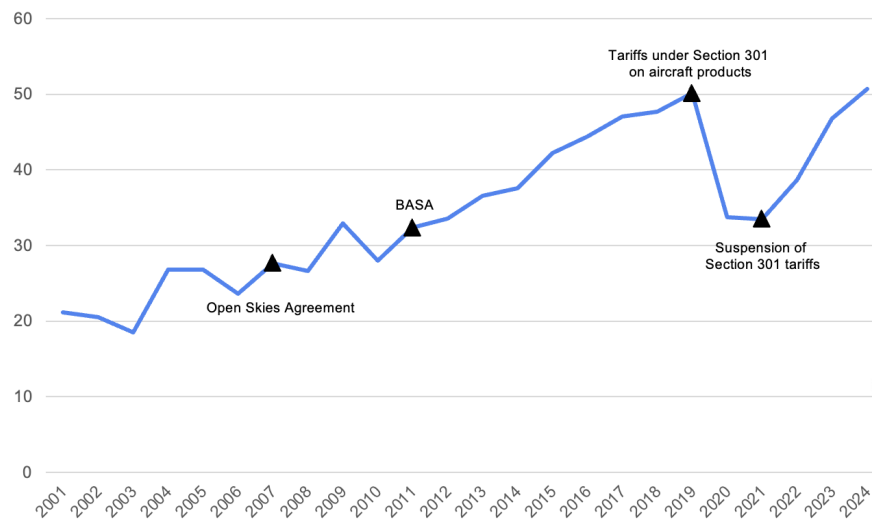


Figure 3. U.S.-EU Trade in Aircraft and Aerospace Products in 2001-2024 (million US dollars)

Figure 3 demonstrates changes in trade in Aircraft and Parts, and the impact of different trade interventions. As we can see, BASA in 2011 spurred trade as it removed unnecessary barriers, when Tariffs under Section 301 caused a sharp drop in aviation trade.

Trade rules directly influence trade development or, conversely, its decline. Trade liberalization contributes to accelerating the pace of development and improving the efficiency of supply chains, while tariffs and non-tariff barriers, on the contrary, slow down this pace or even lead to a decrease in trade compared to previous years. After calculating the growth rate in trade between the US and the EU from 1997 to 2024, we compared it with the growth rate in GDP per capita of the two partners over the same period to track trends and correlations.

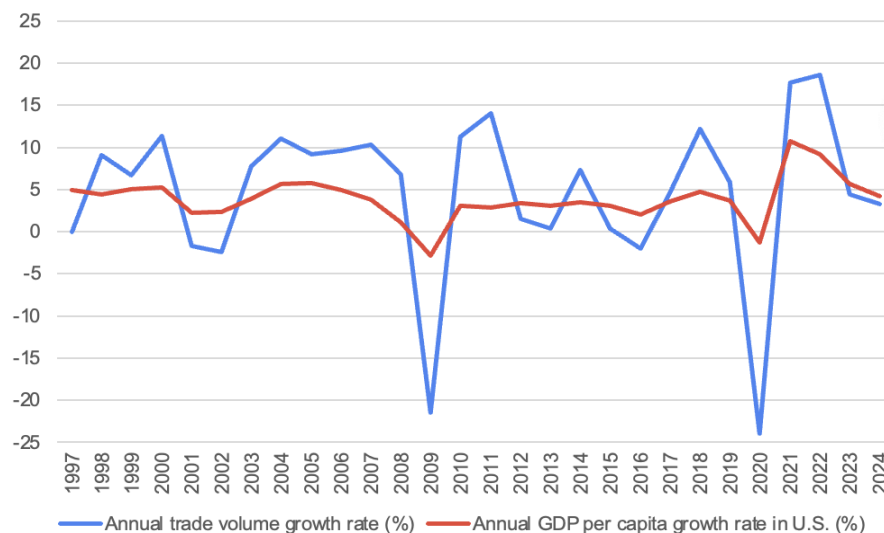


Figure 4. Correlation between annual trade volume growth rate and GDP per capita growth rate of the U.S.

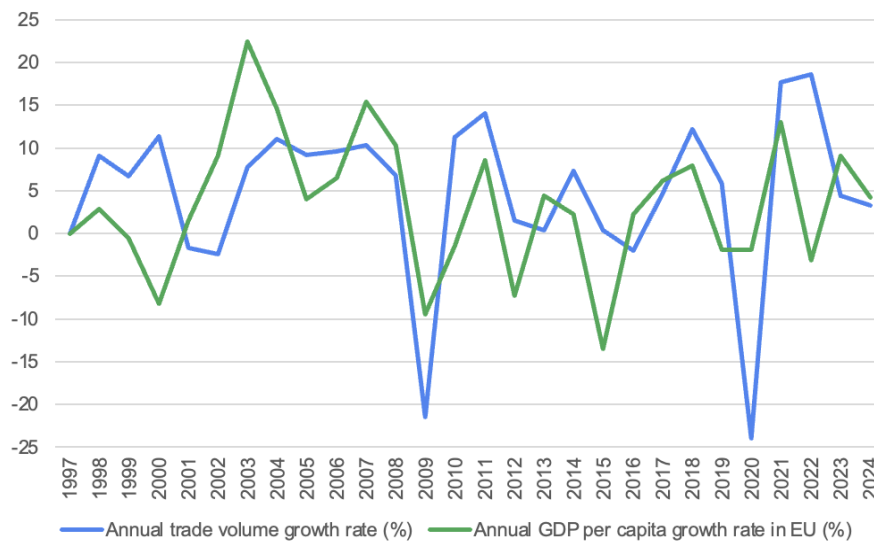


Figure 5. Correlation between annual trade volume growth rate and GDP per capita growth rate of EU

Analysis of the correlation indicates a strong interdependence between the trade volume growth rate and its EU's GDP per capita growth rate. Given that the United States is not only one of the world's largest demand markets but also the primary destination for EU exports, shifts in trade with the U.S. tend to be closely mirrored in EU GDP per capita (Figure 4 and Figure 5). The EU's production is highly oriented towards export in such sectors as automobiles, machinery, chemicals, and pharmaceuticals - further reinforces this linkage, as trade performance directly drives economic growth and wealth across the Union.

In contrast, the analysis suggests that U.S. GDP per capita is less sensitive to changes in bilateral trade volume. This can be attributed to the predominantly consumer-driven nature of the U.S. economy, which is less dependent on exports as a driver of growth. A review of the trade balance confirms this asymmetry, as EU exports to the U.S. have consistently exceeded U.S. exports to the EU over the reported years.

From this, we infer that when a partner economy accounts for a significant share of another country's export market, the latter's GDP per capita becomes more dependent on trade fluctuations with that partner. Consequently, any trade policies that stimulate or constrain bilateral trade flows can be expected to have a direct impact on the economic prosperity of the more export-reliant partner.

5.3. Proposed improvements

By analysing trade changes and the impact of trade policies on supply chains and economic inequality, we can map future trends in bilateral trade in upcoming years, taking into account current political frictions. Geopolitical dynamics shape trade policies itself, rather than merely influencing trade flows. Tariffs, standards, export controls, and sectoral agreements are being deployed as instruments of geopolitical strategy. This interaction can be visible in at least three areas:

- sanctions regime against Russia since 2022, which drive selective liberalization among allies (US and EU in our case study) while excluding rivals;
- the rise of protectionist political forces, which embed geopolitical priorities in trade standards and tariffs;
- strategic rivalry with China, which pushes the U.S. and EU to align policies on technology, energy, safety and defense supply chains.

These dynamics suggest that future trade policy will reflect not only economic efficiency but also security calculations and ideological alignments.

Estimation of future trends in bilateral trade and supply chains structure:

- a) Trade volumes will likely keep expanding, but at a slower pace than the 2010s, due to persistent tariff/standards frictions and rising radical right-wing political forces in Europe and the U.S.
- b) Geopolitical tensions will sustain strong trade in aircrafts and parts, and in defense equipment goods.
- c) Sanctions on Russia, and strategic competition with China, will push U.S.-EU trade closer in sensitive sectors like energy, defense, and technology.

- d) The EU-U.S. trade deal on August 1st abolished tariffs on aircrafts, chemicals, certain drug generics and natural resources. Trade will skew toward these sectors and reduce in other sectors under tariffs, such as machinery, foods, autos, etc.
- e) Aging populations on both sides and rising healthcare spending should have kept pharma/medical devices one of the most resilient bilateral trade pillars. However, as tariffs on pharmaceuticals remain at 15% even after the new EU-U.S. trade deal, it will cause a decline in trade in this sector and force the EU to seek access to new markets, such as the Latin American market.
- f) As AI technology development gains momentum, trade restrictions/standards in such areas as data protection, data security and technology usage will also be in place that might harden the exchange of information in upcoming years.

Estimation of future trends in economic inequality:

- a) Compliance, advanced manufacturing, and developing trade in technology, aviation, etc., raise demand for STEM and high-skill technicians, lifting their wages up. This might increase inequality on both sides unless policymakers intervene;
- b) Sectoral winners and losers. Winners: Aerospace, chemicals, capital goods, clean-tech supply chains, etc. Losers: agriculture, textiles, consumer goods, etc.
- c) As the U.S. gained a larger share of EU energy imports, it will ease the regressive hit from energy inflation, which will affect lower-income households - reducing inequality.

Recommendations for policymakers when developing policies:

- a) Expand the use of trade liberalization tools as they have proven to be the most effective in boosting trade flows and optimizing supply chains, but ensure fairness by establishing transparent rules and including industry representatives in the development of new trade standards.
- b) Implement a mandatory notice period for tariffs. It will require countries to notify trade partners within an established timeframe before imposing new tariffs or trade restrictions. This mechanism would create space for dialogue and compromise, reducing the negative impact on businesses and final consumers.
- c) Enhance access to opportunities, lowering the gap between low-skilled and high-skilled labor through investment in education, healthcare, infrastructure, and logistics. The encouragement of multinational corporations, which benefit the most from trade openness, to reinvest in underdeveloped regions.
- d) Encourage companies to establish headquarters in smaller urban areas by reducing taxes in those areas, stimulating local economies and reducing outmigration.
- e) When developing redistribution policies, focus on long-term measures such as reducing regressive taxes (e.g., lowering VAT) rather than relying on short-term subsidies or one-time transfers. Well-designed redistribution policies will help ensure that trade benefits are broadly shared and contribute to sustainable economic growth.

5.4. Validation

Validation of the results is ensured through triangulation of data sources, as trade and GDP data were cross-checked across the U.S. Census Bureau, TradeMap and International Monetary Fund. Validation is also based on the robustness of findings, which align with existing literature on trade liberalization (e.g. Baldwin and Freeman, 2022) and economic inequality (e.g. Ezcurra and Del Villar, 2021). The fact that our graphical results mirror patterns described in literature reinforces their reliability.

6. Conclusion

This research paper contributes to the better understanding of how trade policies impact trade in certain industries, and what implications it has on the total trade volume and economic inequality. Data analysis revealed strong correlation between trade growth rate and GDP per capita growth rate of the European Union, which was a basis for further estimation: the development pace of the nation's wealth depends on the growth rate of trade with the country that is its main export partner. By examining major trade policies between the U.S. and EU, we have concluded that trade liberalization accelerates trade in sectors, deducts supply chain barriers, and lowers the cost of final products for consumers, which undoubtedly reduces economic inequality. However, in order to allocate economic outcomes fairly, policymakers must incorporate rules that promote equal access to opportunities and distribute revenue with an emphasis on long-lasting results.

6.1. Limitations of the study

The study aimed to provide practical policy recommendations and trade trend predictions, based on literature review and case-study of the U.S.-EU trade relations. The paper does not include trade in services and is limited to only 2 industries due to research time constraints. Trade in these sectors has been analysed since 2001 due to unavailability of data. The research also does not isolate the pure impact of trade policies, as it is hard to eliminate other factors, such as technological changes, fiscal measures, environmental changes, etc.

6.2. Future research

Future research can concentrate on the analysis of bilateral trade in goods and services to capture a bigger picture and track the relationship between trade and GDP per capita in the services sector. According to our assumptions, the correlation may be even stronger, as 70% of the EU's GDP is generated by services.

References

- Baldwin, R., Freeman, R., Risks and global supply chains: What we know and what we need to know. *Annual Review of Economics*, vol. 14, no. 1, pp. 153-180, 2022.
- European Commission, Available: https://ec.europa.eu/commission/presscorner/detail/en/qanda_25_1930, Accessed on August 27, 2025.
- European Parliamentary Research Service, Unemployment and labour market policies: Policies supporting youth employment in EU Member States (EPRS Briefing No. 2017 608747). Available: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2017/608747/EPRS_BRI\(2017\)608747_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2017/608747/EPRS_BRI(2017)608747_EN.pdf), Accessed on August 10, 2025.
- Ezcurra, R., and Del Villar, A., Globalization and spatial inequality: Does economic integration affect regional disparities?, *The Annals of Regional Science*, vol. 67, no. 2, pp. 335-358, 2021.
- Gopinath, G., Gourinchas, P.-O., Presbitero, A. F., and Topalova, P., Changing Global Linkages: A New Cold War?, *Journal of International Economics*, vol. 153 (Suppl C), Article No. 104042, 2024.
- Government of Canada, The growth of supply chain trade within the Comprehensive and Progressive Agreement for Trans-Pacific Partnership [Report], Available: <https://international.canada.ca/en/global-affairs/corporate/transparency/reports-publications/chief-economist/impacts/2023-12-cptpp-growth-supply-chain#a1>, Accessed on August 5, 2025.
- Grossman, G. M., Helpman, E., and Redding, S. J., When tariffs disrupt global supply chains, *American Economic Review*, vol. 114, no. 4, pp. 988-1029, 2024.
- Hung, H. F., Recent trends in global economic inequality. *Annual Review of Sociology*, vol. 47, no. 1, pp. 349-367, 2021.
- International Monetary Fund, Available: <https://data.imf.org/en/datasets/IMF.STA:IMTS>, Accessed on August 20, 2025.
- Molina, E., Narayan, A., and Saavedra-Chanduví, J., Outcomes, opportunity and development: Why unequal opportunities and not outcomes hinder economic development, *The World Bank: Policy Research Working Paper*, No. 6735, 2013.
- Onoriode, H. E., The impact of trade policies on global supply chains, *Global Educational Research Journal*, vol. 13, no. 1, pp. 9–15, 2025.
- Peterson Institute for International Economics, US-China Trade War Tariffs: An Up-to-Date Chart, Available: <https://www.piie.com/research/piie-charts/2019/us-china-trade-war-tariffs-date-chart>, Accessed on August 27, 2025.
- TradeMap, Available: <https://www.trademapp.org/Index.aspx>, Accessed on August 20, 2025.
- United Nations Conference on Trade and Development, and World Trade Organization. A practical guide to the economic analysis of non-tariff measures. Available: https://unctad.org/system/files/official-document/ditctab2019d4_book_en.pdf, Accessed on August 10, 2025.
- United States Census Bureau, Available: <https://www.census.gov/foreign-trade/balance/c0003.html>, Accessed on August 18, 2025.
- World Bank Group, Available: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>, Accessed on August 19, 2025.

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