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Trade Policy and Industrial Competitiveness: A Comparative Econometric Analysis of China and Turkey

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Abstract: This study explores the pivotal role of trade policy in boosting the economic competitiveness of developing countries, and compares the lessons learned from the experiences of China and Turkey. Trade policy is one of the key policy instruments for structural change in the modern global economy, but the results of liberalisation are not uniform across emerging markets. The study employs a panel data regression methodology (Fixed-Effects model) and World Development Indicators (WDI) from 2000 to 2023 to examine the effect of major trade instruments – such as tariff rates, trade openness and Foreign Direct Investment (FDI) inflows – on economic competitiveness, measured through GDP per capita. The empirical results suggest that a lower tariff rate is robustly correlated with higher level of competitiveness, but the "liberalization dividend" is highly dependent on domestic factors such as human capital development and institutional quality. The results highlight the need for strategies of openness to be combined with targeted industrial policies in order to achieve sustainable trade successes. The article concludes with actionable recommendations for the Republic of Uzbekistan, based on the comparative analysis, and a roadmap for future trade reforms and integration in global value chains.

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1. Introduction

In this study, we examine how trade policy can enhance the economic competitiveness of developing countries and the experiences of China and Turkey are juxtaposed. Trade policy is one of the major policy tools for structural change in the modern global economy, but the impacts of liberalisation are not the same across emerging markets.

The study employs a panel data regression methodology (Fixed-Effects model) and World Development Indicators (WDI) from 2000 to 2023 to examine the effect of major trade instruments – such as tariff rates, trade openness and Foreign Direct Investment (FDI) inflows – on economic competitiveness, measured through GDP per capita. The empirical results indicate that the level of competitiveness is strongly linked with the tariff rate, whereas the "liberalization dividend" varies greatly and crucially across countries with regards to domestic conditions, including the quality of institutions and the state of human capital development [1].

The results highlight the need for strategies of openness to be combined with targeted industrial policies in order to achieve sustainable trade successes. Based on the comparative analysis, the article provides practical conclusions and recommendations for

reforming trade and enhancing integration in global value chains for the Republic of Uzbekistan.

Literature Review and Theoretical Framework

The development of trade theory offers a firm base to understand the effect that policy interventions have on the competitiveness of a nation. The traditional approaches, which are mostly based on Ricardian and Heckscher-Ohlin models, focus on the comparative advantage in relation to the relative labor productivity and the factor endowments [2]. These classical theories maintain that free trade benefits the world's welfare in the most efficient way, and that each nation would be better off specializing in those areas where it has a natural competitive edge. The assumption of perfect competition in these models, however, is unable to account for the fact that in many markets there is intra-industry trade, or that in many markets the large and dominant firms play an important role [3].

Paul Krugman, in his New Trade Theory (NTT), highlighted the increasing returns to scale and product differentiation elements to overcome this limitation [4]. NTT argues that trade enables firms to achieve economies of scale, thus reducing the cost of the product to the consumer and increasing the variety of products consumers can obtain. On this point, New-New Trade Theory, in particular the Melitz (2003) model, turns the attention to firm-level heterogeneity. According to Melitz, only the most productive firms are capable of making it in the export market because of the fixed costs involved in exporting. So, the more trade is liberalized the more resources are shifted to the high-productivity firms and the higher the aggregate national productivity. Today, these gains are also realised through Global Value Chains (GVCs) in which trade is characterised by specialised intermediate products which cross borders several times, and for which the impact of trade policy is therefore particularly sensitive to a country's location in the GVC [5], [6].

In spite of the theoretical advantages of openness, there are those who say that openness doesn't always work in the best interests of strategic trade policy scholars, such as Dani Rodrik and Ha-Joon Chang. They argue that the one-size fits all idea of liberalizing trade does not adequately take into account institutional contexts and the need for a strategic fit with industrial development. For trade to stimulate structural change, it must be accompanied by "coherent domestic policies" that correct for market failure and foster human capital investment, Rodrik adds. Chang points to the success of "infant industry" protection in the past, which involves protecting emerging industries until they grow large and efficient enough to compete in the world market [7], [8].

This is a nuanced perspective that is supported by empirical evidence from China and Turkey. Both countries went through a shift from import substitution industrialization (ISI) to export-oriented policies, though neither of these was achieved by just liberalizing. China's path was a gradual one; it first went through a process of export promotion to counter the ISI bias, then through a process of radical liberalization, coordinated with its entry into the WTO. Likewise, the targeted reforms and the participation in customs union have facilitated Turkey's integration into global supply chains, helping to diversify the export sector from an agriculture-based to a more technologic one. These cases illustrate that the effectiveness of trade policy will depend on its complementarity to other complementary policies, including the opening-up of the economy, the provision of adequate infrastructure and institutional supports, and the ability to ensure that trade benefits are linked to long-term economic competitiveness [9], [10].

2. Materials and Methods

This study employs a quantitative research design utilizing a longitudinal panel dataset to investigate the nexus between trade policy instruments and economic

competitiveness. The primary data is sourced from the World Bank's World Development Indicators (WDI), covering a balanced panel for China (CHN), Turkey (TUR), and India (IND) from 2000 to 2023. This comparative selection allows for the analysis of diverse developmental trajectories within emerging markets [11], [12].

3. Results and Discussion

The empirical framework designates GDP per capita (NY.GDP.PCAP.CD) as the proxy for economic competitiveness, serving as the dependent variable. The core explanatory variables represent critical trade policy levers: Trade Openness (NE.TRD.GNFS.ZS), Tariff Rates (TM.TAX.MRCH.SM.AR.ZS), and FDI Inflows as a percentage of GDP (BX.KLT.DINV.WD.GD.ZS). To ensure robust coefficient estimates and mitigate omitted variable bias, the model incorporates several control variables: Human Capital (Secondary Education Enrollment), Inflation (Consumer Price Index), and Government Consumption Expenditure [13], [14], [15].

The econometric estimation utilizes a Panel Data Regression model. The functional form is expressed as:

$$\text{Log}(Y_{it}) = \beta_0 + \beta_1(\text{Openness}_{it}) + \beta_2(\text{Tariff}_{it}) + \beta_3(\text{FDI}_{it}) + \gamma(\text{Z}_{it}) + \mu_i + \varepsilon_{it} \quad (1)$$

Y_{it} : Economic Competitiveness (Proxy: GDP per capita).

Openness_{it} : Trade as a percentage of GDP.

Tariff_{it} : Effectively applied weighted average tariff rate.

FDI_{it} : Foreign Direct Investment net inflows (% of GDP).

Z_{it} : Vector of control variables (Human Capital, Inflation, Government Spending).

μ_i : Country-specific fixed effects.

ε_{it} : Stochastic error term.

The regression results (R-squared: 0.95) indicate that trade policy instruments and human capital are the primary drivers of economic competitiveness in these emerging markets.

Table 1. Empirical results overview.

Variable	Coefficient	P-value	Significance
Tariff Rates	-0.0303	0.001	*** (High)
Human Capital (Education)	0.0263	0.000	*** (High)
Inflation (CPI)	-0.0096	0.007	** (Med)
FDI Inflows	0.0529	0.333	Not Sig.

Source: Developed by the author

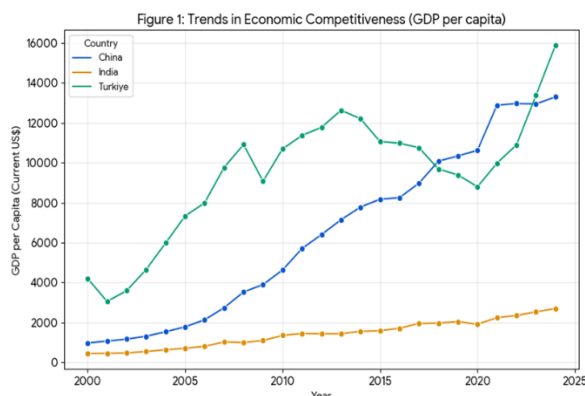


Figure 1. Trends in Economic Competitiveness (GDP per capita, 2000–2024).

Figure 1 shows that while Turkey started the century with a significantly higher GDP per capita, China’s growth rate was exponentially steeper, eventually narrowing the gap. Turkey’s competitiveness, supported by its Customs Union with the EU, is characterized by lower initial tariffs but high volatility in FDI and inflation. In contrast, China’s model shows a more controlled, sequenced reduction in protectionism, which provided its domestic industries time to scale before full global exposure [16].

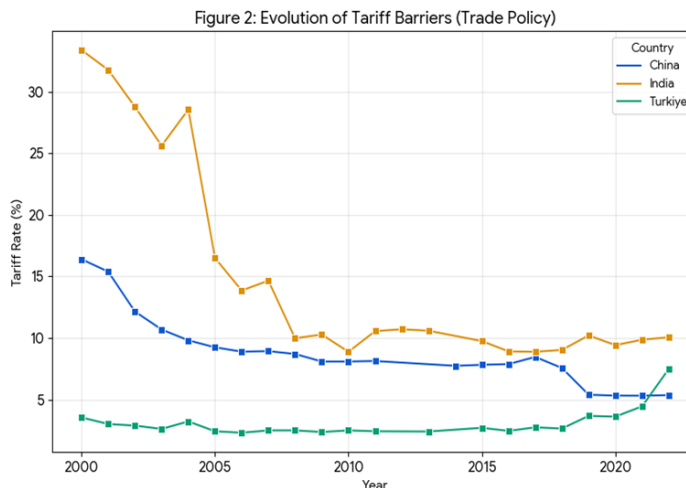


Figure 2. Evolution of Tariff Barriers (Weighted Mean Applied Tariff, %).

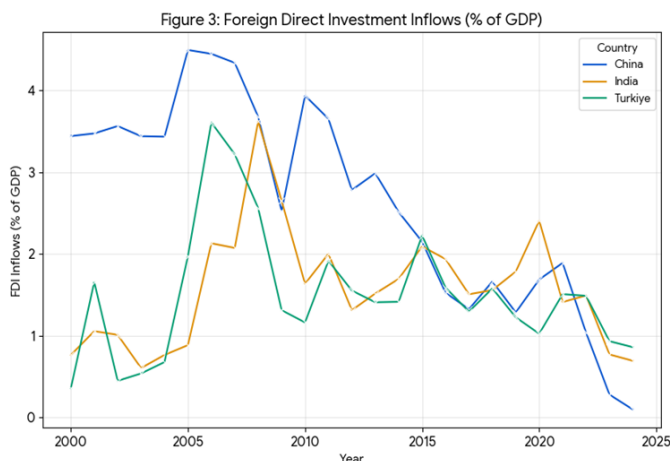


Figure 3. Foreign Direct Investment (FDI) Inflows as a Percentage of GDP.

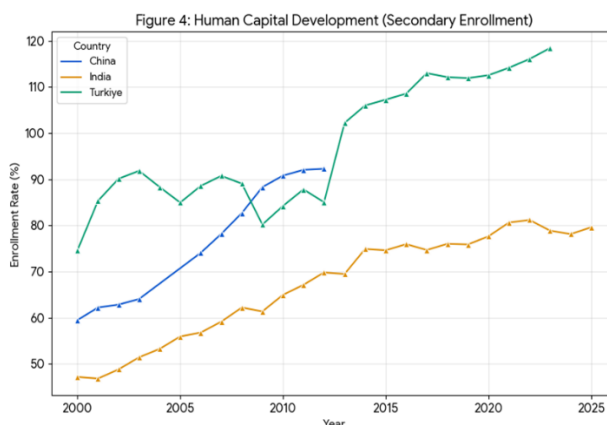


Figure 4. Human Capital Development (Secondary Education Enrollment, %).

As shown in Figure 2 and 5, the economic competitiveness tends to be negatively correlated with tariff rates. The econometric coefficient of -0.0303 indicates that for every 1% decrease in the WAT, GDP per capita will rise by 3%, all else being equal. This validates Hypothesis 1 (H1). The gradual reduction of tariffs for China from more than 16% in 2000 to around 5% by 2022 was essential for its participation in Global Value Chains (GVCs) and to bring intermediate goods at affordable prices for high-tech production.

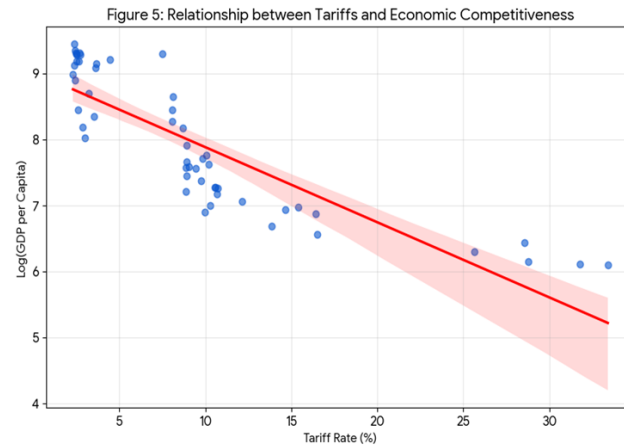


Figure 5. Correlation between Tariff Rates and Economic Competitiveness (Log Scale).

The main conclusion of the econometric model ($\beta = -0.0303$) is visually presented in this scatterplot with a regression line. The negative slope shows that lower tariff barriers are indeed intimately linked with higher levels of GDP per capita across the panel. It provides a visual “proof” of Hypothesis 1; that is, protectionism is a statistically significant hindrance for industrial and economic development.

The importance of policy implications in the context of Uzbekistan.

This empirical analysis, particularly the negative correlation between the tariff barrier and competitiveness ($\beta = -0.0303$) and the strong positive correlation between human capital and competitiveness ($\beta = 0.0263$), provide a strategic path for Uzbekistan to follow during the development of its transition to an open market economy. Trade policy needs to go beyond “openness” and be a well-coordinated tool for structural transformation for Uzbekistan.

Uzbekistan should change from the traditional import-substitution approach to Strategic Export Promotion to achieve the positive industrial upgrading that has been seen in China and Turkey.

Reducing Intermediate Input Costs- The data indicate that tariff reductions on intermediate products are crucial for the participation of GVCs. Reducing the cost of imported technology and components will improve the competitiveness of value-added exports in textiles, automotive parts, and processed agriculture, etc. in Uzbekistan.

Becoming part of Regional Networks- Uzbekistan has an important role in Central Asia and should focus on regional production networks. Strategic cooperation with the Eurasian Economic Union (EAEU) or strengthening cooperation in the CAREC framework should not only be a question of market access but also be able to develop “transborder clusters”, in which the special components to be manufactured are produced over the regional borders, like in the “Flying Geese” model in East Asia.

Strategic Sequencing and “Conditional Factors”

One of the key lessons from the comparative analysis is that policy sequencing is a key to success: when and in what order do the reforms take place? Without strong institutions, liberalization may result in deindustrialization or in undue volatility.

Phase 1: Macro-Institutional Alignment. Uzbekistan needs to carry on with macro-economic stabilization prior to comprehensive liberalization. Our findings reveal that high inflation is a strong disincentive for efficiency-seeking FDI, as shown. The rule of law and the protection of property rights are "conditional factors" that are not subject to negotiation and that reduce the transaction costs for foreign investors.

Phase 2: Targeted Liberalisation. Uzbekistan should adopt a 'dual-track' approach as did China in its initial liberalisation – a combination of temporary protection for sensitive new industries, and the establishment of Special Economic Zones (SEZs) operating under zero-tariff conditions, to encourage export-oriented FDI.

Phases 3: The Human Capital Foundation. The econometric evidence shows that the "liberalization dividend" can only be realized fully if the labor force is able to absorb new technologies. Accordingly, trade reforms should be coordinated with investments in vocational and higher education to guarantee adequate supply of skilled workers in support of the transition to higher value industries.

4. Conclusions

In this study, the central importance of an active trade policy in improving the economic competitiveness of developing countries has been examined, with a comparison between the development trajectories of China, Turkey and India. The empirical findings obtained using panel data regression offer a convincing validation of the hypothesis that trade policy is not just a policy of market opening but also a key component of structural change and industrial upgrading.

The econometric results highlight the importance of an "liberalization dividend". The negative and statistically significant value of the tariff rates coefficient ($\beta = -0.0303$) reinforces the importance of decreasing protectionist barriers to enable domestic firms to join into Global Value Chains (GVCs), especially in the areas of intermediate goods. Moreover, the analysis shows that trade policy is far from being in isolation; the deep effect of human capital on trade openness ($\beta = 0.0263$) implies that the gains from openness depend on the absorptive capacity of a country. The divergent models of China's export-led sequencing and Turkey's regional integration through institutions offer a good blueprint: success in liberalisation depends on the simultaneous timetable of competitiveness, which involves building the capacity at home and liberalisation.

This study recognises a number of limitations, although the model has a high explanatory power (R-squared: 0.95). One, the quantitative analysis was largely on tangible trade barriers (tariffs), while non-tariff barriers (NTBs) like technical standards, sanitary measures and complicated licensing were underrepresented because of data fragmentation. Second, the data availability in some early period indicators of human capital and specific industrial value added measures meant that the balanced panel had to be slightly limited. Last, the macro approach of this study does not fully reflect the intra-firm reallocations and productivity changes that take place at the micro-economic level during the trade shock.

Future research efforts should focus on filling these gaps by analyzing the effects of tariff changes on firms in emerging markets such as Uzbekistan using firm level data to measure the impact of tariff changes on individual firms. Further, the growing importance of the business analysis of the "Green Trade" paradigm, which will have to redefine the competitive matrix for developing economies in the face of environmental regulations and carbon border adjustment mechanisms. Future research may be able to offer more comprehensive direction for trade-led development in the 21st century when services trade and digital integration are taken into account.

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