

The Globalization Origins of Autocratic Rise: Engaged Reformers, Autocratic Advantages, and the Post-Cold War Reversal

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Abstract Autocracies have resurged economically, defying the popular view that democratic institutions (e.g. inclusive, Acemoglu et al. 2001) would favor growth. Why this happens is little understood. I document autocratic rise – unlike pre-1990, autocracy is associated with better economic performance, especially in trade, a critical driver of fiscal and developmental success.¹ Instead of arguing that autocracy matters exogenously, I examine both trade integration, specifically WTO expansion, and domestic reform – two major changes that occurred during the post-Cold War globalization and made possible satisfying the *scope condition* for what I theorize as “autocratic advantages.” I demonstrate that post-1990 WTO expansion has disproportionately benefited autocracies, but only after crossing certain institutional thresholds. Moreover, similar domestic reforms benefit autocracies more, but only among WTO members. Put differently, autocracies excelled conditional on *both* factors: only “engaged reformers,” representing over 90% of autocracies’ GDP, succeed, and rapid rise would be unlikely without economic globalization. Lastly, mechanisms through sectoral patterns, mediating analysis, and qualitative cases corroborate my theories.

1 Introduction

Since the early 1990s after the Cold War ended, economic globalization has significantly accelerated its pace (Baldwin 2016; Rodrik 2012). Global trade and financial integration significantly expanded,

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¹In this paper, although the puzzle is about autocracy defined as a specific range of states (e.g., $\text{Polity} \leq 0$ in Acemoglu et al. 2019), my arguments and empirical evidence apply to regime type as a continuum, dichotomy, or trichotomy.

accompanied by a growing number of countries adopting liberal economic reforms (Milner and Mukherjee 2009). There was an optimism that expansion of trade and free market would lead to more political freedoms and democratic governance (Fukuyama 1989; Ikenberry 2001). By 2010, the membership of GATT/WTO nearly doubled compared to 1985, along with the unprecedented proliferation of other trade agreements (e.g., RTAs and PTAs).

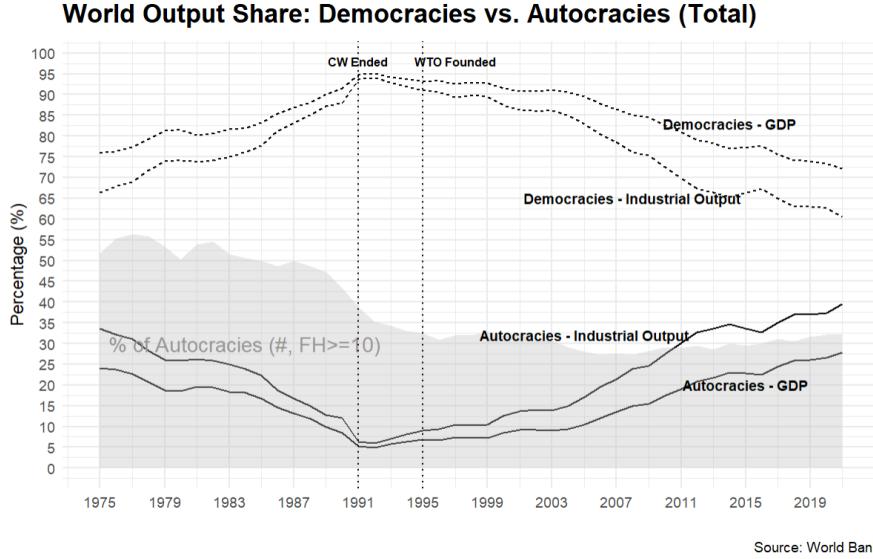


Figure 1: The Distribution of Power Change Between Democracies and Autocracies. *Note:* I use a conservative measure for Autocracy (Freedom House (FH) Index ≥ 11). Similar patterns for using Polity V or excluding China are plotted in Appendix A.1. In 2020, China accounts for 62% of autocracies' GDP. Autocracies' real share is likely higher, since many run external surpluses and are accused of maintaining currency devaluation (Figure A.6). Shadow area indicates the proportion of autocracies in number.

Meanwhile, the once promising third-wave democratization has stalled (see the shaded area in Figure 1), and scholars are puzzled and concerned about the emergent instability and backsliding of both emerging and advanced democracies, as well as the stable, competitive autocracies (Diamond 2015; Ekiert and Dasanaike 2024; Haggard and Kaufman 2016). The VDem's global liberal democracy index has retreated to the 1990-level (Figure A.3). Backsliding in many democracies are argued to be connected to globalization and its resulting grievances (Autor et al. 2020; Inglehart and Norris 2017). By contrast, many traditional autocracies seem to do well, with their share of global output reversing the declining trend and steadily rising (see Figure 1). Notably, many are competitive on the export market.²

In a nutshell, the post-1990 economic globalization has gone hand-in-hand with the relative rise

²In 2022, the largest trade surplus countries were: China, Russia, and Saudi Arabia. See more in Figure A.6 and Section 2.

of autocracies. But is it coincidental? How can autocracies rise? Despite the merit of globalization for lifting poverty and cultural exchange, globalization nonetheless has raised concerns over, for example, inequality or security among societal groups. This paper seeks to understand the role of economic globalization in autocratic rise. I argue that while both autocracies and emerging democracies have implemented market-oriented reforms, autocracies, despite their limitations in fostering internal demand, may possess greater institutional and non-institutional advantages to compete for *external demand* in the new setting – a highly integrated global economy. Consequently, as I demonstrate, both joining the WTO and domestic reform brought autocracies more trade rewards. However, this is not without *scope condition* – autocratic advantages are confined to those who have implemented some institutional reforms and been inside the WTO – the “engaged reformers,” accounting for over 90% of autocracies’ GDP. The theory then suggests that this is not simply a story of state capacity, or China and oil states, which account for a portion of autocratic winners; former socialist or resource-rich countries that did not meet the scope condition nonetheless failed to outcompete.³ Nonetheless, China, four times the population of the U.S. or twelve times that of Japan, poses significant stress to the system.

Consider two typical types of autocracies: export-oriented ones, primarily in Asia, and resource-rich states in the Middle East, Eastern Europe, and Central Asia. Both types emulated advanced democracies by adopting similar economic institutions – such as market liberalization and property rights (PR) protection, offering relatively inclusive economic opportunities – while avoiding comparable political reforms. Through trade integration, these autocracies relied heavily on *external demand*, enabled by autocratic advantages discussed below, while their political institutions constrained domestic redistribution and thereby suppressed *internal demand*. Absent external demand, the impact of domestic reforms would be significantly diminished. Furthermore, the lack of political constraints increases the risk of economic reform reversals (e.g., China). For resource-rich autocracies moreover, trade integration – whether through joining global trade regimes or capitalizing on new joiners – rapidly boosted commodity exports, a phenomenon that was more restricted during the Cold War. In this way, autocratic regimes leveraged globalization to thrive while maintaining political control, fostering competitive “hybrid regimes” (Levitsky and Way 2006).

The findings address the puzzle of why post-1990 globalization co-occurs with autocratic rise and democratic backsliding unseen three decades ago. They speak to the regime performance debate and

³China and oil states are not outliers in descriptive data too.

the original expectations of globalization in which democracy would more flourish and globalization would foster a democratic world (Acemoglu et al. 2001; Acemoglu et al. 2019; Fukuyama 1989; Ikenberry 2001), as well as the critics (Rodrik 2012). While institution remain critical (e.g., as scope condition), sufficient attention should be paid to external factors. Without access to external market or conversely exposed to external shocks, the effects of domestic institutions can be significantly weakened. For instance, excessively high investment in infrastructure and industries in reformed autocracies may hardly emerge without necessary scope conditions.⁴

The implications are multifaceted. According to international relations theories⁵, a world of stronger autocracies is likely to become more conflictual and less cooperative, with adverse effects on global economy and the current security environment.⁶ Economic performance plays a critical role in regime stability – economic weakness not only sow instability domestically and erodes public trust in democracy (Przeworski et al. 2000; Svolik 2008) as is happening, but also diminish the linkages and leverages that otherwise facilitate democratization (Levitsky and Way 2006). Examples, from Russia’s “shock therapy” to current challenges in the U.S. and India highlight how unsatisfactory neoliberal policies can lead to authoritarian tendencies (Bruff 2014). Simultaneously, strengthened autocracies resist democratization, bolster each other, and encourage a global autocratic drift (Ekiert and Dasanaike 2024), strengthening autocratic rules and norms (Wright, Frantz and Geddes 2013). Autocrats increasingly use outcomes to prove legitimacy and even “redefine” democracy (Batuero and Tolstrup 2024; Oser and Hooghe 2018).

2 The Puzzle: Performance Divergence

Stylized Patterns

I document the patterns of the economic rise of autocracies in the post-1990 period. First, I illustrate the trends of several economic indicators including two trade measures that are directly linked to globalization. I calculate the means of merchandise exports (% of GDP), trade balance (% of GDP), industrial output (% of GDP), and GDP growth rate of both democracy and autocracy ($FH \geq 11$) groups. In Figure 2, all four measures show that since the early 1990s, the average performance of autocracies diverges or surpasses that of democracies. These patterns are similar after removing

⁴For example, excessive investment incentives in export-oriented models like in China and Vietnam were largely driven by prospects in overseas markets and facilitated by export gains.

⁵Such as realism, constructivism, and democratic peace theory.

⁶Coincidentally, global conflicts (reported by ACLED, see Figure A.4) have steadily risen for the past two decades.

developed countries, or resources-oriented countries (such as Russia and the OPEC states), or China (see Figure A.5). Note that the means for autocracies have larger standard errors, consistent with the literature suggesting more diverse outcomes among them (Przeworski et al. 2000; Rodrik 2000).

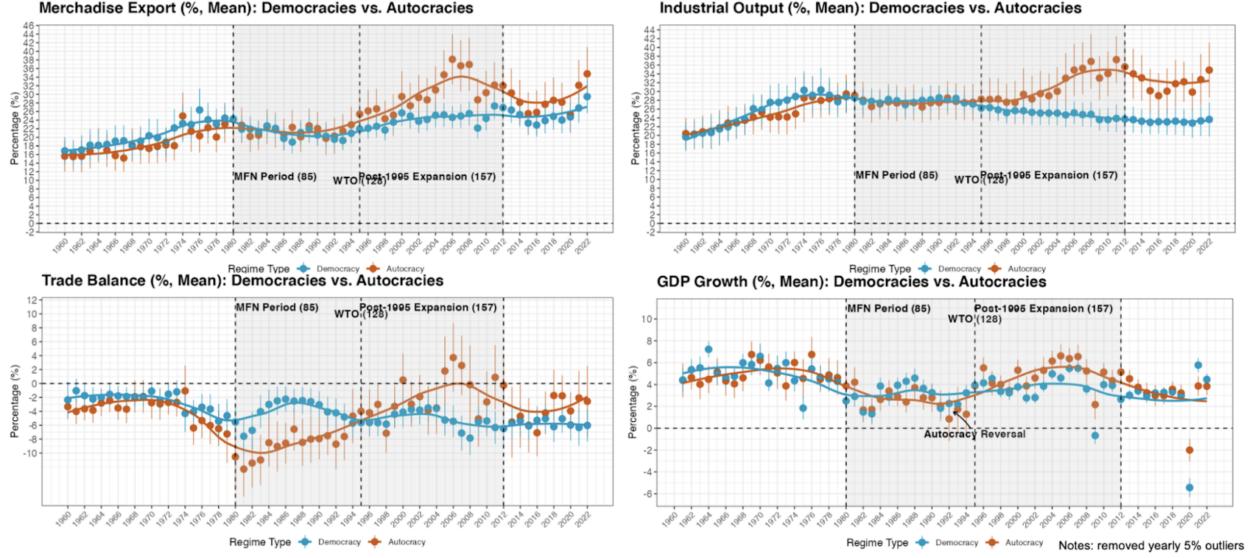


Figure 2: Mean Performance of Economic Indicators between Democracies and Autocracies ($FH \geq 11$). *Note:* % means as a share of GDP and bars denote standard errors of means. 5% of yearly data is removed from tails. The patterns generally hold after removing developed countries, or China, or Russia, or OPEC countries (see Figure A.5).

Using the data from the World Bank's World Development Indicators, I test the relationship for more major development-related measures, ranging from GDP growth rate and fixed investment to saving and export, which are regressed on regime type (Polity V, ranging from -10 to 10) for the period of 1990-2020, controlling for GDP per capita and year fixed effects for similar level comparisons.⁷ In Figure 3, more autocratic regime types are associated with better economic performance for all indicators. For example, a ten-unit decrease in Polity (more autocratic) is associated with nearly one percentage point increase in annual GDP growth, eight percentage points increase in industrial output (% in GDP), and nine percentage points increase in exports (% in GDP). On the face value, the compounding effects of these annual statistics already explains why autocracies can rise.

⁷Pre-1990 data of these indicators are not shown due to missing data especially for the former socialist states. However, the available data shows correlations favoring autocracies are either negligible or substantially weaker than post-1990.

More Autocratic, Better Performance (1990-2020)

(conditional on GDP per capita, with year fixed effects)

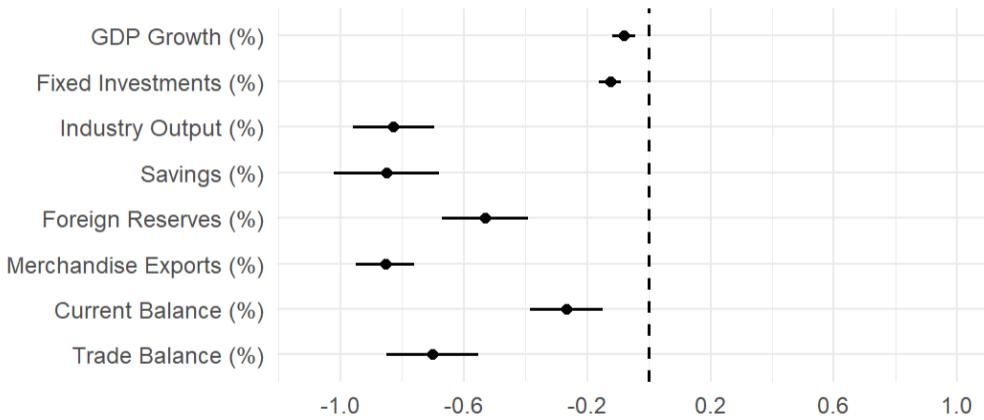


Figure 3: Regime Type and Major Economic Indicators. *Note:* Percentage in parenthesis means “share of GDP.” The bar plot means the percentage point change associated with one unit increase in Polity. I only control for GDP per capita and year fixed effects for within-income level and year comparisons. Again, China or oil states are not outliers.

In summary, the contrasting performance patterns of autocracies – before and after 1990 – not only highlight intriguing puzzles, but also raise important questions: how forces behind, domestic or global, may shape outcomes. They suggest that the dynamics of regime type’s effects may not be static but evolve in response to possible changing contexts. Understanding the causes behind these shifts can shed light on the broader questions of global economy and politics of today.

Why Focus on Trade?

The remainder of the paper will centers on trade performance, which speaks to the first-order effect of globalization as my main focus. I test two key and widely studied measures in foreign trade: exports and external balances (trade balance and current account balance).⁸ As Adam Smith (1776) claims, economic growth is determined by the division of labor, capital accumulation, and market size in a free market and trade system. Similarly, trade theories posit that trade generates efficiency and it’s exports that primarily induce growth in productivity, income, and innovation, precisely through production specialization and economies of scale (Bernard et al. 2018; Helpman and Krugman 1985), echoing the success of export-oriented model (Dooley et al. 2003).

For external balances, while short-run or bilateral fluctuations hardly matter, persistent and aggregate deficits often signal structural issues such as de-industrialization or financial vulnerability

⁸ Current account balance includes trade balance, net foreign income, and net transfer payments. In Appendix B.2, I show that regime type predicts exports and external balances in more extended models, similar to the bivariate correlations above.

- this long-run phenomenon is in fact more prevalent: for example, see global imbalances (Blanchard and Milesi-Ferretti 2009; Obstfeld and Rogoff 2009). Importantly, imbalances reflect the competition or redistribution of *external demand* (Chinn and Ito 2021), given that they aggregates to zero globally.⁹ Persistent surpluses may also reflect weaker internal demand. Thus, trade measures also connote the possible spillover impact to others unlike economic growth. In the democracy-autocracy case, surpluses that contribute to foreign reserves can be used in welfare programs, foreign purchases, and geopolitical projects (Liu 2023).

Autocratic regimes often lack commitments to inclusive growth, resulting in weak domestic demand (Acemoglu and Robinson 2012). Consequently, they should find it harder to grow absent strong external demand. In the Appendix, I show that average export growth rate (1992-2015) is *strongly* correlated with average GDP growth rate ($r = 0.74$). Long-run external balances are also correlated with a slew of major development indicators, from GDP growth rate ($r = 0.65$) to national debt level (see Appendix). Countries with persistent surpluses tend to outperform in development and fiscal capacity, with many becoming global creditors (e.g., East Asia, Core Europe, and Gulf states).

3 Historical Debate: Regime Type and Economic Performance

For decades, political scientists and economists have been exploring the link between democratic institutions and economic performance. Institutions play an important role in economic performance (Acemoglu and Robinson 2012; North and Weingast 1989). Hall and Soskice (2001) have demonstrated that even within democracies, varieties of capitalist institutions produce different economic outcomes.

The impact of regime type on economic growth remains mixed. Democracy theoretically foster growth due to property rights protection (Weingast 1995), political stability (Tavares and Wacziarg 2001), investments in education and healthcare (Baum and Lake 2003), and acceptance of technological innovation (Sah and Stiglitz 1986). It is possible, however, that autocracy may also promote growth by, for example, resisting immediate consumption and over-redistribution (Krueger 1974). Empirical studies have found no clear relationship between regime type and growth (Barro 1996; Przeworski et al. 2000). Mid-level variables matter – for instance, Chandra and Rudra (2013) argue

⁹Suppose a fiscal stimulus equivalent to 1% of GDP may boost the economy, China or Russia's trade surplus that surpasses 5% of GDP annually suggests substantial external demand that stimulates domestic sectors.

that public deliberation, rather than regime type, drives economic performance. Note that much of the literature relies on data from before the 2000s, when globalization hadn't fully manifested. Consequently, external factors received limited attention. As clearly depicted in Figure 3, autocracies grew faster after 1990.

The conclusions on trade performance, however, are more consistent. In addition to domestic policies, external factors such as import competition, foreign investments, and access to export markets significantly influence a country's trade performance (Gourevitch 1978; Rudra 2002). Not only do democracies have better trade performance (Yu 2010), they also are less protectionist (Eichengreen and Leblang 2007). These advantages are often linked to institutional factors like contract enforcement, rule of law, and intellectual property protections (Atras 2015; Levchenko 2007; Rigobon and Rodrik 2004), which contribute to higher product quality and enhanced global competitiveness (Yu 2010). Note also that the literature also mostly examines the pre-2000 period, and their conclusion is confirmed in Table B.1. However, after 1990, the impact of regime type on trade performance shifts, with the effect favoring autocracies.

Overall, a limitation with the existing literature is its use of older data up to the early 2000s. Furthermore, much of the focus has been on internal mechanisms, treating states as autonomous black boxes, which risks overlooking a significant global shift – post-1990 globalization. Perhaps the biggest puzzle, especially for scholars emphasizing institutional causes, is that even in the post-1990 period, democracies continued to exhibit higher average institutional quality conditional on per capita income (e.g., PR protection and rule of law, see Table 2). Thus, democracies should still perform better. This discrepancy suggests that the reversal in performance might stem from factors beyond domestic institutions.

4 Unpacking “Autocratic Advantages” in a Globalized Economy

“Growth at such a quick pace ... requires strong political leadership.”

– Michael Spence, Nobel Economics Laureate, 2008

“Visionary leaders can accomplish more in autocratic than democratic governments because they need not heed legislative, judicial, or media constraints in promoting their agenda.”

– Gary Becker, Nobel Economics Laureate, 2010

4.1 The Performance Framework

To explore how autocratic regimes might outperform in post-1990 economic (or trade, as exports are outputs) performance, I begin by crafting a theoretical framework synthesizing the existing literature.

Exogenous growth theory (Solow 1957) highlights productivity improvements driven by technological progress as the ultimate determinant of economic growth. Technological progress, as endogenous growth theory argues, is driven by investing in human capital and innovation (Romer 1986). Institutional theories extend them further, arguing that institutional differences shape the endogenous process like investments (North 1990; Acemoglu et al. 2005). Among institutions, which are shaped by political power and preferences and structure incentives of market players, “of primary importance to economic outcomes” are property rights (PR) protection and rule of law within a functioning market (*Ibid*). Inclusive and stable institutions also matter. Note that most of the theories focus on relatively closed economies, applicable to the situation prior to 1990.

Later literature advances these mechanisms. One focuses on active policies to promote investments and foster industries, as highlighted by the “developmental state” literature, built on successful cases like “Asian Dragons” (Evans 1995; Haggard 1990). This is not simply state capacity or reckless interventions as often critiqued, but what states do – emphasizing government autonomy to drive industrialization (echoing structural transformation theory (Lewis 1954)) and state-market synergy in collaboration with the private sector. The state often emphasizes export-oriented strategies that leverage economies of scale and enhance export competitiveness, whether in manufacturing or commodities. This requires cohesive, long-term planning, swift adaptation to changing market conditions, and efforts to expand markets (Haggard 1990; Rodrik 2004). Notably, while this model challenges both laissez-faire neoliberalism and institution-only approaches, it requires institutional preconditions such as PR protection and contract enforcement (Atras 2015; Haggard 1990).

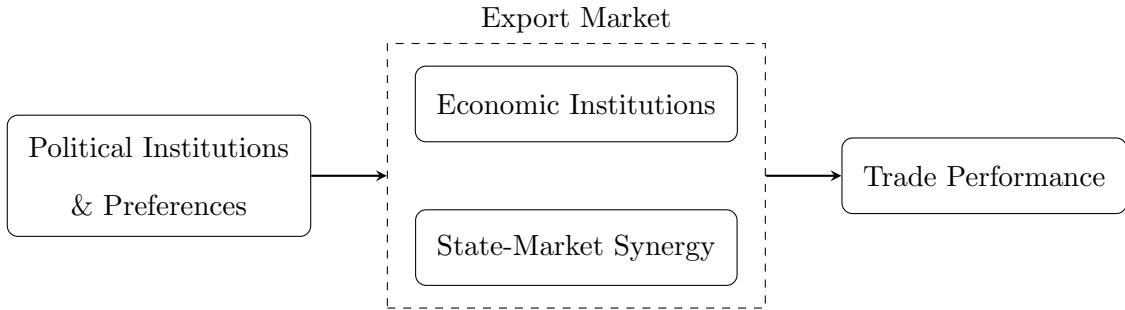


Figure 4: The Theoretical Framework for Trade Performance

Figure 4 illustrates the overarching framework for the subsequent analysis. Political institutions and preferences, such as autocrats today wishing to maintain power, may lead to market-oriented institutions while retaining autocratic characteristics like centralized power and weak constraints. Given institutions, effective government policies can magnify output (the supply) to export, which is linked to expanding market access (the demand). Other factors such as history, culture and geography also matter, but less so in this analysis.

4.2 The New Setting: Why Is Globalized Economy Different?

The post-1990 period was marked by profound market integration, free flows of trade and capital, and globalized production, often termed “hyperglobalization” (Rodrik 2011). A highly integrated global economy through free trade and globalized production greatly alters the logic of developing economies compared to closed economies for several reasons.

Early factor-based trade theories (e.g., the Heckscher-Ohlin model) emphasized national comparative advantages and specialization leading to greater efficiency and output (Ohlin 1933; Ricardo 1817). Newer theories incorporate economies of scale (e.g., home-market effect, Krugman 1979), technology diffusion (Grossman and Helpman 1991), and competition through firm-level selection (Melitz 2003). In the post-1990 era when the global value chain (GVC) dominates the global trade structure (Bernard et al. 2009), investment decisions by multinational corporations (MNCs) who seek low costs worldwide became all the more important. The GVC facilitates the rapid transfer of technological know-how within the chain, enabling poorer countries to export advanced products more quickly, blurring national comparative advantages that might otherwise take much longer to

develop (Baldwin 2016).¹⁰ Furthermore, the global trade system, combined with floating exchange rates and freer capital flows – as opposed to the Bretton Woods era – has made local factors globally comparable in prices, materializing a nation’s potential competitiveness and profitability, unlike the insulated blocs of the Cold War era.

Moreover, While free trade is conventionally regarded as mutually beneficial, caveats remain. Factor-based trade models assumed idealized conditions such as perfect competition and few government-imposed frictions, which often don’t hold in practice. Later models admit these imperfections: monopolistic or oligopolistic competition, government intervention, and trade barriers can all influence trade patterns (Krugman 1979; Melitz 2003). Furthermore, moving to liberalized equilibrium from autarky is a one-time gain, while the long-term effects are still debatable (Garrett 2000). Governments, post-equilibrium, may adopt varied mercantilist policies to affect trade. Examples include the infant industry argument and strategic trade policy (Brander and Spencer 1985). This can be particularly salient when the assumption of most trade models – balanced trade (or exogenous imbalances) – rarely occurs,¹¹ as products of one country can be artificially cheap without currency adjustment.¹² That said, beyond institutions (Atras 2015), interventionist policies like currency devaluation, export subsidies, and labor suppression can create “artificial” comparative advantage and attract MNCs, in effect boosting domestic economic activities through “beggar-thy-neighbor” (Jeanne 2021).¹³ Eaton and Kortum (2002) point out that a country’s competitiveness is “technology adjusted for wage costs,” a measure that factors in exchange rate, echoed by others (Bernard et al. 2003; Melitz 2003).¹⁴ Epifani and Gancia (2017) further demonstrate that an undervalued exchange rate enables a country to run surpluses and agglomerate global production.¹⁵ Of course,

¹⁰Indeed, as Osgood (2017) finds, only one-tenth of U.S. industries can be explained by comparative advantage, with the remainder driven by product differentiation and direct competition.

¹¹E.g., see the discussion of global imbalances in Blanchard and Milesi-Ferretti (2009) and Obstfeld and Rogoff (2009).

¹²This can be illustrated by the Eaton-Kortum model (2002) which assumes a country i takes a random productivity draw for goods from a Fréchet distribution: $F_i(\phi) = e^{-T_i \phi^{-\theta}}$, which generates a country’s comparative advantages. With currency devaluation, the devaluing country can end up acquiring comparative/competitive advantages for more goods and running surplus.

¹³Arkolakis et al. (2018) show that MNCs choose production location l based on final unit cost: $C_{il} = \frac{\gamma_{il} w_l \tau_l}{z_l}$, where γ_{il} is the foreign production cost, w_l is local wage, τ_l is trade cost, and z_l is firm productivity which can be that of MNCs or related party or be built through within-network technology transfer.

¹⁴In the classic Eaton-Kortum model (2002), the proportion of country n ’s total expenditure imported from country i is: $\pi_{ni} = \frac{T_i(w_i d_{ni})^{-\theta}}{\sum T_h(w_h d_{nh})^{-\theta}}$, where T_i represents technology and w_i represents wage or factor cost. Given technology convergence (e.g., due to the diffusion by GVC), wage then determines production location. The Melitz model (2003) similarly specifies that firm’s profit ($\pi(\phi) = [(\frac{\phi}{\phi^*})^{\sigma-1} - 1]w f$), which determines firm’s entry into export market, is determined by wage w . Bernard et al. (2003) show that deceased wage increases competitiveness and the range of exports, and lowers domestic prices.

¹⁵Costinot et al. (2013) similarly shows that absolute productivity (accounting for costs, quality, and exchange rates) determines the production location within GVCs.

cost advantage is also influenced by infrastructure, pro-competition regulatory environment, resource costs, and work culture. In the Appendix, through a normal-form game, given converging technology and common market, firm f_1 with lower costs and firm f_2 with higher costs will be locked in a Nash equilibrium of $\langle \text{not produce}, \text{produce} \rangle$.

Furthermore, expanded market prospects encourage firm entry and inter-firm resource reallocation, and realize scale advantage (Krugman 1979; Melitz 2003). These dynamics incentivize further investments and innovation, fueled by export revenue (Atkeson and Burstein 2010; Burstein and Melitz 2013; Grossman and Helpman 1991). Such investments lead to quality improvements (Yu 2010) and future first-mover advantage (Krugman 1979), and are critical for productivity growth (Acemoglu et al. 2017).

In sum, a globalized economy, compared to enclosed ones, can significantly amplify the benefits of specialization and scale while accelerating technological progress provided adequate institutional preconditions, leading to rapid growth in production and productivity. It also creates greater room for states to effectively practice interventionism on industrial or exchange rate policies, while down-playing the old requirements – rather than relying on domestic demand to foster entrepreneurship and capital accumulation, the focus now shifts to competing for external demand, investments, and technologies. For instance, suppressing wages may add to competitiveness rather than hindering an inclusive domestic economy.

4.3 Autocratic Advantages in a Globalized Economy

Since the 1980s, many autocratic states, as well as democracies, had started embracing economic reforms: privatization, deregulation, austerity, and trade and capital account liberalization. The wave of “neoliberalization” to adopt market-oriented policies requires state capacity. As the literature of “authoritarian neoliberalism” explains (Bruff 2014), since Reagan and Thatcher, governments worldwide have often relied on (semi-)authoritarian measures to push through reforms. These measures, partly because they work, were used to manage resistance, enforce compliance, and stabilize systems that prioritize market logic (*Ibid*) – an approach autocracies have natural advantages in. Viewing authoritarian leaders as rational actors, they did reforms due to regime survival, international pressure, and economic incentives (Geddes 1999; Levitsky and Way 2016; Haggard and Kaufman 1995). The consequences of failure may push autocrats to adopt a more mercantilist and self-interested manner than their democratic counterparts.

The capacity, incentives, and actual reforms fit well with a globalized economy, where both institutions and active policies are crucial. Existing literature documents autocracies' institutional and non-institutional advantages from various perspectives. Given institutional preconditions, some regime characteristics that may otherwise be disadvantages in a relatively closed economy can indeed become advantageous, since the goal is about competing for external demand.

Centralized power and control – Autocratic states concentrate power as opposed to democracies, which often feature fragmented and sometimes unstable governance systems, particularly in emerging democracies (Diamond 2015). This grants autocracies greater discretion to implement policies without extensive bargaining or deliberation, so that they are better positioned to push for reforms and deploy concerted, strategic policies conducive to developing industries (Hall and Soskice 2001; Kohli 2004). While deliberation matters in a closed economy (Chandra and Rudra 2013), this efficiency may allow autocracies to respond swiftly to global market. As the state controls more resources, state-owned enterprises and even state media play supportive roles in advancing national interests in trade (Clegg et al. 2018; Kim 2018; Wu 2016). This can also resist external shocks as compared to more “hands-off” approaches (see Belarus in Section 9). Moreover, autocracies’ relative leadership longevity can facilitate consistent and long-term economic planning (Wade 1990), creating a predictable business environment (Haggard 1990). The notable examples include China, Vietnam, and Singapore, or Korea, Taiwan, Hong Kong, Malaysia, and Chile when they were in (semi-)authoritarian eras,¹⁶ as well as aggressive development projects in Gulf states like Qatar and Saudi Arabia. Even in democratic India, a more centralized and authoritarian Modi’s regime was able to implement more strategic policies than previous governments to boost exports.

Weak institutional constraints – Autocracies often operate with weaker institutional constraints, which include constitutions, legislatures, and norms that shape decision-making (Levitsky and Way 2010). They also face fewer challenges from opposition parties and lobbying forces common in democracies. Such governments can more readily prioritize state interests and divert limited resources to productive sectors or infrastructure projects that promote trade, enhancing their global competitiveness. Because of larger win-set (Putnam 1998), autocracies may be able to sign “empty” deals with international organizations or favorable deals with MNCs, which dominate global trade (Bernard et al. 2018). For MNCs, autocratic states establish more special economic zones offering

¹⁶ And a more centralized Japan to some extent. Counter-examples include Tunisia, which experienced quick export growth under a centralized, yet reformed Ben Ali dictatorship (tripled in 2001-2011), before entering stagnation under a fragmented democratic government.

incentives such as tax breaks, lower tariffs, and looser regulations (Allen and Ge, working paper). On the flip side, these regimes are less bound by commitments – autocratic governments are less constrained to manipulate trade or exchange rate policies (Simmons 1997; Steinberg and Malhotra 2014) and control financial institutions (Brune et al. 2001; Giuliano et al. 2009), resilient to external shocks. In fact, Lipsky (2018) found that democracies tend to have more financial instability, primarily due to their weaker manipulative and controlling abilities. The same tendency can extend to other realms such as intellectual property violation or economic espionage.

Lack of accountability – Autocrats, even when reformed, remain less accountable to the public, allowing them to pursue a broader range of market-favoring policies, including those that are unpopular, risky, or repressive (Quinn and Woolley 2001). They possess greater autonomy from immediate consumption or redistribution demands (Zakaria 1997), satisfying which can undermine market efficiency and investment incentives (Huntington 1968; Sah 1991) – particularly relevant in poorer developing countries. Authoritarian regimes can also easily impose austerity when saving is necessary to finance investments. Moreover, autocracies are less subject to pressure by corporatist, labor, or environmental groups in influencing policy (Krueger 1974; Rodrik 1999), as well as electorate. Weak labor bargaining institutions and the suppression of wages and unions further enhance their policy flexibility (Manger and Sattler 2015; Rodrik 1999). In contrast, many Latin American democracies even have stricter labor regulations than OECD countries (Feierherd 2024). While such non-inclusiveness may impede a healthy domestic economy, it could enhance competitiveness of firms and attracts MNCs to invest, while resisting short-term unpopularity.

Mercantilist mentality – Due to weaker liberal economic norms (Dailami 2000; Quinn 2000), narrower interest groups (Eichengreen and Leblang 2008), or economic performance for legitimacy (Batureo and Tolstrup 2024), autocracies often exhibit mercantilist and protectionist tendencies, apart from discriminatory favoritism (e.g., in public procurement) (Bueno de Mesquita et al. 2005). Democracies, by contrast, tend to be more cosmopolitan and economically liberal (Milner and Kubota 2005). While economists generally criticize mercantilism and protectionism, these policies can sometimes foster domestic industries or incentivize multinational corporations to produce locally, as seen in China's automobile industry (Kim 2018) and India's electronics sector under Modi. Autocracies also tend to import less, even accounting for trade policies (Aidt and Gassebner 2010). Although all-country correlation supports the protectionism argument, there remains an exception – reformed autocracies. As shown in Section 8, WTO-member autocracies with moderate PR pro-

tection are associated with lower tariff rates, aligning with the findings by Hankla and Kuthy (2013) that autocracies can more easily implement trade liberalization (once preferred). This suggests that perhaps for reformed autocracies, they are less reliant on nominal protectionism.

Resource endowment – Autocracy is correlated with resource abundance, typically regarded as “resource curse” that may impede growth in a closed, unreformed economy (Ross 2001). Resource rents are contingent on market access and demand, without which their economic potential remains unrealized. Broad access to international markets boost the export of commodities, whose benefits are further compounded by attracting investments in resource extraction and processing and enable the strategic reinvestment of rents, as exemplified by the active role of investing bureaus in Qatar and the UAE.

The list can continue, such as historically-rooted cultures and norms in autocratic states, particularly in former planned economies, where production as moral imperatives is prioritized over consumption (Fitzpatrick 1999; Nove 1986). Conversely, in a globalized economy where all compete together, the same otherwise benign features of democracies – such as demands for redistribution, lobbying pressures, and the presence of multiple veto players – may become disadvantageous for external demand competition.

To be clear, this is not to say autocracy is inherently superior for development, nor is it necessary or normatively recommended; autocratization may well fail (see the typology in Table 1). The same autocratic characteristics can hinder internal consumption and innovation. Rather, the point is that, in a globalized environment, they may provide certain advantages in competing for external demand. As suggested, autocratic advantages may require *scope condition* to function, which will be elaborated in the following section.

5 Theory: “Engaged Reformers” in the Changing Context

What exactly happened? Despite Section 6 confirming the causality of regime type, correlation and prediction also matter, particularly in this case. What has changed to reverse the prediction and enable “autocratic advantages?” The reasons why coefficient changes could be theoretically attributed to: 1) change in confounding variables, or 2) change in mechanisms – for example, there could be changes in moderating or mediating variables, or changes in whether scope conditions are met, that is, autocratic advantages may only function under certain conditions. Given the

robustness of causal tests, I argue for the latter.

5.1 Why Post-1990? Two Changing Factors

From a demand/supply perspective, export increase need demand (markets) and supply (exporting firms). The former can be increased by signing new trade deals, while the latter is enhanced by institutional environment like PR protection (North and Weingast 1989) and government policies (e.g., the aforementioned autocratic advantages). Both institutional environment and policies can encourage firms to step up production and investments.

When viewed in retrospect, there are at least two major factors that have changed and affected trade patterns during the 1990s globalization among countries worldwide. First, since the 1980s/1990s, many countries, both autocracies and democracies, have followed the “Washington Consensus” to conduct market-oriented economic reforms and trade and capital account liberalization (Quinn and Toyoda 2007). The former is about domestic institutional reforms, primarily on the economic side, while the latter is on the barriers to goods and capital flows. Second, since the fall of the Berlin Wall, the world trade system (primarily in the form of the GATT/WTO, as well as regional ones) has begun an unprecedented round of expansion to incorporate many autocracies which previously participated very little in the global economy confined within the west hemisphere. The expansion includes significant increase in market access, trade and capital flows, and globalized production.¹⁷

5.2 The Role of Domestic Reform

Autocrats have striven to survive; indeed, stable autocrats have long understood how bad excessive exaction is for regime longevity (Olson 1993). Starting from the 1980s, under multifaceted pressure ranging from economic to ideological, many autocracies (as well as democracies) in the developing world began various types of market-favoring structural reforms (Quinn and Toyoda 2007). These reforms include the limitation of government power and size, such as establishing the rule of law and privatizing state-owned enterprises, as well as business and competition-friendly policies, for example, PR protection and financial and labor market deregulation. Some states extend liberalization beyond the borders – exemplified by trade and capital accounts opening up (Milner and Mukherjee 2009). Figure 5 shows the historical trends of two typical institutions: PR protection

¹⁷What distinguishes post-1990 trade from previously also includes a special feature which rests on the global value chain (Baldwin 2016; also discussed in the “New New Trade Theory”).

and rule of law. On the economic side, the former focuses on the protection of investments from expropriation, while the latter emphasizes contract enforcement and dispute settlement (Pandya 2016). These institutions foster growth (North and Weingast 1989), by stimulating domestic firms to step up production in both manufactured goods and commodities, entrepreneurs to start a business, and multinational firms to set up productive chains in a country (Atras 2015). Consequently, these activities can greatly boost a country's exports, especially when the protagonist of globalized production, multinational firms, is involved.

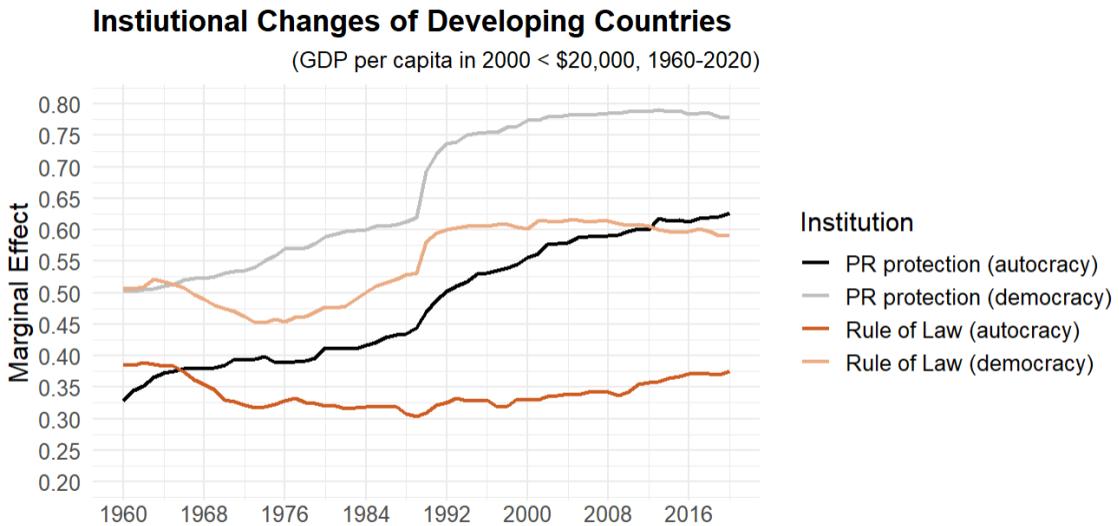


Figure 5: Average Rule of Law and Property Rights Protection. *Note:* Autocracies/democracies are roughly divided according to Polity in 1991 (when the USSR dissolved) to ensure temporal country-level data integrity. Although average rule of law for autocracies in 1990-2020 seems flatter than other groups, there are country-level increases/decreases across years.

Suffice it to say, if autocracies remain unreformed like they were during the Cold War, exposure to the global trade market wouldn't help much. Should Russia or North Korea join the WTO but keep its original planned economy, they may not be able to go as far, since firms would have few incentives to produce locally. Turkmenistan and Azerbaijan are comparable cases: similarly rich in natural resources,¹⁸ they share similarities in Polity score, geographical location, culture, race, population, and per capita income in the 1990s. Yet, Turkmenistan has significantly lower PR protection than Azerbaijan (0.16 vs. 0.66), with neither being a WTO member. Consequently, from 1992 to the early 2010s, their export volumes grew 11 and 24 times, respectively. Saudi Arabia

¹⁸Turkmenistan is slightly better: 3.8% of world's natural gas reserve and 0.04% in oil, while Azerbaijan has 0.5% of world's reserve in natural gas and 0.42% in oil (Source: U.S. EIA).

and United Arab Emirates are another comparison, with the latter conducting more reforms and thus better performance (see Appendix).

Moderate reforms – However, unlike democracies which usually embraced a wholesale neoliberal agenda, autocracies usually did it quite selectively and conservatively. They were cautious in conducting the parallel political reforms. China, for instance, implemented rule of law selectively for attracting foreign investments and enhancing regime durability (Wang 2015). While allowing trade flows, many autocracies were more strictly controlling exchange rate and capital account policies. Despite their persistently high external surpluses, China, Vietnam, and many other resource-oriented states peg or crawl-peg their currencies to the dollar. In this way, they can ensure financial stability and facilitate mercantilist policies through possibly undervalued exchange rates. Additionally, many of them ensure that strategic and politically sensitive sectors are within the control of governments. It thus may seem that they are practicing a similar version of “embedded liberalism.” By practicing this, they may be able to achieve better economic results in the global economy than many full-embracers.

5.3 The Role of Trade Integration: the WTO Expansion

Trade integration after the Cold War was embodied in WTO membership expansion and the proliferation of regional trade agreements. Despite the appearance of varying types of trade agreements, the WTO plays a significant and major role in facilitating trade liberalization across the globe (Bagwell and Staiger 2002), praised as the “most heralded commercial agreement in history” (Goldstein et al. 2007).¹⁹ The predecessor of the WTO is the GATT, which *de jure* began in 1948 with 23 founding members after the war. The WTO stipulates that a member state cannot impose discriminatory tariffs on another member, thus facilitating market access with substantially lower tariffs than otherwise, especially when trading with the already much liberalized advanced democracies. In spite of not being a formal requirement, reducing trade barriers has become part of the institution’s norms over time. After 1990, the WTO started another major round of expansion which unprecedentedly integrated many autocratic, as well as new democratic countries in the former Communist bloc and the rest of the world. Its number of members almost doubled, increasing from 88 in 1985 to 164 in 2020 (see Figure 6). This allowed autocracies to more greatly access global markets (mainly

¹⁹Regional trade deals usually build on top of WTO principles of trade liberalization to address specific trade issues: e.g., sector-specific trade and investor dispute resolution. In the models of Section 6, I control for regional ones such as free trade agreement, preferential trade agreement, and customs unions.

from democracies) and materialized their possible advantages through flows of goods and a globally unified factor price system, unseen in the Cold War.²⁰

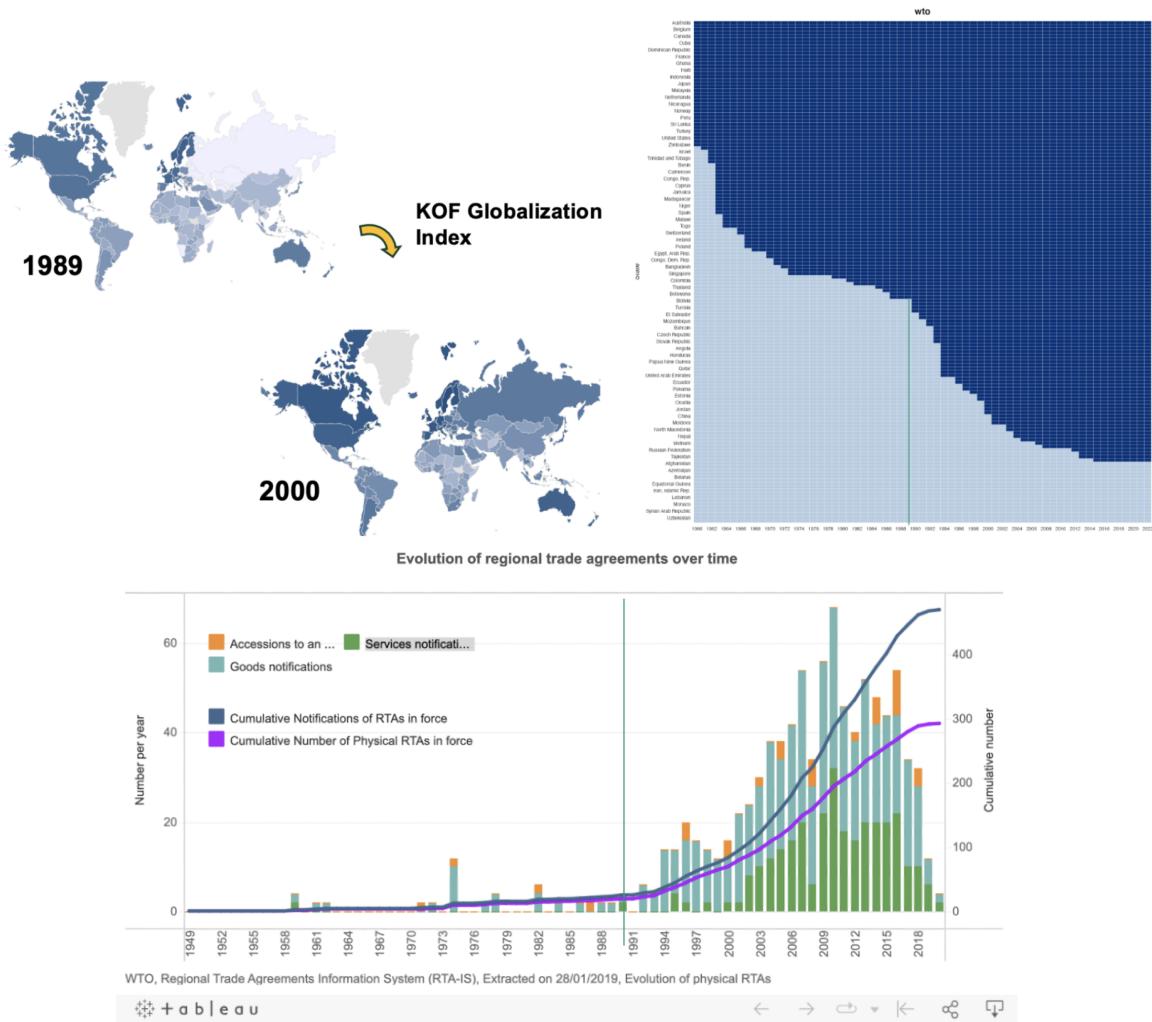


Figure 6: KOF Globalization Index; WTO Expansion; RTA Proliferation.

Studies have found that the WTO substantially increases trade for member states (Goldstein et al. 2007). Davis and Wilf (2017) simulate that China and Mexico's export booms would have been earlier if they had joined the WTO earlier, showing the significance of the trade regime.²¹ Apart from market access, the WTO also provides institutional guarantees for trade-related investments. For example, Carnegie (2014) has shown that the WTO solves the “hold-up” problems that hinder investments in politically dissimilar countries, implying autocracies may benefit more

²⁰Although some autocracies joined at the late stage or still haven't joined, the spillover effect from the joined ones cannot be ignored.

²¹Even resource-oriented countries such as the UAE and Oman experienced an immediate export boost upon WTO accession after years' slow growth.

from joining a democracy-dominated club. This is particularly important in the era of GVC when investor confidence and multinational corporations fundamentally shape trade patterns (Bernard et al. 2009).

Combined with the aforementioned autocratic advantages in a globalized economy, trade integration such as WTO expansion may favor autocracies for a few reasons. Imagine two countries with similar domestic institutions such as PR protection. Thanks to “autocratic advantages,” the more autocratic state can possess more discretionary power to disregard labor and environmental protection, manipulate capital account and exchange rate, tilt resources from consumption and welfare to production and exports, or sign favorable deals with foreign firms. Yet, the WTO is not equipped to deal with such practices (Wu 2016). Second, studies have found that WTO accession increased trade or income more for those who met stricter reform conditionality (Allee and Scalera 2012; Tang and Wei 2009). The U.S.-dominated institution tends to set stricter examination procedures for more autocratic countries. As a result, autocracies that joined may have done more reforms to meet the institution’s requirements.²² Additionally, once autocracies gain advantage in trade, its spill-over effects can negatively impacts trading partners, especially those that are more open and are usually more democratic. The “China shock” literature unveils part of the micro-mechanism on this front. Meanwhile, China’s post-WTO effect also helped to boost commodity prices, which benefited many resource-rich autocracies. Finally, autocracies may start low – during the Cold War period, many autocracies particularly those in the socialist bloc had centralized planning economies, which may have an negative impact compared to more market-based democracies.²³

5.4 Combining Domestic Reform and Trade Integration

In sum, the fact that a country being more autocratic conversely predicts higher post-1990 trade performance involves two salient factors: 1) autocracies have done domestic market-oriented reforms which may have spurred the economic and export growth, and 2) autocracies are allowed to access global market especially the markets of advanced democracies, which can significantly increase their exports. Both factors are necessary. Non-reformed WTO members are not conducive to substantial trade growth (Alle and Scalera 2012; Tang and Wei 2009), nor are autarkic reformed ones. This already raises the question to the argument that autocratic institutional reforms (e.g., China’s adaptive institutions, Ang 2016) may have an major, independent effect on developing

²²In the empirical section, I control for both institutional levels and changes.

²³However, in the empirical part, I control for country-specific economic covariates such as GDP per capita.

economies without much consideration for external factors. The second factor pertains to the trade integration, primarily through the expansion of the WTO. The conditionality of reforms required by WTO accession also speaks to the first factor (Tang and Wei 2009).²⁴

	In WTO	Not In WTO
Non-Poor Institution	“Engaged Reformers” Angola (15.2), Bahrain (5.4◊), Cambodia (21.2), Cameroon (2.6), Chad (22.6▲), China (22.9), Congo Rep. (8.6), Djibouti (10.2), Egypt (8.1), Jordan (6.2), Kazakhstan (21.5), Kuwait (9.7◊), Lao (12.7), Mauritania (5.1), Morocco (6.1), Oman (8.5), Qatar (33.6◊), Russia (8.8), Rwanda (12.2), Saudi Arabia (6.8◊), Singapore (5.1◊), Tanzania (10.1▲), Thailand (5.8), Togo (5.2), United Arab Emirates (13.3◊), Uganda (9.5▲), Vietnam (46.2▲)	“Unengaged Reformers” Afghanistan (2.9▲), Algeria (5.2), Azerbaijan (23.8▲), Belarus (12.5), Equatorial Guinea (201.2▲), Ethiopia (12.4▲), Iran (4.5), Iraq (8)
Poor Institution	“Engaged Non-reformers” Congo Dem. Rep. (6.3▲), Myanmar (17.8▲), Swaziland (2.7), Tajikistan (3.2), Venezuela (4.5)	“Unengaged Non-reformers” Cuba (3.4), Eritrea (6.9), Libya (2.8◊), North Korea (4), South Sudan (NA), Sudan (9.8), Syria (0.4), Turkmenistan (10.9), Uzbekistan (4.1), Yemen (4.6)

▲: GDP per capita under \$200 in the early 1990s; ◊: above \$5,000

Table 1: Typology of Autocracies. *Note:* autocracies are roughly defined as those with average Polity ≤ 0 in 2000-20. Non-poor institution refers to the institutional levels that are above thresholds for PR protection and rule of law (see Appendix B.3). Together, “engaged reformers” accounted for over 97% of autocracies’ GDP in 2015. Numbers in parentheses represent export increase from the early 1990s to mid 2010s.

Table 1 classifies all extant autocracies into a 2x2 table by institutional levels and WTO membership. Many mainstream autocracies fall into the category of “engaged reformers,” meaning they have achieved certain levels of institutions and have been engaged in the global trade regime.²⁵ Ostensibly, many countries in this category seem to perform well in a globalized economy, especially compared to comparable ones with similar geography, labor intensity, and resource endowment.²⁶ Some countries, such as Cameroon, Mauritania and Togo, do not stand out for more complicated historical reasons. As Allee and Scalera (2012) point out, they were newly independent colonized

²⁴Related requirements are demanded by other global institutions such as the IMF and World Bank for aids and loans.

²⁵Based on institutional levels at the bottom 20 percentile among developing countries in 2010 with minor adjustment. See Appendix for more details.

²⁶Meanwhile, controlling for other factors is important for making causal claims, which will be tested in the empirical section.

countries before automatically joining the GATT; many have ostensibly similar economic institutions “copied” from former colonizers, but with few substantive reforms compared to later WTO joiners. In total, 43 countries joined in “automatic accession” under Article 26:5(c) during the Cold War (Ibid).

In essence, these “engaged reformers” selectively adopted liberal economic institutions and were incorporated into the largest liberal trade regime, while successfully embedding their authoritarian characteristics into economic liberalization. In this sense, the very developmental model may be called – “embedded authoritarianism,” to borrow the terminology from John Ruggie’s embedded liberalism (1987). In contrast, most of the countries that are classified into other three categories largely underperformed. Even for the same resource-rich autocracies, engaged reformers such as Qatar, Saudi Arabia, Kuwait, or Morocco performed much better than Algeria, Iran, Iraq, or Venezuela (with the latter three being top-five oil reserve countries). The set of “engaged reformers” suggests it’s not just an “oil states” or China story. In comparison, many major democratic, developing “engaged reformers” underperformed, including Argentina, Brazil, Chile, Colombia, India, Indonesia, Kenya, Mexico, Nigeria, Pakistan, Peru, Philippines, South Africa, and Ukraine. 13 out of 20, or 25 out of 40 fastest growing countries (1992-2015) are autocracies, which make up only 25% of total countries.

Both domestic reform and trade integration ought to lead to increased trade performance, with effect magnitude and direction however, contingent on regime type as a *moderating variable*. Autocratic advantages may magnify the effects of both factors. Figure 7 illustrates this relationship. Meanwhile, autocratic advantages need to be enabled by certain levels of domestic institutions and trade integration. In other words, the two factors connect regime type to trade performance, serving as the *scope condition*.

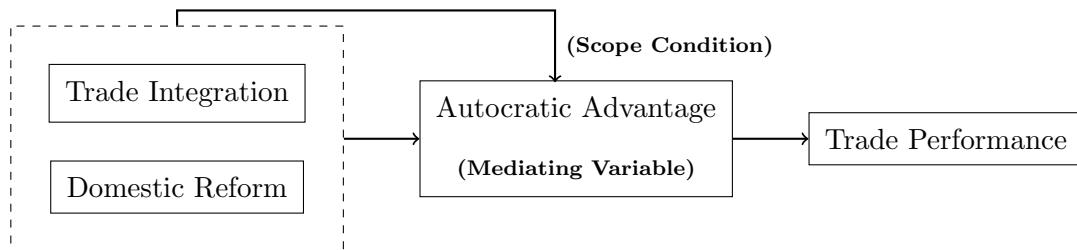


Figure 7: Illustration of Determinants of International Economic Performance. Note: Both domestic reform and trade integration matter, whose effects are moderated by autocratic advantages, while two factors also serve as the scope condition.

Can we have a sense of the relative significance of domestic reform and trade integration for autocratic states? As explained above, two changes that contrasted the pre-1990 period were domestic reform and trade integration. The two factors should collectively work to connect regime type to trade performance. Without the other, neither domestic reform nor trade integration is likely to have substantial effects alone. Joining the WTO matters less given low reforms. Similarly, even a relatively high-level market economy will find it more difficult to increase its exports or attract foreign investments to bring in production and know-how with restricted market access. This is especially true for export-oriented development models that heavily relies on external demand and that many autocracies rely on (be it manufactured goods or commodities). Metaphorically, joining the WTO is like opening a gateway that releases and realizes a regime's trade potential, while domestic reform resembles enhancing one's capabilities.

However, autocratic regimes, even if done market-oriented reforms, often are weak in generating internal demand due to the lack of political institutions for inclusive redistribution, thus implying the limitation of the independent effect of domestic institutions. On the other hand, joining the WTO not only provides external demand, but also exerts external pressure for continuing reforms and helps to strengthen domestic institutions such as increasing contract enforcement, thus the confidence of investors.

	Rule of Law	Property Rights Protection	Tariff Rate
Democracy	0.904*** (0.004)	0.513*** (0.008)	-2.391** (1.039)
Year FE	✓	✓	✓
Num. Obs.	3489	3489	2718

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 2: Democracies and Major Indicators of Domestic Reform (Conditional on GDP per capita, 2000-2020).

More importantly, autocratic regimes that often reject substantive political reforms may on average have weaker domestic institutions than democracies. The dataset of V-Dem provides two key indicators for this purpose: rule of law and PR protection. The two forms of institutions strengthen the confidence of both domestic and international investors. In Table 2, I show the correlations of two indicators and regime type, conditional on income levels with year fixed effects between 2000 and 2020, the rather stable, “mission-completed” post-reform period. Autocracy

significantly predicts lower rule of law and PR protection, as well as a higher tariff rates. Higher values of rule of law and PR protection should predict higher performance for democracies, just as they did before 1990. For example, democratic countries that enforce contracts more rigorously and protect property rights should provide incentives for production and exports, *ceteris paribus*. However, as shown earlier, when trade integration kicks in, the sign changed – autocracies with weaker domestic institutions achieve better trade performance (even at the absolute levels). This implies that trade integration likely play a larger role (perhaps to a lesser extent for resource-exporting countries). In other words, autocratic rise is largely contingent on trade integration.

To be clear, this is not to say domestic reform exerts no effect. Should Russia or Vietnam never have improved contract enforcement or protected investments from their old days, exposure to the global market may matter little. Autocracies must undertake some reforms in order to meet the necessary scope condition. On the other hand, if their institutional levels are too high (e.g., close to advanced democracies), the very institutions may tie autocrats' discretionary hands, diminishing autocratic advantages. This brings my first two hypotheses:

H1.1: The effect of WTO membership on exports in the post-1990 period should be larger for autocracies than democracies on average.

H1.2: The differential effect across regime types in *H1.1* should diminish when domestic institutional levels are too low or too high.

Just like the WTO accession effect, autocratic advantages may lead to greater rewards for autocracies for a similar level of improvement in market-oriented institutions.²⁷ However, although non-WTO members may also export benefiting from PTAs, RTAs, MFNs, or others' trade spill-over, being a member bring more benefits as argued, while non-members are subject to higher tariffs, limited markets, and lack of institutional endorsement for investors. Therefore, this autocracy-favoring reform effect should diminish, perhaps largely, for countries that are excluded from the WTO – that is, autocratic advantages may not magnify domestic reforms' effect as much. Therefore, we come up with two more hypotheses:

H2.1: The effect of domestic reform on exports in the post-1990 period should be larger for

²⁷Note that autocracies didn't start much lower, with average PR protection 0.45 vs. 0.6 of democracies (see Figure 5).

autocracies than democracies on average.

H2.2: The differential effect across regime types in *H2.1* should diminish when countries are excluded from the WTO.

Lastly, the four hypotheses above that examine the temporal incremental effects within a country may not reveal the whole story. The two most significant explanatory variables for trade performance both favor autocracies, which is why they rise. However, autocracies also thrive – we do observe that on the absolute levels, autocracies also perform better (see Section 2.2). Again, I expect that the institutional levels also have to presumably cross certain levels (i.e., the scope condition). Additionally, once the institutions are of very high levels, they may constrain many autocratic advantages by tying hands.

H3: The effect of autocracy on exports should diminish when the market-oriented institutional levels are too low or too high.

5.5 Formal Illustration: A Modified Trade Model

In Appendix B.1, a modified model based on the classic Eaton-Kortum (E-K) (2002) model is presented to illustrate the predictions of above hypotheses. E-K model captures the determinants of bilateral trade flows such as technology, production cost, trade cost, and comparative advantage, making it particularly suitable for my case.

5.6 Discussions on Potential Questions

Is it simply a story of China, Vietnam, Russia, and oil states? None of the descriptive data in Section 2 shows they are outliers. Moreover, the theory, typology of autocracies, and causal analysis (with robustness tests) suggest that regime type plays an important role, if not at all, though probabilistic in nature. Disproportionately more autocracies are winners. Oil prices boomed in the 1970/80s, yet, no autocratic advantages were observed (see below “commodity boom” discussion). Essentially, theory applies to post-1990 “engaged reformers.” Even if one insists that the theory fits better the above countries, which are major autocracies accounting for over 90 percent of autocracies’ GDP, it already has significant implications and answers the question – what explains the autocratic rise.

What determines “engaged reformers?” As briefly discussed, there were historical, economic, and ideological reasons. There are different types of autocracies. For example, Geddes (1999) finds that only single-party regimes can achieve sustained economic development, and Hankla and Kuthy (2013) also find single-party autocracy adopts more trade liberal policies. This is left for future research.

How to reconcile the argument of state capacity? State capacity plays a pivotal role in economic development, encompassing the state’s ability to enforce laws and implement intended policies effectively (Acemoglu et al. 2015; Dincecco 2017). However, conditional probability $P(\text{capacity} \mid \text{performance})$ is not $P(\text{performance} \mid \text{capacity})$ – North Korea also has high state capacity. My analysis focuses specifically on rule of law and property rights protection, which are critical components of state capacity that directly affect economic performance. Rule of law ensures contract enforcement, while property rights protection secures investments. Autocratic advantages in my story reflect some state capacity. In the Appendix, I test the robustness of our results by including broader measures of state capacity, and rule of law and property rights remain significant predictors.

What about democracy-autocracy trade before 1990? During the Cold War period, the U.S., for example, also traded with some autocracies in Latin America and Asia. In spite of this, these trade relationships are not comparable to a globalized market administered by the WTO in scale and depth. The WTO not only provides equal market access, but also institutional guarantee for firms and investors, as well as pressure for reforms. Many autocratic states had not done meaningful market-oriented reforms. The global value chain had not taken off – for example, South Korea largely relied on developing indigenous supply chains (Baldwin 2016). Furthermore, autocracies’ economies were not large enough to shock democracies significantly.

Would the global value chain that produces back-and-forth trade distort the use of exports as a measure? In general, democracies tend to be more economically integrated, and generate more repeatedly counted cross-border trade. Examples include the NAFTA, Eurozone, and ASEAN. Autocratic states that more produce final manufactured goods or commodities tend to be less so. Moreover, not only is export a conventional measure for international economic performance, but also we consider external balance which calculates the net value of exports minus imports, therefore effectively reducing the concerns of over-counting.

What about the spillover effect and the commodity boom? I first directly delete boom years (2004-2014) or OPEC countries for both WTO and institution tests, and the results hold. Although

my theory is more about regime type's effect, not all autocracies have met the scope condition. Some autocracies are not a WTO member or joined late, while others have done little reform. Thus, the spillover of joiners (e.g., China and others) and the buildup of a global commodity market matter. However, this second-order effect does not negate my argument that globalization facilitates autocratic rise. The 2000/10s commodity boom was at least partially driven by WTO beneficiaries (e.g., China), while we don't observe autocratic advantages in the previous oil boom (1970/80s). Those resource-rich countries without WTO membership or reforms nonetheless underperformed (e.g., Venezuela, Iran, and Iraq). Moreover, for over 20 non-WTO member autocracies, the membership effect is zero. For others, both democracies and autocracies are affected by either import shocks or commodity booms to some extent, which should mitigate the concerns.

What about the Most Favored Nation (MFN) status? China was granted the MFN status by major western countries in the 1980s, while Vietnam and Russia were granted by the U.S. in 2001 and 2012, respectively. Some MFNs are granted as part of PTAs, for example, U.S.-Vietnam or U.S.-Lao Bilateral Trade Agreements, and are controlled for in the models. Moreover, MFN is inherently a WTO concept and a part of trade integration. Yet, as described above, WTO membership provides much more benefits than just a single, revocable MFN status by several trading partners. Lastly, if the estimated WTO effect absorbed the MFN effect which happened years before the WTO accession, the former's sole effect is likely underestimated.

What about the role of foreign direct investments (FDI)? Export-oriented FDI, rather than services, directly boosts exports and has larger productivity-enhancing effects (Helpman 1984; Pandya 2016). As export-oriented FDI usually follows globalized production decisions (Helpman 1984; Markusen 1984), it is more of a post-treatment variable: without joining the WTO, investors would feel discouraged to invest in a country (Carnegie 2014). Additionally, I show a mixed correlation between FDI and regime type, with some years favoring autocracy and others not.

Can a country improve trade performance right away if it switches to autocracy? First, they have to meet the scope condition. Second, some mechanisms of autocratic advantages take time, e.g., to tilt resources to build infrastructure or attract MNCs. My theory suggests that, due to autocratic advantages and given the scope condition met, an autocratic government may compete better for external demand than a democratic counterfactual.

6 Empirical Evidence

Choosing “1990”

Why choose 1990 as the cutoff year? As explained, the year 1990 can be regarded as a watershed from multiple perspectives. First, from the data trends shown in Section 1 and 2, we clearly see an inflection point around the early 1990s. Second, the year witnessed dramatic global political shift – the end of Cold War. Third, a global economic shift started around the same time: trade integration including an unprecedented proliferation of trade agreements, particularly the WTO, flows of goods and capital, and the rapid spread of the global value chain (Pandya 2016) – termed as “hyper-globalization.” Fourth, there had been a flurry of domestic reforms in play and rapid democratization around the same period. Lastly, my choice of 1990 was a matter of empirical convenience – I could have chosen 1993 or 1988, and the result is similar. As such, I empirically focus on two periods: pre-1990 and post-1990. Note also some countries like China already was semi-engaged through, e.g., MFN, before 1990, but substantial engagement expanded to cover socialist countries happened after 1990.

6.1 The WTO Effect

New WTO joiners

There were in total 64 countries which joined the WTO/GATT between 1990 and 2020 – the whole universe of the data for the first part of tests, and almost all were developing countries in 1990 (except Liechtenstein). Of them, 25 (Freedom House Index ≥ 8) or 18 ($\text{Polity} \leq 0$) were autocratic states in 1995.²⁸ These countries do not account for the majority of existing autocracies across the world, but include major autocracies such as China, Russia, Saudi Arabia, Vietnam, United Arab Emirates, Qatar, Oman, Kazakhstan, Tajikistan, Kyrgyz, Bahrain, Tunisia, Angola, Lao, Cambodia, Venezuela, and Jordan. They also account for nearly 90% of autocracies’ total GDP and population. Meanwhile, just one China is equal to 14 Vietnams or 10 Russias or tens of smaller countries in population (four times of the U.S.). The spill-over effect is considerable: they significantly trade with non-WTO autocracies both economically and strategically (Applebaum 2024). For example, Russia, China, or Saudi Arabia can more freely trade with Iran, Iraq, Cuba, and North Korea, while China’s post-WTO rapid growth greatly contributed to the commodity boom during the 2000/10s, which benefited non-WTO autocracies (Hamilton 2009; Kilian and

²⁸If we count Russia ($\text{Polity} = 3$ in 1995) as autocracy and as a cutoff, then we get 23 autocracies.

Hicks 2012). On the flip side, autocracies' excessive exports can be detrimental to democracies (many of which run persistent trade deficits) in the form of trade shocks. As explained, trade can indeed become more zero-sum under mercantilism or persistent imbalance.

Almost all the countries left were granted the WTO observer status (see the Appendix).²⁹ Additionally, some autocracies that are not in the WTO have been granted the MFN status by countries such as the United States or the EU: e.g., Azerbaijan, Belarus, Serbia, Turkmenistan. Others enjoy varied regional trade deals. Importantly, the mixture of democracies and autocracies in the joiners, as well as the mixture of WTO and non-WTO autocracies in the data provides us sufficient observations (dyad-based) to test the differential effects by regime type and WTO membership.

Gravity Model

I first run gravity models, the widely used model to test determinants of trade patterns (Anderson and van Wincoop 2003; Carnegie 2014; Goldstein et al. 2007; Yu 2010). For the within-dyad WTO effect, I control for a standard set of dyad-level covariates and directed dyad and year fixed effects as in the literature (see Table C.5). The dependent variable is $\log(\text{exports} + 1)$. Covariates and trade data are drawn from the popular CEPII's Gravity dataset which aggregates data sources such as IMF DOTS and UN Comtrade. The model assumes conditional exogeneity after controlling for fixed effects and covariates; then WTO is as if randomly assigned. Intuitively, it means given the same determinants of exports, how much can WTO membership "inflate" exports.

²⁹Observers must start negotiations within five years of being observers, implying trying to meet conditionalities, and enjoy multiple benefits from the WTO such as speaking rights and learning opportunities, as well as the possibly strengthening investors' confidence.

	Export(log)		Export(log)		Import(log)	
	Pre-1990	Post-1990	Pre-1990	Post-1990	Pre-1990	Post-1990
$WTO_i \times Polity_i$			0.010*** (0.003)	-0.017*** (0.003)	-0.002 (0.003)	0.005* (0.003)
WTO_i	0.299*** (0.043)	0.014 (0.046)	0.313*** (0.043)	0.027 (0.046)	0.064 (0.048)	-0.069 (0.049)
Gravity Controls	✓	✓	✓	✓	✓	✓
Directed Dyad FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Num.Obs.	220 706	528 482	220 706	528 482	215 680	518 896
R2 Adj.	0.858	0.881	0.858	0.881	0.854	0.873
BIC	837 805.4	2 193 196.8	837 765.2	2 193 046.4	822 165.1	2 193 058.4

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3: The Effects of Joining the WTO. *Note:* Robust standard errors are clustered by directed dyad. Full specifications see Table C.5. Institutions such as PR protection is not included to avoid possible post-treatment bias. Nonetheless, results hold under inclusion.

The results are shown in Table 3. In column 1 and 2, conditional on other dyad characteristics in the gravity models, joining WTO predicts increased exports before 1990, echoing the existing literature, yet the effect disappears in the post-1990 period.³⁰ By looking at the $WTO \times Polity$ interaction term, the effect of the WTO on exports is larger for democracies pre-1990, but larger for autocracies post-1990.³¹ In contrast, the WTO effect on imports is larger for democracies post-1990. This suggests that in the post-1990 period, joining the WTO leads to more export increase while less import increase for autocracies compared to democracies, which may explain why autocracy predicts higher trade surpluses. Based on Column 4, for autocracy ($Polity \leq 0$), WTO accession on average inflates exports by 18% than counterfactual, while decreasing exports by 10.4% for democracy ($Polity > 0$).³² In comparison, the pre-1990 WTO effects for autocracy and democracy are 11.3% and 42.9%, respectively. One explanation for the negative effect for democracies are that trade integration is subject more external shocks if one doesn't have advantages.

³⁰The large sample size can safely rule out the statistical power issue.

³¹The autocracy's effect is moderately smaller but consistent if removing China-, or Russia-, or thirteen OPEC-origin dyads, but becomes close to zero if all are removed, which is nonetheless better than the pre-1990 negative effect and suggests better or worse effects for the remaining countries. Note also that removing all that account for the majority of autocracies' GDP (over 90% in 2015) significantly biases sample representation. More importantly, removing all doesn't affect all other tests, including the WTO effect of the "reformer" stratum.

³²This is not because autocracies started low. While the within-unit fixed effect model cannot control for covariates across units, the correlation between GDP per capita (log, a year before WTO accession) and Polity shows autocracies have higher average income ($r = -0.25$)

[TODO: need to check the robustness of gravity model, see Carnegie 2014. check gravity trade missing data.]

Sensitivity Test

Although gravity model is conventionally used to test WTO effect and arguably control for sufficient covariates, it still cannot entirely rule out the omitted variable bias. One may argue that other factors can confound the WTO effect across regime type. In order to mitigate the concern, I conduct sensitivity tests following Cinelli and Hazlett (2020) whose goal is to gauge how strong an omitted confounder needs to be to explain away completely the effect of treatment in the functional form of the model (i.e., $WTO \times Polity$). As Cinelli and Hazlett suggest, it's more productive to consider the relative strength by comparing the unobserved confounder to observed covariates, since the absolute strength (i.e., residual variance) can be harder to argue for/against and the strongest covariates are often identified in models. Perhaps autocracies have different population and economic size, and institutional levels. As such, I choose three covariates that may theoretically confound the WTO effect across regime type: PR protection index, population (log), and GDP (log). Figure C.10 plots the sensitivity contours which represent the estimates of $WTO \times Polity$ given the hypothetical partial R^2 of the omitted confounder with treatment ($R^2_{D \sim Z|X}$) and outcome ($R^2_{Y \sim Z|D,X}$). In a nutshell, any omitted confounder that nullifies the main estimates would need to be 65 times, 150 times, and 340 times as strong as these three covariates with both treatment and outcome, respectively.³³ Hence, we should more safely rule out the omitted variable bias.

Difference-in-Differences (Panel Matching)

In addition to the gravity model-based approach, I use panel matching as a nonparametric identification strategy to estimate the effect of WTO membership. Although panel matching cannot completely rule out unobservable confounders entirely (which can be reassured by sensitivity tests below), it offers significant advantages over traditional parametric methods, e.g., fixed-effects for panel data (Imai et al. 2022). Unlike fixed-effects, which relies on the model assumptions, panel matching explicitly constructs counterfactuals by matching on pre-treatment covariates for more credible parallel pre-treatment trends. This approach ensures comparable comparison and reduce outlier influence, providing more robust causal estimates. It also provides insight into long-term

³³As noted by Cinelli and Hazlett, these results are conservative for the case of multiple (possibly non-linear) omitted confounders.

effects as WTO effect tends to grow gradually over time. Panel matching is appropriate for the temporal WTO membership in this case. The ATT estimator is expressed as below:

$$\frac{1}{\sum_{i=1}^N \sum_{t=L+1}^{T-F} D_{it}} \sum_{i=1}^N \sum_{t=L+1}^{T-F} D_{it} \left\{ (Y_{i,t+F} - Y_{i,t-1}) - \sum_{i' \in \mathcal{M}_{it}} w_{it}^{i'} (Y_{i',t+F} - Y_{i',t-1}) \right\}$$

Where D_{it} is treatment indicator (1 if treated). $Y_{i,t+F}$ is outcome for treated unit i at time $t+F$. $Y_{i,t-1}$ is the outcome for treated unit i at pre-treatment time $t-1$. \mathcal{M}_{it} is the set of matched control units for treated unit i at time t . $w_{it}^{i'}$ is the weight for control unit i' matched to treated unit i .

Specifically, Covariate Balancing Propensity Score (CBPS) weighting is used to balance covariates.³⁴ CBPS estimates propensity score such that covariates are balanced (Imai and Ratkovic 2015). Weighting methods are particularly effective in non-large datasets because they retain all available control units. As PanelMatch is inconvenient to handle interaction effect, units are roughly stratified into democracies ($\text{Polity} \geq 0$) and autocracies ($\text{Polity} \leq 0$) to test the effect of each subgroup.³⁵ For all tests, I use export volumes (log) as the DV, similar to gravity models.

I first utilize the country-year panel dataset. The parameters use $L = 4$ to match pre-treatment histories, and $F = 5$ for possible forward effects, since joining the WTO may not immediately boost trade.³⁶ I focus on pre-treatment covariates that theoretically affect both WTO accession and future exports to get similar treatment/control baselines, including GDP (log), GDP per capita (log), Polity, population (log), race (white), geopolitics (NATO membership), natural resource intensity (%), industrial output intensity (%), rule of law, and lagged outcome. I avoid controlling for direct post-treatment covariates such as tariff rate, which is lowered upon or after WTO accession.³⁷

Since the country-year panel data contains relatively few observations, which may limits the size of matched set \mathcal{M}_{it} , I also exploit the dyad-year panel data whose overwhelmingly large sample

³⁴I choose among mahalanobis matching, propensity score matching/weighting, and CBPS matching/weighting for the best performance on balancing covariates. The standardized mean difference (SMD) of most covariates are within the threshold of the rule-of-thumb 0.2.

³⁵As shown in the Appendix, countries' regime types stay relatively stable before the mid-1980s and after the mid-1990s. I therefore capture the regime types in 1970 and 2000, respectively, for the purpose of maintaining data integrity for a single country throughout the period.

³⁶Longer leads and lags are refrained since it can eliminate more units that don't match. In each period, I keep four more years prior to the start year of each period to allow for sufficient pre-treatment histories.

³⁷I match institution because WTO conditionality is more about trade-related liberalization and intellectual PR protection rather than usual PR protection and rule of law (Allee and Scalera 2012). Nonetheless, results hold for no matching.

size allows me to observe longer delay effects.³⁸ I extend leads to seven years. Similar covariates to the country-year case above are matched on based on whether they may affect WTO accession and future exports. Additionally matched are dyad-level FTA, customs union, distance (log), colonial relationship, and common official language, since they might also affect both treatment and outcome.³⁹

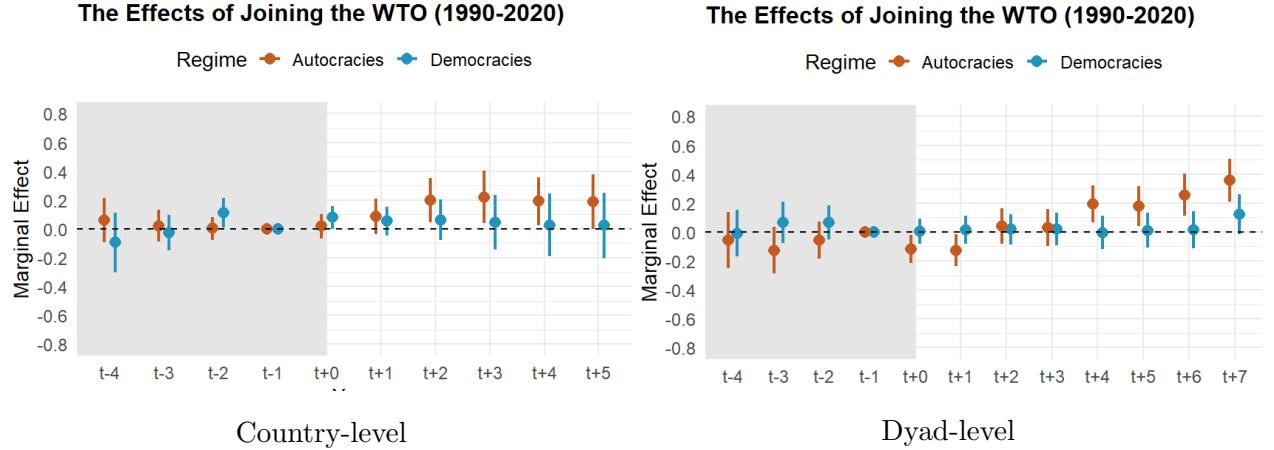


Figure 8: Effects of Joining the WTO on Exports (Post-1990). *Note:* Autocracy = Polity ≤ 0 . The WTO effect of autocracy is statistically significantly non-zero while that of democracy is not. Placebo tests show that parallel trends assumption hold (the shaded area, with t-1 as reference time). The model estimates standard errors with bootstrap.

Figure 8 plot the WTO effects for democracy and autocracy, respectively. After matching, the covariate balance has significantly improved (see Figure C.11). The two results resemble each other. The effect of autocracy gradually grows over time. From t+3 to t+5, autocracy's WTO effect is 0.15-0.2ish based on two datasets, while democracy's is not statistically significant. This is consistent with gravity models (Table 3), which report that the effect difference between average democracy (Polity = 5) and average autocracy (Polity = -5) is -0.17 for the post-1990 period. Overall, panel matching confirms the robustness of gravity models and validates *H1.1*.

Domestic Reform as the Scope Condition

So far, the work-horse model – gravity model – is demonstrated sufficiently robust, and I will use it for the following tests. As argued in Section 5, the differential effect of WTO membership by regime type is conditional on different levels of domestic institutions. When institutional levels are

³⁸I limit destination countries to pre-1990 WTO members.

³⁹In another version, I match a standard list of gravity model's dyad-level covariates of both origin and destination states.

too low, joining hardly makes autocracies outstand. Yet, when institutional levels are sufficiently high, institutional constraints may in turn constrain autocratic leaders' hands in trade. We thus expect a U-shape effect for joining the WTO. I estimate the differential effects above stratified by institutional levels: PR protection and rule of law, respectively. Institutional levels are divided into three ranges from low to high.⁴⁰ For both temporal data integrity of the same origin country and measuring institutional levels after WTO accession, I calculate "average institutional levels" ten years after joining, and assign dyads into the corresponding institutional ranges. The idea is that, exploiting cross-dyad variation within each institutional range, we can identify WTO's causal effect after controlling for time invariant and variant confounders, and test whether it is moderated by regime type⁴¹ I fit a model including a three-way interaction among post-1990 joiners:

$$Export_{ijt} = \beta WTO_{it} \times Polity_i \times Institution10year_i + \delta \mathbf{X}_{ijt} + \gamma_{ij} + \eta_t + \epsilon_{ijt}$$

where $Institution10year_i$ is categorical variable of post-WTO 10-year averages of institutional levels (low, mid, high) of country i , and \mathbf{X}_{ijt} denotes dyad-level covariates. γ_{ij} and η_t are dyad and year fixed effects.

Figure 9 shows, as expected, across different ranges of institutions, autocracies outperform democracies regarding WTO effects, but not when institutions are too low or too high. It is only when institutional levels are somewhere in the middle that autocratic advantages manifest. For the mid-level, for example, $WTO \times Polity$ is -0.028 and -0.042 in each institutional category, much higher than the average -0.017 (Column 4, Table 3).

⁴⁰I calculate thresholds combining lowest/highest 20 percentiles among developing countries in 2000 with minor adjustment based on real cases (see Appendix for details). By examining histograms in Appendix, each range contains at least a few autocracies. The final ranges are {0, 0.35, 0.85, 1} for PR protection and {0, 0.2, 0.7, 1} for rule of law. Robustness tests include nudges in thresholds, using dichotomous Polity, and comparing autocracies of each range to the same control group (see the Appendix for details).

⁴¹I do not control for institution in the model for possible post-treatment bias: institutional change may be partly triggered by WTO membership. Yet, this may neglect pre-WTO institution's effect. In the Appendix, I show that controlling for institution for the whole period doesn't affect results.

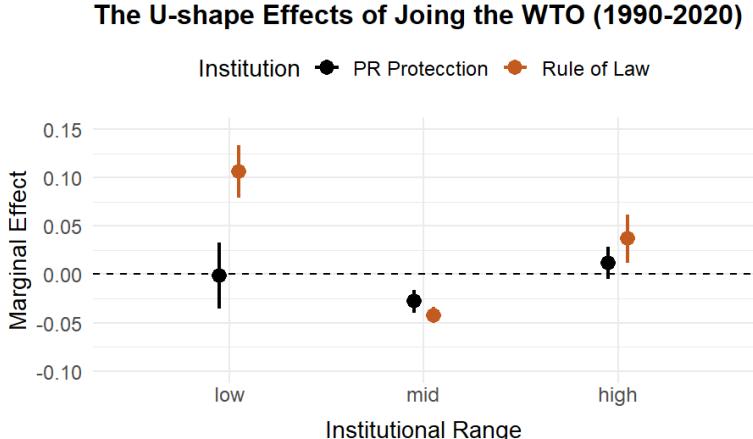


Figure 9: The Effects of Joining the WTO Conditional on Institutional Levels. Note: The y-axis means the marginal effect of the WTO conditional on Polity. A positive value means the effect favors democracy. The smooth shadows are generated using cubic spline interpolation for illustration purpose.

Why No Pre-1990 Autocratic Advantages?

So far, we have discussed why autocracies can perform better through WTO expansion after 1990. Why didn't joining the WTO help in the pre-1990 period? Several answers are in order. First, during the Cold War, autocracies that joined were smaller and weaker, so that the joining effect for democracies were not significantly impacted. In 1975, roughly 90% of WTO members' GDP belongs to democracies. More importantly, it had not seen substantive market-oriented reforms worldwide (or only on paper, as discussed) or the spread of global value chain, mitigating the membership effect – the scope condition and a globalized environment had not sufficiently formed.

6.2 The Domestic Reform Effect

As in H2.1 and H2.2, I now test whether domestic reform favors autocracies or not. The test is also based on the main gravity model. VDem's PR protection and rule of law are used to measure institutional change. I exploit within-dyad variation with dyad and year fixed effects which controls for possible time- and dyad-invariant confounders. As reform is mostly for developing countries, I only focus on those with GDP per capital lower than \$20,000 in 2000. For the case of post-1990 trade expansion, I also test former outsiders: new-joiners (who joined the WTO after 1990) and never-joiners.

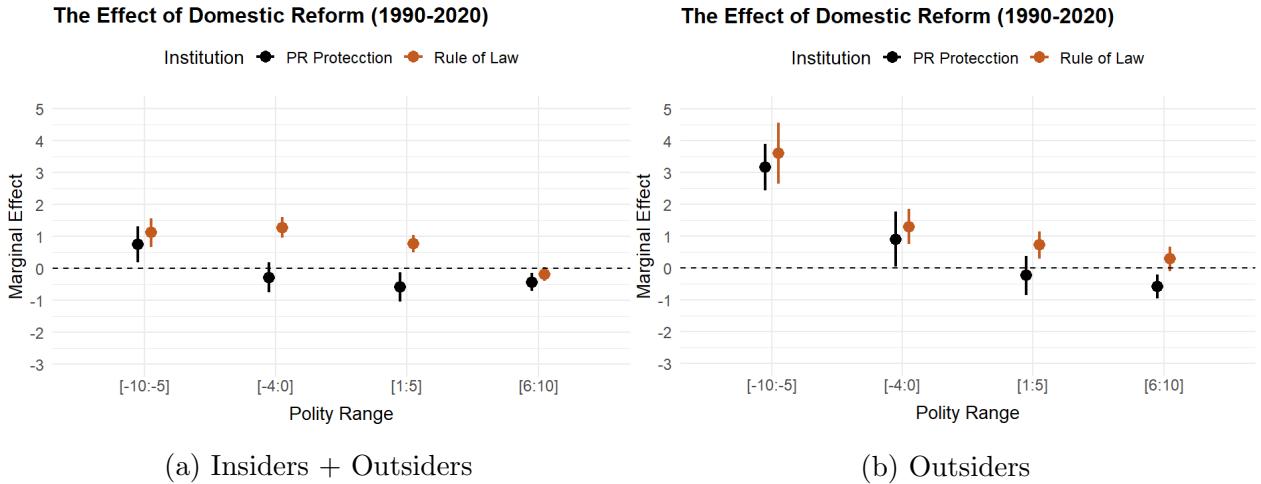


Figure 10: The Effects of Domestic Reform by Polity. Note: (a) plots the effects of within-dyad changes of institutions across differential ranges of Polity, for all developing countries (GDP per capital lower than \$20,000 in 2000) to focus on institutional reform. (b) plots the same graph, but only for outsiders (new-joiners and never-joiners).

Effects vary for sub-groups. As shown in Figure 10a, domestic reform among developing countries during the period of 1990-2020 increase exports, but only for more autocratic states.⁴² This pattern is more apparent in Figure 10b, where I remove those who already joined the WTO before 1990. The likely interpretation is that the influx of many well-performing autocracies into the global trade system may exert significant stress to hands-off, open-market democracies (e.g., the China shock). The result is consistent with the hypothesis that autocratic advantages may amplify the effect of domestic reform.⁴³

The WTO as the Scope Condition

As the effect of domestic reform can only be observed for autocratic outsiders, I focus only on the dyad-years in which the origin is an autocracy ($\text{Polity} \leq 0$) in 2000.⁴⁴ Assuming the main gravity model that controls for trade's determinants is still valid, I fit a model including a three-way interaction term among outsiders:

⁴²I don't control for WTO membership to avoid the post-treatment bias. Similar effects remain when controlling for WTO membership.

⁴³Autocracies may also have increased marginal returns due to lower starting institutional levels. However, developing democracies' institutions were not significantly higher: 0.6 vs. 0.45 for PR protection in 1990, see Figure 5, which cannot explain why democracy's reform effect is almost zero.

⁴⁴I include three years earlier (i.e., 1987-89) to allow for pre-wto years for those joined in the early 1990s, though no inclusion doesn't affect results.

$$Export_{ijt} = \beta Institution_{it} \times Joiner_i \times WTO_{it} + \varphi Institution_{i,t=0(WTO_i \in 0,1)} + \delta \mathbf{X}_{ijt} + \gamma_{ij} + \eta_t + \epsilon_{ijt}$$

where \mathbf{X}_{ijt} denotes dyad-level covariates. β captures the effect of institution for four cases conditioned by Joiner and WTO. To allow for similar baseline comparison between non-WTO and WTO periods, I control for $Institution_{i,t=0(WTO_i \in 0,1)}$, which is the starting institution level for each country's non-WTO and WTO periods separately. I also include dyad and year fixed effects.

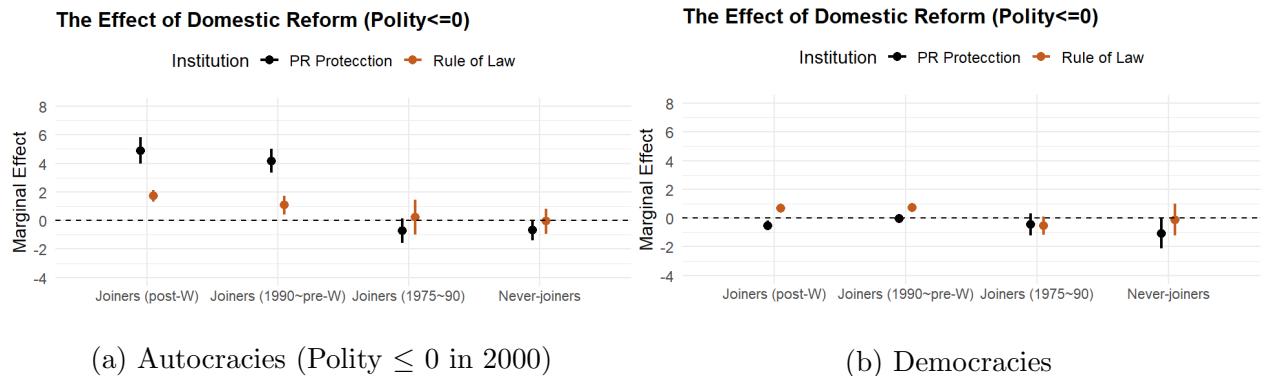


Figure 11: The Effects of Domestic Reform by WTO Status. *Note:* Autocracies only. "Joiner" are those joining the WTO after 1990. "W" means WTO. Figure C.13b shows similar effects when estimated separately.

Figure 11a displays the effects of reform for three categories: post-WTO period for joiners, pre-WTO period (post-1990) for joiners, and never-joiners.⁴⁵ For PR protection, every 0.1 increase leads to 65.3%, 54.3%, and almost zero change in exports, while for rule of law, the effects are 22.2%, 13.6% and zero, respectively. By comparison, democracies see almost zero effects for all three categories (Figure 11b). Note that for joiners in the pre-WTO period (post-1990), they may already enjoyed much globalization benefit even without official accession, such as the MFN status, RTAs, spill-over from joiners, and future WTO prospect, so that the observed effect may be inflated compared to no-globalization counterfactual.⁴⁶ Additionally, the effects of reforms (1975-1989, see Figure 5) were null before they were substantively engaged. Finally, for never-joiners, their effects are quite limited, although they may have other systemic differences. Overall, the results support my theory – autocratic advantages significantly diminish when states are excluded from the globalized

⁴⁵I also estimate the effect for each category separately. See Figure C.13b

⁴⁶I don't use lead WTO dummies as two periods differ substantively.

econom.

6.3 Polity on Absolute Levels of Exports

Although within-country temporal effects can explain why autocratic states can rise relatively, the performance of absolute levels only strengthens the case of "autocratic advantages." As shown in Section 2, autocracy predicts non-worse absolute-level performance. This prediction may be also moderated by institutional levels. Unlike testing within-dyad effects, I now pool all dyads together only with year fixed effects and additional time-invariant covariates such as distance, religion, and language. Rule of law index (≥ 0.8) contains mostly advanced democracies (Polity = 9,10 in 2000), while Property right protection (≥ 0.8) does contain some lower Polity states. I thus set the upper-bound as 0.8, and evenly separate 0-0.8 into four ranges, namely $\{0, 0.2, 0.4, 0.6, 0.8\}$. Then, I run the full gravity model for each range. Figure 12 corroborates my hypothesis.

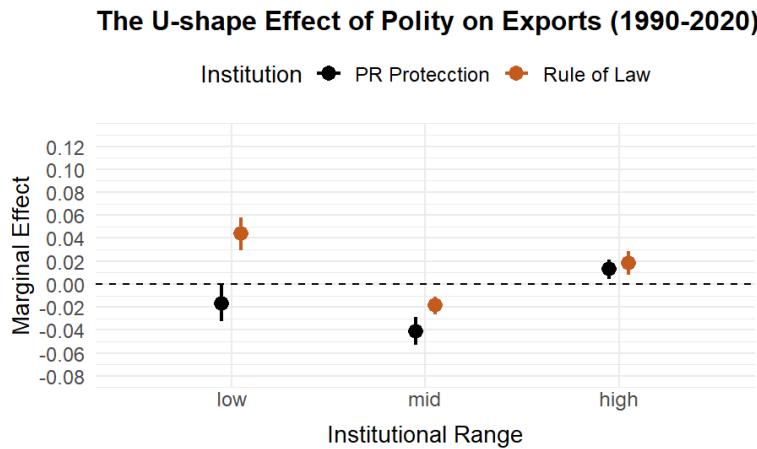


Figure 12: The Effects of Polity Conditional on Institutional Levels.

6.4 Additional Robustness Tests

Although I have used multiple methods to confirm the robustness, additional tests are conducted in Appendix:

- Different democracy measure: continuous, binary, trinary
- Alternative institutional measure other than VDem
- Outlier: Bootstrap, Leave-One-Out
- lagged effects of WTO and domestic reform
- Multiple Imputation

Discussing Selection Bias

For WTO effect, the concern is that membership is not random and is influenced by factors that may also affect export growth. I apply the extensively used gravity model in the literature by controlling for a full list of covariates and within-dyad effects, as well nonparametric panel matching and sensitivity tests for robustness. The models also control for within-dyad institutional changes. Then across autocracies/democracies of similar institutional levels, regime type moderates the WTO effect, in other words, two groups are arguably similar after controlling.

For reform effect among developing countries, similar gravity model with dyad-fixed effects is used. Then regime type moderates the result. Autocracies may have increased marginal returns due to lower starting institutional levels. However, democracies have done reforms, and their institutions were not significantly higher (0.6 vs. 0.45 for PR protection in 1990), which cannot explain why democracy's reform effect is null.

Additionally, even if autocratic leaders may have stronger incentives to increase exports, eventually, incentives have to go through the ground measures by institutions and/or autocratic advantages.

6.5 Alternative Explanations

The “Catching-up” Story

Is it a catching-up story in which, thanks to globalization and converging technologies, less developed countries (LDCs) quickly catch up and grow faster, while many autocracies happen to be among them? The answer is no. The post-1990 WTO-joiners were mostly LDCs, in which autocracies account for only one third. My models control for many country-specific covariates such as GDP per capita, GDP, and population, to ensure similar level comparisons. Furthermore, not only for relative growth, but also for absolute levels of outcomes, regime's effect still favors autocracies.

7 Sectoral-level Evidence

As discussed in Section 5, autocratic advantages such as mercantilism, labor suppression and resource-abundance should more favor manufactured and commodity goods exports, as well as intermediate goods which reflect GVC participation, than agriculture. For example, countries like China after WTO accession shifted millions of labors from agricultural sectors to manufacturing

(Erten and Leight 2019). Thus, by unveiling sector-level patterns, we can better understand the underlying dynamics behind my theory.

The UNCTAD classifies sectors based on manufacturing factors (labor, resource, and technology).⁴⁷ The World Bank's WITS, based on GVC participation, classifies Harmonized System (HS) sectors into raw materials, intermediate goods, consumer goods, and capital goods, according to which, I merge six-digit HS code into the four broad categories. As seen in the x-axis, Figure 13a classifies sectors on manufacture types, while Figure 13b emphasizes the GVC participation. I then ran sector-level gravity model with the interaction term ($WTO \times Polity \times category$) using CEPII's BACI data at the HS 2-digit level.

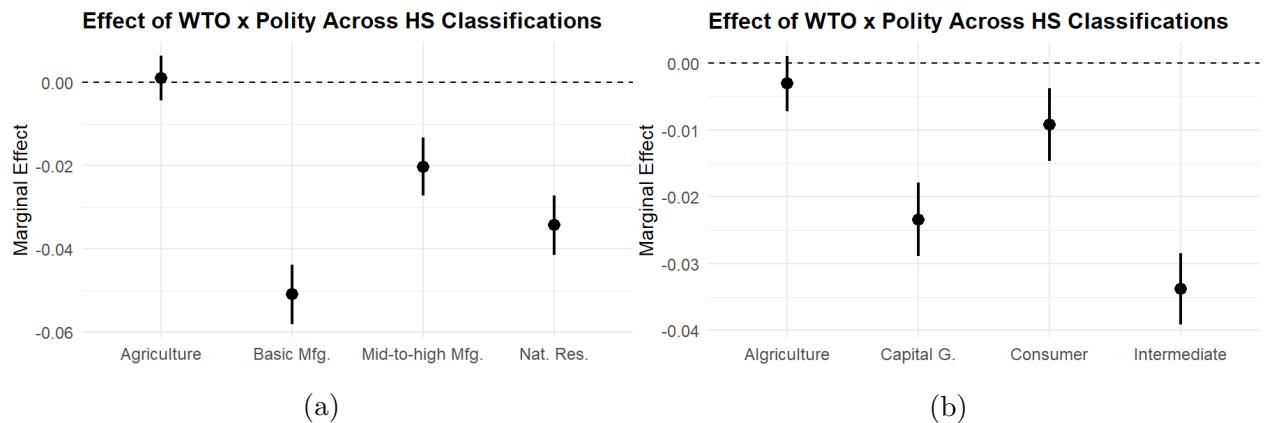


Figure 13: Interaction Effect ($WTO \times Polity$) across HS Categories. Note: negative value means the WTO effect favors autocracy.

As shown in Figure 13, after WTO accession, autocracies' advantages in export boost most manifest in low manufacturing (Figure 13a) or intermediate goods (Figure 13b), then natural resource or capital goods. This sectoral divergence underscores more detailed patterns of autocracies in leveraging WTO membership for export growth.

8 Testing Mechanisms

As stated above, when autocracies were incorporated into the global trade regime, they may have a slew of advantages, which may simultaneously influence trade performance. Section 7 further reveals that autocracies benefit more from exporting manufactures and commodities than agriculture, and through the GVC integration. To understand the channels that may work to achieve this, I conduct

⁴⁷See https://unctadstat.unctad.org/EN/Classifications/DimSitcRev3Products_Tdr_Hierarchy.pdf.

mediating analysis.

8.1 Exports

There are numerous channels through which exports can be affected by regime type, including but not limited to: institutions that protect property rights, mercantilist policies that tilt disproportionate resources to industrial sector (and related, encouraging savings), centralized power that responds to global market swiftly, controlling abilities resilient to external shocks, foreign direct investments (and related, capital account openness), trade and non-trade barriers, infrastructure investments, currency manipulation, and natural resource endowment. The combination of mechanisms may differ from country to country.

Mechanisms	Implications
mercantilism/developmentalism	industrial share (-1.32, t=-24.21) fixed investments (-0.31, t=-8.41) saving rate (-1.76, t=-27.17) fdi share (0.01, t=0.24)
institutionalism	property rights protection (0.01, t=45.14)
neoliberalism	tariff rate (0.20, t=1.92) capital market openness (-0.006, t=4.45)
resource	natural resource rent share (-0.86, t=-10.38)

Table 4: Mechanisms and Implications (for Exports). *Note:* numbers in brackets are coefficients of regressing channels on Polity with year fixed effects (2000-2020), and t values.

As the aforementioned tests demonstrate autocracy predicts better only under certain conditions, I focus on the “engaged reformers” with the PR protection between 0.1 and 0.7 and being inside the WTO since 2000 (a more stable starting year after the transition). Table 4 presents the coefficients when I regress various channels on Polity with year fixed effects. These channels have mixed correlations (positive or negative) with regime type except for the FDI share, and they all likely play some roles as mediating variables. Interestingly, as mentioned in Section 3.2, among these engaged reformers, autocracies have lower average tariff rates.

Mediating tests are done in the Appendix, and none of the channels dramatically reduces the effect of Polity, suggesting each channel may only work partially or for certain countries. Yet, further tests shed more light.

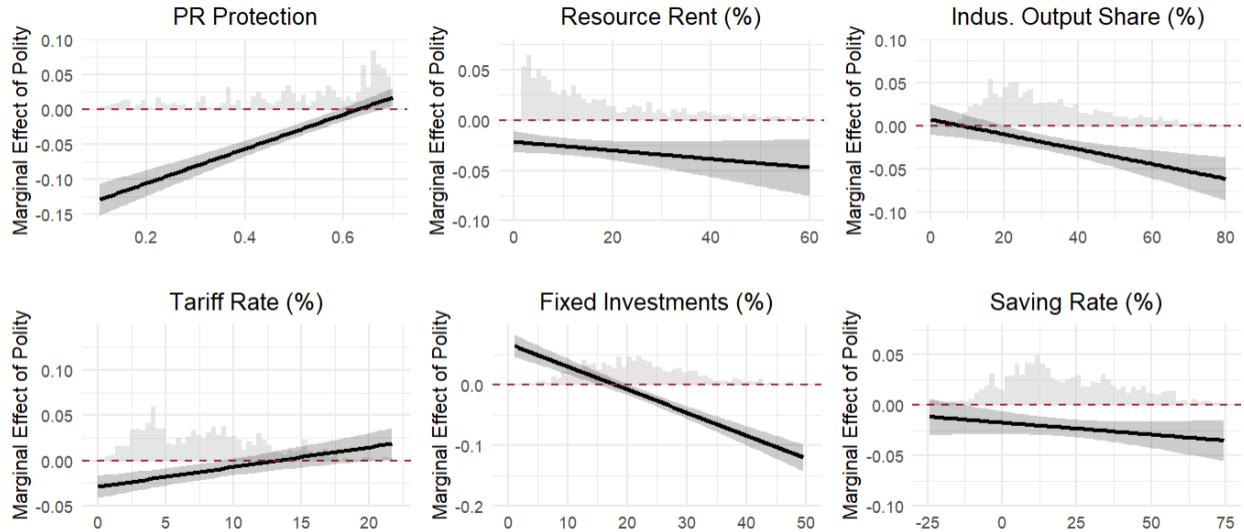


Table 5: Channels and Exports. *Note:* the y-axis is the Polity's effect on exports.

As plotted in Figure 5 where varied channels are interacted with regime type, across different levels of channel variables, Polity's effect varies. For example, for industrial output, fixed investments, and saving rate, Polity's effect on exports significantly favors autocracy when these variables are at higher values. This suggests that, at higher values, autocratic advantages may be amplified together with other channels. For example, in highly industrialized autocracies, centralized power can better support firms' requirements by streamlining processes and suppressing labor unions. A high level of fixed investments in infrastructure may enhance the abilities to attract FDI and more effectively support the export sector. A high saving rate imposed by autocratic leaders may benefit infrastructure building and support firms on competitive financing.

8.2 External Balances

External balances are systematically different from exports regarding the causes, which are fewer, generally divided into trade and financial explanations (Barattieri 2014). Overall, autocracies are more likely to conduct mercantilist and protectionist policies (in contrast to engaged reformers). Meanwhile, autocracies are correlated with more natural resource endowment. The level of capital market development can also be a factor.

The implication that follows is that industrial output (% of GDP), tariff rate, capital market development and natural resource output (% of GDP) may be potential mediating variables.

Mechanisms	Implications
mercantilism	industrial share ($r = -0.47$)
protectionism	tariff rate ($r = -0.52$)
	capital market openness ($r = 0.49$)
capital market level	private credit supply share ($r = 0.36$)
resource	natural resource rent share ($r = -0.56$)

Table 6: Mechanisms and Implications (for External Balances). *Note:* in brackets are cross-country correlations in year 2010.

DV: Current Account Balance (%)						
	Baseline	Mercantilism	Protectionism	CapMkt Dev.	Resource	All
Polity2	-0.158*** (0.052)	-0.107** (0.053)	-0.162*** (0.056)	-0.157*** (0.051)	-0.113** (0.053)	-0.099* (0.054)
Industrial Output(%)		0.268*** (0.030)				0.248*** (0.036)
Tariff Rate			0.180*** (0.045)			0.210*** (0.043)
Δ Private Credit (%)				-0.099*** (0.014)		-0.113*** (0.013)
NatRes Rent (%)					0.220*** (0.031)	0.098*** (0.035)
Controls	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Num.Obs.	1308	1293	1189	1294	1308	1162
R ² Conditional	0.770	0.791	0.798	0.773	0.795	0.829

DV: Trade Balance (%)						
	Baseline	Mercantilism	Protectionism	CapMkt Dev.	Resource	All
Polity2	-0.202*** (0.068)	-0.068 (0.066)	-0.142** (0.072)	-0.211*** (0.066)	-0.119* (0.064)	-0.013 (0.065)
Industrial Output(%)		0.640*** (0.038)				0.476*** (0.043)
Tariff Rate			0.120** (0.053)			0.186*** (0.048)
Δ Private Credit (%)				-0.147*** (0.016)		-0.159*** (0.015)
NatRes Rent (%)					0.614*** (0.036)	0.371*** (0.040)
Controls	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Num.Obs.	1308	1293	1189	1294	1308	1162
R ² Conditional	0.876	0.890	0.888	0.883	0.903	0.920

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 7: Mediating Variables and External Balances.

Table 7 displays the results of mediating tests based on the mixed-effect model above (Sattler and Manger 2019). Current account balances are significantly mediated by mercantilism and resource channels, whereas trade balances are significantly mediated by mercantilism, protectionism, and resource channels. All these channels reflect the autocratic advantages discussed in Section 3.2.

9 Case Illustration

In this section, I put together similar countries (in population size, historical and starting developing levels, etc) for comparisons. The comparisons seek to corroborate primarily autocratic advantages, preferably

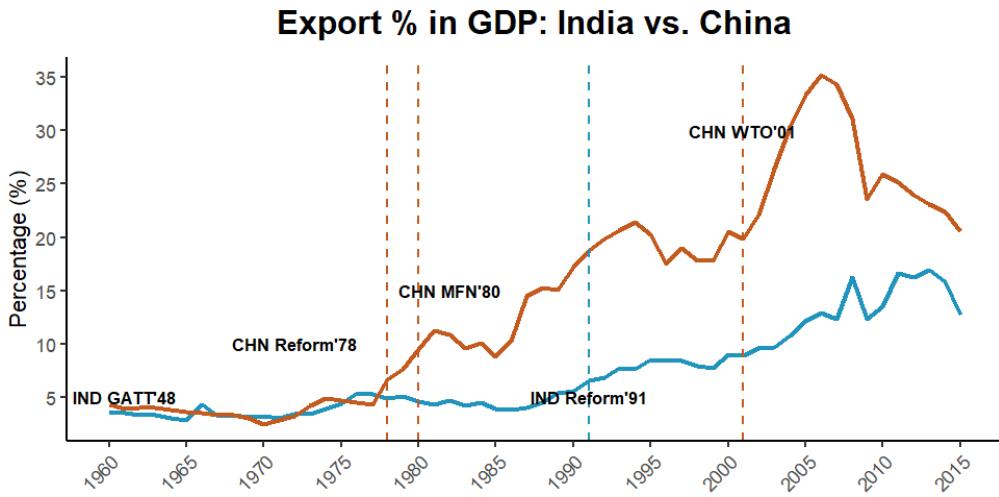


Figure 14: Exports (%): China vs. India. *Note:* source: WDI; China increasingly relied on domestic economy after 2008.

China vs. India - China and India share many similarities in the late 1970s: demographics, trade-related geography, resource endowment, and centrally planned economies. Both countries had similar export shares for decades (Figure 15). China started market-oriented reforms in 1978, and in 1980, it was granted the MFN status from the United States (i.e., semi-engaged) and borrowed huge from the World Bank. Although China's exports immediately took off, it recorded persistent trade deficit (1980-1995). China's accession into the WTO in 2001 gave its exports a second boost and China started to run persistent trade surplus since. China's political regime allows a gradualist approach which blended state control with market, and long-term planning employing mercantilism (e.g., economic zones and industrial policies)(Lin et al. 2003), as well as the suppression of labor rights. In contrast, India is the GATT signatory country, which didn't seem to help

substantially. India started market reforms a bit late in 1991. Although India's nominal institutional level was higher (0.77 vs. 0.35 in PR protection in 2000), India's democratic system, though more inclusive, must navigate coalition politics, public dissent, and legal constraints, resulting in slow decision-making and low mercantilist policies (Groth 2006). Consequently, from 1991 to present, its export share is significantly lower than China's and ran persistent trade deficits. Interestingly, with Modi's more centralized and authoritarian turn, India quickly changed trade policy towards more mercantilism, notably in electronics.⁴⁸ In only five years (2018-2023), India's exports of electronic products increased five fold to \$22 billion.

Vietnam vs. Philippines - Vietnam and Philippines are another comparable cases: similar income levels in the 1980s, as well as economic structure, population, geography, race, and resource endowment. In 1986, Vietnam started economic reforms, and by 2001 it was granted the MFN status from most western countries. In 1990-2011, Vietnam recorded persistent trade deficit, while starting a state-led mercantilist model similar to China's. Vietnam's swift and consistent policy-making, long-term planning, and managed economic liberalization were attributed to its centralized political system (Kirkpatrick et al. 2001). Vietnam joined the WTO in 2007 and five years later, it then runs persistent trade surplus. In contrast, more democratic Philippines witnessed elites dominate the democratic process, capture rents, and divert resources away from investment in human development and infrastructure (Baulch 2016).

Belarus vs. Ukraine - Both countries shared many similarities in the early 1990s: GDP per capita, political history, geography, resource endowment, culture, and race. Both then did market-oriented reforms with similar institutional levels (0.75 vs. 0.9 in PR protection, and 0.26 vs. 0.2 in rule of law in 2000). Although Belarus is not a WTO member, it semi-participated globally through other channels such as MFNs (signed with the U.S. and the EU in the 1990s), Russia's spill-over (as well as China-Belarus industrial park), and RTAs such as the EAEU (Eder 2021); Ukraine joined the WTO in 2008. Politically, Belarus is autocratic and Ukraine is a democracy – what differs Belarus from Ukraine is the former's centralized, state-led gradual reforms that favored industrial development (*Ibid*), compared to the latter's fragmented, unpredictable political system, subject to interest groups such as oligarchs, “hands-off” liberalization vulnerable to external shocks, and relatively underinvestment in infrastructure and industries (Kuzio 2020). From the early 1990s to mid-2010s, Belarus increased exports by thirteen times – although not outstanding compared

⁴⁸“10 Years of Make in India,” Government of India, 2024.

to engaged reformers, but significantly better than Ukraine of around five times with half the per capita income as Belarus.

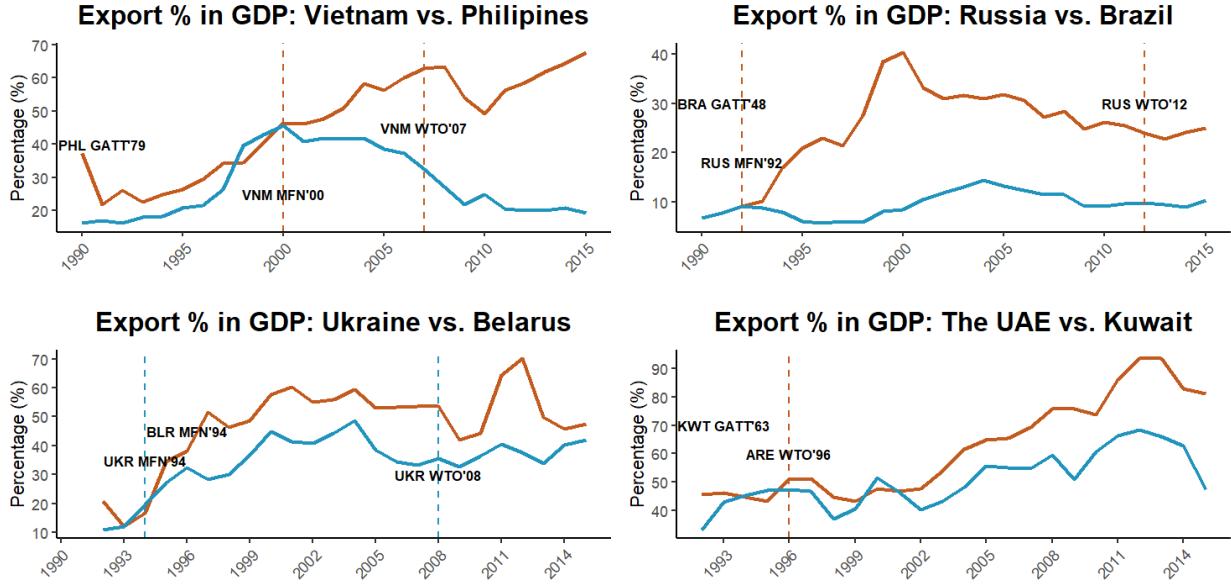


Figure 15: Exports (%): Similar Country Comparison (Post-1990). *Note:* source: WB. Red denotes the first country.

Russia vs. Brazil - Brazil was also one of the 23 GATT signatories. It started in late 1980s marketization reform, also with low mercantilism (10.9% export share in 1988; 13.3% export share in 2005). The result is, since 1990, Brazil recorded persistent current account deficit with a low industrial share (19.5% in 2020).

The UAE vs. Kuwait – The UAE and Kuwait also share many similarities: similar resource endowment (5.9% vs. 6.1% in world oil reserve share), GDP per capita, geography, population, religion, and race. The UAE is a federal monarchy comprising seven emirates, while Kuwait is a constitutional emirate with a parliamentary system, although not democratic. The UAE joined the WTO in 1994 while Kuwait much earlier in 1963. The UAE is has a more centralized authority than both Iraq and Kuwait.

Figure B.4 in the Appendix depicts “exports as a share of world total exports” for 20 major autocracies with time marks for MFN/WTO/WTO observer. World export shares increased for most of them after 1990.

10 Conclusion and Discussion

It has been under heated debate whether democratic or autocratic institutions favor economic growth. It eventually boils down to the mechanism in which economic performance are generated. Nonetheless, looking at domestic institutions alone misses the important picture of external environment.

In this article, I aim to address the puzzle why autocracy's prediction on trade performance reverses compared to the pre-1990 period. Building on the literature of trade and authoritarianism, I conceptualize "autocratic advantages" in a globalized economy. I show that claiming autocracies learned market-oriented reforms and can better develop economies solely by themselves is at best incomplete. Economic globalization that incorporates many of them into the global economic system is a necessary condition that enables autocratic advantages to exploit the global market, often at the cost of others. In the age of economic integration, particularly in the form of the global value chain and economic policy convergence, firms in autocracies may gain competitive advantages that enable them to out-compete rivals. Resource-abundant autocracies gain unprecedented export opportunities which reinforce the regimes. My theory explains why China can contentiously rise and run trade surplus with over 90% trading partners, as well as why democracies seem to lose competitiveness and appeal after 1990 – China is a particularly important case, primarily because of its size that generates tremendous impacts.

Institutional growth theory is still valid, but external impact can counteract it.

IO: sequential accession is not enough.

Despite a causal story, correlation already matters in academia and the policy world. Economic globalization that generates this result is unexpected and undesired. In the end, how one should judge globalization then depends on the result, for as Robert Keohane (1984) argues, means are justified by ends.

Should countries try to emulate some autocratic characteristics? The answer is no. The room for continuing mercantilism especially for autocracies in the current geoeconomic environment is being squeezed as people realize the problem – i.e., the scope condition may disappear, and the side effect of autocratization may be unpredictable, even backfiring for those in power. Doing so may harm an internal demand and innovation-based economy, as well as other aspects of societies such as equity and individual rights.

How will the world trade system go? There's an argument that democracies should build their own trade bloc (Friedberg 2025). Whether it's democracy vs. autocracy or U.S.-China competition, my findings suggest that at least the global market force facilitated by the global trade system stands on the side of autocracies, so that deindustralization of advanced democracies may be so surprising.

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A Data Description

This section describes the data.

A.1 Distributional Change

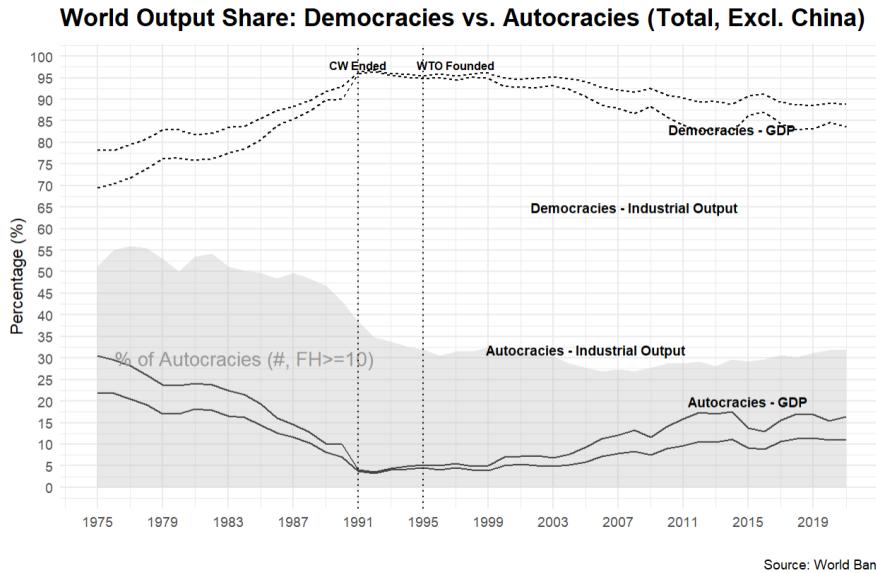


Figure A.1: The Distribution of Power Change Between Democracies and Autocracies, Excl. China (Data: World Bank; Autocracy: Freedom House Index ≥ 10).

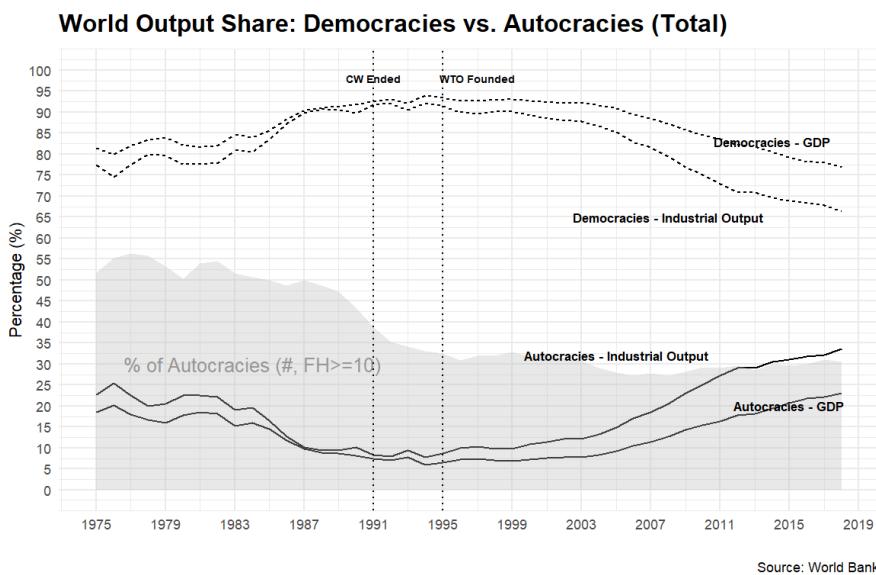


Figure A.2: The Distribution of Power Change Between Democracies and Autocracies (Data: World Bank; Autocracy: Polity ≤ 0).

FIGURE 3: LIBERAL DEMOCRACY INDEX, GLOBAL AND REGIONAL AVERAGES 1971–2021

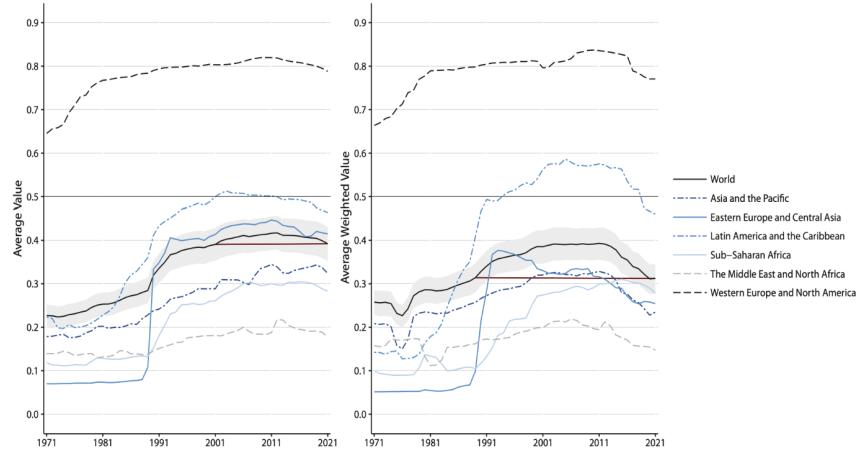


Figure A.3: VDem Global Liberal Democracy Index (Source: the Vdem Report 2021)

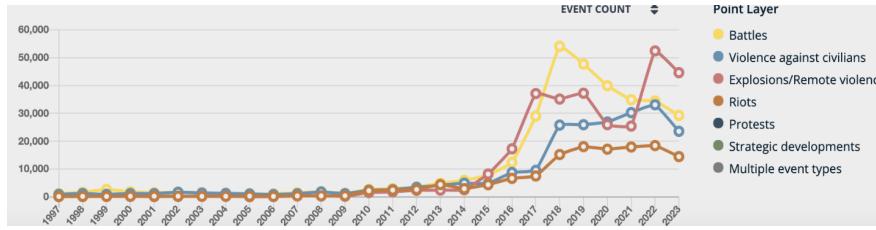


Figure A.4: The Trend of Global Conflicts (Source: ACLED).

A.2 Descriptive Performance

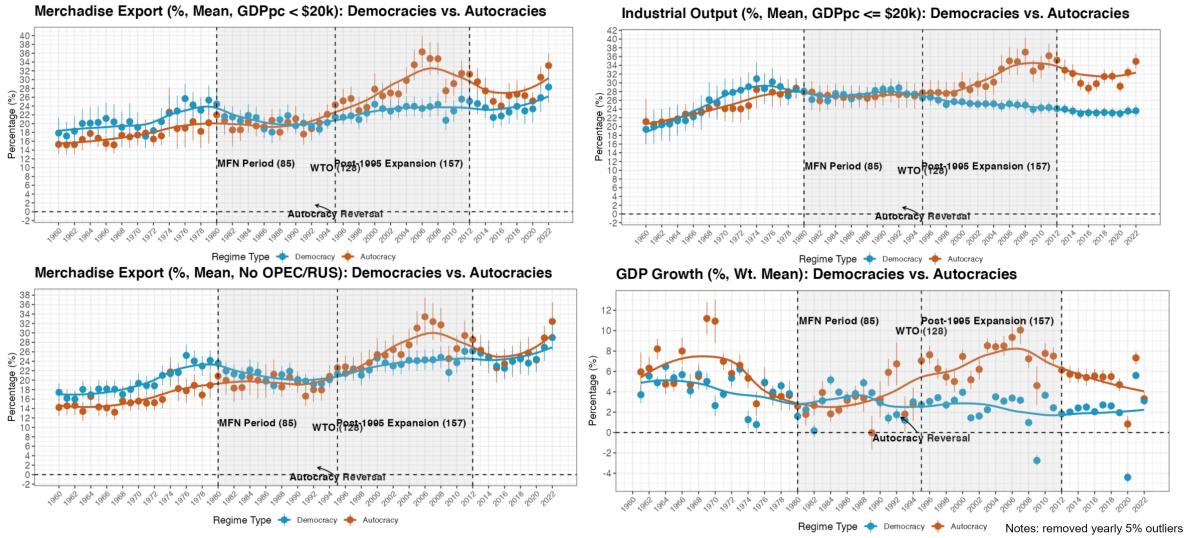


Figure A.5: Average Performance of Economic Indicators between Democracies and Autocracies ($FH \geq 11$).

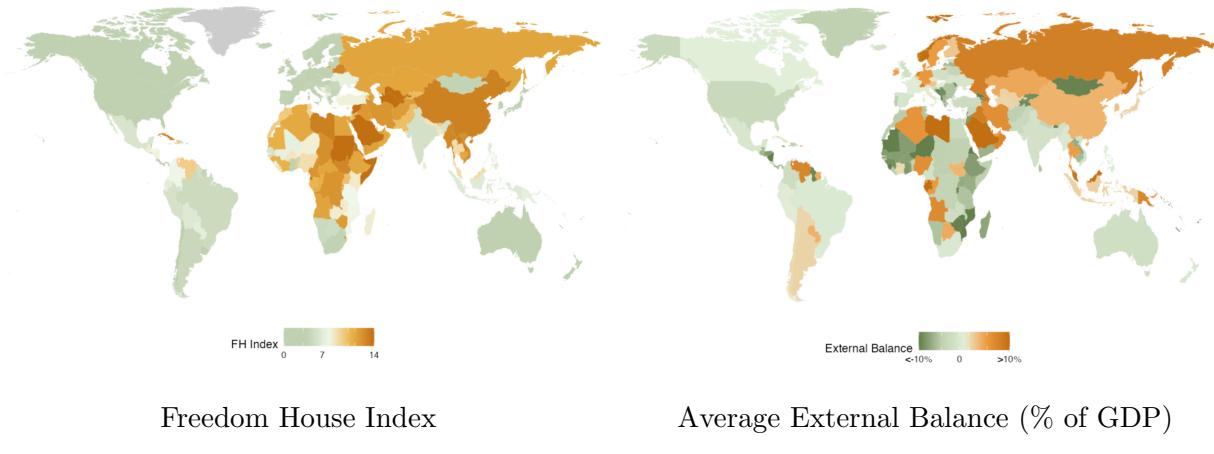


Figure A.6: Correlation between Regime Type and External Balance. *Note:* average external balance calculate the mean of current account balance and trade balance to include the information of both balances, since the two oftentimes do not overlap.

A.3 Panel Data of Regime Type Change

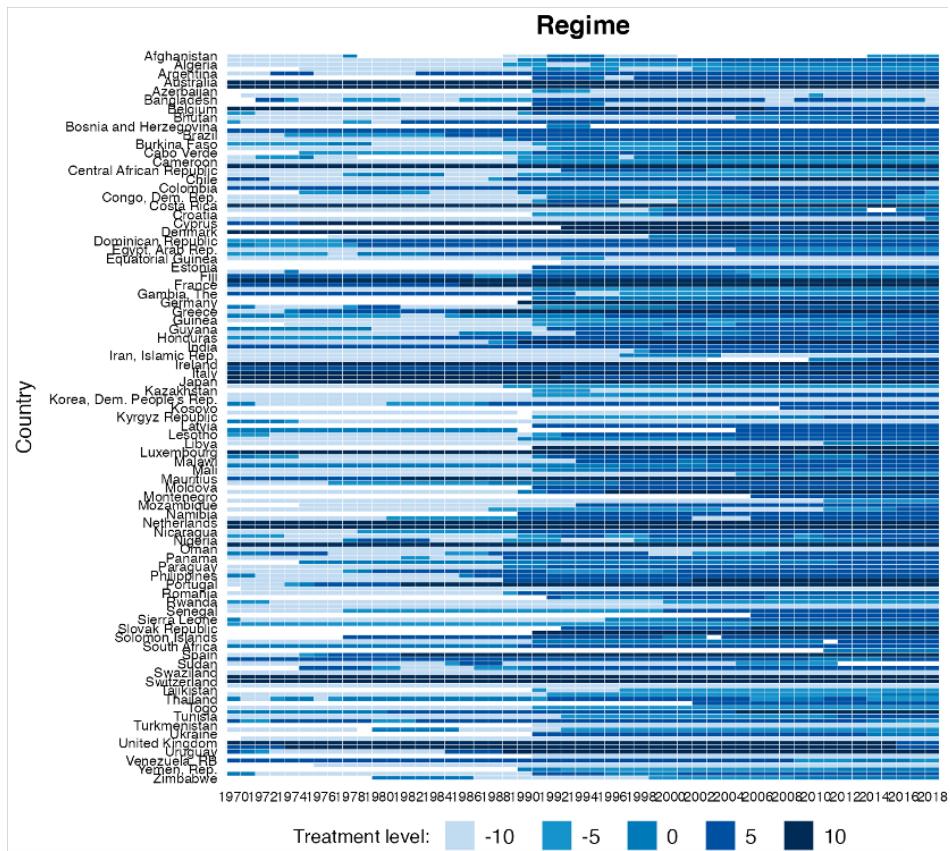


Figure A.7: Democratization (Polity Index)

A.4 KOF Globalization Index (Economic) Change

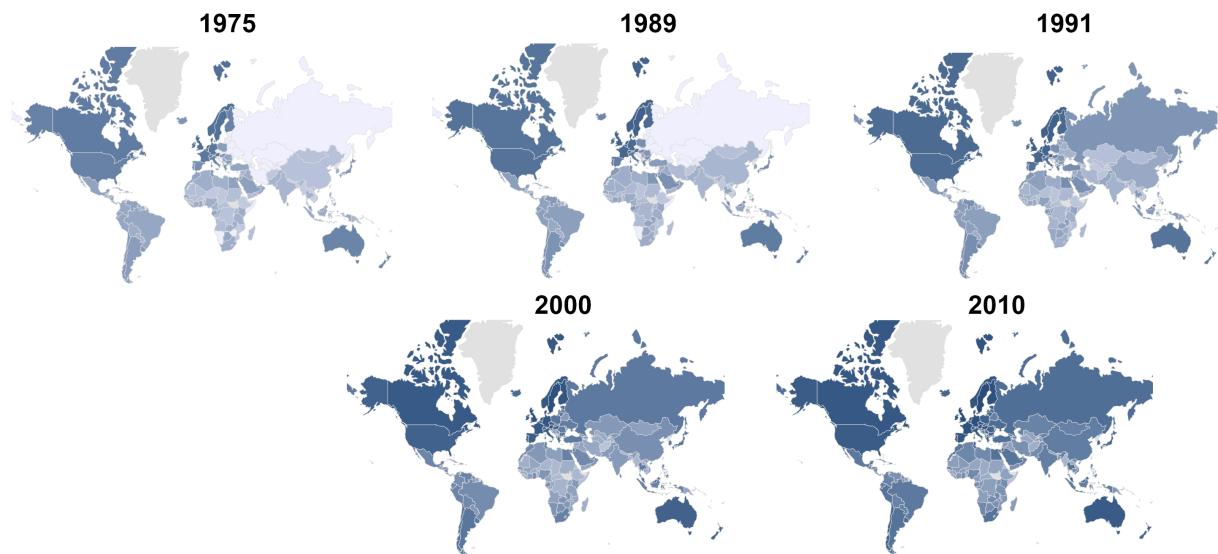


Figure A.8: KOF Globalization Index (Economic) Change. *Note:* The KOF economic index measures flows of trade, FDI and transfers, and trade and capital accounts restrictions.

A.5 WTO Membership



Figure A.9: The Map of WTO Members and Observers (source: WTO website)

B Theory Section

B.1 A Modified Eaton-Kortum Model

This section modifies the classic Eaton-Kortum (E-K) Model to reflect the logic in the paper (Eaton and Kortum 2002), since this model focuses on the determinants of bilateral trade flows. The trade flow from country i to j in E-K model is formally expressed as below:

$$X_{ij} = \frac{T_i(c_i\tau_{ij})^{-\theta}}{\sum_k T_k(c_k\tau_{kj})^{-\theta}} Y_j \quad (1)$$

where T_i is country i 's state of technology (or absolute advantage). c_i is cost of production, and τ_{ij} is trade barrier between two countries i and j . θ denotes the heterogeneity of a country's efficiency in producing a continuum of goods drawn from a Fréchet distribution ($F_i(z) = e^{-T_iz^{-\theta}}$) – that is, the comparative advantage. X_{ij} measures the trade flow from i to j , while Y_j is the aggregate consumption of country j . Together, (1) implies that a country's export is determined by its technology, production cost, and trade cost.

In (2) (4), three new variables are introduced: institution (I_i), autocratic advantage (A_i , proxied by regime type), and WTO membership (W_i). Technology (T_i) of country i depends on institutional improvement (I_i) and autocratic advantage (A_i), conditional on crossing an institutional threshold (I^*) and possessing WTO membership ($W_i = 1$). Both institution and being inside the global trade regime are needed for substantively attracting firms, domestic or multinational, to invest and innovate. Autocratic advantages, embodied in state-market synergy, magnify the effect. In other words, if institution is too low or excluded from the global trade system, institutional improvement or autocratic advantage won't matter much. Technology (T_i) is thus formally written as:

$$\begin{cases} \bar{T}_i \cdot \exp\left(\frac{\beta A_i}{1+\lambda A_i} + \gamma \frac{I_i A_i}{1+\lambda I_i^2}\right), & \text{if } I_i \geq I^* \text{ and } W_i = 1, \\ \bar{T}_i, & \text{otherwise.} \end{cases} \quad (2)$$

where \bar{T}_i is the baseline technology. $\frac{\beta A_i}{1+\lambda A_i}$ models diminishing returns to A_i , while $\lambda > 0$ controls how quickly diminishing returns to A_i set in. When A_i is small: $\frac{\beta A_i}{1+\lambda A_i} \approx \beta A_i$, so the contribution of A_i grows almost linearly. When A_i is large: $\frac{\beta A_i}{1+\lambda A_i} \rightarrow \frac{\beta}{\lambda}$, so the marginal effect of A_i diminishes significantly. Similarly, $\frac{I_i A_i}{1+\lambda I_i^2}$ models diminishing returns to I_i . The economic rationale behind

is that saturated institutions (high I_i) may over-complicate decision-making, reducing efficiency. Excessive centralization (high A_i) may create inefficiencies or governance rigidities. A moderately autocratic regime (e.g., with some centralized control) may gain substantial benefits, but extreme autocracy may lead to inefficiencies (e.g., lack of innovation or bureaucratic stagnation).

Both I_i and A_i exhibit diminishing returns, but they can still interact to amplify technology, i.e., the interaction term $\frac{I_i A_i}{1 + \lambda_I I_i^2}$. γ captures the interaction effect between I_i and A_i on technology. Moderate levels of I_i and A_i together create the largest gains in technology because they complement each other. For example, moderate autocratic regimes (e.g., single-party regimes) may gain disproportionately when combined with moderate to high institutional improvements. $\frac{I_i A_i}{1 + \lambda_I I_i^2}$ also captures that when I_i is high, the effect of A_i diminishes (the denominator is dominated by I_i^2), because even autocratic regimes are now more hands-tied, if not totally nullified.

As argued, production cost c_i decreases with autocratic advantage A_i , due to reasons such as labor rights suppression and disproportionate state support for industries and infrastructure. c_i is formally expressed as:

$$\begin{cases} \bar{c}_i \cdot \exp(-\delta_A A_i), & \text{if } I_i \geq I^* \text{ and } W_i = 1, \\ \bar{c}_i, & \text{otherwise.} \end{cases} \quad (3)$$

where \bar{c}_i is the baseline production cost and δ_A captures the cost-reducing effect of autocratic advantage. The term $\exp(-\delta_A A_i)$ represents an exponential decay. As A_i increases, $\exp(-\delta_A A_i)$ becomes smaller, but the rate of decrease slows down because the exponential decay flattens over time. The intuition is that there's a limit to how much A_i can reduce costs, as costs cannot drop below zero or a baseline level.

Trade cost τ_{ij} decreases with WTO membership W_i , formally as:

$$\tau_{ij} = \bar{\tau}_{ij} \cdot (1 - \varphi W_i) \quad (4)$$

where τ_{ij} is baseline trade cost, and $\lambda_W > 0$ indicates reduction in trade costs due to WTO membership.

Plug (2) (4) into (1), the full trade flow formula becomes:

$$X_{ij} = \frac{\left[\bar{T}_i \cdot \exp\left(\frac{\beta A_i}{1+\lambda A_i} + \gamma \frac{I_i A_i}{1+\lambda I_i^2}\right) \right] \cdot \{[\bar{c}_i \cdot \exp(-\delta A_i)] \cdot [\bar{\tau}_{ij} \cdot (1 - \varphi W_i)]\}^{-\theta}}{\sum_k T_k \cdot (c_k \tau_{kj})^{-\theta}} \cdot Y_j, \quad \text{if } I_i \geq I^* \text{ and } W_i = 1. \quad (5)$$

(5) shows if $W_i = 0$, meaning a country i is not included in the global trade system, trade flows from i to j is simplified to (6), which means either institutional improvement or regime type won't affect trade much.

$$X_{ij} = \frac{\bar{T}_i (\bar{c}_i \bar{\tau}_{ij})^{-\theta}}{\sum_k T_k \cdot (c_k \tau_{kj})^{-\theta}} \cdot Y_j \quad (6)$$

However, when $W_i = 1$ and $I_i > I^*$, in (5), an increase in A_i leads to an increase in

$$\bar{T}_i \cdot \exp\left(\frac{\beta A_i}{1+\lambda A_i} + \gamma \frac{I_i A_i}{1+\lambda I_i^2 + \varepsilon A_i}\right)$$

and a decrease in $\bar{c}_i \cdot \exp(-\delta A_i)$, while $\bar{\tau}_{ij} \cdot (1 - \varphi W_i)$ keeps unchanged. Therefore, exports X_{ij} increases.

When W_i changes from 0 to 1 and $I_i > I^*$, (5) minus (6) becomes:

$$\Delta X_{ij} = \frac{\left[\bar{T}_i \cdot \exp\left(\frac{\beta A_i}{1+\lambda A_i} + \gamma \frac{I_i A_i}{1+\lambda I_i^2}\right) \right] \cdot \{[\bar{c}_i \cdot \exp(-\delta A_i)] \cdot [\bar{\tau}_{ij} \cdot (1 - \varphi)]\}^{-\theta} - \bar{T}_i (\bar{c}_i \bar{\tau}_{ij})^{-\theta}}{\sum_k T_k \cdot (c_k \tau_{kj})^{-\theta}} \cdot Y_j \quad (7)$$

(7) is the same as H1.1 and H1.2, implying that after passing institutional thresholds, an increase in A_i lead to more export increase for the same WTO accession.

When $W_i = 1$, for ΔI increase in institutional level, change in exports is:

$$\Delta X_{ij} = \frac{\left[\bar{T}_i \cdot \exp\left(\frac{\beta A_i}{1+\lambda A_i}\right) \exp\left(\frac{I_i + \Delta I}{1+\lambda(I_i + \Delta I)^2} - \frac{I_i}{1+\lambda I_i^2}\right) \right] \cdot \{[\bar{c}_i \cdot \exp(-\delta A_i)] \cdot [\bar{\tau}_{ij} \cdot (1 - \varphi)]\}^{-\theta}}{\sum_k T_k \cdot (c_k \tau_{kj})^{-\theta}} \cdot Y_j \quad (8)$$

(8) implies an increase in A_i lead to more export increase for the same institutional improvement, which is consistent with H2.1 and H2.2.

B.2 Predictive Patterns

Prediction on Exports

$$X_{ijk} = \frac{s_{ik}Y_i Y_j}{(p_{ik})^\sigma \bar{y}_{ik}} \left[T_{ijk}(z_i, z_j) / P_j^k \right]^{1-\sigma} [\theta_{ik} \exp(z_i)]^{\sigma-1}$$

Example of Gravity Model Incorporating Product Quality, Yu(2010)

First, similar to Yu (2010), by employing gravity model commonly used in economics and political science (Anderson and van Wincoop 2003) controlling for a standard list of dyad-level covariates, I find that prior to 1990, being more democratic is associated with higher exports (see Table B.1). Post-1990, however, being more autocratic is associated with a positive or zero effect compared to being more democratic is.⁴⁹ The models include cross-sectional, within-exporter, interaction with exporter's logged GDP (whether the coefficient differs for larger countries), and weighted least squares (when larger countries are assigned larger weights). Using the interaction model, for example, by plugging in Iran's GDP in 2005 (the logged form = 20), the effect of Polity is negative.

⁴⁹For post-1990, I look at all dyads with exporter being within the WTO, since many autocracies joined the WTO after 1990 and being inside the WTO is what I am interested in. In contrast, the pre-1990 model checks both inside and outside of the WTO since most autocracies were excluded. However, the result barely changes if WTO only.

	Pre-1990		Post-1990 (within WTO)		
	OLS	OLS	OLS (Within)	OLS (Interaction)	WLS (by GDP)
<i>Polity_i</i>	0.022*** (0.001)	0.003 (0.003)	-0.016*** (0.004)	0.065*** (0.014)	-0.041*** (0.001)
<i>Polity_i</i> x <i>GDP_i</i>				-0.004*** (0.001)	
<i>Polity_j</i>	0.003* (0.001)	0.003** (0.001)	0.005*** (0.001)	0.003** (0.001)	0.003*** (0.001)
<i>GDP_i</i>	1.583*** (0.048)	-1.746*** (0.139)	0.298*** (0.054)	-1.698*** (0.141)	-1.137*** (0.107)
<i>GDP_j</i>	2.058*** (0.143)	0.650*** (0.080)	0.521*** (0.090)	0.644*** (0.079)	0.065 (0.182)
<i>GDPPC_i</i>	-0.536*** (0.043)	3.051*** (0.129)	0.070 (0.063)	3.023*** (0.129)	2.154*** (0.116)
<i>GDPPC_j</i>	-1.011*** (0.137)	0.387*** (0.083)	0.526*** (0.092)	0.392*** (0.082)	0.967*** (0.185)
RTA	0.204*** (0.051)	0.282*** (0.041)	0.286*** (0.039)	0.278*** (0.041)	0.202*** (0.031)
Custom Union	0.819*** (0.111)	0.590*** (0.031)	0.662*** (0.032)	0.591*** (0.030)	-0.335*** (0.030)
Common Colonizer post-45	0.775*** (0.027)	0.998*** (0.022)	0.875*** (0.017)	0.996*** (0.022)	0.533*** (0.047)
Colonial Dep. post-45	1.724*** (0.044)	1.034*** (0.061)	1.260*** (0.048)	1.048*** (0.060)	0.982*** (0.050)
<i>Population_i</i>	-0.757*** (0.041)	2.984*** (0.124)	-0.112 (0.093)	2.955*** (0.124)	2.190*** (0.109)
<i>Population_j</i>	-1.195*** (0.139)	0.445*** (0.072)	0.596*** (0.082)	0.450*** (0.071)	0.938*** (0.180)
Distance	-0.785*** (0.025)	-1.106*** (0.011)	-1.244*** (0.015)	-1.109*** (0.011)	-0.960*** (0.013)
Common Language	0.294*** (0.023)	0.607*** (0.026)	0.685*** (0.030)	0.612*** (0.026)	0.331*** (0.020)
Common Religion	-0.059* (0.030)	-0.008 (0.032)	0.266*** (0.033)	-0.010 (0.032)	-0.025 (0.028)
Border	0.462*** (0.017)	0.806*** (0.023)	0.529*** (0.023)	0.802*** (0.022)	0.073 (0.044)
Num.Obs.	194 716	313 566	313 566	313 566	313 580
R2 Adj.	0.629	0.709	0.759	0.709	0.801
FE	year	year	year/exporter	year	year

* p < 0.1, ** p < 0.05, *** p < 0.01

Table B.1: Regime Type and Exports

Prediction on External Balances

Secondly, I test whether regime type predicts external balances. The dependent variables are trade balances and current account balances, both as the share of GDP. By observing Figure 2, I focus the most stabilized decades (2000-2020). To account for confounders, I add the controls from Chinn and

Ito (2022) to account for theoretical explanations of both trade and financial for external balances (Barattieri 2014). I employ a mixed-effect model based on Manger and Sattler (2020), as Polity has significantly less within-country variations since the late 1990s. This mixed-effect or hierarchical model captures within-country variations of covariates and cross-country variation of Polity. It regresses the country intercepts from the first stage on Polity, assuming a random draw of countries from the population (random effects). Below is the mathematical expression:

$$y_{jt} = a_{1j} + a_2 X_{jt} + d_t + \epsilon_{jt}$$

$$a_{ij} = \gamma_0 + \gamma_1 Polity_j + \eta_j$$

The results are listed below. As shown in Table B.2, all models with the post-2000 data show that autocracy is positively associated with current account balance, even after removing OPEC countries/Russia, developed countries, and those which joined the GATT prior to 1970. The early period (1980-2000) does not display similar patterns. In Table 3, similar models are run for trade balances, and the results are similar but with larger magnitudes.

DV: Current Account Balance (%)							
	Period: 2000-2019						1980-2000
	Bivar OLS	Multivar OLS	Mixed Model	No OPEC/RUS	No Rich	No pre-1970 GATT	Mixed Model
Polity2	-0.291*** (0.037)	-0.157*** (0.042)	-0.157*** (0.051)	-0.106** (0.053)	-0.150*** (0.054)	-0.180** (0.080)	-0.012 (0.045)
GDP		1.600*** (0.118)	1.376*** (0.283)	1.462*** (0.291)	1.415*** (0.317)	1.746*** (0.554)	0.878*** (0.279)
GDPpc		0.969*** (0.242)	-0.195 (0.399)	-0.954** (0.427)	-0.461 (0.442)	0.126 (0.724)	0.552 (0.537)
GDP Growth		-0.122 (0.102)	-0.056* (0.031)	-0.086*** (0.032)	-0.075** (0.036)	0.012 (0.052)	-0.135*** (0.041)
Fiscal Balance (%)		0.583*** (0.058)	0.365*** (0.027)	0.299*** (0.031)	0.399*** (0.031)	0.548*** (0.044)	0.048 (0.051)
Net Foreign Asset (%)		0.355* (0.193)	0.070 (0.106)	0.076 (0.100)	0.052 (0.116)	0.049 (0.131)	0.734*** (0.263)
KaOpen		-0.285** (0.134)	-0.195 (0.166)	-0.045 (0.163)	-0.233 (0.179)	-0.157 (0.314)	-0.506*** (0.188)
Δ Private Credit (%)		-0.145*** (0.034)	-0.099*** (0.014)	-0.100*** (0.013)	-0.132*** (0.020)	-0.184*** (0.032)	-0.188*** (0.029)
Δ Terms of Trade		0.042 (0.027)	0.070*** (0.010)	0.043*** (0.014)	0.089*** (0.012)	0.053*** (0.016)	0.033** (0.014)
Population (%,<=14)		14.345*** (3.907)	19.746*** (5.269)	15.738*** (5.380)	20.549*** (6.115)	36.404*** (8.936)	-3.884 (8.634)
Population (%,>=65)		3.583 (5.693)	34.871*** (8.119)	38.056*** (8.014)	39.868*** (11.114)	49.254*** (15.643)	-7.536 (25.730)
Trade Openness		0.040*** (0.004)	0.042*** (0.006)	0.043*** (0.006)	0.031*** (0.008)	0.032*** (0.009)	0.033*** (0.007)
Year		-0.355*** (0.059)	-0.017 (0.154)	-0.014 (0.145)	-0.053 (0.047)	-0.063 (0.074)	0.203*** (0.052)
Country FE			✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Num.Obs.	2108	1294	1294	1205	1015	604	430

* p < 0.1, ** p < 0.05, *** p < 0.01

Table B.2: Regressions of Current Account Balance on Polity.

DV: Trade Balance (%)							
	Period: 2000-2019						1980-2000
	Bivar OLS	Multivar OLS	Mixed Model	No OPEC/RUS	No Rich	No pre-1970 WTO	Mixed Model
Polity2	-0.410*** (0.054)	-0.278*** (0.066)	-0.211*** (0.066)	-0.112* (0.064)	-0.211*** (0.075)	-0.259** (0.109)	0.015 (0.057)
GDP	2.575*** (0.186)	1.783*** (0.466)	2.065*** (0.442)	2.442*** (0.573)	2.693** (1.134)	0.931 (0.688)	
GDPpc	3.441*** (0.362)	2.231*** (0.591)	1.311** (0.587)	1.948*** (0.707)	3.167** (1.250)	-1.040 (0.975)	
GDP Growth	0.037 (0.108)	-0.077** (0.036)	-0.138*** (0.037)	-0.103** (0.044)	-0.052 (0.061)	-0.175*** (0.044)	
Fiscal Balance(%)	0.691*** (0.072)	0.386*** (0.031)	0.290*** (0.036)	0.430*** (0.038)	0.581*** (0.051)	0.042 (0.060)	
Net Foreign Asset(%)	-0.209 (0.172)	0.141 (0.123)	0.159 (0.114)	0.122 (0.139)	0.128 (0.151)	-0.086 (0.293)	
KaOpen	-0.909*** (0.245)	0.104 (0.205)	0.320 (0.195)	0.152 (0.236)	0.495 (0.409)	-0.610*** (0.223)	
Δ Private Credit (%)	-0.184*** (0.048)	-0.147*** (0.016)	-0.146*** (0.015)	-0.168*** (0.025)	-0.249*** (0.037)	-0.234*** (0.031)	
Δ Terms of Trade	0.087** (0.039)	0.073*** (0.012)	0.032** (0.015)	0.091*** (0.015)	0.059*** (0.018)	0.032** (0.015)	
Population (%,<=14)	33.202*** (5.874)	26.246*** (6.894)	22.827*** (6.746)	35.114*** (8.496)	35.837*** (12.095)	-46.224*** (12.846)	
Population (%,.=65)	7.778 (7.604)	19.703* (10.715)	21.502** (10.092)	47.244*** (16.108)	85.006*** (23.053)	-60.208 (46.059)	
Trade Openness	0.071*** (0.006)	0.051*** (0.008)	0.050*** (0.007)	0.038*** (0.010)	0.011 (0.012)	0.018 (0.012)	
Year	-0.772*** (0.103)	-0.159 (0.179)	-0.130 (0.166)	-0.206*** (0.061)	-0.362*** (0.097)	0.072 (0.063)	
Country FE		✓	✓	✓	✓	✓	
Year FE	✓	✓	✓	✓	✓	✓	
Num.Obs.	2027	1294	1294	1205	1015	604	433

* p < 0.1, ** p < 0.05, *** p < 0.01

Table B.3: Regressions of Trade Balance on Polity.

B.3 Selection of Institutional Thresholds

In 2000, the bottom 20 percentile threshold is 0.45 for PR protection and 0.2 for rule of law, respectively. I combine the institutional levels at the bottom 20 percentile among developing countries in 2000 and real cases (e.g., China's PR protection is around 0.35), so the thresholds are roughly 0.2 for rule of law and 0.35 for PR protection. Both values have to be reached. However, special cases remain. First, I slightly prioritize PR protection especially for resource-rich countries, for it is more attractive to the GVC than rule of law – as long as global investor's property rights are protected, global firms may more rely on within-GVC contract enforcement. For example, Cameroon and Chad, two resource-rich African countries have high PR protection (0.8 and 0.78) but low rule of law (below 0.1), for which I classify them as reformed. Azerbaijan (0.61, .03) and Equatorial Guinea (0.45, 0.06) are two other cases. Second, I factor in expectation. Venezuela's values for two indicators were 0.58 and 0.05 in 2010. Yet, Venezuela has experienced rapid institutional deterioration

since 1997 before Hugo Chávez was elected when the two indicators were as high as 0.9 and 0.55, generating adverse expectations for investors. Thus, Venezuela is listed as non-reformer. Yemen is another example: from the Arab Spring in 2011 to Houthi's takeover in 2015, its institutions experienced deterioration.

B.4 Share of World Exports for Major Autocracies

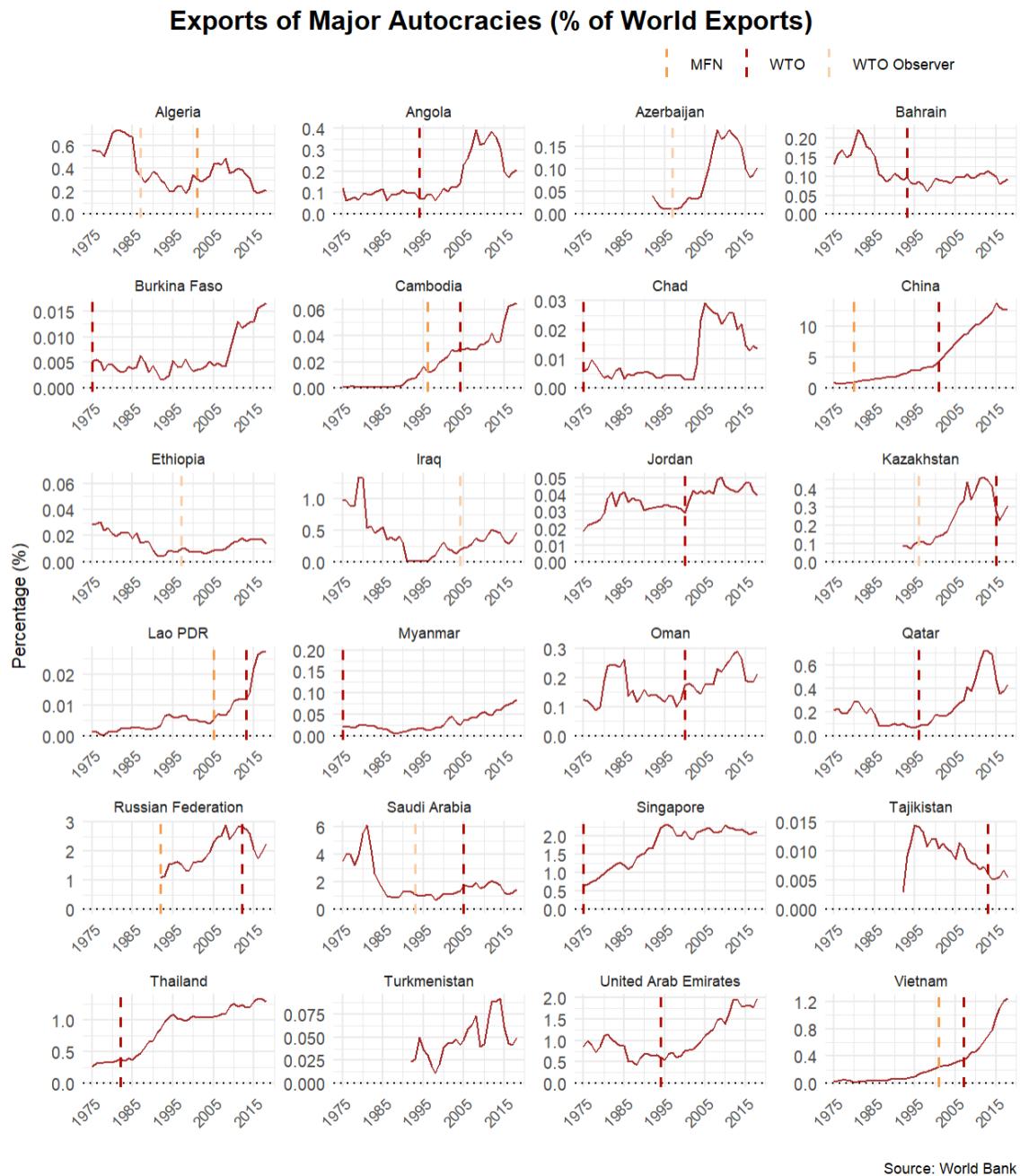


Table B.4: Share of World Exports for Major Autocracies. *Note:* For illustration purpose, vertical dashed lines begin in 1975 if MFN/WTO/Observer in effect earlier.

C Robustness Tests

C.1 Sensitivity Analysis

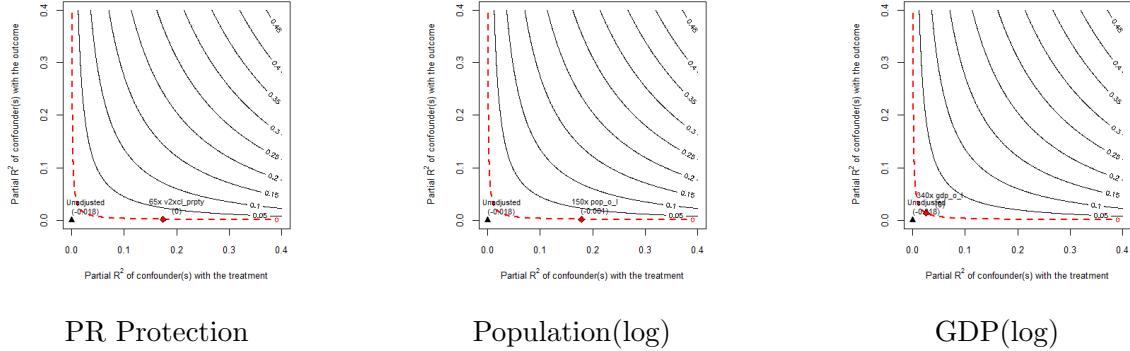


Figure C.10: Improved Covariate Balance via CBPS Weighting, Post-1990. *Note:* overall, all covariates' balance improve significantly. The green line natural resource intensity is slightly not balanced. However, it may not be an concern as it does not significantly affect WTO accession theoretically.

C.2 WTO Effect

	Export(log)		Export(log)		Import(log)	
	Pre-1990	Post-1990	Pre-1990	Post-1990	Pre-1990	Post-1990
WTO_i	0.299*** (0.043)	0.014 (0.046)	0.313*** (0.043)	0.027 (0.046)	0.064 (0.048)	-0.069 (0.049)
$WTO_i \times Polity_i$			0.010*** (0.003)	-0.017*** (0.003)	-0.002 (0.003)	0.005* (0.003)
$Polity_i$	0.015*** (0.002)	-0.022*** (0.002)	0.008*** (0.003)	-0.008** (0.003)	0.015*** (0.003)	-0.004 (0.003)
WTO_j	0.059 (0.048)	-0.089* (0.048)	0.059 (0.047)	-0.092* (0.048)	0.279*** (0.044)	-0.075 (0.049)
<i>Both in WTO</i>	-0.018 (0.049)	0.208*** (0.049)	-0.017 (0.049)	0.211*** (0.049)	-0.024 (0.049)	0.225*** (0.051)
$GDP_i(\log)$	-0.181 (0.259)	0.470*** (0.117)	-0.183 (0.259)	0.479*** (0.117)	2.120*** (0.241)	1.036*** (0.190)
$GDP_j(\log)$	2.098*** (0.240)	1.109*** (0.197)	2.101*** (0.239)	1.108*** (0.197)	-0.231 (0.262)	0.523*** (0.133)
$GDP_{PC_i}(\log)$	0.752*** (0.255)	0.043 (0.117)	0.749*** (0.255)	0.032 (0.117)	-1.357*** (0.237)	-0.262 (0.190)
$GDP_{PC_j}(\log)$	-1.332*** (0.235)	-0.350* (0.196)	-1.335*** (0.235)	-0.349* (0.196)	0.803*** (0.258)	0.014 (0.133)
$Population_i(\log)$	0.193 (0.248)	-0.141 (0.128)	0.202 (0.248)	-0.188 (0.128)	-1.174*** (0.231)	0.028 (0.194)
$Population_j(\log)$	-1.146*** (0.230)	-0.125 (0.200)	-1.150*** (0.229)	-0.129 (0.200)	0.246 (0.251)	-0.196 (0.144)
PTA	0.132*** (0.028)	0.150*** (0.023)	0.131*** (0.028)	0.150*** (0.023)	0.128*** (0.028)	0.134*** (0.024)
RTA	0.145*** (0.040)	0.009 (0.024)	0.141*** (0.040)	0.008 (0.024)	0.153*** (0.041)	0.043* (0.025)
<i>Customs Union</i>	0.321** (0.136)	0.105 (0.070)	0.321** (0.137)	0.108 (0.070)	0.353*** (0.137)	0.087 (0.070)
<i>Colonial Dependency</i>	0.597*** (0.086)	1.135*** (0.171)	0.597*** (0.086)	1.142*** (0.171)	0.629*** (0.093)	2.404*** (0.322)
Directed Dyad FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Num.Obs.	220 706	528 482	220 706	528 482	215 680	518 896
R2 Adj.	0.858	0.881	0.858	0.881	0.854	0.873
BIC	837 805.4	2 193 196.8	837 765.2	2 193 046.4	822 165.1	2 193 058.4

* p < 0.1, ** p < 0.05, *** p < 0.01

Table C.5: The Effects of Joining the WTO.

Since property-rights protection and rule of law have quite different distributions across autocratic WTO-joiners, I make sure both low and high institutional ranges contain at least some autocracies that joined the WTO during 1990-2020. The separation looks like $\{0, 0.3, 0.7, 1\}$. For each range, I compare autocracies to all democracies that joined during the same period to keep the control group the same and I dichotomize polity into a democracy dummy so that the interaction effect ($WTO \times$ polity) doesn't reflect within-democracy variation.

PanelMatch (country-years)

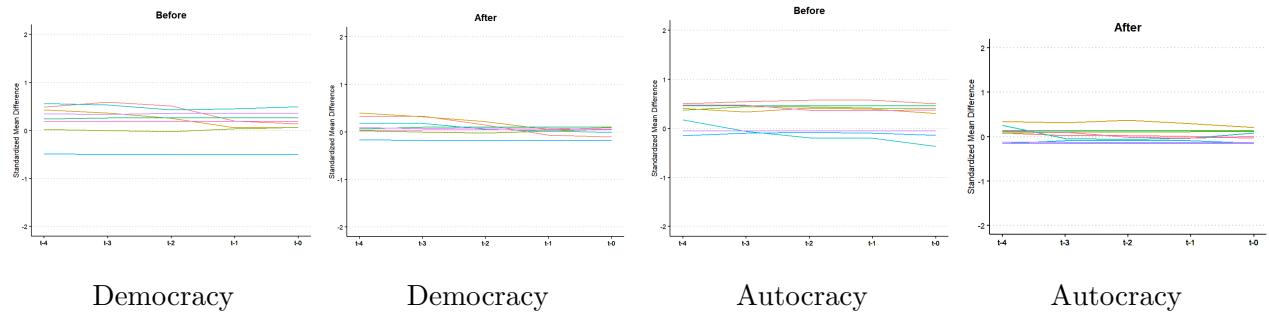


Figure C.11: Improved Covariate Balance via CBPS Weighting, Post-1990. *Note:* overall, all covariates' balance improve significantly. The green line natural resource intensity is slightly not balanced. However, it may not be a concern as it does not significantly affect WTO accession theoretically.

PanelMatch (dyad-years)

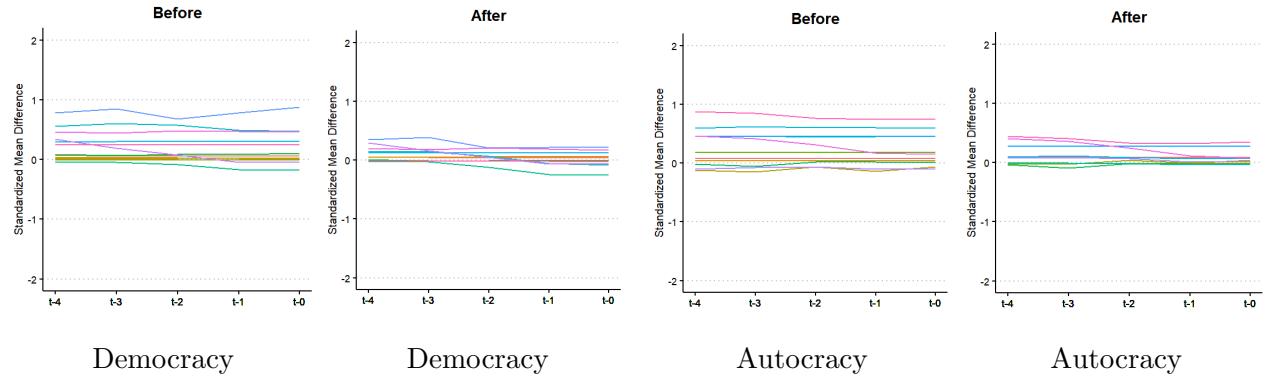


Figure C.12: Improved Covariate Balance via CBPS Weighting, Post-1990. *Note:* overall, all covariates' balance improve significantly.

C.3 Domestic Reform Effect

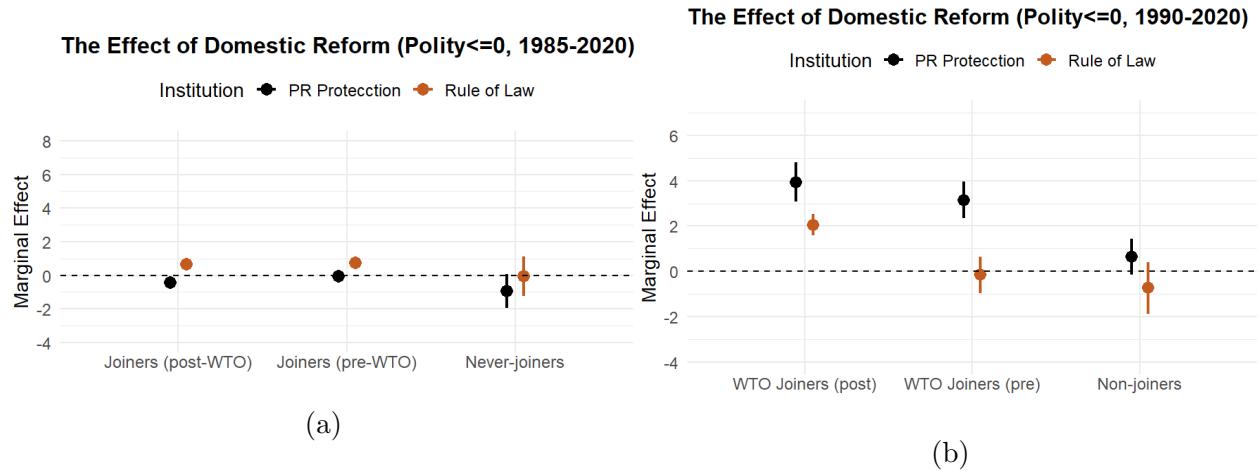


Figure C.13: The Effects of Domestic Reform by WTO-related Category. *Note:* (a) plots the effects of within-dyad changes of institutions by WTO-related Category for democracies only (Polity > 0 in 2000). I only include developing countries (GDP per capital lower than \$20,000 in 2000) to focus on institutional reform. (b) plots the effects of within-dyad changes of institutions for autocracies only. “Joiner” means a country joined the WTO during 1990-2020.