

Globalization Origins of Autocratic Rise: Engaged Reformers, Embedded Authoritarianism, and the Post-1990 Reversal

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Abstract Autocracies have resurged economically, defying the popular view that democratic institutions (e.g. inclusive) would favor economic development (e.g. Acemoglu et al. 2001). Why this happens is little understood. Unlike pre-1990, autocratic regimes have been 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 the WTO expansion, and domestic reform – two major changes that occurred amid the post-Cold War globalization, which created room for what I term “autocratic advantages.” I demonstrate that, since 1990, WTO expansion has disproportionately benefited autocracies, but only after crossing certain institutional thresholds. Moreover, similar domestic reforms increase more exports for autocracies, but only among WTO members. Put differently, autocracies excelled conditional on *both* factors: only “engaged reformers,” representing over 90% of autocracies’ GDP, succeed, and autocratic resurgence would be unlikely without WTO incorporation. Lastly, mechanisms through cross-national and sectoral patterns and qualitative case comparisons 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., polity ≤ 0), my arguments and empirical evidence (and my use of autocracy therein) apply to more autocratic vs. more democratic states of both a continuum and dichotomy in a probabilistic sense.

as well as the number of countries adopting liberal economic policies. 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).

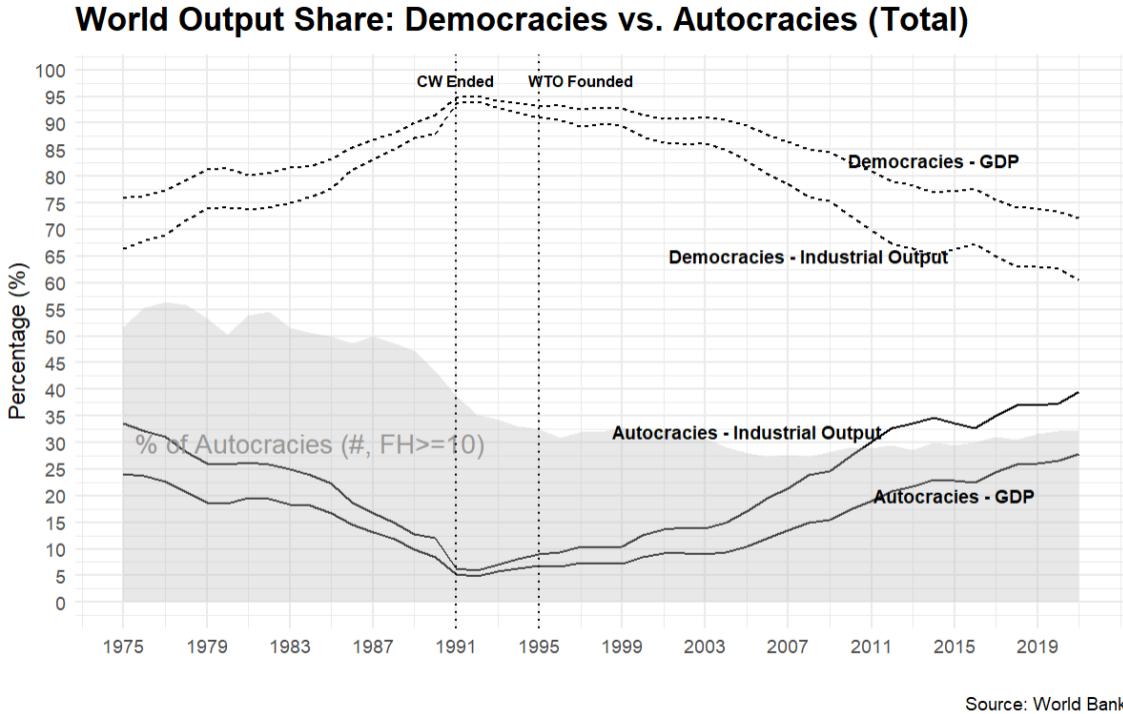


Figure 1: The Distribution of Power Change Between Democracies and Autocracies (Data: World Bank; Autocracy: Freedom House Index ≥ 10). *Note:* in 2020, China accounts for 62% of autocracies' GDP (similar patterns excluding China are plotted in Figure A.1). The shadow area shows the proportion of autocracies in number.

Meanwhile, the once promising third-wave democratization has stalled (see the shadow 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 liberal democracy index has retreated to the 1990-level. Backsliding in many democracies lies in the inability to resolve problems engendered by globalization rooted in neoliberalism; grievances have created fertile ground for populism and authoritarianism (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 have become competitive on the export

market.²

In a nutshell, the post-1990 economic globalization has gone hand-in-hand with the relative rise of autocracies and decline of democracies. But is this coincidental? Despite the merit of globalization for lifting poverty and cultural exchange, globalization nonetheless has raised concerns over, for example, inequality or security among social groups. This paper seeks to understand the role of economic globalization in explaining the autocratic rise. I argue that although both democracies and autocracies have conducted market-oriented reforms since the 1980s, autocracies may have more institutional and non-institutional advantages 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.” 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; China-like 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 with better-than-predicted performance.

Consider two sets of autocracies: export-oriented typically in Asia and the resource-rich autocratic states in the Middle East, East Europe, and Central Asia. The former set of autocracies emulated advanced democracies to establish similar economic institutions (e.g., market liberalization, property rights protection, and relatively inclusive economic opportunities), yet without similar political ones. With trade integration, these countries embarked on a model heavily dependent on *external demand* thanks to some autocratic characteristics elaborated below, while their political institutions inevitably constrain domestic redistribution and thus *internal demand*. In other words, without external demand, the effect of their domestic economic reform would be much discounted. The lack of political constraints can lead to easy rollback of economic reforms (e.g., China). For the latter set of autocracies, trade integration and market access through either joining the global trade regime or benefiting from joiners’ growth (e.g., China’s demand) boost exports for commodities, which, was more limited during the Cold War era. In this way, autocratic regimes leveraged globalization to thrive economically while suppressing political liberalization, creating competitive

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

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

“hybrid regimes” (Levitsky and Way 2006).

The findings challenge the current literature, conventional wisdom, and the original expectations of globalization that democratic institutions should be not worse than their autocratic counterparts on economic development (Acemoglu et al. 2001; Acemoglu et al. 2019), and globalization should strengthen a democratic world. Although institution still matters as a scope condition, a sufficient amount of attention should be paid to external factors in the democracy-autocracy debate. Without access to external market or conversely suffering from external shocks, trade or financial, the effects of domestic institutions can be largely weakened. Excessively high investments in infrastructure and industries in reformed autocracies may hardly exist without necessary scope conditions.⁴

The implications are multifaceted. According to international relations literature,⁵ a world of stronger autocracies will likely become more conflictual and less cooperative, which will adversely impact global economy and shape the current security environment. Global conflicts (reported by ACLED) have steadily risen for the past two decades. Economic performance can consolidate or de-consolidate a regime – economically weakened democracies not only sow instability domestically and lose popular trust in democracy (Przeworski et al. 2000; Svolik 2008) as is happening, but also provides poorer linkages and leverages that otherwise facilitate democratization (Levitsky and Way 2006). Whether it’s Russia after “shock therapy” or the U.S. and India of today, unsatisfactory neoliberal policy result can quickly slip into authoritarianism (Bruff 2014). Meanwhile, strengthened autocracies at the cost of democracies gain domestic support, resist political liberalization, support each other, and encourage autocratic drift worldwide (Ekiert and Dasanaike 2024), strengthening autocratic rules and norms (Wright, Frantz and Geddes 2013); autocrats increasingly use outcomes to prove legitimacy and redefine democracy (Batuero and Tolstrup 2024; Oser and Hooghe 2018).

2 The Puzzle: Performance Divergence/Reversal

2.1 Stylized Patterns

First, I illustrate the trends of several economic indicators including two trade measures that are directly linked to globalization. I calculate the averages of merchandise exports (% of GDP), trade balance (% of GDP), industrial output (% of GDP), and GDP growth rate of both democracy

⁴For example, investment incentives in China and Vietnam may largely be triggered by overseas market prospects and facilitated by export profits.

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

and autocracy groups (with estimate uncertainty). 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 developed countries, or resources-oriented countries (such as Russia and the OPEC states), or China and Vietnam. Note that autocracies have larger variances, consistent with the literature (Przeworski et al. 2000; Rodrik 2000), suggesting diverse outcomes among them.

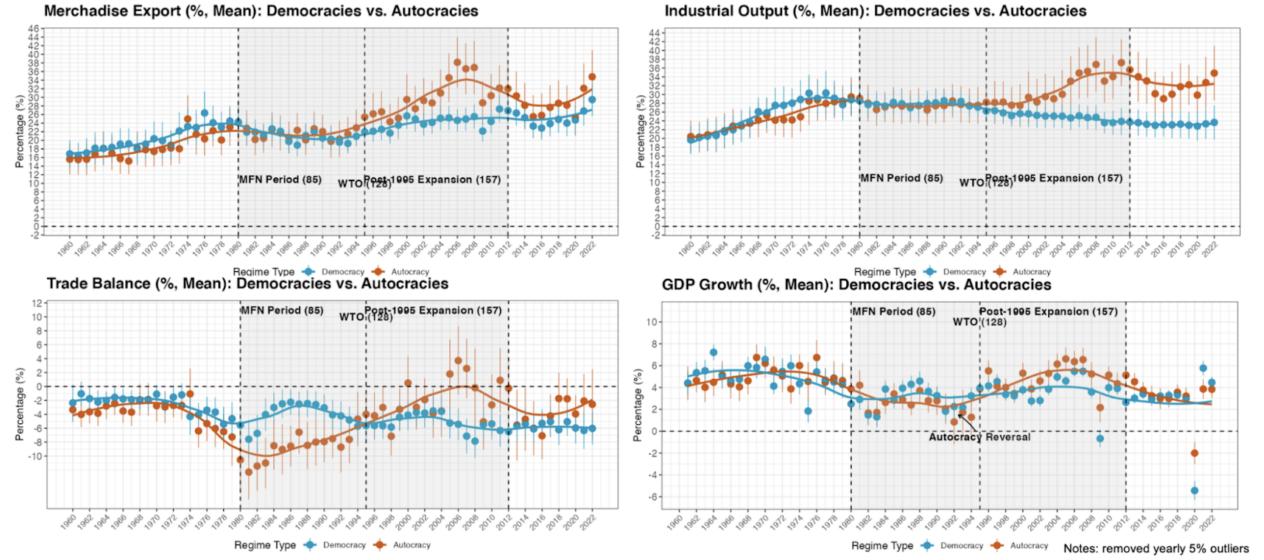


Figure 2: Average Performance of Several Indicators between Democracies and Autocracies ($FH \geq 10$). Note: in the Appendix, the patterns generally hold after removing developed countries, or China, or thirteen OPEC countries + Russia. Estimate uncertainty of the averages are plotted.

Using the World Bank's World Development Indicators (WDI), I test more major development measures, from GDP growth rate and fixed investment to saving and export, which are then regressed on regime type (Polity V, ranging from -10 to 10) for the period of 1990-2020.⁶ I control for GDP per capita for the comparison between countries of similar income levels. For within-year comparisons, I also add year fixed effects.

⁶The pre-1990 data of these indicators are not shown due to the unacceptable missing data problem especially for the former socialist states. Still, the available data shows autocratic advantages were either null or significantly smaller than post-1990.

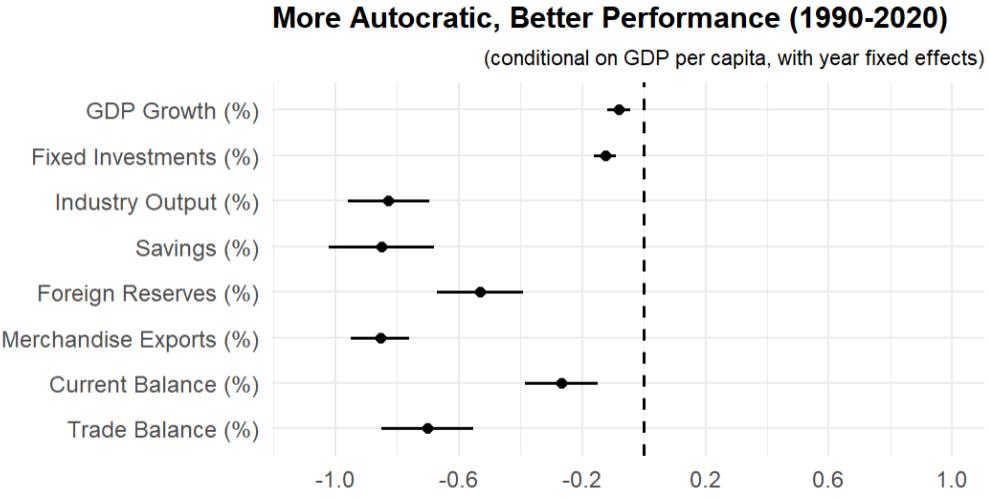


Figure 3: Regime Type and Major Economic Indicators. *Note:* Percentage means “share of GDP.” The bar plot means the percentage point change associated with one unit increase in Polity. Again, China or oil states are not outliers.

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 GDP growth, eight percentage points increase in industrial output (% in GDP), and nine percentage points increase in exports (% in GDP). Considering the compounding effects of these statistics, it is evident why autocracies can rise.

2.2 Prediction of Regime Type

Next, instead of bivariate correlations, I test whether regime type predicts the above performance divergence in more extended models. In this paper, I mainly use 1990 as an empirical cutoff for a variety of reasons discussed in more detail in Section 5.

Why Focus on Trade?

As I mainly investigate the potential role of globalization, I focus on the most direct indicators of globalization’s outcomes: exports and external balances (trade balance and current account balance), which are key international economic measures.⁷ As Adam Smith (1776) claims, growth is determined by division of labor, capital accumulation, and market size. In a similar vein, exports have been assumed by trade theories to generate efficiency and primarily induce growth in productivity, income, and innovation through specialization and scale (Bernard et al. 2018; Helpman and

⁷Current account balance includes trade balance, net foreign income, and net transfer payments.

Krugman 1985), echoing the export-oriented model.

For external balances, although short-run fluctuations hardly matter, persistent deficits can imply structural issues such as de-industrialization or financial vulnerability - this long-run phenomenon is in fact more prevalent, for example, in global imbalances (Blanchard and Milesi-Ferretti 2009; Obstfeld and Rogoff 2009). Importantly, imbalance indicates the competition or redistribution of *external demand* (Chinn and Ito 2021), especially when it aggregates to zero globally. Thus, these trade measures also connote the spillover impact to other countries unlike GDP growth. Surpluses that contribute to foreign reserves and sovereign funds can be used elsewhere, such as for welfare programs, foreign purchasing power, and geopolitical projects (Liu 2023).

As autocratic regimes are generally weak in generating domestic demand and inclusive growth, they should find it harder to grow without more 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 major development indicators, from GDP growth rate ($r = 0.65$) to national debt level. Countries running persistent surpluses tend to perform better in development and fiscal capacity, many becoming global creditors (e.g., East Asia, Core Europe, and Gulf states).

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 1). Post-1990, however, being more autocratic is associated with a positive or zero effect compared to being more democratic.⁸ 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.

⁸For 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 x 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 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 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 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 3: Regressions of Trade Balance on Polity.

In sum, these temporally contrasting patterns of autocracies’ performance – before and after 1990 – highlight intriguing puzzles about how forces – domestic or global – may shape outcomes. They suggest that the dynamics of regime effects are not static but evolve in response to possible changing contexts. Understanding the causes behind these shifts can shed light on broader questions of economics and politics of today.

3 Regime Type and Economic Performance

3.1 The Historical Debate

For decades, political scientists and economists have been exploring the link between democratic institutions and economic performance. There is no doubt that institutions play an important role in economic performance. Hall and Soskice (2001) have demonstrated that even within democracies, “varieties of capitalism” produce different economic outcomes.

When it comes to economic growth, regime type has at best a mixed effect. Theoretically, democracy is conducive to growth due to better protection of property rights, political stability, public investments in education and healthcare, and acceptance of technological innovation. It is possible, however, that autocracy may also promote growth because it can resist, for example, immediate consumption and over-redistribution. Empirically, it has been found no clear relationship between regime type and growth (Barro 1996; Przeworski et al. 2000). Note that almost all the literature and data used in this study date back to before 2000 when globalization hadn't fully manifested, so little attention is paid to external factors. As clearly shown in Figure 3, autocracies grew faster in the post-1990 period.

The conclusion, however, is more unified on international economic performance. In addition to domestic policies, external factors also affect performance at the country level, such as import competition, foreign investments, and export market availability (Gourevitch 1978; Rudra 2002). Not only do democracies have better trade performance (Yu 2010), they also are less protectionist (Eichengreen and Leblang 2007). The reasons why democracies may have advantages can be attributed to institutions such as contractability, rule of law, and the protection of intellectual property (Atras 2015; Levchenko 2007; Rigobon and Rodrik 2004), which can result in, for example, product quality and global competitiveness (Yu 2010). Note also that the literature mostly focuses on the pre-2000 period, and their conclusion is confirmed in Table 1. After 1990, however, the regime's effects shifted the sign to favor autocracies.

Overall, the limitation with the literature is that it uses old data up to the early 2000s as well as focusing on internal mechanisms within states as autonomous black-boxes, which may miss an important global shift – post-1990 globalization. Perhaps the biggest puzzle, especially for those focused on institutional causes (e.g., institutional economics), is that even in the post-1990 period, democracies still had higher average institutional levels conditional on per capita income (e.g., PR protection and rule of law, see Table 5). Thus, democracies should still perform better. This suggests that the reversed performance might have resulted from somewhere else.

3.2 The New Setting: Globalized Economy

Why Globalized Economy Is Different?

The post-1990 period was marked by the rapid economic integration of markets, free flow of trade and capital, and globalized production – often called "hyperglobalization" (Rodrik 2011). In partic-

ular, trade integration and globalized production therein play a significant role.⁹ Trade liberalization greatly alters the logic of developing economies for several reasons.

First, compared with closed economies (for many autocracies before 1990), which emphasize exogenous or endogenous labor development, capital accumulation, and technological progress within borders (Solow 1957; Romer 1986), the early factor-based trade theories focused on national comparative advantages and specialization of production, which lead to greater efficiency and output (Ohlin 1933; Ricardo 1817). Newer theories introduced the importance of scale of economy (e.g., home-market effect, Krugman 1979), cross-border technology diffusion (Grossman and Helpman 1991), and intensified competition through firm-level selection (Melitz 2003). Moreover, in the post-1990 era when the form of global value chain (GVC) dominates global trade (Bernard et al. 2009), investment decisions by multinational corporations who control the GVC and seek low production costs worldwide became all the more important. The GVC allows for rapid transfer of technological know-how along the network, as well as for a poorer country to export a rather advanced product fairly quickly, blurring national comparative advantages that may not otherwise exist or take longer to develop (Baldwin 2016). Indeed, as Osgood (2017) observes, only one tenth of U.S. industries are explained by comparative advantage, with the rest by product differentiation and direct competition. Global trade system, combined with a floating exchange rate market and freer capital flows (as opposed to the Bretton Woods era), largely converts local factors into globally comparable prices, materializing a nation's potential competitiveness and profitability, unlike the insulated economies between regional blocs during the Cold War.

Second, although free trade is conventionally regarded as beneficial for differently endowed countries, caveats remain. Earlier trade models assumed ideal conditions such as perfect competition and no frictions (e.g., from governments), which often fail to hold. Later models admit the imperfections that can be exploited by trading partners: monopolistic or oligopolistic competition, government intervention, and trade barriers can all matter for trade gains (e.g., strategic trade policy (Brander and Spencer 1985) and the infant industry argument). Moreover, moving to equilibrium from autarky during liberalization is indeed a one-time gain and the long-term effects are still debatable (Garrett 2000). Governments, after equilibrium, may adopt varying mercantilist policies to affect trade patterns, especially for the sectors with high startup costs and scale effects (*Ibid*). This can be particularly salient when the assumption of most trade models – balanced

⁹Arguably, capital flows such as FDI often work towards the production and trade of goods and services.

trade (or exogenous imbalances) – rarely occurs,¹⁰ as the product prices in one country can be artificially low without currency readjustment.¹¹ In other words, beyond institutions like contract enforcement (Atras 2015), policies like currency devaluation, export subsidies, and labor standard suppression can create “artificial comparative advantage” for domestic products or attracting the relocation of global production, increasing domestic economic activities via beggar-thy-neighbor (Jeanne 2021).¹² Eaton and Kortum (2002) point out that a country’s trade competitiveness is its “technology adjusted for wage costs,” which should be further adjusted by exchange rate, echoed by others (Bernard et al. 2003; Melitz 2003).¹³ Epifani and Gancia (2017) further show that an undervalued exchange rate allows a country to run surpluses and agglomerate global production.¹⁴ Of course, cost competitiveness can also be affected by infrastructure, pro-competition regulatory environment, energy costs, and work culture.

In the Appendix, through a normal-form game illustration, given converging technologies and common market, firm f_1 with lower factor costs and firm f_2 with higher costs will be locked in a Nash Equilibrium of $\langle \text{not produce}, \text{produce} \rangle$. Moreover, the expanded market increases firms’ entry and inter-firm reallocation, as well as scale advantage in sectors characterized by increasing return to scale, applicable to many industrial products (Krugman 1979; Melitz 2003). This creates incentives for further investments and innovation, supported by firms and states’ export revenue (Atkeson and Burstein 2010; Burstein and Melitz 2013; Grossman and Helpman 1991), which can lead to better products (Yu 2010) and first-mover advantage (Krugman 1979), and are critical for productivity growth (Acemoglu et al. 2017).

As such, in both theory and practice, an integrated trade system can provide ample room for

¹⁰E.g., see the discussion of persistent global imbalances in Blanchard and Milesi-Ferretti (2009) and Obstfeld and Rogoff (2009). There is insufficient attention to the implications of persisting trade surpluses for mercantilist policies in the trade literature.

¹¹This can be illustrated by the Eaton-Kortum model (2002) which assumes a country i takes a random productivity draw for producing 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.

¹²Arkolakis 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.

¹³In the classic Eaton-Kortum model (2002), the proportion of country n ’s total expenditure imported from country i is: $\pi_{ni} = \frac{T_i(w_id_{ni})^{-\theta}}{\sum T_h(w_hd_{nh})^{-\theta}}$, 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 ($\pi(\phi) = [(\frac{\phi}{\phi^*})^{\sigma-1} - 1]wf$), 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.

¹⁴Costinot et al. (2013) also shows that absolute productivity (e.g., costs factoring in quality and exchange rate) determines the production location in the GVC.

autocracies to effectively practice self-benefiting policies. Instead of relying on domestic firms and consumption to foster entrepreneurship and capital accumulation, the logic now switches to who can better capture foreign demand, investments, and technologies.

“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

Since the 1980s, many autocratic states have started embracing economic liberalization. In fact, scholars have noticed a more general contemporary connection between authoritarianism and economic liberalization, coined as “authoritarian neoliberalism” (Bruff 2014; Ryan 2019). Driven by the neoliberal belief, since Reagan and Thatcher, governments worldwide have adopted (semi-)authoritarian measures to push through economic reforms: privatization and trade liberalization, imposition of austerity, and restrictions of civil groups, among social protests. This happened not only in democracies, but also under a myriad of authoritarian governments to a greater extent. Authoritarian measures, partly because they may *work*, were used as tools to manage resistance, enforce compliance, and stabilize systems that prioritize market logic over social welfare.

Treating authoritarian leaders as rational actors based on cost-benefit analysis can understand and predict their behavior. The 1990s witnessed the crisis of autocratic legitimacy worldwide, which forced many autocratic leaders to adopt reforms in hope to use performance for legitimacy, particularly in an era when the cost of pure repression is too high. Failure means more danger – therefore, we may expect them to develop economies in a more mercantilist and self-interested manner than their democratic counterparts.

Apart from this incentive, in a globalized economy where states can easily access each other’s market and firms can freely choose where to produce, autocracies may have institutional and non-institutional advantages beyond above-said authoritarian controls. The existing literature has documented them from various angles – some institutional characteristics that would otherwise be a

disadvantage in a relatively closed setting can indeed become advantageous, since the goal is to compete for external demand.

Centralized power and control – Autocratic states concentrate power in the hands of a smaller group, unlike democracies which usually have more fragmented systems, quite salient in emerging democracies. They have greater discretion to implement policies without extensive bargaining or democratic deliberations, and are thus more able to deploy concerted policies, arguably conducive to developing productive industries (Hall and Soskice 2001; Kohli 2004). This efficiency may allow them to respond quickly to global market changes and implement strategic economic policies especially under imperfect competition, e.g., strategic trade policy. As the state exerts more controls, studies find that state-owned enterprises and even media play a favorable role in supporting national interest in trade (Clegg et al. 2018; Kim 2018; Wu 2016). Moreover, the relatively longevity of leadership in reformed autocracies can result in more consistent and stable economic policies with optimal economic choices (Wade 1990), providing a predictable environment for trade partners and investors (which fits well with the discussions of developmental state (Haggard 2018)). The notable autocracies include China, Vietnam, and Singapore, or Korea, Taiwan, Hong Kong, Thailand, Malaysia, Chile when they were in (semi-)authoritarian eras,¹⁵ as well as Gulf states for aggressive development projects. Counter-examples include Tunisia, which experienced quick growth under a centralized, yet reformed Ben Ali dictatorship (tripled exports in 2001-2011), before entering a stagnation under a fragmented democratic government. In democratic India, a more centralized, authoritarian Modi's regime were able to implement more incentive schemes and strategic tariffs than previous governments to boost exports.

Weak institutional constraints – Autocracies tend to have weaker institutional constraints which include constitutions, legal frameworks, and established norms that determine how decisions are made. They are often less exposed to opposition parties and lobbying dynamics present in democracies. Such governments may prioritize state interests and can more easily divert limited resources to productive sectors or prioritize infrastructure projects that facilitate trade, such as ports, and highways, enhancing their ability to compete in global markets. Because of a larger win-set (Putnam 1998), autocracies may be able to sign emptier deals with trading partners or international organizations, as well as more favorable deals with multinational corporations (MNCs), which account for the majority of global trade that rests on the global value chain (Baldwin 2016; Bernard et al.

¹⁵ And a more centralized Japan to some extent.

2018). Autocratic states are found to establish more special economic zones that provide concessions such as tax breaks, lower tariffs, and looser regulations to boost economic performance, without much national-level reforms (Allen and Ge, working paper). On the flip side, autocracies may not honor commitments made with international institutions as much – autocratic governments feel less constrained to manipulate trade or exchange rate policies (Simmons 1997) and control financial institutions (Brune et al. 2001; Giuliano et al. 2009). In fact, Lipsky (2018) found that democracies tend to have more financial instability, primarily due to their weaker manipulative and controlling abilities, which can expand to realms of intellectual property violation or economic espionage.

Lack of accountability – Autocrats, who are less accountable to the public, can pursue a broader set of policies, including those that might be unpopular, risky, or even repressive (Quinn and Woolley 2001). They have less concerns over the demand for immediate consumption or welfare redistribution, especially from the poor (Zakaria 1997), satisfying which can undermine the free play of market and weaken incentives for investment (Huntington 1968; Sah 1991) – particularly relevant in developing democracies where the majority is poor. In addition, authoritarian regimes can force citizens to save when surplus is needed to finance investments. Moreover, autocracies are less subject to corporatist pressures by organized groups such as labor unions and environmental groups in influencing policy (Krueger 1974), as well as electoral pressure. Many Latin American democracies even have stricter labor regulations than OECD countries (Feierherd 2024). Quite contrarily, autocracies usually have weaker labor bargaining institutions (Manger and Sattler 2015) and suppress labor wages and labor unions (Rodrik 1999). This is certainly bad for generating a healthy domestic economy. But it could add to the international competitiveness of local firms and attracts MNCs which primarily focus on cost efficiency, while resisting short-term unpopularity.

Mercantilist mentality – Due to either weaker liberal economic norms (Dailami 2000; Quinn 2000), narrower interest groups (Eichengreen and Leblang 2008), or economic performance for legitimacy (Bature and Tolstrup 2024), autocracies also tend to be more mercantilist and protectionist, apart from being nationalist and self-interested. In contrast, democracies tend to be more cosmopolitan and economically liberal. Mercantilism and protectionism are often considered bad by economists, but sometimes they can help domestic industries become competitive or force MNCs to produce locally. Examples include China's automobile industry through tariff and non-tariff barriers (Kim 2018), or Modi's recent electronics industry, which emulates the former. Autocracies are found to import substantially less than democracies, even after controlling for trade policies (Aidt

and Gassebner 2010). Although the correlation across all countries supports this argument, there remains a specific subgroup of countries that are the opposite – reformed autocracies. As I show below, within WTO members with moderate PR protection, autocracy is associated with lower tariff rates, echoing the findings of Hankla and Kuthy (2013) and that autocracies can more easily implement trade liberalization (once preferred), which often begets opposition from interest groups (Rodrik 1999). This suggests a variety of mechanisms in play: perhaps for reformed autocracies, they don't particularly relies on nominal protectionism.

Resource endowment – Autocracies are usually intertwined with resource abundance, which are usually regarded as “resource curse” that may impede growth and political stability in a closed economy (Ross 2001). Resource rent cannot materialize without the market, which is largely discounted if there is not enough overseas demand. With the globalized economy, access to broader markets can immediately boost exports of commodities, further compounded by autocratic advantages when it comes to attracting investments in extraction and processing of natural resources.

The list can continue, such as historically-rooted culture and norms in autocratic states (especially the former planned economies) where production as moral imperatives is prioritized over consumption, as well as social Darwinism (Fitzpatrick 1999; Nove 1986). In contrast, in a globalized economy where all compete together, the same otherwise advantageous features of democracies may become disadvantageous for external demand grab. An increased demand for redistribution, for instance, may limit resources flowing to industrial sectors and infrastructure. Inefficiencies caused by lobby pressure can result in a reduction in national income (Olson 1982; Przeworski and Limongi 1993). Having more veto players may slow down the response to changing markets or limit the ability to grant foreign firms favorable deals.

To be clear, this is not to say autocratic characteristics are superior for economic development, nor are they necessary conditions or normatively recommended; they may cause problems and abnormalities exist – autocratization may well fail (see the typology in Table 4). The same characteristics can also adversely affect internal consumption and an innovation-based economy, negatively affecting performance, especially when the external context changes. It's just that, in a globalized environment, they may, for some states, play a positive role in competing for external demand. As implied, autocratic advantages may require *scope condition* to function, for example, being part of the global trade regime and maintaining certain market-friendly institutions, which will be explained in the following section.

4 Theory: Embedded Authoritarianism in the Changing Context

What exactly happened? Despite Section 5 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.

4.1 Why Post-1990? Two Changing Factors

When viewed in retrospect, there are at least two major factors that have changed and affected trade patterns since 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.¹⁶

4.2 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, property rights (PR) protection and financial and labor market deregulation. Some states

¹⁶What 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”).

extend liberalization beyond the borders – exemplified by trade and capital accounts opening up. Figure 4 shows the historical trends of two typical institutions: PR protection 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 institutional changes can stimulate 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.

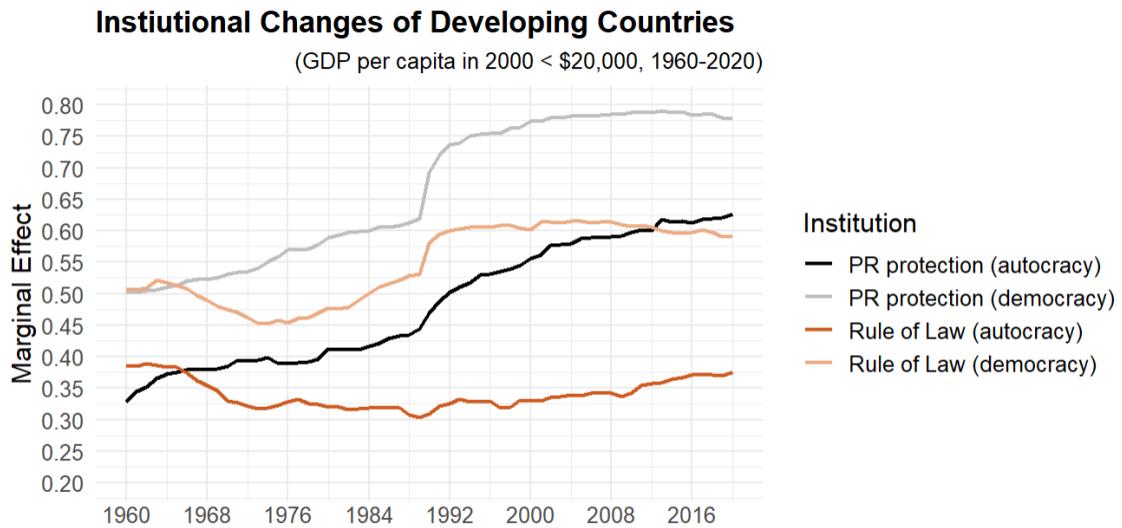


Figure 4: Average Rule of Law and Property Rights Protection. *Note:* Autocracies/democracies are roughly divided according to polity in 1990 to ensure country-level data’s temporal integrity. Although average rule of law for autocracies in 1990-2020 seems flatter than other groups, there are country-level 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,¹⁷ 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,

¹⁷Turkmenistan 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).

from 1992 to the early 2010s, their export volumes grew 11 and 24 times, respectively. Saudi Arabia 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.

4.3 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).¹⁸ 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

¹⁸Regional 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 5, I control for regional ones such as free trade agreement, preferential trade agreement, and customs unions.

164 in 2020 (see Figure 5). This allowed autocracies to more greatly access global markets (mainly from democracies) and materialized their possible advantages through flows of goods and a globally unified factor price system, unseen in the Cold War.¹⁹

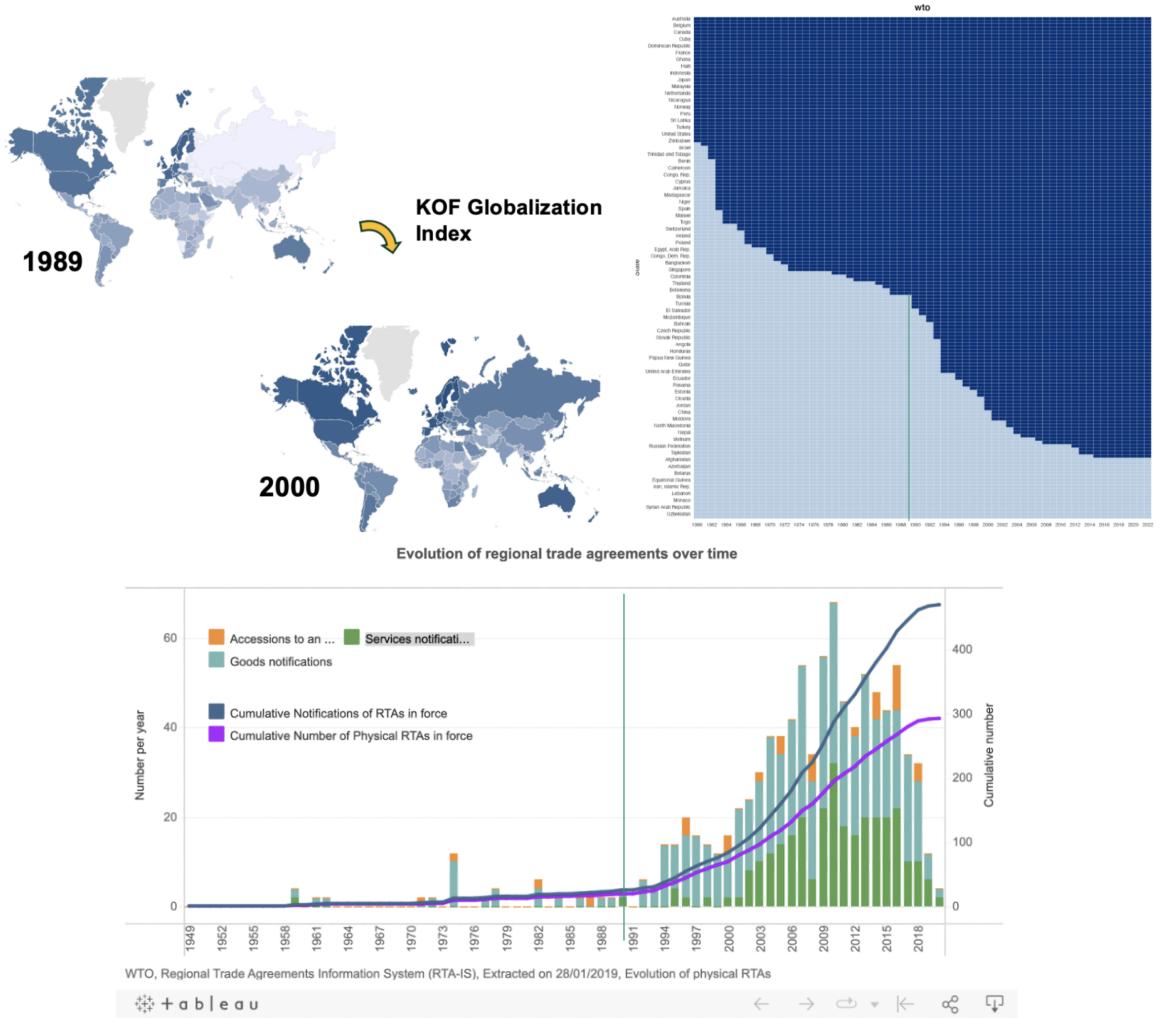


Figure 5: KOF Globalization Index; WTO Expansion; RTA Proliferation.

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.²⁰ 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

¹⁹Although some autocracies joined at the late stage or still haven't joined, the spillover effect from the joined ones cannot be ignored.

²⁰Even resource-oriented countries such as the UAE and Oman experienced an immediate export boost upon WTO accession after years' slow growth.

that hinder investments in politically dissimilar countries, implying autocracies may benefit more 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.²¹ 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.²²

4.4 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.,

²¹In the empirical section, I control for both institutional levels and changes.

²²However, in the empirical part, I control for country-specific economic covariates such as GDP per capita.

China's adaptive institutions, Ang 2016) may have a major, independent effect on developing 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).²³

	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)

Table 4: 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). 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. ▲ denotes starting GDP per capita under \$200, while ◊ denotes over \$5,000.

Table 4 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.²⁴ 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.²⁵ 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

²³Related requirements are demanded by other global institutions such as the IMF and World Bank for aids and loans.

²⁴Based on institutional levels at the bottom 20 percentile among developing countries in 2010 with minor adjustment. See Appendix for more details.

²⁵Meanwhile, 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 6 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*.

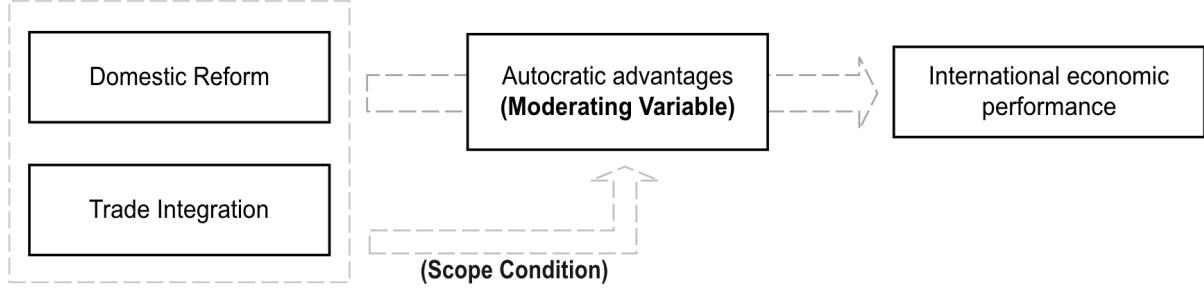


Figure 6: Illustration of Determinants of International Economic Performance. Note: Both domestic reform and trade integration matter, whose effects are moderated by autocratic advantages, while two factors also serve as the scope condition.

Theoretical Model

[TODO: Add a modified trade model to illustrate logic. Can be based on Eaton and Kortum (2002) or Yu (2010), like:]

$$X_{ij} = \frac{s_i Y_i Y_j}{(p_i)^{\sigma} \hat{y}_i} [T_{ij}(z_i, z_j)/P_j]^{1-\sigma} [1 + I(r_j) [\theta_j f(z_j)^{1-\sigma}]]$$

where $I(r_j)$ is an indicator function defined as:

$$I(r_i) = \begin{cases} 1 & \text{if country } i \text{ has implemented basic reforms} \\ 0 & \text{otherwise} \end{cases}$$

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 5: 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 5, 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 in *H1.1* should diminish when domestic institutional levels are too low or too high.

Despite the weaker institution levels of autocracies, a number of autocratic advantages in international trade might make us expect that a similar level of improvement in market-oriented institutions will result in greater rewards for autocracies, all else equal. However, there is also a similar condition: this autocracy-favoring reform effect should hardly exist for countries that are excluded from the WTO – without which, autocratic advantages may not magnify domestic reform, as argued. 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 autocracies than democracies on average.

H2.2: The differential effect 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.

4.5 Discussions on Potential Questions

Is it simply a story of China, Vietnam, Russia, and oil states? None of the descriptive data shows they are outliers. Moreover, the theory, typology of countries, 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.

5 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 similar. As such, I empirically focus on two periods: pre-1990 and post-1990.

5.1 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 (Polity ≤ 0) were autocratic states in 1995.²⁶ 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

²⁶If we count Russia (Polity = 3 in 1995) as autocracy and as a cutoff, then we get 23 autocracies.

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 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).²⁷ Additionally, some autocracies that are not in the WTO have been granted the MFN status by countries such as the United States: e.g., Azerbaijan, Belarus, and Serbia. 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 with varying specifications, the classic model used in international trade to test trade effects (Anderson and van Wincoop 2003). I control for a standard set of dyad-level covariates and dyad and year fixed effects.

²⁷Observers 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	0.334*** (0.044)	0.042 (0.048)	0.326*** (0.044)	0.062 (0.047)	0.074 (0.048)	-0.027 (0.048)
$WTO_i \times Polity_i$			0.011*** (0.003)	-0.018*** (0.003)	-0.003 (0.003)	0.010*** (0.003)
$Polity_i$			0.010*** (0.003)	-0.001 (0.003)	0.014*** (0.003)	-0.003 (0.003)
WTO_i	0.075 (0.048)	-0.014 (0.049)	0.067 (0.048)	-0.018 (0.048)	0.286*** (0.045)	-0.078 (0.048)
Both WTO	-0.029 (0.049)	0.197*** (0.050)	-0.016 (0.049)	0.198*** (0.049)	-0.033 (0.050)	0.237*** (0.050)
GDP_i	-0.202 (0.256)	0.233** (0.114)	-0.206 (0.256)	0.279** (0.114)	2.136*** (0.242)	0.780*** (0.201)
GDP_j	2.118*** (0.246)	1.045*** (0.198)	2.126*** (0.246)	1.043*** (0.198)	-0.210 (0.266)	0.505*** (0.123)
$GDPPC_i$	0.763*** (0.252)	0.262** (0.114)	0.755*** (0.252)	0.210* (0.115)	-1.366*** (0.237)	-0.033 (0.201)
$GDPPC_j$	-1.355*** (0.241)	-0.304 (0.197)	-1.361*** (0.241)	-0.302 (0.197)	0.781*** (0.262)	0.014 (0.122)
$Population_i$	0.219 (0.243)	0.276** (0.127)	0.226 (0.243)	0.219* (0.128)	-1.181*** (0.231)	0.191 (0.205)
$Population_j$	-1.129*** (0.235)	0.094 (0.201)	-1.139*** (0.235)	0.084 (0.201)	0.235 (0.255)	-0.065 (0.135)
PTA	0.111*** (0.029)	0.187*** (0.023)	0.111*** (0.029)	0.178*** (0.023)	0.132*** (0.029)	0.209*** (0.024)
RTA	0.558*** (0.070)	-0.004 (0.029)	0.568*** (0.070)	0.005 (0.029)	0.611*** (0.076)	0.083*** (0.031)
FTA	-0.514*** (0.073)	0.005 (0.036)	-0.520*** (0.073)	0.004 (0.036)	-0.558*** (0.080)	-0.092** (0.039)
Customs Union	-0.097 (0.144)	0.046 (0.076)	-0.109 (0.142)	0.058 (0.076)	-0.108 (0.151)	0.032 (0.075)
EU_i	0.041 (0.037)	0.166*** (0.027)	0.007 (0.036)	0.176*** (0.027)	-0.057 (0.042)	-0.572*** (0.034)
Colonial Orbit	0.622*** (0.091)	0.190*** (0.016)	0.600*** (0.091)	0.204*** (0.016)	0.577*** (0.097)	0.646*** (0.017)
Dyad FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Num.Obs.	235 341	506 363	235 341	506 363	211 521	453 363
R2	0.870	0.891	0.871	0.891	0.864	0.883

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

Table 6: The Effects of Joining the WTO.

The results are shown in Table 4. 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.²⁸ By looking at the WTO \times polity interaction term, the effect of joining the WTO on exports is larger for democracies pre-1990, but larger for autocracies post-1990.²⁹ 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. This may explain why autocracy predicts higher trade balances.

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

Panel Matching

In addition to the traditional model-based gravity model, I use panel matching as a nonparametric identification strategy to estimate the effect of WTO membership. Although panel matching cannot rule out unobservable confounders entirely (which can be reassured by sensitivity tests below), it offers significant advantages over traditional parametric methods, e.g., two-way fixed effects (TWFE) models for panel data (Imai et al. 2022). Unlike TWFE, which relies on the strong assumption of homogeneous treatment effects and sometimes inappropriate comparisons, panel matching explicitly constructs counterfactuals by matching on pre-treatment covariates and histories. This approach ensures covariate balance, avoids biases introduced by staggered treatment adoption, and accommodates dynamic treatment effects, providing more robust and reliable causal estimates. Panel matching is appropriate for the temporal WTO membership in this case. The 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

²⁸The large sample size can safely rule out the statistical power issue.

²⁹The autocracy's effect is moderately smaller but consistent if removing China, or Vietnam, or Russia, or 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.

unit i .

Specifically, Covariate Balancing Propensity Score (CBPS) weighting is used to balance covariates.³⁰ 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.³¹ 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 allow for up to 4-year lags to search for matched sets based on similar treatment histories, while keep up to 5-year forwards for possible delayed effects, since joining the WTO may not immediately boost trade.³² I focus on pre-treatment covariates that can affect WTO accession and exports to get similar treatment/control baselines, including GDP (log), Polity, population (log), aged proportion (over 65 years old), race (white), geopolitics (NATO membership), natural resource intensity (%), and institutions (rule of law). I avoid controlling for direct post-treatment covariates such as tariff rate, which is lowered upon or after joining the WTO.³³

³⁰I 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.

³¹As 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.

³²Longer 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.

³³I prefer to match institution, because WTO requirements are more about trade-related liberalization and intellectual property rights protection rather than usual PR protection and rule of law (Allee and Scalera 2012). Nonetheless, results hold for no inclusion.

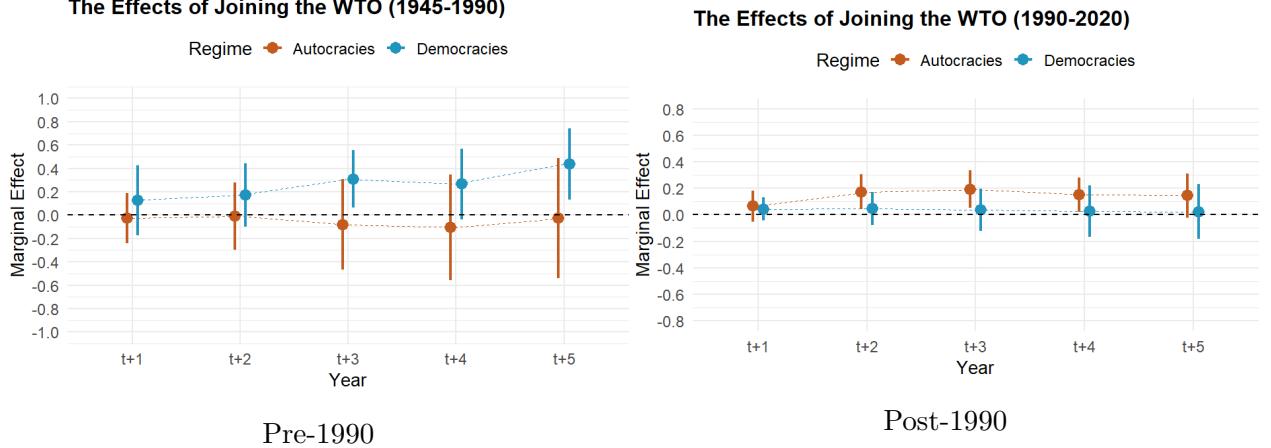


Figure 7: Effects of Joining the WTO (PanelMatch, country-year). *Note:* Democracies are those whose polity index are larger than 0. Placebo tests show that parallel trends assumption hold (also for the following matching results. See Appendix).

Since the country-year panel data contains relatively few observations, which may limits the abundance of matched set, I also exploit the dyad-year panel data whose overwhelmingly large sample size allows me to observe longer delay effects. I extend the lags to five years and leads to seven years. Similarly, I match covariates based on whether they could both affect origin state's WTO accession and future exports, including GDP (log), GDP per capita (log), population, rule of law, race (white), geopolitics (NATO membership), and Polity of origin state. Additionally matched are FTA, customs union, distance (log), colonial relationship, and common official language, since they might affect both treatment and outcome.³⁴

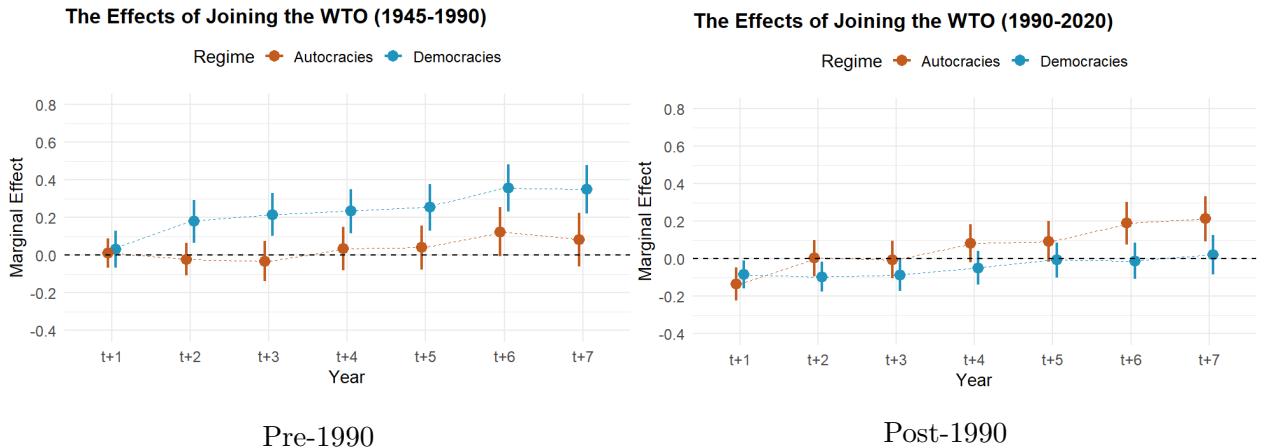


Figure 8: Effects of Joining the WTO (PanelMatch, dyad-year). *Note:* compared to the result using the country-year dataset, the relation patterns between autocracies and democracies are similar.

³⁴In another version, I match a standard list of gravity model's dyad-level covariates of both origin and destination states.

The results given by PanelMatch are consistent with those of gravity models. For example, gravity models report that the effect difference between average democracy (polity = 5) and average autocracy (polity = -5) is 0.11 for the pre-1990 period and -0.18 for the post-1990 period. By observing the graphs plotted by PanelMatch (from $t+2$ to $t+5$, for instance, in Figure 7 and Figure 8), the difference is roughly 0.2-ish for the pre-1990 period and -0.12-ish for the post-1990 period. For winners of each period, gravity models predict that the WTO effect for democracy on average is 0.37 pre-1990 while that for autocracy is 0.08 post-1990. Similarly, PanelMatch finds the two effects are 0.3-ish and 0.1-ish, respectively. In other words, PanelMatch confirms the robustness of gravity models and validates the first hypothesis.

Sensitivity Test

Although both gravity model and PanelMatch show consistent results and arguably control for sufficient covariates, they still cannot entirely rule out the omitted variable bias. In order to mitigate the concerns, 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 the variable of interest. 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. As such, I choose three covariates that arguably strongly confound the results and are significant in the models: BRI locations (`bri_loc`), Ideal Point score (`ideal_point`), and per capita GDP (`gdp_pc`). Figure 9 plots the sensitivity curves which represent the estimates of global imbalance given the hypothetical partial R^2 of the omitted confounders with treatment ($R^2_{D \sim Z | \mathbf{X}}$) and outcome ($R^2_{Y \sim Z | D, \mathbf{X}}$). In a nutshell, any omitted confounder that nullifies the main estimates would need to be 15 times, 17 times, and 38 times as strong as `bri_loc`, `ideal_point`, and `gdp_pc` with both treatment and outcome.³⁵ Hence, there should be less concerns for omitted variable bias.

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, the differential effect of WTO membership by regime is conditional on different levels of market-oriented institutions. When institutional levels are too low, joining hardly makes autocracies outstand. Yet, when institutional levels are sufficiently high,

³⁵As noted by Cinelli and Hazlett, these results are conservative for multiple (possibly non-linear) omitted confounders. See Appendix of the implementation details.

institutional constraints may in turn constrain autocratic leaders' hands in trade. We thus expect a U-shape effect for joining the WTO.

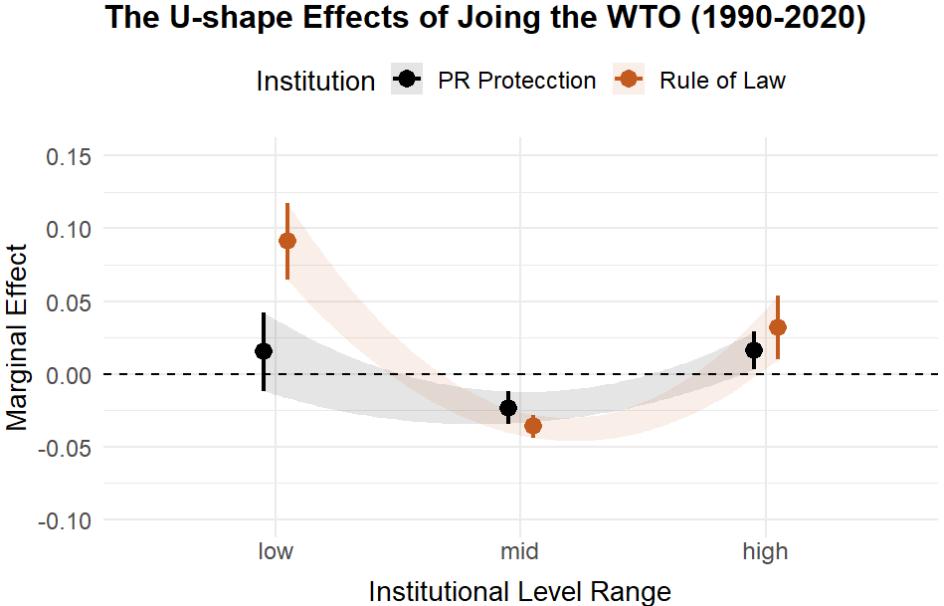


Figure 9: The Effects of Joining the WTO Conditional on Institutional Levels. Note: The y-axis means the marginal effect of the WTO conditional on polity. A positive value means the effect favors democracy. The smooth shadows are generated using cubic spline interpolation for illustration purpose.

I estimate the differential effects above stratified by PR protection and rule of law, respectively. Institutional levels are divided into three ranges from low to high.³⁶ In order not to miss any dyads of the same origin country due to temporal institutional change (for within-country WTO effect), I calculate the "average institutional level" for each country ten years after joining the WTO, and assign states into the corresponding institutional ranges.³⁷ 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.

Why No Pre-1990 Autocratic Advantages in joining the WTO?

³⁶I calculate low-range combining thresholds at the lowest 20 percentiles among developing countries in 2010 with minor adjustment based on real cases (see Appendix for details). For mid-range, I extend the distance by 0.5. 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 ranges, using dichotomous polity, and comparing autocracies of each range to the same control group (see the Appendix).

³⁷I do not control for institution in the model to avoid the post-treatment bias: institutional change may be triggered by membership. Yet, this may neglect pre-WTO institution's impact. In the Appendix, I show that controlling for within-dyad institution change (including pre-WTO) doesn't affect results.

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.

5.2 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.

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 autocratic states, after controlling for WTO membership.³⁸ The likely explanation is that the influx of many well-performing autocracies into the global trade system may exert significant stress and alter the old trade logic. The result is consistent with the hypothesis that autocratic advantages may amplify the effect of domestic reform.³⁹

³⁸Similar effects remain without controlling for WTO membership to avoid possible post-treatment bias (see Appendix).

³⁹Autocracies may also have increased marginal returns due to lower starting institutional levels. However, democracies' institutions were not significantly higher (0.6 vs. 0.45 for PR protection in 1990, Figure 4), which cannot explain why democracy's reform effect is zero.

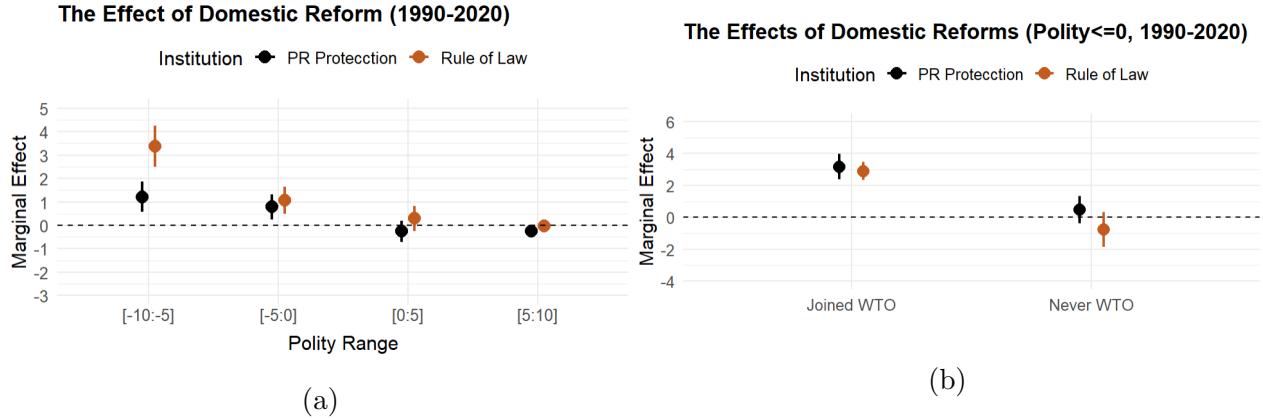


Figure 10: The Effects of Domestic Reform by WTO. Note: (a) plots the effects of within-dyad changes of institutions across differential ranges of polity. I only include developing countries (GDP per capita lower than \$20,000 in 2000) to focus on institutional reform. (b) plots the effects of within-dyad changes of institutions for autocracies. “Joined WTO” means a country joined the WTO during 1990-2020.

The WTO as the Scope Condition

Just like the autocracy-biased WTO effect has to cross certain institutional levels, the autocracy-biased domestic reform effect above hardly exists when one is excluded from the global trade system. As the effect of domestic reform can only be observed for autocracies, I focus only on dyad-years in which the origin state is an autocracy ($\text{polity} \leq 0$) in 2000. These states are divided into those that joined the WTO during 1990-2020 and those that did not join.⁴⁰

As shown in Figure 10b, the WTO stratum experienced significantly higher export increase, given the same amount of institution increase. The result suggests my theory is correct – autocratic advantages diminish when states are excluded from the global trade regime.

5.3 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 ($\text{polity} = 9, 10$ in 2000), while Property right protection (≥ 0.8) does contain some lower polity states. I thus set the up-

⁴⁰The result is similar when I define the WTO stratum as all dyad-years in which the origin state is in the WTO.

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 11 corroborates my hypothesis.

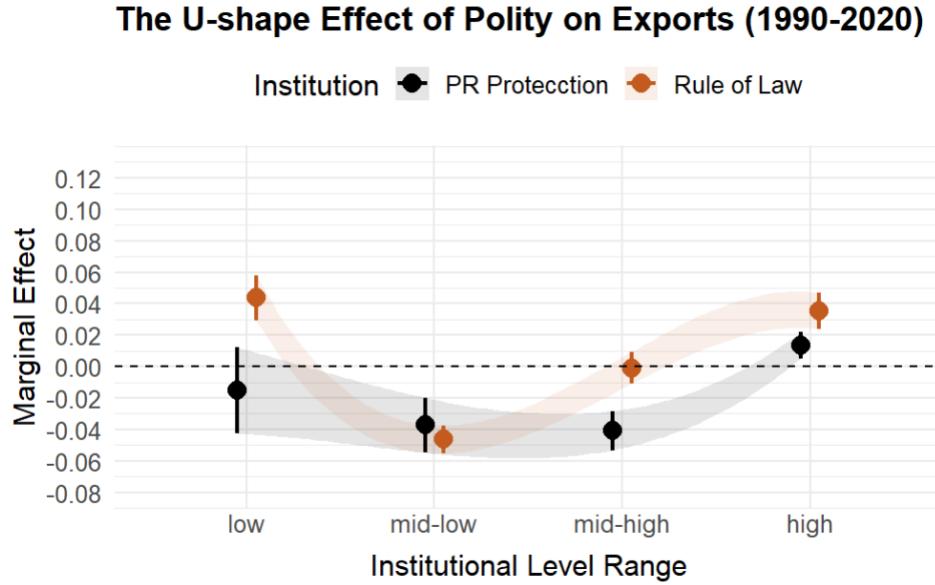


Figure 11: The Effects of Polity Conditional on Institutional Levels.

5.4 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.

5.5 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.

6 Testing Mechanisms

As stated above, when autocracies were incorporated into the global trade regime, they may have multiple advantages, which I argue simultaneously influence trade performance.

6.1 Exports

There are numerous channels through which exports can be affected by regime type, including but not limited to the following: 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, 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 7: 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 7 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.

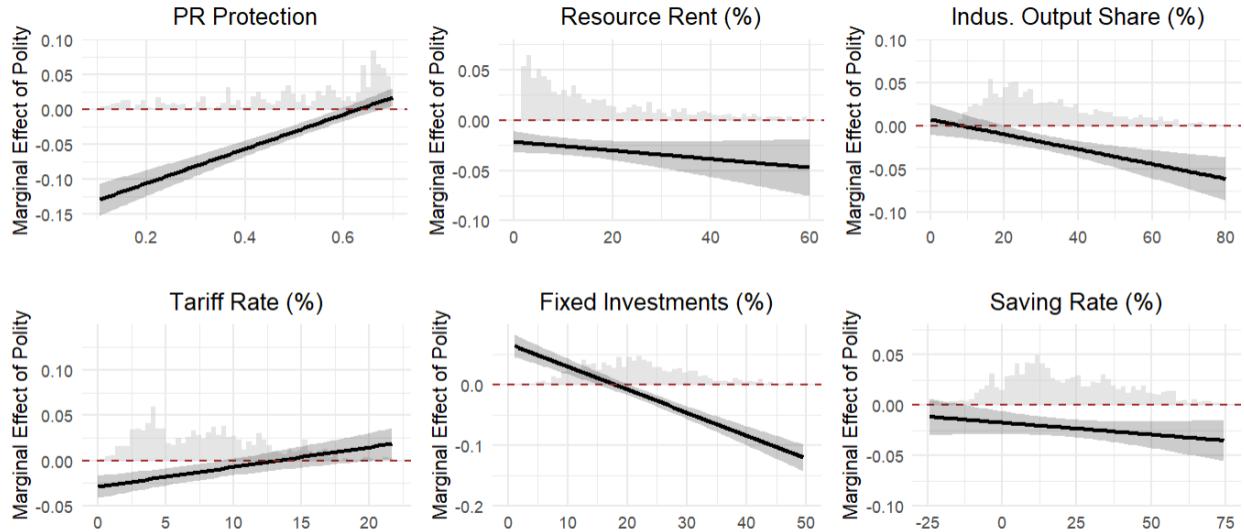


Table 8: Channels and Exports. *Note:* the y-axis is the Polity's effect on exports.

As plotted in Figure 8 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.

6.2 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 9: 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 10: Mediating Variables and External Balances.

Table 10 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.

7 Sector-level Evidence

As discussed in Section 4, 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. Thus, by unveiling sector-level patterns, we can better understand the underlying mechanisms. I merge two-digit HS92 code into four broad categories as shown in Figure 12 (with details in Appendix).

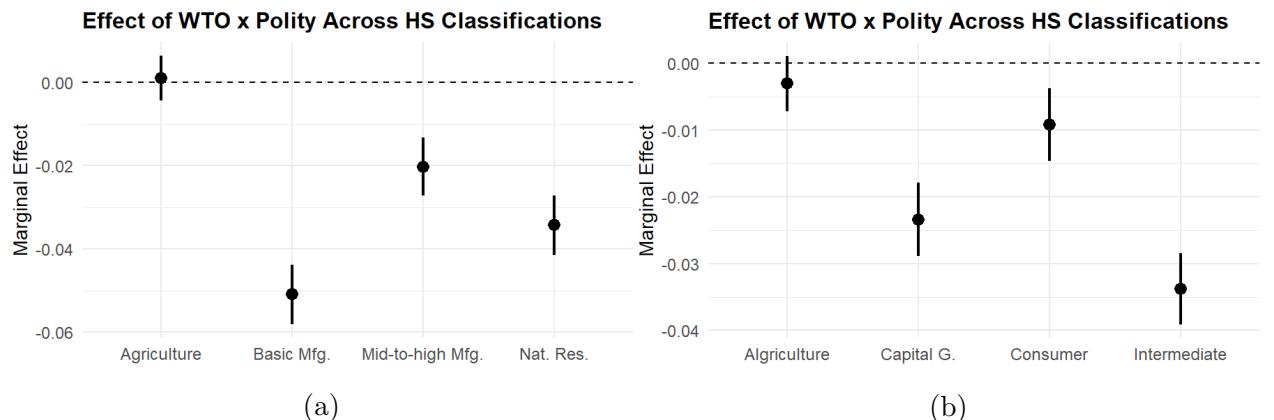


Figure 12: Differential Effects between Democracy and Autocracy across HS Classifications. *Note:* negative value means the WTO effect favors autocracy.

As shown in Figure 12, after WTO accession, autocracies' advantages in export boost most manifest in low manufacturing (Figure 12a) or intermediate goods (Figure 12b), then natural resource or capital goods. This sectoral divergence underpins the broader advantage autocracies experience in leveraging WTO membership for export growth.

8 Case Comparison [to complete]

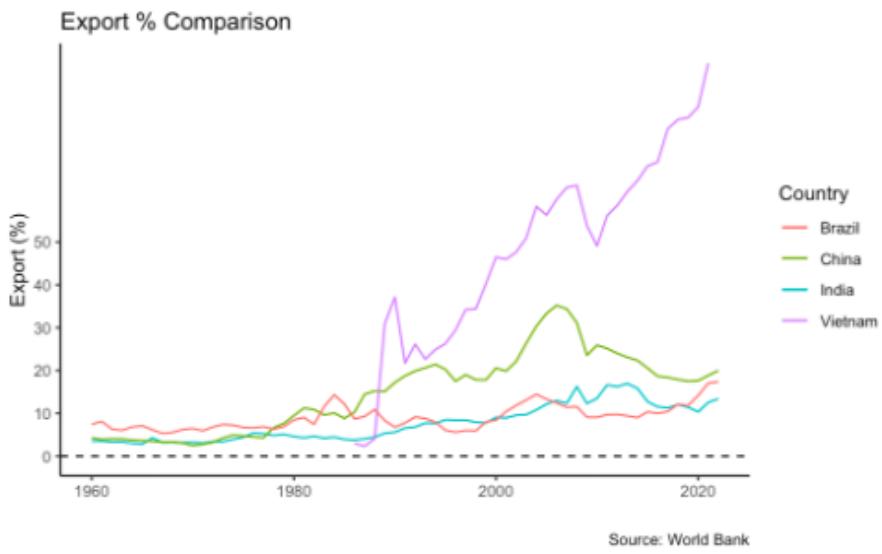


Table 5. Case Illustration: China, Vietnam vs. India, Brazil

Vietnam vs. Philippines vs. Mexico - In 1986, Vietnam's marketization started with a low level of exports (4% of GDP exp in 1988). Vietnam was in 2001 granted the MFN status from most western countries (U.S. lifted trade embargo in 1994). In 1990-2011, Vietnam had persistent trade deficit, while also starting the EEZ/export orientated/mercantilist model (50% export share in 2002). Vietnam joined the WTO in 2007 and since 2012, it then runs persistent trade surplus with a high industrial share (38% in 2020). In contrast, more democratic Philippines and Mexico are different stories.

China vs. India - In 1978, China started marketization with a low level of exports then (6% of GDP export in 1978). Since 1980, China was granted the (Most Favored Nation) MFN status from most western countries (but there was much uncertainty, e.g., subject to annual review which hinders investors' confidence). In 1980-1995, China recorded persistent trade deficit, borrowed huge from the World Bank, and started the EEZ/export orientated/mercantilist model. For China, joining the WTO in 2001 gave it a second boost to its already growing exports and China started to run persistent trade surplus. Meanwhile, China's industrial share in GDP increased dramatically (40% in 2020). Unlike later joiners, India was one of the 23 GATT signatories, which didn't seem to help substantially. Yet India started marketization late in 1991 (as response to BoP crises). India's institutional characteristics resulted in low mercantilism (5.6% export share in 1990; 12% export share in 2005). The result is, from 1991 to present, it ran persistent trade deficit with a low

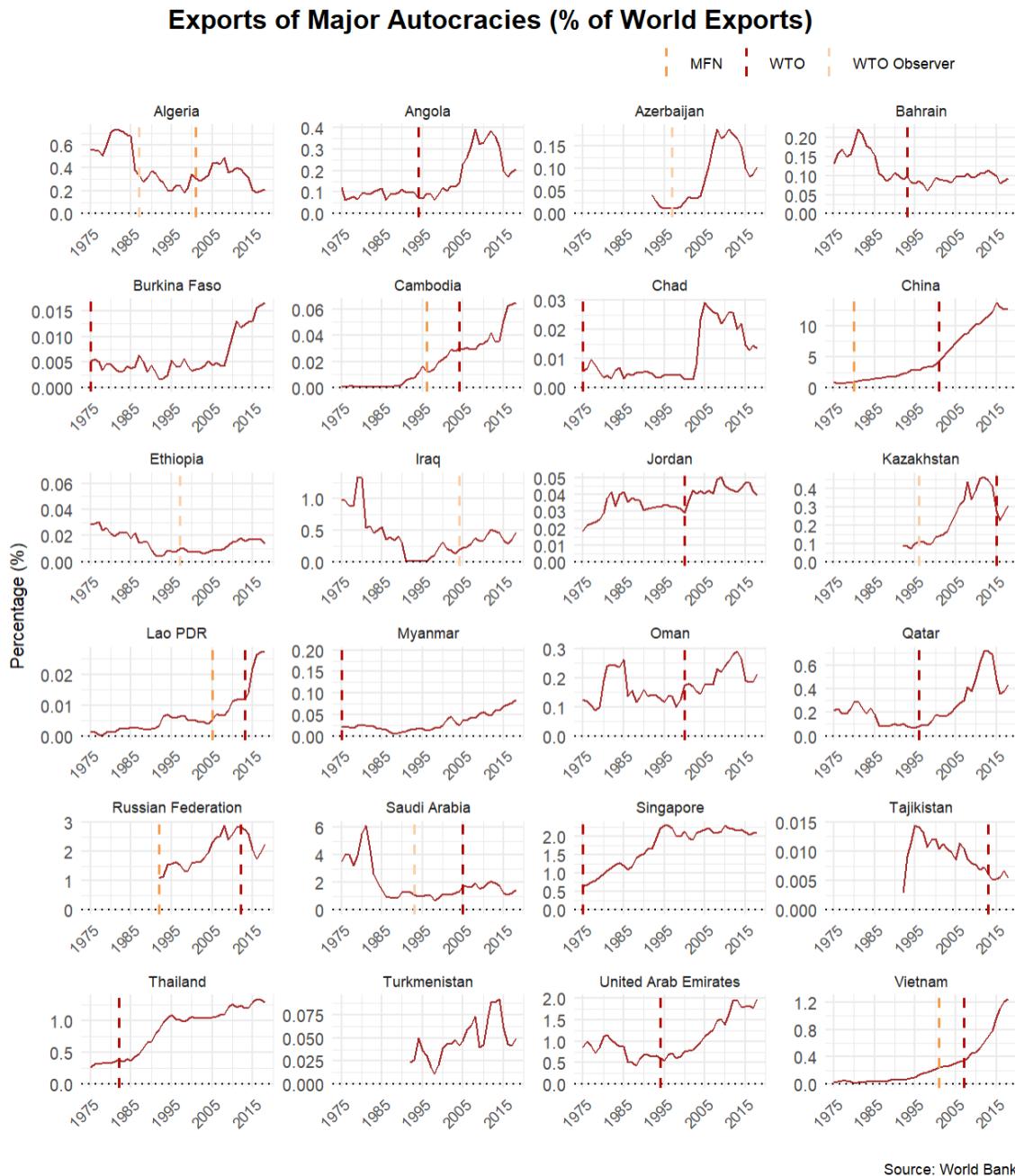
industrial share (25% in 2020). Interestingly, with Modi's authoritarian turn, India quickly changed trade policy towards mercantilism, although only in a limited areas such as smartphone un governed by the WTO, which took off eventually.

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).

Belarus vs. Ukraine - Both countries shared many similarities in the early 1990s: GDP per capita, resource endowment, geographical location, culture, and ethnicity. They had similar institutional levels (0.75 vs. 0.9 in PR protection, and 0.26 vs. 0.2 in rule of law). Belarus is not a WTO member while Ukraine joined in 2008. Belarus is a dictatorship while Ukraine is a democracy. From the early 1990s to mid-2010s, Belarus increased exports by over fifteen times, while Ukraine around seven times.

United Arab Emirates (UAE) vs. Iraq vs. Kuwait – UAE is has a more centralized authority than both Iraq and Kuwait.

Figure 11 below lists exports as a share of world total exports.



Source: World Bank

Table 11: Share of World Exports for Major Autocracies. *Note:* For illustration purpose, vertical dashed lines begin in 1975 if in effect earlier.

9 Conclusion

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.

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.

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Appendix

A Descriptive Data

A.1 Distributional Change

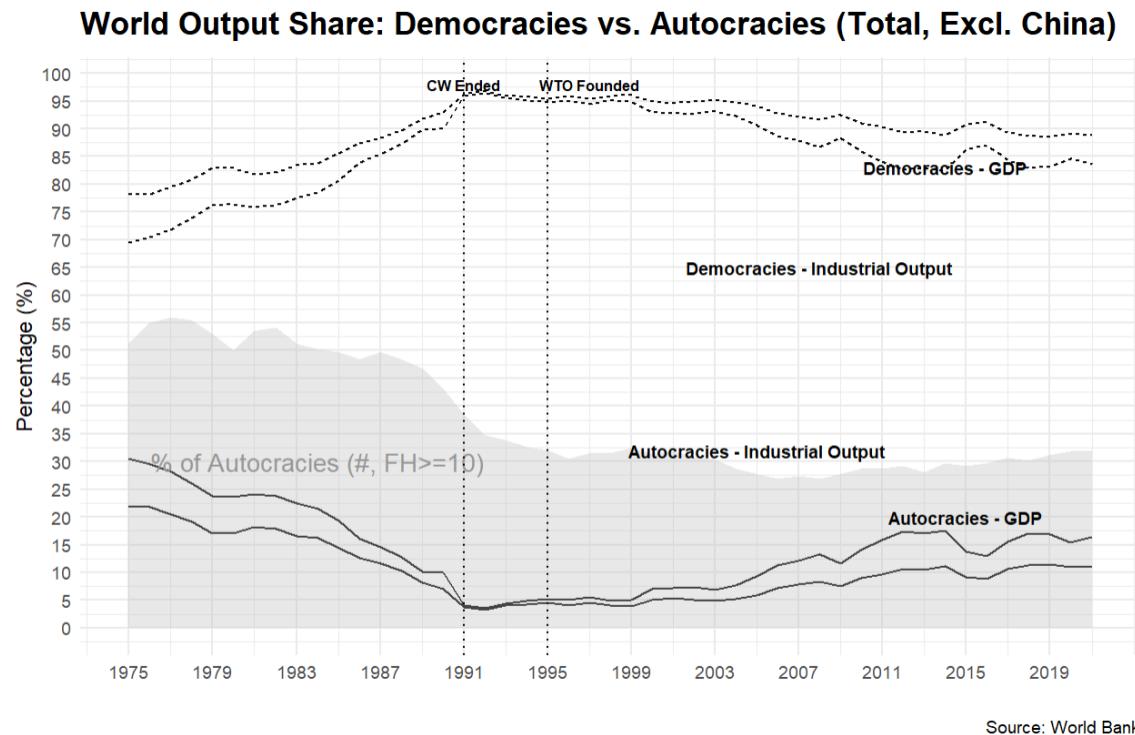


Figure A.1: The Distribution of Power Change Between Democracies and Autocracies, Excl. China
(Data: World Bank; Autocracy: Freedom House Index ≥ 10).

A.2 Panel Data of Regime Type Change

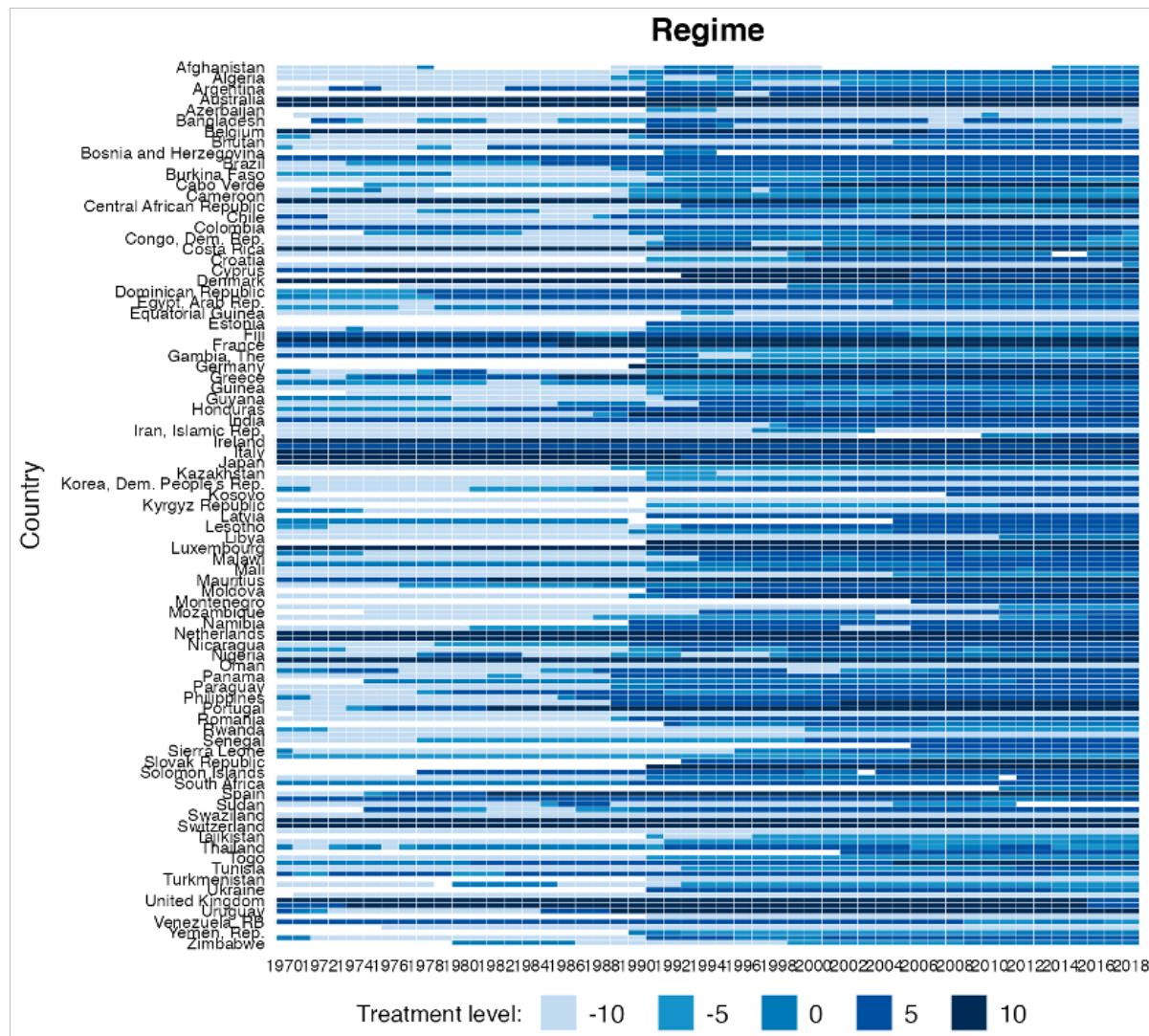


Table A.1: Democratization (Polity Index)

A.3 WTO Membership



Table A.2: The Map of WTO Members and Observers (source: WTO website)

A.4 Selection of Institutional Thresholds

In 2010, the bottom 20 percentile thresholds 0.5 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 2010 and real cases (e.g., China's PR protection is slightly above 0.4), 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 Robustness Tests

B.1 WTO Effect

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 x polity) doesn't reflect within-democracy variation.

PanelMatch (country-years)

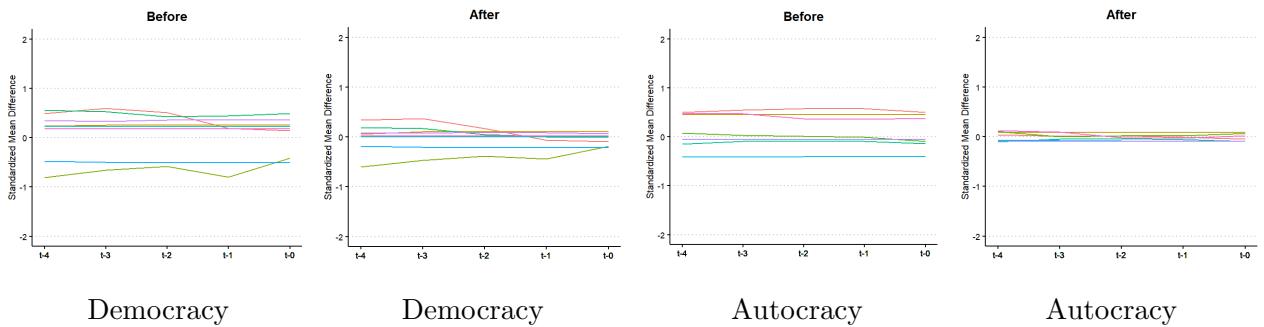


Figure B.2: Improved Covariate Balance via CBPS Weighting, Post-1990. *Note:* overall, all covariates' balance improve significantly. The green line natural resource intensity is slightly not balanced. However, it may not be an concern as it does not significantly affect WTO accession theoretically.

PanelMatch (dyad-years)

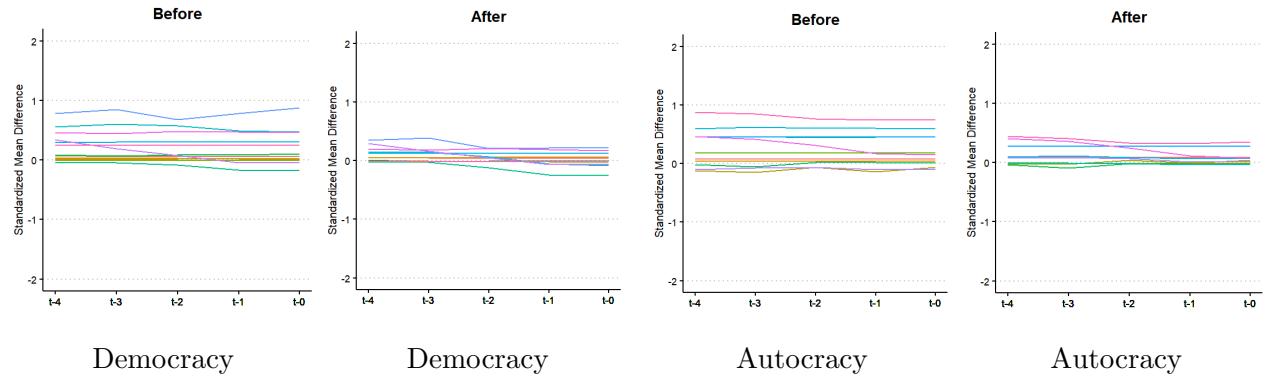


Figure B.3: Improved Covariate Balance via CBPS Weighting, Post-1990. *Note:* overall, all covariates' balance improve significantly.

B.2 Domestic Reform Effect