

The Globalization Origins of Autocratic Rise: Embedded Authoritarianism and the Post-1990 Reversal

George Yean*

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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 can happen 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 the role of both global trade integration, specifically the WTO expansion, and domestic reform – two major changing factors within the post-Cold War globalization. I demonstrate that, post-1990 WTO expansion has disproportionately benefited autocracies which ironically possess weaker average market-oriented institutions, but only after crossing certain institutional thresholds. I also show that similar domestic reforms generate greater export increases for autocracies, but only among WTO members. Put differently, autocracies excelled conditional on *both* factors: only “engaged reformers,” representing over 90% of autocracies’ GDP, win and autocratic resurgence would be unlikely without WTO incorporation. Lastly, I examine the mechanisms through which autocracies may operate.

1 Introduction

Since the early 1990s after the Cold War ended, economic globalization has significantly accelerated its pace (Baldwin 2016; Rodrik 2011). Global trade and financial integration significantly expanded,

*George Yean is a PhD candidate at the Department of Government, Harvard University, gyean@fas.harvard.edu. I thank Pol Antràs, Stephen Chaudoin, Christina Davis, Jeffery Frieden, Peter Hall, Torben Iversen, Gary King, Steven Levitsky, Marc Melitz, Dani Rodrik, and Daniel Ziblatt for valuable comments, as well as the feedback from Harvard International Relations/Comparative Politics/International Trade workshops.

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 on a continuum or dichotomy in a probabilistic sense.

as well as the number of countries adopting liberal economic policies. By 2010, the membership of GATT/WTO nearly doubled compared to 1985, expanding more into Asia, Africa, Europe and Latin America, along with the unprecedented proliferation of other smaller, regional trade agreements (e.g., RTAs and PTAs).

Meanwhile, the once promising third-wave democratization has stalled (see the shadow area in Figure 13), and scholars have worried about the instability and backsliding of both emerging and advanced democracies, as well as the emergence of stable, competitive autocracies (Diamond 2015; Ekiert and Dasanaike 2024; Haggard and Kaufman 2016). In 2020, the VDem's liberal democracy index has retreated to the 1990-level. At least partially, economic grievances by globalization have fueled public discontent and created fertile ground for populist and authoritarian leaders in democracies (Autor et al. 2020). By contrast, the share of autocracies in global GDP and industrial output reversed the declining trend and has since steadily risen (see Figure 13). Particularly, many autocracies have become competitive on the export market.²

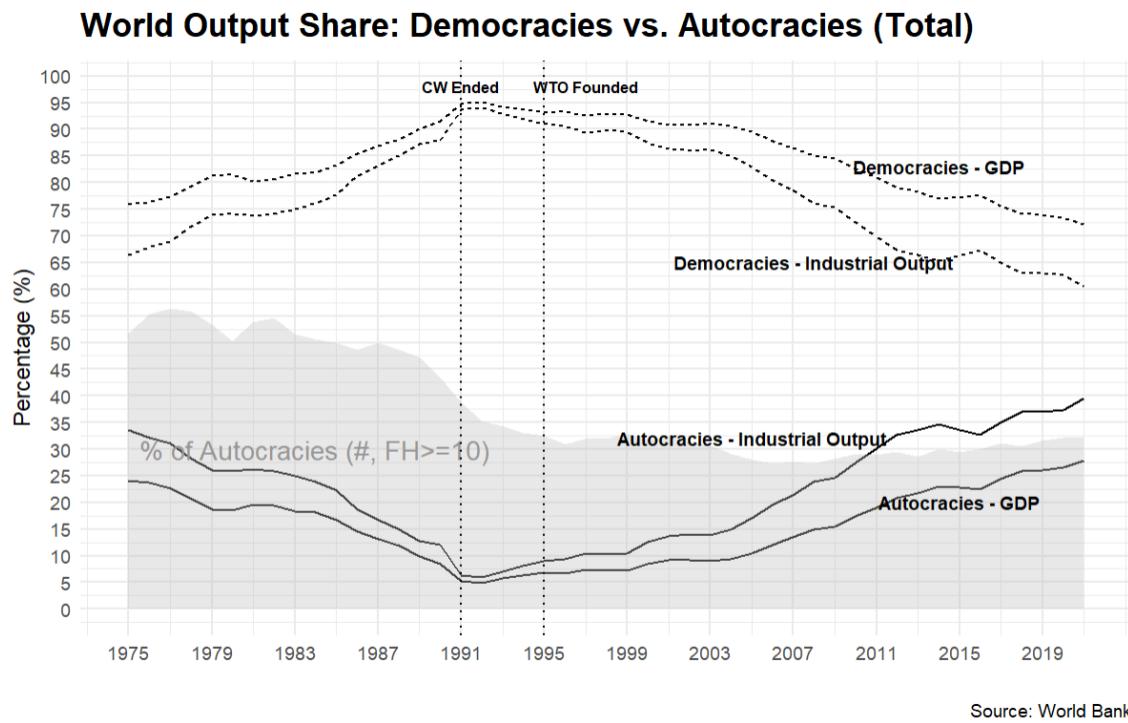


Figure 1: The Distribution of Power Change Between Democracies and Autocracies (Data: World Bank; Autocracy: Freedom House Index ≥ 10). Note: in 2020, China accounts for 62% of autocracies' GDP (similar patterns excluding China are plotted in the Appendix). The shadow area shows the proportion of autocracies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

²In 2022, the top three trade surplus countries were: China, Russia, and Saudi Arabia. See more in Section 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 spreading norms, globalization nonetheless has raised concerns over, for example, inequality or security among diverse 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 during the 1980/90s, autocracies may have more institutional and non-institutional advantages in the new setting – a global economy that is highly integrated. Consequently, as demonstrated, both joining the WTO and domestic reform brought autocracies more trade rewards. Importantly, 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 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.

Consider two typical sets of autocracies: export-oriented autocracies in East Asia such as China, Vietnam, Singapore, Thailand, Malaysia, Taiwan, and South Korea (with the latter two in the 7/80s) and the resource-rich autocratic states in the Gulf area, 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). However, these reforms took place without similar political ones. With trade integration, these countries embarked on a model heavily dependent on *external demand* thanks to some autocratic characteristics we will discuss 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 also lead to easy rollback of economic reforms (e.g., China). For the latter set of autocracies, trade integration and market access either through being incorporated into the global trade regime or benefiting from joiners’ growth (e.g., China’s demand) apparently provide market access especially for commodities, which, was quite limited during the Cold War era. Thus, autocratic regimes have leveraged globalization to modernize economically while suppressing political liberalization, creating competitive “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. I demonstrate the need to pay sufficient attention to external factors in shaping outcomes. For instance, without access to external market or conversely suffering from severe external shocks, trade or financial, the effects of domestic institutions can be largely weakened.

The implications are multifaceted. According to international relations theories by schools such as realism, constructivism, and democratic peace theory, a world of stronger autocracies will likely become more conflictual and less cooperative, which will in turn impact the global economy. Global conflicts (reported by ACLED) have steadily risen for the past two decades. Economic performance can consolidate or de-consolidate a regime – an economically weakened democratic world not only sows unstable seeds domestically (Przeworski et al. 2000; Svolik 2008), but also provides poorer linkages and leverages that could facilitate democratization (Levitsky and Way 2006), while strengthened autocracies impede political liberalization, support each other, and encourage autocratic drift worldwide (Ekiert and Dasanaike 2024). Good economic performance strengthens autocratic rules and norms without much coercion (Wright, Frantz and Geddes 2013); interestingly, autocrats increasingly use outcomes to redefine democracy (Oser and Hooghe 2018).

2 The Puzzle: Performance Divergence/Reversal

2.1 Stylized Descriptive Patterns

First, I illustrate the trends of several economic indicators including two trade measures that are directly linked to globalization. I calculate the average values of merchandise exports (% of GDP), trade balance (% of GDP), industrial output (% of GDP), and as well as GDP growth within both democracies and autocracies (with estimate uncertainty). In Figure 2, all four measures show that since the 1990s, the average performance of autocracies diverge or surpass 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.

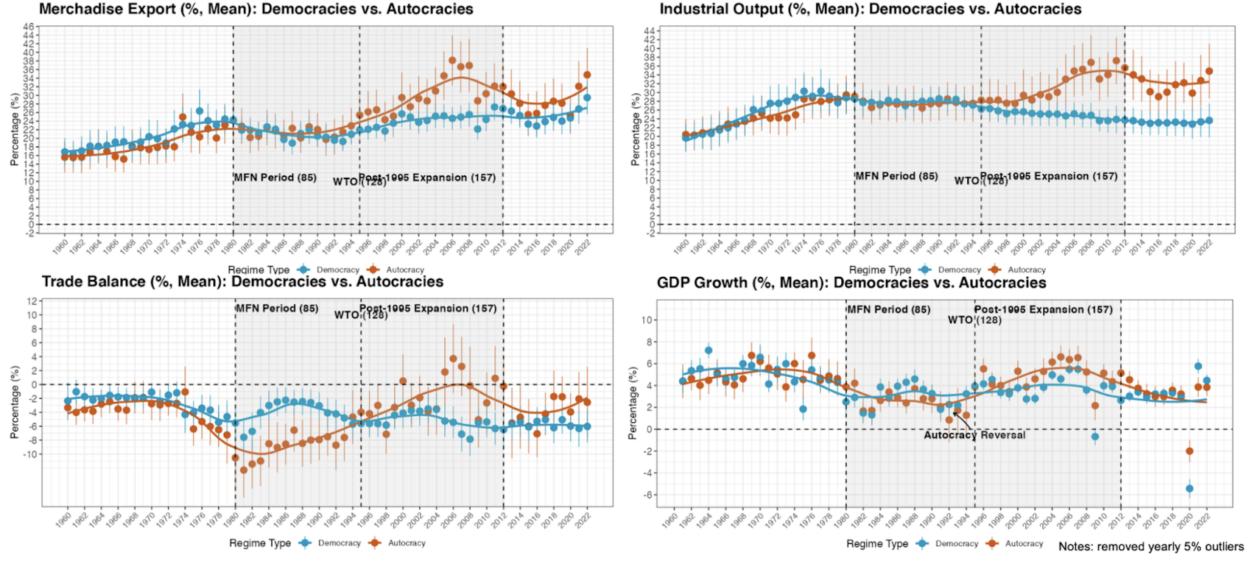


Figure 2: Average Performance of Several Indicators between Democracies and Autocracies ($FH \geq 10$). Note: in the Appendix, the patterns generally hold after removing developed countries, or China, or 23 OPEC countries + Russia. Estimate uncertainty of the averages are plotted.

Based on the data from the World Bank's World Development Indicators (WDI), I select more major development indicators, ranging from GDP growth and fixed investments to savings and exports, which are then regressed on regime type (measured by Polity V) for the period of 1990–2020.³ I control for GDP per capita for the comparison between countries of similar development levels. I also control for year fixed effects for within-year comparison.

³The pre-1990 data of these indicators are not shown due to the unacceptable missing data problem especially for the former socialist states. But the available data shows autocratic advantages were either null or significantly smaller than post-1990.

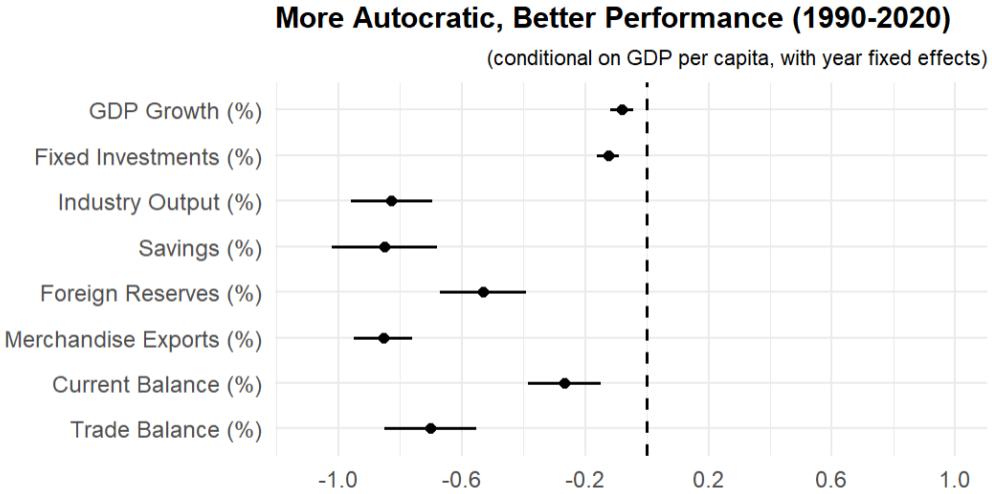


Figure 3: Regime Type and Major Economic Indicators. *Note:* Percentage means as a share of GDP. The coefficient means the percentage point in performance associated with one unit increase in Polity (ranging from -10 to 10).

In Figure 3, more autocratic regime types are associated with better economic performance. For example, a ten-unit decrease in polity is associated with nearly one percentage point higher in GDP growth, eight percentage points higher in industrial output (% in GDP), and nine percentage points higher in exports (% in GDP). With the cumulative or compounding effects behind these statistics, it is clear why autocracies can rise as a result.

2.2 Prediction of Regime Type

Next, I test whether regime type predicts the above performance divergence. For the most part of this paper, I choose 1990 as a convenient empirical cutoff due to several theoretical reasons to be discussed in detail below.

Why Focus on Trade?

As I mainly investigate the potential role of globalization, I focus on the most direct indicators of globalization effects: exports and external balances (trade balance and current account balance), which are key international economic measures.⁴ As Adam Smith (1776) proposes, 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

⁴Current 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 much more often seen, for example, Global Imbalances (Blanchard and Milesi-Ferretti 2009; Obstfeld and Rogoff 2009). Importantly, it indicates the competition or redistribution of *external demand* (Chinn and Ito 2021), especially when it aggregates to zero globally. Thus, trade measures connote the spillover effect. Surplus that contributes to reserves and sovereign funds can be used elsewhere such as welfare programs, foreign purchasing power, and even geopolitical projects (e.g., China or Russia's overseas spending).

Since autocratic regimes are typically weak at inclusive development and generating internal demand, without external performance, they should find it particularly difficult to drive economic growth. In the Appendix, I show that export growth rate is highly correlated with GDP growth rate. Meanwhile, long-run external balances are correlated with a slew of development indicators such as economic growth and national debt. Many countries running persistent surpluses show higher performance in development and fiscal capacity and have become global creditors (e.g., East Asia, Core Europe, and Gulf states), while many don't (like many democracies).

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 the gravity model that is commonly used in economics and political science and controls for a standard list of dyad-level characteristics, I find that prior to 1990, being more democratic is associated with higher exports (see Table 1). However, during the post-1990 period, being more autocratic is associated with positive or zero effect than being more democratic.⁵ The models include cross-sectional, within-origin country, interaction with origin country's logged GDP (when the prediction differs for larger autocracies), and weighted least squares (when larger countries are assigned with larger weights). In the OLS (interaction) model,

⁵Specifically for post-1990, I look at all dyads with exporters being within the WTO to control for the WTO effect. Since many autocracies joined the WTO after 1990 and being inside the WTO is what I am interested in, it's more efficient to focus on dyads where origin country is in the WTO. In contrast, the pre-1990 model checks both inside and outside of the WTO since many autocracies were excluded. However, the result barely changes if WTO only.

for example, by plugging in Iran's GDP in 2005 (with the logged form = 20), the effect of polity becomes negative.

| | Post-1990 (within WTO) | | | | |
|--------------------------------|------------------------|----------------------|----------------------|----------------------|----------------------|
| | OLS | OLS | OLS (Within) | OLS (Interaction) | WLS (by GDP) |
| <i>Polity_i</i> | 0.022*** (0.001) | 0.003 (0.003) | -0.016*** (0.004) | 0.065*** (0.014) | -0.041*** (0.001) |
| <i>Polity_i</i> × <i>GDP_i</i> | | | | -0.004*** (0.001) | |
| <i>Polity_j</i> | 0.003* (0.001) | 0.003** (0.001) | 0.005*** (0.001) | 0.003** (0.001) | 0.003*** (0.001) |
| <i>GDP_i</i> | 1.583*** (0.048) | -1.746*** (0.139) | 0.298*** (0.054) | -1.698*** (0.141) | -1.137*** (0.107) |
| <i>GDP_j</i> | 2.058*** (0.143) | 0.650*** (0.080) | 0.521*** (0.090) | 0.644*** (0.079) | 0.065 (0.182) |
| <i>GDP<i>PC</i>_i</i> | -0.536*** (0.043) | 3.051*** (0.129) | 0.070 (0.063) | 3.023*** (0.129) | 2.154*** (0.116) |
| <i>GDP<i>PC</i>_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 Colnizer 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

Second, I test whether regime type predicts external balances. The dependent variables in my

models 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 instead of a country fixed-effect one based on Manger and Sattler (2020), as polity has significantly less variations since the late 1990s. This mixed-effect or hierarchical model captures within-country variations of covariates other than polity. Then the model regresses the country intercepts from the first stage on polity, assuming a random draw of countries from the population (random effects). The mathematical expression is listed below:

$$y_{jt} = a_{1j} + a_{2j}X_{jt} + d_t + \epsilon_{jt}$$

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

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/Russia, rich 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.

These temporally contrasting patterns of autocracies' performance – before and after 1990 – highlight intriguing puzzles about how forces – domestic or global – may interact to 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 Debate: Regime Type on Economic Performance

Political scientists and economists have spent decades trying to figure out whether democratic institutions leads to better economic performance. Admittedly, institutions matter a lot for economic performance. Even within democracies, for example, Hall and Soskice (2001) have shown that “varieties of capitalism” produce differentiated economic outcomes.

On the economic growth front, regime type's effect is at best mixed. Theoretically, democracy favors growth because of better property rights protection, political stability, public spending on education and healthcare, and the acceptance of technological innovation. But autocracy may also favor growth because of the autonomy to 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 the literature and the data used are mostly from the pre-2000 period where globalization has not fully materialized, so that they often don't pay enough attention to external factors. As clearly shown in Figure 3, autocracies grew faster in the post-1990 period.

On international economic performance, however, the conclusion is more unified. The country-level performance is not only affected by domestic policies, but also by external impacts which include but are not limited to import competition, foreign investments, and the availability of export markets (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 (Levchenko 2007; Rigobon and Rodrik 2004), which can result in, for example, product quality and competitiveness (Yu 2010). Note also that the literature mostly focuses on the pre-2000 data, and their conclusion is confirmed by my prediction result in Table 1. Yet, regime's effect changed the sign to favor autocracies after 1990.

The issues with the literature includes using old data up to the early 2000s and looking at internal mechanisms within states as autarkic black-boxes, which may miss a key global shift – post-1990 globalization. Perhaps the biggest puzzle, especially for those focused on institutional causes (i.e., new 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. It suggests that the reversed performance might have resulted from something else.

3.2 Autocratic Advantages in a New Setting: Globalized Economy

What Makes Globalized Economy Different?

As mentioned in the beginning, the post-1990 period witnessed dramatic global economic integration, with free flows of goods and capital and globalized production – sometimes called “hyper-

globalization (Rodrik 2011). In particular, trade liberalization and globalized production play a significant role.⁶ In comparison with closed economy which emphasizes labor, capital, and technology within the border (Solow 1957; Romer 1986), trade liberalization greatly alters the logic for developing economy for two major reasons.

First, 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 (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. 2018), investment decisions made by multinational corporations who seek low production costs and control the GVC became all the more important. The GVC allows for rapid transmission of technological know-how along the chain, as well as for a poorer country to export a rather advanced product fairly quickly, blurring national comparative advantages that may not exist or take longer to develop (Baldwin 2016).⁷ Indeed, as Osgood (2017) observes, only one tenth of U.S. industries are explained by comparative advantages, with the rest being product differentiation and direct competition. Global trade system combined with the exchange rate system converts local factors into globally comparable prices, materializing one's 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. Early trade models assume rather 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 the trade 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 high scale effects (*Ibid*). This can be particularly salient when the assumption of most trade mod-

⁶ Arguably, capital flows such as FDI often work towards production and trade of goods and services.

⁷ Arkolakis 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 MNCs' related party or be built through technology transfer.

els – balanced trade (or exogenous imbalances) – rarely occurs,⁸ as the prices of products in one country can be artificially low without currency readjustment mechanism.⁹ In other words, policies like currency devaluation, export subsidies, and labor standard suppression can create “artificial comparative advantage” and attract the relocation of global production. Eaton and Kortum (2002) point out that a country’s trade competitiveness is its “technology adjusted for its labor costs,” which should be further adjusted by exchange rate, echoed by Bernard et al. (2003).¹⁰ Epifani and Gancia (2017) further show that an undervalued exchange rate allows a country to run surpluses and agglomerate global production.¹¹

Moreover, the expanded market increases firms’ entry and 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 lead to better products (Yu 2010) and are critical for productivity growth (Acemoglu et al. 2017).

As such, in both theory and practice, an integrated trade system can provide sufficient room to be exploited by autocracies to effectively practice self-benefiting policies. Instead of relying on domestic firms and consumption to foster innovation, entrepreneurship, and capital accumulation, the logic now switches to who can better seize foreign demand, investments, and technologies.

Autocratic Advantages in a Globalized Economy

Treating authoritarian leaders as rational actors based on costs and benefits 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. Thus, we may expect some try harder

⁸E.g., see the discussion of persistent global imbalances in Blanchard and Milesi-Ferretti (2009) and Obstfeld and Rogoff (2009). The implication of some country running persistent trade surpluses to mercantilist policies is at best overlooked in the literature.

⁹This 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.

¹⁰In the classic Eaton-Kortum model (2002), the proportion of country n ’s total expenditure imported from country i is: $\pi_{ni} = \frac{T_i(w_i d_{ni})^{-\theta}}{\sum T_h(w_h d_{nh})^{-\theta}}$, where T_i represents technology and w_i represents wage/cost of factor. Given technology converge (e.g., due to the diffusion by GVC), wage 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 .

¹¹Costinot et al. (2013) also shows that absolute productivity (e.g., costs factoring in quality and exchange rate) determines the production location in the GVC.

in adopting every available way, mercantilist and self-interested, than their democratic counterparts to develop economy.

Apart from this incentive, in a globalized economy where states can easily access each other's market and firms can freely choose productive locations, autocracies may have institutional and non-institutional advantages. The existing literature has documented them in various angles – some institutional characteristics that would otherwise be a disadvantage in a relatively closed setting can indeed become advantageous, since the goal now is to compete for external demand instead of generating internal demand.

More centralized power – Autocratic states concentrate power in the hands of a smaller group, unlike democracies which usually have more fragmented power, 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 (Krugman 1987). As the state controls more resources, studies find that state-owned enterprises play a favorable role in supporting national interest in global trade (Clegg et al. 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 (also see 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 authoritarian or semi-authoritarian eras. A counter-example is 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.

Weaker 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 (Bernard et al. 2018) that rests on globalized production – the global value chain (Baldwin 2016). 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 as much made before joining international institutions – 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, controlling abilities.

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 the 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. 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,” autocracies also tend to be more mercantilist and protectionist, apart from being nationalist and self-interested, in contrast to democracies being more economically liberal and cosmopolitan. Mercantilism and protectionism is treated as bad among economists, but sometimes it can foster the development of domestic industries to become competitive or force MNCs to set up production locally. Examples include China’s automobile industry or India’s recent electronics industry that emulates the former. Autocracies are found to import substantially less than democracies, even

after controlling for official trade policies (Aidt and Gassebner 2010). However, despite the correlation across all countries supporting this argument, a specific sub-group of countries remain the opposite – reformed autocracies. As I show below, within countries with PR protection between 0.1 and 0.7 inside the WTO, autocracy is associated with lower tariff rates, echoing the findings of Hankla and Kuthy (2013) and that autocracies can more easily implement trade liberalization (if 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 protectionism.

Resource endowment – Autocracies are usually associated with resource abundance, which are usually regarded as “resource curse” that may impede growth and political stability (Ross 2001). Resource rent cannot materialize without the market, which is largely discounted if there is not enough overseas demand. 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 and social Darwinism may prevail (Fitzpatrick 1999; Nove 1986). In contrast, in a globalized economy where democracies and autocracies compete together, the same otherwise advantageous features of democracies may become disadvantageous for external demand competition. Increasing redistribution demands, for example, could limit resources flowing to industrial sectors or infrastructure. The inefficiencies caused by lobby pressure can result in a reduction in national income in democracies (Olson 1982; Przeworski and Limongi 1993). Having more veto players may slow down the pace of responding to changing markets or limit foreign firms' ability to get better 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 a nation (see the typology in Table 4). The same characteristics can also adversely affect the generation of internal demand or consumption and an innovation-based economy, adversely affecting the performance, especially when context reverses again. It's just that, in a globalized environment, they may, for some, play a positive role in competing for external demand. Important to note is that autocratic advantages may require

a *scope condition* to function, for example, being part of the global trade regime and maintaining certain growth-friendly institutions, as explained in the next section.

4 Theory: Embedded Authoritarianism in the Changing Context

What exactly happened? Despite the empirical section confirming causality of regime type, correlation and prediction also matter, particularly in this case. What has changed to reverse the prediction and enable the “autocratic advantages?” The reasons why coefficient changes could be at least 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. 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 since the 1990s globalization for 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 used to participate very little in the global economy, most of which was confined within the west hemisphere. The expansion includes significant increases in market sharing, trade and capital flows, and globalized production.¹²

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 and ideological, many autocracies (as well as democracies) in the developing world began various types of market-favoring structural reforms. These reforms include the

¹²What distinguishes post-1990 trade from previously also includes a special feature which rests on the globalization of production networks – the global value chain (Baldwin 2016; also discussed in the “New New Trade Theory”).

limitation of government power and size, such as establishing the rule of law and privatization of state-owned enterprises, as well as business and competition-friendly policies, for example, property rights protection and financial/labor market deregulation. Some states extend liberalization beyond the borders – exemplified by trade and capital accounts opening up. Figure 4 shows the historical trends of two institutions: property rights protection and rule of law. On the economic side, the former focuses on the protection of investments, while the later emphasizes contract enforcement and dispute settlement. These institutional changes can theoretically 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. Consequently, a country's exports can be largely stimulated by these activities, especially when the protagonist of globalized production, multinational firms, is involved.

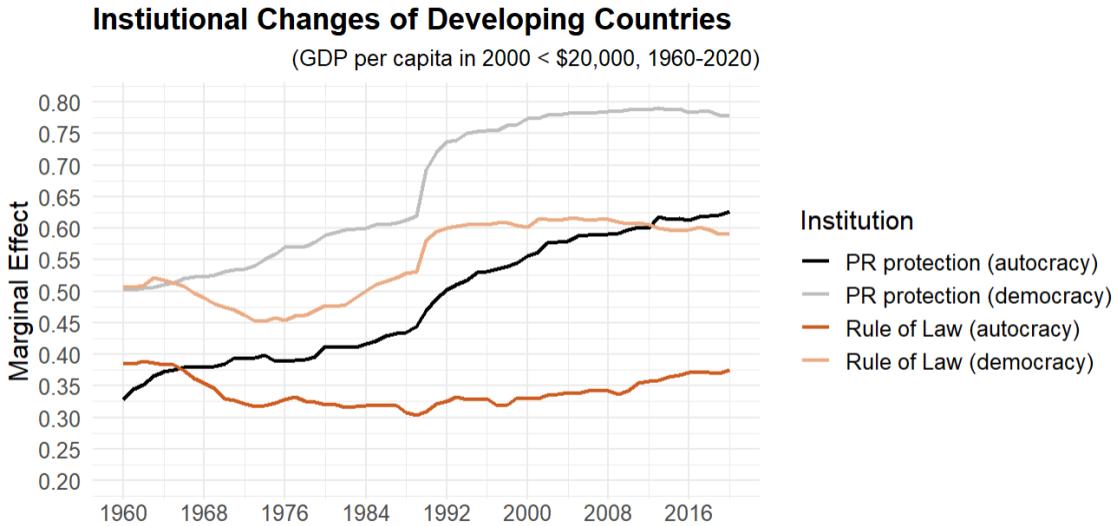


Figure 4: Average Rule of Law and Property-Rights Protection. *Note:* Autocracies/democracies are roughly divided according to polity in 1990 to ensure country-level data's temporal integrity. Although average rule of law for autocracies in 1990-2020 seems flatter than other groups, there are country-level 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. If Russia or North Korea joins the WTO but keeps its original planning economy, they may not be able to go as far, since firms would still have few incentives to produce locally. Uzbekistan and Azerbaijan are comparable cases: similarly rich in natural resources;¹³ they share similarities in polity score, geographical location, culture, race,

¹³Uzbekistan has 0.9% of world's natural gas reserve and 0.04% in oil, while Azerbaijan has 0.5% of world's reserve

population density, and per capita income in the early 1990s. Yet, Uzbekistan has significantly lower PR protection than Azerbaijan (0.36 vs. 0.66), although neither is a WTO member. Consequently, from 1992 to the early 2010s, their export volumes grew four and twenty times, respectively, with the latter's per capita income three times as high.

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, albeit selectively, for attracting foreign investments and enhancing regime durability (Wang 2015). While allowing trade flows, many autocracies were more strictly controlling exchange rates and capital accounts. China, Vietnam, and many resource-oriented states pegged or crawling pegged their currencies to the dollar no matter how high they external surplus is. In this way, they can ensure financial stability and facilitate mercantilist policies by undervaluing exchange rates. Moreover, many of them ensure that strategic sectors are within the control of governments. It seems that they were practicing a similar version to “embedded liberalism.” This not only helps regime stability, but also may increase their likelihood for a better achievement in the global economy (e.g., competing for external demand), especially when many full-embracers stumbled.

4.3 The Role of Trade Integration: the WTO Expansion

Trade expansion 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).”¹⁴ 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, so that joining the WTO guarantees market access with significantly lower tariffs than otherwise, especially when trading with the already much liberalized advanced democratic members. Although not a hard requirement, over time, reducing trade barriers has become the norm within the institution. After 1990, the WTO started another major round of expansion which unprecedentedly integrated many autocratic, as well as new democratic countries

in natural gas and 0.42% in oil (Source: U.S. EIA).

¹⁴Regional trade deals usually build on top of WTO principles of trade liberalization to address specific trade issues: e.g., sector-specific trade and dispute resolution. In my empirical models, I control for regional ones such as free trade agreement, preferential trade agreement, and customs unions.

in the former Communist bloc and the rest of the world. Its number of members almost doubled, increasing from 88 in 1985 to 164 in 2020 (see Figure 5). This opened the doors for autocracies to access global markets (mostly from democracies) and materialized their possible advantages through flows of goods and a globally unified factor price system unseen in the Cold War.¹⁵

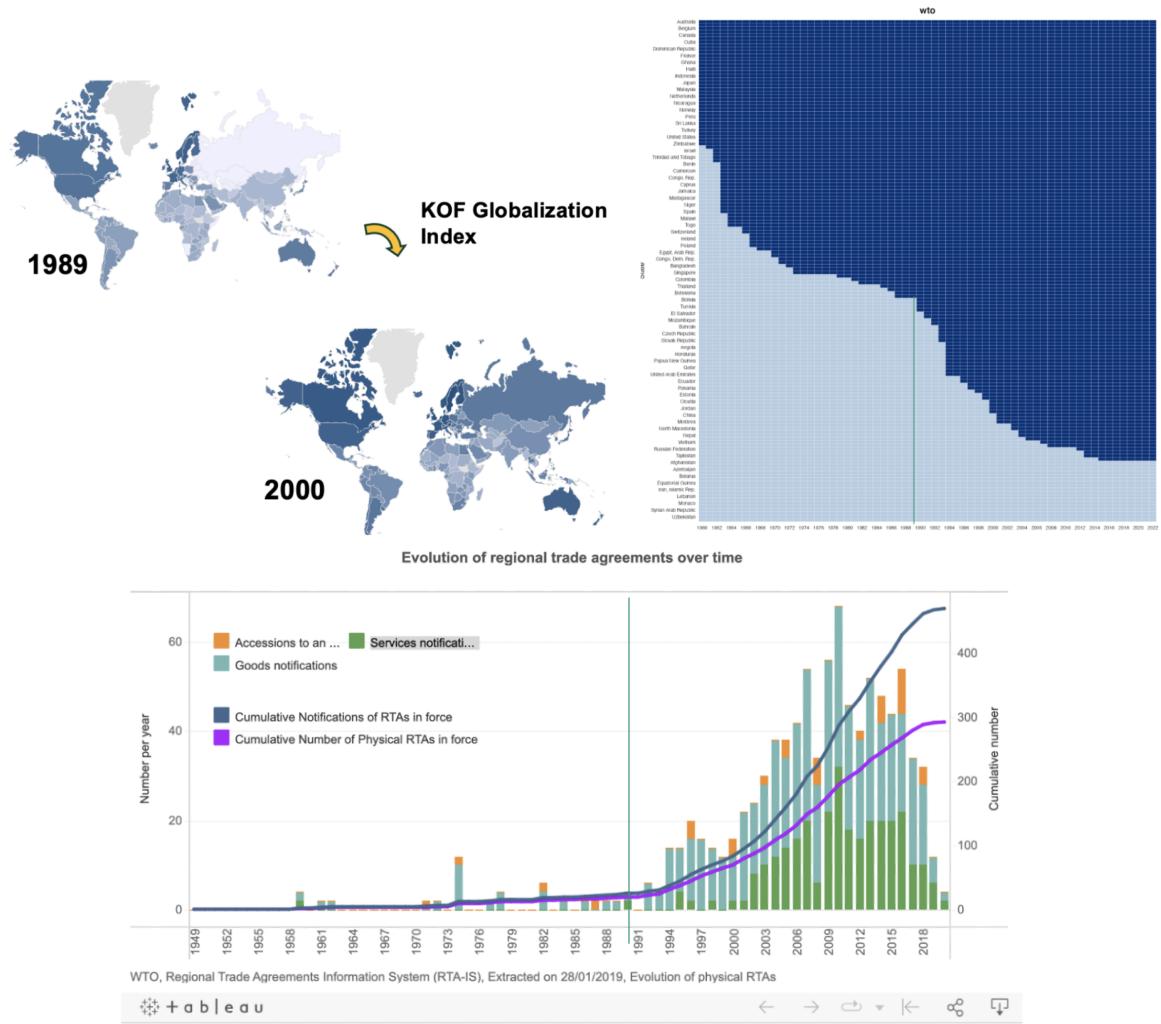


Figure 5: KOF Globalization Index; WTO Expansion; RTA Proliferation.

Studies have found that the WTO substantially increases trade for member states (Goldstein et al. 2007). According to the simulation of Davis and Wilf (2017), if China joined the WTO earlier, its export boom would have been earlier accordingly, showing the significance of the trade regime. 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

¹⁵Although some autocracies joined at the late stage or still haven't joined, the spillover effect from the joined ones cannot be ignored.

that hinder investments in politically dissimilar countries, implying autocracies may benefit more from joining a democracy-dominated club. This is particularly relevant in the era of global value chain when investor confidence and the behavior of 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 property rights protection. Thanks to the aforementioned “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.¹⁶ Additionally, once autocracies gain advantage in trade and start to export, 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.¹⁷

4.4 Combining Domestic Reform and Trade Integration

In sum, the fact that a country being more autocratic conversely predicts higher post-1990 exports or external balances 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

¹⁶Yet, in the empirical section, I control for both institutional levels and changes.

¹⁷However, in the empirical part, I control for country-specific economic covariates such as GDP per capita.

ones. This already raises the question to the argument that autocratic institutional reforms (e.g., China’s adaptive institutions, Ang 2016) may have an independent effect on developing economies without much consideration for external factors. The second factor pertains to the trade integration and market access, 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).¹⁸

| | In WTO | Not In WTO |
|----------------------|--|---|
| Non-Poor Institution | “Engaged Reformers” Angola, Bahrain, China, Egypt, Jordan, Kazakhstan, Kuwait, Lao, Mauritania, Morocco, Oman, Qatar, Russia, Rwanda, Saudi Arabia, Singapore, Tanzania, Thailand, Togo, United Arab Emirates, Uganda, Vietnam | “Unengaged Reformers” Algeria, Azerbaijan, Belarus, Comoros, Ethiopia, Iran |
| Poor Institution | “Engaged Non-reformers” Cameroon, Chad, Congo Dem. Rep., Congo Rep., Myanmar, Swaziland, Tajikistan, Venezuela | “Unengaged Non-reformers” Afghanistan, Cuba, Equatorial Guinea, Eritrea, Iraq, Libya, North Korea, South Sudan, Sudan, Syria, Turkmenistan, Uzbekistan, Yemen |

Table 4: Typology of Autocracies. *Note:* autocracies are roughly defined as those with polity ≤ 0 in 2010. Non-poor institution refers to the institutional levels that are above thresholds for PR protection and rule of law. Together, “engaged reformers” accounted for 96.6% of autocracies’ GDP in 2015.

Table 4 classifies all autocracies into a 2x2 table by institutional levels and the 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.¹⁹ Overall, 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. In essence, these countries successfully and selectively adopted liberal economic institutions and were incorporated into the largest liberal trade regime, while embedding their authoritarian characteristics into economic liberalization. In this sense, the very developmental model may be called – “embedded authoritarianism,” to borrow the concept from John Ruggie’s embedded liberalism (1987). In contrast, most of the countries that are classified into other three categories largely

¹⁸Related requirements are demanded by other global institutions such as the IMF and World Bank for loans and aids.

¹⁹I 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, respectively. See the Appendix for more details.

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) – suggesting it's not just an “oil states” or China story. In comparison, many of autocratic “engaged reformers” performed significantly better than most democratic “engaged reformers” in the developing world, including Argentina, Bangladesh, Bolivia, Brazil, Chile, Colombia, Ecuador, Ghana, India, Indonesia, Malawi, Mexico, Mongolia, Namibia, Nepal, Niger, Nigeria, Pakistan, Peru, South Africa, Turkey, and Ukraine.

Both domestic reform and trade integration ought to lead to trade performance increase, whose effect magnitude and direction however, are contingent on the regime type as a *moderating variable*. Some characteristics associated with autocratic regimes may magnify the effects of both factors. Table 3 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*.

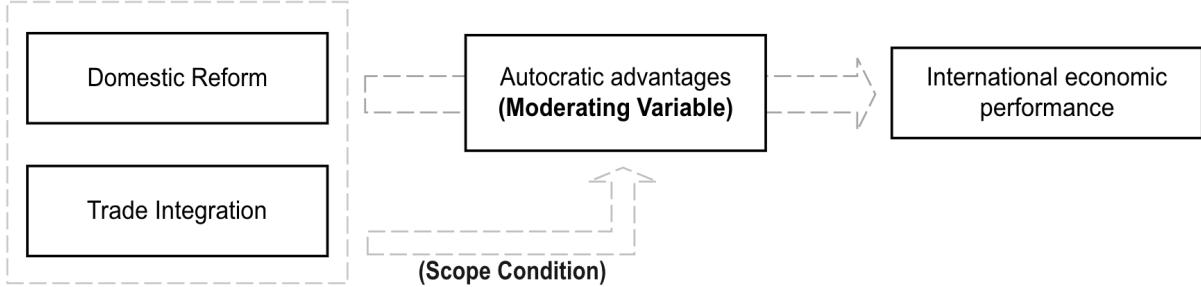


Figure 6: Illustration of determinants of International Economic Performance. Note: Both domestic reform and trade integration matter, whose effects are moderated by autocratic advantages, while the former two also serve as the scope condition.

Theoretical Model

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

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

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 more 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 effect solely. Given low reforms, joining the WTO may not matter much. But without access to the global market, even a high-level market economy will find it hard to significantly increase its exports, or attract foreign investments to bring in production and know-how. This is especially true for export-oriented development models that many autocracies rely on (be it manufactured goods or commodities) and, importantly, heavily relies on external demand. Metaphorically, joining the WTO is like opening a gateway that releases and realizes the trade potential of a regime, while domestic reform is like 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 the domestic institutions, given the same levels of trade integration. On the other hand, joining the WTO not only provides external demand, but also exerts external pressure for continuing domestic reforms and helps to strengthen domestic institutions of a nation 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 Market-Oriented Reforms (Conditional on GDP per capita, 2000-2020).

More importantly, autocratic regimes that often reject substantive political reforms may on average have done weaker domestic reform resulting in overall weaker domestic economic institutions than democracies. The dataset of Varieties of Democracy (V-Dem) provides two key indicators for this purpose: rule of law and property rights protection. The two forms of institutions strengthen the confidence of both domestic and international investors. In Table 5, I show the correlations of two measures of V-Dem and regime type conditional on income levels with year fixed effects between

2000 and 2020, the rather stable, “mission-completed” post-reform period since 1990. Autocracy significantly predicts lower rule of law and property rights protection, as well as a lower level of trade liberalization. The former two measures are often argued to stimulate economic performance including trade, which usually looks at a relatively autarkic black-box setting, and higher values suggest positive predicted performance for democracies, just like what happened before 1990. For example, democratic countries that enforce contracts more rigorously and protect property rights should provide incentives for production and, consequently, spillover to exports, *ceteris paribus*. However, as shown earlier, when trade integration kicks in post-1990, the sign changed – autocracies have weaker domestic institutions, but achieve better trade performance (even at the absolute levels). This implies that the other factor – trade integration – likely play a larger role. 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 and property rights protection from their old days, exposure to the global market may matter little. As argued, 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 some advanced democracies), the very institutions may constrain autocrats’ discretionary hands, diminishing the autocratic advantages. This brings my first two hypotheses:

H1.1: The effect of the 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 the market-oriented institutional level is too low or too high.

Although autocracies have weaker average institutions, due to a myriad of autocratic advantages in international trade, we may reasonably expect that the same level of improvement in market-oriented institutions may bring more rewards to autocracies than democracies, similar to WTO accession. However, there is also a similar condition to *H1.2*: this autocracy-favoring reform effect should hardly exist for countries that are excluded from the WTO – without which, the reform effect may not magnified by autocratic advantages. Hence come another two hypotheses for domestic reform:

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 autocracies are excluded from the WTO.

Lastly, one may argue that the four hypotheses above examining the temporal incremental effects within a country may not unveil the whole story. We do observe that on the absolute levels of exports, autocracies also perform better (see Section 2.2). Again, I expect that to achieve this advantage, the institutional levels have to presumably cross certain levels (i.e., the scope condition). Additionally, once autocracies' institutions are of very high levels, they may constrain many of the aforementioned autocratic advantages by tying hands.

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

4.5 Discussions on Potential Questions

Is it simply a story of China, Vietnam, or oil states? The theory, historical examples, and empirical analysis (for robustness tests) suggest that regime type plays an important role, if not at all, though probabilistic in nature. Some autocracies are not winners, while some democracies performed well in a globalized economy. Oil prices boomed in the 1970/80s, yet, no autocratic advantages were observed. Essentially, theory applies to post-1990 “engaged reformers.” Taking one step back, even if one insists the theory fits better the above countries which account for over 90% of autocratic GDP, it still answers my research question – what explains 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 with domestic reform? State capacity indeed 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, my analysis focuses specifically on rule of law and property rights protection, which we argue are critical components of state capacity that directly affect economic performance. Rule of law ensures predictability and impartiality in legal enforcement, while property rights protection fosters secure investments and economic activity. Meanwhile, autocratic advantages reflect part of 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 dealing with 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 and demands reform requirements especially for the geopolitically unimportant. 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). The absolute size of autocracies were not as large to substantially shock the economies of democracies.

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 trade volumes. Examples include North America, Europe, and Southeast Asia. Autocratic states that produce final manufactured goods or commodities tend to be less so integrated. Moreover, not only is export a conventional measure for international economic performance in the literature, but also we consider external balance which calculates the net value, therefore effectively reducing the concerns of over-counting.

What about the spillover effect? Although my theory is more about regime type's effect, not all autocracies have officially joined the WTO. Some autocracies like Iran are not officially a WTO member yet, and Russia became a member only until 2012. Yet, the spillover of joiners (e.g., China and others) and the buildup of a global commodity market along with economic globalization matter. Furthermore, whether it's import shocks or demand for commodities, some democracies as well as autocracies face comparable impacts. Yet, autocracies performed better on average. Thus, this second-order effect does not negate my argument that globalization facilitates autocratic rise.

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 Bilateral Trade Agreement (2001), and are controlled for in the models. Moreover, MFN is inherently a concept of WTO and part of trade integration. Furthermore, as described above, WTO membership provides much more benefits than just a single, revocable MFN status by some trading partners. Lastly, if the estimated WTO effect captures 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)? When FDI goes to productive sectors, rather than to real estate or finance, it has the most effective effect (Helpman 1984). As FDI usually follows globalized production (Helpman 1984; Markusen 1984), it is more of a post-treatment variable: without joining the WTO, investors would feel discouraged to invest in the country (Carnegie 2014). Additionally, I show a mixed correlation between FDI and regime type, with some years favoring autocracy and others favoring democracy.

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.

5 Empirical Evidence

Choosing “1990”

Why choose 1990 as the cutoff year? As explained, the year 1990 is roughly a watershed from multiple perspectives. First, from the data trends shown in Section 1 and 2, we clearly see a inflection point around the early 1990s. Second, the year witnessed dramatic global political shift – the end of Cold War. Third, an economic global 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 – thus termed by some as “hyper-globalization.” Fourth, there had been a flurry of domestic reforms in play and rapid democratization around the same time. Lastly, my choice of 1990 was a matter of empirical convenience – I could have chosen 1993 or 1988, and the effects should be similar. As such, I will 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 ($\text{Polity} \leq 0$) were autocratic states in 1995.²⁰ These countries do not account for the majority of existing autocracies across the world, but include major autocracies such as China, Russia, Saudi Arabia, Vietnam, United Arab Emirates, Qatar, Oman, Kazakhstan, Tajikistan, Kyrgyz, Bahrain, Tunisia, Angola, Lao, Cambodia, Venezuela, and Jordan. They also account for nearly 90% of autocracies' total GDP and population. Meanwhile, just one China is equal to 14 Vietnams or 10 Russias or tens of smaller autocracies or democracies regarding population (e.g., four times of Eurozone's). The spill-over effect is considerable: these WTO-benefited autocracies 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 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' superior performance in exports can be detrimental to democracies (which run trade deficits on average) in the case of trade shocks. Trade can indeed become more zero-sum under mercantilism or persistently unbalanced trade, resulting in negative spillover effects for democracies.

Almost all the countries left were granted the WTO observer status (see the Appendix).²¹ 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, Kazakhstan, Serbia, and Tajikistan, and others enjoying regional trade deals. Importantly, the mixture of democracies and autocracies in the post-Cold War WTO joiners, as well as the mixture of WTO and non-WTO autocracies in data provides us sufficient observations (dyad-based) to test the differential effects distinguished by regime type and WTO membership.

Gravity Model

I first run gravity models with different specifications, the classic model used in international trade

²⁰If we count Russia ($\text{Polity} = 3$ in 1995) as autocracy and use it as a cutoff, then we get 23 autocracies.

²¹Observers 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 possible strengthening of investors' confidence.

to test the effects on trade flows. I control for the standard set of dyad-level covariates and dyad and year fixed effects.

| | 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 Obit | 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.²² By looking at the WTO x polity interaction term, the effect of joining the WTO on exports is larger for democracies pre-1990, but larger for autocracies post-1990.²³ 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 joining the WTO. Although panel matching cannot rule out unobservable confounders entirely (which can be reassured by sensitivity tests below), it offers significant advantages over traditional two-way fixed effects (TWFE) models for causal inference in panel data (Imai et al. 2022). Unlike TWFE, which relies on the strong assumption of homogeneous treatment effects and can yield biased estimates due to inappropriate comparisons, panel matching explicitly constructs counterfactuals by matching on pre-treatment covariates and trends. 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 joining of WTO states 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, 0 otherwise). $Y_{i,t+F}$ 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

²²The large sample size can safely rule out the statistical power issue.

²³The 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 of them 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 "reformer" stratification test for WTO membership below.

of matched control units for treated unit i at time t . $w_{it}^{i'}$ is the weight for control unit i' matched to treated unit i .

Specifically, Covariate Balancing Propensity Score (CBPS) weighting is used to balance covariates.²⁴ 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.²⁵ For all tests, I use export volumes (log) as the DV, similar to gravity model.

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.²⁶ Country-level covariates are matched, including GDP (log), GDP per capita (log), polity, population (log), population proportion (over 65 years old), rule-of-law index, and property-rights-protection index. I avoid controlling for possible post-treatment confounders such as natural resource rent (%) and industrial output (%).

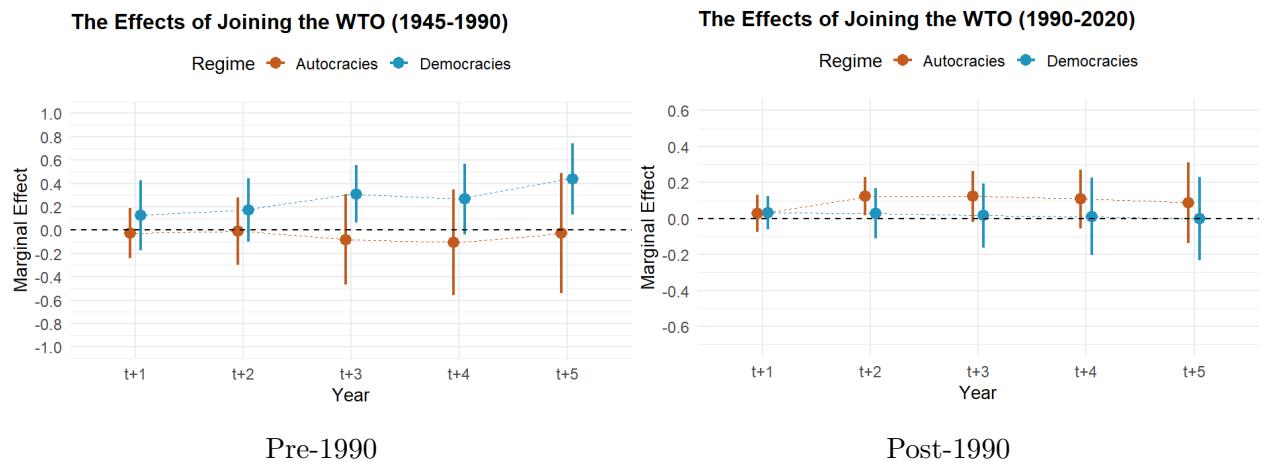


Figure 7: Effects of Joining the WTO (PanelMatch, country-year). Note: Democracies are those whose polity index are larger than 0.

²⁴I 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 value 0.2.

²⁵As 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 for matching.

²⁶Longer 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 matching pre-treatment histories.

Since the country-year panel data contains a relatively small size of units, which limits the length of lags and leads, 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 past five years and seven years' leads are allowed. A whole list of dyad-level covariates are controlled including GDP (log), GDP per capita (log), population, and polity, all for both origin and destination states. Additionally matched are destination's WTO status, colonial relationship, FTA, customs union, country-to-country distance (log), and common official language.

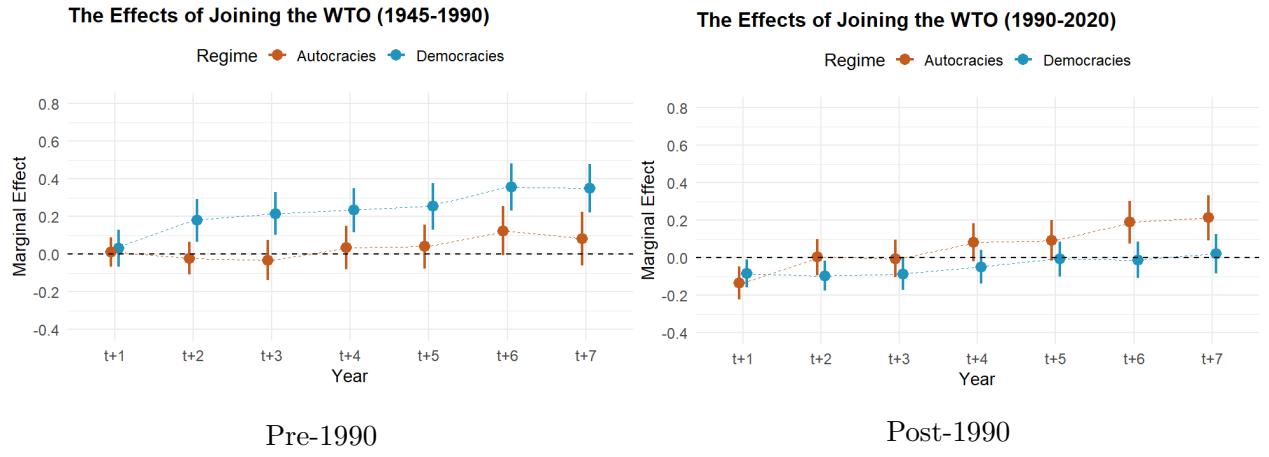


Figure 8: Effects of Joining the WTO (PanelMatch, dyad-year). *Note:* compared to the result using the country-year dataset, the relation patterns between autocracies and democracies are similar.

The results given by PanelMatch are consistent with those of gravity models. For example, gravity models report that the effect difference between an average democracy (polity = 5) and an 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 paper's 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 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.²⁷ Hence, there should be less concerns for omitted variable bias.

U-shape Effect: Domestic Reform as the Scope Condition

As argued, the regime-differential effect of joining the WTO is conditioned by different levels of market-oriented institutions. When institutional levels are too low, joining the trade regime hardly makes autocracies outstand. Yet, when institutional levels are sufficiently high, institutional constraints may in turn constrain autocratic advantages in trade. We thus expect a U-shape effect for joining the WTO.

²⁷As noted by Cinelli and Hazlett, these results are conservative for multiple (possibly non-linear) omitted confounders. See Appendix of the implementation details.

The U-shape Effects of Joining the WTO (1990-2020)

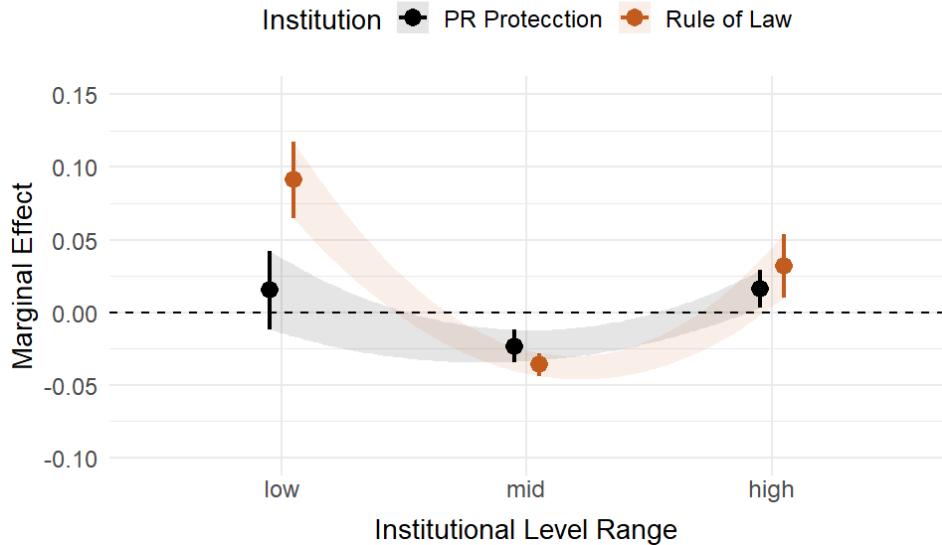


Figure 9: The Effects of Joining the WTO Conditional on Institutional Levels. Note: The y-axis means the marginal effect of the WTO conditional on polity. A positive value means the effect favors democracy.

I use the main gravity model above to estimate the effects stratified by property rights protection and rule of law, respectively. Institutional levels are divided into three ranges from low to high.²⁸ To ensure a country's data integrity by not omitting any dyads of the same origin country due to institution changes over years, I calculate "mean intuition levels" of a country for the 10 years after joining the WTO, and assign states into the corresponding institutional ranges.²⁹ As shown in Figure 9, 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 autocracies can function at their best.

Why Autocracies Reversed the WTO Effect Post-1990?

So far, we have discussed why autocracies can perform better through the expansion of the WTO 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

²⁸Since property-rights protection and rule of law have quite different distributions across autocratic WTO-joiners, Similar to typology, I combine thresholds at the lowest and highest 20 percentiles among developing countries in 2010 and real cases (e.g., China's PR protection is slightly above 0.4); the final range separations are {0, 0.2, 0.7, 1} for rule of law and {0, 0.35, 0.85, 1} for PR protection. Robustness tests such as nudges in separations, using dichotomous polity, and comparing autocracies of each range to the same control group get similar results (see the Appendix).

²⁹I do not control for institution in the model to avoid the post-treatment bias, yet, this may neglect pre-WTO institution's impact. In the Appendix, I show that controlling for within-dyad institution change (including pre-WTO) barely affects results.

effect for democracies were not significantly impacted. In 1975, roughly 90% of WTO members' GDP belongs to democracies. Second, the wave of substantive market-oriented reforms were not present, neither had the spread of global value chain, mitigating the effect of membership. In other words, one of the scope conditions – domestic reforms – may not be sufficiently met.

5.2 The Domestic Reform Effect

As discussed, the superior economic performance of autocracies stand on ironically lower levels of domestic institutions, which may theoretically limit the effect of domestic reform we shall expect. I rely on my main gravity model to test this. VDem's property rights protection index is used to proxy the level of reform outcomes. I exploit the within-dyad variation which controls for many time- and dyad- invariant confounders to test the effect of domestic reform.

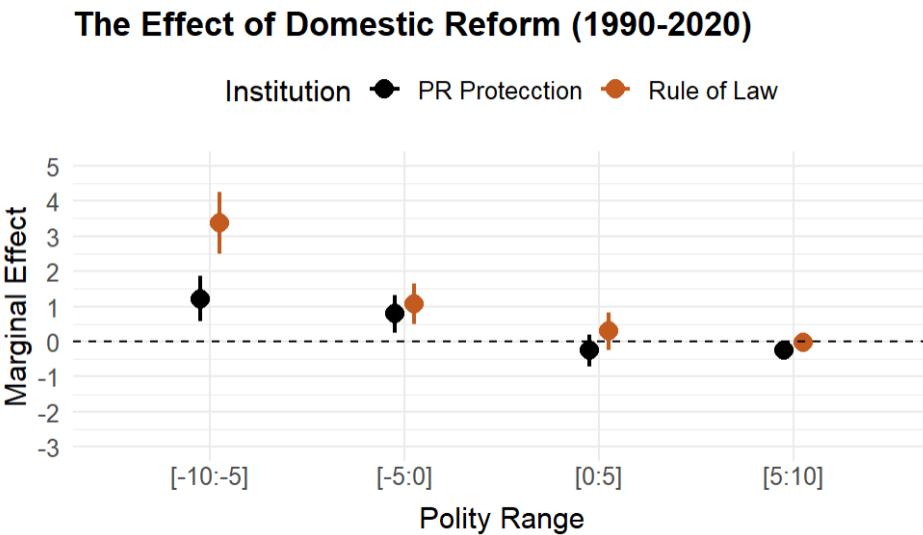


Figure 10: The Effects of Domestic reform by Polity. *Note:* The plot captures the effects of within-dyad changes of institutions across differential ranges of polity. I only include developing countries (GDP per capita lower than \$20,000 in 2000) to focus on institutional reform.

Overall, within dyads over years, domestic reform loses significance compared to the pre-1990 period, similar to WTO membership. The most possible explanation based on this paper is that the influx of many well-performing autocracies into the global trade system may exert significant shocks and alter the old trade logic. However, effects vary for sub-groups. As shown in Figure 10, domestic reform among developing countries during the period of 1990-2020 increase exports, but only for autocratic states, after controlling for WTO effects.³⁰ This result clearly suggests autocratic

³⁰Similar effects remain without controlling for WTO membership for possible post-treatment bias (see the Ap-

advantages in trade can amplify the effect of domestic reform.

WTO as the Scope Condition

Just like the autocracy-boosting WTO effect has to be permitted by crossing certain institutional levels, the autocracy-biased domestic reform effect above hardly exists when one is excluded from the global trade system. As domestic reform only exerts effects for autocracies, I then only focus on dyad-years with the origin state being autocratic ($\text{polity} \leq 0$ in 2000). These states are classified into those which joined the WTO some time in 1990-2020 and never-joiners.³¹

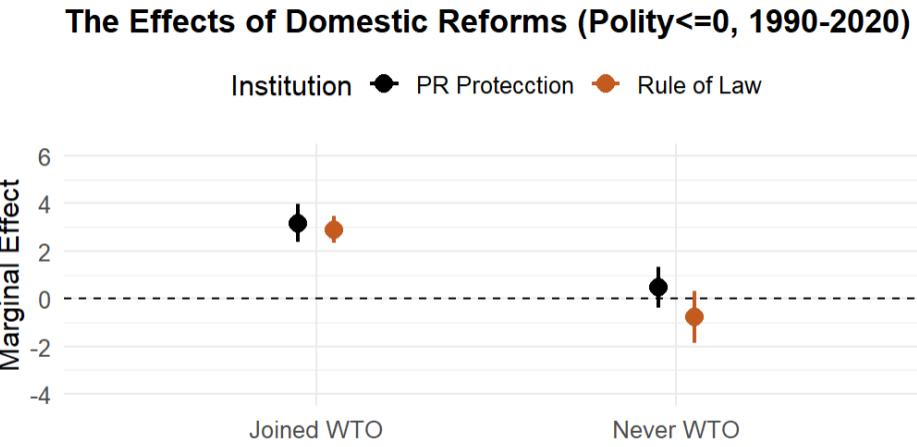


Figure 11: The Effects of Domestic reform by WTO. *Note:* The plot captures the effects of within-dyad changes of institutions for autocracies ($\text{polity} \leq 0$ in 2000). “Joined WTO” means a country joined the WTO some time within the 30-year period.

As shown in Figure 11, the WTO group of autocratic states experienced significantly higher export increase, given the same amount of institutional reform increased. 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

Within-country effects can explain why autocratic states reverse performance, but absolute performance levels only make the case stronger that ”autocracies on average perform better.” As shown in Section 2, regime type predicts non-worse absolute levels of exports for autocracies. Is this prediction correct?

³¹The result is similar when I define the WTO stratification as all dyad-years in which the origin state is in the WTO.

tion also moderated by institutional levels? Unlike testing within-dyad effects, I now pool all dyads together only with year fixed effects and additional standard dyad covariates such as distance and common official language. Rule of law index (≥ 0.8) contains mostly advanced democracies (polity = 9,10 in 2000), while Property right protection (≥ 0.8) does contain some lower polity states. I thus set the up-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 full gravity model for each range. Figure 12 corroborates my hypothesis.

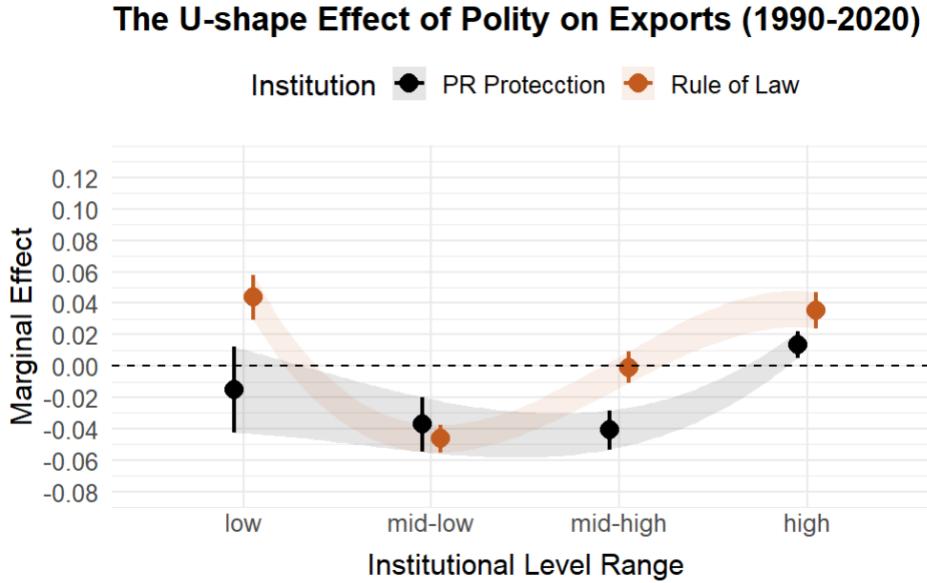


Figure 12: The Effects of Polity Conditional on Institutional Levels. Note: The smooth curves are generated using cubic spline interpolation for illustration purpose.

5.4 Additional Robustness Tests

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

- Different democracy measure: continuous, binary
- Outlier: Bootstrap, Leave-One-Out
- lagged effects of WTO and domestic reform
- Multiple Imputation

5.5 Alternative Explanations

The “Catching-up” Story

Is it a catching-up story in which, thanks to the globalizing economy and converging technologies,

LDCs quickly catch up and grow faster, and 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. Furthermore, not only for relative increase or growth, but for absolute levels of economic outcomes, regime type still favors more autocratic states.

6 Testing Mechanisms

As stated above, when autocracies were incorporated into the global trade regime, they may have multiple advantages regarding trade performance. This paper argues that they may play a role simultaneously.

6.1 Exports

There are numerous channels through which export variation can be affected by regime type, including but not limited to the following: institutional levels that protect property rights, mercantilist policies that tilt disproportionate resources to industrial sector (and related, saving rate), foreign direct investment (and related, capital account openness), trade and non-trade barriers, infrastructure investment, currency manipulation, and natural resource endowment. It is possible that countries may go through some of these channels differently.

| 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) |
| international liberalization | tariff rate (0.20, t=1.92) capital market openness (-0.006, t=4.45) |
| resource-abundant | natural resource rent share (-0.86, t=-10.38) |

Table 7: Mechanisms and Implications (for Exports). *Note:* numbers are coefficients of regressing channels on polity with year fixed effects (2000-2020).

As the aforementioned tests demonstrated autocracy predict better only under certain conditions, I focus on the “reformed” countries with the property rights 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 significant relationship (positive or negative) with regime type except for the FDI share, and they all likely play some roles as mediating variables. Interestingly, consistent with Section 3.2, among these countries, 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 work partially and perhaps only for certain countries. Yet, further tests shed more useful light on the mechanisms.

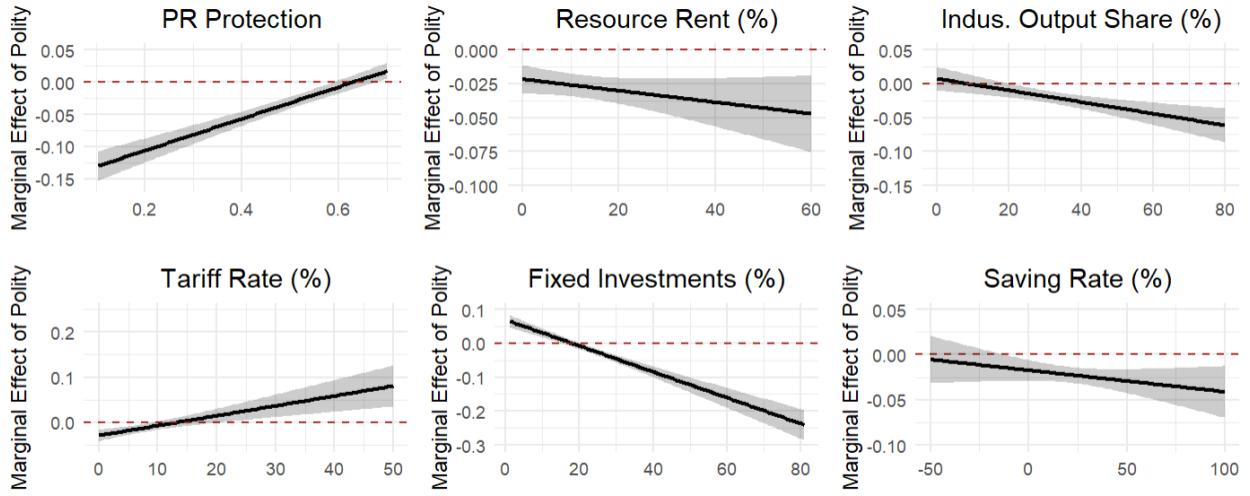


Table 8: Channels and Exports. *Note:* the y-axis is the polity's effect on exports.

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 and fixed investments, polity's effect on exports significantly favors autocracies when these two variables are at higher values. Recall that the two channel variables are positively correlated with autocracy. This suggests that, at higher values, autocratic advantages may be amplified together with other channels. For example, in highly industrialized autocracies, state's centralized power better support industries by streamlining processes and suppressing labor unions. A high level of fixed investments may enhance the abilities to attract FDI and more effectively support the export sector. A high saving rate imposed by autocratic regimes may benefit infrastructure building and support industries, as well as providing competitive financing.

6.2 External Balances

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

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

Table 9: Mechanisms and Implications (for External Balances). *Note:* cross-country correlation in year 2010.

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.

| 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 |

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

| 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.

Figure 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 Case Illustration

China - 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).

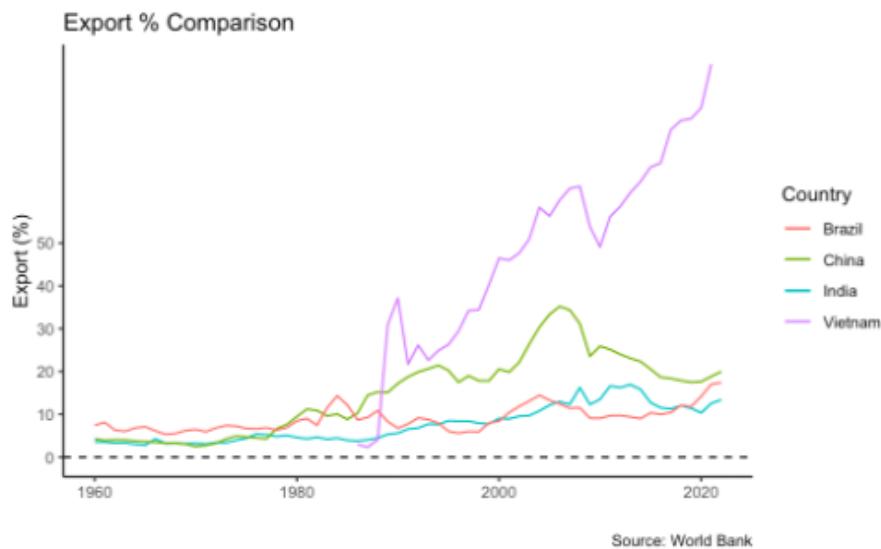


Table 5. Case Illustration: China, Vietnam vs. India, Brazil

Vietnam - 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 EEZ/export orientated/mercantilist model (50% export share in 2002). Vietnam joined the WTO in 2007 and since 2012, it has run persistent trade surplus with a high industrial share (38% in 2020).

India - 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)

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.

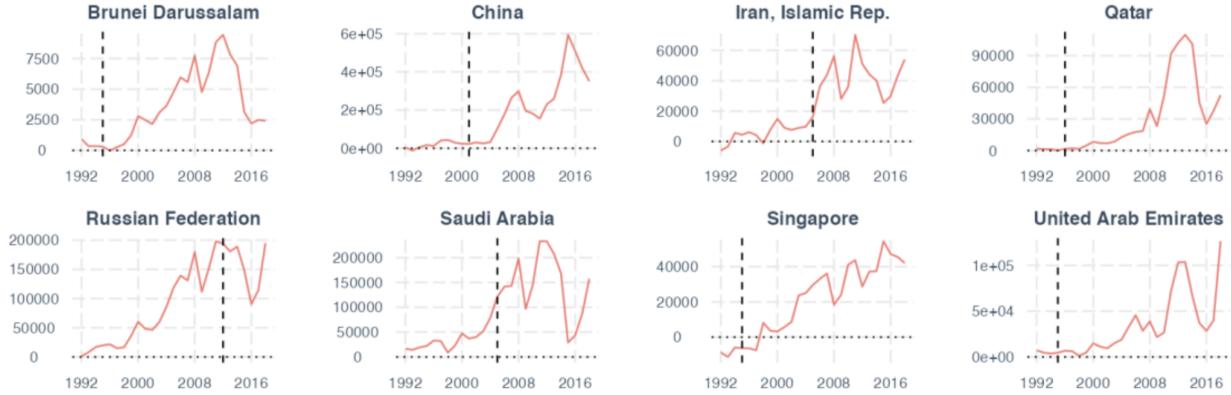


Table 3. Illustration of Export Performance of Some Autocracies. Note: Vertical dashed line indicates the year when a country joined the WTO or became an observer.

8 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 outcomes are generated. Nonetheless, looking at domestic institutions alone misses the picture of external environment. In the age of economic integration particularly in the form of the global value chain and economic policy convergence, autocracies regimes may acquire certain advantages. For example, in a globalized setting, firms in autocracies may gain an overall competitive advantage that enable them to out-compete the rivals. Natural-resource autocracies gain unprecedented export opportunities which reinforce the regimes. China is a particularly important case, primarily because of its size that

generates tremendous impacts on others.

In this article, I aim to address a puzzle why autocracy's prediction on exports and external balances reverses compared to the pre-1990 period. Despite that rigorous causal methods are employed to confirm causality, correlations already matter in academia and policy world. I argue that claiming autocracies learned domestic market-oriented reforms or can better develop economies solely by themselves is at best incomplete. Economic globalization that incorporates many of them into the global economic system plays an important and even necessary role that enables some of the characteristics of autocratic institutions to exploit the global market, often at the cost of others. In the end, how one should judge globalization then depends on the outcomes, for as Robert Keohane (1984) argues, means are to be 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 is not met, and the side effects of doing so is unpredictable, easily backfiring for those in power. Doing so may harms an internal demand and innovation-based economy, and many other aspects of societies such as equity and individual rights.

9 References

To do.

Appendix

A Descriptive Data

A.1 Distributional Change

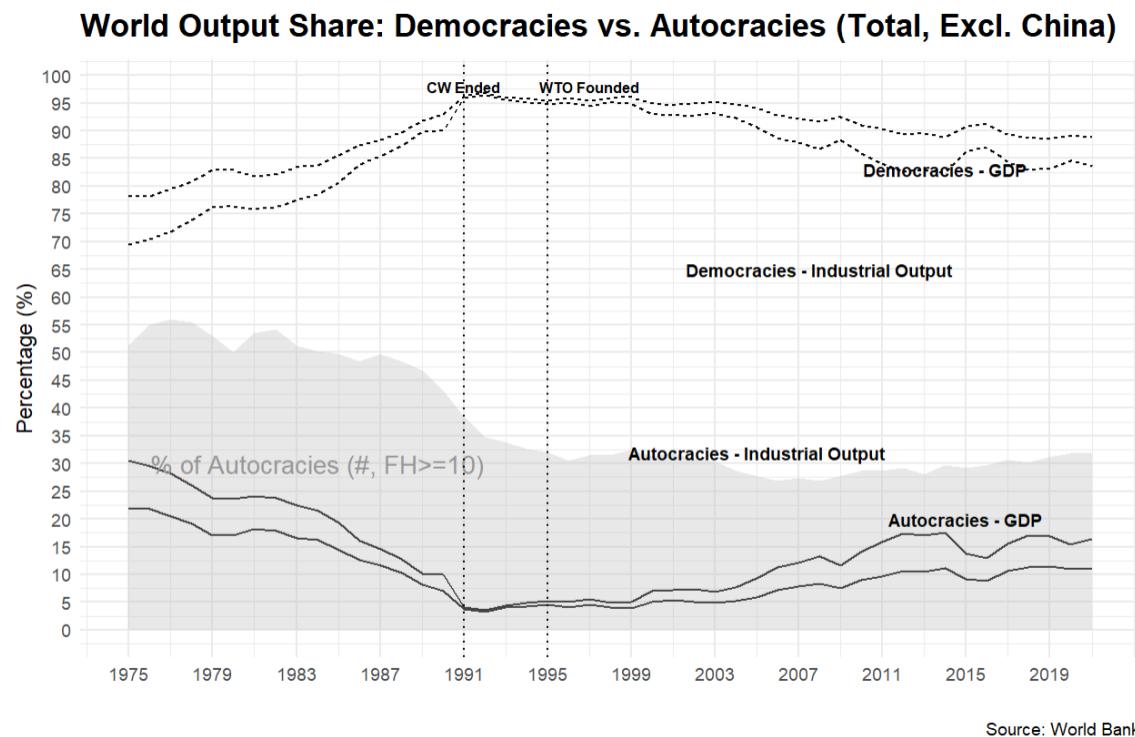


Figure 13: The Distribution of Power Change Between Democracies and Autocracies, Excl. China
(Data: World Bank; Autocracy: Freedom House Index ≥ 10).

A.2 Panel Data of Regime Type Change

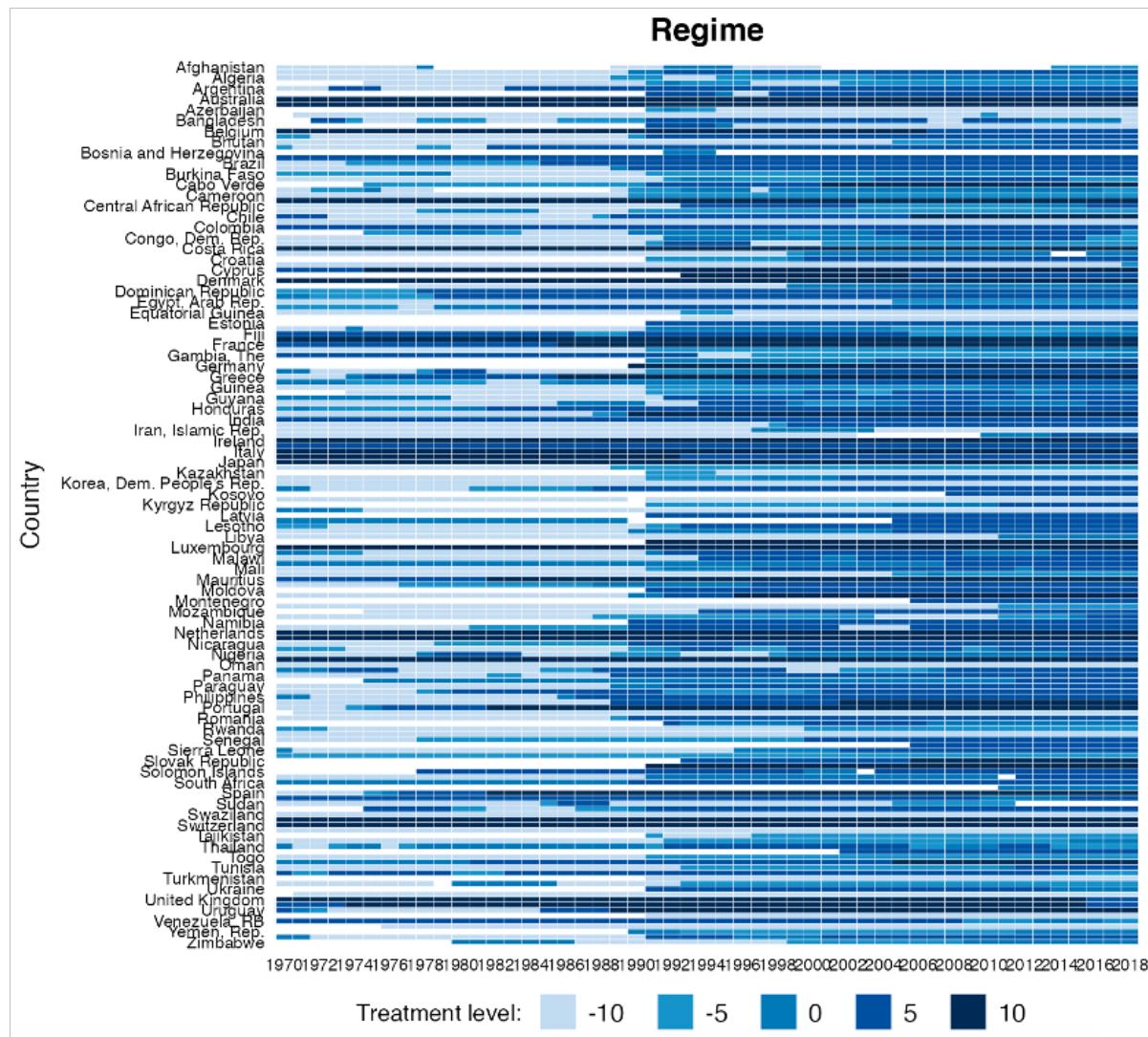


Table 11: Democratization (Polity Index)

A.3 WTO Membership



Table 12: 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. 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 a non-reformer.

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.

B.2 Domestic Reform Effect