

# **Quality or quantity?**

**A cross-country comparison of the effects of trade liberalization on incumbent support from 2006 to 2021**

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## **Abstract**

Preferential trade agreements (PTAs) have gained a stronger presence in the global trade system, especially as they broaden their regulatory scope. While previous studies have demonstrated that trade can increase support for incumbent political leaders, our cross-country study is the first to do so by using the number of PTAs and PTA depth to measure trade. We employ a two-way fixed effects model to measure causality through the removal of unobserved country-specific and time-specific confounders and show a positive effect of both trade treaties and deep trade on incumbent approval. These findings provide meaningful insights into how citizens across the world evaluate their incumbents' performance.

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## 1. Introduction

Since the proliferation of preferential trade agreements (PTAs) beginning in the late twentieth century, PTAs have become an important component of international trade. While all PTAs, including free trade agreements, bilateral trade agreements, etc., provide benefits to member countries primarily through the reduction or elimination of trade barriers, modern PTAs feature other ways of facilitating economic integration, including rules and regulations on intellectual property rights, competition policy, investment, and other economic policies. This relatively new change in international trade opens up several opportunities for research for scholars.

Many studies have examined the impact of PTAs on trade flows and economic growth. Some of them note positive effects, while others argue that PTAs do not always induce trade creation. Moreover, PTA effects can differ by context. Some show that the distribution of benefits from PTAs is unevenly distributed among players (Bacchini 2017; Lee 2008). Dur et al. (2013) argues that deep trade agreements have a stronger impact on trade flows than shallow agreements. More recent literature has suggested that developing countries, specifically, incur positive economic benefits from deep PTAs (Buthe and Milner 2013; Zahonogo 2017).

Our study is particularly interested in the impact of PTAs on political approval. While research connecting these two areas is rare, several new studies have suggested that various economic factors can influence incumbent approval in developing regions (Posner and Simon 2002; Singer 2013; Murillo and Visconti 2017).

We aim to contribute to the literature on both trade and incumbent support. With a relatively new dataset that measures the depth of PTAs and draws from political approval ratings,

we uncover the effects of PTAs on incumbent support in 136 countries from 2005-2021 with a fixed effects approach. We analyze PTAs at different levels, the first being the total number of PTAs a country belongs to in a given year. In our second analysis, we investigate the effects of deep trade through the total number of deep PTAs a country is a member of, as well as estimate the effects of depth of trade on approval ratings using the depth index from the DESTA dataset. We base our hypotheses on the prior literature showing the positive effects of PTAs on economic growth and highlighting the significance of economic factors on leader approval in conjunction with the reinforcement theory. We expect that there is a positive effect of preferential trade and deep trade integration on voter support, and also expect the effects to be more pronounced for developing countries. Our findings suggest that there is indeed a positive effect of trade on incumbent approval, especially when the trade agreements are deeply integrated.

The structure of our paper is as follows. Chapter 2 describes related literature in finer detail and theoretical framework. In Chapters 3 and 4, we discuss our data and summary statistics. Chapter 5 presents the empirical framework. Chapter 6 provides a description of our results. Chapter 7 discusses our limitations and how the results contribute to the greater literature. Chapter 8 concludes.

## **2. Literature Review and Theoretical Framework**

### **2.1. PTAs and Trade**

The world economy has been met with rapid changes in the last few decades, one of the main drivers being the dramatic increase in the popularity of preferential trade agreements (PTAs). Since then, trade agreement membership has been a popular way of measuring the extent of trade liberalization. Considering PTAs are unique in that they have the potential to cover far

more issues than trade itself depending on the depth of the agreement, this phenomenon has opened up new avenues of research for international political economy scholars.

The rise of PTAs has expanded the ongoing debate within the international trade literature regarding whether PTAs stimulate trade flows. Of the studies demonstrating a positive effect (Baier and Bergstrand 2007; Orefice and Rocha 2014; Dur et al. 2014), many of them have applied complex causal inference techniques, including structural gravity models and the use of instrumental variables (Saagi 2006; Egger et al. 2011; Hayakawa and Yamashita 2011; Yao et al. 2021). Others have focused on the type of PTA or duration of trade agreement membership and uncovered some fruitful findings. Applying a nonparametric approach, Baier and Bergstrand (2009) examine the long-term effects of trade and show that trade flows vary depending on the PTA. Lee et al. (2008) found that trade gains are uneven among members in a PTA trade bloc depending on a member's duration of membership. That is, original members benefit much more than new members of a trade bloc, but intra-bloc trade does not decrease extra-bloc trade. These studies have generally concluded that PTAs increase trade flows.

## **2.2. Trade and Economic Benefits**

Another segment of trade literature has studied whether trade serves its main purpose of enhancing economic prosperity. Many of these studies accept the idea of a trade-growth nexus, most of them relying on overall trade share, real exports and imports, and exports and imports ratios as their measurement for trade (Felbermayr 2005; Awokuse and Christopoulos 2009; Dollar and Kraay 2004; Lee, Park, and Shin 2004; Singh 2010). However, the theory is not fully ubiquitous. Scholars in the past have cast doubt on the extent to which trade produces positive economic outcomes (Rodriguez and Rodrik 1999; Vamvakidis 2002; Rose 2007). While the level of impact varies depending on the context, most of the more recent empirical evidence in this

area of research demonstrates that trade indeed has a positive effect on economic prosperity at a macro level.

Some studies have focused on the effects of trade through cross-country comparisons, whereas others focus on within-country effects. While our research spans all countries, we are also interested in the effects of trade within developing regions. Previous scholarship in this subset of literature generally show a positive relationship between trade and economic growth. Dollar and Kraay (2004) found a positive effect of trade volume on GDP growth rates in 73 emerging economies. Makki and Somwaru (2004) have also determined that trade is a strong source of economic growth in 66 developing countries. Lei and Wojciech (2016) focus on developing countries within Latin America and Asia and argue that trade openness has a positive impact on GDP per capita growth. Through examining the positive effects of export and import expansion on growth in transition economies within the EU, Awokuse (2007) reveals similar results. Lastly, by analyzing 64 developing countries, Kaya (2010) found that economic globalization has a positive impact specifically on manufacturing employment, the most influential factor of globalization being trade.

Much of the empirical literature has taken advantage of the proliferation of trade treaties to study the impact of trade globalization on economic outcomes. Some studies show that the benefits of PTA membership can be unevenly distributed and highly economically concentrated, implying that PTAs do not necessarily guarantee economic growth for every player involved. Baccini (2017) found that within partner countries, it is only the larger, productive subsidiaries that reap the benefits from PTAs. Hur and Park's (2012) nonparametric matching approach revealed that some free trade agreements bring about positive trends in GDP growth, while others bring about negative effects.

Despite the inconsistent relationship between PTAs and economic growth, there is strong evidence demonstrating that PTAs have a positive impact on economic development. Liu (2015) employs a time series regression from 1960-2007 and argues that regional trade agreements have a positive effect on economic growth in 147 countries. On a similar note, PTAs can also attract foreign direct investment, as Buthe and Milner (2008) leverage a fixed effects model and found that developing countries that participate more in PTAs experience an increase in foreign direct investment (FDI) inflows.

Additionally, the PTA-growth relationship can be exacerbated when the agreement is more deeply integrated, meaning it includes more regulation in the trade environment that extends beyond tariffs. This is particularly the case for developing parts of the world. By counting the number of PTAs and weighting each one based on whether it contains an investment provision and a dispute-settlement mechanism, Buthe and Milner (2014) determine that among developing countries, PTAs members with rigid provisions for investment and stronger dispute-settlement mechanisms are more likely to experience greater FDI inflows. Drawing on a pooled mean group approach, Zahonogo (2017) found that when trade accompanies policies that promote investment, it has a positive effect on economic growth within Sub-Saharan Africa.

### **2.3. Economic Globalization and Incumbent Support**

Our research uses trade agreements to determine whether they increase incumbent support in particular. Going along with the consensus that there is a strong linkage between trade and economic growth, it is first important to discuss how a country's economic performance relates to support for an incumbent leader.

There are mixed findings on whether a country's economic performance is even a significant factor in understanding if a citizen will support their current leader. A few critics are



skeptical about whether economic performance is a factor worth considering when understanding what determines incumbent approval (Berlemann and Enkelmann 2014; Lewis-Beck and Stegmaier 2013). Most studies, however, demonstrate that economic factors, such as low inflation (Arce 2003), more unemployment (Ferreira and Sakurai 2013), and economic growth (Weyland 2000) are vital when it comes to leader popularity, and find a positive effect. King and Cohen (2005) found that economic factors, such as inflation and unemployment, are more significant influencers on government popularity. Jung and Oh's (2019) cross national study also suggests that economic growth rate, inflation, and unemployment rate are salient contributors to approval ratings. Erikson (2014) argues that the relative growth of per capita income is another important determining factor for gaining presidential votes. Through survey experiments conducted in Canada and the US, Jensen et al. (2017) found that while fast growth increases praise for policymakers, slow growth in the form of GDP per capita can punish policymakers.

Other scholars have established that while the domestic economy matters when it comes to incumbent approval, the international economy has grown in importance since the 1990s. Burden and Mughan (2003) found that while negative trade relations with Canada displayed in the media do not have a significant impact on American presidential support ratings, negative trade relations with Japan can decrease them substantially.

The discussion on the relationship between economic growth and incumbent support also pertains to developing regions. Posner and Simon (2002) argue that in Zambia, declining economic conditions coincide with the withdrawal of support for the incumbent president, but the effects of changing economic conditions are quite small compared to non-economic changes. Similarly, a series of studies assesses the links between the state of the economy and voting patterns within Latin America (Singer 2013; Remmer 2003). Murillo and Visconti (2016) studied

income effects on electoral support for incumbent leaders in 18 countries in Latin America. Their models find that low inflation, a decrease in economic growth, and an increase in international reserves increases support for the incumbent leader. Additionally, by implementing an IV approach, Cerda and Vergara (2022) found that all measures of economic growth are high predictors of approval, whereas other economic variables like inflation, spending, etc. are less significant within Latin American countries.

Another stream of research has analyzed the effects of trade liberalization on political approval. Much of this literature has used imports and exports to measure trade liberalization when investigating its relationship with incumbent support. By analyzing panel data, Margalit (2011) shows that employee layoffs from import competition decreased the vote share of the U.S. incumbent president between 2004 and 2008.

A few researchers show that trade can have an impact on voter approval depending on the skill level or industry. Aksoy, Guriev, and Treisman (2020) investigate the impact of exports and imports on approval ratings in skill-intensive imports and exports with cross-country data from 2005-2015. From the findings of their instrumental variables analysis, they highlight two important discoveries. First, there is an increase in the approval of the incumbent leader for countries with high growth in high skill intensive exports, but a negative effect of high-skill-intensive imports on approval. Second, the effect on developed countries is twice that of developing countries. Jensen et al. (2017) conduct an instrumental variables approach and find that low-skilled manufacturing goods and services decrease support for the US incumbent leader.

#### **2.4. Global Public Opinion on Trade Liberalization**

Public opinion polls on trade have also demonstrated support for free trade by the masses. The 2020 Global Attitudes Survey conducted by Pew Research Center, which surveys 44

nations, shows that 81 percent of respondents believe trade is a good thing. Similarly, in the 2020 Global Attitudes Survey, 69 percent of respondents from various countries said yes when asked if free trade agreements between the US and other countries have been beneficial to them.

When a similar question is directed to individuals and assessed based on where they live or their skill level, the findings are a bit less straightforward. The 2014 survey shows that between developing and emerging economies, emerging economies have been even more optimistic about international commercial activity. In regards to skill level, trade openness is more favored by individuals with a college-level education, whereas those that are in favor of trade restrictions tend to have a lower education level (Hainmueller and Hiscox 2006). This conclusion can be applied to both emerging (Medrano and Braun 2011) and advanced economies (Mansfield and Milner 2009).

## **2.5. Contributions to Literature**

Our study contributes to the literature on how economics impacts approval ratings in three primary ways. First, while there are already several studies on trade liberalization, some of which we have previously discussed, few studies explore the link between preferential trade and approval ratings. An exception to this is a seminal book by Mansfield and Milner (2012), which conducts a survival analysis and contends that between 1975 to 2005, the countries that sign trade agreements are more likely to hold tenure for longer than those that do not. Following up with these findings, Baccini (2019) postulates that even in the presence of an economic downturn, signing PTAs could prevent leaders from losing their place in office because it signals to voters that the leader is still trying to improve the economy. Secondly, while most studies analyze trade and incumbent performance in a particular region, we focus on a large set of countries to gauge the impact of deep trade integration on incumbent support. Finally, our

analysis covers the period from 2006 to 2021. This is significant because by studying a more recent and expansive period, it allows us to capture more general effects and analyze the impacts of trade in a more established world economy, which may render different findings from the scholarship studying earlier or narrower periods.

We also add to the literature by adding a unique element to our analysis. Namely, we examine the impact of deep trade integration on incumbent popularity based on the level of depth of a PTA. The depth of a trade agreement is an important element to consider because the additions of deeper agreements, such as a greater focus on the protection of the environment or intellectual property rights, can have an added influence on a member's domestic development. While PTAs have been widely studied, only recently have scholars begun to emphasize deep trade integration, and empirical literature is therefore limited. A relatively new dataset, the DESTA database, contains vast information on trade agreement depth and therefore allows for us to study the relationship between membership in a deep PTA on incumbent support in addition to membership in PTAs overall.

## **2.6. Theoretical Framework**

We base our hypothesis on the existing relevant literature and social science theorems. For this paper, we disregard the studies arguing that trade does not enhance economic growth within certain contexts, as we are more interested in the macro-level effects of trade. The research on economic growth and trade is well-established, as is the empirical evidence suggesting that trade liberalization increases support for the incumbent, as previously discussed. Tying these areas of trade literature together suggests that PTAs are viewed as beneficial because they stimulate economic growth and because of their connection with economic globalization,

which previous research shows is largely viewed as a positive phenomenon by the general public.

Furthermore, we apply this idea to the operant-conditioning theory, which suggests that a nation's citizens' reactions toward their government are based on the current conditions of the economy. Specifically, they will reward their leader if they experience more economic flourishing through a country's participation in preferential trade. When trade liberalization in a country expands, so does approval for leadership.

We also expect that this theory holds among developing regions, partly due to the robust number of studies showing a positive influence of trade and economic growth on incumbent support. Furthermore, we expect that the relationship is even stronger for developing countries based on the catch-up effect, which theorizes that developing economies grow faster than their advanced counterparts, especially when they open up their economy to free trade. By this logic, we should anticipate much faster economic growth through PTA membership, thus leading to more popularity for the incumbent. With all of this in mind, our hypotheses are as follows:

***Hypothesis 1:*** There is a *positive* relationship between trade agreement membership and political support. Specifically, an increase in the number of trade agreements a country is a member of leads to an increase in political approval for that country's incumbent leader.

***Hypothesis 2:*** There is a *positive* relationship between *deep* trade and political support. In particular, an increase in both the depth of trade agreements and the number of deep trade agreements a country has signed leads to an increase in political approval for incumbent leaders.

***Hypothesis 3:*** There should be an even stronger *positive* effect of both trade agreement membership and deep trade integration on incumbent support for developing countries.

### 3. Data

The primary datasets used in our research come from the Design of Trade Agreements (DESTA) database, the Gallup World Poll (GWP), and the UN Development Program's Human Development Index (HDI). We also use the HDI and the Varieties of Democracy (V-Dem) Dataset to obtain additional information on country characteristics. These data are then aggregated at the country level and include 203 countries between the period 2006 to 2021.

#### 3.1. DESTA Trade Agreement Data

The primary data on PTAs comes from the DESTA database - the most comprehensive database covering all trade agreements. The DESTA database contains data on all PTAs in existence since 1948, from free trade agreements to customs unions, all of which are systematically collected. The database is also periodically updated. Since October 2020, 710 agreements have been added in the data.

The DESTA database is unique in that it covers a series of seven binary indicators to gauge the depth of an agreement. Additional information, such as the type of PTA, the year that the PTA was signed and enforced, the region that controls the PTA, etc., are also included. Within the DESTA database, there are three datasets of interest. We use the depth index from the main DESTA dataset to gauge the depth of a trade agreement. The depth index is calculated based on the presence of six provisions in the PTA, which include services, investments, standards, public procurement, competition, and intellectual property rights. Each provision is treated as a binary variable in the dataset, with each indicating if a treaty goes beyond tariff reduction or elimination. The depth index is then calculated using the sum of these binary indicators, which can range from 0 to 7.

We also use the DESTA treaties dataset in dyadic form for our research. The treaties dataset contains the country dyads for each trade agreement. To calculate the total number of trade agreements at the country-year level, we take this dataset in conjunction with the dataset on treaty withdrawals in dyadic form and convert them into a dataset that aligns each treaty with each member country rather than each country dyad. To obtain the total number of PTAs a country holds membership in for each year, we aggregate the number of signed and withdrawn treaties, then take the difference for every country year.

We then match each country-PTA to its depth index. One complication is that some PTAs have been revised, which causes a change to the depth index for the years after its revision. Additionally, some other PTAs are accession treaties, meaning that a country joins the agreement some time after its initial signing. Thus, to merge the PTA with the relevant depth index, we split our dataset based on whether a country was an original member, if the PTA was revised, or if a country was an accession.

### **3.2. Gallup World Polls Approval Ratings Data**

The data we use to measure the primary dependent variable of approval ratings comes from the Gallup World Poll (GWP). Each year, the GWP is conducted in over 160 countries and territories and asks a range of questions related to government satisfaction and other topics. The question we are interested in is: “*Do you approve or disapprove of the job performance of the leadership of this country?*”. The question is asked to individuals and aggregated by country or area, with the only possible answers being a “yes” or “no”. The period we chose to study is based on the availability of the data on approval ratings, which ranges from 2006 to 2021.

It is important to note that our dependent variable data only includes the year of the approval rating, therefore it is possible that for each year that the GWP is conducted, it could

have conducted results after a treaty was signed. To deal with this issue, we lag our independent variables in our analysis.

### **3.3. Human Development Index**

To classify each country by its development stage, we follow the criteria used by the United Nations, which defines developing countries based on their Human Development Index (HDI). The HDI provides a summary score to each country between 0 and 1 using three broad dimensions of human development: Health, knowledge, and standard of living. Countries with an HDI below 0.80 are categorized as developing countries. We apply this criterion to the HDI data to create a binary variable, with 1 indicating developing and 0 indicating developed.

### **3.4. Country Characteristics**

We also include additional country characteristics into our models as control variables: Education, GDP, and regime type. Studies have noted a difference in support for free trade between countries specializing in high-skilled and low-skilled labor (Beaulieu, Benarroch, Gaisford 2011). For that reason, we control for the differences in country specialization, using education level – in average years of schooling - as a proxy. Our data for this variable comes from the HDI dataset, which contains data on the average years of schooling per country. Additionally, we control for gross national income (GNI) per capita, converted to USD with 2017 purchasing power parity rates. Lastly, to control for the potential that democratic countries are more likely to join PTAs (Mansfield and Milner 2012), we include the variable representing a country's regime type using the *v2x\_regime* variable from the V-Dem dataset. Possible regime types range from 0 to 3. 0 indicates that a country is a closed autocracy, 1 signifies that it is an electoral autocracy, 2 an electoral democracy, and 3 a liberal democracy.



#### 4. Descriptive Statistics

Figure 1 shows the trend of the number of PTAs that have been signed over time between developing and developed countries. The proliferation of PTAs is noticeable beginning in the early 1990s, and peaks in the early 2000s. Furthermore, there is a large fluctuation in PTAs signed between developed and developing countries. Developing countries have higher counts in more years, including those in the late 1990s and early 2000s. Developed countries have higher counts in some years as well, including those in the 2010s.

*Figure 1: PTAs Signed, by Country Development Stage*

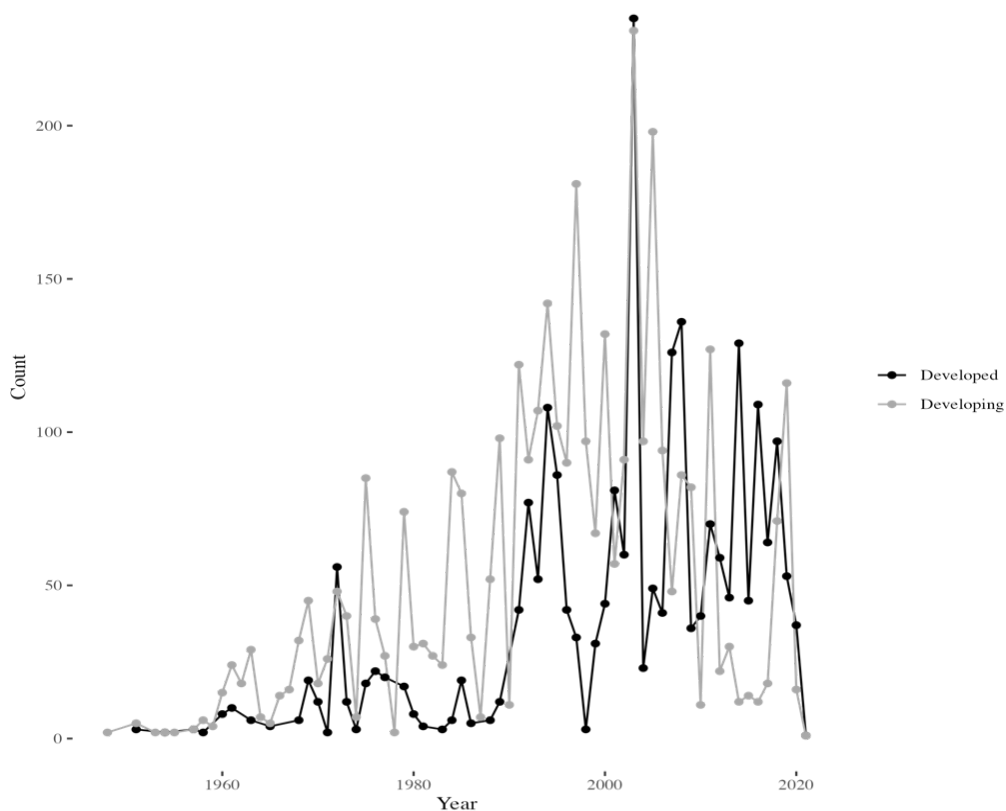


Figure 2 shows the average number of PTA memberships for countries by country development stage. The patterns for both developed and developing countries depict a relatively

stable upward trend in trade participation, but developed countries clearly show more involvement in international trade every year<sup>1</sup>, with the exception of the time period before 1960.

**Figure 2: Average PTA Memberships Per Country, by Country Development Stage**

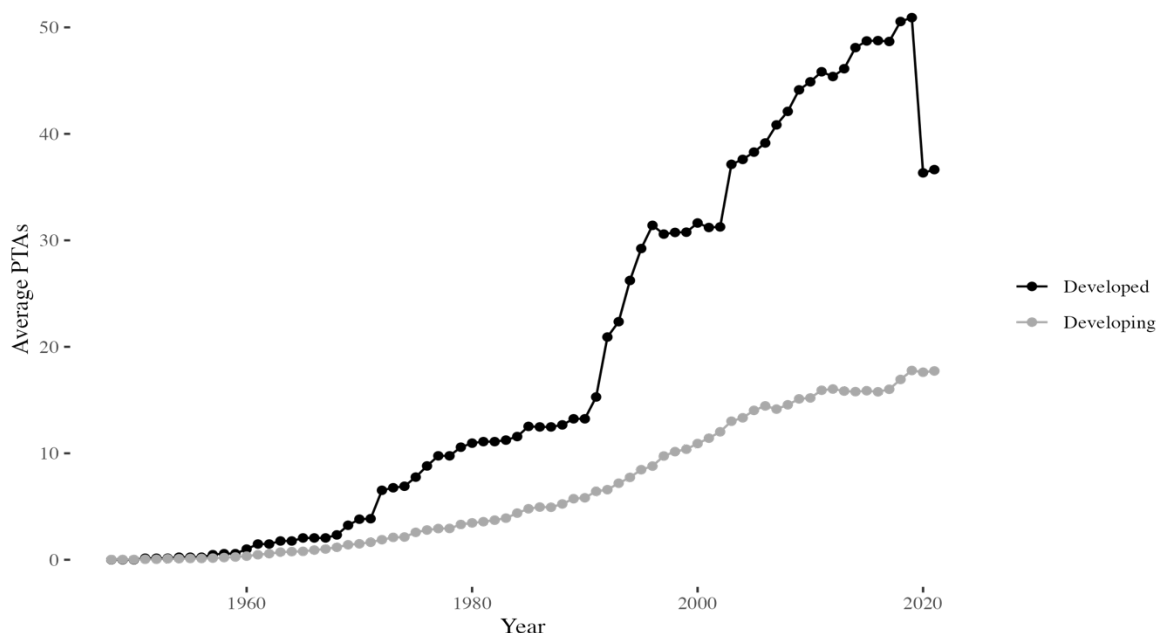


Figure 3 shows the average depth of each agreement signed over time between developed and developing countries. Despite some fluctuations, there is still an upward trend in trade depth over time for both development statuses. Furthermore, even though both developed and developing countries had roughly similar overall depth in the PTAs they signed when PTAs first emerged, developed countries became more involved with deeply integrated PTAs in the more recent decades.

These three figures depict the changing nature of preferential trade over the years. Both developed and developing countries are becoming increasingly more involved in international

<sup>1</sup> In 2020, the average number of PTAs dropped significantly for developed countries due to the United Kingdom's withdrawal from the European Union. Many of the PTAs that the UK belonged to were through the association of the EU, but after Brexit went into effect, the UK no longer became part of such PTAs.

trade through PTA membership and deep trade integration. However, we notice that developed countries have played a significantly larger role in deep trade.

***Figure 3: Average Depth of Signed PTAs by Country Development Stage***

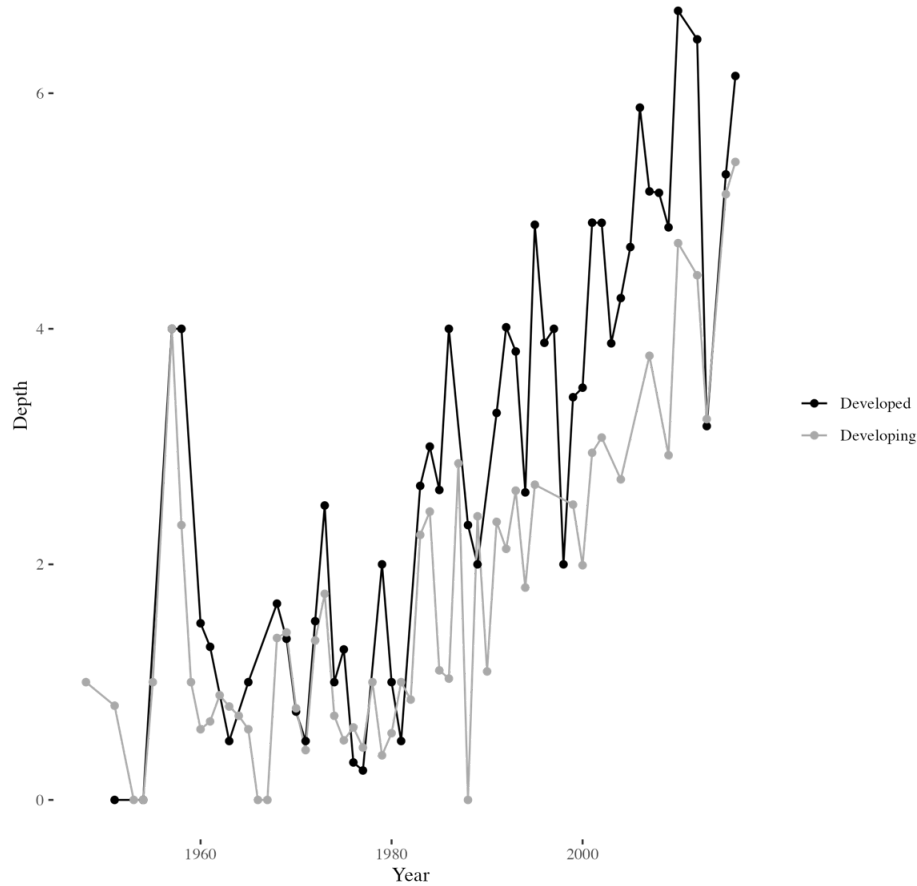


Figure 4 shows the distribution of the depth index for the PTAs within the DESTA database. We find that most of the PTAs belong in the latter half of the range of intervals for the depth index. Moreover, we notice that the highest depth index frequency of PTAs is 2, while the lowest frequency is 5. From figures 3 and 4, we can infer that although the depth of PTAs has increased over time, the majority of agreements have a depth of less than 4.

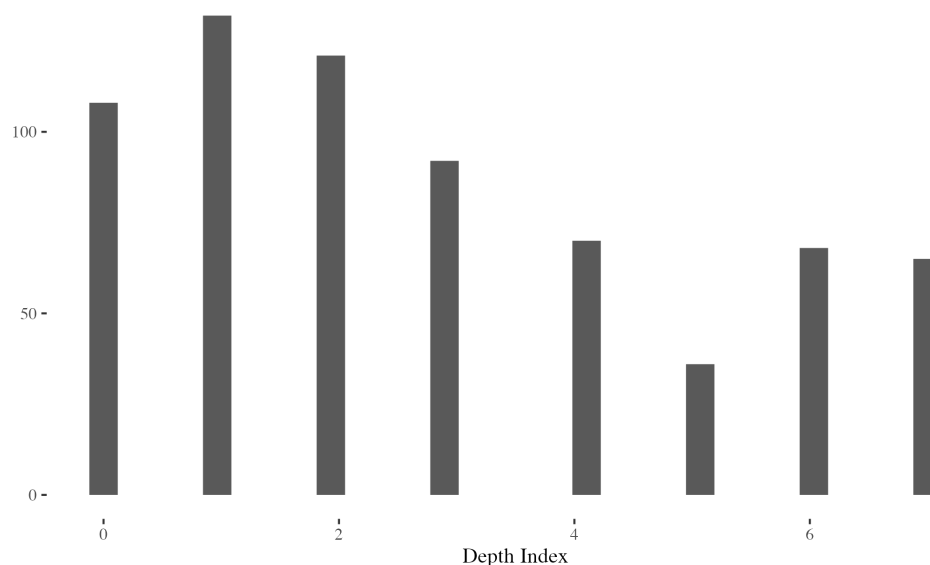
**Figure 4: Distribution of Trade Depth**

Table 1 provides descriptive statistics for the independent variables and the dependent variable of all the countries in our sample. First, the table shows that on average, logged GDP is 18,823.49 measured in USD, and liberal democracies tend to be the most common regime type. Citizens in these countries tend to give relatively low approval ratings for their incumbent, and have completed 8 years of schooling on average. Additionally, over two-thirds of the countries in our sample are developing countries. We also notice that countries on average have joined much fewer deeply integrated PTAs compared to overall PTAs.

**Table 1: Descriptive Statistics by Country**

Variable	Mean	SD
Approval rating	46.83	19.08
GDP	18823.49	20456.01
Education	8.36	3.24
Regime	1.62	0.98
Developing	0.7	0.46
Total PTAs	23.49	22.91
Deep PTAs	8.06	11.90

Table 2 presents descriptive statistics on our independent and dependent variables between developed and developing countries. Consistent with our previous figures, we find that while both developing and developed countries signed more PTAs than they do deep PTAs, developed countries are members of more PTAs and deep PTAs per year when compared with developing countries. In addition, developed countries tend to have more educated citizens, a higher GDP, and are more likely to be democratic. Finally, we notice that citizens of developing countries generally give higher approval ratings for the incumbent leader.

**Table 2: Descriptive Statistics by Country**  
**Development Stage**

Variable	Mean	SD
<b>Developing</b>		
Approval rating	48.41	19.71
Log (GDP)	8170.76	6602.02
Education	6.98	2.79
Regime	1.34	0.75
Total PTAs	18.68	9.41
Deep PTAs	3.46	3.63
<b>Developed</b>		
Approval rating	44.31	17.89
Log (GDP)	43156.05	20161.69
Education	11.52	1.52
Regime	2.29	1.06
Total PTAs	45.91	31.74
Deep PTAs	18.62	16.38

## 5. Empirical Framework

We test our three hypotheses at two levels: PTA membership and PTA depth. For each set of hypotheses, we employ a two-way fixed effects model (2FE). This common approach is ideal when there are multiple waves of panel data where we observe the same units at each point in time (Wooldridge 2011). Furthermore, we are interested in observing the effects of PTAs on leadership support within countries. The fixed effects model is the preferred method in this case

because it can support this interest of determining within-group effects. For this research, the model can show the effects on incumbent popularity using the change in PTAs signed per year, or the change in the depth of PTA each year depending on the model we employ.

We also run a series of Lagrange Multiplier tests to determine if the model should control for both time and country effects. For each test, the p-value is below our alpha threshold of 0.05, meaning that we can reject the null hypothesis that we do not need to control for time or country effects.

There are several advantages to using a fixed effects model, the first being that it prevents omitted variable bias. By adding country-fixed effects, we can control for any country-invariant factors. By also including time-fixed effects, our model can be rid of any changes that may arise for all countries during the specified period. In addition, our model allows for heterogeneous trends, which prevents the possibility of violating the common trends assumption. Finally, by maintaining a linear approach, we can produce straightforward estimates with easier interpretability.

While we did consider the random effects model because it generally produces results that are more statistically significant and have coefficient estimates closer to that of the OLS, we prefer the fixed effects model because we argue that the random effects model is not as suitable for our research when compared to the fixed effects model. The random effects model requires us to make a strong assumption that country-level unobserved heterogeneity does not correlate with trade agreement membership. Meanwhile, we suspect that there is a correlation between the time-invariant characteristics of a country and trade agreement membership that could potentially skew our findings if we do not address them. By this reasoning, the fixed effects model is a better fit for our data. Nonetheless, we proceed to conduct the Hausman test to

confirm this claim. The results from our tests show that the fixed effects model is the preferred method for the first two models, and the random effects model is more suitable for the third.

Thus, we substitute the fixed effects models with random effects models within our robustness checks. More details regarding the test results can be found in the results section.

### 5.1. PTA Membership Analysis

**Analysis 1.** To assess our first hypothesis, we analyze the number of preferential trade agreements (PTAs) a country is part of with our 2FE model. Our data is aggregated at the country level and relies on the number of preferential trade agreements to be our independent variable. Thus, our model relies on the following equation:

$$y_{ct} = \beta_0 + \beta_1 pta_{c,t-2} + \beta_2 DC_{c,t} + \beta_3 \log(GDP)_{c,t-1} + \beta_4 edu_{c,t-1} + \beta_5 reg_{c,t-1} + \beta_6 pta_{c,t-2} * DC_{c,t} + u_c + v_t + \epsilon_{c,t} \quad (1)$$

In this model,  $y_{ct}$  represents the incumbent approval rating for country  $c$  at time  $t$ .

$pta_{c,t-2}$  is the lagged number of preferential trade agreements that country  $c$  belongs to at time  $t-2$ .<sup>2</sup> We then interact  $pta_{c,t-2}$  with the developing country binary variable, represented by  $DC_{c,t}$ .

We also include country-varying characteristics.  $edu_{c,t-1}$  represents the lagged education level in the form of average years of schooling, and  $reg_{c,t-1}$  is the lagged regime type on a scale from zero to three for country  $c$  at time  $t$ .  $\log(GDP)_{c,t-1}$  represents the lagged and log-transformed GDP. The log transformation normalizes the distribution of the variable, and the lag once again captures the delayed effects.  $u_c$  is the country's fixed effects that assesses the changes within

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<sup>2</sup> We lag by two years because from the PTA data, we notice that the average difference between the year enforced and the year signed is 1.66. While it is possible we could have used year enforced rather than year signed as our time variable, we chose to use the lagged year signed because several PTAs did not have data on the year a treaty was enforced.

countries. Lastly,  $v_t$  represents the year fixed effects to control for factors that have a potential impact on approval ratings and differ by year, but are common to all countries.

## 5.2. PTA Depth Analyses

**Analysis 2.** To assess our second hypothesis, we analyze the effects of deep trade integration in two parts. For this analysis, we aggregate our independent variable as the number of deep preferential trade agreements (PTAs) in a country that holds membership. We consider a PTA to be deep if it has a depth index greater than the mean depth index of all PTAs. Based on our calculations, the mean depth index is 2.58. This model relies on the following equation:

$$y_{ct} = \beta_0 + \beta_1 deep_{c,t-2} + \beta_2 DC_{c,t} + \beta_3 \log(GDP)_{c,t-1} + \beta_4 edu_{c,t-1} + \beta_5 reg_{c,t-1} + \beta_6 deep_{c,t-2} * DC_{c,t} + u_c + v_t + \epsilon_{c,t} \quad (2)$$

where *deep* represents the number of trade agreements with a depth of three or higher for country  $c$  at time  $t$ .

**Analysis 3.** We complement our previous analysis on trade depth to determine if there is a relationship between the depth of a trade agreement on incumbent support. This time, to construct this model, we aggregate by PTA, member country, and time. For each PTA, its members receive the same depth score in the same year, with each member having an approval rating that pertains to the particular year and member. Our equation for this model is as follows:

$$y_{pmt} = \beta_0 + \beta_1 depth_{p,m,t-2} + \beta_2 DC_{m,t} + \beta_3 \log(GDP)_{m,t-1} + \beta_4 edu_{p,m,t-1} + \beta_5 reg_{m,t-1} + \beta_6 depth_{p,m,t-2} * DC_{m,t} + u_c + v_t + \epsilon_{p,m,t} \quad (3)$$

where *depth* is the depth index of a PTA at time  $t-2$  for member  $m$ . Additionally, we apply a square-root transformation to the depth variable to normalize the depth index distribution. While log transforming is the more common approach for normalization, we find that the square root adjustment produces a more normal distribution in our case.



## 6. Results

### 6.1. Main Results

This section discusses the results from six of our main 2FE models. We first discuss the first two analyses on PTA membership. Next, we describe the findings from the models that display the effects of deeper trade integration on support for the incumbent. Lastly, we present and discuss our robustness checks.

The first model in Table 3 presents the results from the model with trade membership count on support for the incumbent. Consistent with our summary statistics and hypothesis, we find that there is a strong positive relationship between PTAs and support for the incumbent. However, we do not find a meaningful difference in effects for developing regions.

The main coefficient of interest, lagged PTA count, can be interpreted as: For every increase in the number of trade agreements that a country is a member of at time  $t$ , there is an increase in support for the incumbent leader by 0.11 percentage points. Additionally, the p-value for the coefficient is below 0.001. Thus, we can be confident that even when controlling for education, GDP, regime, and time and country-varying characteristics, there is a noticeable positive relationship between PTA membership count and incumbent support.

We also inspect the interaction term between lagged PTA count and developing countries to uncover the difference in the effects. While the interaction term is negative, there is still a positive impact of PTA count on incumbent popularity for developing countries. Namely, there is roughly a 0.10 percent increase in PTA membership on support for the incumbent among the developing world, with the difference in effects being 0.007. This difference, however, is marginal and not statistically significant.

The second model in Table 3 presents the effects of deep trade on approval ratings. This time, the effects of signing a deep PTA increases the approval ratings by 0.18 percent, net of all other factors. Just like with the coefficient on PTAs from the first model, deep PTAs are highly statistically significant. Furthermore, while this coefficient is somewhat marginal, it is nearly double that of the coefficient from the first model. From this, we can infer that there is a much stronger positive relationship between trade liberalization on incumbent approval ratings when narrowing our scope down to deep trade agreements.

In sum, we notice a positive relationship between PTAs overall and incumbent approval ratings, with an even stronger relationship between the depth of a PTA and incumbent support. These findings support our hypothesis. Furthermore, the impact on incumbent popularity can also come from the direction of our other explanatory variables. Logged GDP has a strong positive relationship, while education and democracies demonstrate a less strong yet prevalent negative relationship with incumbent approval. We also find that although these models consistently show a positive impact within developing countries, the interaction term is weak and statistically insignificant. Thus, this portion of our findings does not validate our third hypothesis that there is a stronger effect for developing countries. In all, while we find a strong relationship with both the amount of trade integration and depth of trade integration on approval ratings, there is no meaningful change in effects between developing and developed countries.

**Table 3: PTA 2FE regression of PTA membership on incumbent support**

	(1)	(2)
	Approval rating	Approval rating
PTA count, lagged (2)	0.112*** (0.027)	
Deep PTA count, lagged (2)		0.176*** (0.049)
Developing	5.333** (1.943)	5.393** (1.733)
Log (GDP), lagged	0.840 (1.029)	2.502* (1.265)
Education, lagged	-0.193 (0.339)	-0.957* (0.424)
Regime, lagged	-1.597* (0.718)	-1.619* (0.751)
PTA count, lagged (2): Developing	-0.007 (0.043)	-0.030 (0.071)
N	1789	1670
Adj. R-Squared	-0.079	-0.075
p-value	7.799E-07	2.814E-07
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes

Notes: \*\*\*p<0.001, \*\*p<0.01, \*p<0.05, .p<0.1; Standard errors are in parenthesis

The results of our model illustrating the effects of trade depth on incumbent support in Table 4 demonstrates that there is a positive relationship between deep trade integration and support for the incumbent leader. That is, an increase in the depth of a PTA increases support for the incumbent by almost 0.9 percentage points, net of other factors. While this coefficient is not significant, these findings are still consistent with our previous analyses and hypothesis.

**Table 4: 2FE regression: Trade depth on incumbent support**

	Approval rating
Sqrt (PTA depth index), lagged (2)	0.872 (0.634)
Developing	13.745*** (3.503)
Log (GDP), lagged	3.171* (1.495)
Education, lagged	-0.533 (0.518)
Regime, lagged	-2.925** (1.060)
Sqrt (PTA depth index), lagged (2): Developing	-1.266 (1.265)
N	1051
Adj. R-Squared	-0.108
p-value	2.608E-05
Country fixed effects	Yes
Year fixed effects	Yes

Notes: \*\*\*p<0.001, \*\*p<0.01, \*p<0.05, .p<0.1; Standard errors are in parenthesis

## 6.2. Robustness Checks

This section presents a set of robustness checks to complement our analysis. In particular, we first run a set of models to find the effects of PTA membership count and PTA depth on disapproval ratings. Next, we run a fixed effects regression, lagging our main independent variable for each model by three. We then create a random effects regression with our data. Finally, we run a model with deep trade agreements, redefining deep trade integration as agreements with a depth index of four or above rather than three or above.

## 6.2.1. Disapproval Ratings

**Table 5: FE regression of PTAs on disapproval ratings**

	(1) Disapproval rating	(2) Disapproval rating	(3) Disapproval rating
PTA count, lagged (2)	-0.034 (0.027)		
Deep PTA count, lagged (2)		-0.060 (0.051)	
Sqrt (PTA depth index), lagged (2)			-0.703 (0.672)
Developing	-6.084** (1.972)	-6.771*** (1.766)	-12.580*** (3.051)
Log (GDP), lagged	-1.230 (1.044)	-2.917* (1.289)	-3.652* (1.591)
Education, lagged	0.154 (0.344)	0.883* (0.432)	0.665 (0.548)
Regime, lagged	1.658* (0.729)	1.622* (0.729)	2.289* (1.118)
N	1789	1670	1051
Adj. R-squared	-0.086	-0.083	-0.117
p-value	9.758E-05	3.947E-05	6.521E-04
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes

Notes: \*\*\*p<0.001, \*\*p<0.01, \*p<0.05, .p<0.1; Standard errors are in parenthesis

In the original analysis, we use approval ratings as a proxy for incumbent support. Some scholars may be critical of this choice for our dependent variable, as early studies suggest that rather than reward incumbents for good performance, voters will sanction them if they perform poorly (Fiorina 1978, Fearon 1999, Lewis-Beck & Stegmaier 2000). By this logic, those that are disappointed by the incumbent's performance may be more vocal than those that are satisfied, and this can be reflected in the approval ratings. Thus, as a robustness measure, we replace the approval ratings with disapproval ratings from the same GWP dataset. We expect there to be a

negative effect of PTA count and PTA depth on disapproval ratings, which would align with the original results of approval ratings.

Table 5 displays the results from the fixed effects regression on disapproval ratings. The results from Model 1 suggest that there is a small negative effect of PTA membership on disapproval of the incumbent. While this coefficient is not statistically significant, the direction of our coefficient is negative, which aligns with our original results. Based on the results from Model 2, we continue to find a negative influence of deep trade integration on incumbent disapproval. Furthermore, the strength of the PTA coefficient is greater than the one found in Model 1, confirming the finding from our main analysis that deep trade membership increases incumbent approval, and even more so than overall trade membership. Similarly, in Model 3, our coefficient on PTA depth shows that an increase in depth decreases incumbent disapproval by 0.7 percentage points. Lastly, we find that from all three models, a higher GDP and being a developing country decreases disapproval, whilst both higher education and democratic-leaning regimes increase disapproval. In all, this set of analyses shows that there is general consistency with our main findings, and most importantly, a positive effect of trade quantity and trade depth on incumbent support.

## 6.2.2. 3 Year Lags

**Table 6: FE regression of PTAs on incumbent support w/3 year lags**

	(1)	(2)	(3)
	Approval rating	Approval rating	Approval rating
PTA count, lagged (3)	0.077*** (0.182)		
Deep PTA count, lagged (3)		0.126*** (0.030)	
Sqrt (PTA depth index), lagged (3)			0.575 (0.605)
Developing	5.220** (1.655)	5.218** (1.678)	11.430*** (2.932)
Log (GDP), lagged	1.136 (1.023)	2.950* (1.249)	3.950* (1.573)
Education, lagged	-0.302 (0.340)	-1.015* (0.424)	-0.610 (0.540)
Regime, lagged	-1.378 . (0.716)	-1.431 . (0.747)	-3.473*** (1.098)
N	1788	1669	1044
Adj. R-squared	-0.083	-0.076	-0.113
p-value	5.549E-06	3.159E-07	8.450E-06
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes

Notes: \*\*\*p<0.001, \*\*p<0.01, \*p<0.05, .p<0.1; Standard errors are in parenthesis

The initial results lagged the PTA participation and depth variables by two years to capture the delayed effects since it takes an average of 2.58 years for PTAs to be enforced once signed. In our second attempt, we set the number of lags at three. While this heightens the delayed effects between PTAs and incumbent popularity even further, the time gap between PTAs and incumbent popularity is now closer to the average difference between the year signed and year enforced. Table 6 displays the results of this robustness check.

Model 1 shows that there is, with confidence, an increase in approval ratings by an average of 0.08 percent for every time a country joins an additional PTA, disregarding PTA

depth. The second model presents the effects of deep PTA membership quantity on the dependent variable. Similar to our main findings, we notice that the strength of the relationship between trade and incumbent popularity becomes almost two times more significant when considering deeply integrated PTAs, as the coefficient value is 0.13 and statistically significant at the lowest alpha threshold. Model 3 shows that an increase in PTA depth increases support for the incumbent by an average of 0.58 points. Despite that this effect lacks confidence, it still supports the previous models because it shows a positive impact of deep trade agreements on government popularity. We also notice that our control variables present the same relationship with approval ratings as previous models have indicated. Overall, this analysis shows that with one additional lag, the main coefficients for each of our models still align with that of our original models.



## 6.3.3. Random Effects

**Table 7: RE regression of PTAs on incumbent support**

	(1) Approval rating	(2) Approval rating	(3) Approval rating
PTA count, lagged (2)	0.106*** (0.026)		
Deep PTA count, lagged (2)		0.199*** (0.046)	
Sqrt (PTA depth index), lagged (2)			1.243 (0.895)
Developing	5.442** (1.849)	5.138** (1.600)	11.279*** (3.081)
Log (GDP), lagged	0.527 (0.977)	2.315* (1.173)	4.405*** (1.253)
Education, lagged	-0.118 (0.317)	-0.966* (0.389)	-0.575 (0.419)
Regime, lagged	-0.977** (0.688)	-1.918** (0.713)	-2.570** (0.860)
N	1789	1670	1187
Adj. R-squared	0.101	0.128	0.300
p-value	1.781E-09	1.571E-11	2.22E-16
Hausman Test p-value	0.061	0.083	0.984
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes

Notes: \*\*\*p<0.001, \*\*p<0.01, \*p<0.05, .p<0.1; Standard errors are in parenthesis

While the fixed effects regression is the preferred choice based on theory, we run the Hausman test to determine which model suits the data better as our third part of robustness checks. The p-values for our Hausman test for the first two models are below 0.10. Such small values imply that the preferred model is fixed effects. The p-value for the third model on trade depth, however, is a 0.12, which indicates that the better model to pursue may be random effects. To avoid misleading results from the possibility of model misspecification, we apply the random

effects approach across all models, and compare these results to those from our fixed effects models.

The random effects analysis results are shown in Table 7. Starting with the main independent variables, we notice that there is a positive effect of PTA membership quantity, as an additional membership can increase incumbent popularity by an average of 0.11 percentage points. Model 2 shows that an increase in deep PTA count increases incumbent popularity by 0.2 percentage points. Finally, Model 3 shows that for every increase in the PTA depth index, the incumbent popularity improves by 1.24 percent.

This analysis supports the overall theory that deeper trade agreements have a larger impact on incumbent popularity. However, regarding the difference in effects between countries with different development stages, we still maintain that such differences captured in the random effects model are negligible, given that there is a lack of confidence in our findings.

#### 6.4.4. Deep PTAs Redefined

**Table 8: 2FE regression of trade depth on incumbent support**

	Approval rating
Deep PTA count, where depth $\geq 4$ , lagged (2)	0.216*** (0.064)
Developing	8.584*** (2.104)
Log (GDP), lagged	2.257 (1.584)
Education, lagged	-0.555 (0.543)
Regime, lagged	-0.873 (0.930)
Sqrt (PTA depth index), lagged (2): Developing	-0.203* (0.273)
N	1293
Adj. R-Squared	0.026
p-value	1.667E-05

Country fixed effects	Yes
Year fixed effects	Yes
Notes: ***p<0.001, **p<0.01, *p<0.05, .p<0.1; Standard errors are in parenthesis	

Lastly, we attempt to confirm the main results that membership in deeper PTAs surfaces more support for the current leader. We do so by redefining our measurement for deep trade. Initially, we defined a deep trade agreement as one which is greater than the mean. As our final robustness check, we only consider an agreement to be deeply integrated if their depth index falls within the second half of the depth index scale. Given that the interval ranges from zero to seven, the second half ranges from four to seven. Therefore, a deep trade agreement, in this case, is greater than or equal to four.

Table 9 presents the fourth set of results, and finds consistency with that of the previous checks, as well as with our original findings. The coefficient for deep PTAs shows that an increase in membership of a deep PTA increases approval ratings for the incumbent by 0.22 percentage points. This relationship is significant and even stronger in magnitude than what was suggested from our main findings.

## 7. Discussion

Our research leverages a two-way fixed effects strategy to analyze the effects of trade liberalization on support for leaders over the last 15 years and across several countries. The results show that there is a positive relationship when controlling for time and country effects and country characteristics. For our depth-level analysis, we find that there is an even stronger positive impact when narrowing the analysis down to deeper PTAs. While there is a 0.11 percent increase in approval ratings for every PTA a country joins, the increase becomes even greater

when considering only deep PTAs. We support these findings on deep trade integration by estimating the impact of the depth of a trade agreement on support for the incumbent and find a positive effect that is consistent with our main analysis. These findings confirm our first and second hypotheses. In addition, although we see no statistically significant difference between developing and developed countries, which invalidates our third hypothesis, this does not change our general findings of a positive effect on political approval. The strength of the impact in terms of both number of PTAs and PTA depth, however, is quite small compared to our country characteristic variables. More democratic countries tend to have higher approval ratings for the incumbent, while higher education and GDP tend to have a strong but negative impact on support for the incumbent. Finally, we run through a series of robustness checks, which include decreasing lags in the independent variables, switching the proxy of our dependent variable to disapproval ratings, employing a random effects approach, and redefining the meaning of a deep PTA. The results from this part of our analysis largely supports our main findings.

Prior literature assesses economic globalization through several measures, including trade share and raw imports and exports, and argues for a positive effect on political support. Public opinion research also suggests that there is strong support for globalization. We contribute to the literature by using trade treaties as a proxy to confirm a positive impact on incumbent approval ratings. Being that the primary purpose of PTAs is to increase trade among partners, PTAs fulfill this purpose, and stimulate the domestic economy of the member countries as a result. This then increases positive economic shocks. Involvement in PTAs that set more rules to better facilitate international commerce can strengthen economic shocks even further, which, in turn, positively impacts citizens in those member countries through job creation, higher living standards, better goods and services, etc. Thus, greater satisfaction with the current state of the economy will also

put them more at ease with the current leadership. We argue that it is through this mechanism that PTAs have a positive effect on how the general public evaluates their leader's performance.

### *7.1. Limitations*

There are a few limitations related to our scope and methodology that are worth visiting. First, our research studies trade effects across regions to capture a more general picture, but does not have a regional focus. Being that regions are systematically different from each other due to variations in history, cultural values, location, etc., having a regional focus may render different findings. Thus, this would be a new avenue where scholars can study the effects of deep trade on incumbent support within particular regions. Such contributions to research would be valuable for determining if and how countries vary in their attitudes toward deep trade.

The second limitation relates to the scope of time. A few early studies argue that trade hurts economic growth, while others contend that trade led to an increase in economic enhancement only after the post-war period. Even though this research does tackle the effects of deep trade agreements during the most recent time period, our findings may be considered outdated far into the future, as trade trends are not stagnant over long periods of time. Thus, more similar studies will constantly be needed to observe this linkage during even later periods and to understand how the relationship has evolved over time.

Third, the focus of our research is not to determine if trade has a direct impact on political approval. Instead, we are interested in capturing the indirect effect of trade on political support by way of economic shocks. To do so, we lag political support and examine the delayed effects of trade integration since it takes time for signed treaties to go into enforcement. Our results would then show whether trade is favorable due to its impact on economic conditions rather than due to trade itself. It would be interesting to see if trade itself has any direct effect on political approval,

which could be done without the lags. This leaves open potential research on whether the public views trade and deep trade positively, and how that can have a direct impact on government popularity.

Finally, how we measure deep trade integration can have varying results from how another study does. Our measurement is based on whether a PTA includes specific provisions, thus we only capture an overall sense of PTA depth. In the future, scholars could determine which specific dimensions of deep trade have an impact on incumbent performance. Additionally, our depth index assigns PTAs one point for every included provision, thereby treating each provision equally. Future studies can add to the literature by reconsidering whether more important provisions should be given more weight than others.

We must also discuss the shortcomings of the survey methodology for measuring approval ratings. For one, the sample may be imbalanced due to some countries being deemed unsafe for the interviewers collecting approval opinions. Secondly, the interviewers encountered language barriers, which have a high likelihood of increasing measurement error. Finally, the variation in interview method could also increase measurement error. Telephone surveys were used in territories where 80 percent of the population has access to a telephone, but because many parts of the world do not meet this criterion, interviews for those areas were conducted face-to-face.

Despite these limitations, we chose the Gallup World Poll (GWP) to measure our dependent variable because the GWP data covers 95 percent of the world's population, and is the most expansive dataset in terms of the countries being covered. Considering our study spans 136 countries, this dataset was one of the more reliable options. In the future however, researchers

that wish to investigate the connection between deep trade and political approval at a more granular level could consider measuring the dependent variables through another channel, such as vote choice or public opinion polls close to election periods.

The findings in this paper provide insight into how deep trade integration can indirectly affect the domestic political atmosphere in two ways. First, we get a deeper sense of how the public reacts to economic globalization and international cooperation when they experience changes in the economy. Second, we have a better understanding of what factors are significant for determining voter support, and how economic globalization plays a role. Our overall findings suggest that leaders who care about their tenure and the well-being of their citizens should not just become a part of the proliferation of PTAs, but should also pay attention to the types of agreements that they join and the particular benefits and regulations that are emphasized.

## **8. Conclusion**

PTAs have become an interesting topic of study because while their primary purpose is to reduce tariff barriers, more and more PTAs have also begun to address other aspects of economic policy. Our paper contributes to the debate on how economic globalization, through PTAs, can influence support for the incumbent. To take it a step further, we also determine how these effects can be different for developing countries compared to developed countries. Using the DESTA database in combination with the GWP panel data to analyze 136 countries from 2005 to 2021, we run a series of time and country fixed effects models to estimate the effect of membership in preferential trade agreements and deep trade agreements on approval ratings. We also include country-related explanatory factors, including country development stage, gross national income, education, and regime type.

This paper finds strong evidence that there is a positive effect of PTAs on incumbent support, especially when the PTAs are more deeply integrated. This part of our findings met our expectations. However, our results also suggest that there is no significant difference in effects between developed and developing countries, which went against our expectations.

Our study opens several new directions for future researchers. Given that this study explores the relationship between trade depth and political approval at a large-scale, cross-country level, we encourage scholars to continue to study this relationship within specific regions. Furthermore, future studies could also analyze incumbent performance through another channel, such as electoral support, rather than approval ratings. Therefore, more research is needed to understand the relationship between PTAs and incumbent support within various regional contexts, and can consider testing different measures for incumbent support. In addition, while we measure deep PTAs by assigning an overall depth score, future work can try to consider the impact of individual elements included in deep PTAs on leadership support.

An important implication of our findings is that trade liberalization can contribute to the popularity of the incumbent. Therefore, how much the public rewards incumbent leaders partially depends on the leader's trade strategy. Although one strategy is to sign multiple PTAs, which countries often do, it is also important to consider the depth of the PTAs that are being signed. While shallow agreements that mainly focus on tariffs can still make citizens feel good about their current leader because of the positive impact of trade on the economy, deep PTAs that add complexity to the economy may raise the leader's popularity even more. Thus, national leaders need to consider both frequency of international trade and deep trade integration. Just as quantity is not always better than quality, joining many shallow PTAs is not necessarily better than joining a smaller number of deep PTAs.



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