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Trading Perspectives: The Impact of Gender in Shaping National Trade Policies

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The Impact of Gender in Shaping National Trade Policies

by

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Abstract

Economic and political factors have been shown to influence the trade policy decisions of national leaders. The impact of a national leader's gender on their trade policy preferences remains an underexplored area of research. The increasing share of female national leaders raises the question of whether their policy preferences vary from those of male leaders because of their gender. In this study, I utilize the gender of a nation's leader to implement a two-way fixed effects regression that analyzes the impact of gender on a leader's trade policy preferences. Controlling for factors that could also impact a leader's trade policy choices, such as age, political affiliation, GDP, and GDP per capita. I find that gender does not have a statistically significant effect on trade policy, even when sub-setting the sample to only include observations after 1990. On the other hand, I find that GDP and GDP per capita impact a leader's trade policy decisions. However, further research is necessary to determine whether gender has an effect on a leader's trade policy decisions.

I. Introduction

In recent years trade policy across the world has been in a state of flux. Escalating tensions between major nations such as the United States and China, combined with the introduction of new environmental regulations, have driven countries to move away from their conventional trade strategies. These changes have led to uncertainty when predicting the course of action a country will take with its trade policy. A recent working paper from the International Monetary Fund (IMF) highlighted that unpredictable trade policy poses a significant burden on the global economy (Boer, 2024). Recent instances of ambiguity include whether Britain would exit the European Union and the variations in trade policies under the Trump administration in the United States.

In light of the uncertainty surrounding trade policy, it has become evident that the decisions and actions of a nation's leader play an important role in shaping its trade policies. The influence of a nation's leader also affects economic stability, national security, crisis management, and environmental sustainability. A leader's priorities in these areas can influence decisions regarding tariffs, free trade agreements, and engagement with international organizations like the World Trade Organization (WTO). During the Trump administration, strong criticism of the WTO developed, with the United States threatening to withdraw from the organization. The former President argued that the United States never emerged victorious in dealings with the WTO and saw membership as an impediment to his "America First" promise (Swanson, 2019). Conversely, French President Emmanuel Macron emphasized strengthening the WTO to tackle trade challenges, such as potential tariff increases on foreign steel (*WTO | 2018 News Items - DG Azevêdo Welcomes French President's Call for Strengthening WTO*, 2018.). Echoing similar sentiments, former German Chancellor Angela Merkel advocated for

reinforcing the WTO while pursuing bilateral trade agreements to complement its efforts (*Germany's Angela Merkel Calls for Strengthened WTO*, 2018). This global conversation highlights the significance of leaders' perspectives on trade policy and their subsequent engagement with international trade institutions.

At the same time, it is reasonable to believe that the gender of a country's leader has an impact on economic policy and for that country's inclination towards economic cooperation. Studies find evidence of differences among gender in leadership style. Eagly and Johnson (1990) find that women tend to be more democratic and participative than men, who often display autocratic behavior. The leadership style associated with a leader's gender may influence how they approach decision-making in trade policy. For example, if women tend to exhibit more democratic and participative leadership styles, they may prioritize multilateral trade agreements and foster diplomatic relations more so than men. Studies also revealed that women and men are equally effective leaders (Eagly et al., 1995). As social progress makes it more common for countries to have female national leaders, it is natural to wonder what that might mean for the current predicament at the WTO and other aspects of global trade cooperation.

The relationship between gender and policy decisions remains an underexplored area of research, particularly regarding its implications for trade policy preferences. As the world becomes increasingly interconnected and dependent on international trade, understanding how the gender of a nation's leader influences their trade policy preferences becomes more consequential. This study aims to explore how a leader's gender influences their approach to trade policies.

Trade policy plays an important role in shaping the economic landscape of a nation, influencing its growth, development, and market power. Trade policies can be instrumental in

promoting innovation and competitiveness, with interactions of international markets often leading to advancements in technology and productivity. The World Bank finds that countries that are open to international trade grow faster, innovate, and improve productivity when compared to countries with more trade restrictions (*Stronger Open Trade Policies Enable Economic Growth for All*, 2018). However, despite the broader impact of trade policies, national leaders can influence their country's trade policies through various policy levers.

As we explore trade policy preferences, it is important to note two main types: protectionism and globalism. Leaders that prefer protectionism prioritize domestic jobs and industries and shielding businesses from foreign competition. While proponents of free trade favor minimal or no trade to promote greater efficiency and economic growth. A nation's leader can take several measures to implement or regulate trade policy. One such measure is to impose tariffs, taxes on imported goods, on one or more trading partners. Alternatively, a country's leader can implement non-tariff measures (NTMS), policy measures other than tariffs that can impact international trade, on particular goods. These can include quotas, licensing and import restrictions, subsidies, and environmental regulations. Countries also have the opportunity to enter free trade agreements with other nations. A free trade agreement is a formal arrangement between two or more countries or economic entities for the purpose of regulating and facilitating trade activities among them.

There are a few different approaches to measure the effectiveness of a country's trade policy. These include tariff levels, which can encompass applied (actual) tariffs, Most Favored Nation (MFN) tariffs, and an estimate of the impact of non-tariff measures. Another measure of trade policy is the number of free trade agreements a country has. A country with many free trade agreements indicates that their government prefers globalist trade policy. In addition to

trade policy measures, we can also measure how trade policy impacts world prices by quantifying a country's market power. A theoretical paper finds that incentives to use tariffs depend on a country's market power in international markets (Johnson, 1953). Another study finds pro-cyclical market power drives the pro-cyclicality of tariffs in developing countries, providing further evidence of the importance of terms of trade motivations (Lake & Linask, 2016). There are other methods that can be used to measure trade policy, but the ones mentioned above are the most common in previous trade policy literature.

Existing studies suggest a possible relationship between gender and policy preferences, yet they present conflicting conclusions of the potential impacts of gender. A previous study found that queens tend to participate in external conflicts more often than kings (Dube & Harish, 2020). This suggests that women may prefer a more assertive or confrontational approach to international relations, which could potentially influence their stance on trade policies. Conversely, another study indicates that women tend to be more cooperative in negotiations and more successful in reaching an agreement than men (Eckel et al., 2008). This result is reiterated by studies that conceptualize trade policy as a prisoner's dilemma. In trade policy, countries must decide whether to cooperate to reduce trade barriers or betray and impose protectionist measures. Even though cooperation for free trade can lead to shared welfare benefits, there is also a temptation for countries to pursue protectionist policies to gain a competitive advantage. However, if all countries prioritize their own self-interest, this can lead to reduced overall welfare. Studies found that women tend to be more cooperative when presented with a prisoner's dilemma (Capraro, 2018); (Charness & Rustichini, 2011). Given these conflicting findings in previous literature and the increasing representation of women in positions of power, what implications might this have for tariff levels and multilateral institutions such as the WTO?

This study seeks to fill a gap in the Economics literature by exploring the following question: How does the gender of a nation's leader affect trade policy preferences? At a time when gender equality and women's empowerment are at the forefront of global discussions, investigating the potential influence of a leader's gender on trade policy decisions holds significance. It has the possibility to highlight the relationship between leadership, gender preferences, and economic decision-making, contributing to a deeper understanding of the different factors that shape a nation's trade policy decisions. Furthermore, this study adds to the ongoing discourse surrounding the role of women in positions of power and their impact on a nation's policy decisions.

Based on previous literature, my initial predictions of the outcomes of this analysis are uncertain. Female leaders have the potential to be in favor of free trade or protectionism. Although there is evidence suggesting that women are more cooperative, there are also indications that be more confrontational when it comes to international policy.

II. Literature Review

Several studies have analyzed the determinants of trade policy. As previously mentioned, one factor that influences trade policy is a nation’s market power (Johnson, 1953); (Lake & Linask, 2016). Studies find a relationship between free trade agreements and a country’s market power (Jensen & Madan, 2004). Another factor that influences trade policy is real wage gains. There is evidence that real wage gains positively predict the probability to sign a preferential trade agreement (Jarreau, 2015). This implies that countries look at the potential profitability of a trade agreement before signing with another country. Jarreau also finds that in recent years multilateral trade agreements have not made much progress. Furthermore, mercantilism and industrial policy are both economic strategies that nations use to promote their country’s

economic power. Historically mercantilism prioritizes protectionist measures such as tariffs and subsidies to domestic industries. Industrial policy, on the other hand, involves government intervention to support specific industries using things like infrastructure development and trade barriers. Economic determinants have the potential to significantly shape a nation's trade policy decisions.

Beyond economic factors, political factors also have an effect on a country's trade policy. A study by Grossman and Helpman (1992) finds that special-interest groups have an influence on a leader's choice of trade policy. These groups are able to contribute monetarily to things like campaigns and purchase a say in the trade policy a leader chooses. This is a phenomenon that we observe in the United States with lobbying groups contributing to campaigns that promise things like more environmental regulations or less strict gun laws. While not every nation's government has this feature it is important to note that policy decisions can be influenced by unrelated factors.

Studies have shown that gender has a role in the determination of a person's policy preferences. Women are more risk averse in their decision making which can be attributed to emotion, overconfidence, or framing of the situation (Croson & Gneezy, 2009). Men's decisions tend to be less context-specific than women's, suggesting that women are more sensitive to information about another person when making a decision. Additionally, female candidates tend to be more liberal than their party colleagues on the cultural dimension, but there are no systematic differences in policy preferences on economic issues (Lloren & Rosset, 2017). This may suggest that female leaders do not differ from their male counterparts on trade policy preferences.

Guisinger (2016) specifically looks at how gender impacts individual trade policy preferences and finds that women are more concerned about their individual risk. This may suggest that women may prefer more trade restrictions if they feel that it would give them job security or other reassurances. This relationship would only hold try if women are well informed on trade policy. This question of trade policy knowledge is explored by Gidengil (1995), where similar to Croson and Gneezy (2009), she finds that women's opinions on the Canada-United States Free Trade Agreement were shaped by their commitment to social welfare. This contradicts Guisinger's findings. Women were more likely than men to accept the anti-free trade argument when they were told that Canada's social programs were at risk while, men's opinions were shaped by economic considerations. Women are also less likely to know that the United States' main trading partner is Canada (Gidengil, 1995). Trade policy directly influences who a country's main trading partner is. Gidengil's findings imply that women are on average, less aware of overall trade policy than men. However, when asked about tariffs in particular, women exhibit a preference for reduced tariff levels (Hall et al.,1998). This inclination may be due to women being more successful in negotiation (Eckel et al., 2008). If female leaders support stronger relationships with their trading partners, they will be more inclined to embrace a free trade approach and advocate for lower tariffs on imported goods.

While women may be less aware of trade policy when we examine individual preferences, it is important to distinguish that leaders often do not choose trade policy according to individual preferences or maybe even the country's welfare, but rather political calculations (Grossman & Helpman, 1992). Therefore, it is important to examine the impact of female leaders on policy. As previously mentioned Dube and Harish (2020) find that women are more likely to engage in war, which may be attributed to perceived weakness and reign capacity of female

leaders. This points to the idea that female leaders may prefer protectionist trade policies. However, this contradicts previous literature indicating that since women are more likely to reach negotiations, they will adopt globalist trade policies.

Beyond, political conflicts, studies have also shown that female leaders handle medical crises more effectively. At the start of the Covid-19 pandemic, leaders were faced with the decision of whether to place their nation in lockdown. Such a decision had significant ramifications on the health of a nation's economy and its citizens. A study by Garikipati and Kambhampati (2021) looks at the relationship between national women leaders and their effectiveness in handling the Covid-19 crisis. They found that female leaders were more likely to lockdown their respective countries earlier than male leaders resulting in fewer deaths as a result of the virus. This is consistent with previous research on risk aversion. (Dube & Harish, 2020) and (Garikipati & Kambhampati, 2021) highlight the question if the results will be similar for commercial conflicts. Additionally, these papers emphasize that a nation's leader impacts policy decisions.

More specifically, leadership matters for economic growth. The health of a nation is heavily influenced by the actions its leader takes, both politically and economically. It has been shown that female leadership in particular matters for economic growth (Jones & Olken, 2005). This finding is strongest for countries with authoritative regimes. A nation's leader often has the power to determine trade policy to some extent. Even if they do not have the power to set the policy directly, their ability to maintain relationships with other countries' leaders can affect trade relationships. Trade is also an import factor that affects economic growth. The volume of a nation's imports and exports as a share of lagged total GDP has a positive and highly significant impact on economic growth (Busse & Koeniger, 2012). Trade allows countries to specialize in

the industries that they are most efficient. Countries produce these goods domestically and import other goods for which they do not have a competitive advantage. As trade and leadership both have an impact on a country's economic growth, it is important to consider how these aspects relate to one another.

Previous literature fails to connect the ideas of a leader's gender and trade policy preferences. Studies have examined gender differences in individual trade policy preferences and conclude that this gap is largely due to a gap in knowledge. They have also explored the impact that female leaders have historically had on policy. However, gender has not been considered as a possible determinant of a nation's trade policy. As more women assume leadership positions, the question of their effectiveness in these positions becomes increasingly more important. Since trade is an important factor for economic growth, a leader's trade policy decisions can affect how their administration is perceived. In this paper, I hope to close this gap in the literature and determine whether the gender of a nation's leader has an impact on trade policy.

III. Data and Methods

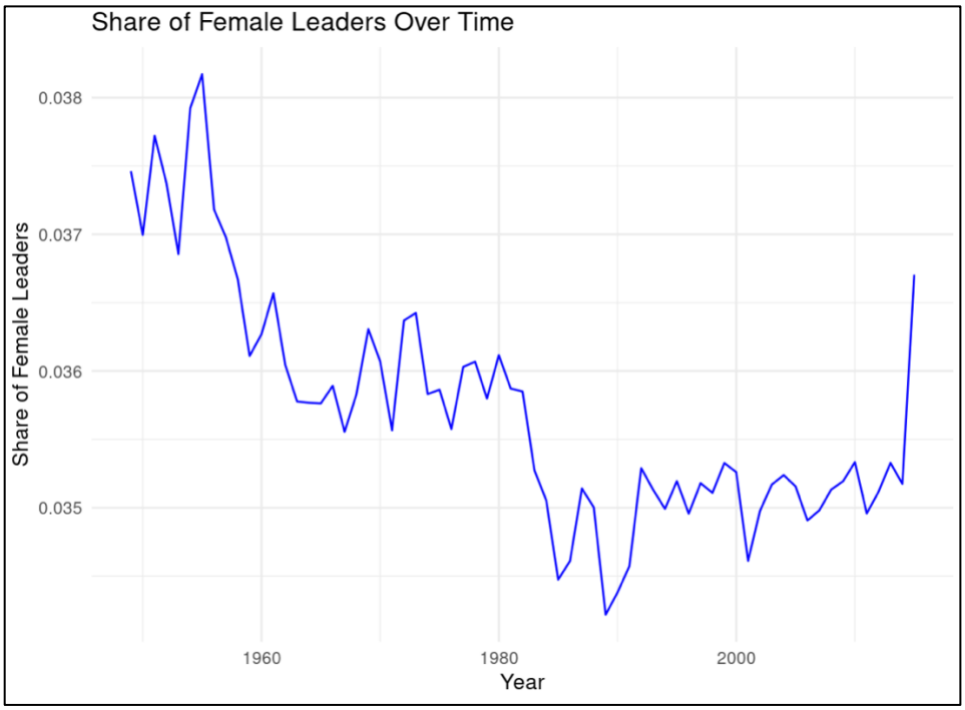
A. Data Description

This study utilizes data from four established databases: Archigos: A Dataset of Political Leaders from 1875-2015, Madison Project Database, Identifying Ideologues: A Global Dataset on Political Leaders, and Measure of Aggregate Trade Restrictions. The Archigos database contains information regarding 2,757 unique national leaders from 188 countries spanning from 1840 to 2015 (Goemans et al., 2009). It was collected by the University of Rochester to create a more complete database on individual leaders. Archigos contains the following variables: start date, end date, country code, gender, entry code, exit code, leader, post tenure fate, previous

times in office, year born, and year died. A leader's exit code describe why they left office; however, this data is unspecific and does not make a good variable for the basis of an instrument.

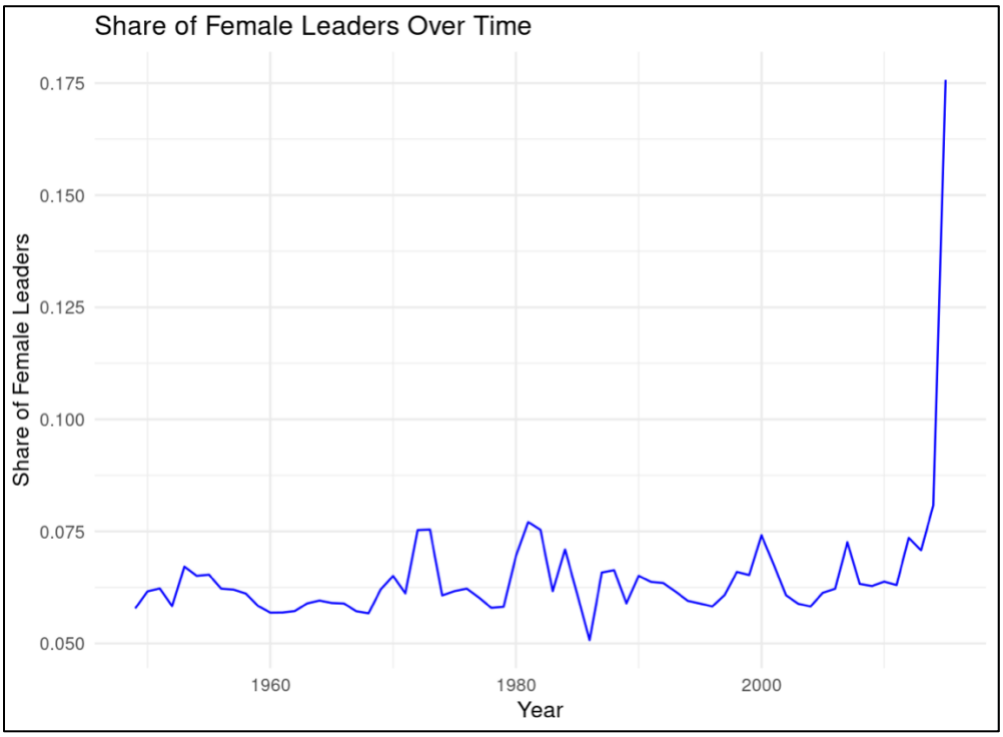
In this data set gender is coded as M or F and there have been 76 instances where a female has assumed the position as a nation's leader[1]. In Figure 1, I plot the share of female leaders overtime without restricting which countries are included. This graph indicates that the share of female leaders has decreased overtime, which may be caused by composition effects. To combat this, I restrict the countries in the sample to just those that appear in 1949 (the first year of coverage in my final dataset) which is shown in Figure 2. It is worth noting that there was a significant rise in the representation of female leaders in the early 1970s, which then plateaued for roughly four decades. Subsequently, there was a larger jump in the 2010s. By restricting the sample, I receive a graph more indicative of what we would expect intuitively where the share of female leaders has slowly increased over time.

Figure 1



[1] For the sake of this study sex is referred to as gender, with only biological sex being considered.

Figure 2



Note: This figure shows the share of female leaders over time restricted to just the 24 countries that appear in the sample in 1949. The countries included are Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Chile, Colombia, Denmark, Ecuador, Finland, France, Greece, Indonesia, Italy, Nicaragua, Norway, Netherlands, Paraguay, Peru, Philippines, Turkey, United Kingdom (Great Britain), and Venezuela.

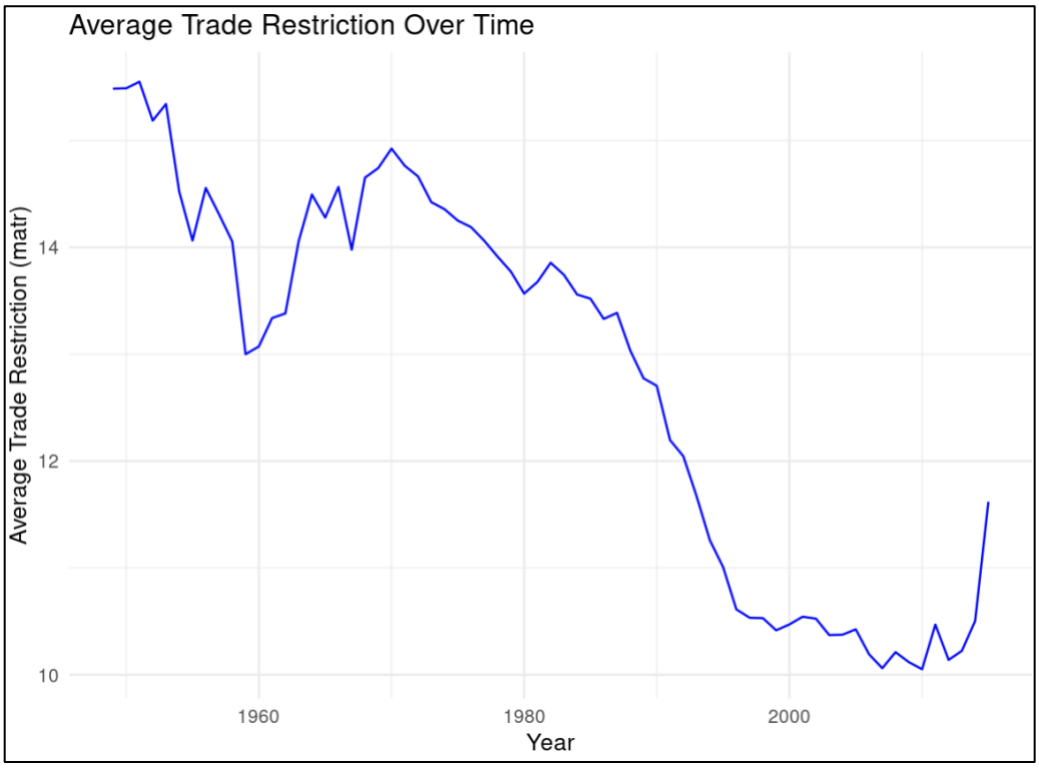
The gross domestic product (GDP) data in this analysis comes from the Maddison Project Database. I use both the GDP per capita and population variables to create a GDP variable and make use of the original GDP per capita variable (Maddison Project Database 2020, 2020). To supplement the Archigos database, I include the political party of each nation's leader for a given year using the Identifying Ideologies dataset (Herre, 2022). The database considers the actual party of each leader and then classifies parties as center, left, or right. This allows for a standardized measure of a leader's ideology which as mentioned previously, is a factor that influences trade policy.

MATR (Measure of Aggregate Trade Restrictions) gives an empirical measure for 157 countries of how restrictive government policy is towards international trade with scores ranging

from 0 to 22, with a higher score indicating more restrictions (Rose, n.d.). This score is an unweighted sum of 22 possible variables from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) binary variables[2]. These variables include both tariff and non-tariff measures of trade restriction. MATR is strongly correlated with existing measures of trade restrictiveness but provides greater country and time coverage. The advantages of using this measure include time coverage as both tariff and non-tariff measures are used. This is particularly important since tariff data are not available prior to 1988. Additionally, MATR is very comprehensive, country coverage increased from just 30 economies in 1959 to over 150 in 2000. Also, since the variables that make up a country's score are binary, normalization issues are avoided. I look at the average trade restriction using MATR over time in Figure 3. In general, average trade restrictions have decreased over time; however, it is important to note that trade restrictions have recently increased in line with recent events.

[2] The 22 possible variables include restrictions and/or multiple currency practices, exchange measures imposed for security reasons, prescription of currency requirements, payments arrangements, administration of control, payment arrears, controls on exports and imports of banknotes, foreign exchange budget, financing requirements for imports, documentation requirements for release of forex for imports, import licenses and other nontariff measures, import taxes and/or tariffs, state import monopoly, repatriation requirements, financing requirements, documentation requirements, export licenses, payments for invisibles, transfers & current transfers, repatriation requirements on proceeds, surrender requirements on proceeds, and restrictions on use of funds

Figure 3



The final dataset comprises 6,775 observations spanning from 1949 to 2015, encompassing data from 132 countries and tracking the tenure of 1,267 individual leaders. Notably, there were 254 instances where a nation's leader was female for a given year, highlighting the development in the landscape of global leadership. Age-wise, leaders ranged from as young as 18 to as old as 92, reflecting the wide range in generational representation. Moreover, MATR scores ranged from 2 to 21, showing the varying degrees of economic engagement. For more detailed information on the dataset's summary statistics, see Table 1 below.

Table 1

Statistic	N	Mean	St. Dev.	Min	Median	Max
gdp	6,775	348,583,128.000	1,162,264,927.000	438,875.900	55,293,908.000	16,482,662,332.000
gdp_pc	6,775	10,225.570	11,718.850	521.000	5,628.530	82,216.000
matr	6,777	12.381	4.714	2.000	14.000	21.000
age	6,777	57.231	10.610	18	57	92
party_right	6,777	0.448	0.497	0	0	1
party_left	6,777	0.438	0.496	0	0	1

B. Econometric Specification

I use a two-way fixed effects model with fixed effects at both on the country level and time level, to account for differences in each country over time. This allows me to observe whether the presence of a female leader is associated with distinct trade policy outcomes when compared to periods without a female leader in the same country. This model also allows me to compare the trade policies within countries that have had both female and male leaders. Which in turn, enables me to explore whether the gender of the leader has a consistent and statistically significant impact across various nations. In summary, this model helps isolate the effect of gender from other factors that might influence trade policies.

Ideally, if we lived in a different world, we would have been provided a greater number of observations related to female leaders. However, within the constraints of the available data, my dataset includes a total of 75 instances where women have assumed the leadership role of their respective nations. It is important to note that tariff data do not go that far back in time; therefore, my dataset spans the timeframe from 1949 to 2015. This timeframe allows for an evaluation of the relationship between gender and national leadership over several decades.

Despite the infrequency of female leaders throughout history, this analysis includes 257 instances where a country's leader was female for a given year. As mentioned previously, the

MATR dataset was a limiting factor for the number of female observations as the data only went back to 1949. This caused several female leaders to be excluded from the analysis. While the number of observations might not be as large as ideal, the dataset provides a sufficient basis for examining the role of women in leadership positions across different periods in the second half of the 20th century and the early 21st century. The estimating equation used for this analysis is:

$$\textit{Trade Policy}_{it} = \beta_0 + \beta_1\, \textit{Gender}_{it} + \gamma_i + \delta_t + \beta_2 \log\textit{(GDP per capita)} + \beta_3 \log(\text{GDP}) +$$
$$\beta_4\, \textit{Party Left} + \beta_5\, \textit{Party Right} + \beta_6\, \textit{Age} + \varepsilon_{it}$$

The two-way fixed effects model employed in this study incorporates both individual and time fixed effects to understand the effects of gender on trade policy. In this case, the individual effect (γi) is designed to capture the unique characteristics of each country that might influence its trade policies. Meanwhile, the time effect (δ_t) accounts for time-specific factors such as business cycles, to account for time-based variations. In this model, the trade policy (Trade Policy$_{it)}$ is regressed on several variables, with β_0 representing the intercept. The coefficient β_1 captures the impact of gender (Gender$_{it}$) on trade policy, reflecting the extent to which gender influences a nation's trade policies. Additionally, the model incorporates the logs of GDP per capita and GDP, aiming to control for the economic conditions unique to each country. The coefficients β_4 and β_5 are categorical dummies used to control for political ideology. β_4 captures whether the leader holds left-leaning views and β_5 captures if they have right-leaning views, with center orientation being omitted. Additionally, I control for the age of a nation's leader as their personal experience and generational differences may lead to different priorities when making trade policy decisions. The error term (ε_{it}) represents unobservable or random factors influencing

the trade policy variable. Overall, this model provides a comprehensive framework to explore and quantify the relationships between gender, economic indicators, and trade policy outcomes.

C. *Data Challenges*

There are two reasonable hypotheses about the causal effect of gender that conflict with each other. The first hypothesis is that gender will have a positive effect on trade policy (a lower MATR score). As women are more likely to be more concerned with their individual risk and more risk averse, I anticipate female leaders to prefer protectionist trade policy (Guisinger, 2016); (Croson & Gneezy, 2009). In this case I would expect that female leaders would have a lower MATR score than male leaders, indicating that they impose more trade restrictions. On the other hand, a second plausible hypothesis is that gender will have a positive effect on trade policy (a higher MATR score). Existing literature also indicates that women tend to be more successful at cooperating than men, which may lead to more trade agreements being signed and fewer trade restrictions implemented (Capraro, 2018); (Charness & Rustichini, 2011). Thus, it is possible that female leaders could be in favor of free trade or protectionism.

There is also the possibility that gender has no impact on a nation's trade policy. Due to limited historical occurrences of female leaders relative to men, there may not be sufficient evidence to conclude that gender has a role in a leader's trade policy preferences. While I control for country specific and time specific factors that may influence a nation's trade policy, there are other factors that may play a role in determining policy. It may be that the gender of a country's leader mostly reflects its own policy preference rather than having a unique effect that can be distinguished from political or ideological alignment. Additionally, it is possible that a country's policy preferences in a given year might have influenced choosing a female leader as well as influencing trade policy. An instrumental variable would be ideal in this context, but the exit

code variable lacks enough detail to facilitate this. It may also be useful to include a variable that looks at whether a country's leader is hereditary or elected. However, this information is also not included in the data. The links between gender and trade is therefore an empirical question that requires additional study.

IV. Results

Table 2 displays the results of seven regressions on the full sample of countries. Table 2 Model 2 displays the results of a two-way fixed effects regression, run on the dependent variable for gender (in this case female_indicator), economic controls (GDP and GDP per capita), and age. The only variables that are statistically significant when analyzing the effect of gender on trade policy are GDP and GDP per capita. This stays consistent for the other models shown in the table. This indicates that gender does not appear to cause a significant increase or decrease a nation's MATR score. Interestingly, the age variable, a control variable in the analysis, is significant at the 90% confidence level and positive in Model 4 and Model 6, suggesting that older leaders, prefer more trade restrictions. Another point to highlight is that Model 5 is the only regression where GDP and GDP per capita are not statistically significant. Model 5 restricts the sample to only include countries that are Organization for Economic Co-operation and Development (OECD) members. This signals that developed countries trade policy is not affected by their GDP. All seven models in Table 2 have R^2 values greater than 0.7 which indicates that at least 70% of the variability in MATR score is explained by the independent variables included in each model. This is anticipated when using a two-way fixed effects model.

Table 2

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
female_indicator	−0.68254	−0.32182	−0.81718	−0.46778	−1.17662	−0.02926	−0.38189
	(0.58226)	(0.56827)	(0.56702)	(0.54495)	(0.90445)	(0.54889)	(0.45610)
age		0.01532		0.01657+	−0.00481	0.01897+	0.01421
		(0.00995)		(0.00997)	(0.01537)	(0.01078)	(0.01108)
log(gdp_pc)		−5.04860***		−5.09728***	−3.49022	−2.39185+	−3.03867**
		(0.75866)		(0.74726)	(2.76254)	(1.28516)	(1.03111)
log(gdp)		4.49317***		4.49491***	3.23959	2.12804+	2.58224*
		(0.69551)		(0.68275)	(2.40233)	(1.16532)	(1.01138)
party_left			−0.14624	0.28836	−0.06479	0.59443	0.53046
			(0.39628)	(0.34099)	(0.62465)	(0.38634)	(0.42810)
party_right			−0.73637+	−0.41503	−0.09743	−0.34594	−0.26920
			(0.38571)	(0.34449)	(0.65093)	(0.38308)	(0.42408)
Num.Obs.	6777	6775	6777	6775	1936	4839	5673
R2	0.762	0.793	0.765	0.796	0.788	0.782	0.784

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note: Model 1 in this table regresses trade policy on gender. Model 2 includes economic controls (GDP and GDP per capita) and age. Model 3 implements political controls (political ideology coded as left, center, or right). All controls are implemented in Model 4. Model 5 restricts the sample to only include countries that are OECD. Model 6 restricts the sample to non-developed countries (non-OECD members). EU members are excluded from the sample in Model 7.

Table 3 shows the results of two dynamic models estimating the effect of gender on a leader's trade policy preferences. Table 3 Model 1 includes a trade policy lag and Model 2 includes a 4 year lag on the gender of a nation's leader. In this case, the variable matr_lagged shows a positive and statistically significant relationship, suggesting that a nation's past trade

policy contributes to an increase in their MATR score, thus indicating greater restrictiveness. The results of the models in Table 3 are consistent with those in Table 2. GDP and GDP per capita remain statistically significant in both models and age is statistically significant in Model 1.

Table 3

	Model 1	Model 2
female_indicator	−0.48342	−0.47416
	(0.54364)	(0.45472)
matr_lagged	0.05766*	
	(0.02776)	
age	0.01672+	0.01328
	(0.00978)	(0.00990)
log(gdp)	4.39242***	4.94078***
	(0.67637)	(0.73027)
log(gdp_pc)	−5.01115***	−5.55385***
	(0.74174)	(0.78178)
party_left	0.30321	0.29098
	(0.33473)	(0.34394)
party_right	−0.40571	−0.46898
	(0.33848)	(0.34749)
gender_lagged		−0.15106
		(0.40088)
Num.Obs.	6774	6247
R2	0.797	0.801
Model 1 measures		
+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001		

Note: This table includes two dynamic models with a trade policy lag in Model 1 and a gender lag in Model.

In addition to regressions, I ran a linear hypothesis test on the female_indicator and gender_lagged variables. My null hypothesis was that the sum of the two coefficients is not different from zero. The test returned a p-value of 0.441 indicating that there is not enough evidence to conclude that the sum of the coefficients for the gender lagged variable and female indicator variable is different from zero.

In Table 4, I restrict my sample to only include observations in the years following 1990. I restrict the sample because most of the variation in gender occurs during this time period. GDP and GDP per capita are no longer statistically significant except for Model 6 where the sample is restricted to only include non-developed countries (countries that are not members of the OECD). Additionally, in Model 6 the control variable for age is also statistically significant suggesting that older leaders in developing countries prefer more restrictive trade policy. In all the models in Table 4 the dependent gender variable remains insignificant; however, the effect of leaders with left leaning ideologies is statistically significant at the 90% confidence level for Models 3, 4, 5 and 7. This is particularly interesting because in the Identifying Ideologies dataset leftist ideologies indicate leaders in favor of the state taking an active role in the economy. Since the coefficients of the party_left variable are positive for each model this implies that left-leaning national leaders prefer more trade restrictions when compared to those with central or right views.

Table 4

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
female_indicator	−0.08766	−0.05655	−0.11556	−0.08328	−0.28696	−0.02926	−0.17687
	(0.33548)	(0.33845)	(0.32519)	(0.32850)	(0.42664)	(0.54889)	(0.36604)
age		0.00017		0.00095	0.02149	0.01897+	−0.00558
		(0.00870)		(0.00861)	(0.01535)	(0.01078)	(0.00934)
log(gdp_pc)		−1.60298		−1.61030	5.80409	−2.39185+	−0.19567
		(1.14428)		(1.14979)	(5.84050)	(1.28516)	(1.34026)
log(gdp)		1.22826		1.21302	−8.71905	2.12804+	−0.03374
		(0.96817)		(0.97497)	(5.46797)	(1.16532)	(1.20860)
party_left			0.25382	0.28203	0.12323	0.59443	0.35603
			(0.28628)	(0.28772)	(0.42333)	(0.38634)	(0.35762)
party_right			0.05752	0.08498	−0.17476	−0.34594	0.11822
			(0.28443)	(0.28273)	(0.39485)	(0.38308)	(0.34711)
Num.Obs.	3234	3232	3234	3232	817	4839	2686
R2	0.891	0.892	0.891	0.892	0.654	0.782	0.881

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note: The regressions in this table restrict the sample to only include observations from 1990 and onward. The various controls for each model in this table are the sample as Table 2.

Table 5 also restricts the sample to only the years following 1990. In this case, the dependent gender variable remains negative despite the change in composition of the sample after restricting to the particular year range. There could be different characteristics or contexts influencing the relationship between gender and MATR score after 1990. Additionally, the MATR variable has changed sign and increased in magnitude. This suggests that countries with

historically higher MATR scores tend to keep increasing the number of trade restrictions they impose.

Table 5

	Model 1	Model 2
female_indicator	−0.49658	−0.56541
	(1.05585)	(0.88135)
matr_lagged	0.02824	
	(0.03929)	
age	0.01694	0.02029
	(0.01277)	(0.01340)
log(gdp)	4.60204***	5.02316***
	(0.67258)	(0.75186)
log(gdp_pc)	−5.76462***	−6.25763***
	(0.89752)	(1.02132)
party_left	0.32102	0.37299
	(0.49230)	(0.51158)
party_right	−0.07826	−0.16623
	(0.49095)	(0.50077)
gender_lagged		−0.01562
		(0.68850)
Num.Obs.	3231	2992
R2	0.795	0.798

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note: The regressions in this table restrict the sample to only include observations from 1990 and onward. The models in this table are the sample as Table 3.

V. Conclusion

There are several possible explanations for gender not being statistically significant in determining a nation's trade policy. Some of them include data limitations provided by the lack of female representation in positions of national leadership. When studying the effect of gender of a nation's leader researchers face the challenge of having enough variation. This is further exaggerated when merging datasets and losing some of the already limited variation in gender. Furthermore, in this study the sign of the female_indicator is negative but noisily estimated and not statistically significant. This also could plausibly be because there is not enough variation in male leaders becoming female leaders to identify an effect. Therefore, there remains uncertainty as to whether the gender of a nation's leader plays a role in trade policy decisions. However, my findings reveal that larger countries tend to adopt more restrictive trade policies, while wealthier nations tend to have less restrictive policies. Since this study uses panel data, these results are also true as we see countries get larger and wealthier over time.

While this study did not produce statistically significant results there are areas of further research to be explored on the subject. One possible area to look into would be using a different measure of trade policy to see if the results of this study still hold true. Using a different measure of trade policy such as a tariff only measure or looking at the number of free trade agreements a nation has could potentially produce a statistically significant coefficient for the gender dependent variable. In addition, since I use a two-way fixed effects model I get unusual averaging of heterogeneous effects, which may cause some observations to get negative weights. Modifying the model specification, refining data cleaning procedures, or revising sample selection could potentially enhance the outcomes.

When heterogeneous effects are present there are different and possibly better ways to average them. Different econometric models that I believe would be beneficial include two-stage least squares to address endogeneity, two-way Mundlak regression, and other difference-in-differences estimators. For the two-stage least squares regression I would use leader deaths as identification strategy as done in Jones & Olken (2005). The first stage would include the two-way fixed effects and previous controls, as well as an interaction between whether the previous leader was male and if they died in office. A two-way Mundlak regression would help decrease the noise in the gender variable by estimating heterogeneous effects that vary across cohorts and averaging them. Mundlak regressions also relax the assumption that coefficients are constant across time by allowing coefficients to vary over time, while controlling for unobserved heterogeneity among observations (Wooldridge, 2021). Additionally, other difference-in-difference estimators may be helpful to study the effect of a nation's leader on trade policy.

From a research perspective, as the number of female leaders around the world increase, the impact of gender on a nation's trade policy decisions could have broader implications for international cooperation. The MATR dataset only includes data from 1949 onwards. However, examining leaders prior to 1949 could increase the variation of leaders' gender in the sample. As nations become more progressive and support the rise of female leaders, exploring whether inherent difference exist in their policy preferences compared to male leaders presents a key opportunity for further research.

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