# Does Regionalism Reduce the Volatility of Trade Policy?

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## Abstract

The objective of this paper is to evaluate the extend to which trade agreements a ect agricultural trade policy volatility. Using a new panel database compiled as part of the World Bank's Agricultural Distortions research project, we estimate the e ect of regionalism (proxied in various ways) on the volatility of price distortions measured by the absolute value of their rst di erences, averaged, for each country and year, over all agricultural goods. Using an instrumental-variable approach to correct for the endogeneity of regional trade agreements, (RTAs), we nd that participation in RTAs has a signi cantly negative e ect on agricultural trade-policy volatility. We nd that the WTO's agricultural agreement also contributed to reducing agricultural trade-policy volatility, in spite of the weak disciplines involved, but the e ect is only weakly identi ed. Our results are robust to a variety of robustness checks and hold, in particular, for the Latin American sub-sample.

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# 1 Introduction

The economic analysis of Regional Trade Agreements (RTAs) has largely focused so far on how they a ect the *level* of trade distortions. On that count, the verdict is still out: whereas the early political-economy held a dim view of their bene ts (e.g. Grossman and Helpman 1995 showed that politically feasible RTAs were the most trade-diverting) recent papers (e.g. Ornelas 2005) have taken a more nuanced view, showing that RTAs can release trade-liberalizing forces. But as noted by Braumoeller (2006), institutional arrangements like RTAs can equally importantly a ect the *volatility* of trade policy, and that aspect has been largely overlooked (with a few notable exceptions discussed below). We explore empirically here whether RTAs have reduced the volatility of barriers to agricultural trade using the World Bank's new database on agricultural distortions (Anderson et al. 2008).

The issue of whether regionalism has dampened agricultural trade-policy volatility is an important one. Volatility in food prices is more likely to trigger riots than volatility in the price of, say, shirts or home appliances. Indeed, Anderson (2008, g. 5) shows that border measures have been used systematically by Asian countries to dampen the volatility of the world price of rice, a particularly sensitive commodity.rcrsoag.ditvce,so-350(tablamp)-2a8d. 47(th)-27(or
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nds that WTO membership fails to reduce the volatility of trade ows, concluding that the multilateral trading system's disciplines are simply not strong enough to have a statistically traceable e ect. The variety of speci cations yielding the same negative answer makes it unlikely that Rose's result is merely a type-II error; however, the exercise highlights two

the EU relied heavily on delegation to supra-national institutions (the European Commission and the European Court of Justice) to give substance to an initial text (the Treaty of Rome) that was imprecise. By contrast, NAFTA relies very little on delegation to supra-national institutions, except in the areas of investment (where private agents can challenge the governments of partner countries at the World Bank's arbitration court, the ICSID) and anti-dumping. The reason for the EU's heavy reliance on delegation is that it was, at the outset, a political project meant to lead to political integration, whereas NAFTA never had that goal and the U.S. Congress would have resisted any infringement on its sovereignty in legislative matters. However, the NAFTA treaty is very precise in its wording by the standards of preferential trade agreements. Thus the commitment mechanisms of NAFTA and the EU are di erent: rules vs. discretion for the former, delegation for the latter.

As to asymmetry in the e ects of RTAs, taking again the example of NAFTA, even though Article VI of the U.S. Constitution states that treaties are the supreme law of the land, the U.S. Congress \expressly denied the possibility of domestic direct e ect for NAFTA in the legislation approving and implementing the agreement, and it may not be relied on as a source of rights in U.S. law."[4] Thus NAFTA cannot be invoked directly by an importer

the level of bilateral trade in a standard gravity equation augmented, on the RHS, by the variance of the ows (that is, the equation is a particular kind of heteroskedastic regression where the variance of the dependent variable is among the regressors) and by \treatment variables" marking whether a bilateral trade ow is ruled by a preferential agreement or not and whether the trading countries are WTO members or not. In the second equation, the variance of trade ows is regressed on a number of control variables and the same treatment variables. Positive coe cients on the treatment variables in the rst equation indicate that the treatments (RTAs and WTO membership) raise the *level* of trade conditional on its volatility; a negative coe cient on the variance indicates that volatility is, in itself, associated, *ceteris paribus*, with less trade (what the authors call a \volatility tax"). Negative coe cients on the treatment variables in the second equation indicate that they reduce the volatility of trade ows.

In contrast to Rose, Mans eld and Reinhardt nd that both RTAs and WTO membership

and world prices (what they call the Nominal Rate of Assistance or NRA) for 70 countries over up to a half-century. For each product, we de ne volatility as the absolute value of the rst di erence in the NRA and take the simple average across all goods. This yields a gross measure of policy volatility for each country-year pair (our unit of observation), which we subsequently purge of the in uence of world-price volatility calculated the same way to retain only the discretionary component that is orthogonal to world-price volatility. That is, we ask a question that is similar to Rose's and Mans eld and Reinhardt's but taking trade *policy* rather than trade *ows* as our dependent variable and focusing on agricultural products. This means that our \WTO variable" (equal to one for WTO members after 1994) should be interpreted as picking up only the e ect of the Uruguay Round's agricultural agreement, and nothing else. This also means that our measure of volatility is \multilateral" rather than bilateral: For each country, we measure the e ect of membership in RTAs and the WTO on the volatility of an indicator of trade policy that lumps together all MFN and preferential border measures. This is important, because our measure picks up not only the e ect of an RTA on the stability of the bilateral trade regime, but also on an aggregate of each member country's trade regimes vis-a-vis all its partners. Put di erently, we measure whether membership in NAFTA reduces the volatility of Mexican trade policy not just vis-a-vis the U.S. and Canada but also vis-a-vis Japan, by encouraging the susbtitution of rules for discretion in all areas of trade policy.

We also instrument our basic treatment variable (membership in RTAs), using the theoretical literature on determinants of trade agreements as a guide in the selection of potential instruments. Motives that we consider as potential instruments for signing trade agreements include the internalization of terms of trade externalities (Bagwell and Staiger, 1999), market access insurance (Fernandez and Portes, 1998), solving time-inconsistency problems in trade policy decisions (Maggi and Rodriguez-Clare, 1998 or 2007), and the provision of public goods (Limao, 2007).

Like Mans eld and Reinhardt, we nd that RTAs are robustly associated with a decrease in agricultural trade-policy volatility across a variety of speci cations. But we nd that the

smaller countries may not be large enough to in uence world prices or attract the interest of other countries. Therefore, we expect a positive relationship between the economic size of a country, measured by the level of its GDP, and its involvement in regionalism (the endogenous RHS variable).

Second, Maggi and Rodr guez-Clare (1998) argue that governments with weak bargaining positions vis-a-vis interest groups are more likely to want to precommit because weak bargaining positions reduce the rents that they derive from the political game. This suggests using domestic political institutions, a standard approach to instrumenting policy variables (see Besley and Case 2000 for a discussion). Maggi and Rodr guez-Clare also suggest that governments that are neither too sensitive, nor too impervious to interest-group pressures are more likely to sign trade agreements. The argument is that a government that is too sensitive wouldn't want to precommit for fear of losing the lobbies' contributions, while one that puts a large weight on social welfare wouldn't *need* to precommit. To capture these non-linearities, we include in the list of instruments the square of a measure of governments' weight on social welfare taken from Grossman and Helpman's common-agency model.

on \Singapore" and environmental issues under its GSP-plus.[6] Regional agreements can also re ect security concerns. This was certainly the case of Europe's Common Market, which was set up to reduce Franco-German tensions. Security concerns in the face of threats of Communist subversion have also been historical drivers of ASEAN. To proxy for such security concerns, we use the number of military alliances to which each country belongs in a given year.

We use under-, over- and weak-identi cation tests to assess the suitability of our instruments. All speci cations control for heteroskedasticity and rst-order autocorrelation in the error term, and in a robustness section we also control for the lagged *level* of trade distortions, conjecturing that the volatility of trade barriers may somehow be proportional to their level.

## 2.2 Data

### 2.2.1 Dependent variable

Data on agricultural trade policy is from the World Bank's Agricultural Distortions project. Distortions are measured by the wedge between domestic and external price, that is, by the Nominal Rate of Assistance (NRA). Formally, let $i$ be an agricultural product and, as before, $c$ and $t$ be country and year.

$$NRA_{ict} = \frac{p_{ict} \quad p^*_{ict}}{p^*_{ict}}$$

where $p^*_{ict}$ is good $i$'s CIF external price (that is, its world price plus transportation cost to country $c$) and $p_{ict}$ its domestic price in country $c$. Therefore, the NRA is the ad-valorem equivalent of the e ect of all agricultural protection measures. Border taxes and subsidies largely contribute to the nominal rate of assistance. Border policy instruments have the lowest contribution to the NRA (62%) in Latin America and the highest (94%) in high-income countries. In order to isolate the e ect of border measures, we subtract from the

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NRA the part corresponding to domestic price-support measures. The database provides NRA estimates, disaggreated at the product level, for 68 countries over an average period of 39 years. The goods covered account for about 75% of global agricultural production.

The distribution of NRAs shows large variation across and within goods and countries. By and large, NRAs have been rising in high-income countries since the 1950s' (the beginning of the database) with the exception of Australia and New Zealand. In developing countries, NRAs have also been rising, with export taxes rising between the 1950's and the 1980's and

of interest is $WTO_{ct}$, which marks membership in the WTO and therefore rati cation of the Uruguay Round's Agricultural Agreement. $WTO_{ct}$ is a dummy variable equal to one after 1994 for WTO members. It is therefore akin to a standard treatment-e ect variable.

Our vector of controls is

$$X_{ct} = \left[ {}^{*}_{ct};\ {}^{GDP}_{ct};PRES_c;PARL_c;a_{ct} \right]$$

where ${}^{*}_{ct}$ is the volatility of country $c$

*PARL*.[8]

We turn now to the construction of the weight on social welfare, $a_{ct}$. We adapt the tari equation of Grossman and Helpman's common-agency model to an agricultural context following the empirical methodology of Gawande et al. (2008).[9] In contrast to the existing literature, we assume that a sizable proportion of the population is politically organized. Relaxing the assumption of high concentration of the ownership of speci c factors used in

hand side, we can express it as

$$\frac{_{it}}{1 + _{it}} \left[\frac{m_{it}}{y_{it}}\right] \; je_{it}j = \frac{_{t}}{a_t + _{t}} + \frac{1}{a_t + _{t}}$$

retrieved as

$$\widehat{a}_t = \left(1 + \widehat{\ }_{1t}\right) = \widehat{\ }_{2t}$$

while the estimate of the proportion of the population organized in interests'groups is given by

$$\widehat{\ }_t = \ \widehat{\ }_{1t} = \widehat{\ }_{2t}.$$

Import-demand elasticities at the HS 6-digit level are borrowed from Kee, Nicita and Olarreaga (2008). Table 1 gives descriptive statistics for all variables. For dummy variables, the mean is simply the proportion of country/years for which the variable is equal to one, i.e. the incidence of the variable in question.

Table 1

# 3 Results

## 3.1 Baseline results

Estimation results of the basic speci cation are shown in Table 2. The rst column shows OLS results, while the second and third column gives 2SLS and GMM results. In each case, standard errors are robust to heteroskedasticity and autocorrelation.

Table 2

As expected, OLS estimates are biased downward and the bias is sizable, suggesting that, as conjectured, countries enter RTAs at least partly to overcome excess trade-policy volatility. Whatever the estimation method, $TA_{ct}$ signi cantly reduces agricultural trade policy volatility. The point estimates of the coe cient on the count of trade agreements are very close under 2SLS and GMM (-0.140 and -0.122 respectively). That is, consistent estimation of the basic speci cation indicates that an additional trade agreement reduces agricultural trade-policy volatility by 12-14% (recall that our speci cation is a semi-log one).

Rati cation of the WTO's agricultural agreement also reduces agricultural trade-policy volatility (with a large e ect of -19.6% and -17.5% under 2SLS and GMM respectively) but

measure of trade policy volatility is not the change in the rate of assistance, but rather the percentage change in the rate of assistance. Controlling for the lagged level of assistance addresses these concerns. Results of OLS, 2SLS and GMM estimates are provided in Table 4.

Table 4

Results of the first stage estimation are as follows (available upon request). With the exception of the world price volatility in the second stage, the results are qualitatively the same to those reported in Tables 2 and 3. Adding the initial level of assistance causes the world price volatility coefficient to become non significant. Also, the lagged level of assistance is statistically significant in the second stage, while negative and statistically insignificant in the first stage.

$k$,

$$TA_{ct}^{OECD} = \sum_{k \in N_{ct}} n_k^{OECD}.$$

Finally, we interact the number of OECD partners and the presence of GATS provisions, which gives us

$$TA_{ct}^{GATS=OECD} = \sum_{k \in S_{ct}} n_k^{OECD}.$$

GMM results for the incidence of alternative measures of trade agreements are shown in Table 5.

Table 5

Deeper forms of trade agreements have stronger volatility-reducing e ects. One additional RTA with a service-liberalization provision reduces volatility by 23.8% on average, against 12-14% in the baseline speci cation. The number of RTA partners, be it the number of OECD partners or the number of partners in service-including RTAs also reduces agricultural trade-policy volatility signi cantly: -5% for an additional OECD partner ($TA_{ct}^{OECD}$), -6.5% for an additional partner in an RTA with a service provision ($TA$

we nd. The coe cients on political-economy controls are largely una ected by the choice

the full sample. This implies that the average e ect in Latin America is on average double the one estimated for the rest of the sample.

Interestingly the impact of being a member of the WTO on trade policy volatility becomes statistically insigni cant, which can be partly explained by the fact that all Latin American countries are WTO members and therefore part of the Latin American speci c e ect was being captured by the WTO variable. This is now consistent with the results found by Rose (2004).

Given that on average trade agreements impose more discipline in Latin America than in the rest of the world, one may wonder which are the countries in Latin America that are driving these results: is it Chile or Brazil, and what can explain these di erences. Table 7 provides the results of the estimation where we added several additional variables that interact *TA*

Chile engaged in an important number of trade agreements. Note however that non-tari barriers were not made uniform and this is clearly an important determinant of agricultural trade policy.[12]

In the case of Colombia, the additional e ect goes in the opposite direction, suggesting that in Colombia trade agreements reduce trade policy volatility by less than in the rest of the sample. Moreover, the magnitude of this additional e ect is large enough to o set the impact predicted on average in our sample, which implies that Colombia's trade agreements had little impact on Colombia's agricultural trade policy volatility. This may not be unexpected if one considers that until 2002 Colombia was only part of LAIA, and the Comunidad Andina de Naciones (CAN). These are agreements among developing countries that have been weakly enforced, and take many di erent forms over the years.

Results for Brazil, Nicaragua and Mexico suggest that the discipline imposed by trade agreements in those countries do not di er statistically from the rest of the world. For Nicaragua and Brazil, this may not be surprising as they are either engage in weak agreements or with much smaller members (Brazil). The outcome is more surprising for Mexico, which had at least 3 agreements in force for most of the time for which data are available. In 2002, 12 agreements were in force. Moreover, since 1994, Mexico is part of the NAF-.nom.f tmeninal xplanaitiol hny wl notl additional e ecsl for Mexico is that most of thesct NAF-.nomt were with itherriain countries.elabcy

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looked at the e ect of regionalism and WTO membership respectively on trade- ow volatility. This means that the e ect we are looking for is at the same time more direct (since we consider directly the policy variable rather than an outcome variable whose volatility can pick up many other parasite in uences) but also more di use, because our measure of policy distortions is a mixture of a country's bilateral and MFN trade policies. That is, we test

to be stronger if they are formed, like the EU, by countries with strong domestic institutions. Put crudely, Bulgaria is likely to get a stronger anchor for its trade policy by joining the EU than by forming an RTA with Romania. If the reduction in volatility is obtained instead by substituting rules for discretion in an RTA with precise rules (like NAFTA), those rules will be stronger if they are backed by a country with strong and stable institutions. This

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Table 1: Summary statistics

| Variable | Mean | (Std. Dev.) | Min. | Max. | N |
|---|---|---|---|---|---|
| *Trade agreements (TAs)* | 3.136 | (4.392) | 0 | 26 | 1095 |
| *TAs (GATS' type)* | 0.832 | (1.66) | 0 | 9 | 1095 |
| *TAs (Partners and GATS' type)* | 3.561 | (6.167) | 0 | 27 | 1095 |
| *TAs (Partners and OCDE countries)* | 4.282 | (6.622) | 0 | 20 | 1095 |
| *TAs(Partners, OCDE countries and GATS' type)* | 3.389 | (5.835) | 0 | 20 | 1095 |
| *WTO* | 0.282 | (0.45) | 0 | 1 | 1095 |
| *Nominal rate of assistance* | 0.343 | (0.626) | -3.4 | 4.476 | 1095 |
| *Nominal rate of assistance volatility* | 0.243 | (0.346) | 0 | 6.766 | 1095 |
| *Nominal rate of assistance volatility* (in log) | -1.813 | (0.972) | -12.822 | 1.912 | 1095 |
| *Price volatility* | 221.154 | (447.641) | 2.589 | 4824.143 | 1095 |
| *Price volatility (in log)* | 4.713 | (1.039) | 0.951 | 8.481 | 1095 |
| *Price inverse volatility* | 0.001 | (0.002) | 0 | 0.043 | 1095 |
| *Price inverse volatility (in log)* | -7.429 | (0.85) | -9.665 | -3.148 | 1095 |
| *GDP (current bio USD)* | 292.394 | (640.722) | 1.664 | 5303.791 | 1095 |
| *GDP (current bio USD, in log)* | 4.257 | (1.789) | 0.509 | 8.576 | 1095 |
| *GDP volatility (current bio USD)* | 27.239 | (69.446) | 0.007 | 658.607 | 1095 |
| *GDP volatility (current bio USD, in log)* | 1.576 | (2.042) | -4.974 | 6.49 | 1095 |
| *Government's social welfare weighting* | 9.061 | (31.229) | 0.007 | 246.405 | 1095 |
| *Government's social welfare weighting (in log)* | 0.54 | (1.674) | -4.902 | 5.507 | 1095 |
| *Square of the government's social welfare weighting (in log)* | 3.092 | (5.114) | 0 | 30.327 | 1095 |
| *Presidential system* | 0.348 | (0.477) | 0 | 1 | 1095 |
| *Assembly-elected president system* | 0.064 | (0.245) | 0 | 1 | 1095 |
| *Parliamentary system* | 0.588 | (0.492) | 0 | 1 | 1095 |
| *Military alliances* | 3.688 | (5.267) | 0 | 31 | 1095 |

Table 2: Explaining trade policy changes

| Dependent Variable:<br>*Trade policy volatility (in log)* | OLS | 2SLS | GMM |
|---|---|---|---|
| Regressors: | | | |
| *Trade agreements* | -0.045*** | -0.140*** | -0.122*** |
| | (0.014) | (0.043) | (0.042) |
| *WTO* | -0.101 | -0.196** | -0.175* |
| | (0.083) | (0.094) | (0.093) |
| *World price volatility (in log)* | 0.071** | 0.080** | 0.072** |
| | (0.031) | (0.032) | (0.031) |
| *GDP volatility (in log)* | 0.030* | 0.031* | 0.031* |
| | (0.018) | (0.018) | (0.018) |
| *Government's social welfare weighting (in log)* | -0.086*** | -0.095*** | -0.094*** |
| | (0.024) | (0.024) | (0.024) |
| *Presidential system* | -0.216* | -0.247** | -0.211* |
| | (0.116) | (0.120) | (0.118) |
| *Parliamentary system* | -0.122 | -0.231* | -0.203 |
| | (0.119) | (0.136) | (0.135) |
| *Country and time xed e ects* | yes | yes | yes |
| *Observations* | 1095 | 1095 | 1095 |
| $R^2$ | 0.216 | 0.159 | 0.178 |

Table 3: Why do countries sign trade agreements?

| Dependent Variable:<br>*Trade agreements* | 1st stage of 2SLS |
|---|---|
| Regressors: | |
| *WTO* | -1.223*** |
| | (0.443) |
| *World price volatility (in log)* | 0.063 |
| | (0.057) |
| *GDP (in log)* | 1.475*** |
| | (0.239) |
| *GDP volatility (in log)* | -0.054 |
| | (0.054) |
| *Presidential system* | -0.046 |
| | (0.257) |
| *Parliamentary system* | -1.012*** |
| | (0.355) |
| *Government's social welfare weighting (in log)* | -0.008 |
| | (0.058) |
| *Square of the government's social welfare weighting (in log)* | -0.024 |
| | (0.019) |
| *Military alliances* | 0.097*** |
| | (0.036) |
| *Country and time xed e ects* | yes |
| *Observations* | 1095 |
| $R^2$ | 0.584 |

Table 4: Explaining trade policy changes (lagged NRA)

| Dependent Variable:<br>*Trade policy volatility (in log)* | OLS | 2SLS | GMM |
|---|---|---|---|
| Regressors: | | | |
| *Trade agreements* | -0.039** | -0.129*** | -0.104*** |
| | (0.015) | (0.042) | (0.039) |
| *WTO* | -0.205** | -0.284*** | -0.261*** |
| | (0.088) | (0.096) | (0.095) |
| *Lagged nominal rate of assistance (in log)* | 0.098*** | 0.090*** | 0.090*** |
| | (0.031) | (0.032) | (0.032) |
| *World price volatility (in log)* | 0.044 | 0.051 | 0.040 |
| | (0.031) | (0.032) | (0.031) |
| *GDP volatility (in log)* | 0.032* | 0.035* | 0.034* |
| | (0.018) | (0.018) | (0.018) |
| *Government's social welfare weighting (in log)* | -0.058** | -0.071*** | -0.075*** |
| | (0.026) | (0.026) | (0.026) |
| *Presidential system* | -0.199* | -0.199* | -0.202* |
| | (0.107) | (0.111) | (0.111) |
| *Parliamentary system* | -0.090 | -0.204 | -0.175 |
| | (0.121) | (0.139) | (0.138) |
| *Country and time xed e ects* | yes | yes | yes |
| *Observations* | 998esParliamentary system | | |

Table 5: Explaining trade policy changes: alternative counts of trade agreements (GMM (TAs))

| Dependent Variable:<br>*Trade policy volatility (in log)* | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Regressors: | | | | |
| *TAs (GATS' type)* (1) | -0.238***<br>(0.077) | | | |
| *TAs (Partners and GATS' type)* (2) | | -0.065***<br>(0.023) | | |
| *TAs (Partners and OCDE countries)* (3) | | | -0.050*<br>(0.026) | |
| *TAs (Partners, OCDE countries and GATS' type)* (4) | | | | -0.074***<br>(0.027) |
| *WTO* | -0.190**<br>(0.089) | -0.123<br>(0.090) | -0.066<br>(0.094) | -0.121<br>(0.091) |
| *World price volatility (in log)* | 0.085***<br>(0.031) | 0.083***<br>(0.032) | 0.072**<br>(0.032) | 0.082**<br>(0.032) |
| *GDP volatility (in log)* | 0.029<br>(0.018) | 0.028<br>(0.018) | 0.027<br>(0.018) | 0.029<br>(0.018) |
| *Government's social welfare weighting (in log)* | -0.089***<br>(0.024) | -0.102***<br>(0.024) | -0.106***<br>(0.025) | -0.103***<br>(0.024) |
| *Presidential system* | -0.217*<br>(0.118) | -0.303**<br>(0.129) | -0.248**<br>(0.126) | -0.320**<br>(0.134) |

Table 7: Are Latin American countries di erent?

| Dependent Variable:<br>*Trade policy volatility* | OLS | 2SLS | GMM |
|---|---|---|---|
| Regressors: | | | |
| *Trade agreements* | -0.047*** | -0.122*** | -0.089*** |
| | (0.014) | (0.039) | (0.033) |
| *Trade agreements in ARG* | -0.145 | -0.357*** | -0.384*** |
| | (0.132) | (0.115) | (0.112) |
| *Trade agreements in BRA* | -0.154 | -0.235 | -0.192 |
| | (0.102) | (0.151) | (0.142) |
| *Trade agreements in CHL* | -0.106** | -0.142** | -0.142** |
| | (0.050) | (0.064) | (0.059) |
| *Trade agreements in COL* | 0.115* | 0.134* | 0.153** |
| | (0.060) | (0.079) | (0.077) |
| *Trade agreements in MEX* | -0.008 | 0.002 | -0.009 |
| | (0.028) | (0.041) | (0.040) |
| *Trade agreements in NIC* | -0.231 | -0.396* | -0.229 |
| | (0.158) | (0.235) | (0.225) |
| *WTO* | -0.089 | -0.156* | -0.126 |
| | (0.084) | (0.091) | (0.090) |
| *World price volatility (in log)* | 0.076** | 0.089*** | 0.087*** |
| | (0.031) | (0.032) | (0.031) |
| *GDP volatility (in log)* | 0.030* | 0.031* | 0.026 |
| | (0.018) | (0.018) | (0.018) |
| *Government's social welfare weighting (in log)* | -0.085*** | -0.091*** | -0.078*** |
| | (0.024) | (0.024) | (0.023) |
| *Presidential system* | -0.169 | -0.167 | -0.123 |
| | (0.127) | (0.132) | (0.129) |
| *Parliamentary system* | -0.250* | -0.402** | -0.323** |
| | (0.135) | (0.168) | (0.157) |
| *Country and time xed e ects* | yes | yes | yes |
| *Observations* | 1095 | 1095 | 1095 |
| $R^2$ | 0.220 | 0.182 | 0.204 |