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Evaluating the Effectiveness of Trade Conditions in Fund Supported Programs[1]

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I. INTRODUCTION AND OVERVIEW

1.   **This paper evaluates the effectiveness of trade conditions in IMF-supported programs, and the role of country ownership in the success of the conditions.** Approximately half of the countries that had IMF-supported programs during 1993–2003 also had trade-related conditions. A large literature has shown that trade openness is an essential part of the environment in which economic growth and poverty reduction take place. Trade reforms are often difficult to implement, however, as the losses, even if temporary, tend to be concentrated in a few sectors while the gains tend to be diffused[2]. It is, therefore, of great interest to see if the trade conditions, by combining both financing provided through the programs and trade reforms demanded that go beyond a country's commitments to the WTO, have been effective in promoting trade openness.

2.   **This paper complements earlier studies conducted periodically under the Fund conditionality reviews**.[3]

*   Unlike the earlier studies, this paper uses an outcome-based measure—changes in actual trade openness measured by import volume—and a rigorous econometric methodology to compare the record of all countries that had trade conditions with those without trade conditions during the period from 1993 to 2003. Some conditions may have been implemented to the letter of the agreement but undone in spirit by other means, or reversed once the programs expired. The outcome-based approach provides a direct check on this possibility.

*   This paper explores the role of ownership in programs' outcome. Although the importance of ownership is often discussed in policy arena, there is no systematic empirical research on how ownership affects the effectiveness of trade conditions in IMF-supported programs. This paper examines several measures of ownership and assesses whether any of them helps to identify when trade conditions are likely to be effective.

*   Unlike earlier studies that tend to use a case study approach on a small number of countries, this paper examines all countries during the sample period.

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[2] Recent research (Rose, 2004, and Subramanian and Wei, 2003, and reviewed in The Economist, 2005) has suggested that the GATT/WTO system may have played a limited role in promoting trade openness among developing countries, especially those that became GATT members prior to the Uruguay Round.

[3] IMF (2001, 2005a and 2005b).

3. **The key findings can be summarized as follows:**

- *There is some evidence that trade conditions are effective on average.* After accounting for a number of factors that could affect trade openness, trade conditions are associated with an increase in import volume in most statistical specifications.

- *There is strong evidence suggesting that country ownership matters for the effectiveness of conditionality.* Trade conditions have either no effect or at most a small effect in countries with a low degree of willingness to reform. On the other hand, trade conditions in countries with high ownership lead to significantly more open trade regimes. This effect persists after Fund-supported programs have expired. This result continues to hold after adjusting for the possibility that countries that wish to increase trade openness are more likely to agree to have trade conditions in the programs.

- *Ownership can often be estimated based on information at the start of a program.* For example, Fund staff's assessment of ownership as reflected in the composition of conditionality appears helpful in forecasting subsequent effectiveness of trade conditions.

- *Implementation of trade conditions on paper does not imply real trade reforms.* While a majority of trade conditions are recorded as having been implemented on time in the Fund's database, they do not always translate into an actual increase in trade openness.

The remainder of the paper proceeds as following. Section II summarizes some salient facts about trade conditions. Section III lays out the methodology and reports estimates for the impact of trade conditions, and the role of ownership. Section IV offers conclusions.

II. SOME BASIC FACTS ABOUT TRADE CONDITIONS

About half of the IMF-supported programs have trade conditions. Tariff reduction and removal of quantitative restrictions as a share of total trade conditions have declined over time, whereas customs reforms and other measures have increased in relative importance.

4. **Trade conditionality has been common in IMF supported programs.** Of the 99 countries that went through IMF programs during 1993–2003, 77 had trade conditions in at least one program. The figure below displays a time series of the numbers of all IMF programs with and without trade conditions. On average, about half of the programs have trade conditions. It is at least as likely for a program country to have trade conditions at the end of the sample as at the beginning.

Number of IMF Supported Programs by Year
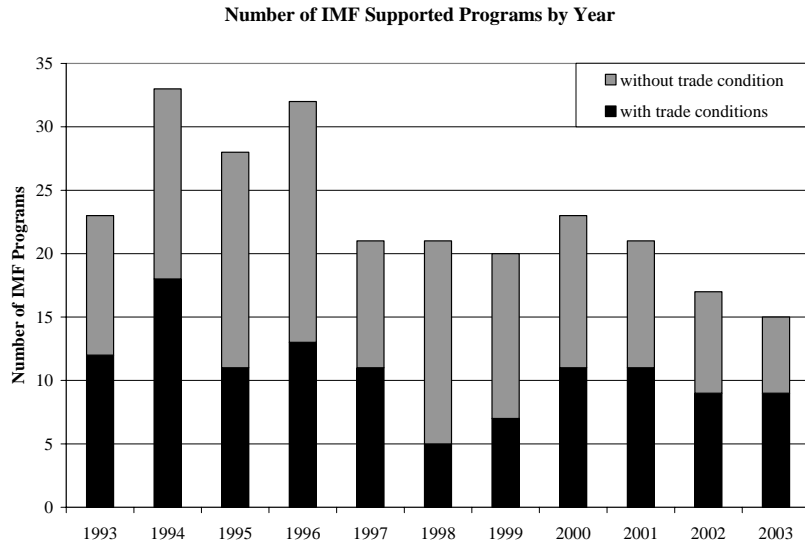
5.   **The number of trade conditions as a share of total program conditions has declined in recent years.** Among the program countries with trade conditions, the share of trade conditions in the total number of program conditions declined from 15 percent in 1994 to 8 percent in 2003, partly because conditions related to financial sector reforms had increased, and many countries have more open trade regimes in the latter part of the sample. The number of trade conditions per program exhibits an inverse-V shape over time, peaking in 1999 (at more than 5) and then declined to 2.5 in 2003.

Share of Conditions That Are Related To Trade in Programs With Trade Conditions

**Average Number of Trade Conditions in Programs
That Had Trade Conditions**
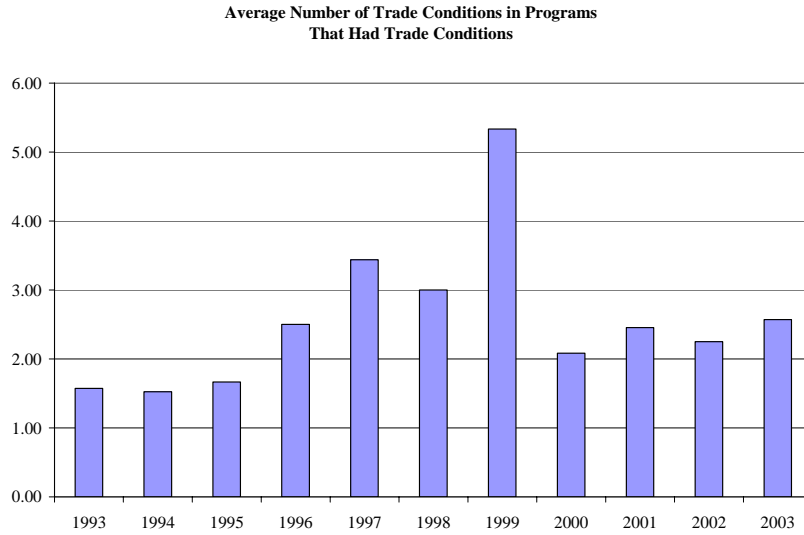
6.   **The majority of trade conditions are designed to reduce market distortions and to increase trade openness.** These conditions can be either tariff or non-tariff measures. Among the 77 countries that had trade conditions in their programs, 55 had conditions directly on tariffs. Other conditions have supported increased efficiency including through administrative streamlining, and sometimes revenue collection.

The following pie chart illustrates the distribution of the types of trade conditions over the entire sample period. More than a quarter of all trade conditions are related to tariff reductions and rationalization. Another quarter focuses on removing non-tariff barriers such as exemptions, licensing requirements, quantitative restrictions, and other restrictions on current account transactions.[4]

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[4] Other measures in the pie chart include conditions related to pre-shipment inspection, concessional financing for exports, export processing zones, and other country and industry specific issues.

Nature of Trade Conditions

Tariff reduction and rationalization

Removal of licensing requirement

Elimination of exemptions

Removal of quantitative restrictions

Customs reforms
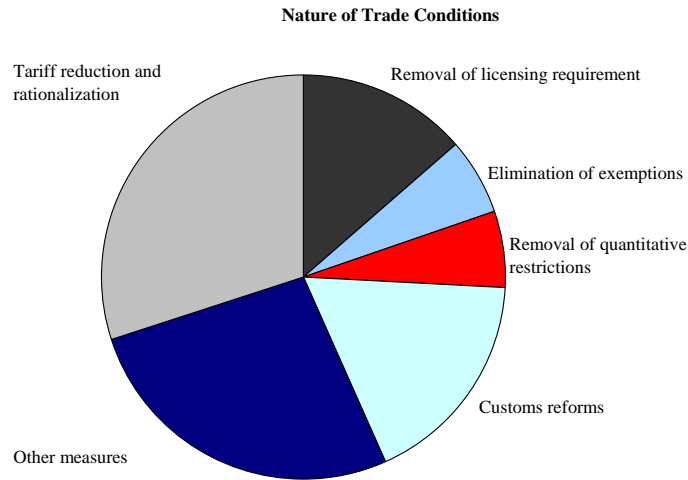
Other measures

- The evolution of the composition of trade conditions is presented below. Over time, tariff reduction and removal of quantitative restrictions as a share of total trade conditions have declined, whereas customs reforms and other measures have increased in relative importance.

Evolving Composition of Trade Conditions

□ Tariff reduction and rationalization
■ Removal of quantitative restrictions and licensing requirements
▨ Other measures (including customs reforms and elimination of exemptions))
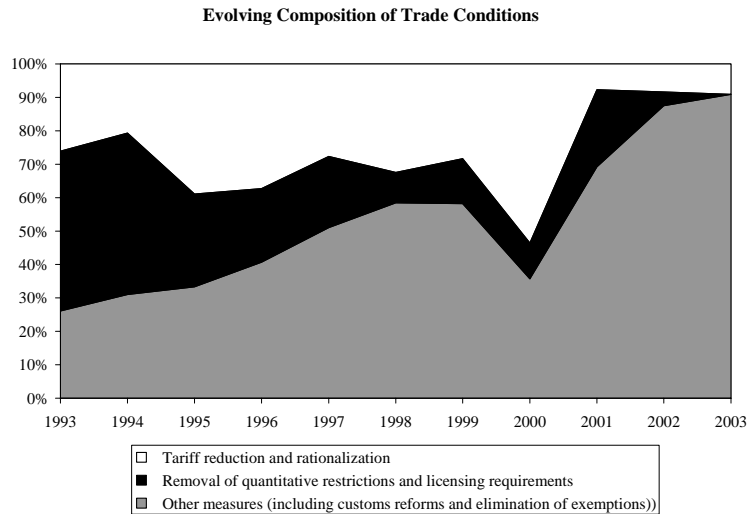
7.   **Trade conditions are critical ingredients in IMF programs**. Approximately one third of trade conditions are prior actions—the strongest form of all conditions as a failure to implement them would lead to an automatic interruption of the programs.[5] About 20 percent of trade conditions are performance criteria—also a strong form of conditions as loan disbursement is contingent on their fulfillment unless an explicit waiver is granted by the Executive Board. The remaining conditions take the form of structural benchmarks, whose non-observance does not automatically lead to an interruption of a program, but may affect the staff's judgment as to whether to recommend completion of a review. The IMF's recent review of conditionality (IMF, 2005c) suggests that prior actions are often used as a screening device by the staff to gauge the authorities' commitment to reform. This feature will be explored in discussing program ownership in a later section.

Shares of the Three Types of Trade Conditions over Time
(Two-year average)
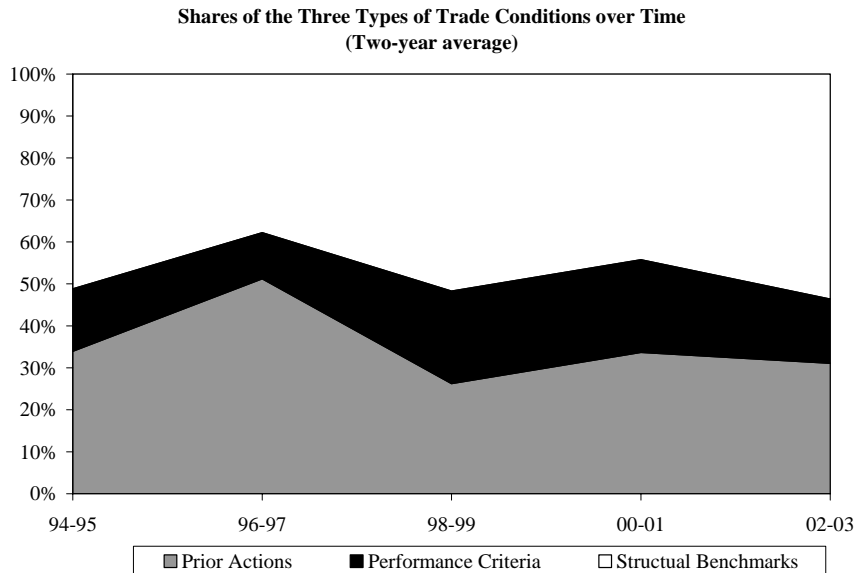
8.   **The implementation record for trade conditions is strong on paper.** About 70 percent of the trade conditions are recorded as having been implemented on time in the Fund's database on program conditions. However, nominal implementation of specific measures may not always mean that policy actions have been taken with real and long-lasting effects. The next section examines the real impact of trade conditions.

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[5] Some prior actions are remedial actions for performance criteria or key structural benchmarks in earlier IMF-supported programs that have been missed.

Nominal Implementation Ratio of Trade Conditions
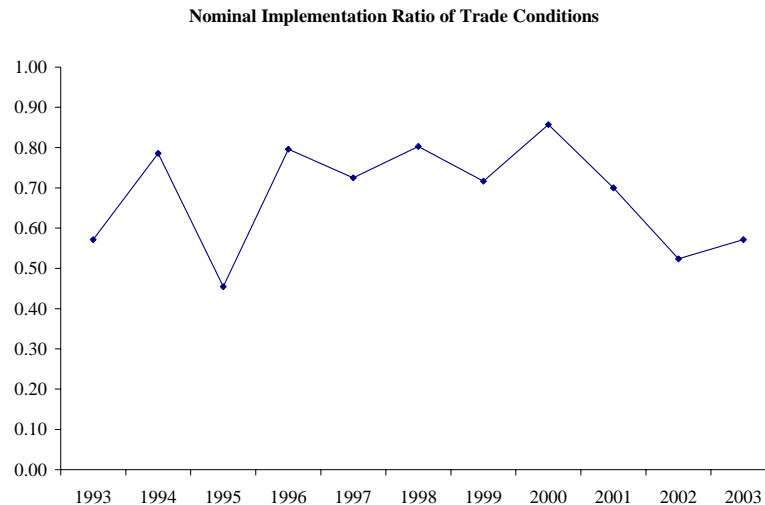
III. EVALUATING THE EFFECTIVENESS OF TRADE CONDITIONS

A. Methodology

9.   **The evaluation adopts a rigorous statistical approach which compares changes in countries' trade openness before and after trade conditions were introduced ("treatment group") with changes in trade openness of other countries with no trade conditions ("control group").**[6]

- This methodology is embedded in an extended gravity model of trade that is grounded in economic theory so that other determinants of trade openness are also considered. For example, a country's economic size, level of development, distance to trading partners, membership in the WTO and regional trade agreements, real exchange rate, and other initial conditions are included to account for their influences on trade openness.

- The presentation starts with some basic results from a benchmark specification, and proceeds with a set of extensions and robustness checks.

10.   **In the benchmark specification, the treatment group includes 27 countries, a subset of the 77 countries that had trade conditions in their programs**. These 27 countries are selected because their trade reforms took place between 1996 and 2000, in the middle of the whole sample period (1993–2003). This allows for a meaningful "before and after" analysis, i.e., comparing the changes in openness before and after the specific time when trade conditions are introduced. To make sure that our analysis is based on a large enough sample to be representative, this paper also looks at an alternative treatment group

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[6] This has come to be known as a"difference-in-differences" approach in the literature.

consisting of countries with at least seven years of trade conditions in the sample. The control group includes the 20 countries that had programs but no trade conditions. An alternative control group consisting of all developing countries with no Fund programs is considered as an extension. Countries in these groups are listed in Table 3.

- Both the treatment and the control groups have countries at different levels of income, though the treatment group tends to have relatively more low-income countries. The subsequent analysis takes into account the effect of income on trade openness.

| | Proportion of Countries in Different Income Groups (Percent, GDP measured in 2000 US$) | | | | | |
| | 1993 | | | 2003 | | |
	<800	800 -- 3000	>3000	<800	800 -- 3000	>3000
Program countries with trade conditions	63.0	27.4	9.6	54.8	28.8	16.4
Program countries without trade conditions	20.0	45.0	35.0	20.0	40.0	40.0
Developing countries without programs	22.0	36.6	41.5	14.6	31.7	53.7

- The average tariff level in 1997 was somewhat higher for program countries with trade conditions than for program countries without trade conditions, but somewhat lower than for countries without programs. The same pattern holds in 2003 as well. All three groups exhibit a decline in their tariff levels from 1997 to 2003, with the largest decrease registered by program countries with trade conditions. However, given the significant heterogeneity within each group, as measured by the standard deviation of either the level of or the change in tariffs, the pair-wise differences across the three groups are not substantial. In any case, the statistical framework in this paper takes into account the effect of initial conditions on measured trade openness.

| | Average Tariff (in percent) | | | | | |
| | 1997 | | 2003 | | Changes from 1997 to 2003 | |
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Program countries with trade conditions	16.8	8.0	13.5	6.2	-3.3	6.0
Program countries without trade conditions	12.9	4.8	10.3	4.3	-2.6	3.9
Developing countries without programs	17.1	10.7	13.9	9.6	-3.2	5.3

- The IMF's Trade Restrictiveness Index (TRI) attempts to combine information on non-tariff barriers with tariff levels.[7] Based on this index, the increase in the percent of countries classified as relatively open (TRI values of 1–4) is the largest in program countries with trade conditions. Furthermore, the decrease in the percent of countries

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[7] The IMF's TRI takes a value between 1 and 10, with 1 being the most open, and 10 being the most restrictive. Due to the TRI's methodological limitations, its values for individual countries are not generally reported in the staff reports.

classified as highly restrictive (TRI of 8–10) is also the largest in program countries with trade conditions.

Proportion of Countries in Different Trade Regimes						
	1997			2003		
	Relatively Open	Relatively Restrictive	Highly Restrictive	Relatively Open	Relatively Restrictive	Highly Restrictive
Program countries with trade conditions	42.1	40.8	17.1	67.1	27.6	5.3
Program countries without trade conditions	60.0	30.0	10.0	60.0	35.0	5.0
Developing countries without programs	24.5	44.9	30.6	40.8	42.9	16.3

B. Effectiveness of Trade Conditions

11. **The statistical analysis reveals that trade conditions are associated with higher import volumes on average in subsequent periods.** The magnitude of the effect is generally in the range of 10–18 percent (e.g., an increase in import/GDP ratio from 10 percent to 11–11.8 percent), depending on the model specification.

12. **The positive effect of trade conditions is not reversed after the expiration of the programs.** As an illustration, the benchmark specification of the model suggests that trade openness increases by a moderate 3 percent (e.g., an increase in import/GDP ratio from 10 to 10.3 percent) in the first year of trade conditions, rising to 16 percent in the second year, and then converging to around 10 percent in subsequent years.

Impact of Trade Conditions Over Time

T: year in which trade conditions started
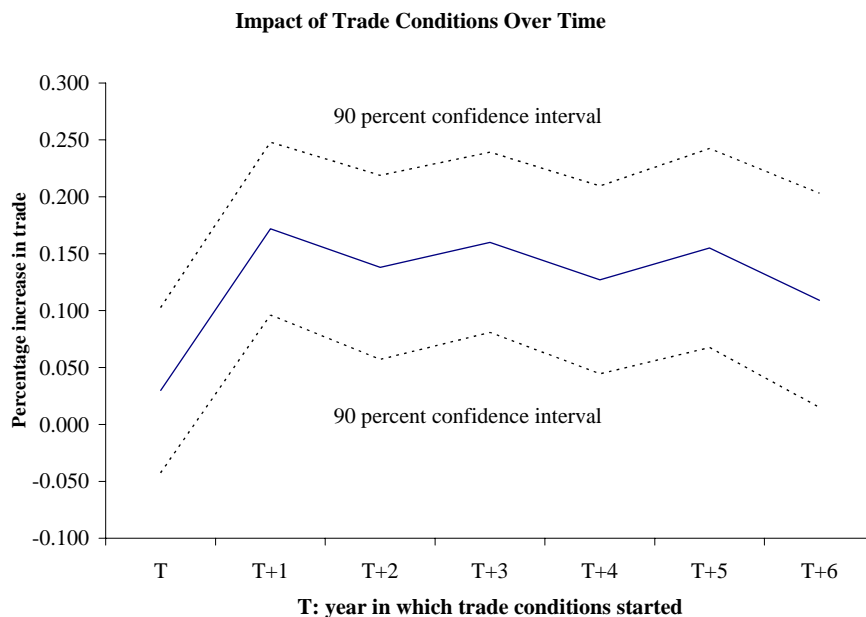
C. Ownership and Effects of Trade Conditions

13.   **Two proxies for ownership are developed in this paper**. Countries' willingness to implement reforms is believed to be much stronger when the authorities have greater "ownership" of the conditionality in the programs. Clearly, this characteristic of countries is conceptually important but operationally difficult to measure. Although neither of the two proxies is perfect, each is likely to capture some part of the notion of ownership.

- The first proxy ("ownership 1") is a country's record in implementing non-trade structural benchmarks in the first program during 1993–2003, measured as the percentage of such conditions implemented. Since non-implementation of these conditions does not automatically interrupt disbursement of IMF loans, lower ownership of a program may lead to less implementation. Furthermore, if a country is unwilling to implement non-trade structural benchmarks, it is also likely to be less willing to implement trade conditions.

- The second proxy ("ownership 2") is Fund staff's subjective assessment of a country's willingness to reform as reflected by the composition of types of conditions. Fund staff tend to demand more prior actions in countries that are perceived to have a high risk of going off track in subsequent periods.[8] Therefore, staff's subjective assessment of ownership may be captured by the share of non-prior actions in total conditions in the first program during the 1993–2003 period.

- The two proxies are virtually uncorrelated.[9] This suggests that each may capture some different aspects of country characteristics. If the two proxies lead to opposing results, the inference on the role of ownership would be difficult. As it turns out, they produce results that basically agree with each other.

14.   **Regression results suggest that country ownership plays an important role in the real effect of trade conditions.** Trade conditions have either no or at most a small positive effect on subsequent trade volume in countries with low degrees of ownership. On the other hand, trade conditions have much greater effect in high ownership countries.

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[8] For example, IMF (2005c) states on page 20: "In both GRA- and PRGF-supported programs, prior actions are used as a screening device. Prior actions have continued to be used more in countries with relatively weak track records."

[9] The pairwise correlations among the ownership measures, and the nominal implementation record of trade conditions are reported in Table 19 in the appendix.
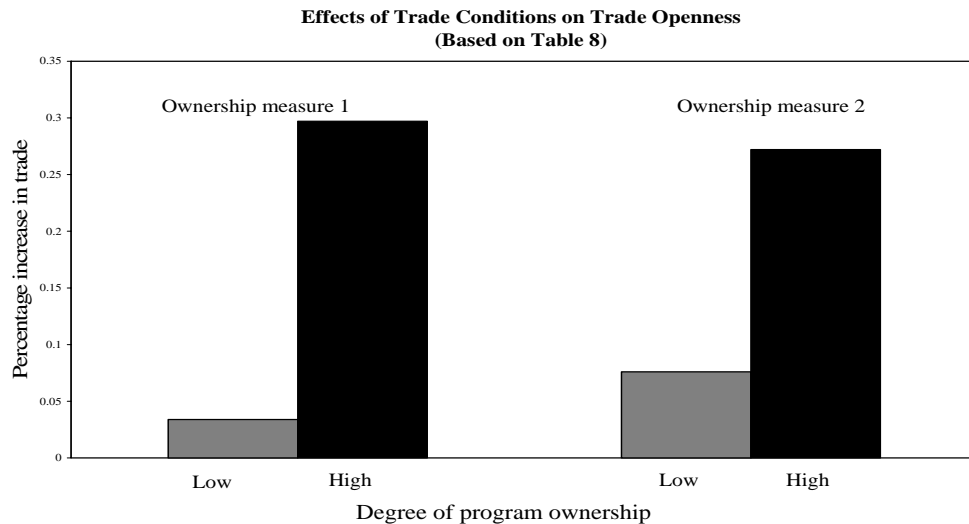
Effects of Trade Conditions on Trade Openness
(Based on Table 8)

Note: The effects in the two cases of low ownership are not statistically different from zero.

It may be worth reflecting on how to interpret the finding of a significant effect of ownership measured by the composition of types of conditions ("ownership 2"). It does not imply that staff can increase the effectiveness of trade conditions by requiring less prior actions in a program. Rather, to the extent that this proxy reflects staff's subjective assessment on a country's willingness to reform, the statistical results suggest that Fund staff are often able to make an informed assessment about the degree of ownership at the start of a program. At the same time, the results also suggest that many Fund conditions have been put forward even though the odds for success are known to be relatively slim from the start.

D. Additional Results and Robustness Checks

15.   **The main findings remain unchanged with an alternative control group, that is, developing countries that did not go through any program during the sample period.**

•   The advantage of this approach is to allow for a different and also much larger control group. The shortcoming is the need to assume that the differences between program and non-program countries is constant.

•   Using this alternative control group, the average effect of trade conditions is estimated to be about 15 percent (e.g., an increase in import/GDP ratio from 10% to 11.5% following the introduction of trade conditions). The positive effect comes entirely from programs with high ownership.

16.   **Countries with multiple years of trade conditions also have higher trade openness in subsequent years if they are taken as a treatment group**. The "before and after" framework in the benchmark specification requires excluding from the analysis countries with multi-year trade conditions in the first half of the sample period. For these

countries, continued trade reforms may have helped them to further open their trade regime as reforms deepen. A natural way to test for a treatment effect in these countries is to compare their openness in the second half of the sample period to that in the first half. 25 countries had programs for more than 7 years during the 1993–2003 period. These countries are taken as a new treated group. The average impact for trade conditions is positive and significant, and the positive effect comes from high-ownership cases.[10]

17.   **The effect of trade conditions in PRGF programs also depends on ownership.** As an extension, separate regressions are performed for PRGF and GRA programs. The basic result is the same for both sets of countries: The positive effect of trade conditions on trade openness comes almost entirely from countries with a high willingness to reform.

18.   **Another robustness check corrects a possible selection bias but finds that the main conclusion stays the same.**

- The statistical analysis up to this point could be subject to a selection bias. Specifically, if only those countries that wanted to implement reforms on their own would agree to the inclusion of trade conditions in their programs, one might find a positive association between the presence of trade conditions and a subsequent increase in trade volume even though the former does not cause the latter. To address this potential bias, a statistical technique (known as the Heckman selection procedure) is used to model the decision to introduce trade conditions. Intuitively, the technique replaces the actual presence of trade conditions by the predicted likelihood of trade conditions based on some other observable characteristics of the country. The underlying assumption (which is confirmed in the data) is that trade conditions are more likely to be introduced in countries that are judged by Fund staff to have restrictive trade regimes according to the IMF's Trade Restrictiveness Index. This feature is utilized to devise a correction for the possible selection bias.

- It turns out that the selection bias is not quantitatively important: The ownership effect remains strong after accounting for the bias. The analysis confirms a positive association between a high initial value of the TRI index and an inclusion of trade conditions in a program. The trade conditions have no effect on openness in low-ownership cases. The estimated effects in the high-ownership cases are somewhat lower than the earlier analysis where the selection bias was not controlled for, but remain positive and significant.

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[10] The regressions using Control Group 1 are reported in Table 10 of the appendix. The regressions with Control Group 2 produce similar results but are not reported.
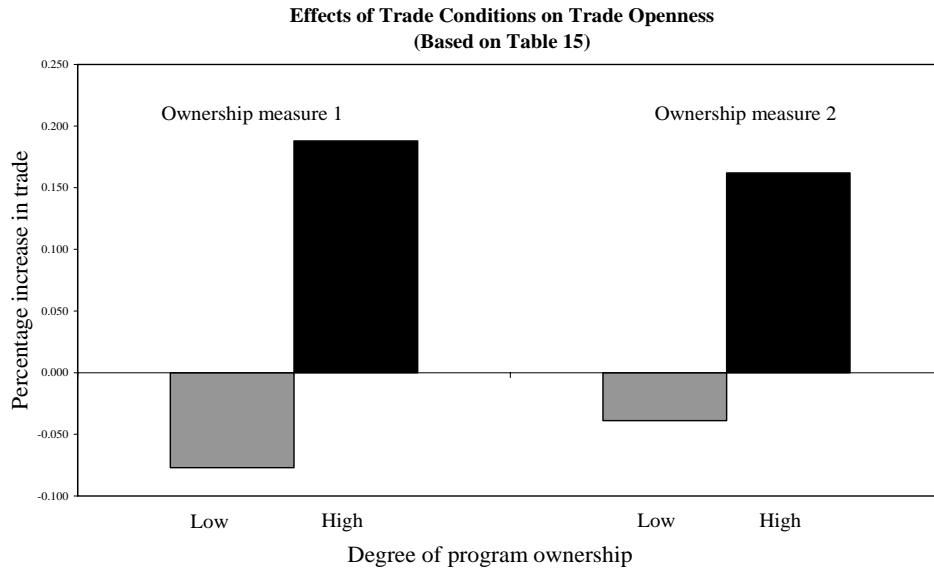
Effects of Trade Conditions on Trade Openness
(Based on Table 15)

Note: The effects in the two cases of low ownership are not statistically different from zero.

19.   **The ownership measures are not merely proxies for implementation of trade conditions.**

- A necessary condition for trade conditions to be effective is that they are implemented. It is possible that the two measures of ownership are merely estimates of whether trade conditions are implemented. On the other hand, nominal implementation of trade conditions does not guarantee an increase in trade openness: The authorities could implement the trade conditions to the letter of an agreement to secure financing from the Fund, but then undo the reforms by means not explicitly prohibited in the program agreement.

- As an extension, an explicit measure of the implementation of trade conditions (as assessed by the staff during reviews of the programs), interacted with the incidence of trade conditions, is added to the statistical analysis. The proxies for ownership turn out to be more reliable predictors for the effectiveness of trade conditions than a simple assessment on whether the narrowly defined conditions are implemented.

20.   **Allowing for the possibility that countries with better governance are more likely to have higher degrees of program ownership, the basic conclusion stays the same.** The importance of governance has been emphasized in recent research in development economics. The World Bank has compiled a composite governance index, which measures countries' strength in six dimensions: voice and accountability, government effectiveness, rule of law, anti-corruption, regulatory quality, and political stability. There is support in the data for the notion that a country with a higher quality of governance is more likely to have a high degree of program ownership. When the direct measure of ownership is replaced by a

predicted value based on the quality of governance, it remains true that trade conditions are more effective in countries with greater ownership.

IV. CONCLUSIONS

21.   **Trade conditions are effective in increasing trade openness on average, but the effect comes almost entirely from programs for which country ownership is assessed to be high.** Two proxies for ownership are constructed using information from the implementation record of non-trade structural benchmarks, and staff's judgment on countries' commitment to reform as reflected in the share of prior actions in program conditions. Both proxies lead to the same conclusion that ownership is fundamentally important to the success of trade conditionality in increasing a country's openness to trade.

22.   **Implementation of trade conditions on paper does not always translate into a real and sustained increase in the openness of a country's trade regime.** This suggests that many conditions may be implemented to the letter but undone in spirit by other means or reversed once a program expires.

23.   **The ownership measure based on the share of non-prior actions in total conditions appears helpful in forecasting the subsequent change in trade openness.** This suggests that an informed judgment about the degree of ownership is often possible at the start of a program.

I. Data Sources and Descriptions

The sample consists of all developing IMF member countries during the 1993–2003 period. The data on program years and trade conditions are from a unique IMF database called Monitoring of Fund Arrangements (MONA). Documents on programs and letters of intent on many individual countries have been published on the IMF's external website (www.imf.org) especially since 1997. Information on the conditions and implementation records on these countries/years are publicly available.

The bilateral trade data are from the IMF's Direction of Trade database, and are deflated by the U.S. consumer price index. The data on real GDP and GDP per capita are from the World Development Indicators, the International Financial Statistics, and the Penn World Table. Control variables in the gravity regressions such as the dummies for common language, colonial ties, shared borders, common currency, and free trade area are derived from the websites of Andrew Rose (www.haas.berkeley.edu/arose) and Shang-Jin Wei (www.nber.org/~wei), with minor corrections.

II. Statistical Specifications and Detailed Results

The statistical framework used to assess whether trade conditions affect trade openness is an augmented gravity model. Such model has enjoyed empirical success in terms of its ability to explain a relatively large fraction of variations in observed volumes of trade, and has been applied to analyze the effect of a variety of policies on trade.[11]

The version used in this paper incorporates a number of recent theoretical insights, especially those by Anderson and van Wincoop (AvW 2003), and Helpman, Melitz, and Rubinstein (HMR 2004). Both papers have importer and exporter fixed effects to proxy for remoteness (Wei, 1996) or multilateral resistance (AvW 2003). HMR (2004) propose to correct two additional selection biases: the first caused by zero bilateral trade among some countries as the gains from trade are too small to overcome the necessary costs, and the second by "an unobserved heterogeneity bias that results from the variation in the fraction of firms that export from a source to a destination country." The first bias is corrected by a standard Heckman approach to estimate the Mills ratio. For the second bias, HMR (2005) propose a latent variable to control for the firm heterogeneity, which this paper calls "HMR variable" for short. The Mills ratio and the HMR variable are added in the analysis in this paper.

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[11] Frankel and Wei (1993), Frankel, Stein, and Wei (1997), Rose (2004), and Subramanian and Wei (2003), among others.

Benchmark Model

The benchmark model is specified in the following form:

$$Y_{i,j,t} = IMP_{i,j}\alpha_1 + EXP_{i,j}\alpha_2 + YEAR_t\alpha_3 + X_{i,j,t}\beta + TC_{i,t}\gamma + \varepsilon_{i,j,t} \tag{1}$$

The dependent variable $Y_{i,j,t}$ is country i's log imports from country j in year t. $IMP_{i,j}$, $EXP_{i,j}$, and $YEAR_t$ are the importer, exporter, and year fixed effects, respectively. $X_{i,j,t}$ is a list of variables that previous studies have found significant in explaining the volume of trade, including log GDP, log per capita GDP, great circle distance between i and j, dummies for common language and colonial links, shared borders, common currency, common free trade area or common market, the Mills ratio, the HMR variable, a dummy for imports by one WTO member from another member, and a dummy for imports by one WTO member from a non-member.

$TC_{i,t}$ is a dummy variable that measures the "treatment" effect of trade conditions. It takes the value of one for country i in year t if the country has trade conditions in that year or any year before t during 1993–2003. For example, as 1997 was the first year that trade conditions were applied to Guinea during the sample period, the TC dummy for that country takes the value of zero during 1993–1996 and one during 1997–2003.

Identifying the effect of trade conditions presents a challenge in some cases. For example, if a country had trade conditions attached to their programs in 1993 or 1994, the TC dummy for this country would take the value of one almost throughout the sample and therefore be highly correlated with the importer fixed effect for this country. On the other extreme, if a country had no trade conditions during the sample period until 2002 or 2003, the TC dummy would take the value of zero almost throughout the sample. In either case, the effect of the treatment of trade conditions cannot be identified.

In order to solve this problem, the benchmark analysis focuses on a treatment group that started to have trade conditions no earlier than 1996 but no later than 2000 during the sample period. 27 countries fall into this category (see Table 3, Treatment Group 1, for a list).

To bring into the analysis some of the countries that had trade conditions but are excluded from the above definition of the treatment group, the paper considers an extension that examines an alternative treatment group for countries that had trade conditions in multiple years including early in the sample period. It then compares their trade openness in the second half of the sample period versus the first half. This extension will be discussed in detail later.

To estimate the treatment effect correctly, one needs to compare the treated group with a control group. Ideally, the two groups would be identical in every dimension except for one:

the presence and absence of trade conditions. Program countries that did not have any trade condition in the 11 years are obvious candidates for the control group. There are 20 such countries, listed as Control Group 1 in Table 3. The augmented gravity is used to control for other ways in which treatment and control groups may be different.

As an extension, all developing IMF member countries without programs during the sample are used as an alternative control group (listed as Control Group 2 in Table 3).

Statistical Results

Basic estimates of an average effect

Regressions based on the gravity model show that the trade conditions are effective in promoting trade. The average impact of the trade conditions is big. The specification in Column 1 of Table 4 includes separate importer, exporter, and year fixed effects. The coefficient on the trade condition variable is positive and highly significant. According to the point estimate: having trade conditions is associated with a higher import volume by 11 percent (e.g., an increase in import/GDP ratio from 10 to 11.1 percent).

The results for most standard gravity variables—log distance, log GDP, common border, common language, and historical/colonial links—are in line with the vast, previous literature. One notable new result is that the coefficient on imports by one WTO member country from another member is positive (0.31) and statistically significant, but that by one WTO member from a non-member is negative (-0.18) and statistically significant. This complements the findings in Subramanian and Wei (2003), and suggests that, for developing country WTO members, trade liberalization measures do not automatically extend to imports from non-WTO members (which are mostly also developing countries). Another interesting result is that the coefficient on the dummy for free trade agreements/customs union is not different from zero. One possible explanation is that many regional trade agreements among developing countries are not effective in reality.

In the second column of Table 4, two dummies for years during an IMF program, and years after the program, respectively, are added to capture any systematic factors affecting trade that are associated with IMF programs. The coefficient on the program dummy is negative (-0.09), but that on the post-program dummy is positive (0.05). On average, for a program country without trade conditions, imports contract during the program years but then recover after the program. Taking into account these features associated with the IMF programs, the average effect of trade conditions on trade openness increases to 16 percent.

In the third column of Table 4, two measures of the importer's real exchange rate (RER) are added. A (trade-weighted) multilateral RER produces a positive coefficient: a 1 percent appreciation of the home currency tends to increase imports from the rest of the world by 0.7 percent. A bilateral RER also produces a positive coefficient: a 1 percent appreciation of the home currency against the currency of a particular trading partner above the average

appreciation rate produces an additional 0.1 percent increase in imports from that trading partner above and beyond the increase in imports from the rest of the world. It is interesting to note that, once the RER variables are included, the negative coefficient on the dummy for IMF program years shrinks to –0.04 and in fact is statistically indifferent from zero. This suggests that the contraction in imports associated with IMF program years is likely due to a correction of previously over-valued real exchange rate in many program countries. In any case, the coefficient on the dummy for trade conditions changes very little (0.17 and statistically significant).

In the next three columns of Table 4, the model is augmented with insights from Helpman, Melitz, and Rubinstein (2004). In particular, a Mills ratio is calculated to account for non-random occurrence of zero-trade among some country pairs, and an HMR variable is constructed to account for unobserved heterogeneity in the incidence of exporting firms across different countries. Both new regressors are positive and statistically significant, supporting the theory in Helpman, Melitz, and Rubinstein (2004). However, for the central question in this paper, the addition of these two regressors makes little difference: the estimated average effect of trade conditions is the same as before (with the point estimates slightly larger but not by a statistically significant amount).

How persistent is the effect of trade conditions?

Is the effect of trade conditions temporary (i.e., reversed after the expiration of the program) or long-lasting? Does the result survive once the specification deviates from assigning equal weights to imports from all trading partners? Table 5 addresses these questions. First, in all four regressions in the table, the TC dummy is now split into two dummies, representing the years in which trade conditions are applied during IMF programs, and the years after the conclusion of these programs, respectively. Second, four different weighting schemes are employed. The first column gives equal weights to all trading partners for a given importer. The last three columns weight different trading partners in proportion to their size, with the latter represented by their log GDP (Column 2), log population (Column 3), and log initial exports to the importing country in question (Column 4). The coefficient on trade conditions during program years is positive in columns 1-3, ranging from 0.12 to 0.14, but the coefficient in the last column is –0.09. However, the coefficient on trade conditions after the expiration of the programs is positive and significant throughout the four columns, ranging from 0.13 to 0.37. Therefore, while the initial effect of the trade conditions on trade openness is somewhat sensitive to the weighting scheme (positive and significant in most but not all cases), the effect eventually becomes stronger and statistically significant for all specifications.

As another way to trace out the trajectory of the effect of the trade conditions, the TC dummy can be decomposed into a sequence of dummies, representing, respectively, the year TCs are introduced, the first year after that, the second after that, and so on. Table 6 reports the results from this exercise. The three columns weight the observations equally, by partners' log GDP, and by partners' log population, respectively. The estimated patterns are similar

across the specifications. The effect of trade conditions is nil in the year they are introduced (probably because the required reforms take time, or some programs were introduced towards the end of the year), but rising to 16–18 percent, and then coming down to around 10 percent. This suggests that the effect of trade conditions is not temporary on average.

What is the role of ownership?

To investigate how a country's willingness to reform affects the effectiveness of trade conditions, the basic model is extended to the following specification.

$$Y_{i,j,t} = IMP_{i,j}\alpha_1 + EXP_{i,j}\alpha_2 + YEAR_t\alpha_3 + X_{i,j,t}\beta + TC_{i,t}\gamma_1 + TC_{i,t}Ownership_i\gamma_2 + \varepsilon_{i,j,t} \qquad (2)$$

Ownership is measured by the two proxies as explained in the main text. Now, the effect of trade conditions is decomposed to two additive components: $\gamma_1 + (\gamma_2 ownership)$. The estimation results are reported in Table 7. In the first three columns, all observations are weighted equally. With the first proxy for ownership (implementation record of non-trade structural benchmarks), γ_1 is not different from zero statistically, whereas γ_2 is positive but insignificant. With the second proxy for ownership (share of non-prior actions in total conditions) (Column 2), γ_1 becomes negative and significant, whereas γ_2 is positive and significant. This implies that the trade conditions are not associated with higher trade volume at low values of ownership. All the positive average effect of the trade conditions documented in previous tables comes from countries with sufficiently high ownership. When both measures of ownership are included in the same regression (in Column 3), both are positive, but only the second measure is significant. The coefficient for both proxies are numerically larger. In the last three columns, the country pair observations for given importer are weighted by trading partners' log GDP. The findings remain qualitatively unchanged.

So far, ownership is treated as a continuous variable. A simple robustness check is to transform each proxy for ownership into two discrete cases: high and low ownership baskets using the median value of each proxy as the demarcation point. This transformation places less weight on countries that happen to have extreme values of ownership and extreme values of change in trade volume, and potentially could solve the puzzle of why γ_1 is negative in the previous table when the second proxy for ownership is used. The regression results with high/low ownership classifications are reported in Table 8. This time, for both measures, the effect of trade conditions is zero in the case of low ownership, but positive and significant in the case of high ownership. In the latter case, trade conditions are associated with an increase in trade volume by 27–30 percent (e.g., an increase in imports from 10% of GDP to 12.7-13% of GDP).

These results support the view that country ownership is critical for the success of trade conditions. The second proxy for ownership suggests that Fund staff are often able to make informed judgment about ownership and the odds for real trade reforms at the start of a program.

Alternative control and treatment groups

Table 9 repeats the basic analysis but using an alternative control group, namely all developing countries that did not go through any IMF program during 1993–2003. The finding remains the same. Trade conditions are associated with an increase in trade volume on average, but the positive effect comes from program countries with high degrees of ownership..

Regressions in Table 10 employ a different treatment group, namely countries that had at least seven years of IMF programs with trade conditions. By coincidence, the countries in this treatment group (Treatment Group 2 in Table 3) do no overlap with those in the treatment group used in the earlier regressions (Treatment Group 1 in Table 3) with the exception of one country. Therefore, this provides an independent opportunity to check whether/how trade conditions affect trade openness. Because most countries in this group had trade conditions in the early part of the sample period, the regressions in Table 10 compare their trade volume in the second half of the sample with the first half, conditional on other determinants of trade. The first regression shows a positive and significant average effect: countries in this group tend to have 10 percent higher trade in the second half of the sample period than in the first half. The second and third regressions examine the effect of ownership using the two proxies. The conclusion with this different treatment group is remarkably similar to the earlier tables: Only countries with high degrees of ownership exhibit significantly higher trade volume in the second part of the sample period.

Are PRGF programs different?

The next extension investigates whether trade conditions work differently in Poverty Reduction and Growth Facility (PRGF)-eligible countries versus non-PRGF countries. The PRGF programs are designed for low-income countries with both balance-of-payments problems and structural issues. Many of the PRGF-eligible countries are prolonged users of Fund resources. It is conceivable that trade conditions in PRGF programs might have different impact from those in non-PRGF programs. To see if this is the case, separate regressions are run for these two sets of countries. Table 11 reports the regression results for the PRGF case. In the first two columns, the coefficients on the trade conditions dummy are insignificant. In the last two columns where the proxies for ownership and the trade conditions dummy are interacted, both proxies for ownership show positive coefficients, but only the second proxy is significant. Therefore, the central message is the same as before: The positive effect of trade conditions comes entirely from high-ownership programs.

Table 12 repeats the same four regressions for the non-PRGF treatment and control groups. The qualitative results are the same as before. The positive coefficients in the first two regressions are not statistically different from zero. With the first proxy for ownership, the interaction term between ownership and the trade conditions is not significant either. On the other hand, with the second proxy for ownership, the interaction term is still positive and significant.

Focusing on countries with explicit trade liberalization conditions

Some of the trade conditions might have ambiguous effects on trade openness. For example, customs reforms that are designed to strengthen tariff collection could reduce trade openness. To be on the conservative side, Table 13 reports some key regressions excluding the three countries in the sample that do not have explicit trade liberalization measures as part of their trade conditions. This change strengthens the basic conclusion, i.e., producing a somewhat larger effect of trade conditions on trade openness.

Correcting for a possible selection bias

The inclusion of trade conditions in IMF programs is not a random event. This could induce a selection bias if only countries that wanted to do trade reforms on their own would invite the Fund to include trade conditions in their programs, generating a positive association between trade conditions and trade reforms even though the former does not cause the latter. To formally address this possible selection bias, we employ a Heckman selection procedure to model the decision by the Fund to include trade conditions. The Fund maintains a measure of the restrictiveness of every member country's trade regime—the Trade Restrictive Index (TRI)—calculated by PDR and used as a guidance indicator for country work. A reasonable assumption is that trade conditions are more likely to be introduced in countries that are judged to have sufficiently restrictive regimes according to the TRI index (at least during most of the sample period). This feature can be utilized to devise a correction for the possible selection bias. First, a probit specification is used to estimate the relationship between the trade conditions dummy and the TRI index. Second, an implied Mills ratio is calculated to correct for the selection bias in the main regression. The analysis confirms a strongly positive relationship between a high initial value of the TRI index and an inclusion of trade conditions in a program.

Tables 14 and 15 report the regression results that correct for the selection bias in this way. It turns out that the selection bias is not quantitatively important. The ownership effect remains strong after accounting for the bias. In Table 14 in which two continuous measures of ownership are used, while the first proxy for ownership (implementation record of non-trade structural benchmarks) is positive but insignificant, the second proxy (share of non-prior actions in all conditions) remains positive and significant. This suggests that the second proxy is a more robust predictor of subsequent effectiveness of trade conditions. For both proxies, the size of the estimated effect of ownership on trade openness is broadly similar to the earlier analysis without controlling for the selection bias. In Table 15 in which high and low ownership cases are represented by two indicator variables, the effects of trade conditions are positive and significant in the high ownership cases and indifferent from zero in the low ownership cases.

Real reforms versus nominal implementation

It is possible that the two proxies for ownership are merely noisy estimates of whether trade conditions in the program agreements are implemented by the authorities. Conceptually, implementation of trade conditions and ownership are not the same thing: authorities with a low willingness to undertake trade reforms could implement the trade conditions to the letter of an agreement to secure financing from the Fund, but then undo the reforms by means not explicitly prohibited in the program agreement. Table 16 reports a set of regressions that include an explicit measure of the implementation of trade conditions (as assessed by the staff during reviews of the programs), interacted with the incidence of trade conditions. The coefficient on the new variable is insignificantly different from zero throughout the table. The two ownership measures are positive, though only the second proxy for ownership is statistically significant. This suggests that nominal implementation of trade conditions does not always translate into real and significant trade reforms, and ownership may be a more reliable predictor for the effectiveness of trade conditions.

Correcting for possible endogenous ownership

Ownership of programs may be endogenous. To investigate how this may affect the analysis, this paper hypothesizes that a country with a high quality of public governance is more likely to possess a high degree of ownership. A regression of either measure of ownership on a measure of governance confirms this hypothesis.

The World Bank (Kaufmann, Kraay, and Zoido-Lobaton, 1999) has compiled a composite governance index, which measures countries' strength in six dimensions: voice and accountability, government effectiveness, rule of law, anti-corruption, regulatory quality, and political stability. Table 17 reports regressions that use the World Bank's measure of public governance as an instrumental variable for ownership. The interaction term between trade conditions and the instrumented ownership continues to be positive for both measures of ownership. The interactive variable is statistically significant only for the first measure of ownership.

Balance-of-payments crises, and restrictions on capital account

Balance-of-payments crises and capital account restrictions could affect a country's trade openness. Table 18 reports regressions that control for these factors. Both BOP crises and capital account restrictions are associated with a lower level of trade. However, the estimates for the effects of trade conditions and ownership are broadly unchanged.

Table 1. IMF Programs with and without Trade Conditionality, 1993–2003

Country	T: Programs with trade conditionality					P: Programs without trade conditions					
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Albania	T	T	T	T		T	T	T	T	T	T
Algeria	T	T	T	T	T	T					
Argentina				P	P	P	P	T	T	T	T
Armenia			T	T	P	P	P		T	T	T
Azerbaijan			T	T	T	T	T		T	T	T
Bangladesh											T
Belarus			P	P							
Benin	T	T	T	T	T	T	T	T	P	P	P
Bolivia		P	P	P	P	T	T	T	T		T
Bosnia and Herzegovina						T	T	T	T	T	T
Brazil						P	P	P	P	P	
Bulgaria				P	T	T	T	T	T	T	T
Burkina Faso	T	T	T	T	T	T	T	T	T	T	P
Cambodia		T	T	T	T		T	T	T	T	T
Cameroon		P	P	P	P	P	P	T	T	T	T
Cape Verde						T	T	T		P	P
Central African Republic		T	T			T	T	T	T		
Chad			T	T	T	T	T	P	P	P	P
Colombia							P	P	P	P	P
Congo, Dem. Rep. of										T	T
Congo, Republic of		T	T	P	P						
Costa Rica	P	P	P	P	P						
Côte d'Ivoire		P	P	P	P	T	T	T	T		
Croatia		P	P	P	T	T	T	T	T	T	P
Czech Republic	P	P									
Djibouti				P	P	P	P	P	P	P	
Dominica										P	P
Dominican Republic	P	P									P
Ecuador		T	T					P	P		P
Egypt	T	T	T	T	T	T					
El Salvador	P	P	P	P	P	P	P	P			
Equatorial Guinea	T	T	T	T							
Estonia	P	P	P	T	T	P	P	P	P		
Ethiopia				T	T	T	T		T	T	T
Gabon		P	T	T	T	T	T	T	T	T	
Gambia						T	T	T	T		
Georgia			P	T	T	T	T		T	T	T
Ghana			T	T	T	T	T	T	T	T	P
Guatemala										P	P
Guinea					T	T	T	T	P	P	P
Guinea-Bissau			T	T	T	T		P	P	P	P
Guyana		T	T	T	T	T	T	T	T	P	P
Haiti			T	T	T	T	T				
Honduras							T	T	T	T	
Hungary	P	P			T	T	T				

Table 1. IMF Programs with and without Trade Conditionality, 1993–2003 (continued)

Country	T: Programs with trade conditionality					P: Programs without trade conditions					
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Indonesia					T	T	T	T	P	P	P
Jordan		T	T	T	T	T	T	T	T	T	T
Kazakhstan		T	T	T	T	T	T	T	T	T	
Kenya	T	T		P	P	P	P	T	T	T	T
Korea					P	P	P	P			
Kyrgyz Republic	P	T	T	T	T	T	T	T	T	P	P
Lao	T	T	T	T					T	T	T
Latvia	P	P	T	T	P	P	T	T	T	P	
Lesotho		P	P	P	P				P	P	P
Lithuania	P	T	T	T	T			T	T	T	T
Macedonia		P	P	P	P	P	P	P	P	P	T
Madagascar				T	T	T	T		P	P	P
Malawi		P	T	T	T	T		T	T	T	T
Mali				T	T	T	T	P	P	P	P
Mauritania			T	T	T	T	T	T	T	T	
Mexico			P	P	P		P	P			
Moldova	T	T	T	T	T	T	T	T	T	T	T
Mongolia	T	T	T	T	P	P	P	P	P	P	P
Mozambique		P	P	T	T	T	T	T	T	T	T
Nepal											T
Nicaragua		T	T	T	T	T	T	T	T	P	P
Niger		P	P	T	T	T	T	P	P	P	P
Nigeria								T	T		
Pakistan	P	T	T	T	T	T	T	T	T	T	T
Panama			T	T	T	T	T	T	P	P	
Papua New Guinea			P	P	P			P	P		
Paraguay											T
Peru	P	P	P	P	P	P	P	P	P	P	P
Philippines		T	T	T	T	P	P	P			
Poland	P	P	P	P							
Romania		P	P	P	P	P	T	T	T	P	P
Russia			T	T	T	T	T	T			
Rwanda						T	T	T	T	P	P
São Tomé and Príncipe								T	T	T	T
Senegal		T	T	T	T	T	T	T	T		P
Serbia and Montenegro										T	T
Sierra Leone		P	P						P	P	P
Slovak Republic		P	P	P							
Sri Lanka									T	T	
Tajikistan						T	T	T	T	P	P
Tanzania				P	P	P	P	T	T	T	T
Thailand					P	P	P	P			
Togo		P	P	P	P						
Turkey		P	P	P			P	P	P	T	T
Uganda		T	T	T	T	T	T	T		P	P

Table 1. IMF Programs with and without Trade Conditionality, 1993–2003 (concluded)

Country	T: Programs with trade conditionality					P: Programs without trade conditions					
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Ukraine			T	T	T	T	T	T	T	T	
Uruguay				P	P	P	P	T	T	T	T
Uzbekistan			T	T	T						
Venezuela				P	P						
Vietnam	T	T	T	T	T				T	T	T
Yemen				P	T	T	T	T	T		
Yugoslavia										P	P
Zambia			P	P			T	T	T	T	T
Zimbabwe						T	T	T			

Table 2. Summary Statistics of Trade Conditions, 1993–2003

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Fund-supported programs	23	33	28	32	21	21	20	23	21	17	15	254
Fund-supported Programs with trade condition	11	15	17	19	10	16	13	12	10	8	6	137
PRGF	8	7	5	11	4	11	7	6	7	2	2	70
EFF	1	3	2	5	3	3	2	0	0	1	0	20
SBA	2	5	10	3	3	2	4	6	3	5	4	47
Number of trade conditions	23	29	36	59	47	77	67	28	26	24	11	427
Prior Action (in percent)	9	34	33	41	62	29	24	25	42	17	45	33
Structural Benchmark (in percent)	78	55	47	46	30	57	46	50	38	71	36	50
Performance Criteria (in percent)	13	10	19	14	9	14	30	25	19	13	18	17
Nature of trade condition	23	29	36	59	47	77	67	28	26	24	11	427
Tariff reduction & rationalization	6	6	14	22	13	25	19	15	2	2	4	128
Removal of licensing requirement	10	10	8	9	6	5	4	3	2	1	0	58
Elimination of exemptions	2	0	0	6	3	7	5	1	1	0	1	26
Removal of quantitative restrictions	1	4	2	4	4	2	5	0	4	0	0	26
Custom reform	1	1	0	7	6	23	14	1	12	10	0	75
Other measures	3	8	12	11	15	15	20	8	5	11	6	114

Table 3. List of Countries in the Sample

Treatment Group 1	Control Group 1	Control Group 2	Treatment Group 2
Argentina	Belarus	Angola	Albania
Bolivia	Brazil	Antigua and Barbuda	Benin
Bosnia & Herzegovina	Colombia	The Bahamas	Burkina Faso
Bulgaria	Costa Rica	Kingdom of Bahrain	Cambodia
Cameroon	Czech	Barbados	Gabon
Cape Verde	Djibouti	Belize	Ghana
Côte d'Ivoire	Dominica	Burundi	Guinea-Bissau
Croatia	Dominican Republic	Chile	Guyana
Estonia	El Salvador	China,P.R.	Jordan
The Gambia	Guatemala	Hong Kong	Kazakhstan
Georgia	Korea	Comoros	Kenya
Guinea	Mexico	Cyprus	Kyrgyz Republic
Hungary	Papua New Guinea	Fiji	Lao
Indonesia	Peru	Grenada	Latvia
Madagascar	Poland	India	Lithuania
Mali	Sierra Leone	Iran	Malawi
Mozambique	Slovak	Israel	Mauritania
Niger	Thailand	Jamaica	Moldova
Nigeria	Togo	Kiribati	Mozambique
Romania	Venezuela	Kuwait	Nicaragua
Rwanda		Lebanon	Pakistan
São Tomé and Príncipe		Liberia	Senegal
Tajikistan		Malaysia	Uganda
Tanzania		Maldives	Ukraine
Uruguay		Mauritius	Vietnam
Yemen		Morocco	
Zambia		Oman	
		Samoa	
		Saudi Arabia	
		Seychelles	
		Singapore	
		Slovenia	
		Solomon Islands	
		South Africa	
		St. Kitts and Nevis	
		St. Lucia	
		St. Vincent and Grenadines	
		Sudan	
		Suriname	
		Syrian Arab Republic	
		Tonga	
		Trinidad and Tobago	
		Tunisia	
		Turkmenistan	
		United Arab Emirates	
		Vanuatu	

Notes: The groups are defined as follows:
Treatment Group 1: countries with trade conditions imposed after 1995 and before 2001.
Control Group 1: countries went through IMF-supported programs without trade conditions.
Control Group 2: developing countries that did not went through programs.
Treatment Group 2: countries with trade conditions imposed for more than 7 years.
Mozambique is in both treatment groups 1 and 2. No other country appears in more than one group.

Table 4. Average Effect of Trade Conditions

Dependent variable: real bilateral imports in log.	(1)	(2)	(3)	(4)	(5)	(6)
Trade condition	0.109	0.162	0.167	0.117	0.169	0.177
	(0.041)	(0.042)	(0.042)	(0.041)	(0.042)	(0.043)
IMF program		-0.092	-0.037		-0.094	-0.041
		(0.029)	(0.029)		(0.029)	(0.029)
Post IMF program		0.046	0.078		0.040	0.069
		(0.042)	(0.041)		(0.042)	(0.041)
Mills ratio for non-zero trade				0.467	0.466	0.525
				(0.102)	(0.102)	(0.103)
HMR probability of nonzero trade				0.435	0.441	0.370
				(0.164)	(0.164)	(0.163)
Real exchange rate (multilateral)			0.006			0.006
			(0.001)			(0.001)
Real exchange rate (bilateral)			0.001			0.001
			(0.000)			(0.000)
Importer WTO member, but not partner	-0.178	-0.158	-0.191	-0.159	-0.141	-0.170
	(0.099)	(0.099)	(0.099)	(0.098)	(0.098)	(0.098)
Importer and partner WTO members	0.306	0.327	0.281	0.318	0.338	0.292
	(0.067)	(0.067)	(0.067)	(0.067)	(0.067)	(0.066)
Common border	0.798	0.797	0.788	0.669	0.666	0.690
	(0.201)	(0.201)	(0.201)	(0.213)	(0.213)	(0.213)
Ever colony	1.423	1.422	1.425	1.395	1.395	1.390
	(0.220)	(0.220)	(0.219)	(0.222)	(0.222)	(0.222)
Common colony	1.074	1.073	1.062	1.064	1.063	1.049
	(0.118)	(0.118)	(0.118)	(0.118)	(0.118)	(0.118)
Common language	0.67	0.67	0.667	0.552	0.549	0.586
	(0.081)	(0.081)	(0.081)	(0.111)	(0.111)	(0.111)
Common currency	0.119	0.119	0.117	-0.077	-0.081	-0.015
	(0.249)	(0.249)	(0.249)	(0.279)	(0.279)	(0.279)
Log distance	-1.471	-1.471	-1.463	-1.273	-1.269	-1.317
	(0.038)	(0.038)	(0.037)	(0.113)	(0.113)	(0.113)
Free trade area	-0.151	-0.154	-0.137	-0.357	-0.36	-0.358
	(0.099)	(0.099)	(0.098)	(0.109)	(0.109)	(0.109)
Log real GDP importer	0.863	0.749	0.652	0.797	0.683	0.595
	(0.139)	(0.140)	(0.140)	(0.140)	(0.141)	(0.140)
Log real GDP exporter	0.409	0.410	0.424	0.379	0.379	0.408
	(0.163)	(0.163)	(0.164)	(0.169)	(0.169)	(0.170)
Log population importer	-1.581	-1.312	-0.965	-1.052	-0.773	-0.617
	(0.288)	(0.292)	(0.294)	(0.427)	(0.429)	(0.432)
Log population exporter	-0.113	-0.128	0.008	0.61	0.606	0.605
	(0.355)	(0.354)	(0.353)	(0.175)	(0.176)	(0.176)
Observations	49068	49068	49068	49068	49068	49068
R-squared	0.71	0.71	0.71	0.71	0.71	0.71

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 5. "During-Program" and "Post-Program" Effects in Weighted Regressions

Regression weights	Equal weights	Log real GDP	Log population	Log real imports
Trade Conditions during IMF program	0.140	0.115	0.118	-0.095
	(0.042)	(0.039)	(0.040)	(0.035)
Trade conditions after IMF program	0.374	0.347	0.354	0.126
	(0.073)	(0.068)	(0.069)	(0.059)
Real exchange rate (multilateral)	0.007	0.006	0.007	0.006
	(0.001)	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
IMF program	-0.027	-0.015	-0.014	0.057
	(0.029)	(0.028)	(0.028)	(0.025)
Post IMF program	-0.003	0.007	0.011	0.054
	(0.043)	(0.041)	(0.042)	(0.035)
Importer WTO member, but not partner	-0.206	-0.227	-0.215	-0.227
	(0.098)	(0.097)	(0.098)	(0.101)
Importer and partner WTO members	0.256	0.241	0.250	0.151
	(0.066)	(0.063)	(0.065)	(0.053)
Common border	0.689	0.708	0.719	0.520
	(0.213)	(0.208)	(0.212)	(0.189)
Ever colony	1.390	1.390	1.386	1.644
	(0.222)	(0.210)	(0.213)	(0.250)
Common colony	1.049	1.066	1.054	1.141
	(0.118)	(0.117)	(0.118)	(0.128)
Common language	0.585	0.578	0.553	0.450
	(0.111)	(0.108)	(0.108)	(0.114)
Common currency	-0.017	-0.013	-0.046	0.264
	(0.278)	(0.271)	(0.271)	(0.294)
Log distance	-1.315	-1.326	-1.306	-1.359
	(0.113)	(0.110)	(0.110)	(0.122)
Free trade area	-0.359	-0.379	-0.368	-0.030
	(0.109)	(0.105)	(0.107)	(0.108)
Log real GDP importer	0.601	0.664	0.661	1.031
	(0.140)	(0.135)	(0.136)	(0.137)
Log real GDP exporter	0.406	0.405	0.431	0.412
	(0.170)	(0.161)	(0.162)	(0.199)
Log population importer	-0.766	-0.856	-0.776	-1.441
	(0.432)	(0.417)	(0.422)	(0.431)
Log population exporter	0.607	0.617	0.576	0.765
	(0.176)	(0.170)	(0.171)	(0.288)
Mills ratio for non-zero trade	0.526	0.443	0.425	0.332
	(0.103)	(0.101)	(0.103)	(0.163)
HMR probability of nonzero trade	0.372	0.342	0.370	0.189
	(0.163)	(0.158)	(0.159)	(0.175)
Observations	49068	49068	49068	34306
R-squared	0.71	0.72	0.72	0.76

   Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 6. Time Profile of the Impact from Trade Conditions

	(1)	(2)	(3)
Year trade conditions introduced	0.030	0.024	0.027
	(0.044)	(0.040)	(0.041)
1st year after trade conditions was introduced	0.172	0.154	0.158
	(0.046)	(0.043)	(0.044)
2nd year	0.138	0.113	0.113
	(0.049)	(0.046)	(0.047)
Third year	0.160	0.135	0.139
	(0.048)	(0.046)	(0.046)
Fourth year	0.127	0.101	0.104
	(0.050)	(0.048)	(0.048)
Fifth year	0.155	0.123	0.127
	(0.053)	(0.050)	(0.051)
Sixth year	0.109	0.085	0.091
	(0.057)	(0.054)	(0.055)
Mills ratio for non-zero trade	0.527	0.444	0.426
	(0.103)	(0.101)	(0.103)
HMR probability of nonzero trade	0.363	0.334	0.362
	(0.164)	(0.158)	(0.159)
Importer WTO member, but not partner	-0.180	-0.200	-0.188
	(0.099)	(0.099)	(0.099)
Importer and partner WTO members	0.281	0.267	0.276
	(0.068)	(0.065)	(0.066)
Common border	0.693	0.712	0.723
	(0.213)	(0.208)	(0.212)
Ever colony	1.389	1.390	1.386
	(0.222)	(0.210)	(0.213)
Common colony	1.050	1.067	1.054
	(0.118)	(0.117)	(0.118)
Common language	0.589	0.582	0.557
	(0.111)	(0.108)	(0.109)
Common currency	-0.011	-0.008	-0.040
	(0.279)	(0.271)	(0.272)
Log distance	-1.321	-1.331	-1.311
	(0.113)	(0.110)	(0.110)
Free trade area	-0.356	-0.377	-0.365
	(0.109)	(0.105)	(0.107)
Log real GDP importer	0.683	0.742	0.740
	(0.141)	(0.136)	(0.137)
Log real GDP exporter	0.408	0.406	0.432
	(0.170)	(0.161)	(0.162)
Log population importer	-0.757	-0.841	-0.763
	(0.430)	(0.414)	(0.420)
Log population exporter	0.608	0.619	0.578
	(0.175)	(0.170)	(0.171)
Real exchange rate (multilateral)	0.007	0.007	0.007
	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)
Observations	49068	49068	49068
R-squared	0.71	0.72	0.72

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 7. Role of Ownership

Weighting:	Equally weighted			Weighted by Partners' Log real GDP		
Trade condition	0.036	-0.514	-0.704	0.030	-0.578	-0.746
	(0.114)	(0.199)	(0.196)	(0.103)	(0.188)	(0.188)
Trade condition * ownership 1	0.228		0.260	0.197		0.231
	(0.155)		(0.152)	(0.141)		(0.139)
Trade condition * ownership 2		0.795	0.829		0.840	0.870
		(0.233)	(0.227)		(0.218)	(0.214)
Importer WTO member, but not partner	-0.173	-0.203	-0.208	-0.195	-0.226	-0.231
	(0.098)	(0.098)	(0.098)	(0.098)	(0.098)	(0.098)
Importer and partner WTO members	0.288	0.260	0.254	0.273	0.243	0.238
	(0.066)	(0.067)	(0.067)	(0.064)	(0.064)	(0.064)
Common border	0.691	0.688	0.689	0.710	0.707	0.708
	(0.213)	(0.213)	(0.213)	(0.208)	(0.208)	(0.208)
Ever colony	1.389	1.391	1.390	1.390	1.391	1.391
	(0.222)	(0.222)	(0.222)	(0.210)	(0.210)	(0.210)
Common colony	1.050	1.047	1.047	1.067	1.064	1.064
	(0.118)	(0.118)	(0.118)	(0.117)	(0.117)	(0.117)
Common language	0.587	0.583	0.585	0.579	0.576	0.577
	(0.111)	(0.111)	(0.111)	(0.108)	(0.107)	(0.107)
Common currency	-0.013	-0.018	-0.015	-0.010	-0.015	-0.013
	(0.279)	(0.278)	(0.279)	(0.271)	(0.271)	(0.271)
Log distance	-1.318	-1.312	-1.313	-1.328	-1.322	-1.323
	(0.113)	(0.112)	(0.113)	(0.110)	(0.109)	(0.109)
Free trade area	-0.358	-0.360	-0.359	-0.378	-0.380	-0.380
	(0.108)	(0.109)	(0.108)	(0.105)	(0.105)	(0.105)
Log real GDP importer	0.611	0.658	0.679	0.673	0.725	0.744
	(0.141)	(0.141)	(0.141)	(0.136)	(0.136)	(0.136)
Log real GDP exporter	0.407	0.410	0.409	0.406	0.409	0.408
	(0.170)	(0.169)	(0.170)	(0.161)	(0.161)	(0.161)
Log population importer	-0.591	-0.414	-0.375	-0.688	-0.495	-0.460
	(0.431)	(0.434)	(0.432)	(0.416)	(0.417)	(0.416)
Log population exporter	0.607	0.599	0.602	0.618	0.610	0.612
	(0.176)	(0.175)	(0.176)	(0.170)	(0.170)	(0.170)
Real exchange rate (multilateral)	0.006	0.006	0.006	0.006	0.006	0.006
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001	0.001	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Mills ratio for non-zero trade	0.527	0.525	0.526	0.443	0.442	0.443
	(0.103)	(0.103)	(0.103)	(0.101)	(0.101)	(0.101)
HMR probability of nonzero trade	0.368	0.377	0.375	0.338	0.347	0.345
	(0.163)	(0.163)	(0.163)	(0.158)	(0.158)	(0.158)
IMF program	-0.039	-0.019	-0.015	-0.027	-0.006	-0.002
	(0.029)	(0.029)	(0.029)	(0.027)	(0.028)	(0.028)
Post IMF program	0.075	0.100	0.107	0.084	0.113	0.119
	(0.040)	(0.043)	(0.042)	(0.038)	(0.040)	(0.039)
Observations	49068	49068	49068	49068	49068	49068
R-squared	0.71	0.71	0.71	0.72	0.72	0.72

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 8. High vs. Low Ownership Relative to Median

	(1)	(2)
Trade condition * High ownership 1	0.297	
	(0.050)	
Trade condition * Low ownership 1	0.034	
	(0.060)	
Trade condition * High ownership 2		0.272
		(0.061)
Trade condition * Low ownership 2		0.076
		(0.051)
Importer WTO member, but not partner	-0.162	-0.206
	(0.097)	(0.098)
Importer and partner WTO members	0.297	0.258
	(0.066)	(0.067)
Common border	0.691	0.689
	(0.213)	(0.213)
Ever colony	1.388	1.390
	(0.222)	(0.222)
Common colony	1.048	1.047
	(0.118)	(0.118)
Common language	0.586	0.585
	(0.111)	(0.111)
Common currency	-0.015	-0.016
	(0.279)	(0.278)
Log distance	-1.315	-1.314
	(0.113)	(0.113)
Free trade area	-0.359	-0.359
	(0.109)	(0.109)
Log real GDP importer	0.587	0.620
	(0.140)	(0.140)
Log real GDP exporter	0.408	0.411
	(0.170)	(0.169)
Log population importer	-0.619	-0.506
	(0.431)	(0.432)
Log population exporter	0.605	0.600
	(0.176)	(0.175)
Real exchange rate (multilateral)	0.006	0.006
	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001
	(0.000)	(0.000)
IMF program	-0.026	-0.033
	(0.029)	(0.029)
Post IMF program	0.075	0.086
	(0.041)	(0.042)
Mills ratio for non-zero trade	0.532	0.526
	(0.103)	(0.103)
HMR probability of nonzero trade	0.372	0.373
	(0.163)	(0.163)
IMF program	-0.026	-0.033
	(0.029)	(0.029)
Post IMF program	0.075	0.086
	(0.041)	(0.042)
Observations	49068	49068
R-squared	0.71	0.71

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 9. Alternative Control Group

(Sample: Treatment Group 1 and Control Group 2 in Table 3)

	(1)	(2)	(3)
Trade condition	0.145	-0.045	-0.546
	(0.045)	(0.133)	(0.228)
Trade Condition * Ownership 1		0.286	
		(0.186)	
Trade Condition * Ownership 2			0.763
			(0.253)
Importer WTO member, but not partner	-0.22	-0.223	-0.241
	(0.087)	(0.087)	(0.087)
Importer and partner WTO members	0.216	0.213	0.196
	(0.054)	(0.054)	(0.054)
Common border	0.199	0.205	0.228
	(0.276)	(0.276)	(0.276)
Ever colony	1.433	1.431	1.432
	(0.205)	(0.205)	(0.205)
Common colony	0.633	0.633	0.632
	(0.090)	(0.090)	(0.090)
Common language	0.183	0.19	0.213
	(0.097)	(0.096)	(0.098)
Common currency	-0.209	-0.197	-0.156
	(0.251)	(0.251)	(0.252)
Log distance	-1.235	-1.244	-1.28
	(0.101)	(0.100)	(0.102)
Free trade area	-0.112	-0.111	-0.109
	(0.110)	(0.110)	(0.110)
Log real GDP importer	0.959	0.966	1.009
	(0.153)	(0.153)	(0.154)
Log real GDP exporter	0.300	0.298	0.310
	(0.179)	(0.179)	(0.178)
Log real population importer	-0.576	-0.577	-0.601
	(0.151)	(0.151)	(0.151)
Log real population exporter	1.439	1.427	1.310
	(0.439)	(0.439)	(0.441)
Bilateral real exchange rate	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Mills ratio for non-zero trade	0.360	0.361	0.359
	(0.093)	(0.093)	(0.093)
HMR probability of nonzero trade	0.811	0.797	0.742
	(0.148)	(0.148)	(0.151)
IMF program	-0.220	-0.204	-0.173
	(0.054)	(0.052)	(0.057)
Post IMF program	-0.043	-0.024	0.020
	(0.083)	(0.079)	(0.088)
Observations	56755	56755	56755
R-squared	0.73	0.73	0.73

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 10. Continuous Trade Reforms

(Sample: Treatment Group 2 and Control Group 1 in Table 3)

	(1)	(2)	(3)
Trade condition	0.096	-0.309	-0.490
	(0.048)	(0.089)	(0.482)
Trade condition * Ownership1		0.590	
		(0.113)	
Trade condition * Ownership 2			0.601
			(0.491)
Importer WTO member, but not partner	-0.159	-0.137	-0.167
	(0.101)	(0.101)	(0.101)
Importer and partner WTO members	0.343	0.361	0.334
	(0.066)	(0.066)	(0.067)
Common border	0.810	0.799	0.808
	(0.220)	(0.220)	(0.220)
Ever colony	1.338	1.338	1.339
	(0.210)	(0.211)	(0.210)
Common colony	1.255	1.255	1.254
	(0.116)	(0.116)	(0.116)
Common language	0.599	0.587	0.597
	(0.118)	(0.118)	(0.118)
Common currency	-0.024	-0.046	-0.028
	(0.311)	(0.311)	(0.311)
Log distance	-1.246	-1.228	-1.243
	(0.129)	(0.129)	(0.129)
Free trade area	0.384	0.381	0.384
	(0.127)	(0.127)	(0.127)
Log real GDP importer	0.554	0.616	0.566
	(0.173)	(0.173)	(0.173)
Log real GDP exporter	0.472	0.471	0.471
	(0.195)	(0.195)	(0.195)
Log real population importer	0.146	-0.02	0.196
	(0.506)	(0.506)	(0.507)
Log real population exporter	0.551	0.539	0.549
	(0.194)	(0.194)	(0.194)
Bilateral real exchange rate	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)
Mills ratio for non-zero trade	0.183	0.182	0.182
	(0.104)	(0.104)	(0.104)
HMR probability of nonzero trade	0.293	0.319	0.297
	(0.186)	(0.186)	(0.186)
IMF program	-0.163	-0.156	-0.161
	(0.044)	(0.044)	(0.044)
Post IMF program	-0.196	-0.191	-0.193
	(0.054)	(0.054)	(0.054)
Observations	41375	41375	41375
R-squared	0.71	0.71	0.71

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 11. PRGF Programs

	(1)	(2)	(3)	(4)
Trade condition	0.002	-0.001	-0.189	-0.523
	(0.069)	(0.069)	(0.153)	(0.259)
Trade condition * ownership 1			0.298	
			(0.196)	
Trade condition * ownership 2				0.589
				(0.291)
IMF program	0.193	0.201	0.211	0.230
	(0.058)	(0.057)	(0.056)	(0.059)
Post IMF program	0.321	0.333	0.359	0.361
	(0.097)	(0.097)	(0.093)	(0.099)
Importer WTO member, but not partner	-0.588	-0.534	-0.539	-0.522
	(0.201)	(0.193)	(0.193)	(0.193)
Importer and partner WTO members	0.241	0.184	0.179	0.199
	(0.134)	(0.134)	(0.134)	(0.134)
Common border	0.862	0.870	0.873	0.862
	(0.331)	(0.353)	(0.353)	(0.353)
Ever colony	1.764	1.273	1.272	1.277
	(0.371)	(0.430)	(0.430)	(0.430)
Common colony	0.769	0.886	0.890	0.885
	(0.145)	(0.141)	(0.141)	(0.141)
Common language	0.292	0.467	0.469	0.459
	(0.122)	(0.169)	(0.169)	(0.168)
Common currency	0.488	0.749	0.751	0.736
	(0.243)	(0.325)	(0.325)	(0.325)
Log distance	-1.696	-2.068	-2.070	-2.057
	(0.087)	(0.198)	(0.198)	(0.198)
Free trade area	1.668	1.539	1.529	1.539
	(0.288)	(0.301)	(0.302)	(0.301)
Log real GDP importer	0.243	0.283	0.293	0.263
	(0.228)	(0.226)	(0.226)	(0.226)
Log real GDP exporter	-0.133	-0.042	-0.046	-0.039
	(0.272)	(0.273)	(0.275)	(0.272)
Log population importer	-2.353	-3.679	-3.662	-3.333
	(0.601)	(0.790)	(0.791)	(0.804)
Log population exporter	1.648	1.325	1.331	1.312
	(0.590)	(0.307)	(0.309)	(0.306)
Real exchange rate (multilateral)	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mills ratio for non-zero trade		2.047	2.047	2.042
		(0.201)	(0.201)	(0.202)
HMR probability of nonzero trade		0.299	0.295	0.317
		(0.273)	(0.273)	(0.272)
Observations	17519	17519	17519	17519
R-squared	0.64	0.64	0.64	0.64

   Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 12. Non-PRGF Programs

	(1)	(2)	(3)	(4)
Trade condition	0.054	0.056	-0.005	-0.445
	(0.059)	(0.059)	(0.182)	(0.308)
Trade condition * ownership 1			0.089	
			(0.264)	
Trade condition * ownership 2				0.580
				(0.345)
IMF program	-0.043	-0.044	-0.044	-0.033
	(0.035)	(0.035)	(0.035)	(0.035)
Post IMF program	0.041	0.039	0.037	0.054
	(0.047)	(0.047)	(0.047)	(0.047)
Importer WTO member, but not partner	0.003	0.006	0.005	-0.026
	(0.110)	(0.110)	(0.110)	(0.111)
Importer and partner WTO members	0.193	0.197	0.197	0.166
	(0.075)	(0.075)	(0.075)	(0.076)
Common border	0.588	0.354	0.355	0.356
	(0.225)	(0.238)	(0.238)	(0.238)
Ever colony	1.163	1.187	1.187	1.188
	(0.271)	(0.272)	(0.272)	(0.272)
Common colony	2.369	2.360	2.360	2.358
	(0.224)	(0.225)	(0.225)	(0.225)
Common language	0.884	0.637	0.638	0.640
	(0.115)	(0.146)	(0.147)	(0.146)
Common currency	1.276	0.847	0.850	0.851
	(0.962)	(0.975)	(0.976)	(0.974)
Log distance	-1.317	-0.941	-0.942	-0.944
	(0.042)	(0.134)	(0.134)	(0.134)
Free trade area	-0.058	-0.128	-0.127	-0.128
	(0.100)	(0.107)	(0.107)	(0.107)
Log real GDP importer	0.204	0.108	0.099	0.195
	(0.217)	(0.218)	(0.217)	(0.220)
Log real GDP exporter	0.651	0.568	0.568	0.570
	(0.196)	(0.204)	(0.204)	(0.204)
Log population importer	-1.401	-0.330	-0.345	-0.248
	(0.454)	(0.589)	(0.590)	(0.585)
Log population exporter	-0.838	0.284	0.285	0.285
	(0.426)	(0.205)	(0.205)	(0.205)
Real exchange rate (multilateral)	0.012	0.012	0.012	0.012
	(0.001)	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.002	0.002	0.002	0.002
	(0.000)	(0.000)	(0.000)	(0.000)
Mills ratio for non-zero trade		0.106	0.106	0.111
		(0.116)	(0.116)	(0.117)
HMR probability of nonzero trade		0.598	0.596	0.594
		(0.196)	(0.196)	(0.196)
Observations	31232	31232	31232	31232
R-squared	0.76	0.76	0.76	0.76

   Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 13. Excluding Programs Without Explicit Trade Liberalization Conditions

	(1)	(2)	(3)	(4)
Trade condition	0.163	0.173	0.063	-0.494
	(0.046)	(0.046)	(0.124)	(0.211)
Trade condition * ownership 1			0.184	
			(0.175)	
Trade condition * ownership 2				0.781
				(0.253)
IMF program	-0.042	-0.046	-0.043	-0.025
	(0.030)	(0.030)	(0.030)	(0.031)
Post IMF program	0.090	0.081	0.086	0.107
	(0.042)	(0.042)	(0.041)	(0.043)
Importer WTO member, but not partner	-0.202	-0.180	-0.184	-0.218
	(0.100)	(0.100)	(0.100)	(0.100)
Importer and partner WTO members	0.297	0.307	0.302	0.270
	(0.067)	(0.067)	(0.067)	(0.067)
Common border	0.797	0.674	0.676	0.674
	(0.213)	(0.226)	(0.226)	(0.226)
Ever colony	1.470	1.442	1.442	1.443
	(0.233)	(0.235)	(0.235)	(0.235)
Common colony	1.044	1.028	1.028	1.025
	(0.127)	(0.127)	(0.127)	(0.127)
Common language	0.693	0.587	0.589	0.586
	(0.086)	(0.116)	(0.116)	(0.116)
Common currency	-0.104	-0.270	-0.268	-0.269
	(0.254)	(0.285)	(0.285)	(0.285)
Log distance	-1.451	-1.269	-1.270	-1.267
	(0.038)	(0.116)	(0.116)	(0.116)
Free trade area	-0.140	-0.348	-0.347	-0.350
	(0.099)	(0.109)	(0.109)	(0.109)
Log real GDP importer	0.670	0.604	0.609	0.668
	(0.141)	(0.142)	(0.142)	(0.143)
Log real GDP exporter	0.401	0.376	0.376	0.378
	(0.169)	(0.175)	(0.176)	(0.175)
Log population importer	-1.011	-0.557	-0.527	-0.346
	(0.300)	(0.441)	(0.440)	(0.444)
Log population exporter	-0.073	0.609	0.611	0.605
	(0.364)	(0.180)	(0.180)	(0.180)
Real exchange rate (multilateral)	0.006	0.006	0.006	0.006
	(0.001)	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
Mills ratio for non-zero trade		0.494	0.495	0.494
		(0.104)	(0.104)	(0.104)
HMR probability of nonzero trade		0.413	0.411	0.417
		(0.168)	(0.168)	(0.168)
Observations	45878	45878	45878	45878
R-squared	0.71	0.71	0.71	0.71

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 14. Accounting for Endogenous Trade Condtions Using Trade Restrictive Index

	(1)	(2)	(3)
Trade condition	0.068	-0.069	-0.642
	(0.046)	(0.117)	(0.199)
Trade condition * ownership 1		0.224	
		(0.155)	
Trade condition * ownership 2			0.811
			(0.233)
Importer WTO member, but not partner	-0.197	-0.200	-0.232
	(0.098)	(0.098)	(0.098)
Importer and partner WTO members	0.266	0.262	0.232
	(0.066)	(0.067)	(0.067)
Common border	0.691	0.692	0.689
	(0.213)	(0.213)	(0.213)
Ever colony	1.390	1.389	1.391
	(0.222)	(0.222)	(0.222)
Common colony	1.049	1.050	1.046
	(0.118)	(0.118)	(0.118)
Common language	0.586	0.587	0.584
	(0.111)	(0.111)	(0.111)
Common currency	-0.015	-0.013	-0.018
	(0.279)	(0.279)	(0.279)
Log distance	-1.317	-1.319	-1.313
	(0.113)	(0.113)	(0.112)
Free trade area	-0.359	-0.359	-0.361
	(0.109)	(0.108)	(0.109)
Log real GDP importer	0.567	0.582	0.630
	(0.141)	(0.142)	(0.141)
Log real GDP exporter	0.409	0.408	0.411
	(0.170)	(0.170)	(0.169)
Log population importer	-0.654	-0.627	-0.448
	(0.432)	(0.431)	(0.434)
Log population exporter	0.605	0.608	0.600
	(0.176)	(0.176)	(0.176)
Real exchange rate (multilateral)	0.007	0.006	0.006
	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001	0.001
	0.000	0.000	0.000
Mills ratio for selection of trade conditions	-0.115	-0.114	-0.120
	(0.031)	(0.031)	(0.031)
Mills ratio for non-zero trade	0.526	0.527	0.526
	(0.103)	(0.103)	(0.103)
HMR probability of nonzero trade	0.369	0.367	0.376
	(0.163)	(0.163)	(0.163)
IMF program	-0.033	-0.03	-0.010
	(0.029)	(0.029)	(0.029)
Post IMF program	0.087	0.092	0.119
	(0.041)	(0.040)	(0.042)
Observations	49068	49068	49068
R-squared	0.71	0.71	0.71

   Notes: Endogeneity of trade conditions is accounted for by regressing trade conditions on IMF's Trade Restrictive Index. Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 15. Discrete Measures of Ownership, with Correction for Selection Bias

	(1)	(2)
Trade condition * High ownership 1	0.188	
	(0.052)	
Trade condition * Low ownership 1	-0.077	
	(0.064)	
Trade condition * High ownership 2		0.162
		(0.063)
Trade condition * Low ownership 2		-0.039
		(0.054)
Mills ratio for non-zero trade	0.533	0.527
	(0.103)	(0.103)
HMR probability of nonzero trade	0.372	0.373
	(0.163)	(0.163)
Importer WTO member, but not partner	-0.189	-0.235
	(0.098)	(0.099)
Importer and partner WTO members	0.271	0.230
	(0.066)	(0.067)
Common border	0.692	0.690
	(0.213)	(0.213)
Ever colony	1.388	1.390
	(0.222)	(0.222)
Common colony	1.048	1.047
	(0.118)	(0.118)
Common language	0.586	0.585
	(0.111)	(0.111)
Common currency	-0.015	-0.016
	(0.279)	(0.279)
Log distance	-1.316	-1.315
	(0.113)	(0.113)
Free trade area	-0.360	-0.360
	(0.109)	(0.109)
Log real GDP importer	0.558	0.591
	(0.141)	(0.140)
Log real GDP exporter	0.408	0.412
	(0.170)	(0.169)
Log population importer	-0.656	-0.541
	(0.431)	(0.432)
Log population exporter	0.606	0.600
	(0.176)	(0.175)
Real exchange rate (multilateral)	0.007	0.007
	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001
	0.000	0.000
IMF program	-0.018	-0.024
	(0.029)	(0.029)
Post IMF program	0.093	0.104
	(0.041)	(0.042)
Mills ratio for TC selection	-0.116	-0.118
	(0.031)	(0.031)
Observations	49068	49068
R-squared	0.71	0.71

   Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 16. Nominal Implementation of Trade Conditions

	(1)	(2)	(3)	(4)
Trade condition	0.158	0.180	0.060	-0.540
	(0.102)	(0.102)	(0.151)	(0.194)
Trade condition * Implementation of trade conditions	0.011	-0.005	-0.040	0.028
	(0.113)	(0.113)	(0.106)	(0.110)
Trade condition * ownership 1			0.238	
			(0.146)	
Trade condition * ownership 2				0.801
				(0.226)
Importer WTO member, but not partner	-0.191	-0.170	-0.174	-0.202
	(0.099)	(0.098)	(0.098)	(0.098)
Importer and partner WTO members	0.281	0.291	0.287	0.260
	(0.067)	(0.066)	(0.066)	(0.067)
Common border	0.788	0.689	0.690	0.689
	(0.201)	(0.213)	(0.213)	(0.213)
Ever colony	1.425	1.390	1.389	1.391
	(0.219)	(0.222)	(0.222)	(0.222)
Common colony	1.063	1.049	1.049	1.047
	(0.118)	(0.118)	(0.118)	(0.118)
Common language	0.667	0.586	0.586	0.584
	(0.081)	(0.111)	(0.111)	(0.111)
Common currency	0.117	-0.015	-0.014	-0.017
	(0.249)	(0.278)	(0.278)	(0.278)
Log distance	-1.463	-1.317	-1.317	-1.313
	(0.038)	(0.113)	(0.113)	(0.112)
Free trade area	-0.137	-0.358	-0.358	-0.360
	(0.098)	(0.109)	(0.108)	(0.109)
Log real GDP importer	0.653	0.595	0.609	0.661
	(0.141)	(0.141)	(0.142)	(0.142)
Log real GDP exporter	0.424	0.408	0.407	0.410
	(0.164)	(0.170)	(0.170)	(0.169)
Log population importer	-0.961	-0.619	-0.601	-0.405
	(0.290)	(0.431)	(0.431)	(0.431)
Log population exporter	0.009	0.605	0.607	0.600
	(0.353)	(0.176)	(0.176)	(0.175)
IMF program	-0.037	-0.041	-0.039	-0.018
	(0.029)	(0.029)	(0.029)	(0.029)
Post IMF program	0.079	0.069	0.073	0.102
	(0.040)	(0.040)	(0.040)	(0.041)
Real exchange rate (multilateral)	0.006	0.006	0.006	0.006
	(0.001)	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001	0.001	0.001
	0.000	0.000	0.000	0.000
Mills ratio for non-zero trade		0.525	0.527	0.525
		(0.103)	(0.103)	(0.103)
HMR probability of nonzero trade		0.370	0.369	0.375
		(0.163)	(0.163)	(0.163)
Observations	49068	49068	49068	49068
R-squared	0.71	0.71	0.71	0.71

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 17. Accounting for Endogenous Ownership Using Governance

	(1)	(2)
Trade condition	-0.141	0.079
	(0.115)	(0.144)
Trade conditions * Ownership 1	0.907	
	(0.225)	
Trade conditions * Ownership 2		0.265
		(0.229)
Importer WTO member, but not partner	-0.282	-0.237
	(0.103)	(0.104)
Importer and partner WTO members	0.223	0.268
	(0.072)	(0.074)
Common border	0.685	0.685
	(0.209)	(0.209)
Ever colony	1.173	1.174
	(0.197)	(0.197)
Common colony	1.010	1.009
	(0.123)	(0.123)
Common language	0.601	0.601
	(0.116)	(0.116)
Common currency	0.039	0.039
	(0.282)	(0.282)
Log distance	-1.239	-1.240
	(0.116)	(0.116)
Free trade area	-0.250	-0.250
	(0.109)	(0.109)
Log real GDP importer	0.770	0.737
	(0.151)	(0.159)
Log real GDP exporter	0.386	0.391
	(0.175)	(0.174)
Log population importer	-0.453	-0.564
	(0.472)	(0.470)
Log population exporter	0.624	0.619
	(0.180)	(0.180)
Real exchange rate (multilateral)	0.006	0.007
	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001
	0.000	0.000
Mills ratio for non-zero trade	0.505	0.501
	(0.112)	(0.112)
HMR probability of nonzero trade	0.360	0.359
	(0.169)	(0.168)
IMF program	-0.040	-0.051
	(0.030)	(0.030)
Post IMF program	0.111	0.098
	(0.042)	(0.043)
Observations	45392	45392
R-squared	0.72	0.72

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 18. BOP Crisis and Capital Account Restrictions

	(1)	(2)	(3)
Trade condition	0.168	0.021	-0.523
	(0.043)	(0.113)	(0.199)
Trade condition * ownership 1		0.239	
		(0.155)	
Trade condition * ownership 2			0.796
			(0.233)
Capital Account Control	-0.166	-0.167	-0.168
	(0.041)	(0.041)	(0.041)
Dummy for BOP crisis	-0.117	-0.119	-0.115
	(0.032)	(0.031)	(0.032)
Importer WTO member, but not partner	-0.161	-0.165	-0.194
	(0.098)	(0.098)	(0.098)
Importer and partner WTO members	0.304	0.301	0.273
	(0.066)	(0.067)	(0.067)
Common border	0.689	0.691	0.688
	(0.213)	(0.213)	(0.213)
Ever colony	1.389	1.388	1.390
	(0.222)	(0.222)	(0.222)
Common colony	1.049	1.050	1.047
	(0.118)	(0.118)	(0.118)
Common language	0.586	0.587	0.583
	(0.111)	(0.111)	(0.111)
Common currency	-0.016	-0.013	-0.018
	(0.279)	(0.279)	(0.279)
Log distance	-1.317	-1.318	-1.312
	(0.113)	(0.113)	(0.112)
Free trade area	-0.359	-0.359	-0.361
	(0.109)	(0.109)	(0.109)
Log real GDP importer	0.429	0.444	0.492
	(0.141)	(0.142)	(0.141)
Log real GDP exporter	0.410	0.409	0.412
	(0.170)	(0.170)	(0.169)
Log population importer	-0.520	-0.492	-0.316
	(0.432)	(0.431)	(0.434)
Log population exporter	0.604	0.607	0.599
	(0.176)	(0.176)	(0.175)
Real exchange rate (multilateral)	0.006	0.006	0.006
	(0.001)	(0.001)	(0.001)
Real exchange rate (bilateral)	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)
Mills ratio for non-zero trade	0.525	0.526	0.525
	(0.103)	(0.103)	(0.103)
HMR probability of nonzero trade	0.370	0.368	0.377
	(0.163)	(0.163)	(0.163)
IMF program	0.032	0.036	0.053
	(0.035)	(0.034)	(0.035)
Post IMF program	0.086	0.092	0.117
	(0.041)	(0.041)	(0.043)
Observations	49068	49068	49068
R-squared	0.71	0.71	0.71

Notes: Standard errors are based on country pair clustering. Separate importer, exporter, and year fixed effects are included but not reported.

Table 19. Correlations of Measures for Ownership and Implementation Records of Trade Conditions

	Ownership 1	*Ownership 2*	*Implementation of Trade Conditions*
Ownership 1 1/	1.00	0.01	0.18
Ownership 2 1/	0.01	1.00	0.06
Implementation of Trade Conditions 2/	0.18	0.06	1.00

1/ Ownership 1 is defined as the share of non-trade benchmarks successfully implemented. Ownership 2 is defined as the share of non-prior-action conditions among all conditions.

2/ Fraction of trade conditions successfully implemented.

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