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Re-Evaluating the Effectiveness of Trade Conditions in Fund-Supported Programs

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Abstract

This paper evaluates the effect of trade conditionality on trade volumes using a gravity-model approach. It replicates an earlier study by Wei and Zhang (2005) with updated data, and finds some evidence of a favorable effect. However, the effect is weak or non-existent in some specifications, for certain types of conditions, and for certain types of IMF-supported programs.

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Contents	Page
I. Introduction	5
II. Model Specification and Data	6
III. Results.....	8
Tables	
Table 1. Summary Statistics	7
Table 2. Results of Estimation with Country and Year Fixed Effects and Trade as the Dependent Variable	9
Table 3. Results of Estimation with Trade Conditionality Narrowly Defined, Country and Year Fixed Effects, and Trade as the Dependent Variable	10
Table 4. Results of Estimation with Random Effects and Trade as the Dependent Variable..	11
Annexes	
Annex Table 1. List of Countries in the Sample.....	14
Annex Table 2. Results of Estimation with Country and Year Fixed Effects and Imports as the Dependable Variable	15
Annex Table 3. Results of Estimation with Trade Conditionality Narrowly Defined, Country and Year Fixed Effects, and Imports as the Dependent Variable.....	16
Annex Table 4. Results of Estimation with Random Effects and Imports as the Dependent Variable	17
References.....	13

I. INTRODUCTION

1. This paper addresses the question of how effective the IMF's involvement in trade policy has been. There are no straightforward metrics for assessing the effectiveness of IMF involvement in trade policy issues. At the broadest level, and consonant with some of the academic literature, one can ask if there is evidence that IMF involvement has increased trade volumes. The typical statistical framework used to answer this question is an augmented gravity model. Such a model has enjoyed empirical success because of its ability to explain a relatively large fraction of variations in observed volumes of international trade, and has been applied to analyze the effect of a variety of policies on trade (Subramanian and Wei, 2003; Rose, 2004, 2005).

2. Rose (2005) uses a gravity model with data from 1948 to 1999 to test if membership in the IMF is associated with greater trade flows. The motivation is that one of the IMF's purposes is to facilitate the expansion and balanced growth of international trade and that "[t]he IMF seems to take this objective seriously" (Rose, 2005). He finds no evidence that IMF membership positively affects trade; indeed, in certain specifications, the relationship is negative. But a country's membership in the IMF may not be a good indicator of the extent of the IMF's involvement in its trade policy. Rose (2005) himself concedes that the IMF has numerous competing objectives that might be expected to moderate the effect of Fund membership on trade.

3. Can we use the gravity model or other econometric technique to estimate the effectiveness of the IMF's involvement in trade policy more specifically? The various different channels through which the IMF may affect trade policy pose a challenge to econometric estimation. For example, how can one identify the effect of trade policy advice offered by IMF missions in the context of Article IV consultations, given that these consultations are held approximately once a year and trade policy advice may or may not be provided every time in any given country? Not surprisingly, therefore, the literature has zeroed in on IMF conditionality. Rose (2005), for example, argues that "[t]he Fund has the ability to put its desires into practice since it lends with conditionality, and program conditions often involve trade liberalization." Since Fund-supported programs are discrete instances of IMF involvement, this channel of involvement lends itself more easily to econometric techniques.

4. There are mixed results on the effectiveness of IMF conditionality on trade flows. Rose (2005) performs an event-study type of analysis for the decade around the implementation of IMF programs (covering some 829 programs in 139 countries during 1950–98) and finds no evidence that IMF programs increased trade. On the other hand, using a gravity-model approach (with data from 1993 to 2003), Wei and Zhang (2005) find that IMF conditionality on trade policy did have a positive effect on trade flows over the medium term. Rose's (2005) analysis is based on a longer time series but it makes the extreme assumption that all IMF programs

contained trade conditionality.¹ Wei and Zhang's (2005) analysis is based on more recent data and an effort to identify trade conditions in IMF programs—drawing from the IMF's Monitoring of Fund Arrangements (MONA) database—although their time series is relatively short for use in a gravity-model approach. Because the MONA database goes back only to 1993 (with a break in methodology around 2003), there is a trade-off between the length of the time series and data on trade policy conditions.

5. The present paper revisits the question of the effectiveness of IMF trade conditionality, focusing on the evaluation period 1996–2007. It replicates Wei and Zhang's (2005) approach with minor modifications and revised and updated data.

II. MODEL SPECIFICATION AND DATA

6. We estimate the effect of IMF trade conditionality on trade flows using a gravity-model approach along the lines of Wei and Zhang's (2005). The benchmark model is:

$$\ln(Z_{ij,t}) = \alpha_1 Imp_i + \alpha_2 Exp_j + \alpha_3 Year_t + \beta X_{ij,t} + \gamma TC_i + \varepsilon_{ij,t}$$

where the dependent variable $Z_{ij,t}$ is the log of country i 's merchandise trade (imports plus exports) with country j in year t . On the right hand side:

- Imp_i , Exp_j , and $Year_t$ are importer, exporter, and year fixed effects, respectively. Following Wei and Zhang (2005), the importer and exporter fixed effects are time-invariant to allow us to isolate the effect of trade conditions. (We also experiment with a random effects model.)
- $X_{ij,t}$ 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 countries i and j ; dummies for common language and colonial links, shared borders, common currency, and trade preferences; a dummy for imports by one WTO member from another member; and a dummy for imports by one WTO member from a nonmember.
- TC_{it} is a dummy variable that takes the value of one for country i in year t if the country had IMF trade conditions in that year or any year before t during 1996–2007. For example, if 1999 was the first year that trade conditions were applied to country i during the sample period, the TC dummy for that country takes the value of zero during 1996–98 and one during 1999–2007.

¹ All IMF programs do include a continuous performance criterion prohibiting the imposition or intensification of trade restrictions for balance of payments purposes.

7. Since IMF trade conditionality is typically designed to liberalize trade (both imports and exports), we depart from Wei and Zhang (2005) by using trade, rather than just imports, as the dependent variable.² However, for comparison, we also estimate the specification with imports as the dependent variable, as noted below.

8. Our sample consists of all 226 IMF-supported programs that began between 1996 and 2007 (inclusive) in 92 countries. Of these programs, 165 contained trade conditionality in the form of prior actions, structural performance criteria, and structural benchmarks in the following areas: tariffs, nontariff barriers, export restrictions, export subsidies, state trading monopolies, and customs administration.³ The data on trade conditions were obtained from a review of all program requests (comprising letters of intent, memoranda of economic and financial policies, and associated staff reports) from 1996 through 2007, supplemented by data from the MONA database.⁴ Table 1 provides summary statistics of the variables used.

Table 1. Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
Trade conditionality (TC)	0.544	0.4980	0.000	1.000
Log merchandise trade	1.099	3.4931	-4.605	12.831
Log merchandise import	0.935	3.1466	-28.683	11.919
Log real GDP, importing country	9.833	1.0320	4.562	11.974
Log real GDP, partner country	10.169	1.1874	4.562	13.061
Log population, importing country	7.013	0.6737	4.855	8.277
Log population, partner country	6.899	0.8148	4.603	9.120
Log distance between importing and partner countries	6.748	1.1675	4.367	9.421
Common border dummy	0.010	0.1015	0.000	1.000
Common colony dummy	0.001	0.0252	0.000	1.000
Common language dummy	0.052	0.2239	0.000	1.000
Land locked economy dummy	0.765	0.9719	0.000	2.000
Island country dummy	0.229	0.4473	0.000	2.000
WTO membership of importer country	0.841	0.3654	0.000	1.000
WTO membership of partner country	0.806	0.3953	0.000	1.000

Note: Number of observations = 78261.

² Rose (2004, 2005) also uses trade rather than imports as the dependent variable.

³ As noted above, all IMF-supported programs include in their legal text a continuous performance criterion prohibiting the imposition/intensification of import restrictions for balance of payments reasons. Therefore, technically one could say that all IMF-supported programs contain trade conditionality. However, this continuous performance criterion is seldom included in the letter of intent or MEFPP for the program, which is the standard that we (and Wei and Zhang, 2005) use.

⁴ The MONA database records for each program all conditions inserted during the life of the program. Hence it has the advantage of being comprehensive because it takes into account the multi-year nature of most IMF arrangements. But the categorization of structural conditions in the MONA database is unreliable (for example, conditions classified under “trade regime” were not always found to be related to trade). For this reason, we relied on our own review of program requests (on the assumption that key structural conditions would be included in the initial request most of the time) and only used the MONA database to look for additional trade conditions that were introduced after the initial program request.

9. In the benchmark specification with importer, exporter, and year fixed effects, the treatment group includes 43 countries that had trade conditions in their IMF-supported programs between 1998 and 2005, during the middle of the sample period.⁵ The control group includes 13 countries that had IMF-supported programs but no trade conditions. The countries in the treatment and control groups are shown in Annex Table 1.

III. RESULTS

10. The results of the estimation of the benchmark model are shown in Table 2. They provide weak evidence that trade conditionality is effective. After accounting for the usual factors that affect trade openness and for potential selection bias (see below), IMF conditions on trade are found to be associated with an increase in trade volumes of around 4 percent. The results for the standard gravity variables are in line with the literature.

11. When the treatment sample is narrowed to include only countries that had arrangements under the Poverty Reduction and Growth Facility (PRGF), the effect of trade conditionality is stronger (almost 10 percent) and more statistically significant. Conversely, the effect of trade conditionality in other types of Fund-supported programs on trade flows is small and not significantly different from zero.

12. Hence, trade conditionality seems to be effective in increasing trade flows only when it is included in medium-term IMF-supported programs that have a focus on structural reforms and growth, and not when it is included in IMF-supported programs that are designed solely or primarily to address short-term balance of payments problems.⁶

13. The regressions are corrected for potential selection bias. As Wei and Zhang (2005) point out, the inclusion of trade conditions in any given IMF-supported program may not be a random choice. If the countries that had trade conditionality in their IMF-supported programs were the same ones that were going to introduce trade reforms on their own, then we would have overestimated the positive association between the presence of trade conditions and a subsequent increase in trade volume. Following Wei and Zhang (2005), we corrected for this selection bias through a Heckman selection procedure. Based on the probit specification in Yang and

⁵ If a country had trade conditions in its IMF-supported program at the start of the sample period, the *TC* dummy for this country would take the value of one throughout the sample period and it would therefore be perfectly correlated with the importer fixed effect for this country. Conversely, if a country had no trade conditions until the end of the sample period, the *TC* dummy would take the value of zero throughout the sample. In either case, the effect of the treatment of trade conditions cannot be identified. To get around this problem, we follow Wei and Zhang (2005) by limiting our analysis to countries where trade conditions were introduced no earlier than 1998 (two years after the start of the sample period) but no later than 2005 (two years before the end of the sample period).

⁶ The results are very similar when the PRGF treatment sample is expanded to include countries with arrangements supported by the Extended Fund Facility (EFF) as well as the PRGF. The EFF is designed to help countries address longer-term balance of payments problems requiring fundamental economic reforms. Like PRGF arrangements, EFF arrangements typically last around three years.

Yoon (2009), we estimated the decision to include trade conditionality in an IMF-supported program as a function of the trade restrictiveness index (calculated by the IMF) and real per capita income, as well as the streamlining initiative that the IMF introduced in 2000.⁷ The inverse Mills ratio calculated from these estimated parameters is included in the gravity-model equation(s) in Table 2.

Table 2. Results of Estimation with Country and Year Fixed Effects and Trade as the Dependent Variable

Dependent Variable: Bilateral trade in log	All Countries	Countries with PRGF-supported programs	Non-PRGF Countries
Trade Conditionality (TC)	0.041* [0.030]	0.102** [0.039]	-0.015 [0.049]
Log Importing Country Real GDP	0.543*** [0.060]	0.422*** [0.098]	0.180* [0.099]
Log Partner Real GDP	0.240*** [0.056]	0.170** [0.079]	0.302*** [0.081]
Log Importing Country Population	-1.140* [0.634]	0.586 [0.966]	-3.432*** [1.045]
Log Partner Population	1.459** [0.600]	4.187*** [0.908]	-0.906 [0.753]
Distance	-0.583*** [0.030]	-0.518*** [0.055]	-0.563*** [0.041]
Common Border	2.826*** [0.194]	3.203*** [0.278]	1.830*** [0.250]
Common Colony	0.128 [0.599]	2.043*** [0.278]	-0.012 [0.477]
Common Language	1.852*** [0.119]	1.115*** [0.191]	2.099*** [0.148]
Land Locked Country	-0.654*** [0.084]	-0.613*** [0.095]	-0.445*** [0.141]
Island Country	0.459* [0.261]	0.445 [0.294]	-0.048 [0.404]
TC Treatment Country with WTO Membership	-0.103* [0.058]	-0.071 [0.094]	-0.043 [0.079]
Partner with WTO membership	0.163** [0.063]	0.152 [0.093]	0.105 [0.087]
Mills Ratio	1.071*** [0.322]	0.055 [0.652]	1.187*** [0.386]
Observations	64250	33314	30936
R-squared	0.633	0.562	0.711

Note: 1. Figures in square brackets are standard errors.
 2. Standard errors are clustered by country-pairs.
 3. *** p < 0.01, ** p < 0.05, * p < 0.1

14. For comparison, we estimated Wei and Zhang's (2005) specification (with log of real bilateral imports as the dependent variable) using our data, and obtained results that were similar to theirs (Annex Table 2). The average effect of trade conditionality on imports, at 13 percent, is greater than but close to their estimate, of 10 percent). But interestingly, we find, as they do, that

⁷ The IMF's streamlining initiative, reflected in its 2002 Conditionality Guidelines, aimed at reducing the volume and scope of the Fund's structural conditionality by requiring "parsimony" in the use of conditions, and stipulated that conditions must be "critical" to the achievement of the program goals (IMF, 2002).

trade conditionality in PRGF-supported programs has a smaller effect on imports than does trade conditionality in other types of Fund-supported programs—the opposite result to what we had before (in Table 2).

15. What type of trade conditionality leads to greater trade flows? As noted earlier, the trade conditions in our sample include traditional trade-liberalizing measures (i.e., lowering tariffs, nontariff barriers, and export restrictions) as well as other measures that affect trade flows but not necessarily positively, such as reducing/eliminating export subsidies, abolishing state trading monopolies, and improving customs administration. Table 3 shows the results of the benchmark model with trade conditionality defined in the traditional sense, i.e., to include conditions on tariffs, nontariff barriers, and export restrictions only. One would have expected the results to be stronger than those in Table 2. But on the contrary, the effect of narrowly defined trade conditionality (limited to the traditional trade-liberalizing measures) on trade flows turns out to be smaller and statistically less significant than the effect of trade conditionality more broadly defined. Annex Table 3 shows the results of the same regression with Wei and Zhang's (2005) specification.

Table 3. Results of Estimation with Trade Conditionality Narrowly Defined, Country and Year Fixed Effects, and Trade as the Dependent Variable

Dependent Variable: Bilateral trade in log	All Countries	PRGF Countries	Non-PRGF Countries
Trade Conditionality (TC)	0.013 [0.034]	0.081* [0.045]	-0.005 [0.056]
Log Importing Country Real GDP	0.403*** [0.041]	0.405*** [0.047]	0.005 [0.085]
Log Partner Real GDP	0.239*** [0.056]	0.171** [0.079]	0.302*** [0.082]
Log Importing Country Population	-0.983 [0.641]	0.859 [1.002]	-2.659** [1.035]
Log Partner Population	1.494** [0.600]	4.154*** [0.906]	-0.870 [0.755]
Distance	-0.583*** [0.030]	-0.519*** [0.055]	-0.563*** [0.041]
Common Border	2.827*** [0.194]	3.203*** [0.278]	1.830*** [0.250]
Common Colony	0.128 [0.599]	2.044*** [0.278]	-0.012 [0.477]
Common Language	1.852*** [0.119]	1.113*** [0.191]	2.098*** [0.148]
Land Locked Country	-0.654*** [0.084]	-0.613*** [0.095]	-0.445*** [0.141]
Island Country	0.459* [0.261]	0.446 [0.294]	-0.048 [0.404]
TC Treatment Country with WTO Membership	-0.085 [0.059]	-0.048 [0.093]	-0.014 [0.080]
Partner with WTO membership	0.165*** [0.063]	0.150 [0.093]	0.106 [0.087]
Mills Ratio	0.965 [0.904]	1.734* [1.122]	-0.119 [1.510]
Observations	64250	33314	30936
R-squared	0.633	0.562	0.710

Note: 1. Figures in square brackets are standard errors.
 2. Standard errors are clustered by country-pairs.
 3. *** p < 0.01, ** p < 0.05, * p < 0.1

16. Next we estimated a random-effects model excluding importer (country-specific) fixed effects. This allows us to use the entire sample of treatment countries that had trade conditionality in their IMF-supported programs beginning any time between 1996 and 2007, and avoids the need to arbitrarily cut off two years at the beginning and end of our sample period to identify the treatment group (Annex Table 1). The results are shown in Table 4. Here, trade conditionality (broadly defined) is found to have a strong positive effect on trade flows on average in all types of IMF-supported programs. (The results of the random effects model with imports as the dependent variable are similar, as shown in Annex Table 4.)

Table 4. Results of Estimation with Random Effects and Trade as the Dependent Variable

Dependent Variable: Bilateral trade in log	All Countries	PRGF Countries	Non-PRGF Countries
Trade Conditionality (TC)	0.169*** [0.020]	0.456*** [0.031]	0.483*** [0.049]
Log Importing Country Real GDP	0.139*** [0.040]	0.054 [0.054]	-0.608 [0.716]
Log Partner Real GDP	0.250*** [0.038]	0.194*** [0.051]	0.326*** [0.049]
Log Importing Country Population	2.099*** [0.040]	1.712*** [0.055]	3.209*** [0.073]
Log Partner Population	1.470*** [0.477]	3.026*** [0.657]	-1.047* [0.614]
Distance	-0.278*** [0.009]	-0.360*** [0.017]	-0.491*** [0.012]
Common Border	2.901*** [0.076]	3.083*** [0.103]	1.831*** [0.105]
Common Colony	0.544* [0.280]	1.887*** [0.665]	0.318 [0.282]
Common Language	1.519*** [0.041]	1.080*** [0.057]	2.172*** [0.057]
Land Locked Country	-0.651*** [0.012]	-0.567*** [0.014]	-0.215*** [0.025]
Island Country	-0.038 [0.036]	0.688*** [0.053]	-1.342*** [0.055]
TC Treatment Country with WTO Membership	-0.068*** [0.025]	0.147*** [0.034]	0.095*** [0.035]
Partner with WTO membership	0.129** [0.059]	0.093 [0.084]	0.107 [0.074]
Mills Ratio	6.037*** [0.249]	2.293*** [0.397]	4.574*** [0.421]
Observations	76027	39516	36511
R-squared	0.557	0.519	0.649

Note: 1. Figures in square brackets are standard errors.
 2. Standard errors are clustered by country-pairs.
 3. *** p < 0.01, ** p < 0.05, * p < 0.1

17. On the whole, therefore, we cannot reject the hypothesis that IMF trade conditionality was associated with increased trade during the evaluation period. However, the effect was quite weak or non-existent in some specifications, for certain types of conditions, and for certain types of IMF-supported programs.

18. Our empirical strategy has limitations. First of all, the approach to identifying the effect of trade conditions (by assuming that a trade condition, once imposed, is effective throughout the sample period) is problematic because of the (necessarily) arbitrary start and end points of the sample period. The implicit assumption is that all trade conditions imposed before 1996 were not effective.⁸ We could not overcome this structural limitation for lack of data on trade conditions in earlier IMF-supported programs (before MONA started).

19. Second, the approach links the volume of trade with the *presence* of trade conditionality rather than the *implementation* of trade conditionality. Not all program conditions are implemented (fully, on time or at all), and conditions that are implemented are sometimes reversed later. Our estimation results indicate that the mere existence of trade conditionality in a Fund-supported program is associated with an increase in trade flows, irrespective of whether or not the conditions were implemented or sustained. We can conclude that IMF trade conditionality was effective in enhancing trade only if the trade conditionality was properly designed and properly executed, leading to increased trade. If the trade conditionality was poorly designed and/or poorly executed but trade increased anyway, then we have an omitted variable and IMF trade conditionality was not effective. Unfortunately, data on compliance with trade conditionality and subsequent reversals of trade measures are spotty at best, so we were unable to resolve this problem.

⁸ For example, if country i had trade conditions once prior to 1996, its TC dummy would be zero for the entire period whereas the appropriate value of the TC dummy should be one throughout the sample period.

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Annex Table 1. List of Countries in the Sample

1. Control Group¹ (13 countries)

Brazil, Colombia, Democratic Republic of Congo, Republic of Congo, El Salvador, Guatemala, Iraq, Macedonia, Papua New Guinea, Peru, Philippines, Turkey, Venezuela

2. Treatment Group² (43 countries)

Albania, Argentina, Bangladesh, Bolivia, Bosnia and Herzegovina, Burundi, Cambodia, Cape Verde, Chad, Cote d'Ivoire, Dominica, Dominican Republic, Ecuador, Gabon, The Gambia, Ghana, Guinea-Bissau, Guyana, Honduras, Republic of Korea, Kyrgyz Republic, Lao P.D.R., Latvia, Lithuania, Malawi, Mauritania, Mexico, Mongolia, Nepal, Nicaragua, Niger, Nigeria, Paraguay, Rwanda, Sao Tome and Principe, Senegal, Serbia, Sierra Leone, Sri Lanka, Uruguay, Vietnam, Zambia, Zimbabwe

3. Group Dropped in Fixed Effect Analysis but Included in Random Effect Analysis (36 countries)

Afghanistan, Armenia, Azerbaijan, Benin, Bulgaria, Burkina Faso, Cameroon, Croatia, Djibouti, Egypt, Estonia, Ethiopia, Georgia, Grenada, Guinea, Haiti, Honduras, Hungary, Indonesia, Jordan, Kazakhstan, Kenya, Lesotho, Madagascar, Mali, Moldova, Mozambique, Pakistan, Panama, Romania, Russia, Tajikistan, Tanzania, Uganda, Ukraine, Yemen

Note: 1. Countries with IMF-supported programs that did not include trade conditions during 1996-2007.
2. Countries with IMF-supported programs that had trade conditionality imposed after 1998 and before 2005.

Annex Table 2. Results of Estimation with Country and Year Fixed Effects and Imports as the Dependent Variable

Dependent Variable: Bilateral trade in log	All Countries	PRGF Countries	Non-PRGF Countries
Trade Conditionality (TC)	0.134*** [0.029]	0.068* [0.037]	0.131*** [0.045]
Log Importing Country Real GDP	0.279*** [0.048]	0.214*** [0.067]	0.778*** [0.115]
Log Partner Real GDP	0.156*** [0.057]	0.076 [0.091]	0.215*** [0.066]
Log Importing Country Population	1.588** [0.627]	0.593 [0.926]	2.153** [1.078]
Log Partner Population	1.036 [0.637]	3.776*** [0.897]	-1.764** [0.882]
Distance	-0.596*** [0.031]	-0.530*** [0.057]	-0.554*** [0.043]
Common Border	2.586*** [0.199]	3.083*** [0.268]	1.629*** [0.281]
Common Colony	0.613 [0.606]	1.848*** [0.279]	0.733 [0.679]
Common Language	1.545*** [0.122]	1.001*** [0.188]	1.762*** [0.161]
Land Locked Country	-0.468*** [0.080]	-0.452*** [0.086]	-0.324** [0.138]
Island Country	0.243 [0.246]	0.401 [0.267]	-0.158 [0.494]
TC Treatment Country with WTO Membership	0.032 [0.055]	-0.105 [0.086]	0.135* [0.075]
Partner with WTO membership	0.149** [0.062]	0.190** [0.088]	0.064 [0.089]
Mills Ratio	0.318** [0.184]	0.518* [0.365]	-0.692 [0.468]
Observations	54171	27964	26207
R-squared	0.629	0.569	0.709

Note: 1. Figures in square brackets are standard errors.
2. Standard errors are clustered by country-pairs.
3. *** p < 0.01, ** p < 0.05, * p < 0.1

Annex Table 3. Results of Estimation with Trade Conditionality Narrowly Defined, Country and Year Fixed Effects, and Imports as the Dependent Variable

Dependent Variable: Bilateral trade in log	All Countries	PRGF Countries	Non-PRGF Countries
Trade Conditionality (TC)	0.186*** [0.033]	0.058 [0.042]	0.221*** [0.051]
Log Importing Country Real GDP	0.246*** [0.033]	0.236*** [0.037]	0.464*** [0.096]
Log Partner Real GDP	0.156*** [0.057]	0.077 [0.091]	0.213*** [0.066]
Log Importing Country Population	1.694*** [0.634]	0.774 [0.951]	2.968*** [1.059]
Log Partner Population	1.015 [0.635]	3.733*** [0.892]	-1.743** [0.882]
Distance	-0.596*** [0.031]	-0.531*** [0.057]	-0.553*** [0.043]
Common Border	2.586*** [0.199]	3.082*** [0.268]	1.629*** [0.281]
Common Colony	0.611 [0.606]	1.848*** [0.279]	0.734 [0.678]
Common Language	1.544*** [0.122]	1.001*** [0.188]	1.762*** [0.161]
Land Locked Country	-0.469*** [0.080]	-0.452*** [0.086]	-0.323** [0.138]
Island Country	0.243 [0.246]	0.401 [0.267]	-0.157 [0.494]
TC Treatment Country with WTO Membership	0.031 [0.054]	-0.087 [0.084]	0.144* [0.077]
Partner with WTO membership	0.147** [0.062]	0.189** [0.088]	0.068 [0.088]
Mills Ratio	0.607 [0.907]	1.602** [1.090]	-0.075 [1.636]
Observations	54171	27964	26207
R-squared	0.629	0.569	0.709

Note: 1. Groups with arrangements under Extended Fund Facilities including Poverty Reduction and Growth Facility.
2. Figures in square brackets are standard errors.
3. Standard errors are clustered by country-pairs.
4. *** p < 0.01, ** p < 0.05, * p < 0.1

Annex Table 4. Results of Estimation with Random Effects and Imports as the Dependent Variable

Dependent Variable: Bilateral trade in log	All Countries	PRGF Countries	Non-PRGF Countries
Trade Conditionality (TC)	0.009 [0.019]	0.243*** [0.029]	0.205*** [0.027]
Log Importing Country Real GDP	0.230*** [0.041]	-0.059 [0.054]	0.187** [0.077]
Log Partner Real GDP	0.179*** [0.038]	0.113** [0.049]	0.258*** [0.053]
Log Importing Country Population	1.816*** [0.042]	1.472*** [0.054]	2.185*** [0.079]
Log Partner Population	0.612 [0.484]	2.757*** [0.632]	-2.756*** [0.664]
Distance	-0.335*** [0.009]	-0.395*** [0.016]	-0.449*** [0.012]
Common Border	2.599*** [0.070]	2.885*** [0.092]	1.667*** [0.102]
Common Colony	1.144*** [0.259]	2.392*** [0.573]	1.166*** [0.278]
Common Language	1.214*** [0.041]	0.810*** [0.055]	1.719*** [0.059]
Land Locked Country	-0.537*** [0.011]	-0.506*** [0.013]	-0.169*** [0.026]
Island Country	-0.086** [0.036]	0.443*** [0.049]	-0.875*** [0.060]
TC Treatment Country with WTO Membership	0.062** [0.025]	0.143*** [0.032]	0.254*** [0.036]
Partner with WTO membership	0.108* [0.059]	0.104 [0.082]	0.059 [0.078]
Mills Ratio	5.747*** [0.254]	2.239*** [0.384]	2.793*** [0.451]
Observations	64667	33486	31181
R-squared	0.560	0.520	0.650

Note: 1. Figures in square brackets are standard errors.
2. Standard errors are clustered by country-pairs.
3. *** p < 0.01, ** p < 0.05, * p < 0.1