Economic Integration Agreements and the Margins of International Trade
Online Appendix: Not Intended for Publication

Scott L. Baier[*], Jeffrey H. Bergstrand[†], Michael Feng[‡]

March 14, 2014

[*] *Affiliation:* John E. Walker Department of Economics, Clemson University, Clemson, SC 29634 and Federal Reserve Bank of Atlanta, Atlanta, GA, USA. *E-mail:* sbaier@clemson.edu.

[†] *Affiliation:* Department of Finance, Department of Economics, and Kellogg Institute for International Studies, University of Notre Dame, Notre Dame, IN 46556 USA and CESifo, Munich, Germany. *E-mail:* bergstrand.1@nd.edu.

[‡] *Affiliation:* John E. Walker Department of Economics, Clemson University, Clemson, SC 29634 USA. *E-mail:* fdayu@clemson.edu.

1 Supplementary Results for Section 4.1

1.1 First Difference (FD) Results

The main results presented in Table 1 in section 4.1 use the econometrically preferred RGFD specification, employing bilateral (pair-specific) fixed effects in a FD specification. Appendix Table A1 presents the corresponding Set 1 and Set 2 FD results excluding these bilateral effects. As shown, the Sets 1 and 2 FD results in Table A1 do not differ substantively from the corresponding RGFD results in Table 1.

1.2 Fixed Effects (FE) Results

As discussed in the paper, the main results in Table 1 in section 4.1 use the econometrically preferred RGFD specification. Appendix Table A2 presents here the corresponding Set 1 and Set 2 FE results. As discussed in footnote 31 in the paper, the FE specifications yielded negative and statistically significant coefficient estimates for $TWPTA$ and $OWPTA$. The likely explanation for this is that the growth in intra-industry trade among developed economies during our data period dominated the growth of inter-industry trade between developed and developing economies and among developing economies, and two-way and one-way PTAs are largely prevalent among developing economies and between developed and developing economies, respectively. The $TWPTA$ and $OWPTA$ coefficient estimates in the FE specifications were likely biased by omitted variables. By contrast, the RGFD specifications control for these patterns.

2 Supplementary Results for Section 4.3: Accounting for Country-Selection and Firm-Heterogeneity Biases

2.1 Rationale for using the HMR Two-Stage Approach

In a robustness analysis, we implement the methodology in Helpman, Melitz, and Rubinstein (2008), or HMR, for correcting for potential sample-selection and firm-heterogeneity biases for aggregate trade flows, the Hummels and Klenow (2005) intensive goods margin, and the Hummels and Klenow (HK) extensive goods margin. Here we motivate the feasibility of applying the HMR bias-correction to the two margins as well as aggregate trade flows.

We start with the basic "estimating equation" (9) in HMR, adapting HMR's notation to ours:

$$\ln X_{ijt} = \beta_0 + \lambda_{it} + \chi_{jt} - (\epsilon - 1)\ln \tau_{ijt} + \xi \ln W_{ijt} + u_{ijt} \tag{1}$$

where X_{ijt} is the aggregate trade flow from i to j (in year t), λ_{it} is a time-varying exporter fixed effect, χ_{jt} is a time-varying importer fixed effect, τ_{ijt} is the HMR *ad valorem* trade-cost variable, W_{ijt} is the key novel variable that "controls for the fraction of firms (possibly zero)" that export from i to j, and u_{ijt} is a normally distributed error term. As shown in our text, we know that:

$$\ln X_{ijt} = \ln EM_{ijt} + \ln IM_{ijt} + \ln X_{jt} \tag{2}$$

where EM_{ijt}, IM_{ijt}, and X_{jt} are defined in the paper. It follows that:

$$\ln EM_{ijt} + \ln IM_{ijt} = \beta_0 + \lambda_{it} + \chi_{jt} - (\epsilon - 1)\ln \tau_{ijt} + \xi \ln W_{ijt} + u_{ijt} \tag{3}$$

where variation in X_{jt} is controlled for by χ_{jt}. Hence, it is possible that estimation separately of the determinants of $\ln EM_{ijt}$ and of $\ln IM_{ijt}$ using time-varying exporter and importer fixed effects and $\ln \tau_{ijt}$ may require controlling for W_{ijt} to ensure unbiased coefficient estimates.

In the context of HMR's theoretical model, we now show why estimation of determinants of both EM_{ijt} and IM_{ijt} may require controlling for W_{ijt}. The theoretical framework in HMR results in the structural gravity equation:

$$X_{ijt} = (N_{it}V_{ijt})Y_{jt}\left(\frac{(c_{it}/\alpha)^{1-\epsilon}\tau_{ijt}^{1-\epsilon}}{\sum_{k=1}^{K} N_{kt}V_{kjt}(c_{kt}/\alpha)^{1-\epsilon}\tau_{kjt}^{1-\epsilon}}\right) \tag{4}$$

where X_{ijt} is exports from country i to country j, N_{it} is the number of firms (non-exporting and exporting) in i, V_{ijt} is a monotonic function (defined shortly) of the fraction of i's firms that export to j in sector m (based upon firms' relative productivities and fixed export costs to j), Y_{jt} is expenditures in j, c_{it}/α is the wage rate in i, τ_{ijt} is the variable trade cost in products exported from i to j expressed as 1 plus the *ad valorem* equivalent rate for shipping and/or policy barriers such as tariff rates[1], and ϵ is the elasticity of substitution in consumption among

[1]Formally, for every 1 unit shipped from i, $1/(1+\tau_{ijt})$ arrives at destination j. τ includes both natural and

products. Let:

$$V_{ijt} = \int_{a_L}^{a_{ijt}} (a)^{1-\epsilon} dG(a) \tag{5}$$

where V_{ijt} is related to the fraction of firms in i that export to j (in year t). Using further the assumption of a (truncated) Pareto distribution for productivities, HMR show that W_{ijt} is a monotonic function of V_{ijt}.

Examination of equation (4) above suggests then that the number of firms in i that export to j in any year is a function of V_{ijt}, and hence of W_{ijt}. This suggests that the HK extensive margin, EM_{ijt}, is likely influenced by V_{ijt} (and W_{ijt}). Moreover, equation (4) also suggests that the HK intensive margin, IM_{ijt}, is also possibly influenced by V_{ijt} (and W_{ijt}), as V_{ijt} influences the importer's CES price index in the denominator of the last RHS term in equation (4). However, importantly, equations (4) and (3) together suggest that the HK intensive (IM_{ijt}) margin's determinants' coefficient estimates are not likely biased much by not controlling for W_{ijt} since their effects would be subsumed in the importer's time-varying fixed effect, χ_{jt}.

While in the robustness analysis we use the HMR approach to account for the influence of W_{ijt}, we emphasize – as noted in the text – that the RGFD specifications are likely to diminish much of the influence of W_{ijt}. The reason is that the RGFD specifications for X_{ijt}, EM_{ijt}, and IM_{ijt} include bilateral fixed effects (ij effects). Hence, the only remaining influence of W_{ijt} on biasing potentially coefficient estimates is via the non-trend time dimension.

2.2 Two-Stage Estimates using the HMR Approach

Following HMR for aggregate trade flows, the two-stage methodology entails estimating first a probit equation to determine the probability of a positive observation between a country-pair in each of the 8 cross-sections of our sample (1965, 1970,..., 2000) for each of $TRADE_{ijt}, EM_{ijt}$, and IM_{ijt}. The probit estimates are then used to construct inverse Mills' ratios (denoted $\hat{\hat{\eta}}*_{ijt}$) to capture selection bias and variables $\hat{\hat{z}}*_{ijt}$, $\hat{\hat{z}}*_{ijt}^2$, and $\hat{\hat{z}}*_{ijt}^3$ to control for heterogeneous productivities. The $\hat{\hat{\eta}}*_{ijt}$, $\hat{\hat{z}}*_{ijt}$, $\hat{\hat{z}}*_{ijt}^2$, and $\hat{\hat{z}}*_{ijt}^3$ are then used as additional regressors in the second-stage gravity-equation specification.

While HMR and Egger, Larch, Staub, and Winkelmann (2011) used single cross sections,

policy-based trade barriers.

we have a time series of cross sections. Although probit estimates are constructed by individual cross sections in the first stage, we choose a pooled specification in log-levels or first-differences of log-levels for the second-stage gravity equation. We conducted the sensitivity analysis for the RGFD, FD, and FE specifications. For the RGFD and FD specifications, we used the predicted probits to construct the first-differences of $\hat{\bar{\eta}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}^2$, and $\hat{\bar{z}}*_{ijt}^3$. Our focus is on the RGFD specification for the second stage.

To anticipate the results, we note the following intuition. In the cross-sectional context of HMR and Egger, Larch, Staub, and Winkelmann (2011), predicted probit values explaining the probability of exports from i to j are generated in the first stage. The predicted probit values are then used to construct the inverse Mill' ratio and the firm-heterogeneity control, which are employed as controls in the second-stage gravity equation. The difference of our study relative to HMR and Egger, Larch, Staub, and Winkelmann (2011) is that our second-stage random growth first difference (RGFD) gravity equations include country-pair ij fixed effects (as well as exporter-year and importer-year fixed effects). Since most of the variation in the predicted probit values is likely cross-sectional, the impact of variables constructed from these values – $\hat{\bar{\eta}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}^2$, and $\hat{\bar{z}}*_{ijt}^3$ – is reduced dramatically in the second stage regressions. In other words, omitted variables bias associated with $\hat{\bar{\eta}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}^2$, and $\hat{\bar{z}}*_{ijt}^3$ is potentially eliminated largely by the first differencing and the ij fixed effects in the RGFD model. In the context of HMR (p. 453), this is shown clearly by reference to HMR's equation (9), shown above in (1). The potential bias in this second-stage gravity equation from ignoring firm heterogeneity is omission of their term W_{ijt} and from ignoring sample-selection surfaces in their error term u_{ijt}. (Note, like us, they include exporter and importer fixed effects as well.) Our country-pair ij fixed effects in the FE specifications and first-differencing in the FD specifications removes the cross-sectional influence of their W_{ijt} and the selection bias embodied in their u_{ijt}, and the further inclusion of the ij fixed effects in the RGFD specifications removes the slow-moving trends in W_{ijt} and u_{ijt}.

In estimating the first-stage probits, we follow exactly the specification used in HMR's section VII. The probit is identical to that specified in HMR's Table II in their section VI with the exception of dropping the two regulation cost variables (because of the constraint on sample size).[2] In HMR, identification in the second stage comes from the influence of Religion

[2]Also, we did not include a currency union dummy.

on the probability of bilateral trade, but not on the level of trade (conditional on positive trade). In our time-series of cross-sections, identification in the second-stage RGFD (or FD and FE) specifications comes from the time-varying effect of Religion on the probability of trade. The first-stage probits for the 8 cross-sections are presented in Appendix Table A3. The probit results are similar to that for 1986 from HMR in their Table I. For instance, distance has a (time-varying, but relatively stable) negative and statistically significant effect, common land border has a negative effect, common language has a positive effect, and religion has a positive effect on the probability of bilateral trade. In some years, coefficient estimates for some variables are not reported due to collinearity of variables.[3] Because of potential endogeneity bias of including the EIA dummy variables in these probits, Appendix Table A6 reports the results of the probits excluding the EIA dummies; exclusion of the EIA dummies in the first stage had no material effect on the second stage results.

Following HMR, we used the predicted probit probabilities to construct the $\hat{\bar{\eta}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}$, $\hat{\bar{z}}*^2_{ijt}$, and $\hat{\bar{z}}*^3_{ijt}$. For the RGFD (and FD) specifications, we used the first-differenced values as controls for $\Delta \ln W_{ijt}$. The results for the RGFD second-stage regressions are reported in Appendix Table A4. We draw attention to two notable results. First, we note that the coefficient estimates for $\hat{\bar{\eta}}*_{ijt}$, $\hat{\bar{z}}*_{ijt}$, $\hat{\bar{z}}*^2_{ijt}$, and $\hat{\bar{z}}*^3_{ijt}$ are qualitatively identical to those in HMR but are *only* statistically significant for aggregate trade flows and for the HK extensive margin. This accords with our theoretical conjecture based upon the theoretical HMR framework in terms of V_{ijt}; the influence of V_{ijt} (and hence W_{ijt}) works primarily on aggregate trade via the extensive margin. Second, a comparison of Set 1 (Set 2) in Appendix Table A4 with the corresponding results in Set 1 (Set 2) in paper Table 1 reveals that the results for the four EIA variables are identical qualitatively and quite similar *quantitatively*. This is in contrast to the findings in HMR for a single cross-section. The reason is that – in the RGFD specifications – the first-differencing of the data has controlled for the cross-sectional variation in $\hat{\bar{\eta}}*_{ijt}$ and the factors influencing W_{ijt} and the inclusion of ij fixed effects has removed any slow-moving (trend) variation in $\hat{\bar{\eta}}*_{ijt}$ and the factors influencing W_{ijt}.

For robustness, we also ran several other two-stage HMR specifications. Appendix Table A5 presents second-stage results using the "chained" data for extensive and intensive margins but the same specifications (and uses the same probit estimates from Appendix Table A3).

[3] The Landlock dummy was collinear in all years.

Appendix Tables A6 and A7 present the first-stage and second-stage results, respectively, excluding all four EIA dummies in the first-stage. As one can see, the results in Appendix Tables A4, A5, and A7 are not materially different from those in Tables 1 and 2 in the paper.

2.3 Caveat: Distinguishing Margins in the HMR and HK Frameworks

It is important to distinguish clearly between – what we term – the Hummels and Klenow (2005), or "HK," (goods) extensive and intensive margins versus the Helpman, Melitz, and Rubinstein, or "HMR," (firm) extensive and intensive margins. While the HMR model discussed above was applied to aggregate trade flows, the theoretical framework was actually derived for a single sector (say, m). In a multi-sector context (or, in HK terms, "categories"), the HMR model yields a gravity equation for good m (adapting HMR's equation (6) for our notation):

$$X_{ijt}^m = (N_{it}^m V_{ijt}^m) Y_{jt}^m \left(\frac{(c_{it}^m/\alpha^m)^{1-\epsilon^m} (\tau_{ijt}^m)^{1-\epsilon^m}}{\sum_{k=1}^K N_{kt}^m V_{kjt}^m (c_{kt}^m/\alpha^m)^{1-\epsilon^m} (\tau_{kjt}^m)^{1-\epsilon^m}} \right) \tag{6}$$

where:

$$V_{ijt}^m = \int_{a_L^m}^{a_{ijt}^m} (a^m)^{1-\epsilon^m} dG(a^m) \tag{7}$$

for $a_{ijt}^m \geq a_L^m$, and $V_{ijt}^m = 0$ otherwise, where a_{ijt}^m is the amount of labor needed per unit of output for a firm in i to export to j and earn zero economic profits in sector m, a_L^m is the Pareto distribution support level for which a_{ijt}^m needs to be above for positive exports in sector m from i to j, and $G(\cdot)$ is the Pareto cumulative distribution function (cdf).

In the context of the HMR model, a lowering of trade costs as a result of formation of an EIA affects X_{ijt}^m potentially via both the intensive and extensive margins. The more traditional channel is the intensive margin. A fall in τ_{ijt} lowers the relative price of country i's products of existing exporters in m raising relative demand in j by the variable trade-cost's elasticity, $\epsilon^m - 1$. However, with heterogeneous firms, formation of an EIA may lower both variable trade costs (τ_{ijt}) as well as fixed export costs (typically denoted f_{ijt}) allowing less productive firms in sector m in country i to now profitably export from i to j, due to the rise in a_{ijt}^m. The latter raises V_{ijt}^m.

The "HMR extensive margin" influences, but is not the same as, the "HK extensive margin." The HK extensive margin discussed above could also be written as:

$$EM_{ijt} = \frac{\sum_{m \in M_{ijt}} I_{ijt}^m X_{Wjt}^m}{\sum_{m \in M_{Wjt}} X_{Wjt}^m} \tag{8}$$

where I_{ijt}^m is an indicator variable equal to 1 if $X_{ijt}^m > 0$. Thus, the numerator of EM_{ijt} will increase as the HK extensive margin (number of sectors of positive ij exports) increases. In the context of the HMR model, a trade-cost decline will cause the HK extensive margin to increase if X_{ijt}^m becomes positive, which requires a_{ijt}^m – previously below a_L^m – to rise above a_L^m, allowing V_{ijt}^m to become positive. The HMR extensive margin increases with a fall in trade costs when a_{ijt}^m rises relative to a_L^m – assuming *either* $a_{ijt}^m \geq a_L^m$ initially *or* $a_{ijt}^m - a_L^m$ becomes positive). In this sense, the HK extensive-margin effect of a trade-cost decline tends to be smaller than the HMR extensive-margin effect.

The intensive margin in HMR is also similar but not identical to the HK intensive margin. The HMR intensive margin measures only the effect on volumes of existing exporters from i to j in sector m of a fall in trade costs, but not a change in the number of exporters. The intensive margin in HK allows for an increase in exports of existing exporters from i to j in sector m, but will also reflect an increase in the number of (profitable) exporters from i to j in m *if and only if* there were already profitable exporters from i to j in m (so that initially $X_{ijt}^m > 0$). Consequently, the HK intensive-margin effect will tend to be larger than the HMR intensive-margin effect. Hence, extensive-margin effects of EIA formations (in the HMR sense) will tend to be understated using the HK extensive margin whereas intensive-margin effects (in the HMR sense) will tend to be overstated using the HK intensive margin. Of course, further disaggregation will tend to reduce these biases.

HMR (p. 451) helps to clarify changes that affect the bilateral goods extensive and intensive margins versus the firm extensive and intensive margins. It is possible for no firm in good m in country i to be productive enough to export to country j; consequently, there would be zero trade in good m from i to j. In the HK extensive margin, an EIA may cause τ_{ijt} and/or f_{ijt} to fall sufficiently so that at least one firm's productivity is sufficiently high that positive exports occur from i to j in m following the trade liberalization, tending to increase the HK extensive margin. The HK intensive margin may increase as well. However, suppose that trade from i to j in m was already positive. The fall in variable and fixed trade costs from the EIA may cause the number of firms in country i in good m to expand because they cross the productivity threshold for exporting. This would tend to increase the "firm" extensive margin, but not increase the "good" extensive margin. In this case, changes in the HK intensive margin could be composed of increases in trade from existing exporting firms *as well as* increases in the number of (heterogeneous) firms exporting from i to j in good m. Thus, HK intensive margin changes can incorporate firm-level extensive-margin changes alongside firm-level intensive margin changes.

3 Supplementary Results for Section 4.4

This section discusses the results of evaluating the effects of various "leads" (as well as lags) of EIAs on trade flows.

3.1 RGFD Results using 5-year Differences with Leads

Appendix Table A8 reports the effects of adding a 5-year lead of the level of an EIA on trade; this table's results can be compared to those in Set 2 of Table 1 in the paper. The main finding is that a 5-year lead of $CUCMECU$ has a statistically significant effect on aggregate trade flows, extensive margin, and intensive margin. A 5-year lead of FTA has a statistically significant effect on aggregate trade flows and extensive margin. A 5-year lead of $TWPTA$ has a statistically significant on aggregate trade flows and intensive margin. These results suggest further examination of leads and lags using annual data is warranted.

3.2 RGFD and FD Results using Annual Data with 7 Years of Leads and Lags

Our first investigation of leads and lags using annual data was to include 7 years of "lead" changes in EIAs and 7 years of lagged changes in EIAs in the RGFD and FD regressions. Appendix Table A9 provides the results of the RGFD model for aggregate trade flows, extensive margin, and intensive margin. The main conclusion from re-estimating equation (4) with annual data and leads and lags is that – in general – neither current, lagged, nor lead formations of EIAs had any systematic statistically significant effects on annual log-differences in aggregate trade flows, extensive margin, and intensive margin at the 1 percent significance level. Appendix Table A10 provides the results using the FD specification, with a similar general finding. These findings accord with the notions that annual data are noisy, the introduction of numerous leads and lags creates potential multicollinearity, and it can take 10-15 years for changes in EIAs to have their full effect on trade flows.

3.3 RGFD, FD, and FE Results using Annual Data with Linear Trends

The previous results suggested an alternative approach was needed. We introduce the effects of long leads and lags using linear trends of leads and lags, to avoid multicollinearity and the reduction of sample size. For instance, for the RGFD specification we introduced linear trends of 15-year leads and lags of EIAs on annual trade-flow changes. The results for the linear trends are in Appendix Table A11. The results are discussed in detail in the paper. We also conducted a similar analysis using the FD specification. The results were similar and are presented in Appendix Table A12. Finally, the full set of results using lead and lagged linear trends for the FE specification, discussed in section 4.4 of the paper for CUCMECUs and FTAs only, are presented in Appendix Table A13.

References

Helpman, Elhanan, Marc Melitz, and Yona Rubinstein, 2008. Estimating trade flows: Trading partners and trading volumes, *Quarterly Journal of Economics* **123** (2), May, 441-487.

Hummels, David, and Peter J. Klenow, 2005. The variety and quality of a nation's exports, *American Economic Review* **95** (3), 704-723.

Appendix Table A1

Variables	Set 1 (FD)			Set 2 (FD)		
	(1a) $\Delta_5 lnTRADE_{ijt}$	(1b) $\Delta_5 lnEM_{ijt}$	(1c) $\Delta_5 lnIM_{ijt}$	(2a) $\Delta_5 lnTRADE_{ijt}$	(2b) $\Delta_5 lnEM_{ijt}$	(2c) $\Delta_5 lnIM_{ijt}$
$\Delta_5 CUCMECU_{ijt}$	0.388***	0.077	0.311***	0.394***	0.069	0.325***
	(0.062)	(0.054)	(0.057)	(0.062)	(0.055)	(0.058)
Lag $\Delta_5 CUCMECU_{ijt}$				0.396***	0.158**	0.238***
				(0.063)	(0.056)	(0.062)
$\Delta_5 FTA_{ijt}$	0.169***	0.050	0.119***	0.175***	0.046**	0.129***
	(0.045)	(0.036)	(0.041)	(0.045)	(0.037)	(0.041)
Lag ΔFTA_{ijt}				0.235***	0.101***	0.134***
				(0.043)	(0.039)	(0.042)
$\Delta_5 TWPTA_{ijt}$	0.079	0.047	0.032	0.128*	0.041	0.087
	(0.064)	(0.053)	(0.058)	(0.067)	(0.057)	(0.061)
Lag $\Delta_5 TWPTA_{ijt}$				0.134**	0.053	0.081
				(0.061)	(0.055)	(0.063)
$\Delta_5 OWPTA_{ijt}$	0.022	-0.095**	0.118**	0.038	-0.090*	0.128**
	(0.057)	(0.046)	(0.053)	(0.058)	(0.047)	(0.055)
Lag $\Delta_5 OWPTA_{ijt}$				0.203***	0.136***	0.067
				(0.060)	(0.050)	(0.058)
Constant	0.928**	0.475	0.453	1.651***	1.481	0.170
	(0.454)	(0.346)	(0.397)	(0.625)	(0.991)	(1.016)
<u>Fixed Effects</u>:						
Exporter-Year (i,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Year (j,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair (ij)	No	No	No	No	No	No
R^2	0.131	0.210	0.207	0.131	0.225	0.225
No. of observations	48,619	48,619	48,619	41,767	41,767	41,767

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A2

Variables	Set 1 (FE) (1a) $TRADE_{ijt}$	(1b) EM_{ijt}	(1c) IM_{ijt}	Set 2 (FE) (2a) $TRADE_{ijt}$	(2b) EM_{ijt}	(2c) IM_{ijt}
$CUCMECU_{ijt}$	0.558***	0.252***	0.306***	0.284***	0.145***	0.139**
	(0.059)	(0.046)	(0.049)	(0.071)	(0.057)	(0.061)
$CUCMECU_{ij,t-5}$				0.484***	0.276***	0.209***
				(0.072)	(0.057)	(0.061)
FTA_{ijt}	0.143***	0.094***	0.049*	0.016	0.010	0.006
	(0.045)	(0.035)	(0.037)	(0.052)	(0.042)	(0.043)
$FTA_{ij,t-5}$				0.357***	0.247***	0.110***
				(0.053)	(0.042)	(0.045)
$TWPTA_{ij,t}$	-0.0003	0.035	-0.035	0.031	0.055	-0.024
	(0.052)	(0.043)	(0.045)	(0.063)	(0.050)	(0.055)
$TWPTA_{ij,t-5}$				-0.112*	-0.100**	-0.011
				(0.064)	(0.051)	(0.057)
$OWPTA_{ij,t}$	-0.222***	-0.171***	-0.051	-0.127*	-0.046	-0.081
	(0.052)	(0.038)	(0.046)	(0.066)	(0.051)	(0.060)
$OWPTA_{ij,t-5}$				-0.095	-0.093**	-0.002
				(0.060)	(0.047)	(0.054)
Constant	-6.637***	-4.930***	-1.707***	-6.807***	-3.669***	-3.138***
	(0.276)	(0.238)	(0.234)	(0.072)	(0.062)	(0.074)
Fixed Effects:						
Exporter-Year (it)	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Year (jt)	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.860	0.815	0.740	0.872	0.827	0.760
No. of observations	65,292	65,292	65,292	57,742	57,742	57,742

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A3: HMR First-Stage Probit Results

	(1) 1965	(2) 1970	(3) 1975	(4) 1980	(5) 1985	(6) 1990	(7) 1995	(8) 2000
ln Distance	-0.280***	-0.303***	-0.289***	-0.313***	-0.169***	-0.197***	-0.256***	-0.218***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.009)	(0.011)	(0.014)	(0.015)
Land border	-0.076*	-0.061	-0.025	-0.130***	-0.093***	-0.046	-0.167***	-0.116**
	(0.042)	(0.044)	(0.047)	(0.044)	(0.022)	(0.038)	(0.039)	(0.048)
Island	0.353**	0.283***	0.348***	0.235***				
	(0.138)	(0.058)	(0.027)	(0.064)				
Common legal	0.015	-0.001	0.001	0.035**	0.024**	0.038***	0.044***	0.010
	(0.015)	(0.014)	(0.014)	(0.015)	(0.012)	(0.014)	(0.017)	(0.017)
Common language	-0.030	0.095***	0.114***	0.097***	0.020	0.026	0.053*	0.071**
	(0.025)	(0.023)	(0.022)	(0.024)	(0.020)	(0.024)	(0.030)	(0.031)
Colonial ties	0.321***	0.246***	0.164***	0.166***	0.108***	0.107***	0.101***	0.061**
	(0.022)	(0.019)	(0.020)	(0.023)	(0.024)	(0.026)	(0.031)	(0.031)
Religion	0.213***	0.193***	0.111***	0.122***	0.116***	0.152***	0.254***	0.273***
	(0.031)	(0.029)	(0.029)	(0.032)	(0.023)	(0.027)	(0.034)	(0.036)
CUCMECU			0.301**	0.432***	-0.172	-0.238***	-0.068	-0.031
			(0.078)	(0.056)	(0.023)	(0.009)	(0.092)	(0.111)
FTA	0.317**	-0.061		-0.324*	0.195**	0.103	0.011	-0.093
	(0.134)	(0.128)		(0.129)	(0.098)	(0.094)	(0.079)	(0.057)
PTA	-0.177*	-0.018	0.196***	-0.013	0.032	-0.030	0.020	0.127**
	(0.087)	(0.087)	(0.039)	(0.047)	(0.036)	(0.038)	(0.053)	(0.052)
NRPTA	-0.130		-0.057	0.012	0.261***	0.267***	0.160**	0.106*
	(0.106)		(0.113)	(0.120)	(0.062)	(0.058)	(0.054)	(0.056)
<u>Fixed Effects</u>:								
Exporter (i)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer (j)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.608	0.558	0.549	0.585	0.696	0.699	0.738	0.736
Observations	16,736	17,056	16,380	15,974	17,330	17,199	17,595	17,331

Notes: Marginal effects reported. Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests. Missing estimates for some years reflect collinearity with other variables.

Appendix Table A4: HMR Second-Stage Results

Variables	Set 1 (RGFD)			Set 2 (RGFD)		
	(1a) $\Delta_5 \ln TRADE_{ijt}$	(1b) $\Delta_5 \ln EM_{ijt}$	(1c) $\Delta_5 \ln IM_{ijt}$	(2a) $\Delta_5 \ln TRADE_{ijt}$	(2b) $\Delta_5 \ln EM_{ijt}$	(2c) $\Delta_5 \ln IM_{ijt}$
$\Delta_5 CUCMECU_{ijt}$	0.351***	0.116*	0.234***	0.405***	0.115*	0.290***
	(0.072)	(0.062)	(0.065)	(0.077)	(0.066)	(0.069)
Lag $\Delta_5 CUCMECU_{ijt}$				0.305***	0.115*	0.189**
				(0.076)	(0.065)	(0.071)
$\Delta_5 FTA_{ijt}$	0.203***	0.095**	0.108**	0.254***	0.109**	0.146***
	(0.053)	(0.043)	(0.046)	(0.057)	(0.046)	(0.049)
Lag $\Delta_5 FTA_{ijt}$				0.240***	0.101**	0.139***
				(0.055)	(0.047)	(0.049)
$\Delta_5 TWPTA_{ijt}$	-0.015	-0.007	-0.008	0.057	0.003	0.053
	(0.072)	(0.055)	(0.063)	(0.079)	(0.063)	(0.068)
Lag $\Delta_5 TWPTA_{ijt}$				0.108	0.062	0.047
				(0.071)	(0.062)	(0.068)
$\Delta_5 OWPTA_{ijt}$	0.035	-0.123**	0.158**	0.083	-0.102	0.184***
	(0.065)	(0.054)	(0.063)	(0.067)	(0.055)	(0.064)
Lag $\Delta_5 OWPTA_{ijt}$				0.271***	0.147**	0.123*
				(0.069)	(0.059)	(0.067)
$\Delta_5 \hat{\bar{\eta}}^*_{ijt}$	0.518***	0.513***	0.005	0.452***	0.506***	-0.055
	(0.131)	(0.112)	(0.120)	(0.144)	(0.123)	(0.130)
$\Delta_5 \hat{\bar{z}}^*_{ijt}$	0.994***	1.135***	-0.142	0.861***	1.100***	-0.239
	(0.233)	(0.194)	(0.212)	(0.252)	(0.208)	(0.225)
$\Delta_5 \hat{\bar{z}}^{*2}_{ijt}$	-0.265***	-0.265***	-0.0003	-0.228**	-0.252***	0.024
	(0.069)	(0.058)	(0.063)	(0.075)	(0.062)	(0.067)
$\Delta_5 \hat{\bar{z}}^{*3}_{ijt}$	0.024***	0.021***	0.003	0.020**	0.020***	0.001
	(0.007)	(0.005)	(0.006)	(0.007)	(0.006)	(0.006)
Constant	0.199**	-0.107	0.306**	-0.006	-0.300**	0.294
	(0.074)	(0.079)	(0.099)	(0.165)	(0.146)	(0.203)
Fixed Effects:						
Exporter-Year (i,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Year (j,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.330	0.402	0.403	0.330	0.405	0.403
No. of observations	41,767	41,767	41,767	41,767	41,767	41,767

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A5: HMR Second-Stage Results (Chained)

Variables	Set 1 (RGFD)			Set 2 (RGFD)		
	(1a) $\Delta_5 lnTRADE_{ijt}$	(1b) $\Delta_5 lnEM_{ijt}$	(1c) $\Delta_5 lnIM_{ijt}$	(2a) $\Delta_5 lnTRADE_{ijt}$	(2b) $\Delta_5 lnEM_{ijt}$	(2c) $\Delta_5 lnIM_{ijt}$
$\Delta_5 CUCMECU_{ijt}$	0.351***	0.124**	0.226***	0.405***	0.120*	0.285***
	(0.072)	(0.063)	(0.066)	(0.077)	(0.067)	(0.070)
Lag $\Delta_5 CUCMECU_{ijt}$				0.305***	0.108*	0.197***
				(0.076)	(0.066)	(0.073)
$\Delta_5 FTA_{ijt}$	0.203***	0.101**	0.102**	0.254***	0.113*	0.141***
	(0.053)	(0.044)	(0.047)	(0.057)	(0.047)	(0.050)
Lag $\Delta_5 FTA_{ijt}$				0.240***	0.093*	0.147***
				(0.055)	(0.048)	(0.050)
$\Delta_5 TWPTA_{ijt}$	-0.015	-0.003	-0.012	0.057	0.005	0.052
	(0.072)	(0.056)	(0.063)	(0.079)	(0.063)	(0.069)
Lag $\Delta_5 TWPTA_{ijt}$				0.108	0.044	0.064
				(0.071)	(0.064)	(0.069)
$\Delta_5 OWPTA_{ijt}$	0.035	-0.130**	0.165***	0.083	-0.109	0.192***
	(0.065)	(0.055)	(0.063)	(0.067)	(0.056)	(0.064)
Lag $\Delta_5 OWPTA_{ijt}$				0.271***	0.144**	0.126*
				(0.069)	(0.060)	(0.068)
$\Delta_5 \hat{\eta}^*_{ijt}$	0.518***	0.501***	0.017	0.452***	0.478***	-0.026
	(0.131)	(0.115)	(0.124)	(0.144)	(0.127)	(0.133)
$\Delta_5 \hat{\bar{z}}^*_{ijt}$	0.994***	1.139***	-0.145	0.861***	1.089***	-0.227
	(0.233)	(0.199)	(0.217)	(0.252)	(0.214)	(0.230)
$\Delta_5 \hat{\bar{z}}^{*2}_{ijt}$	-0.265***	-0.266***	0.001	-0.228***	-0.248***	0.020
	(0.069)	(0.059)	(0.065)	(0.075)	(0.063)	(0.068)
$\Delta_5 \hat{\bar{z}}^{*3}_{ijt}$	0.024***	0.021***	0.003	0.020***	0.019**	0.001
	(0.007)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Constant	0.204***	-0.103	0.306**	-0.000	-0.313**	0.313
	(0.074)	(0.081)	(0.100)	(0.165)	(0.147)	(0.203)
Fixed Effects:						
Exporter-Year (i,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Year (j,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.294	0.371	0.362	0.330	0.409	0.408
No. of observations	48,619	48,619	48,619	41,767	41,767	41,767

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in one-tailed t-tests.

Appendix Table A6: HMR First-Stage Probit Results (No EIAs included)

	(1) 1965	(2) 1970	(3) 1975	(4) 1980	(5) 1985	(6) 1990	(7) 1995	(8) 2000
ln Distance	-0.278***	-0.300***	-0.301***	-0.314***	-0.173***	-0.196***	-0.257***	-0.222***
	(0.011)	(0.010)	(0.010)	(0.011)	(0.009)	(0.010)	(0.013)	(0.014)
Land border	-0.062*	-0.063	-0.009	-0.145***	-0.085***	-0.043	-0.164***	-0.116**
	(0.042)	(0.044)	(0.046)	(0.043)	(0.023)	(0.038)	(0.040)	(0.048)
Island	0.352**	0.280***	0.339***	0.229***				
	(0.137)	(0.057)	(0.026)	(0.065)				
Common legal	0.012	-0.000	0.002	0.036**	0.026**	0.041***	0.045***	0.011
	(0.015)	(0.014)	(0.013)	(0.015)	(0.012)	(0.014)	(0.017)	(0.017)
Common language	-0.029	0.097***	0.119***	0.098***	0.030	0.032	0.054*	0.068**
	(0.025)	(0.022)	(0.021)	(0.024)	(0.021)	(0.024)	(0.030)	(0.031)
Colonial ties	0.323***	0.243***	0.165***	0.168***	0.100***	0.095***	0.096***	0.057**
	(0.022)	(0.019)	(0.020)	(0.023)	(0.024)	(0.026)	(0.031)	(0.030)
Religion	0.214***	0.191***	0.108***	0.118***	0.123***	0.160***	0.262***	0.274***
	(0.031)	(0.029)	(0.029)	(0.032)	(0.023)	(0.027)	(0.034)	(0.036)
Fixed Effects:								
Exporter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.608	0.560	0.550	0.584	0.694	0.697	0.737	0.735
Observations	16,748	17,139	16,484	15,974	17,330	17,199	17,595	17,331

Notes: Marginal effects reported. Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests. Missing estimates for some years reflect collinearity with other variables.

Appendix Table A7: HMR Second-Stage Results (No EIAs in First-Stage Probits)

Variables	Set 1 (RGFD) (1a) $\Delta_5 \ln TRADE_{ijt}$	(1b) $\Delta_5 \ln EM_{ijt}$	(1c) $\Delta_5 \ln IM_{ijt}$	Set 2 (RGFD) (2a) $\Delta_5 \ln TRADE_{ijt}$	(2b) $\Delta_5 \ln EM_{ijt}$	(2c) $\Delta_5 \ln IM_{ijt}$
$\Delta_5 CUCMECU_{ijt}$	0.353***	0.132*	0.221***	0.406***	0.129*	0.278***
	(0.072)	(0.061)	(0.065)	(0.077)	(0.066)	(0.069)
Lag $\Delta_5 CUCMECU_{ijt}$				0.312***	0.123*	0.189**
				(0.076)	(0.065)	(0.071)
$\Delta_5 FTA_{ijt}$	0.213***	0.116**	0.097*	0.263***	0.127**	0.136**
	(0.053)	(0.043)	(0.047)	(0.057)	(0.046)	(0.050)
Lag $\Delta_5 FTA_{ijt}$				0.242***	0.105*	0.137**
				(0.055)	(0.047)	(0.050)
$\Delta_5 TWPTA_{ijt}$	-0.005	0.010	-0.015	0.067	0.023	0.043
	(0.072)	(0.055)	(0.063)	(0.079)	(0.063)	(0.068)
Lag $\Delta_5 TWPTA_{ijt}$				0.114	0.072	0.042
				(0.071)	(0.062)	(0.068)
$\Delta_5 OWPTA_{ijt}$	0.062	-0.075	0.137*	0.105	-0.058	0.162*
	(0.065)	(0.053)	(0.062)	(0.067)	(0.055)	(0.063)
Lag $\Delta_5 OWPTA_{ijt}$				0.275***	0.154**	0.121*
				(0.070)	(0.059)	(0.067)
$\Delta_5 \hat{\bar{\eta}}^*_{ijt}$	0.531***	0.527***	0.004	0.451**	0.515***	-0.064
	(0.132)	(0.112)	(0.121)	(0.145)	(0.123)	(0.130)
$\Delta_5 \hat{\bar{z}}^*_{ijt}$	1.011***	1.199***	-0.188	0.870***	1.157***	-0.287
	(0.235)	(0.195)	(0.213)	(0.253)	(0.210)	(0.226)
$\Delta_5 \hat{\bar{z}}^{*2}_{ijt}$	-0.271***	-0.283***	0.011	-0.230**	-0.267***	0.037
	(0.070)	(0.058)	(0.064)	(0.075)	(0.062)	(0.067)
$\Delta_5 \hat{\bar{z}}^{*3}_{ijt}$	0.025***	0.023***	0.002	0.021**	0.021***	0.001
	(0.007)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Constant	-0.000	-0.023	0.022	-0.133	-0.059	-0.074
	(0.167)	(0.173)	(0.220)	(0.076)	(0.080)	(0.103)
<u>Fixed Effects</u>:						
Exporter-Year (i,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Year (j,t-(t-5))	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.295	0.367	0.358	0.330	0.405	0.403
No. of observations	48,619	48,619	48,619	41,767	41,767	41,767

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in one-tailed t-tests.

Appendix Table A8: Adding Leads
5-Year Differenced Data
RGFD Model

Variables	$\Delta_5$lnTRADE$_{ijt}$	$\Delta_5$lnEM$_{ijt}$	$\Delta_5$lnIM$_{ijt}$
Δ_5CUCMECU$_{ijt}$	0.209**	-0.029	0.238***
	(0.093)	(0.080)	(0.083)
Lag Δ_5CUCMECU$_{ijt}$	0.069	-0.052	0.120
	(0.094)	(0.077)	(0.089)
CUCMECU$_{ij,t+5}$	0.355***	0.161*	0.194**
	(0.111)	(0.091)	(0.098)
Δ_5FTA$_{ijt}$	0.195**	0.003	0.192***
	(0.076)	(0.062)	(0.065)
Lag ΔFTA$_{ijt}$	0.221***	0.048	0.174**
	(0.076)	(0.063)	(0.069)
FTA$_{ij,t+5}$	0.226***	0.137**	0.089
	(0.083)	(0.065)	(0.071)
Δ_5TWPTA$_{ijt}$	0.021	0.006	0.015
	(0.105)	(0.085)	(0.090)
Lag Δ_5TWPTA$_{ijt}$	0.136	0.048	0.089
	(0.097)	(0.082)	(0.092)
TWPTA$_{ij,t+5}$	0.202*	0.038	0.164*
	(0.111)	(0.093)	(0.096)
Δ_5OWPTA$_{ijt}$	0.096	-0.038	0.135*
	(0.081)	(0.068)	(0.076)
Lag Δ_5OWPTA$_{ijt}$	0.326***	0.168**	0.158*
	(0.085)	(0.067)	(0.082)
OWPTA$_{ij,t+5}$	-0.148	-0.066	-0.082
	(0.121)	(0.101)	(0.111)
Constant	-0.203	-0.389**	0.186
	(0.138)	(0.154)	(0.191)
Fixed Effects:			
Exporter-Year (i,t-(t-5))	Yes	Yes	Yes
Importer-Year (j,t-(t-5))	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes
R^2	0.356	0.438	0.439
No. of observations	34,433	34,433	34,433

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A9:
Annual Data Using 7 Periods of Lags and Leads
RGFD Model

Variables	$\Delta lnTRADE_{ijt}$	$\Delta lnEM_{ijt}$	$\Delta_5 lnIM_{ijt}$
ΔCUCMECU	0.141 (0.048)*	0.027 (0.071)	0.114 (0.082)
Lag 1	0.155 (0.049)*	0.122 (0.071)*	0.033 (0.081)
Lag 2	0.110 (0.055)	0.022 (0.071)	0.087 (0.081)
Lag 3	0.099 (0.054)	0.053 (0.074)	0.046 (0.085)
Lag 4	-0.046 (0.054)	0.021 (0.074)	0.025 (0.085)
Lag 5	0.043 (0.055)	-0.052 (0.074)	0.094 (0.085)
Lag 6	0.190 (0.056)**	0.109 (0.074)	0.082 (0.085)
Lag 7	-0.028 (0.056)	-0.028 (0.074)	-0.000 (0.085)
Lead 1	0.114 (0.061) *	0.021 (0.054)	0.093 (0.062)
Lead 2	0.081 (0.056)	0.079 (0.049)	0.002 (0.056)
Lead 3	0.119 (0.060) **	0.033 (0.052)	0.086 (0.060)
Lead 4	-0.046 (0.060)	-0.021 (0.053)	-0.025 (0.060)
Lead 5	0.038 (0.061)	0.034 (0.054)	0.004 (0.061)
Lead 6	0.002 (0.061)	0.008 (0.053)	-0.006 (0.061)
Lead 7	0.080 (0.059)	0.023 (0.052)	0.057 (0.060)
ΔFTA	0.026 (0.048)	-0.057 (0.042)	0.082 (0.048)*
Lag 1	0.070 (0.049)	0.088 (0.043)**	-0.018 (0.049)
Lag 2	0.016 (0.055)	-0.043 (0.048)	0.059 (0.055)
Lag 3	0.038 (0.054)	-0.054 (0.047)	0.091 (0.055)*
Lag 4	-0.011 (0.054)	0.003 (0.048)	-0.014 (0.055)
Lag 5	0.020 (0.055)	0.012 (0.048)	0.008 (0.055)
Lag 6	0.140 (0.056)**	0.047 (0.049)	0.093 (0.057)
Lag 7	0.014 (0.056)	-0.032 (0.049)	0.045 (0.056)
Lead 1	0.085 (0.041)**	-0.002 (0.036)	0.088 (0.041)**
Lead 2	0.053 (0.040)	0.081 (0.035)**	-0.028 (0.040)
Lead 3	0.030 (0.045)	0.001 (0.039)	0.029 (0.045)
Lead 4	-0.051 (0.045)	0.013 (0.039)	-0.064 (0.045)
Lead 5	0.005 (0.044)	-0.003 (0.039)	0.008 (0.044)
Lead 6	0.010 (0.042)	-0.015 (0.037)	0.026 (0.042)
Lead 7	0.045 (0.038)	-0.018 (0.034)	0.063 (0.039)
ΔTWPTA	-0.043 (0.050)	-0.029 (0.044)	-0.013 (0.050)
Lag 1	0.014 (0.050)	0.043 (0.044)	-0.029 (0.051)
Lag 2	0.079 (0.051)	0.031 (0.045)	0.048 (0.051)
Lag 3	-0.031 (0.052)	-0.018 (0.046)	-0.013 (0.052)
Lag 4	-0.020 (0.052)	-0.034 (0.046)	0.014 (0.053)
Lag 5	0.049 (0.052)	0.017 (0.046)	0.032 (0.052)
Lag 6	0.037 (0.055)	0.071 (0.048)	-0.035 (0.055)
Lag 7	-0.044 (0.055)	-0.020 (0.048)	-0.024 (0.055)

Appendix Table A9 (cont.)

Variables	$\Delta lnTRADE_{ijt}$	$\Delta lnEM_{ijt}$	$\Delta_5 lnIM_{ijt}$
Lead 1	0.108 (0.049)**	0.050 (0.043)	0.058 (0.049)
Lead 2	0.043 (0.044)	0.023 (0.038)	0.020 (0.044)
Lead 3	0.060 (0.044)	0.028 (0.039)	0.033 (0.044)
Lead 4	-0.000 (0.045)	0.035 (0.039)	-0.036 (0.045)
Lead 5	-0.007 (0.047)	-0.001 (0.041)	-0.006 (0.047)
Lead 6	-0.112 (0.049)**	-0.023 (0.043)	-0.089 (0.049)*
Lead 7	0.010 (0.048)	0.001 (0.042)	0.009 (0.048)
ΔOWPTA	-0.018 (0.027)	-0.025 (0.024)	0.007 (0.027)
Lag 1	-0.048 (0.027)*	0.015 (0.023)	-0.062 (0.027)**
Lag 2	0.076 (0.027)***	-0.027 (0.023)	0.103 (0.027)***
Lag 3	0.002 (0.027)	0.014 (0.023)	-0.013 (0.027)
Lag 4	0.067 (0.027)**	0.026 (0.024)	0.041 (0.027)
Lag 5	0.002 (0.027)	-0.061 (0.023)***	0.064 (0.027)**
Lag 6	0.017 (0.027)	0.072 (0.024)***	-0.055 (0.027)**
Lag 7	-0.027 (0.026)	0.010 (0.023)	-0.038 (0.026)
Lead 1	-0.037 (0.034)	-0.005 (0.030)	-0.032 (0.035)
Lead 2	0.027 (0.031)	0.141 (0.027) ***	-0.114 (0.031)***
Lead 3	0.072 (0.037)*	0.036 (0.033)	0.036 (0.037)
Lead 4	-0.187 (0.038)***	-0.135 (0.033) ***	-0.052 (0.038)
Lead 5	-0.005 (0.037)	0.057 (0.032)*	-0.062 (0.037)*
Lead 6	-0.003 (0.039)	0.011 (0.035)	-0.014 (0.040)
Lead 7	-0.039 (0.040)	0.011 (0.035)	-0.050 (0.040)
Constant	-0.004 (0.002)*	-0.010 (0.002)***	0.005 (0.002)**
<u>Fixed Effects</u>:			
Exporter-Year (i,t-(t-1))	Yes	Yes	Yes
Importer-Year (j,t-(t-1))	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes
R^2	0.155	0.239	0.204
No. of observations	102,059	102,059	102,059

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A10:
Annual Data Using 7 Periods of Lags and Leads
FD Model

Variables	$\Delta lnTRADE_{ijt}$	$\Delta lnEM_{ijt}$	$\Delta_5 lnIM_{ijt}$
ΔCUCMECU	0.122 (0.083)	0.006 (0.073)	0.117 (0.083)
Lag 1	0.135 (0.082)*	0.099 (0.072)	0.037 (0.082)
Lag 2	0.083 (0.082)	-0.004 (0.072)	0.087 (0.083)
Lag 3	0.081 (0.085)	0.037 (0.075)	0.045 (0.086)
Lag 4	0.026 (0.085)	0.011 (0.075)	0.015 (0.086)
Lag 5	0.023 (0.085)	-0.060 (0.075)	0.083 (0.086)
Lag 6	0.171 (0.086)**	0.095 (0.075)	0.076 (0.086)
Lag 7	-0.045 (0.086)	-0.034 (0.075)	-0.011 (0.086)
Lead 1	0.105 (0.062)*	0.030 (0.055)	0.076 (0.062)
Lead 2	0.072 (0.057)	0.081 (0.050)	-0.009 (0.057)
Lead 3	0.114 (0.061)*	0.039 (0.053)	0.075 (0.061)
Lead 4	-0.045 (0.061)	-0.010 (0.053)	-0.034 (0.061)
Lead 5	0.031 (0.062)	0.050 (0.054)	-0.019 (0.062)
Lead 6	-0.006 (0.062)	0.020 (0.054)	-0.027 (0.062)
Lead 7	0.060 (0.060)	0.022 (0.053)	0.037 (0.061)
ΔFTA	0.029 (0.049)	-0.046 (0.043)	0.075 (0.049)
Lag 1	0.070 (0.050)	0.096 (0.044)**	-0.026 (0.050)
Lag 2	0.014 (0.055)	-0.037 (0.049)	0.051 (0.056)
Lag 3	0.041 (0.055)	-0.045 (0.048)	0.087 (0.055)
Lag 4	-0.011 (0.055)	0.014 (0.048)	-0.025 (0.055)
Lag 5	0.023 (0.055)	0.033 (0.049)	-0.009 (0.056)
Lag 6	0.139 (0.057)**	0.047 (0.050)	0.092 (0.058)
Lag 7	0.006 (0.056)	-0.029 (0.049)	0.035 (0.057)
Lead 1	0.090 (0.042)**	0.015 (0.037)	0.075 (0.042)*
Lead 2	0.057 (0.040)	0.090 (0.035)**	-0.034 (0.048)
Lead 3	0.041 (0.045)	0.018 (0.040)	0.023 (0.046)
Lead 4	-0.036 (0.045)	0.027 (0.040)	-0.063 (0.046)
Lead 5	0.009 (0.045)	0.017 (0.039)	-0.008 (0.045)
Lead 6	0.014 (0.043)	0.000 (0.037)	0.014 (0.043)
Lead 7	0.033 (0.039)	-0.020 (0.034)	0.054 (0.039)
ΔTWPTA	-0.034 (0.051)	-0.036 (0.045)	0.002 (0.051)
Lag 1	0.016 (0.051)	0.038 (0.045)	-0.022 (0.051)
Lag 2	0.085 (0.052)	0.031 (0.045)	0.054 (0.052)
Lag 3	-0.039 (0.053)	-0.022 (0.046)	-0.017 (0.053)
Lag 4	-0.030 (0.053)	-0.038 (0.047)	0.007 (0.053)
Lag 5	0.041 (0.053)	0.008 (0.046)	0.033 (0.053)
Lag 6	0.035 (0.056)	0.068 (0.049)	-0.033 (0.056)
Lag 7	-0.053 (0.056)	-0.021 (0.049)	-0.032 (0.056)

Appendix Table A10 (cont.)

Variables	ΔlnTRADE$_{ijt}$	ΔlnEM$_{ijt}$	$\Delta_5$lnIM$_{ijt}$
Lead 1	0.118 (0.050)**	0.043 (0.044)	0.075 (0.050)
Lead 2	0.031 (0.044)	0.011 (0.039)	0.019 (0.044)
Lead 3	0.057 (0.045)	0.018 (0.039)	0.039 (0.045)
Lead 4	0.009 (0.046)	0.022 (0.040)	-0.013 (0.046)
Lead 5	-0.006 (0.048)	-0.001 (0.042)	-0.005 (0.048)
Lead 6	-0.116 (0.049)**	-0.023 (0.043)	-0.093 (0.050)*
Lead 7	0.004 (0.049)	-0.003 (0.043)	0.007 (0.049)
ΔOWPTA	-0.007 (0.027)	-0.030 (0.024)	0.023 (0.028)
Lag 1	-0.043 (0.027)	0.013 (0.024)	-0.056 (0.027)**
Lag 2	0.080 (0.027)***	-0.028 (0.024)	0.107 (0.027)***
Lag 3	-0.002 (0.027)	0.008 (0.024)	-0.009 (0.027)
Lag 4	0.070 (0.027)**	0.028 (0.024)	0.042 (0.027)
Lag 5	0.002 (0.027)	-0.061 (0.024)	0.063 (0.027)***
Lag 6	0.016 (0.027)	0.065 (0.024)	-0.049 (0.027)*
Lag 7	-0.027 (0.026)	0.007 (0.023)	-0.034 (0.026)
Lead 1	-0.027 (0.035)	-0.002 (0.031)	-0.025 (0.035)
Lead 2	0.025 (0.031)	0.133 (0.027) ***	-0.109 (0.031)***
Lead 3	0.069 (0.038)*	0.027 (0.033)	0.042 (0.038)
Lead 4	-0.190 (0.038)***	-0.142 (0.034) ***	-0.048 (0.039)
Lead 5	-0.006 (0.038)	0.046 (0.033)	-0.052 (0.038)
Lead 6	-0.004 (0.040)	-0.002 (0.035)	-0.002 (0.040)
Lead 7	-0.045 (0.040)	0.002 (0.035)	-0.047 (0.040)
Constant	-0.004 (0.003)*	-0.009 (0.002)***	0.005 (0.003)**
Fixed Effects:			
Exporter-Year (i,t-(t-1))	Yes	Yes	Yes
Importer-Year (j,t-(t-1))	Yes	Yes	Yes
Country-Pair (ij)	No	No	No
R^2	0.128	0.214	0.180
No. of observations	102,059	102,059	102,059

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A11:
Annual Data, RGFD Model, 15-Year Linear Trends

Variables	$\Delta lnTRADE_{ijt}$	$\Delta lnEM_{ijt}$	$\Delta lnIM_{ijt}$
$\Delta CUCMECU$	0.013	-0.102	0.115*
	(0.068)	(0.065)	(0.070)
$\Delta CUCMECU_{Lag\ Trend}$	0.032	0.034*	-0.002
	(0.021)	(0.020)	(0.022)
$\Delta CUCMECU_{Lead\ Trend}$	0.029	0.047***	-0.018
	(0.018)	(0.017)	(0.019)
ΔFTA	0.049	-0.027	0.075*
	(0.044)	(0.041)	(0.045)
$\Delta FTA_{Lag\ Trend}$	0.052***	0.033**	0.019
	(0.016)	(0.016)	(0.017)
$\Delta FTA_{Lead\ Trend}$	0.011	0.008	0.003
	(0.013)	(0.012)	(0.013)
$\Delta TWPTA$	-0.018	-0.034	0.015
	(0.043)	(0.041)	(0.044)
$\Delta TWPTA_{Lag\ Trend}$	-0.025	-0.007	-0.018
	(0.016)	(0.015)	(0.017)
$\Delta TWPTA_{Lead\ Trend}$	0.008	0.003	0.005
	(0.013)	(0.013)	(0.014)
$\Delta OWPTA$	-0.032	-0.028	-0.003
	(0.031)	(0.029)	(0.032)
$\Delta OWPTA_{Lag\ Trend}$	0.000	-0.010	0.011
	(0.009)	(0.009)	(0.010)
$\Delta OWPTA_{Lead\ Trend}$	-0.001***	-0.002***	0.001
	(0.0005)	(0.0005)	(0.001)
Constant	0.004*	0.018***	-0.014***
	(0.002)	(0.002)	(0.002)
<u>Fixed Effects</u>:			
Exporter-Year (i,t-(t-1))	Yes	Yes	Yes
Importer-Year (j,t-(t-1))	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes
R^2	0.106	0.129	0.117
No. of observations	275,621	275,621	275,621

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A12:
Annual Data, FD Model, 15-Year Linear Trends

Variables	$\Delta lnTRADE_{ijt}$	$\Delta lnEM_{ijt}$	$\Delta lnIM_{ijt}$
ΔCUCMECU	0.022	-0.109	0.130*
	(0.069)	(0.066)	(0.072)
$\Delta CUCMECU_{Lag\ Trend}$	0.034	0.008	0.025
	(0.022)	(0.021)	(0.023)
$\Delta CUCMECU_{Lead\ Trend}$	0.022	0.023	-0.002
	(0.019)	(0.018)	(0.019)
ΔFTA	0.048	-0.029	0.077*
	(0.044)	(0.042)	(0.046)
$\Delta FTA_{Lag\ Trend}$	0.040**	0.030*	0.010
	(0.017)	(0.016)	(0.017)
$\Delta FTA_{Lead\ Trend}$	-0.001	-0.001	0.001
	(0.013)	(0.013)	(0.014)
ΔTWPTA	-0.017	-0.036	0.019
	(0.043)	(0.041)	(0.045)
$\Delta TWPTA_{Lag\ Trend}$	-0.014	-0.001	-0.014
	(0.017)	(0.016)	(0.017)
$\Delta TWPTA_{Lead\ Trend}$	0.017	0.010	0.007
	(0.014)	(0.013)	(0.014)
ΔOWPTA	-0.018	-0.009	-0.008
	(0.032)	(0.030)	(0.033)
$\Delta OWPTA_{Lag\ Trend}$	0.007	-0.002	0.009
	(0.010)	(0.009)	(0.010)
$\Delta OWPTA_{Lead\ Trend}$	-0.000	-0.001	0.000
	(0.0005)	(0.0005)	(0.0005)
Constant	0.002	0.016***	-0.014***
	(0.002)	(0.002)	(0.002)
Fixed Effects:			
Exporter-Year (i,t-(t-1))	Yes	Yes	Yes
Importer-Year (j,t-(t-1))	Yes	Yes	Yes
Country-Pair (ij)	No	No	No
R^2	0.072	0.095	0.084
No. of observations	275,621	275,621	275,621

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.

Appendix Table A13:
Annual Data, FE Model, 15-Year Linear Trends

Variables	$lnTRADE_{ijt}$	$lnEM_{ijt}$	$lnIM_{ijt}$
$CUCMECU_{ijt}$	0.405***	0.057**	0.393***
	(0.029)	(0.025)	(0.030)
$CUCMECU_{Lag\ Trend}$	0.025***	0.010***	0.015***
	(0.003)	(0.003)	(0.003)
$CUCMECU_{Lead\ Trend}$	-0.006***	-0.001	-0.005***
	(0.001)	(0.001)	(0.001)
FTA_{ijt}	0.262***	0.080***	0.182***
	(0.019)	(0.016)	(0.018)
$FTA_{Lag\ Trend}$	0.028***	0.025***	0.004**
	(0.002)	(0.002)	(0.002)
$FTA_{Lead\ Trend}$	-0.020***	-0.007***	-0.013***
	(0.001)	(0.001)	(0.001)
$TWPTA_{ijt}$	0.194***	0.053***	0.141***
	(0.018)	(0.015)	(0.016)
$TWPTA_{Lag\ Trend}$	-0.017***	-0.007***	-0.010***
	(0.002)	(0.001)	(0.002)
$TWPTA_{Lead\ Trend}$	-0.010***	0.003***	-0.014***
	(0.001)	(0.001)	(0.001)
$OWPTA_{ijt}$	0.022	0.033***	-0.012
	(0.015)	(0.013)	(0.014)
$OWPTA_{Lag\ Trend}$	-0.022***	-0.020***	-0.003**
	(0.001)	(0.001)	(0.001)
$OWPTA_{Lead\ Trend}$	-0.013***	-0.011***	-0.003***
	(0.001)	(0.001)	(0.001)
Constant	-3.829***	-3.126***	-3.830***
	(0.002)	(0.002)	(0.002)
Fixed Effects:			
Exporter-Year (i,t-(t-1))	Yes	Yes	Yes
Importer-Year (j,t-(t-1))	Yes	Yes	Yes
Country-Pair (ij)	Yes	Yes	Yes
R^2	0.838	0.780	0.686
No. of observations	313,189	313,189	313,189

Notes: Robust standard errors in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, in two-tailed t-tests.