Do Trade Missions Increase Trade?*

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Abstract

In an effort to stimulate trade, Canada has conducted regular trade missions starting in 1994, often led by the Prime Minister. According to the Canadian government, these missions generated tens of billions of dollars in new business deals. This paper uses bilateral trade data to assess this claim. We find that Canada exports and imports above-normal amounts to the countries to which it sent trade missions. However, the missions do not seem to have caused an increase in trade. In the preferred specification, incorporating country-pair fixed effects, trade missions have small, negative, and mainly insignificant effects.

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1 Introduction

Over the past 15 years Canada has organized high profile trade missions involving hundreds of business people, high-level government officials, and often the Prime Minister himself. Press releases from the Canadian government associated the missions with tens of billions of dollars in new business deals in the form of contracts, memoranda of understanding, and letters of intent. There are reasons why actual trade creation may be greater or smaller than the reported figures. On the positive side, the missions may create social capital that leads to transactions subsequent to the ones announced during the missions. This view is reflected in Ontario Premier Mike Harris' statement after the 2001 Team Canada mission to China, "This trip was an unqualified success. Ontario companies have signed trade deals that will expand their business in the short-run and they've made contacts that will lead to continued trade, strong relationships and even more job creation in the long-term" (Canada NewsWire, February 18, 2001). On the negative side, Michael Hart (2007) argues "Trade missions and similar programs, while popular with ministers, have virtually no enduring impact on trade and investment patterns." Under the skeptical perspective, many of the announced deals do not actually come to fruition and most of the fulfilled agreements would have occurred anyway.

We subject these competing views of trade missions to empirical scrutiny by using data on the bilateral merchandise trade for 181 countries from 1993 to 2003 to estimate trade creation associated with the missions. We employ a gravity model and our preferred specification identifies mission effects based on within variation in bilateral trade. To control for non-mission related variation in trade, we use annual country fixed effects for Canada and mission-targeted countries and non-time varying fixed effects for other countries.

Our paper fits within a larger literature that attempts to measure the effects of policies on bilateral and multilateral trade. The main branch of that literature examines formal trade agreements. Rose (2004) considers the trade of 178 partner countries over the 1948–1999 period to evaluate the trade creation effect of the World Trade Organization (WTO). He finds little evidence that WTO membership raises trade in most specifications. However, with country-pair fixed effects, Rose finds small but significant impacts. Baier and Bergstrand (2007) use data on bilateral trade over five-year intervals starting in 1960 to measure the trade-creation effects of regional trade agreements (RTAs). Their preferred panel estimates of RTA effects are seven times larger than their OLS estimates.

For many governments, free trade agreements are just the starting point for their trade-promoting efforts. A new branch of the literature examines the impact of the physical presence of government officials on bilateral trade. Rose (2005) employs a gravity specification to investigate the effects of *permanent* foreign missions (embassies and consulates) on trade. Based on 2002–2003 trade data for 22 large exporters and 200 destination countries, he finds estimates that an initial consulate or embassy is associated with a more than 100% increase in exports whereas each additional consulate adds 6–10% more exports. These results are robust to instrumenting for foreign missions with variables measuring the importance of importing countries (e.g., oil reserves) and their desirability as places to live. Gil-Pareja, Llorca-Vivero, and Martinez Serrano (2008) closely follow the Rose approach to investigate the export promotion agencies of Spanish regional governments. Using a panel of exports of 17 Spanish regions to 188 countries for the period 1995–2003, and controlling for standard gravity model variables and the number of embassies and consulates, they find that regional agencies increase exports by over 50% in regressions that instrument using Rose-type instruments. Nitsch (2007) investigates the trade effects of short visits by heads of state and other politicians from France, Germany, and the United States between 1948 and 2003. He finds that visits are associated with an 8–10% increase in exports using a standard gravity specification and specifications that identify effects based on time series variation.

Why might physical presence of government officials matter for trade? Despite advances in transportation technology and reductions in formal trade barriers, distance and border effects are still found to impede international trade. A growing empirical literature implicates informational barriers to trade to explain these effects. Rauch (1999) finds that transportability-adjusted distance effects and language and colonial linkage effects are higher for differentiated products than homogeneous products. He interprets the results as supporting the importance of networks for trade. One way to operationalize the network hypothesis is to use immigrant and ethnic presence as proxies for border-spanning social and business networks. Gould (1994) and Head and Ries (1998) find immigrants promote US and Canadian trade with origin countries. Rauch and Trindade (2002) find Overseas Chinese populations increase trade, particularly in differentiated goods. This supportive evidence on permanent cross-border movement of people reinforces the interest in finding out whether the temporary visits of government-led delegations might also stimulate bilateral trade by reducing informational separation.

In the next section we discuss the trade missions and the business deals that were signed during the missions. Section 3 develops a treatment and control framework for estimating mission effects. It motivates four specifications of the bilateral trade equation. We then estimate these specifications using merchandise trade and report and interpret the results in section 4. The section concludes with a brief summary of the estimated mission effects on other Canadian transactions with mission countries: "other commercial services" (OCS) trade and foreign direct investment (FDI). The conclusion summarizes the results and discusses their policy implications.

2 Canadian trade missions

We obtained information on trade missions from a website maintained by International Trade Canada.[1] Trade missions are of two types. Team Canada missions (TCs) are led by the Prime Minister accompanied by provincial premiers whereas Canada Trade Missions (CTMs) are headed by the Minister of International Trade. Other government officials and Canadian businesses participate in the missions. The objectives of the missions are "to increase trade and investment, as well as create jobs and growth in Canada. They help build prestige and credibility for Canada, while helping exporters to position themselves in foreign markets."[2]

In addition to dates and targeted countries, information was provided on the number of businesses participating and business deals signed during the mission. Table 1 reports information on non-US missions compiled from the website.[3] Team Canada missions are larger and of longer duration than Canada Trade Missions, with the former averaging over 300 participating businesses compared to typically less than 100 for the latter. Some countries, such as China and Brazil, were visited twice, while Chile received three missions.

As portrayed in the table, information on business deals was available for Team Canada Trade Missions but generally not for Canada Trade Missions. Business deals take the form of contracts, memoranda of understanding, and letters of intent. The total value of deals for the eight Team Canada trade missions to 17 different countries totals C$33.2 billion. This may be considered a large number given that total Canadian merchandise trade to non-US destinations amounted to only C$54 billion in 2000.

Team Canada website's "Newsroom" page reported examples of business deals signed during these trade missions. These included agreements that would result in increases in merchandise and service trade, as well as foreign direct investment. Our perusal of the deals suggests a mercantilist intent of the missions—they highlight Canadian export and investment opportunities. Our empirical analysis focuses on merchandise trade because it seems to have been the main focus and because the data are more complete than those for other transactions. We summarize results for other commercial services trade and foreign direct investment in the main text but relegate the regression tables to an appendix.

[1]The site, (`www.tcm-mec.gc.ca`) is no longer operational.

[2]Quote taken from website.

[3]There were missions to San Francisco, Los Angeles, Dallas, Atlanta, and Boston that we ignore.

Table 1: Timing and locations visited by official missions

Year(Mo.)	Countries	Length	Firms	Deals	Value
	Team Canada missions				
1994 (Nov)	China, Hong Kong	8	188*	188	8929
1995 (Jan)	Brazil, Argentina, Chile	.	204	122	2760
1996 (Jan)	India, Pakistan, Indonesia, Malaysia	9	300*	241	11175
1997 (Jan)	Korea, Philippines, Thailand	13	414	180	2130
1998 (Jan)	Mexico, Brazil, Argentina, Chile	11	482	306	1476
1999 (Sep)	Japan	8	216	27	409
2001 (Feb)	China, Hong Kong	9	412	231	5700
2002 (Feb)	Russia, Germany	11	290	133	584
	Canada Trade Missions				
1998 (May)	Italy	9	73	.	.
1999 (Jan)	Poland, Ukraine	4	150	56	295
1999 (Feb)	Saudi Arabia, UAE, Israel	7	46	.	.
1999 (Jun)	Ireland	3	53	.	.
2000 (Jun)	Australia	4	25	6	294
2000 (Jun)	Russia	3	114	.	800
2000 (Sep)	Hungary, Slovakia, Czech Rep., Slovenia	6	58	.	.
2000 (Oct)	Morocco, Algeria, Spain, Portugal	12	102	.	.
2002 (Apr)	India	5	130	.	.
2002 (Jun)	Mexico	5	60	.	.
2002 (Sep)	South Africa, Nigeria, Senegal	12	86	25	166
2003 (Dec)	Chile	4	51	7	
2004 (Nov)	Brazil	5			
2005 (Jan)	China	8	279	100	
2005 (Apr)	India	5	50*		

Note: Deals include contracts, memoranda of understanding, and letters of intent and their value expressed as millions of Canadian dollars. Length is in days and firm numbers with an * are counts of business attendees.

3 Regression specification

We specify our regression equation in a general treatment and control framework. Denoting exports from origin o to destination d in year t as x_{odt} we regress its log on a vector of treatment variables, $\mathbf{T}_{odt}$, and a vector of control variables, $\mathbf{Z}_{odt}$:

$$\ln x_{odt} = \mathbf{T}_{odt}\boldsymbol{\beta} + \mathbf{Z}_{odt}\boldsymbol{\zeta} + \epsilon_{odt}. \tag{1}$$

To obtain consistent estimates of the treatment effects, $\boldsymbol{\beta}$, we need the covariance of the treatment variables and ϵ to equal zero. Since we presume that mission destinations were not randomly selected by the Canadian government, the treatment variables should be regarded as endogenous. The particular concern is that countries were targeted for missions based on attributes that also influence bilateral trade. Consequently, we incorporate a large number of observable characteristics of trading partners into $\mathbf{Z}_{odt}$. In addition, we add different sets of fixed effects and lagged dependent variables to control for unobserved factors that may simultaneously influence the volume of bilateral trade and the assignment of mission treatment. We do not employ instrumental variable methods because we do not believe that there exist valid instruments—exogenous variables that influence the likelihood of trade missions but do not exert direct effects on trade. However, we argue that even if the specifications we use contain some bias, they provide upper and lower bounds on the true mission effects.

We estimate the treatment effect using four different sets of controls. The first, "Gravity," follows the conventional specification of the gravity equation for international trade. A second specification, "CountryFE," adds fixed effects for origin and destination countries. This specification also incorporates time-varying country effects for Canada and the mission-targeted countries. The third specification, "LagDV," augments CountryFE by including three lags of the dependent variable. This allows for the possibility that pre-treatment bilateral trade performance influenced the selection of mission targets. Finally, the "PairFE" specification replaces the lagged dependent variable with directional country-pair fixed effects.[4] Since none of these specifications is guaranteed to eliminate all sources of endogeneity bias, we subject each of these specifications to a test for the strict exogeneity of the mission variables. The four specifications are summarized in Table 2 and described in greater detail below.

Treatment effects are captured by dummy variables identifying trade between Canada and mission-targeted countries. We allow the treatment to exert temporary or permanent effects on trade. As noted earlier, the business deals associated with the missions were in the form of contracts, memoranda of understanding, and letters of intent. Since the period over which the

[4]By directional, we mean that there is a fixed effect for o's exports to d and another for d's exports to o.

Table 2: Specification summary

Gravity	exporter and importer population and income per capita, bilateral distance, contiguity, common language and legal origins, colony-colonizer, common colonizer, currency union, regional trade agreement, GATT membership, year dummies
CountryFE	Gravity + fixed effects for each exporter (o) and importer (d), Canada-specific year dummies, mission-target year dummies
LagDV	CountryFE + one-year, two-year, and three-year lagged bilateral exports
PairFE	CountryFE + od directional pair fixed effects

deals reach fruition is uncertain, we employ windows of different lengths to determine which specification best fits the data. The windows we use correspond to one year, two years, four years, and "permanent." The one-year window corresponds to the year of the mission, longer windows add years subsequent to the mission, and "permanent" turns on in the mission year and remains on thereafter.[5] Because Team Canada missions are larger than Canada Trade Missions and involve the Prime Minister, we allow for differential mission effects by mission type. Our specifications estimate separate mission effects on Canadian exports and imports. The policy seemed to be export oriented but enhancing bilateral connections could well increase trade in both directions.

Our Gravity specification uses roughly the same set of variables as other authors have employed to estimate the effects on bilateral trade of such policies as free trade agreements (Frankel et al., 1995, Baier and Bergstrand, 2007), GATT membership (Rose, 2004), and currency unions (Rose, 2000). The gravity equation began as an analogy with physics in which GDPs of exporter and importer took the place of the masses of objects. Taking account not just the size of countries, but their level of development, most studies allow per capita GDP to enter as well as total GDP. Our approach is to decompose ln GDP into ln population and ln per capita income.

The trade gravity equation also follows the physics equation in using distance as a determinant but empiricists have augmented the equation with other indicators of proximity. We follow prior work by including contiguity and commonalities in language, legal system, and colonial history. In addition, our Gravity controls include the policy variables that were the subject of the studies mentioned in the previous paragraph. Finally, to take into account shifts in the intercept over time, we include year dummies.

In recent years, economists have derived bilateral trade equations from first principles which

[5] We code missions staged late in a year—September or later—as occurring in the subsequent year.

permits the comparison between the ideal equation and what has been used in practice. Using the notation of Baldwin and Taglioni (2006), we express the ideal bilateral export equation as

$$\ln x_{od} = \underbrace{\ln Y_o - \ln \Omega_o + \ln E_d + (\sigma - 1)\ln P_d}_{\text{Country effects}} \underbrace{-(\sigma - 1)\ln \tau_{od}}_{\text{Pair effects}} \tag{2}$$

The first two terms pertain to the exporter (origin) and the second two to the importer (destination). The final term reflects bilateral trade costs and the effects of these costs on exports depends on σ, the elasticity of substitution.

$Y_o = \sum_d x_{od}$ is the total output of country o and $E_d = \sum_o x_{od}$ is country d's expenditure on all x from all origins. For data availability reasons, most applications of the gravity equation use GDP_o as the proxy for Y_o and GDP_d as the proxy for E_d. However, if x_{od} represent merchandise trade flows, then ideally we want gross output of goods for Y_d and expenditures on goods for E_d. The use of GDPs therefore introduces an exporter-specific error term and an importer-specific error term. A more serious problem is that bilateral trade also depends on Ω_o and P_d, referred to as "multilateral resistance" by Anderson and van Wincoop (2003). An exporting country with high Ω_o has low trade costs to other markets for its products. This implies a lower share of output remaining for export to country d. Similarly, a country with a low price index, P_d, has low trade costs on alternative import sources, which reduces the share of expenditure to be allocated to country o.

Formal specification of Ω_o and P_d (first derived in Anderson and van Wincoop) show that these terms depend on τ_{od} parameters that must be estimated. To deal with the errors associated with using proxies for Y_o and E_d while omitting Ω_o and P_d, there is now a fairly broad consensus, well-articulated by Baldwin and Taglioni, that origin and destination country fixed effects should be included in the empirical bilateral trade equation.

To construct a specification that captures multilateral resistance, we add country fixed effects for exporters and importers. Ideally, these fixed effects should be year-specific. This is because both Ω_o and P_d depend on time-varying GDPs of all countries as well as time-varying trade costs. Estimating time-varying fixed effects for 181 countries over a 11-year period, however, is technically infeasible, as there are about 4000 coefficients to estimate.[6] We therefore estimate time-varying fixed effects just for the countries of interest—Canada and the 35 mission-targeted countries. Thus, in specification CountryFE, we employ year-specific importer and exporter fixed effects for these countries and non-time-varying fixed effects for all

[6]Because our panel is unbalanced—there is missing trade for many *odt* combinations—we cannot use *within* transformations to handle the two sets of fixed effects (origin and destination). See Baltagi (1995, pp. 159–160) for explanation.

other countries.

Beyond capturing multilateral resistance, country fixed effects control for other sources of endogeneity bias. Canada may choose to visit countries with high and increasing propensities to trade. Alternatively, looking for untapped markets, Canada could choose countries that currently have low imports relative to GDP. In either case, the CountryFE specification captures sources of endogeneity that vary over time for mission countries.

Eichengreen and Irwin (1995) appear to be the first to make the argument that the standard gravity specification suffers from an omitted variable bias that has a tendency to "spuriously attribute to preferential arrangements the effects of historical factors." They suggest that the bias runs in this direction because "there are reasons to anticipate a positive correlation between ... trade flows in the past and membership in preferential arrangements in the present." Their conclusion is that gravity equations should always include a lagged dependent variable. An analogous literature in labour economics identified "pre-program dips" in earnings as a confounding variable that would lead to bias in the estimated effects of job training programs. Angrist and Pischke (2009, p. 244) argue that these time-series patterns motivate the use of lagged dependent variables as a control. In our context, a drop in bilateral exports might prompt Canadian trade ministers to send a trade mission to address the recent poor performance. Our LagDV specification augments CountryFE by adding $\ln x_{od,t-1}$, $\ln x_{od,t-2}$, and $\ln x_{od,t-3}$.

While the LagDV specification is very useful when the decision to target a country with a trade mission depends on previous trade, it does not resolve all potential problems with unobserved components of bilateral trade costs, $\ln \tau_{odt}$. Angrist and Pischke (2009, p. 245) show that if one estimates a model with a lagged dependent variable for a data generating process with a fixed effect, then the resulting treatment effect will be estimated with bias.

There are good reasons to believe that bilateral trade has an important unobserved country-pair effect and that this effect is correlated with other variables of interest. The gravity literature has steadily added more and more bilateral linkage variables and new significant variables keep being identified. There is no reason to think that our Gravity specification has exhausted the set of important linkages. A number of papers show that including pair effects can change the magnitude and significance of variables of interest.[7]

The PairFE specification can be thought of as a regression form of difference-in-difference estimation since this specification also includes time effects for Canada and each mission-targeted country. The first difference pertains to Canada's trade with a target before and after the mission (the country-pair fixed effect). The second difference is the change in Canada's trade with all other countries (the Canada-year effects) and the target's trade with other countries (the

[7] For example, see Rose (2004) and Baier and Bergstrand (2007).

target-year fixed effects).

Since the PairFE specification does not include lagged dependent variables, it would generate biased estimates if dips in trade prompt trade missions. This suggests that the ideal specification would incorporate both lagged dependent variables and pair fixed effects. Nickell (1981) shows that the estimates from this specification are biased by construction. The subsequent literature on dynamic panel data produces consistent estimates by first-differencing (to remove the fixed effects) and then using longer lags to instrument for the differenced lag dependent variable. Wooldridge (2002, p. 304) points out that many of the proposed methods are difficult to estimate and Angrist and Pischke (2009, p. 245) cast doubt on the strong assumptions required for identification. In light of the problems associated with unbiased dynamic panel estimation, we do not estimate a regression combining the three lagged dependent variables and pair effects as one of our main specifications.

Angrist and Pischke (2009, p. 245) point out that a benefit of estimating both the LagDV and PairFE specifications is that they bracket the causal effect of a treatment variable. This is because if PairFE is true, and one estimates LagDV, the bias has the sign of the relationship between treatment and the lagged dependent variable, whereas if LagDV is true and one estimates PairFE, the bias goes in the opposite direction. Thus by reporting both LagDV and PairFE results, we can obtain upper and lower bounds on the effects of trade missions.

4 Regression results

We report and interpret estimated mission effects on total Canadian trade for each of the four specifications. In order to choose a preferred estimate, we then subject the specifications to tests for strict exogeneity of the mission indicators. We also consider a specification that incorporates a lagged dependent variable into a regression with country-pair fixed effects. We use the formula provide by Nickell (1981) to calculate an upper bound of the bias in this specification. This allows us to rule out the estimates of Team Canada effects obtained from three of the specifications, leaving the PairFE result of approximately zero effects as the preferred estimate. At the end of the section, we briefly report results for differentiated goods, homogeneous goods, other commercial services (OCS) and foreign direct investment (FDI).

Table 3: Mission effects on Canadian exports

Column:	(1)	(2)	(3)	(4)
Specification:	Gravity	CountryFE	LagDV	PairFE
	One year treatment window			
Team Canada	0.650^a	0.870^a	0.091	-0.014
	(0.208)	(0.172)	(0.056)	(0.052)
Cdn. Trade Mission	-0.636^a	0.124	-0.067	-0.143^b
	(0.141)	(0.161)	(0.059)	(0.070)
	Two year treatment window			
Team Canada	0.647^a	0.889^a	0.091^b	-0.033
	(0.196)	(0.163)	(0.040)	(0.043)
Cdn. Trade Mission	-0.495^a	0.027	-0.110^c	-0.168^b
	(0.113)	(0.123)	(0.065)	(0.067)
	Four year treatment window			
Team Canada	0.682^a	0.980^a	0.115^a	-0.045
	(0.181)	(0.154)	(0.033)	(0.047)
Cdn. Trade Mission	-0.496^a	0.129	-0.023	-0.131^b
	(0.112)	(0.122)	(0.042)	(0.057)
	Permanent treatment			
Team Canada	0.586^a	1.063^a	0.134^a	-0.042
	(0.184)	(0.157)	(0.028)	(0.075)
Cdn. Trade Mission	-0.642^a	0.257^c	0.018	-0.095
	(0.131)	(0.142)	(0.034)	(0.072)
Observations	121987	121987	121987	121987
R^2	0.653	0.754	0.909	0.930
RMSE	1.754	1.484	0.901	0.791

Note: Standard errors in parentheses with ^{a}, ^{b}, and ^{c} respectively denoting significance at the 1%, 5%, and 10% levels. Standard errors are robust to heteroskedasticity and correlation of errors within od pairs. R^2 is the squared correlation between actual and fitted values of $\ln x_{ijt}$.

4.1 Mission effects on trade in four specifications

For each of the four specifications and the four alternative window lengths, we estimate separate mission-treatment effects for Canadian exports and imports using 1993–2003 trade data.[8] The mission effects for exports and imports are presented in Tables 3 and 4, respectively, and the estimated coefficients on the control variables are reported in Appendix B.[9] The R^2 and root mean squared error (RMSE) of each specification are invariant to the window length (at least out to three decimal places). Thus, we report one set of regression diagnostics for each specification. The R^2 we report for PairFE is the squared correlation between the regression prediction for ln exports and actual ln exports.[10]

The first column of results in Table 3 reveals that in the Gravity specification, Team Canada missions (TCs) have significant, positive estimates whereas Canadian Trade Missions (CTMs) are associated with significantly lower trade. The magnitudes of the trade mission coefficients in the Gravity specification are similar for different specifications of the length of the treatment window. This pattern of estimated mission effects across windows is inconsistent with temporary mission effects: If the effects were truly temporary and estimated without bias, longer windows would be associated with significantly lower coefficients.

The estimated mission effects from the Gravity specification may suffer bias due to unobserved characteristics of mission countries—those visited by Team Canada missions may have high unobserved trade propensities, whereas countries visited by Canadian Trade Missions could have low trade propensities. The CountryFE specification controls for individual country trading propensities. The results for the CountryFE regressions reveal even larger Team Canada mission effects than observed in the Gravity specification. In the permanent window specification, the Team Canada mission effect rises from 0.586 to 1.063, implying in the latter case that these missions increase trade by about 190% $(\exp(1.063) - 1)$! If we apply this magnification factor to each target for the post-mission years in our sample, Team Canada missions created US$236 billion in aggregate exports through 2003. This is seven times more than the total volume of deals that the Canadian government attributed to the missions. The CountryFE specification also makes Canadian Trade Missions appear effective. Instead of the significant negative effects found in the Gravity specification, CountryFE coefficients for CTMs are uniformly positive, although never significant at the 5% level.

We see that after controlling for country fixed effects, Canada tends to trade more with

[8]The data appendix identifies data sources and treatment of the data. We collect data back to 1990 in order to obtain three lags of the dependent variable.

[9]The Gravity controls have the expected signs and their magnitudes vary depending on the specification. The estimates do not depart notably from those found in the literature.

[10]Thus, unlike the *within* R^2, the R^2 we report includes the predictive power of the country-pair fixed effects.

Table 4: Mission effects on Canadian imports

Column:	(1)	(2)	(3)	(4)
Specification:	Gravity	CountryFE	LagDV	PairFE
	One year treatment window			
Team Canada	0.874[a]	0.505[a]	-0.017	-0.115[c]
	(0.234)	(0.177)	(0.053)	(0.066)
Cdn. Trade Mission	-0.238	0.060	-0.050	-0.153[c]
	(0.191)	(0.228)	(0.087)	(0.081)
	Two year treatment window			
Team Canada	0.990[a]	0.620[a]	0.088	-0.031
	(0.226)	(0.185)	(0.054)	(0.055)
Cdn. Trade Mission	0.175	0.275	0.197[c]	0.130
	(0.161)	(0.253)	(0.115)	(0.130)
	Four year treatment window			
Team Canada	1.097[a]	0.725[a]	0.095[b]	-0.035
	(0.224)	(0.196)	(0.048)	(0.059)
Cdn. Trade Mission	-0.014	0.210	0.115	0.156
	(0.171)	(0.243)	(0.075)	(0.136)
	Permanent treatment window			
Team Canada	1.103[a]	0.753[a]	0.088[b]	-0.032
	(0.216)	(0.198)	(0.043)	(0.101)
Cdn. Trade Mission	-0.219	0.252	0.101	0.157
	(0.161)	(0.233)	(0.071)	(0.139)
Observations	121987	121987	121987	121987
R^2	0.653	0.754	0.909	0.930
RMSE	1.754	1.484	0.901	0.791

Note: Standard errors in parentheses with ^{a}, ^{b}, and ^{c} respectively denoting significance at the 1%, 5%, and 10% levels. Standard errors are robust to heteroskedasticity and correlation of errors within od pairs. R^2 is the squared correlation between actual and fitted values of $\ln x_{ijt}$.

mission countries and that the effect is suspiciously large in the case of Team Canada missions. It could be the case that Canada traded a lot with mission countries both after and *before* a trade mission. The last two specifications—incorporating lagged dependent variables and country-pair fixed effects—capture unobserved factors promoting trade between Canada and mission countries that existed prior to the missions.

Estimates from the LagDV specification, reported in the third column, reveal that previous bilateral trade influences current trade. The one-year, two-year, and three-year lagged dependent variables enter with coefficients of 0.535, 0.175, and 0.135 and greatly improve the fit as reflected in the increased R^2 and the reduced RMSE. The coefficients on the mission effects fall substantially. Canadian Trade Mission effects are insignificant other than a negative estimate (significant at the 10% level) for a two-year treatment window. Team Canada missions are associated with positive effects and, aside from the one-year window, significantly different from zero.

The export creation implied by the coefficient in the permanent window specification falls from 190% each year in CountryFE to about 14% $(\exp(0.134) - 1)$ in LagDV. Over the 1993–2003 sample period, this corresponds to about \$18 billion in export creation, an amount that is of the same order of magnitude as the reported deal value of \$33 billion. It is important to note that this calculation holds constant all the explanatory variables—including the lagged dependent variables. This would be justified under the interpretation that the lagged dependent variables capture slow-moving unobservables that were not affected by the missions. On the other hand, if we interpret LagDV literally as a dynamic trade model, we would need to conduct a dynamic simulation to determine the extra trade created in the 1993–2003 period due to changes in the lagged dependent variables under the counter-factual of no missions. We have not carried out such a simulation because—for reasons described below—we end up favouring the PairFE specification relative to LagDV.

The lagged dependent variables are designed to control for the confounding effect that would occur if pre-mission dips in bilateral exports prompt trade missions. As discussed earlier, estimates in this specification are biased in the presence of a country-pair fixed effect that is correlated with the mission variable. Specification PairFE replaces the lagged dependent variables with country-pair fixed effects. Column (4) reveals that identifying mission effects based on *changes* in Canadian trade with mission countries results in dramatically different estimates—all coefficients are negative! With the exception of Canadian exports to CTM targets, these coefficients are not significantly different from zero. These results suggest that the positive effects estimated in the previous specifications suffer from omitted variable bias stemming from unobserved country-pair effects. However, the PairFE estimates themselves could be downwardly biased if deteriorating Canadian bilateral trade led to the formation of a trade mission (the pre-program dip effect).

Results for Canadian imports, contained in Table 4, tell a similar story. In specifications Gravity, CountryFE, and LagDV, Team Canada missions are mainly estimated to have positive and significant effects and the estimates become a bit larger as we lengthen the treatment window. Once we control for country-pair fixed effects in PairFE, most of the estimates are insignificantly different from zero. The exceptions are negative estimates in the one-year window for both Team Canada and Canadian Trade Missions. Even these coefficients are only significant at the 10% level.

The results from Tables 3 and 4 show that the absence of controls for unobserved influences on bilateral trade in the Gravity and CountryFE specifications can generate misleadingly high estimates of the impact of Team Canada missions. While the LagDV and PairFE specifications strike us as much more reliable, neither eliminates all endogeneity concerns. If the lagged dependent variables do not fully capture unobserved, permanent pair-fixed effects, then missions can remain endogenous in the LagDV specification. Moreover, the PairFE specification fails to address the endogeneity problems associated with pre-program dips in exports that induce treatment. In the next sub-section, we consider a specification that combines lagged dependent variables and pair-specific fixed effects.

Fortunately, even if LagDV and PairFE potentially suffer from the biases identified above, the LagDV and PairFE specifications have the virtue of providing an upper and lower bound of the true effects. The LagDV specification generates modest, positive mission effects. Team Canada missions and Canadian Trade Missions are associated with immediate increases in exports of 14% and 2%, respectively. Team Canada missions and Canadian Trade Missions increase imports by 9% and 11% (the latter estimate, however, is statistically insignificant).[11] On the other hand, in the PairFE specifications, mission effects on exports and imports are mainly negative and small (3-4%). The only positive effects are for CTMs on Canadian imports and those effects have large standard errors. These bounds between the LagDV and PairFE estimates are too wide to give clear guidance to policy makers. Therefore the ensuing subsection conducts further analysis to determine a preferred estimate.

4.2 Choosing the Preferred Estimate

We begin by conducting strict exogeneity tests on the mission indicators.[12] We add a two-year lead treatment dummy variable, $\mathbf{T}_{od,t+2}$, and test for its significance in each of our four speci-

[11] These immediate effects ignore any dynamic effects associated with the lagged dependent variables.

[12] See Wooldridge (2002, p. 285) and Baier and Bergstrand (2007).

fications. If the lead is significant, trade missions which have not yet happened are associated with current trade. Such a result would not be consistent with a purely causal treatment effect of trade missions and would imply that the controls employed in the specification are inadequate to prevent endogeneity bias.

In conducting the exogeneity tests, we use a two-year lead because, if dips in trade initiate trade missions, it might take a couple of years to organize the mission. We estimate treatment effects using the permanent window for three reasons. First, our estimates generally increase with window length, a result that is inconsistent with short-run effects and suggests a longer window is appropriate. Second, in unreported regressions, we cannot reject the hypothesis that a four-year window yields statistically significant differences in treatment effects from a permanent window. Finally, even though the RMSEs from each specification are the same across all observations (out to three decimal places) for each window length, calculations of RMSEs associated with the *Canadian* observations are slightly lower for the permanent window.

Table 5 contains results for the exogeneity tests. For each of the four specifications and both imports and exports, we report estimates of mission effects and the estimate of the two-year lead mission variable. Not surprisingly, the tests resoundingly reject exogeneity in the Gravity specification, as evidenced by the statistically significant lead variables. In the CountryFE specification, exogeneity is rejected for Team Canada missions (for both exports and imports). The lead variables enter insignificantly, however, in the case of Canadian Trade Missions. This suggests that CTMs were targeted on the basis of country attributes whereas TC mission country selection also depended on the bilateral relationship.

The LagDV and PairFE specifications exhibit somewhat mixed results. In general, we cannot reject exogeneity—three of the four lead variables enter insignificantly in each specification. The exceptions both pertain to Canadian Trade Missions: a negative estimate (5% significance) of the lead variable for imports in the LagDV specification and a negative estimate (10% significance) of the lead variable for exports in the PairFE specification. The lead variables for Team Canada missions are insignificant in both the LagDV and PairFE specifications.

The exogeneity tests show that the Gravity and CountryFE specifications are fundamentally flawed by endogenous treatment variables. They do not provide a means of discriminating between the LagDV specification, which provides positive and significant estimates for Team Canada missions, and the PairFE specification, which generates insignificant effects. Regression diagnostics for PairFE shows that it fits the data better than LagDV. The root mean-squared error of 0.791 is considerably lower than 0.909. Furthermore, the R^2 of 0.930 is higher than 0.909. Also, we find that the od fixed effects account for about 89% of the variance in log

Table 5: Exogeneity tests

Column:	(1)	(2)	(3)	(4)
Specification:	Gravity	CountryFE	LagDV	PairFE
			Exports	
Team Canada	0.600^a	1.049^a	0.136^a	-0.048
	(0.179)	(0.154)	(0.027)	(0.087)
Forward lead	0.398^b	0.684^a	0.051	-0.029
	(0.172)	(0.144)	(0.061)	(0.053)
Can. Trade Mission	-0.643^a	0.249^c	0.017	-0.112
	(0.131)	(0.145)	(0.035)	(0.081)
Forward lead	-0.398^a	0.149	-0.058	-0.101^c
	(0.122)	(0.139)	(0.052)	(0.057)
			Imports	
Team Canada	1.107^a	0.748^a	0.093^b	-0.051
	(0.208)	(0.195)	(0.042)	(0.108)
Forward lead	0.758^a	0.512^a	-0.007	-0.072
	(0.179)	(0.177)	(0.082)	(0.069)
Can. Trade Mission	-0.225	0.246	0.101	0.140
	(0.163)	(0.235)	(0.071)	(0.157)
Forward lead	-0.318^c	-0.023	-0.157^b	-0.109
	(0.164)	(0.206)	(0.075)	(0.090)
Observations	121987	121987	121987	121987
R^2	0.653	0.754	0.909	0.930
RMSE	1.754	1.484	0.901	0.791

Note: Standard errors in parentheses with ^{a}, ^{b}, and ^{c} respectively denoting significance at the 1%, 5%, and 10% levels. Standard errors are robust to heteroskedasticity and correlation of errors within od pairs. R^2 is the squared correlation between actual and fitted values of $\ln x_{ijt}$.

exports.[13] These diagnostics indicate that the pair fixed effects belong in the specification.

The main concern about the PairFE specification is that it will yield downwardly biased estimates of mission effects if they are prompted by dips in bilateral exports. To control for this, we add a lagged dependent variable to the PairFE specification. Using Nickell's (1981) notation, where a "$\sim$" over a variable denotes the within-group transformation (the difference between a variable and its *od* mean), we represent the "Combined" specification as

$$\widetilde{\ln x}_{odt} = \rho \widetilde{\ln x}_{od,t-1} + \tilde{\mathbf{T}}_{odt}\boldsymbol{\beta} + \tilde{\mathbf{Z}}_{odt}\boldsymbol{\zeta} + \tilde{\epsilon}_{odt}. \tag{3}$$

This regression is usually avoided because $\widetilde{\ln x}_{od,t-1}$ and $\tilde{\epsilon}_{odt}$ are correlated by construction. This leads to inconsistent estimates of ρ and all other coefficients. However, we take advantage of Nickell's (1981, p. 1424) analytic formula for the probability limit of the bias to calculate a new upper bound for trade mission effects—taking into account both lagged trade and the country-pair fixed effects. We include just a single lagged dependent variable because Nickell's formula does not readily generalize. Fortunately, reducing the lags to a single year has only a small impact on estimated mission effects in the LagDV specification.

Let $\hat{\theta}$ represent the estimated coefficient of a treatment variable in the "Auxiliary" regression of $\widetilde{\ln x}_{od,t-1}$ on the demeaned right-hand side variables ($\tilde{\mathbf{T}}_{odt}$, $\tilde{\mathbf{Z}}_{odt}$). Given this notation, we can restate Nickell's equation (26) showing the probability limit for the bias in the mission effects in the Combined specification as

$$\text{plim}_{N\to\infty}(\hat{\beta} - \beta) = -\text{plim}_{N\to\infty}\hat{\theta} \times \text{plim}_{N\to\infty}(\hat{\rho} - \rho). \tag{4}$$

We can estimate $\hat{\rho}$ and $\hat{\beta}$ using Combined and $\hat{\theta}$ using Auxiliary. While we do not know ρ, we can estimate an upper bound for it. Its true value should be less than the ρ estimated in a LagDV specification (with a single lagged dependent variable) because the estimate on lagged trade will partly reflect omitted pair effects.

Table 6 presents estimates for four specifications: (1) LagDV, the same as the LagDV specification used before except that it contains a single lagged dependent variable, (2) PairFE where, as before, country-pair effects replace the lagged dependent variable, (3) Combined, and (4) Auxiliary. Estimates from specifications (1), (3), and (4) are necessary to calculate the upper bound of the bias and we present results from (2) for comparison. We maintain the same sample as the previous regressions and use permanent treatment windows.

The estimates appearing in column (1) show that employing a single lag of the dependent variable yields similar estimates of mission effects to those obtained in a specification with

[13] In Stata this is called the rho statistic.

Table 6: Regressions used to calculate Nickell-bias (permanent treatment windows)

Column:	(1)	(2)	(3)	(4)
Specification:	LagDV	PairFE	Combined	Auxiliary
$\ln x_{it,t-1}$	0.767^a		0.272^a	
(lagged Dep. Var.)	(0.003)		(0.006)	
	Mission Effects on Canadian Exports			
Team Canada	0.217^a	-0.042	-0.026	-0.059
	(0.036)	(0.075)	(0.059)	(0.077)
Cdn. Trade Mission	0.049	-0.095	-0.068	-0.100
	(0.037)	(0.072)	(0.055)	(0.084)
	Mission Effects on Canadian Imports			
Team Canada	0.153^a	-0.032	-0.006	-0.096
	(0.051)	(0.101)	(0.080)	(0.097)
Cdn. Trade Mission	0.121	0.157	0.160	-0.013
	(0.080)	(0.139)	(0.110)	(0.134)
Observations	121987	121987	121987	121987
R^2	0.901	0.930	0.935	0.917
rmse	0.943	0.791	0.760	0.810

Note: Standard errors in parentheses with ^{a}, ^{b}, and ^{c} respectively denoting significance at the 1%, 5%, and 10% levels. Standard errors are robust to heteroskedasticity and correlation of errors within od pairs. R^2 is the squared correlation between actual and fitted values of $\ln x_{ijt}$.

three lags. Mission effects are positive and significant in the case of Team Canada missions. The effects are somewhat stronger in this specification because excluding the second and third lag means that the specification captures less of the country-pair effects that are positively correlated with missions (the sum of the coefficients on the three lags is 0.845 whereas the coefficient on one lag is 0.767). Column (2) repeats results appearing in Tables 3 and 4 for the PairFE specification where missions effects are insignificantly different from zero. A comparison of these results to those in the Combined specification, shown in column (3), reveals that the addition of the lagged dependent variable to the PairFE specification has minor effects on mission estimates: they have the same signs in the two specifications and are always insignificant. The estimate of the lagged dependent variable in this specification falls to 0.272. Column (4) shows that, after pair effects are removed, there is a negative relationship between lagged trade and mission variables. This result is consistent with dips in trade prompting trade missions. However, the pre-treatment dip effect is small and insignificant.

We use equation (4) and results in Table 6 to derive an upper bound for $\hat{\beta} - \beta$, the bias in an estimated mission effect in the Combined specification. As we argued previously, the true ρ should be lower than the estimate in the LagDV specification of 0.767. Since $\hat{\rho} = 0.272$, an upper bound for ($\hat{\rho} - \rho$) is $0.272 - 0.767 = -0.495$. Estimates of $\hat{\theta}$ in the Auxiliary specification are always negative. Thus both terms in equation 4 are negative and, since the formula contains a minus sign, the biases in the treatment variables in Combined are uniformly negative—the specification with pair effects and a lagged dependent variable produces downwardly biased mission effects. However, the bias appears to be very small. Consider the effects of TC missions on Canada's exports to targets. The upper bound on the bias is $-(-0.495) \times (-0.059) = -0.029$. Adding this amount to the estimate of the effect in the Combined specification generates an upper bound of the mission effect equal to $-0.026 + 0.029 = .003$. Upper bounds for the biases of the other mission estimates are also small and do not alter the general results of small and insignificant mission effects.

The Nickell formula provides an alternative estimate of the upper bound of the effect of Canadian trade missions. The new estimates are close to zero and very similar to those in the PairFE specification. They are much lower than those generated in the Gravity, CountryFE, and LagDV specifications that suffer from upward bias due to omitted country-pair fixed effects. We conclude that the preferred estimate of the effect of a trade mission is zero.

4.3 Differentiated vs. homogeneous goods, OCS, and FDI

Rauch (1999) argues that informational barriers to trade are more pronounced for differentiated goods. Perhaps we have not found mission effects because we have not focused on the goods that benefit the most from information provided by the missions. To address this issue, we estimate separate mission effects for differentiated goods defined using Rauch's "conservative" classification. We compare the results with a "homogeneous" goods sector that aggregates referenced priced goods with goods sold on organized exchanges. Since mission deals include investments and service trade, we also extend the analysis to include other commercial services (OCS) and foreign direct investment stocks. OCS includes financial, computer and information, communication, construction, and miscellaneous business services but excludes transportation and tourism (as well as government services—those provided by embassies, consulates, and military agencies). Due to the limited availability of bilateral FDI and OCS data, the number of observations is much smaller even though we maintain the same time frame.

Estimated effects of missions on differentiated goods, homogeneous goods, OCS, and FDI are shown in tables that appear in the appendix. Because mission effects are similar across windows of different lengths, we only present results for permanent windows. Estimates for differentiated and homogenous goods are similar to those for all goods. Team Canada missions are positively associated with exports in the Gravity and CountryFE specifications. Mission effects fall in magnitude in the LagDV specification but remain statistically significant in the case of Canadian exports to Team Canada countries. The PairFE specification generally yields small, negative estimates that are rarely significant. In the case of OCS and FDI, while some significant effects are estimated in the Gravity and CountryFE specifications, incorporating lagged dependent variables or country-pair fixed effects produces no estimates that are significant at the 5% level.

5 Conclusion

We use gravity specifications that control for unobserved effects to assess the trade creation attributable to Canadian trade missions. The analysis reveals that, in specifications that do not control for unobserved bilateral influences, Team Canada missions are associated with high levels of Canadian trade. However, introducing lagged dependent variables and country-pair fixed effects greatly diminish the estimates. While the lagged dependent variable specification suggests that Team Canada missions expanded exports by about 14%, we argue that the approximately zero effects found in the country-pair fixed effect specification are more trustworthy.

The econometric implication is that while Canadian trade subsequent to a mission was higher with mission-targeted countries than what the gravity model predicts, it was also higher *prior* to the missions. These results broadly extend to Canadian service trade and FDI.

Our analysis underscores the importance of relying primarily on within country-pair information when estimating policy effects on international transactions. As Baier and Bergstrand (2007) argue with respect to RTAs, bilateral policy is endogenous, making the direction of causality between trade and policy unclear. In our case, there appears to be a significant correlation between the residuals in the Gravity specification and the trade mission variables. This correlation persists even if we control for exporter and importer fixed effects.

The paper does not support the use of missions as a vehicle for increasing bilateral transactions. Our analysis of merchandise trade, service trade, and FDI does not provide reliable evidence to support the Canadian government's claim that the missions generated tens of billions in new business deals. Our results are less favourable to government trade promotion than those of Rose (2005), Nitsch (2007), and Gil-Pareja, Llorca-Vivero, and Martinez Serrano (2008) who find that embassies or state visits contribute strongly to bilateral trade. Since our preferred specification implies that missions are ineffective, we do not have to concern ourselves here with the trickier question of whether effective missions would generate net welfare gains for Canada or the targeted countries.

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A Data Appendix

Trade and FDI were obtained from the following sources:

- Goods trade: Commodity trade data is available from the University of Toronto's Computing is the Humanities and Social Sciences (CHASS) website `http://dc1.chass.utoronto.ca/trade/`. The source of these data is Statistics Canada. The website provides bilateral data for over 180 countries and over 800 commodities for the period 1980–2003.

  We classify differentiated and homogeneous goods based on the "conservative" classification system of Jim Rauch, available from Jon Haveman and Raymond Robertson at `macalester.edu/research/economics/page/haveman/trade.resources/tradedata.html`. 4-digit SITC (Revision 2) industries are coded as r, w, or n, defining reference priced goods, goods traded on organized exchanges, and neither, respectively.

- Service trade: In order to get the 1990–2003 bilateral service trade data, we combine information from Eurostat, the European Union's (EU) statistical agency, and Statistics Canada. Eurostat data is based on reports of 25 EU countries plus Norway, Bulgaria, Romania, Turkey, United States and Japan. We convert the Euro data into US dollars. Canadian trade only appears as transactions with reporting Eurostat countries and is therefore sparse. We augment the data set using Statistic Canada data converted into U.S. dollars. For Canadian transactions, we use Cansim data unless it there is no information for a partner for the entire sample period. In those cases, we use Eurostat data when available. Our data set reflects transactions for about 80 countries.

- Foreign direct investment: Data on FDI stocks valued in current U.S. dollars is provided in *SourceOECD International Direct Investment Statistics* database. Both origin and destination countries may provide information on the same stock. In these cases, we destination-country reports whenever possible. We use origin country data when the destination country data is unavailable. The country coverage rises from about 140 in 1992 to 196 in 2003.

For each transaction type, we work with a common sample across the four regression specifications. Since the LagDV specification requires valid trade data for three years preceding each observation, we impose this data condition on all specifications.

Table 7: Data Sources for Control Variables

Variable	**Source**
GDP, population	World Bank World Development Indicators Taiwan national data
Distance, Contiguity Common language, Colonial history	CEPII distance database
Common legal system	Andrei Shleifer's website (qgov_web.xls)
Regional trade agreement	compiled by Jose De Sousa, based on Table 3 of Baier and Bergstrand (2007), WTO web site, qualitative information contained in Frankel (1997)
Currency union	Jose De Sousa, based on Glick and Rose (2002), Wikipedia, Global Financial Data (`www.globalfinancialdata.com`)
GATT membership	WTO web site

B Additional results

Control variables from Tables 3 and 4				
Specification:	Gravity	CountryFE	LagDV	PairFE
ln origin popn.	0.983[a]	0.389[c]	0.206[c]	0.669[a]
	(0.009)	(0.217)	(0.124)	(0.195)
ln dest. popn.	0.788[a]	0.237	0.371[a]	0.139
	(0.009)	(0.168)	(0.086)	(0.140)
ln origin income	1.037[a]	0.443[a]	0.131[a]	0.409[a]
	(0.009)	(0.051)	(0.033)	(0.045)
ln dest. income	0.871[a]	0.543[a]	0.267[a]	0.615[a]
	(0.009)	(0.037)	(0.022)	(0.031)
ln distance	-0.962[a]	-1.370[a]	-0.228[a]	
	(0.019)	(0.021)	(0.006)	
common language	0.369[a]	0.221[a]	0.059[a]	
	(0.049)	(0.046)	(0.011)	
contiguous	0.812[a]	0.530[a]	0.055[a]	
	(0.076)	(0.082)	(0.018)	
colony-colonizer	1.015[a]	1.093[a]	0.129[a]	
	(0.078)	(0.077)	(0.016)	
common colonizer	0.451[a]	0.487[a]	0.054[a]	
	(0.046)	(0.046)	(0.011)	
common legal	0.223[a]	0.282[a]	0.031[a]	
	(0.032)	(0.028)	(0.007)	
trade agreement	0.565[a]	0.245[a]	0.073[a]	0.153[a]
	(0.047)	(0.044)	(0.011)	(0.025)
currency union	0.387[a]	0.084	0.038	0.129[a]
	(0.116)	(0.112)	(0.027)	(0.028)
both in GATT	0.095[a]	0.193[a]	-0.001	0.036[c]
	(0.029)	(0.036)	(0.015)	(0.021)
lagged exports, 1-year			0.535[a]	
			(0.005)	
lagged exports, 2-year			0.175[a]	
			(0.006)	
lagged exports, 3-year			0.135[a]	
			(0.004)	

Note: Standard errors in parentheses with [a], [b], and [c] respectively denoting significance at the 1%, 5%, and 10% levels. Standard errors are robust to heteroskedasticity and correlation of errors within *od* pairs. R^2 is the squared correlation between actual and fitted values of $\ln x_{ijt}$.

Table 8: Differentiated goods

Column:	(1)	(2)	(3)	(4)
Specification:	Gravity	CountryFE	LagDV	PairFE
	Exports			
Team Canada	0.335^c	1.057^a	0.144^a	-0.037
	(0.186)	(0.173)	(0.031)	(0.087)
Can. Trade Mission	-0.659^a	0.366^b	0.075^c	-0.032
	(0.158)	(0.155)	(0.039)	(0.069)
	Imports			
Team Canada	1.557^a	0.997^a	0.098^b	-0.203^b
	(0.312)	(0.190)	(0.040)	(0.091)
Can. Trade Mission	-0.306	0.064	-0.034	-0.092
	(0.271)	(0.167)	(0.056)	(0.116)
Observations	108983	108983	108983	108983
R^2	0.652	0.790	0.919	0.938
RMSE	1.777	1.387	0.859	0.750

Table 9: Homogeneous goods

Column:	(1)	(2)	(3)	(4)
Specification:	Gravity	CountryFE	LagDV	PairFE
	Exports			
Team Canada	1.357^a	1.230^a	0.170^a	-0.045
	(0.226)	(0.176)	(0.036)	(0.095)
Can. Trade Mission	-0.366^c	0.046	-0.034	-0.216^c
	(0.220)	(0.202)	(0.051)	(0.110)
	Imports			
Team Canada	0.490^b	0.472^b	0.036	-0.016
	(0.229)	(0.205)	(0.047)	(0.114)
Can. Trade Mission	-0.004	0.594^b	0.159^b	0.242
	(0.219)	(0.286)	(0.080)	(0.152)
Observations	98803	98803	98803	98803
R^2	0.557	0.685	0.883	0.909
RMSE	1.805	1.531	0.931	0.819

Note: Standard errors in parentheses with ^{a}, ^{b}, and ^{c} respectively denoting significance at the 1%, 5%, and 10% levels. Standard errors are robust to heteroskedasticity and correlation of errors within od pairs. R^2 is the squared correlation between actual and fitted values of $\ln x_{ijt}$.

Table 10: Commercial Services

Column:	(1)	(2)	(3)	(4)
Specification:	Gravity	CountryFE	LagDV	PairFE
	Exports			
Team Canada	0.859^a	0.396^c	0.051	0.239
	(0.276)	(0.214)	(0.066)	(0.156)
Can. Trade Mission	-0.443^c	-0.132	-0.174^c	-0.128
	(0.243)	(0.206)	(0.102)	(0.188)
	Imports			
Team Canada	0.000	0.100	-0.046	0.201
	(0.251)	(0.213)	(0.069)	(0.214)
Can. Trade Mission	-0.894^a	-0.184	-0.180^c	-0.150
	(0.242)	(0.192)	(0.105)	(0.127)
Observations	4637	4637	4637	4637
R^2	0.774	0.908	0.966	0.981
RMSE	1.236	0.865	0.527	0.384

Table 11: Foreign direct investment

Column:	(1)	(2)	(3)	(4)
Specification:	Gravity	CountryFE	LagDV	PairFE
	Canadian outward			
Team Canada	1.120^b	0.411	-0.013	-0.141
	(0.463)	(0.312)	(0.083)	(0.223)
Can. Trade Mission	-0.233	0.095	0.044	-0.002
	(0.438)	(0.421)	(0.121)	(0.308)
	Canadian inward			
Team Canada	0.590^b	0.844^b	0.141	-0.340
	(0.253)	(0.346)	(0.101)	(0.316)
Can. Trade Mission	-1.759^a	-0.444	-0.049	0.287
	(0.577)	(0.445)	(0.168)	(0.290)
Observations	10249	10249	10249	10249
R^2	0.622	0.835	0.955	0.962
RMSE	1.687	1.173	0.614	0.557

Note: Standard errors in parentheses with ^{a}, ^{b}, and ^{c} respectively denoting significance at the 1%, 5%, and 10% levels. Standard errors are robust to heteroskedasticity and correlation of errors within *od* pairs. R^2 is the squared correlation between actual and fitted values of $\ln x_{ijt}$.