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Is it Punishment? Sovereign Defaults and the Decline in Trade

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Abstract

Sovereign defaults are associated with declines in defaulting countries trade. Are these declines the result of trade sanctions as the trade sanctions argument of sovereign borrowing would suggest? We devise an empirical strategy to evaluate this issue based on the idea that if trade sanctions are causing the declines, bilateral trade with creditor countries should fall more than trade with other countries. We find that this is not the case. The analysis does not yield evidence of broader punishment strategies including a league of major creditors either. These results contradict the predictions of the trade sanctions theory of sovereign borrowing.

JEL Classification Numbers: F34, F10, G15.

Keywords: sovereign debt, sovereign default, bilateral trade, sanctions.

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1 Introduction

One of the essential questions in the sovereign borrowing literature is why sovereign governments repay their debts with foreign creditors. This question arises as sovereign debt contracts are usually not collateralized and their legal enforceability is very limited. There is no bankruptcy for sovereign borrowers and lenders cannot take control of a country, nor seize a significant amount of its assets in the event of a default. Given this legal framework, it seems that sovereign borrowers would not have many incentives to repay, and therefore lenders would have few incentives to lend. However, sovereign borrowing exists. So, a crucial task of the sovereign borrowing literature was to find conditions under which governments would have incentives to repay. In other words, the central issue is not why governments default, but quite the opposite -why they usually choose not to do it- given the weak legal framework.

The vast majority of explanation in the literature can be grouped in two categories: reputation and sanctions. The former emphasizes the role played by the borrower's reputation. The idea, first modelled by Eaton and Gersowitz (1981), is that repayment may hold the carrot of a good reputation for the borrower (implying usually the ability to borrow again). That is, the reputation literature emphasizes the costs of being excluded from credit markets in the event of a default. However, Bulow and Rogoff (1989), in a seminal paper, cast doubts on this reputation argument. They show that if governments still had access to a sufficiently rich set of assets after defaulting, then reputation for repayment alone could not explain why governments repay. Based on this result, they suggest that, instead of reputation for repayment, it is the threat of direct sanctions (usually trade related) the reason why governments repay.¹

The empirical research on the costs of sovereign defaults is relatively limited. The main reason is that estimating the costs of sovereign defaults has been troublesome, as defaults are not isolated events, but usually just one component of a more general economic crisis. As a result, it has been almost impossible to isolate those costs generated exclusively by

¹More recently, Cole and Kehoe (1997) and Sandleris (2003) suggested that there are other costs of defaulting beyond those of potential sanctions or exclusion from credit markets related to "reputation spillovers" or "informational costs".

defaults. Most of the literature has focused on analyzing the effects of defaults on sovereign spreads or credit ratings.² A notable exception is Rose (2003) that finds a relationship between sovereign defaults and declines in trade between the defaulting country and the creditor countries affected by the default. In this way he makes some progress towards understanding the costs of defaults. In order to assess whether these declines represented a true “cost” of defaulting, Rose also looks for evidence of “trade diversion” -whether the decline in trade bilaterally was offset by increased trade with all other countries not directly affected by the default- finding that this is not the case.

Rose’s empirical findings leave open the question of which mechanisms link sovereign defaults with the declines in trade.³ Our paper focuses precisely on this issue, on the cause of these declines in trade in the aftermath of defaults. In particular, we analyze the empirical plausibility of the main mechanism suggested in the sovereign debt literature for this to happen, namely: trade sanctions. In effect, since Bulow and Rogoff’s influential paper, trade sanctions has been one of the workhorse arguments in the sovereign borrowing literature.⁴ The standard trade sanctions argument suggests that, for example, if the government of Argentina defaulted with US private or official creditors, the US would impose sanctions on Argentina and bilateral trade between both countries would be negatively affected.

An obvious problem with the trade sanctions argument is that in the aftermath of the 116 sovereign defaults with private creditors and 269 with official creditors we have observed in the last 30 years, it is hard to point to a single case in which substantial, overt bilateral creditor-debtor trade sanctions have actually been imposed. It is possible, however, that creditor countries have found a *sub rosa* approach to impose trade sanctions (through covert actions that disrupt or harass the defaulting country’s trade).⁵ So, even if trade sanctions

²See for example Ozler (1993) who finds that previous defaults affect the conditions on banks loans, Cantor and Packer (1996) for a similar result regarding credit ratings. Eichengreen and Portes (1986) reach an opposite conclusion regarding bonds spreads in the 1920s.

³Rose (2003) remains agnostic on this regard.

⁴See Bulow and Rogoff (1989b), Fernandez and Rosenthal (1990), Lane (1999), Chang and Sundaesan (2002), Gibson and Sundaesan (2002) or Rose and Spiegel (2002) for models in which bilateral trade sanctions play a crucial role.

⁵Note that another explanation that could be advanced is that no sanctions were observed because all default events were “non-strategic”. That is, if sovereign debt contracts are interpreted as implicit contracts in which defaults under some circumstances are “allowed”, then sanctions should only be imposed in the

are not observed one might be able to observe their effect on the defaulting country trade.

The main contribution of our paper is to devise an empirical strategy to explicitly deal with the plausibility of *sub rosa* sanctions being the cause for the declines in trade. That is, we devise an empirical test of the trade sanctions argument.⁶ In order to discuss what is novel about our approach, it is important to distinguish between three types of trade declines that a defaulting country can suffer: (1) A decline in trade that is stronger with respect to the affected creditor countries than all other countries. This we think of as a “bilateral” decline (or “bilateral” effect). (2) A decline that is stronger with respect to all creditor countries (not just those affected by the default) relative to non-creditor or debtor countries. This we think of as a “multilateral” decline (or “multilateral” effect). (3) Finally, we consider the case of a general decline in trade volumes with all countries.⁷

Having done this we are ready to tackle an important question: Are trade declines associated with sovereign defaults the result of trade sanctions (whether overt or covert)? We look for evidence of two types of sanctions, which may be termed bilateral or multilateral sanctions. First consider bilateral sanctions. We take as a maintained assumption of our paper that if in the aftermath of default, the specific creditor countries that suffered the default impose trade sanctions, then the “bilateral” effect should prevail (i.e.: bilateral trade with the affected creditor countries will suffer a significantly larger decline than trade with other countries). In the case of multilateral sanctions, we consider the possibility of punishment by a collection of all major creditor countries (not just those affected by the default). In this case, our maintained assumption is that if in the aftermath of defaults all creditors coordinate to impose trade sanctions, then the “multilateral” effect should prevail. If we find the first effect (the “bilateral” one), then we will view this as evidence consistent with bilateral sanctions. In order to conclude that the evidence is consistent with event of a default outside of these circumstances. However, it is usually not easy to determine whether a sovereign default is “strategic” or not. In what follows we will assume that sovereign defaults usually have at least some “strategic” component.

⁶We look for evidence of trade sanctions understood in a broad sense as any overt or covert actions undertaken by creditor countries that disrupt the defaulting country’s trade.

⁷Note that the fact that we contemplate the possibility of “general” effects of defaults is neither casual nor arbitrary. It is the direct result of seeing the effects of sovereign defaults on defaulting countries economic variables (including trade) as pure market phenomena not related to any kind of punishment, and, therefore, “general” (as opposed to “bilateral”) in their nature.

multilateral sanctions there are two things that we would like to see: the “multilateral” effect should prevail and the decline should be at least as severe with the affected creditors as with the non-affected ones. Finally, if we cannot find that, in the aftermath of default, the defaulting country’s trade declines either “bilaterally” or “multilaterally” (plus the “relative severity condition”) relative to trade with other countries, then we will view this as evidence that sanctions are playing no substantive role in the evolution of that country’s trade. Several stories could then explain the broad decline in trade after a default.⁸

The regressions we run in our paper are systematically trying to disentangle the “general”, the “bilateral” and the “multilateral” effects to assess the relevance of the sanctions argument under our maintained assumptions. In order to disentangle the “general” from the “bilateral” effect we impose on a gravity equation of trade flows a default dummy that captures the “bilateral” effect and another one that captures the effects on overall trade. So, this would be equivalent to looking for the existence of a “bilateral” effect once we control for a potential “general” effect. We proceed likewise to disentangle the “general” from the “multilateral” one.

The results we obtain show that sovereign defaults are often associated with a decline in trade for the defaulting country of approximately 3% per year during the first three years following the default. This decline is statistically and economically significant (the accumulated loss in trade reaches almost 13% in the five years after the default). But, contrary to the predicament of the trade sanction argument, there seems to be no significant decline on bilateral trade between the defaulting country and defaulted creditor countries in the aftermath of defaults. The decline in trade is concentrated in bilateral relationships involving defaulting countries and non-creditor countries, which fall on average approximately 6.3% per year in the three years following a default. There is no “multilateral” effect either in the aftermath of defaults. These results are particularly important as, under our maintained assumptions, they imply that trade sanctions can be ruled out as the enforcement mechanism for sovereign debt repayment.

⁸Within the sovereign borrowing literature reputation or information contents of defaults stories could potentially do it, alternatively it could be argued that the decline in trade is not the result of the default but of macroeconomic distress in the tradable sector that may be causing both the default and the decline in trade.

2 Methodology and Data

2.1 Estimation Strategy

The objective of our paper is to analyze empirically whether trade sanctions can explain the declines in trade associated with sovereign defaults. A natural starting point for this enquiry is to analyze the existence of explicitly overt trade sanctions following sovereign default. However, in the aftermath of the 116 sovereign defaults with private creditors and 269 with official creditors we have observed in the last 30 years, it is hard to point to a single case in which substantial, overt bilateral creditor-debtor trade sanctions have actually been imposed.

This evidence does not rule out the existence of trade sanctions. In effect, it is possible that creditor countries have found a sub rosa approach to impose trade sanctions. Disgruntled creditor countries may be punishing defaulting governments through the covert use of relatively standard trade policy instruments such as tariff and non-tariff barriers (most likely the latter as the former would be too easily observed). Testing whether tariffs, para-tariff and non-tariff measures change following defaults would be then a natural second step in our strategy. The lack of enough data prevents us from doing so. Although the TRAINS data base provides detailed information about tariff, para-tariff and non-tariff measures for a large number of countries (140), the time dimension coverage is fairly limited for our purposes as it usually has non-consecutive years of data (particularly regarding para-tariff and non-tariff measures) and exclusively for the last decade.⁹

As a result, we take a more indirect route. We will evaluate whether sovereign defaults affect trade between the defaulting country and different groups of countries. In order to do so, we make the implicit assumption that if disgruntled creditors are punishing a defaulting country through trade sanctions we should observe a larger decline in trade with

⁹If the TRAINS data base were to provide a more extensive temporal coverage, finding that defaults affect these instruments would support the trade sanctions argument. However, finding that they do not affect tariffs and non-tariffs barriers would not be enough to reject the trade sanctions theory. The reason is that the sovereign debt literature is fairly vague regarding the exact nature of the trade sanctions they invoke as the mechanism that could enforce debt repayments. As a result, it could always be argued that the trade sanctions imposed in a covert way may not be limited to those that could be typified.

the creditors' country. That is, consistently with the standard "trade sanctions argument" in the sovereign debt literature, we assume that if the Argentine government were to default on its debt with US creditors, trade between Argentina and the US would decline (due to US-imposed sanctions), but trade between Argentina and Brazil would not be significantly affected (or that it would be significantly less affected).

The strategy of analyzing directly bilateral trade flows instead of focusing on the trade policy instruments allows us also to bypass the vagueness of the sovereign debt literature regarding the exact nature of the trade sanctions that creditors would impose. In other words, this strategy allows us to check for the existence of trade sanctions understood as any actions undertaken by creditors to disrupt or harass the defaulting country's trade, not just those limited to standard trade policy instruments. This implies that if we were to reject the sanctions argument, our rejection would not be subject to the critique that we are not considering all the possible instruments that creditor countries could be using to impose the trade sanctions. That is, by analyzing directly trade flows, we bypass the discussion regarding which trade policy instruments could creditors be using when imposing the trade sanctions.

We look for evidence of two types of sanctions: bilateral and multilateral. In the case of bilateral sanctions, we take as a maintained assumption that if in the aftermath of default, the specific creditor countries that suffered the default impose trade sanctions, then bilateral trade with the affected creditor countries will suffer a significantly larger decline than trade with other countries. In the case of multilateral sanctions, we consider the possibility of punishment by a collection of all major creditor countries. In this case, our maintained assumption is that if in the aftermath of defaults all creditors coordinate to impose trade sanctions, then the "multilateral" effect should prevail; i.e., we should observe a stronger decline in trade with creditor countries than with non-creditor ones. We would also want to observe that the decline is at least as severe with the affected creditors as with the non-affected ones. Finally, if we cannot find that, in the aftermath of default, the defaulting country's trade declines either "bilaterally" or "multilaterally" relative to trade with other countries, then we will view this as evidence that trade sanctions are playing no substantive role in the evolution of that country's trade.

As at the core of our strategy is the analysis of the impact of defaults on bilateral trade between the defaulting country and different trade partners (i.e.: creditor countries affected by the default, all creditor countries, non-creditor countries), the determination of what the “normal” amount of bilateral trade should be with each of these countries is extremely important. We use a gravity model of bilateral trade augmented with some additional controls for this purpose. Although the model is not ideal, its choice is based on the fact that it constitutes the dominant paradigm for understanding bilateral trade patterns. In effect, the gravity equation has been extremely successful at fitting the bilateral trade data, so it is the “benchmark” against which we evaluate the impacts of defaults. The “bare-bone” gravity model explains bilateral trade patterns with the distance between the two countries and their joint income. A number of additional variables are then added to account for other factors that may affect bilateral trade such as history and culture (for example whether they were colonies of the same country or whether they share a common language) or geography (whether they are landlocked).¹⁰

Based on this model, Rose (2003) devised a strategy to estimate the negative effect of defaults on bilateral trade between the defaulting country and the creditor countries affected by the default. Rose’s benchmark equation is:

$$(1) \quad \ln(T_{ijt}) = \beta Z_{ijt} + \sum_{m=0}^M \phi_m RC_{ijt-m} + \varepsilon_{ijt}$$

where i and j denote countries and t denotes time, and the variables are defined as:

T_{ijt} : average value of real bilateral trade between i and j at time t

Z_{ijt} : set of “gravity variables” plus IMF program dummy¹¹

RC_{ijt} : binary variable that takes the value 1 if i and j were involved in a bilateral renegotiation of international public debt at t (“defaulted creditor” default variable)

ε_{ijt} : error term

¹⁰We are of course aware that the choice of this framework is not free of problems. For example, defaults -being the decision of a sovereign- are not completely exogenous variables. We try to address this problem by using some macro variables as instruments for defaults. Also, as it is usually the case, the inclusion of all the standard gravity variables plus some additional controls does not guarantee that there are not omitted variables correlated with both defaults and trade.

¹¹The gravity variables included are standard such as size, distance, common language or colonizer, members of same trade agreement, etc. See Appendix for details.

This specification makes it possible to find the effects of default on bilateral trade between the defaulting country and the affected creditors (and Rose indeed finds a negative and significant effect). However, it does not allow us to check whether this negative effect is just “bilateral” (i.e.: specific to the creditors affected by the default) or of a more general kind. That is, whether the defaulting country’s trade declines just with the affected creditors or with a broad cross-section of trade partners. This distinction becomes crucial if we want to understand whether the decline in trade is the result of trade sanctions (whether overt or covert) or not.

In order to disentangle the “general” from the “bilateral” effect we impose on the gravity equation of trade flows a default dummy that captures the “bilateral” effect and another one that captures the effects on overall trade (not just the creditors affected by the default). The benchmark equation we estimate is:

$$(2) \quad \ln(T_{ijt}) = \beta Z_{ijt} + \sum_{m=0}^M \phi_m RC_{ijt-m} + \sum_{m=0}^M \gamma_m RG_{ijt-m} + \varepsilon_{ijt}$$

where all variables are as in equation (1), but we add:

RG_{ijt} : binary variable that takes the value 1 if either i or j were involved as debtors in a renegotiation of international public debt at t (“general” default variable)

The relevant coefficients for the study of the impact of defaults on trade are the ϕ s that accompanies the “defaulted creditors” default variable and the γ s that accompanies the “general” default variable . The latter gives us the effect of a default on trade between a defaulting country and all its trade partners (“general” effect), while the former gives us the effect of a default on bilateral trade between a defaulting country and the creditors affected by the default (incremental “bilateral” effect). So, this regression will allow us to clearly disentangle the negative effect of defaults on overall trade (“general” effect) from the effect on bilateral trade with the creditors affected by the default (“bilateral” effect). In other words, the simultaneous inclusion of the “defaulted creditor” and the “general” default variables allows us to look for the existence of a “bilateral” effect once we control for a potential “general” effect. We also include a set of time dummies that allows us to capture year fixed effects offering a more robust vision of the phenomenon.¹²

¹²Rose (2003) runs a similar regression to test for trade diversion. He includes the set of gravity variables,

As explained, we take as a maintained assumption that if in the aftermath of default, the specific creditor countries that suffered the default impose trade sanctions, then the “bilateral” effect should prevail (i.e.: bilateral trade with the affected creditor countries will suffer a significantly larger decline than trade with other countries). So, in our equation, if the bilateral sanctions argument were true, the “defaulted creditors” variable should have a negative and significant coefficient. On the other hand, if the effects of default on trade were not specific to the affected creditors as the bilateral trade sanctions argument predicts, but of a more general form, we should find that once we control for the association between overall trade and defaults, there should not be an additional negative effect on bilateral trade between a debtor and its creditors.

The above specification allows us to focus on the presence of bilateral trade sanctions, but remains silent regarding whether there is a broader set of creditors (not just those affected by the default) that jointly punish defaulting countries. So, in order to evaluate the empirical relevance of “multilateral” sanctions, we need to disentangle the “multilateral” from the “general” effect. We do so by estimating a modified version of Equation (2) where we replace the “defaulted creditors” variable with another indicator variable, CRED, that takes on the value of 1 whenever one of the two countries involved in bilateral commerce has defaulted and is renegotiating its debts and the other belongs to a specific creditor group, and 0 otherwise. We carry out this strategy for two specific group of creditors, Paris Club member countries and OECD countries. The equation we estimate is:

$$(3) \quad \ln(T_{ijt}) = \beta Z_{ijt} + \sum_{m=0}^M \phi_m CRED_{ijt-m} + \sum_{m=0}^M \gamma_m RG_{ijt-m} + \varepsilon_{ijt}$$

and the interpretation of the coefficients is similar to that of the previous equation. As explained above, in order to conclude that trade declines are consistent with multilateral sanctions we would want to observe that the “multilateral” effect prevails and that the decline is at least as severe with the affected creditors as with the non-affected ones. We test this last condition running the following equation:

the IMF dummy variable, the “defaulted creditor” default variable, and another default dummy variable, “other countries”, that captures the effects of default on trade with those countries not affected by the default (he does not include time dummies though). Our “general” default variable could be thought of as the summation of the two dummy variables included by Rose.

$$(4) \quad \ln(T_{ij})_t = \beta Z_{ijt} + \sum_{m=0}^M \phi_m RC_{ijt-m} + \sum_{m=0}^M \gamma_m OC_{ijt-m} + \sum_{m=0}^M \theta_m NC_{ijt-m} + \varepsilon_{ijt}$$

In this equation all variables are as in Equation (2), but we exclude the “general” default variable and include instead:

OC_{ijt} : binary variable that takes on the value of 1 if i or j were involved in a renegotiation of international public debt at time t as the defaulting country, and the other one is a creditor country not involved in the renegotiations (“other creditors” default variable)

NC_{ijt} : binary variable that takes the value 1 if i or j were involved in a renegotiation of international public debt at time t as the defaulting country, and the other one is not a creditor country (“not creditors” default variable).

So, in Equation (4) we are including in the gravity model three default variables that identify whether the other country in the pair (the first one being the potentially defaulting one) is a creditor affected by the default (negotiating Paris Club member), a creditor not affected by the default (Paris Club member not participating in the negotiations, if any) or a non-creditor country (not a Paris Club member). The relevant coefficients in this equation are the ϕ s, the γ s and the θ s that correspond to each of the three default variables respectively. If there were some coordinated punishment imposed by all creditors, not just those involved in the default, we should find that both the “defaulted creditors” and the “other creditors” default variables have negative and significant coefficients. And, under our maintained assumptions for the empirical evidence to be consistent with “multilateral” trade sanctions, we should find that the coefficient of the “defaulted” creditor variable is at least as negative as the one of the “other creditors” variable.

2.2 Data

The dataset used includes trade data from the “Direction of Trade” data set from the IMF, which covers bilateral trade measured in US dollars between 217 countries from 1948 to 1997.¹³ This data is then deflated using the US CPI, and the average value of bilateral trade between a pair of countries is finally taken to build the bilateral trade series used

¹³In reality not all of the trading partners included are countries in the conventional sense of the word, as territories and overseas departments are also included.

for the estimation of the model. The dataset also includes population and real GDP series taken from World Bank’s “World Development Indicators” and missing observations were filled in with data from the Penn World Table Mark 5.6 and the IMF’s “International Financial Statistics”. Finally, the CIA’s “World Factbook” was the source for a number of country-specific variables such as distance, area, landlocked, island status, borders, language, colonizers, etc.; and WTO data is used for trade agreements.¹⁴

We use Paris Club renegotiation data as a proxy for default data. The Paris Club, an informal group of official creditors that began in 1956 provides data on sovereign debt renegotiations with official creditors undertaken under the umbrella of the institution.¹⁵ The data includes the date of the negotiations and all participants (the debtor and all creditor countries involved in the negotiations).¹⁶ That it is possible to identify the creditor countries involved in the renegotiation is the big advantage of using Paris Club data for our purposes. The main disadvantage of this dataset is that we may lose some precision in the dating of the default event, as sovereign default years may differ from those of the debt renegotiation.

Alternative sources of default data are Standard & Poors (S&P) sovereign defaults database and World Bank’s Global Development Finance (GDF) database.¹⁷ The S&P database includes all sovereign defaults on loans or bonds with private agents. While for private loans it would potentially be feasible to identify the country of origin of the creditors, this would be almost impossible when bonds are the borrowing instruments. Consistently, the S&P database includes only the name of the country that defaulted, the default date and the period during which the debtor government remained in default, but the information on who the creditors or bond holders are is not available. Finally, an alternative source of data would be to look at the GDF series of debt arrears, and extract from there the onset of arrears on international payments, but again it would be impossible to identify the country of origin of creditors. So, the main disadvantage of these two datasets for our purposes is

¹⁴We made extensive use of the compilation of these data series done by Rose (which is available on his website) in building our database.

¹⁵See Sevigny (1990), Eichengreen and Portes (1995) or the Paris Club website for more information on the Paris Club.

¹⁶Paris club negotiations usually last for six to eight months (see Eichengreen 1995).

¹⁷Another potential source of information on sovereign defaults is the London Club institution under which private banks renegotiate with debtor governments. However, data from this institution was not available.

that they do not identify the creditor countries. This prevents us from using these datasets in the analysis of the bilateral effect. However, we use them to check the robustness of our results regarding the multilateral effect where it only matters whether a country belongs to a specific creditor group.

3 Main Empirical Results

3.1 Bilateral Punishment

We estimate Equation (2) using panel data techniques. The panel is constructed by taking every bilateral relationship along the cross-sectional dimension of the panel and collecting the observed logs of bilateral trade along time. The estimation of the different specifications shows that results tend to differ substantially whether we employ fixed or random effects; not surprisingly, then, the Hausman test rejects the appropriateness of the random effects estimator. The random effects estimator, while more efficient than the fixed effects estimator when appropriate conditions are satisfied, may be inconsistent whenever the so called “random effects” are correlated with the regressors as seems to be the case here. Fixed effect estimators are therefore more reliable under the current circumstances. Note that fixed effects estimators, however, do not allow for the inclusion of time-invariant country-pair characteristics that are absorbed by the country-pair fixed effects (i.e. country-pair specific dummies).

In the different specifications of our model the standard gravity effects are present; bilateral trade is increasing in the combined real GDP and real GDP per capita, and is higher for countries belonging to the same regional trade agreement and sharing the same currency. In addition, we observe that the onset of an IMF program negatively impacts trade beyond what is explained by all other variables already included in the regression, an effect previously found by Rose (2003).

Our coefficients of interest are, however, the ones corresponding to the “defaulted credi-

tors” variable and the “general” default variable.¹⁸ The first two columns of Table 1 report the results of the estimation employing no lags in these variables. The “general” default variable has a negative and significant coefficient of -0.079 in the fixed effects regression, whereas the “defaulted creditors” variable exhibits a positive and significant coefficient of 0.127. These results imply that defaults are associated with a contemporaneous decline in trade of around 7.9% between a debtor and those trade partners not affected by the default, but that there is no negative effect on bilateral trade between a defaulting debtor and the affected creditors. Exchange with defaulted creditor countries actually seems to increase 4.8% the year of the default (the impact of default on trade with affected creditors is measured by the sum of coefficients on “defaulted creditors” and “general default”). Moreover, this effect is beyond what can be explained by the particular macroeconomic difficulties that they might be experiencing (captured by the log of real GDP and IMF regressors).¹⁹

Columns 3 to 8 of Table 1 offer estimations of the same model but employing 5, 10 and 15 lags of the “defaulted creditors” variable and the “general” default variable. Here again the Hausman test suggests that random effects estimates may be biased and therefore we pay more attention to fixed effects estimates. Using 5 lags the average impact on overall trade during the first five years following the renegotiations is -5.6% per year and again there is no negative additional impact on bilateral trade with the affected creditors on top of this (the impact is once more positive). When we test the individual significance of each of the “general” default variable lags, we find that the contemporaneous effect and the first four lags are negative and significant. On the other hand, the contemporaneous effect and the first four lags of the “defaulted creditors” default variable are positive although they are not always significantly so.²⁰

¹⁸Both the “defaulted creditors” default variable and the “general” default variable are noisy proxies of default as we explained above. Therefore, there is a potential error-in-variables problem and interpretations should be cautious.

¹⁹The random effects estimates yield qualitatively similar results (the coefficient of the “general” default variable is negative and significant while that of the “defaulted creditor” default variable is positive and significant) but even stronger results.

²⁰Even when results do not differ too much among different lag length specifications a question may arise as to which one should we emphasize more. A popular method for comparing multiple models, taking descriptive accuracy and parsimony into account, is the use of so-called Information Criteria, the two most popular ones being Akaike Information Criteria (AIC) and Schwarz Bayesian Information Criteria (BIC). Among them AIC, widely felt to have a tendency to select overly complex models, favors the selection of

When we include 10 lags the impact of renegotiations on trade with all trade partners now averages -5.5% per year during the first 5 years following the default, whereas the affected creditors specific effect is still positive during that period. While again the contemporaneous effect and the first 4 lags of the “general” default variable are negative and individually significant (they remain negative but not individually significant thereafter until the 10th lag that becomes significant again), the coefficients of the “bilateral” default variable turn negative only 7 years after the default, but they are never individually significant. Similar results obtain when we include 15 lags.²¹ Since defaulting countries conduct roughly 47% of their international commerce with non-creditor countries results from table 1 imply that these countries’ international trade falls on average 2.6% per year in the five years following the default (-5.5% times 47%), totaling a 13% decline during that same period.

One way to think about these results is to emphasize the long term “bilateral” effect, and disregard the fact that it tenuously appears several years after the default. And, based on this, to conclude that it constitutes evidence in favor of bilateral trade sanctions. However, interpreting the empirical evidence as the consequence of bilateral sanctions would require a very special story regarding the type of sanctions imposed and their implications. We believe that the existence of a negative effect on overall trade in the short-term and the absence of any negative “bilateral” effect for many years following a default (after we control for the “general” effect) are illuminating in order to assess the relevance of the bilateral sanctions argument. We consider that this short-term pattern of trade declines provides relevant evidence against the bilateral sanctions argument. The basic reason is that one would tend to believe that the effects of sanctions on trade should appear not too long after the event

the 13 lags model whereas BIC, sometimes considered too ruthless in favoring simple models, points at the 1 lag model as the better one.

²¹Note that the results we present in Table 1 differ from those presented by Rose (2003) in his benchmark regression. We find that there is not a negative “bilateral” effect in the aftermath of defaults while he finds that there is a significant decline in trade between the defaulting country and the affected creditors in most of his specifications (not always individually significant though). The basic reason for this difference is, as explained above, that in our regression we control for the effect of defaults on overall trade and then look for the “bilateral” effect on top of it. Rose does not control for the “general” effect, and as a result his “bilateral” default variable is capturing part of the general effect. In addition to that we also include time dummies, which contribute to make the bilateral effect even weaker, although this is not the main driver of our results (even without time dummies we find no significant “bilateral” effect on top of the “general” effect; see table in appendix 2).

that triggered them.

As robustness check of our results, we perform Tobit regressions in order to account for the censoring that the existence of zeroes in bilateral trade data could generate. The results remain largely unchanged with the “general” effect becoming stronger and the “bilateral” one even weaker. As additional robustness checks, we split the sample into two periods, up to 1975 and 1976 - 1997, that reflect clearly different characteristics of international sovereign debt markets and we construct region-specific default variables, distinguishing Africa, Asia and Latin America from all the others, and the results confirm those already advanced. For neither of the two periods into which we split the sample and for none of the lag specifications do we find a negative and significant impact of renegotiations on bilateral trade between the defaulting country and the affected creditors (in addition to the general effect) in the aftermath of defaults. Furthermore, the “bilateral” effect is not significant for any of the four regions defined. We also performed an analysis of the impact of defaults on imports and exports separately finding similar results.

A serious concern regarding this kind of strategy to assess the effects of default on trade, and certainly difficult to overcome, is the bias induced by a potential simultaneity of the relationship between trade and default. Even when the above relationships convey the idea that default is associated with a substantial decline in overall trade, the direction of causality is not beyond discussion. It might be that the decline in trade is the cause and not the consequence of the default, either because countries can no longer afford to repay their loans (a repayment capacity argument) or because their exposure to sanctions is now lower, due to the reduction in trade (a multilateral sanctions/willingness to repay argument). In short, default or renegotiation -being the decision of a sovereign- is not a completely exogenous variable and this may not be properly taken into account in our previous estimations.

In an attempt to overcome these endogeneity problems, we instrument the default variables and their lags using the government budget deficit (expressed as a percentage of GDP), the CPI inflation rate and the current account surplus/deficit (as a percentage of GDP) together with their corresponding lags. The results of these estimations are reported in Table 2. Again, the general effect seems to be negative and there does not seem to be a bilateral effect on top of the general one. However, several problems with IV estima-

tors are evident here. The weak explanatory power of the instruments translates into large standard errors in the second stage. Worse, it is well-known that even in large samples IV methods can exhibit potentially large biases when using weak instruments, and they are directly inconsistent whenever the instruments are correlated with the error term, which is a serious possibility here. All this suggests that we should interpret IV results with caution. It may be that OLS, with all its shortcomings, is capable of providing a better picture of the situation than IV.

The results, with the shortcomings already described, suggest that defaults tend to be associated with a substantial reduction in international trade for the defaulting country with its non-creditors trade partners.²² It seems clear that there is nothing special about bilateral trade between the defaulting country and the creditor countries affected by the default; trade with them is not halted in the aftermath of defaults. In fact bilateral trade with affected creditor countries seems not to decline at all. An intuitively appealing explanation of why this may be occurring is that creditor countries are usually countries with solid finances, and therefore, absent any kind of sanctions, countries that are in a better position to finance trade to countries in trouble. As a result, because following defaults we observe a decline in overall trade with non-creditor countries and no decline in bilateral trade with the affected creditors, we conclude that the declines in trade do not seem consistent with bilateral punishment. So, we reject the hypothesis of bilateral trade sanctions being the enforcement mechanism for debt repayments.

3.2 Multilateral Punishment

Having discarded the idea of bilateral trade sanctions imposed by affected creditor countries, we now explore whether there is a broader set of creditors (not just those affected by the default) that jointly punish defaulting countries. To do so, we analyze the effect of defaults on bilateral trade between the defaulting country and different sets of creditor countries, following a similar approach to the one used in the previous section.

²²No conclusive evidence has been provided regarding the direction in which causality runs; it may be that defaults cause reductions in trade or the other way around.

As already explained, we start by estimating Equation (3). This equation is a modified version of Equation (2), where we replace the “defaulted creditors” variable with another indicator variable, CRED, that takes on the value of 1 whenever one of the two countries involved in bilateral commerce has defaulted and is renegotiating its debts with Paris Club members and the other belongs to a specific creditor group, and 0 otherwise. We carry out this strategy for two specific group of creditors, Paris Club member countries and OECD countries. In principle if one suspects that creditor countries pool efforts to sanction a defaulting country, the Paris Club offers what seems to be a natural unit of coordination, a self-selected group of creditors that identify themselves as such. OECD membership allow us to check for the possibility of a larger sanctioning group.

We report both fixed and random effect estimates of our regressions as before, and most of the comments and caveats of the previous section also apply here. In particular, we note that fixed effects estimators seem to be more reliable than random effects ones. The results are reported in Tables 3 and 4. Table 3 uses Paris Club countries as the reference creditor group, whereas Table 4 employs OECD countries. It is comforting to see that the results for both groups of creditors are fairly similar. Furthermore, they are also similar to the results we obtain when we analyze the existence of bilateral punishment.

The first two columns of Table 3 report the results of the estimation employing no lags in these variables. The “general” default variable has a negative and significant coefficient of -0.092 in the fixed effects regression, suggesting that defaulting countries experience on average a contemporaneous decline of their trade with non-creditor trade partners of around 9.2%; as before, this effect is beyond what can be explained by the particular macroeconomic difficulties that they might be experiencing (captured by the log of real GDP and IMF regressors). On the other hand, the contemporaneous effect on trade with Paris Club countries on top of the general effect seems to be positive and significant. In other words, once more we find that defaults are associated with a contemporaneous decline in trade between a debtor and its non-creditor trade partners, but there seems to be no negative effect on bilateral trade between a defaulting debtor and a group of creditor countries that potentially could coordinate to punish, namely Paris Club countries.²³

²³The change in trade with creditor trade partners is the sum of the “general” effect plus the “creditor

Columns 3 to 8 of Table 4 offer estimations of the same model but employing 5, 10 and 15 lags of the “Paris Club creditors” variable and the “general” default variable. Using 5 lags the average impact on overall trade during the first five years following the renegotiations is -5.7% per year and again there is no negative additional impact on bilateral trade with Paris Club creditors on top of this. In fact, again the “multilateral effect” is positive and significant. When we include 10 lags the impact of renegotiations on trade with all trade partners during the first five years remains essentially unchanged, whereas the effect on trade with Paris Club creditors is still positive. The average decline in trade with non-creditor countries during the first ten years following a default amounts to 3.7% per year, while trade with Paris Club creditors increases during that period. For all lag lengths the contemporaneous and the first 5 lags of the general default variable are negative and individually significant, while the multilateral effect is positive and usually non-significant during the first five years, and turns negative but remains usually non-significant thereafter. Table 4 presents the results of the estimation of equation (3) using OECD countries as the reference group. Using this group of creditor countries most results are qualitatively similar, but the “general effect” seems to be even stronger.

Summarizing, as in the bilateral case we find evidence of a decline in overall trade following defaults, and no evidence of a larger decline in trade with groups of creditor countries in the aftermath of defaults. However the negative multilateral effect does not appear as late as the bilateral one.²⁴

Although the idea of multilateral sanctions causing the declines in trade can already be discarded, we still proceed to estimate equation (4), reproduced below, to gain further insight in the nature of trade declines following defaults:

$$(4) \quad \ln(T_{ij})_t = \beta Z_{ijt} + \sum_{m=0}^M \phi_m RC_{ijt-m} + \sum_{m=0}^M \gamma_m OC_{ijt-m} + \sum_{m=0}^M \theta_m NC_{ijt-m} + \varepsilon_{ijt}$$

As explained, in this equation we are including in the gravity model three default variables that identify whether the other country in the pair is a creditor affected by the default (negotiating Paris Club member), a creditor not affected by the default (Paris Club member group) effect, which is approximately zero.

²⁴These results are confirmed when we use S&P default data instead of Paris Club default data. The tables are available upon request.

not participating in the negotiations) or a non-creditor country (not a Paris Club member). Given the results of the previous section one should expect that the small improvement of the multilateral effect when compared to the bilateral one is driven by those Paris Club members that do not take part in the renegotiations, and this presumption is confirmed by the results of the estimation of Equation (4) presented in Table 5. The defaulting country's bilateral trade declines most significantly with the non-creditor countries, but there is also a cumulative significant decline on trade with the group of creditor countries not involved in the renegotiations, that is those creditors (Paris Club members) that were not affected by the default. In contrast, there are no signs of distress in bilateral trade between the defaulting country and affected creditors after the default. These results are not consistent with a multilateral punishment strategy in which creditors (both those affected and not affected by the default) would be coordinating the imposition of sanctions on defaulting countries.

Finally, to gain further insights on the existence of multilateral punishment we again split the sample in two periods (up to 1975 and 1976 to 1997) and we distinguish among four groups of debtor countries (the same ones we used in the bilateral analysis): Africa, Asia, Latin America and Others. An interesting finding is that the effect on bilateral trade with creditors on top of the general effect is only present in default events of Latin American countries. In addition, the effect seems to be stronger in the latter period.

4 Conclusions

We believe that our paper makes two main contributions. First of all, it devises a clear strategy to test the relevance of trade sanctions (overt or covert) in explaining the declines in trade associated with defaults. This strategy is based on the distinction between “general” declines in trade associated with defaults, from “bilateral” or “multilateral” ones.

In addition, we present empirical evidence showing that, in the aftermath of default events, there is no relevant negative effect on bilateral trade between a defaulting country

and the creditors that suffered the default. Even when sovereign defaults are generally associated with declines in trade for the defaulting country, that decline is mostly concentrated in trade relationships between defaulting countries and non-creditor trade partners. The analysis of trade between the defaulting country and larger groups of creditors (not just those affected by the default) further reinforces this conclusion. Trade seems to decline more significantly with non-creditor countries or with those creditors not affected by the default than with those affected by it. Under our maintained assumptions all this amounts to a rejection of the trade sanctions argument both at the bilateral and multilateral levels. This is extremely important, as it could lead to an empirical rejection of one of the main workhorse arguments used in the sovereign borrowing literature to explain why governments repay.

Finally, there are two questions that one can ask regarding the cause of the declines in trade. The first one, positive in its nature, is: why is trade declining following defaults? A narrower but very important one given its role in the sovereign debt literature is: Is it punishment? To the question, “Is it Punishment?”, we provide strong evidence against the punishment hypothesis. Rose (2003) documented that trade declines for debtor countries in the aftermath of default, and we have demonstrated that neither bilateral nor multilateral sanctions provide a plausible account of this decline. Exactly why the decline occurs remains an important and open question.

References

- [1] **Beers, D. and J. Chambers**, 2004, “Sovereign Defaults Set to Fall Again in 2005.” Standard & Poor’s, September 28, 2004
- [2] **Bulow, J. and K. Rogoff**, 1989a, “Sovereign Debt: Is to Forgive to Forget?” *American Economic Review*, 79, 43-50.
- [3] **Bulow, J. and K. Rogoff**, 1989b, “A Constant Recontracting Model of Sovereign Debt.” *Journal of Political Economy*, 97, 988–1002.
- [4] **Chang, G. and S. Sundareshan**, 2002, “A model of dynamic sovereign borrowing: effects of credit history and sanctions.” Mimeo Columbia University.
- [5] **Cole, H. and P. Kehoe**, 1997, “Reviving reputation models of international debt.” *Federal Reserve Bank of Minneapolis Quarterly Review*, 21, 21–30.
- [6] **Eaton, J. and M. Gersowitz**, 1981, “Debt with Potential Repudiation: Theoretical and Empirical Analysis,” *Review of Economic Studies*, 48, 289–309.
- [7] **Eichengreen, B. and R. Portes**, 1995, “Crisis? What Crisis?” London, CEPR.
- [8] **Fernandez, R. and W. Rosenthal**, 1990, “Strategic models of sovereign debt renegotiations.” *Review of Economic Studies*, 57, 331–349.
- [9] **Gibson, R. and S. Sundareshan**, 2002, “A model of sovereign borrowing and sovereign yield spreads.” Mimeo Columbia University
- [10] **Lane, P.**, 1999, “North-South lending with moral hazard and repudiation risk.” *Review of International Economics*, 7, 50–58.
- [11] **Rose, A.**, 2005, “One Reason Countries Pay their Debts: Renegotiation and International Trade.” *Journal of Development Economics*, 77, 189–206.
- [12] **Rose, A., M. Spiegel**, 2002, “A Gravity Model of International Lending: Trade, Default and Credit.” CEPR paper D3539, May 2002.

- [13] **Sandleris, G.**, 2005, "Sovereign Defaults: Information, Investment and Credit."
Mimeo Columbia University
- [14] **Sevigny, D.**, 1990, "The Paris Club: An inside View." Ottawa: North- South Insitute.

Appendix: Description of the variables included in benchmark regression

In addition to the default variables already described in detail, the gravity equations we estimate follows Rose (2003) and includes the following explanatory variables:

Y: real GDP

POP: population

D_{ij} : distance between country i and country j

LANGUAGE: binary variable that takes the value 1 if i and j have a common language

CONTIGUOUS: binary variable that takes the value 1 if i and j share a land border

FTA: binary variable that takes the value 1 if i and j belong to the same regional trade agreement

LANDLOCK: number of landlocked countries in the country-pair

ISLAND: number of island nations in the country-pair

$AREA_i$: total area of country i

COMCOL: binary variable that takes the value 1 if i and j were ever colonies after 1945 with the same colonizer

CURCOL: binary variable that takes the value 1 if i and j are colonies at time t

COL: binary variable that takes the value 1 if i and j were ever colonies of each other

COMNAT: binary variable that takes the value 1 if i and j remained part of the same nation during the sample (i.e.: UK and Bermuda)

CU: binary variable that takes the value 1 if i and j use the same currency at time t

IMF: number of countries in the country-pair that began an IMF program at t

Table 1

Defaults and Trade: General vs. Creditor Specific Effects

Dependent Variable: Log Value of Bilateral Trade in Real '82-'84 \$. The table reports the results of several lag length estimations of the bilateral sanctions model. The coefficients of the standard gravity controls, the IMF dummy and the time dummies are not reported.
Notes: Standard errors in parentheses.

	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.
Dummy for default/defaulted creditor	0.1268 [0.0355]***	0.1788 [0.0356]***	0.0907 [0.0367]**	0.1200 [0.0369]***	0.0872 [0.0369]**	0.1243 [0.0370]***	0.077 [0.0369]**	0.1185 [0.0371]***
Dummy for default/defaulted creditor (t-1)			0.0707 [0.0372]*	0.1015 [0.0373]***	0.0669 [0.0373]*	0.1031 [0.0374]***	0.0595 [0.0373]	0.0999 [0.0375]***
Dummy for default/defaulted creditor (t-2)			0.0478 [0.0377]	0.0797 [0.0379]**	0.0403 [0.0379]	0.0746 [0.0380]**	0.0412 [0.0379]	0.0773 [0.0381]**
Dummy for default/defaulted creditor (t-3)			0.0578 [0.0382]	0.0915 [0.0384]**	0.0521 [0.0384]	0.0831 [0.0385]**	0.045 [0.0385]	0.0791 [0.0386]**
Dummy for default/defaulted creditor (t-4)			0.1027 [0.0384]***	0.1437 [0.0385]***	0.0957 [0.0390]**	0.1238 [0.0392]***	0.0862 [0.0392]**	0.1181 [0.0394]***
Dummy for default/defaulted creditor (t-5)			0.0409 [0.0385]	0.0904 [0.0386]**	0.0408 [0.0395]	0.0686 [0.0396]*	0.0374 [0.0397]	0.0684 [0.0398]*
Dummy for default/defaulted creditor (t-6)					0.0521 [0.0405]	0.0800 [0.0407]**	0.0469 [0.0407]	0.0756 [0.0409]*
Dummy for default/defaulted creditor (t-7)					-0.0057 [0.0417]	0.0281 [0.0419]	-0.0046 [0.0419]	0.029 [0.0420]
Dummy for default/defaulted creditor (t-8)					-0.0264 [0.0428]	0.0099 [0.0429]	-0.0162 [0.0429]	0.0152 [0.0430]
Dummy for default/defaulted creditor (t-9)					-0.0349 [0.0448]	0.0121 [0.0450]	-0.0039 [0.0455]	0.0298 [0.0457]
Dummy for default/defaulted creditor (t-10)					-0.0343 [0.0457]	0.0275 [0.0458]	0.0064 [0.0471]	0.0475 [0.0473]
Dummy for default/defaulted creditor (t-11)							-0.1432 [0.0500]***	-0.1024 [0.0502]**
Dummy for default/defaulted creditor (t-12)							-0.0583 [0.0545]	-0.0184 [0.0547]
Dummy for default/defaulted creditor (t-13)							-0.0328 [0.0599]	0.0095 [0.0601]
Dummy for default/defaulted creditor (t-14)							-0.0867 [0.0651]	-0.0443 [0.0654]
Dummy for default/defaulted creditor (t-15)							-0.0454 [0.0755]	0.0123 [0.0758]
Dummy for default/general	-0.0787 [0.0118]***	-0.0837 [0.0118]***	-0.0660 [0.0120]***	-0.0679 [0.0120]***	-0.0665 [0.0120]***	-0.0689 [0.0120]***	-0.0654 [0.0121]***	-0.068 [0.0121]***
Dummy for default/general (t-1)			-0.0659 [0.0116]***	-0.0701 [0.0116]***	-0.0667 [0.0116]***	-0.0712 [0.0116]***	-0.0689 [0.0117]***	-0.0733 [0.0117]***
Dummy for default/general (t-2)			-0.0369 [0.0119]***	-0.0432 [0.0119]***	-0.0381 [0.0120]***	-0.0446 [0.0120]***	-0.0422 [0.0121]***	-0.049 [0.0121]***
Dummy for default/general (t-3)			-0.0508 [0.0123]***	-0.0554 [0.0123]***	-0.0498 [0.0123]***	-0.0543 [0.0123]***	-0.0493 [0.0124]***	-0.0543 [0.0125]***
Dummy for default/general (t-4)			-0.0583 [0.0125]***	-0.0614 [0.0125]***	-0.0530 [0.0127]***	-0.0553 [0.0127]***	-0.0489 [0.0128]***	-0.0512 [0.0128]***
Dummy for default/general (t-5)			-0.0188 [0.0128]	-0.0230 [0.0128]*	-0.0142 [0.0131]	-0.0168 [0.0131]	-0.0163 [0.0131]	-0.0192 [0.0132]
Dummy for default/general (t-6)					-0.0054 [0.0136]	-0.0050 [0.0136]	-0.0045 [0.0137]	-0.004 [0.0137]
Dummy for default/general (t-7)					0.0145 [0.0142]	0.0129 [0.0143]	0.0171 [0.0143]	0.0153 [0.0143]
Dummy for default/general (t-8)					-0.0098 [0.0150]	-0.0131 [0.0150]	-0.0099 [0.0150]	-0.0129 [0.0150]
Dummy for default/general (t-9)					-0.0279 [0.0158]*	-0.0315 [0.0158]**	-0.028 [0.0160]*	-0.0305 [0.0160]*
Dummy for default/general (t-10)					-0.0497 [0.0164]***	-0.0570 [0.0164]***	-0.0504 [0.0167]***	-0.0565 [0.0167]***
Dummy for default/general (t-11)							0.0265 [0.0178]	0.0236 [0.0178]
Dummy for default/general (t-12)							0.0011 [0.0191]	0.0022 [0.0191]
Dummy for default/general (t-13)							-0.0708 [0.0205]***	-0.0749 [0.0205]***
Dummy for default/general (t-14)							-0.0013 [0.0219]	-0.006 [0.0219]
Dummy for default/general (t-15)							0.004 [0.0242]	-0.0027 [0.0243]
Sum first 3 default/defaulted creditor p-value			0.2092 [0.0002]***	0.3012 [0.0000]***	0.1944 [0.0005]***	0.3020 [0.0000]***	0.1777 [0.0015]***	0.2957 [0.0000]***
Sum first 3 default/general p-value			-0.1688 [0.0000]***	-0.1812 [0.0000]***	-0.1713 [0.0000]***	-0.0089 [0.0000]***	-0.1765 [0.0000]***	-0.1903 [0.0000]***
Sum first 5 default/defaulted creditor p-value			0.3697 [0.0000]***	0.5364 [0.0000]***	0.3422 [0.0000]***	0.5089 [0.0000]***	0.3089 [0.0000]***	0.4929 [0.0000]***
Sum first 5 default/general p-value			-0.2779 [0.0000]***	-0.2980 [0.0000]***	-0.2741 [0.0000]***	-0.2943 [0.0000]***	-0.2747 [0.0000]***	-0.2958 [0.0000]***
Sum first 10 default/defaulted creditor p-value					0.3681 [0.0000]***	0.7076 [0.0000]***	0.3685 [0.0000]***	0.7109 [0.0000]***
Sum first 10 default/general p-value					-0.3169 [0.0000]***	-0.3478 [0.0000]***	-0.3163 [0.0000]***	-0.3471 [0.0000]***
Observations	219,573	219,573	219,573	219,573	219,573	219,573	219,573	219,573
Number of Unique Country-Pair Identifier	11,178	11,178	11,178	11,178	11,178	11,178	11,178	11,178
R-squared	0.13		0.13		0.13		0.13	

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 2

Defaults and Trade: Instrumental Variables Estimation

Dependent Variable: Log Value of Bilateral Trade in Real '82-'84 \$. The table reports the results of several lag length IV estimations. Instruments used: Government Budget Deficit (% of GDP), CPI inflation rate and Current Account Deficit (% of GDP); and their lags. The coefficients of the standard gravity controls, the IMF dummy and the time dummies are not reported. Notes: Standard errors in parentheses.

	Fixed Eff. (IV)	Random Eff. (IV)	Fixed Eff. (IV)	Random Eff. (IV)	Fixed Eff. (IV)	Random Eff. (IV)
Dummy for default/defaulted creditor	0.6154 [0.8156]	2.261 [1.0856]**	0.768 [1.7589]	2.9933 [1.2586]**	0.227 [1.8614]	-0.0397 [2.7411]
Dummy for default/defaulted creditor (t-1)			1.2688 [1.2920]	2.0327 [1.0861]*	1.6663 [1.3520]	2.6461 [2.1334]
Dummy for default/defaulted creditor (t-2)			0.7974 [1.1063]	1.0193 [0.9433]	-2.1592 [1.4919]	-2.5492 [2.0658]
Dummy for default/defaulted creditor (t-3)			0.6746 [1.2701]	0.4346 [1.1974]	-1.8041 [1.8615]	-2.7111 [2.5193]
Dummy for default/defaulted creditor (t-4)			0.4321 [1.3164]	-1.3399 [1.2789]	1.434 [1.5812]	1.0898 [2.1909]
Dummy for default/defaulted creditor (t-5)			-7.9519 [3.7807]**	-5.2841 [4.8376]	-2.1963 [2.3097]	-3.7651 [4.5118]
Dummy for default/defaulted creditor (t-6)					-3.5288 [1.1730]***	-4.3317 [1.9113]**
Dummy for default/defaulted creditor (t-7)					2.6983 [5.0100]	4.8198 [6.6880]
Dummy for default/defaulted creditor (t-8)					-1.6415 [6.0842]	-6.026 [10.0819]
Dummy for default/defaulted creditor (t-9)					1.8358 [6.5255]	2.9271 [10.1311]
Dummy for default/defaulted creditor (t-10)					-4.7136 [7.5500]	-9.2004 [10.4909]
Dummy for default/general	-0.0074 [0.1743]	0.2829 [0.1867]	-0.2164 [0.3857]	-0.1835 [0.3703]	-0.2174 [0.3566]	0.0657 [0.5563]
Dummy for default/general (t-1)			-0.2041 [0.2952]	-0.2068 [0.3104]	-0.1046 [0.3129]	0.026 [0.4905]
Dummy for default/general (t-2)			-0.1725 [0.2082]	0.0667 [0.1919]	0.9478 [0.6402]	1.1508 [0.8350]
Dummy for default/general (t-3)			-0.1958 [0.2328]	-0.2114 [0.2310]	0.627 [0.6487]	0.6702 [1.0169]
Dummy for default/general (t-4)			-0.1014 [0.2623]	-0.2036 [0.2455]	-0.4592 [0.6540]	-0.6569 [1.0934]
Dummy for default/general (t-5)			1.7532 [0.8753]**	0.5415 [1.0741]	0.1418 [0.4392]	-0.1736 [0.6743]
Dummy for default/general (t-6)					1.0897 [0.4520]**	1.2114 [0.6199]*
Dummy for default/general (t-7)					-0.5569 [1.5678]	-1.4974 [2.1948]
Dummy for default/general (t-8)					0.5252 [1.7612]	1.492 [2.7194]
Dummy for default/general (t-9)					-0.0841 [1.7626]	-0.4489 [2.7414]
Dummy for default/general (t-10)					0.9359 [1.7321]	1.7281 [2.3650]
Observations	47661	47661	28248	28248	19618	19618
Number of Unique Country-Pair Identifier	4851	4851	2963	2963	2164	2164

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3

Defaults and Trade: Multilateral Effects (Paris Club)

Dependent Variable: Log Value of Bilateral Trade in Real '82-'84 \$. The table reports the results of several lag length estimations of the multilateral sanctions model with Paris Club countries as the reference group. The coefficients of the standard gravity controls, the IMF dummy and the time dummies are not reported. Notes: Standard errors in parentheses.

	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.
Dummy for default/Paris C. Countries	0.0925 [0.0242]***	0.1748 [0.0241]***	0.0808 [0.0252]***	0.1265 [0.0252]***	0.0783 [0.0253]***	0.1247 [0.0253]***	0.07 [0.0254]***	0.1194 [0.0254]***
Dummy for default/Paris C. Countries (t-1)			0.0281 [0.0256]	0.0796 [0.0256]***	0.0297 [0.0257]	0.079 [0.0257]***	0.0245 [0.0258]	0.0764 [0.0259]***
Dummy for default/Paris C. Countries (t-2)			0.0291 [0.0265]	0.077 [0.0266]***	0.0368 [0.0267]	0.079 [0.0268]***	0.0396 [0.0269]	0.0824 [0.0270]***
Dummy for default/Paris C. Countries (t-3)			0.0328 [0.0274]	0.0785 [0.0274]***	0.0473 [0.0277]*	0.0825 [0.0278]***	0.0465 [0.0279]*	0.0837 [0.0280]***
Dummy for default/Paris C. Countries (t-4)			0.021 [0.0278]	0.0698 [0.0278]**	0.0419 [0.0287]	0.0717 [0.0288]**	0.0392 [0.0290]	0.0705 [0.0291]**
Dummy for default/Paris C. Countries (t-5)			-0.0542 [0.0285]*	-0.0055 [0.0286]	-0.023 [0.0296]	0.0057 [0.0297]	-0.0152 [0.0298]	0.0105 [0.0299]
Dummy for default/Paris C. Countries (t-6)					0.0082 [0.0310]	0.0358 [0.0311]	0.0142 [0.0313]	0.0371 [0.0314]
Dummy for default/Paris C. Countries (t-7)					-0.0645 [0.0324]**	-0.0338 [0.0325]	-0.0474 [0.0327]	-0.023 [0.0328]
Dummy for default/Paris C. Countries (t-8)					-0.0711 [0.0341]**	-0.0406 [0.0342]	-0.0553 [0.0343]	-0.0323 [0.0344]
Dummy for default/Paris C. Countries (t-9)					-0.0651 [0.0363]*	-0.0327 [0.0364]	-0.0357 [0.0371]	-0.0167 [0.0373]
Dummy for default/Paris C. Countries (t-10)					-0.0261 [0.0377]	0.018 [0.0378]	0.0117 [0.0390]	0.0395 [0.0391]
Dummy for default/Paris C. Countries (t-11)							-0.1126 [0.0417]***	-0.084 [0.0418]**
Dummy for default/Paris C. Countries (t-12)							-0.0774 [0.0451]*	-0.0466 [0.0452]
Dummy for default/Paris C. Countries (t-13)							-0.044 [0.0493]	-0.0139 [0.0494]
Dummy for default/Paris C. Countries (t-14)							-0.0661 [0.0529]	-0.0226 [0.0531]
Dummy for default/Paris C. Countries (t-15)							0.0153 [0.0597]	0.0633 [0.0599]
Dummy for default/general	-0.0901 [0.0128]***	-0.1102 [0.0128]**	-0.0767 [0.0130]***	-0.0865 [0.0130]***	-0.0768 [0.0131]***	-0.0871 [0.0131]***	-0.0749 [0.0131]***	-0.0856 [0.0131]***
Dummy for default/general (t-1)			-0.0645 [0.0126]***	-0.0773 [0.0126]***	-0.0657 [0.0127]***	-0.0779 [0.0127]***	-0.0676 [0.0128]***	-0.08 [0.0128]***
Dummy for default/general (t-2)			-0.0379 [0.0130]***	-0.0517 [0.0130]***	-0.0412 [0.0131]***	-0.0538 [0.0131]***	-0.0463 [0.0132]***	-0.0589 [0.0132]***
Dummy for default/general (t-3)			-0.0517 [0.0133]***	-0.0629 [0.0133]***	-0.0545 [0.0134]***	-0.0633 [0.0134]***	-0.0545 [0.0135]***	-0.0639 [0.0135]***
Dummy for default/general (t-4)			-0.0535 [0.0134]***	-0.0631 [0.0134]***	-0.0531 [0.0137]***	-0.0587 [0.0138]***	-0.0492 [0.0139]***	-0.0548 [0.0139]***
Dummy for default/general (t-5)			-0.0035 [0.0137]	-0.0138 [0.0137]	-0.0046 [0.0141]	-0.0103 [0.0141]	-0.009 [0.0142]	-0.014 [0.0142]
Dummy for default/general (t-6)					-0.0034 [0.0146]	-0.0061 [0.0146]	-0.004 [0.0147]	-0.0055 [0.0148]
Dummy for default/general (t-7)					0.0266 [0.0152]*	0.0209 [0.0153]	0.0262 [0.0153]*	0.0216 [0.0153]
Dummy for default/general (t-8)					0.0008 [0.0160]	-0.0063 [0.0160]	-0.0013 [0.0160]	-0.007 [0.0160]
Dummy for default/general (t-9)					-0.02 [0.0168]	-0.0261 [0.0168]	-0.0221 [0.0170]	-0.0255 [0.0170]
Dummy for default/general (t-10)					-0.0509 [0.0173]***	-0.0615 [0.0173]***	-0.0541 [0.0177]***	-0.0621 [0.0177]***
Dummy for default/general (t-11)							0.0309 [0.0187]*	0.0253 [0.0187]
Dummy for default/general (t-12)							0.0088 [0.0200]	0.0069 [0.0201]
Dummy for default/general (t-13)							-0.0681 [0.0215]***	-0.0745 [0.0215]***
Dummy for default/general (t-14)							0.001 [0.0229]	-0.0083 [0.0230]
Dummy for default/general (t-15)							-0.0028 [0.0254]	-0.0137 [0.0255]
Sum first 3 default/Paris C. Countries			0.1380	0.2831	0.1448	0.2827	0.1341	0.2782
p-value			[0.0009]***	[0.0000]***	[0.0005]***	[0.0000]***	[0.0014]***	[0.0000]***
Sum first 3 default/general			-0.1791	-0.2155	-0.1837	-0.2188	-0.1888	-0.2245
p-value			[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***
Sum first 5 default/Paris C. Countries			0.1918	0.4314	0.2340	0.4369	0.2198	0.4324
p-value			[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***
Sum first 5 default/general			-0.2843	-0.3415	-0.2913	-0.3408	-0.2925	-0.3432
p-value			[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***
Sum first 10 default/Paris C. Countries					0.0185	0.3713	0.0804	0.4080
p-value					[0.7565]	[0.0000]***	[0.1939]	[0.0000]***
Sum first 10 default/general					-0.2919	-0.3687	-0.3027	-0.3736
p-value					[0.0000]***	[0.0000]***	[0.0000]***	[0.0000]***
Observations	219,573	219,573	219,573	219,573	219,573	219,573	219,573	219,573
Number of Unique Country-Pair Identifier	11,178	11,178	11,178	11,178	11,178	11,178	11,178	11,178
R-squared	0.13		0.13		0.13		0.13	

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4

Defaults and Trade: Multilateral Effects (OECD)

Dependent Variable: Log Value of Bilateral Trade in Real '82-'84 \$. The table reports the results of several lag length estimations of the multilateral sanctions model with OECD countries as the reference group. The coefficients of the standard gravity controls, the IMF dummy and the time dummies are not reported. Notes: Standard errors in parentheses.

	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.
Dummy for default/OECD Countries	0.1431 [0.0218]***	0.2164 [0.0218]***	0.1143 [0.0227]***	0.1539 [0.0227]***	0.1097 [0.0227]***	0.1504 [0.0228]***	0.1024 [0.0228]***	0.1463 [0.0229]***
Dummy for default/OECD Countries (t-1)			0.0528 [0.0229]**	0.0985 [0.0229]***	0.0525 [0.0230]**	0.0962 [0.0231]***	0.0483 [0.0232]**	0.0949 [0.0232]***
Dummy for default/OECD Countries (t-2)			0.0689 [0.0237]***	0.1115 [0.0237]***	0.0728 [0.0239]***	0.1098 [0.0239]***	0.0755 [0.0241]***	0.1131 [0.0241]***
Dummy for default/OECD Countries (t-3)			0.0615 [0.0244]**	0.1046 [0.0244]***	0.0706 [0.0247]***	0.1033 [0.0247]***	0.0698 [0.0249]***	0.1046 [0.0249]***
Dummy for default/OECD Countries (t-4)			0.028 [0.0247]	0.0751 [0.0247]***	0.0394 [0.0255]	0.0677 [0.0256]***	0.0384 [0.0257]	0.0684 [0.0258]***
Dummy for default/OECD Countries (t-5)			-0.0167 [0.0254]	0.0306 [0.0254]	0.0052 [0.0263]	0.0333 [0.0263]	0.0107 [0.0265]	0.0364 [0.0265]
Dummy for default/OECD Countries (t-6)					0.0491 [0.0275]*	0.0787 [0.0275]***	0.0536 [0.0277]*	0.0787 [0.0277]***
Dummy for default/OECD Countries (t-7)					-0.0495 [0.0286]*	-0.0197 [0.0287]	-0.0353 [0.0288]	-0.0112 [0.0289]
Dummy for default/OECD Countries (t-8)					-0.087 [0.0301]***	-0.0559 [0.0302]*	-0.0747 [0.0303]**	-0.0505 [0.0304]*
Dummy for default/OECD Countries (t-9)					-0.0395 [0.0320]	-0.0063 [0.0320]	-0.0158 [0.0327]	0.0048 [0.0327]
Dummy for default/OECD Countries (t-10)					-0.0128 [0.0331]	0.0284 [0.0331]	0.0146 [0.0341]	0.041 [0.0341]
Dummy for default/OECD Countries (t-11)							-0.0981 [0.0364]***	-0.0694 [0.0365]*
Dummy for default/OECD Countries (t-12)							-0.0536 [0.0393]	-0.0221 [0.0394]
Dummy for default/OECD Countries (t-13)							-0.0458 [0.0429]	-0.0166 [0.0430]
Dummy for default/OECD Countries (t-14)							-0.0439 [0.0461]	-0.0029 [0.0461]
Dummy for default/OECD Countries (t-15)							0.0287 [0.0521]	0.0755 [0.0521]
Dummy for default/general	-0.1147 [0.0135]***	-0.1391 [0.0135]***	-0.0945 [0.0137]***	-0.1057 [0.0137]***	-0.0942 [0.0138]***	-0.1058 [0.0138]***	-0.0921 [0.0139]***	-0.1044 [0.0139]***
Dummy for default/general (t-1)			-0.0748 [0.0134]***	-0.0898 [0.0134]***	-0.0756 [0.0134]***	-0.0897 [0.0134]***	-0.0775 [0.0135]***	-0.0922 [0.0135]***
Dummy for default/general (t-2)			-0.053 [0.0137]***	-0.0688 [0.0137]***	-0.0558 [0.0138]***	-0.0697 [0.0138]***	-0.0612 [0.0139]***	-0.0752 [0.0139]***
Dummy for default/general (t-3)			-0.0636 [0.0140]***	-0.0776 [0.0140]***	-0.0661 [0.0141]***	-0.0767 [0.0141]***	-0.066 [0.0143]***	-0.0775 [0.0143]***
Dummy for default/general (t-4)			-0.0575 [0.0142]***	-0.0705 [0.0142]***	-0.0556 [0.0145]***	-0.0629 [0.0145]***	-0.052 [0.0147]***	-0.0596 [0.0147]***
Dummy for default/general (t-5)			-0.0105 [0.0145]	-0.0245 [0.0145]*	-0.011 [0.0149]	-0.0189 [0.0149]	-0.0154 [0.0150]	-0.0222 [0.0150]
Dummy for default/general (t-6)					-0.017 [0.0154]	-0.0227 [0.0154]	-0.0173 [0.0155]	-0.0216 [0.0155]
Dummy for default/general (t-7)					0.0271 [0.0161]*	0.0190 [0.0161]	0.0262 [0.0161]	0.0195 [0.0162]
Dummy for default/general (t-8)					0.0102 [0.0168]	0.0005 [0.0168]	0.0079 [0.0169]	0.0001 [0.0169]
Dummy for default/general (t-9)					-0.0229 [0.0176]	-0.0320 [0.0177]*	-0.0257 [0.0179]	-0.0311 [0.0179]*
Dummy for default/general (t-10)					-0.0534 [0.0182]***	-0.0676 [0.0182]***	-0.057 [0.0186]***	-0.0675 [0.0186]***
Dummy for default/general (t-11)							0.0351 [0.0197]*	0.0269 [0.0197]
Dummy for default/general (t-12)							0.0081 [0.0211]	0.0032 [0.0211]
Dummy for default/general (t-13)							-0.0648 [0.0226]***	-0.0737 [0.0226]***
Dummy for default/general (t-14)							-0.0002 [0.0241]	-0.0131 [0.0241]
Dummy for default/general (t-15)							-0.0074 [0.0267]	-0.0238 [0.0267]
Sum first 3 default/OECD Countries p-value			0.2360 [0.0000]***	0.3639 [0.0000]***	0.2350 [0.0000]***	0.3564 [0.0000]***	0.2262 [0.0000]***	0.3543 [0.0000]***
Sum first 3 default/general p-value			-0.2223 [0.0000]***	-0.2643 [0.0000]***	-0.2256 [0.0000]***	-0.2652 [0.0000]***	-0.2308 [0.0000]***	-0.2718 [0.0000]***
Sum first 5 default/OECD Countries p-value			0.3255 [0.0000]***	0.5436 [0.0000]***	0.3450 [0.0000]***	0.5274 [0.0000]***	0.3344 [0.0000]***	0.5273 [0.0000]***
Sum first 5 default/general p-value			-0.3434 [0.0000]***	-0.4124 [0.0000]***	-0.3473 [0.0000]***	-0.4048 [0.0000]***	-0.3488 [0.0000]***	-0.4089 [0.0000]***
Sum first 10 default/OECD Countries p-value					0.2233 [0.0000]***	0.5575 [0.0000]***	0.2729 [0.0000]***	0.5855 [0.0000]***
Sum first 10 default/general p-value					-0.3609 [0.0000]***	-0.4589 [0.0000]***	-0.3731 [0.0000]***	-0.4642 [0.0000]***
Observations	219,573	219,573	219,573	219,573	219,573	219,573	219,573	219,573
Number of Unique Country-Pair Identifier	11,178	11,178	11,178	11,178	11,178	11,178	11,178	11,178
R-squared	0.13		0.13		0.13		0.13	

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5

Defaults and Trade: Affected Creditors, Non-Affected Creditors and Non-Creditors

Dependent Variable: Log Value of Bilateral Trade in Real '82-'84 \$. The table reports the results of several lag length estimations of the bilateral sanctions model. The default dummies segregate countries into 3 categories: Defaulted creditor (creditor that participated in the Paris Club agreement), Not affected Paris C. Country (Paris club member that did not participate in the Paris Club agreement) and Non-creditor country (countries that do not belong to Paris Club and that are assumed to be non-creditor countries). The coefficients of the standard gravity controls, the IMF dummy and the time dummies are not reported. Notes: Standard errors in parentheses.

	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.
Dummy for default/defaulted creditor	0.0531 [0.0345]	0.1063 [0.0346]***	0.0287 [0.0357]	0.0641 [0.0358]*	0.0233 [0.0358]	0.06357 [0.03597]*	0.0136 [0.0359]	0.0569 [0.0360]
Dummy for default/defaulted creditor (t-1)			0.005 [0.0359]	0.0398 [0.0360]	-0.0002 [0.0360]	0.03756 [0.03614]	-0.0092 [0.0361]	0.0318 [0.0362]
Dummy for default/defaulted creditor (t-2)			0.0096 [0.0364]	0.0402 [0.0365]	0.0026 [0.0365]	0.03385 [0.03666]	0.0009 [0.0366]	0.0333 [0.0367]
Dummy for default/defaulted creditor (t-3)			0.0063 [0.0368]	0.0374 [0.0370]	0.0043 [0.0370]	0.03267 [0.03714]	-0.0005 [0.0371]	0.0298 [0.0373]
Dummy for default/defaulted creditor (t-4)			0.0358 [0.0371]	0.0687 [0.0373]*	0.0363 [0.0376]	0.06106 [0.03781]	0.0326 [0.0378]	0.0599 [0.0380]
Dummy for default/defaulted creditor (t-5)			0.0113 [0.0372]	0.0442 [0.0373]	0.0166 [0.0381]	0.0387 [0.03824]	0.0122 [0.0383]	0.0353 [0.0385]
Dummy for default/defaulted creditor (t-6)					0.038 [0.0390]	0.05997 [0.03921]	0.0346 [0.0393]	0.056 [0.0394]
Dummy for default/defaulted creditor (t-7)					-0.0021 [0.0401]	0.01977 [0.04027]	0.0034 [0.0402]	0.0248 [0.0404]
Dummy for default/defaulted creditor (t-8)					-0.0447 [0.0410]	-0.02301 [0.04122]	-0.0354 [0.0411]	-0.0172 [0.0413]
Dummy for default/defaulted creditor (t-9)					-0.0622 [0.0431]	-0.03516 [0.04327]	-0.0355 [0.0437]	-0.0165 [0.0439]
Dummy for default/defaulted creditor (t-10)					-0.0739 [0.0439]*	-0.04055 [0.04407]	-0.0396 [0.0451]	-0.0188 [0.0453]
Dummy for default/defaulted creditor (t-11)							-0.1092 [0.0478]**	-0.0875 [0.0480]*
Dummy for default/defaulted creditor (t-12)							-0.0572 [0.0522]	-0.0273 [0.0525]
Dummy for default/defaulted creditor (t-13)							-0.1023 [0.0573]*	-0.079 [0.0576]
Dummy for default/defaulted creditor (t-14)							-0.072 [0.0624]	-0.0436 [0.0627]
Dummy for default/defaulted creditor (t-15)							-0.028 [0.0722]	0.012 [0.0725]
Dummy for default/not affected Paris C. C.	-0.0246 [0.0260]	0.0424 [0.0260]	-0.0184 [0.0270]	0.0186 [0.0271]	-0.0161 [0.0272]	0.01755 [0.02724]	-0.0192 [0.0272]	0.0168 [0.0273]
Dummy for default/not affected Paris C. C. (t-1)			-0.0681 [0.0275]**	-0.026 [0.0275]	-0.0621 [0.0277]**	-0.02603 [0.02775]	-0.066 [0.0278]**	-0.0281 [0.0279]
Dummy for default/not affected Paris C. C. (t-2)			-0.0268 [0.0288]	0.0105 [0.0289]	-0.018 [0.0291]	0.01079 [0.02922]	-0.0185 [0.0293]	0.0097 [0.0294]
Dummy for default/not affected Paris C. C. (t-3)			-0.04 [0.0302]	-0.0023 [0.0303]	-0.0242 [0.0306]	0.00134 [0.03068]	-0.0209 [0.0307]	0.0047 [0.0308]
Dummy for default/not affected Paris C. C. (t-4)			-0.0781 [0.0309]**	-0.0344 [0.0310]	-0.0505 [0.0321]	-0.02616 [0.03220]	-0.045 [0.0322]	-0.0206 [0.0323]
Dummy for default/not affected Paris C. C. (t-5)			-0.097 [0.0322]***	-0.0553 [0.0323]*	-0.0635 [0.0333]*	-0.03913 [0.03345]	-0.0539 [0.0336]	-0.0342 [0.0337]
Dummy for default/not affected Paris C. C. (t-6)					-0.0172 [0.0356]	0.01118 [0.03568]	-0.0067 [0.0359]	0.0152 [0.0360]
Dummy for default/not affected Paris C. C. (t-7)					-0.0534 [0.0380]	-0.02465 [0.03814]	-0.0324 [0.0384]	-0.0129 [0.0385]
Dummy for default/not affected Paris C. C. (t-8)					-0.0779 [0.0412]*	-0.05203 [0.04124]	-0.0666 [0.0414]	-0.0486 [0.0415]
Dummy for default/not affected Paris C. C. (t-9)					-0.0846 [0.0450]*	-0.05868 [0.04510]	-0.0689 [0.0458]	-0.0557 [0.0459]
Dummy for default/not affected Paris C. C. (t-10)					-0.0472 [0.0480]	-0.01385 [0.04813]	-0.0267 [0.0493]	-0.0068 [0.0494]
Dummy for default/not affected Paris C. C. (t-11)							-0.0217 [0.0539]	0.004 [0.0540]
Dummy for default/not affected Paris C. C. (t-12)							-0.0643 [0.0584]	-0.035 [0.0585]
Dummy for default/not affected Paris C. C. (t-13)							-0.0965 [0.0650]	-0.0705 [0.0651]
Dummy for default/not affected Paris C. C. (t-14)							-0.0375 [0.0693]	0.0042 [0.0693]
Dummy for default/not affected Paris C. C. (t-15)							0.0819 [0.0786]	0.1167 [0.0788]

Table 5 (Cont.)

Dummy for default/non-creditor Count.	-0.0902 [0.0128]***	-0.1103 [0.0128]***	-0.0763 [0.0130]***	-0.0862 [0.0130]***	-0.0766 [0.0131]***	-0.08677 [0.01309]***	-0.0747 [0.0131]***	-0.0854 [0.0131]***
Dummy for default/non-creditor Count. (t-1)			-0.0648 [0.0126]***	-0.0775 [0.0126]***	-0.0657 [0.0127]***	-0.07793 [0.01270]***	-0.0676 [0.0128]***	-0.0801 [0.0128]***
Dummy for default/non-creditor Count. (t-2)			-0.0384 [0.0130]***	-0.0521 [0.0130]***	-0.0413 [0.0131]***	-0.0538 [0.01308]***	-0.0463 [0.0132]***	-0.0589 [0.0132]***
Dummy for default/non-creditor Count. (t-3)			-0.0527 [0.0133]***	-0.0637 [0.0133]***	-0.0548 [0.0134]***	-0.06353 [0.01339]***	-0.0547 [0.0135]***	-0.0641 [0.0135]***
Dummy for default/non-creditor Count. (t-4)			-0.0551 [0.0134]***	-0.0645 [0.0134]***	-0.0537 [0.0137]***	-0.05918 [0.01377]***	-0.0496 [0.0139]***	-0.0552 [0.0139]***
Dummy for default/non-creditor Count. (t-5)			-0.0052 [0.0138]	-0.0153 [0.0137]	-0.0054 [0.0141]	-0.01108 [0.01411]	-0.0095 [0.0142]	-0.0145 [0.0142]
Dummy for default/non-creditor Count. (t-6)					-0.0043 [0.0146]	-0.00682 [0.01465]	-0.0046 [0.0147]	-0.0061 [0.0148]
Dummy for default/non-creditor Count. (t-7)					0.0256 [0.0152]*	0.01998 [0.01526]	0.0256 [0.0153]*	0.021 [0.0153]
Dummy for default/non-creditor Count. (t-8)					-0.0002 [0.0160]	-0.00713 [0.01596]	-0.002 [0.0160]	-0.0076 [0.0160]
Dummy for default/non-creditor Count. (t-9)					-0.021 [0.0168]	-0.02695 [0.01677]	-0.0226 [0.0170]	-0.026 [0.0170]
Dummy for default/non-creditor Count. (t-10)					-0.0519 [0.0173]***	-0.06238 [0.01727]***	-0.0545 [0.0177]***	-0.0625 [0.0177]***
Dummy for default/non-creditor Count. (t-11)							0.0308 [0.0187]*	0.0253 [0.0187]
Dummy for default/non-creditor Count. (t-12)							0.0083 [0.0200]	0.0065 [0.0201]
Dummy for default/non-creditor Count. (t-13)							-0.0684 [0.0215]***	-0.0748 [0.0215]***
Dummy for default/non-creditor Count. (t-14)							0.0008 [0.0229]	-0.0084 [0.0230]
Dummy for default/non-creditor Count. (t-15)							-0.003 [0.0254]	-0.0138 [0.0255]
Sum first 3 default/defaulted creditor p-value			0.0433 [0.4193]	0.1441 [0.0074]***	0.0257 [0.6345]***	0.1350 [0.0126]**	0.0053 [0.9211]	0.1220 [0.0247]**
Sum first 3 default/not affected Paris C. C. p-value			-0.1133 [0.0151]**	0.0031 [0.9475]	-0.0962 [0.0417]**	0.0023 [0.9613]	-0.1037 [0.0288]**	-0.0016 [0.9719]
Sum first 3 default/non-creditor Count. p-value			-0.1795 [0.0000]***	-0.2158 [0.0000]***	-0.1836 [0.0000]***	-0.2185 [0.0000]***	-0.1886 [0.0000]***	-0.2244 [0.0000]***
Sum first 5 default/defaulted creditor p-value			0.0854 [0.1694]	0.2502 [0.0000]***	0.0663 [0.2934]	0.2287 [0.0000]***	0.0374 [0.5554]	0.2117 [0.0009]***
Sum first 5 default/not affected Paris C. C. p-value			-0.2314 [0.0000]***	-0.0336 [0.5298]	-0.1709 [0.026]**	-0.0225 [0.6914]	-0.1696 [0.0029]***	-0.0175 [0.7571]
Sum first 5 default/non-creditor Count. p-value			-0.2873 [0.0000]***	-0.3440 [0.0000]***	-0.2921 [0.0000]***	-0.3412 [0.0000]***	-0.2929 [0.0000]***	-0.3437 [0.0000]***
Sum first 10 default/defaulted creditor p-value					0.0119 [0.8913]	0.2890 [0.0000]***	0.0167 [0.8475]	0.2941 [0.0007]***
Sum first 10 default/not affected Paris C. C. p-value					-0.4675 [0.0000]***	-0.1858 [0.123]	-0.3981 [0.0000]***	-0.1537 [0.459]
Sum first 10 default/non-creditor Count. p-value					-0.2974 [0.0000]***	-0.3732 [0.0000]***	-0.3060 [0.0000]***	-0.3769 [0.0000]***
Observations	219,573	219,573	219,573	219,573	219,573	219,573	219,573	219,573
Number of Unique Country-Pair Identifier	11,178	11,178	11,178	11,178	11,178	11,178	11,178	11,178
R-squared	0.13		0.13		0.13		0.13	

* significant at 10%; ** significant at 5%; *** significant at 1%

Appendix 2

Defaults and Trade: General vs. Creditor Specific Effects (without Time Dummies)

Dependent Variable: Log Value of Bilateral Trade in Real '82-'84 \$. The table reports the results of several lag length estimations of the bilateral sanctions model. The coefficients of the standard gravity controls and the IMF dummy are not reported. Notes: Standard errors in parentheses.

	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.	Fixed Eff.	Random Eff.
Dummy for default/defaulted creditor	0.0544 [0.0357]	0.1218 [0.0360]***	0.0455 [0.0369]	0.0744 [0.0373]**	0.0367 [0.0371]	0.0632 [0.0374]*	0.0239 [0.0371]	0.0532 [0.0375]
Dummy for default/defaulted creditor (t-1)			0.0309 [0.0374]	0.0687 [0.0377]*	0.0248 [0.0375]	0.0568 [0.0378]	0.0145 [0.0376]	0.0484 [0.0379]
Dummy for default/defaulted creditor (t-2)			0.0118 [0.0380]	0.0521 [0.0383]	0.0062 [0.0381]	0.0375 [0.0384]	0.0058 [0.0381]	0.0367 [0.0385]
Dummy for default/defaulted creditor (t-3)			0.0201 [0.0385]	0.0603 [0.0388]	0.0216 [0.0386]	0.0484 [0.0390]	0.0133 [0.0387]	0.0411 [0.0391]
Dummy for default/defaulted creditor (t-4)			0.0526 [0.0386]	0.1003 [0.0390]**	0.0625 [0.0393]	0.0889 [0.0396]**	0.0519 [0.0395]	0.0782 [0.0398]**
Dummy for default/defaulted creditor (t-5)			-0.0193 [0.0387]	0.0296 [0.0390]	0.0056 [0.0397]	0.0327 [0.0401]	0.0042 [0.0399]	0.0272 [0.0403]
Dummy for default/defaulted creditor (t-6)					0.0201 [0.0408]	0.0504 [0.0411]	0.0191 [0.0410]	0.0431 [0.0414]
Dummy for default/defaulted creditor (t-7)					-0.051 [0.0420]	-0.0187 [0.0423]	-0.047 [0.0421]	-0.0221 [0.0425]
Dummy for default/defaulted creditor (t-8)					-0.0645 [0.0430]	-0.0378 [0.0434]	-0.0483 [0.0431]	-0.0279 [0.0435]
Dummy for default/defaulted creditor (t-9)					-0.0793 [0.0451]*	-0.0446 [0.0455]	-0.0372 [0.0459]	-0.0128 [0.0463]
Dummy for default/defaulted creditor (t-10)					-0.0816 [0.0460]*	-0.0421 [0.0464]	-0.0242 [0.0474]	0.0053 [0.0479]
Dummy for default/defaulted creditor (t-11)							-0.1666 [0.0503]***	-0.1392 [0.0507]***
Dummy for default/defaulted creditor (t-12)							-0.0911 [0.0549]*	-0.0664 [0.0554]
Dummy for default/defaulted creditor (t-13)							-0.0665 [0.0603]	-0.0397 [0.0608]
Dummy for default/defaulted creditor (t-14)							-0.1334 [0.0656]**	-0.1091 [0.0662]*
Dummy for default/defaulted creditor (t-15)							-0.1147 [0.0760]	-0.0806 [0.0767]
Dummy for default/general	-0.1524 [0.0117]***	-0.2545 [0.0116]***	-0.1198 [0.0119]***	-0.1784 [0.0119]***	-0.1182 [0.0119]***	-0.18 [0.0119]***	-0.1125 [0.0120]***	-0.1805 [0.0120]***
Dummy for default/general (t-1)			-0.1198 [0.0115]***	-0.1848 [0.0115]***	-0.1195 [0.0116]***	-0.1847 [0.0116]***	-0.1167 [0.0116]***	-0.188 [0.0117]***
Dummy for default/general (t-2)			-0.0843 [0.0119]***	-0.1505 [0.0119]***	-0.0856 [0.0120]***	-0.1453 [0.0120]***	-0.0873 [0.0121]***	-0.1489 [0.0121]***
Dummy for default/general (t-3)			-0.0862 [0.0122]***	-0.1515 [0.0122]***	-0.0888 [0.0123]***	-0.1406 [0.0123]***	-0.0868 [0.0124]***	-0.1426 [0.0124]***
Dummy for default/general (t-4)			-0.0837 [0.0123]***	-0.1541 [0.0124]***	-0.0863 [0.0127]***	-0.1306 [0.0127]***	-0.0817 [0.0128]***	-0.129 [0.0128]***
Dummy for default/general (t-5)			-0.0113 [0.0127]	-0.0825 [0.0127]***	-0.0182 [0.0130]	-0.0622 [0.0131]***	-0.0212 [0.0131]	-0.0618 [0.0132]***
Dummy for default/general (t-6)					0.002 [0.0136]	-0.0432 [0.0136]***	0.0007 [0.0137]	-0.0385 [0.0138]***
Dummy for default/general (t-7)					0.038 [0.0142]**	-0.0116 [0.0143]	0.0358 [0.0143]**	-0.0067 [0.0144]
Dummy for default/general (t-8)					0.0138 [0.0149]	-0.0377 [0.0150]**	0.0085 [0.0150]	-0.0345 [0.0151]**
Dummy for default/general (t-9)					0.0072 [0.0157]	-0.0463 [0.0158]***	-0.0036 [0.0160]	-0.0404 [0.0161]**
Dummy for default/general (t-10)					-0.0094 [0.0163]	-0.0733 [0.0163]***	-0.0241 [0.0167]	-0.0685 [0.0168]***
Dummy for default/general (t-11)							0.0619 [0.0177]***	0.015 [0.0178]
Dummy for default/general (t-12)							0.0375 [0.0190]**	-0.0085 [0.0191]
Dummy for default/general (t-13)							-0.0233 [0.0204]	-0.066 [0.0205]***
Dummy for default/general (t-14)							0.035 [0.0218]	-0.0179 [0.0219]
Dummy for default/general (t-15)							0.0164 [0.0242]	-0.0421 [0.0243]
Sum first 3 default/defaulted creditor p-value			0.0882 [0.1128]	0.1952 [0.0005]***	0.0677 [0.2268]	0.1575 [0.0053]***	0.0442 [0.4326]	0.1383 [0.0147]**
Sum first 3 default/general p-value			-0.3239 [0.0000]***	-0.5137 [0.0000]***	-0.3233 [0.0000]***	-0.5100 [0.0000]***	-0.3165 [0.0000]***	-0.5174 [0.0000]***
Sum first 5 default/defaulted creditor p-value			0.1609 [0.0124]**	0.3558 [0.0000]***	0.1518 [0.0202]**	0.2948 [0.0000]***	0.1094 [0.0968]*	0.2576 [0.0001]***
Sum first 5 default/general p-value			-0.4938 [0.0000]***	-0.8193 [0.0000]***	-0.4984 [0.0000]***	-0.7812 [0.0000]***	-0.4850 [0.0000]***	-0.7890 [0.0000]***
Sum first 10 default/defaulted creditor p-value					-0.0173 [0.8461]	0.2768 [0.0020]***	0.0002 [0.9990]	0.2651 [0.0032]***
Sum first 10 default/general p-value					-0.4556 [0.0000]***	-0.9822 [0.0000]***	-0.4648 [0.0000]***	-0.9709 [0.0000]***
Observations	219,573	219,573	219,573	219,573	219,573	219,573	219,573	219,573
Number of Unique Country-Pair Identifier	11,178	11,178	11,178	11,178	11,178	11,178	11,178	11,178
R-squared	0.12		0.12		0.12		0.12	

* significant at 10%; ** significant at 5%; *** significant at 1%