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Colonial legacy, services trade and LDCs

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Colonial legacy, services trade and LDCs

Anirudh Shingal*

December 2016

Abstract

Existing work examining the trade effect of colonial legacy does not consider services trade or the impact on LDCs. We bridge this gap by providing evidence from the Commonwealth and Francophonie countries assembling a larger, more recent panel (241 countries, over 1995-2010). Commonwealth membership is found to increase services exports by 56.2% in our baseline estimates while being a Francophonie country is associated with four times more trade; both effects are significantly larger than the corresponding goods trade effects. Descriptive statistics reveal the growing reliance of small, low-income former colonies on the respective “colonial groups”. Corroborating this, we find much larger (than average) services trade effects for ex-colonies characterized as LDCs, a significant finding given the links between market access and development. Our results are robust to accounting for China and to Brexit (for the Commonwealth).

JEL classification: F10, F14

Key words: Colonies, services trade, LDCs, Commonwealth, Francophonie

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1 Introduction

There is a widespread literature, reviewed in Nunn (2009), that studies the impact of colonial legacy on economic growth and development. For instance, Grier (1999) and Bertocchi and Canova (2002) find British colonies to perform better on average than French colonies in terms of economic growth. Acemoglu et al. (2001) and Price (2003) highlight the role of initial conditions in the colonies and subsequent colonisation strategy on the development of institutions and their effects on economic development.

Another branch of this literature suggests that colonial links between the colony and metropole or among colonial siblings strongly affect past colonial trade (Mitchener and Weidenmier, 2008) and current trade (Baldwin, 2005; Glick and Taylor, 2006; Rose, 2000, 2002), even if the impact erodes post-independence (Head et al., 2001). In other work, de Sousa and Lochard (2012) find no systematic difference between British and French colonial legacies on trade of African colonies, once they control for the endogenous selection of British colonies in Africa.

However, this literature has not looked at services trade or the effect of colonial legacy on LDCs, both of which are significant omissions.

This is because services trade forms an important part of total trade. According to data from the WTO, trade in commercial services (average of imports and exports) accounted for 20.8% of total international trade in 2014 on average but in more than half (96) of the 181 countries that reported data on both global merchandise and services trade in that year, this share was much higher. Moreover, the share of services trade in total trade goes up to nearly 50% once trade in value added is accounted for (for instance see Timmer et al. 2015), providing evidence on the “servicification” (National Board of Trade, 2013) of economies. This growing importance of services trade is also reflected in the increasing efforts made to institutionalize services trade via preferential trade agreements (PTAs) - nearly two-thirds of all PTAs in force since the year 2000 include provisions covering services trade, compared to less than 10% before that year (Sauvé and Shingal, 2016).

Moreover, if we consider the two “major” colonial powers of the 19th and 20th centuries - Great Britain and France - LDCs, as classified by the UN, account for a fourth of all former British colonies and nearly half of all former French colonies. The Commonwealth, which is the “network” of former British colonies, comprises 53 member states, including Great Britain, of which 13 are LDCs; these include Bangladesh, Kiribati, Lesotho, Malawi, Mozambique, Rwanda, Sierra Leone, Solomon Islands, Tanzania, Tuvalu, Uganda, Vanuatu

and Zambia¹. The Francophonie is a group of 34 countries, including France, of which 16 are LDCs: these include Benin, Burkina Faso, Cambodia, Central African Republic, Chad, Comoros, Djibouti, Guinea, Lao PDR, Madagascar, Mali, Mauritania, Niger, Senegal, Togo and Vanuatu².

We therefore focus on services trade and study the effect of colonial legacy on LDCs in particular using bilateral trade flow data on (goods and) services for 241 countries³ over 1995-2010⁴.

We find that the share of intra-group services trade has risen over time both relative to each group's services trade with the world and relative to global services trade, even as each group's total services trade and global services trade have more than doubled over 1995-2010. Intra-Commonwealth services trade as a share of total Commonwealth services trade went up from 4.1% in 1995 to 14.1% in 2010; the comparable shares for Francophonie countries were 1.6% and 7.1%, respectively. As a share of global services trade, intra-Commonwealth services trade increased from 0.7% in 1995 to 2.4% in 2010. Growth in the global share of Francophonie countries was more modest, rising from 0.1% in 1995 to 0.4% in 2010.

Small and low-income former colonies, especially island nations, of both colonial "empires" are increasingly more reliant for their services trade on the respective colonial groups, than on the rest of the world. On average, 51.1% of the services exports of the 16 Francophonie LDCs went to the rest of the Francophonie in 2009, up from 20.9% in 1995; the comparable figures for the 13 Commonwealth LDCs are 23.3% and 7.6%, respectively.

These stylized facts are supported by econometric analyses that are consistent with recent advancements in the estimation of structural gravity models (Head and Mayer, 2013). In particular, we account for zero trade flows, endogeneity, heteroskedasticity-related concerns

¹Amongst the remaining forty members of the Commonwealth, four belong to the OECD group (Australia, Canada, New Zealand and United Kingdom), and the remaining 36 Commonwealth countries include Brunei, Cyprus, India, Malaysia, Malta, Nigeria, Singapore and South Africa on the one hand, and Botswana, Maldives, Mauritius, Mozambique, Namibia, Swaziland and Caribbean island nations on the other. The full list of Commonwealth members can be found in Table 2.

²The remaining 17 Francophonie members are all non-OECD countries; the complete list can be found in Table 3.

³The countries are listed in Annex Table 1.

⁴Our choice of the time period and country sample is both constrained and determined by the availability of the largest possible and meaningful coverage of bilateral services trade data (Francois & Pindyuck, 2013) for empirical analyses. The Francois & Pindyuck (2013) "Trade in Services Database" (TSD) compiles data on cross-border services flows between 251 reporting and 251 partner countries over 1981-2010 using different sources such as the IMF, OECD, Eurostat and UN Services Database. However, the TSD is riddled with zeroes over 1980-1994 and also includes small island states in the country sample where the coverage of both goods and services trade data is virtually non-existent. We thus reduced the TSD to 241 countries, trading with each other over 1995-2010. The bilateral goods trade data are then assembled from UN Comtrade for the same time period and country sample.

and multilateral resistance in estimation.

In our baseline results, Commonwealth membership is found to increase services exports by 56.2%, *ceteris paribus* and on average, while being a Francophonie country is associated with four times more services trade. Both effects are significantly larger than the corresponding effects for goods trade. Disaggregated analyses reveal that the positive effects of colonial legacy on services trade are especially important for the LDC members of the Francophonie: access to the rest of the Francophonie increases their services exports nearly six times.

Decomposition of our results suggests that the positive trade effects of colonial membership are primarily observed at the extensive margin. However, the positive services trade effects of colonial legacy are also found to dissipate over time, which is consistent with findings for goods trade in this literature (e.g. Head et al., 2010). Our results are also robust to the rise of China on the global stage, to the possibility of Brexit (in the context of the Commonwealth) and to accounting for non-reciprocal tariff preferences in our analyses.

These findings are significant by illustrating that market access goes beyond standard trade barriers: colonial linkages are informal networks (as opposed to institutionalized trade agreements or investment treaties) that continue to generate positive effects on trade more than half a century since independence. The magnitudes of the estimated trade effects are larger than comparable estimates of the trade effects of PTAs in existing literature and the estimated trade effects are particularly large for LDC members of both colonial groups, suggesting that these types of relationships are more important for countries with weak institutional capacity.

The rest of the paper is structured as follows. In the next section, we review related literature. Section 3 discusses the empirical strategy while Section 4 looks at the data. Section 5 discusses the results and Section 6 concludes.

2 Related literature

The first notable attempt to analyse the significance of a ‘Commonwealth effect’ on trade and investment was made in the late 1990s by Lundan and Jones (2001) using data on 53 Commonwealth and 18 non-Commonwealth countries in a gravity model. Their findings suggested an overall tendency for high levels of intra-Commonwealth trade and investment, controlling for geography and policy factors such as common PTAs. The authors also noted that simple linear predictions of future trade shares suggested a gradual decline in intra-Commonwealth trade in the decade ahead. As we shall show below, this prediction has not been supported by stylized facts over the last two decades.

A report by Chris Milner for the Commonwealth Secretariat (2008) explored the determinants of intra-Commonwealth trade in merchandise goods for the year 2003. Apart from the dummy variable for being landlocked, all other standard gravity variables were found to be statistically significant in this study and the effect of geography, infrastructure and economic size in particular on intra-Commonwealth trade was found to be large.

Bennett et al. (2010) estimated the effect of Commonwealth membership on exports and imports separately using a larger sample of countries and years (1990-2008). They found a ‘Commonwealth effect’ of around 50 per cent for imports and around 38 per cent for exports in their fully-specified gravity estimation. The authors also found that the proportion of Commonwealth trade tends to be higher in countries where the overall volume of trade is lower, a finding which is consistent with Lundan and Jones (2001) and the present study.

ITC (2013) explored recent trends in intra-Commonwealth trade using descriptive statistics. The ITC (2013) study finds that “commonwealth countries have experienced different performances in terms of exports over the last years. While least developed countries (LDCs) were least affected by the 2008/2009 economic crisis, they have also benefited from the strongest recovery.”

None of these econometric studies on the Commonwealth account for the presence of zero trade flows between bilateral trading partners, heteroskedasticity-related concerns and multilateral resistance terms (MRT) thus leading to biased estimates. Moreover, they focus only on trade in merchandise goods. Our analyses are an improvement on all these fronts, in addition to focussing on the trade effects for LDCs.

Compared to the existing literature on this subject for the Commonwealth, we found only one paper that studies the trade effect of French as a common language - Carrère and Masood (2015). The authors find membership of the Francophonie to be associated with 22% more trade in their gravity estimates over 1995-2006 that also control for multilateral resistance *a la* Baier and Bergstarnd (2009). However, the paper does not consider services trade or the effects for LDCs. Moreover, we assemble a much larger and recent sample (241 countries, 1995-2010) compared to studies on the Commonwealth and Francophonie in the existing literature.

3 Empirical strategy

Our empirical analysis is conducted in the framework of the gravity model. Following Anderson (2004), the value of exports from country i to country j can be written as follows:

$$X_{ijt} = \frac{E_{jt}Y_{it}}{Y_t} \left(\frac{\tau_{ijt}}{P_{jt}\Pi_{it}} \right)^{1-\sigma} \quad (1)$$

where X_{ijt} is the value of nominal bilateral exports between origin i and destination j at time t , E_j is the expenditure in the destination market from all origins, Y_i is the total sale at destination prices from i to all destinations, Y is total world output at delivered prices, τ_{ij} are the bilateral trade costs, σ is the elasticity of substitution across goods and services and P_j , Π_i are the (inward and outward, respectively) multilateral resistance (MR) terms as defined in this literature.

Outward multilateral resistance captures the fact that trade flows between i and j depend on trade costs across all potential markets for i 's exports; inward multilateral resistance captures the fact that bilateral trade depends on trade costs across all potential import markets too. The two indices thus summarize average trade resistance between a country and its trading partners. Because the MRT are difficult to construct directly as national price indices are not available for all countries, applications of the gravity model have resorted to using dummy variables to control for them instead. Following Baier and Bergstrand (2007), we use importer-time and exporter-time fixed effects to account for the MRTs.

The bilateral trade costs in τ_{ijt} are typically proxied by bilateral distance between capitals of the two countries ($Dist_{ij}$), and indicators for common international borders ($Contig_{ij}$), common language ($Lang_{ij}$), colonial relationship ($Colony_{ij}$), common legal systems (Leg_{ij}) and membership of trade agreements (PTA_{ijt}).

Introducing a dummy variable for any dyad in our sample being a member of the Commonwealth or Francophonie colonial group ($Group_{CW/FP}$), which is our variable of interest, substituting the MRTs with the appropriate fixed effects, adding the proxies for trade costs and taking the logarithm of this transformed version of equation (1) yields the following:

$$\ln X_{ijt} = \beta_1 \ln(Dist_{ij}) + \beta_2 Contig_{ij} + \beta_3 Lang_{ij} + \beta_4 Colony_{ij} + \beta_5 Leg_{ij} + \delta Group_{CW/FP} + \alpha_{it} + \gamma_{jt} + \varepsilon_{ijt} \quad (2)$$

where α_{it} and γ_{jt} are the exporter-time and importer-time fixed effects that account for time-varying MRTs in a panel setting and ε_{ijt} is the error term.

3.1 Estimation issues

We estimate equation (2) separately for services as well as for goods trade to allow for comparison. The equation cannot be estimated log-linearly using ordinary least squares (OLS) because this would exclude the treatment of export zeroes (as the log of zero is not defined) and the incidence of export zeroes is fairly high in our data, especially for services trade (see next section for details). Selection of the appropriate estimator in the presence of zeroes is contingent on the process generating the error term. Following Head and Mayer (2013), we found our trade data to be characterized by a constant variance to mean ratio which suggests the use of the Poisson pseudo-maximum likelihood (PPML) for inference. The use of the PPML also addresses problems associated with heteroskedastic errors by characterizing trade multiplicatively in levels as opposed to log-linearly.

4 Data

The analyses are based on a database of bilateral trade in services (and goods) between 241 countries over 1995-2010, including the 53 member countries of the Commonwealth and the 34 Francophonie countries. Data on bilateral services trade are taken from Francois and Pindyuk (2013), that on bilateral goods trade are from UN Comtrade and data on standard gravity controls are taken from CEPII (Head et al. 2010). The dummy variable on PTA membership is constructed using information from the WTO's RTA-IS database.

Summary statistics are provided in Annex Table 2. The full sample has more than 100,000 observations but export value is positive for only 77.5% of these for goods trade and 57.1% for services trade. Of the full sample, 32430 observations (30.8%) include at least one country from the Commonwealth and 13528 observations (12.8%) include at least one Francophonie country. Just 2626 observations (2.5%) involve intra-Commonwealth trade as compared to 515 observations (0.5%) on intra-Francophonie trade. Of the 2626 observations on intra-Commonwealth trade, 69.7% report positive services trade; the comparable share for Francophonie countries is higher at 83.9%.

4.1 Descriptive statistics

Figure 1 compares different metrics of Commonwealth and Francophonie services trade patterns over 1995-2010. As a share of global services trade (average of imports and exports),

Commonwealth services trade increased from 16.4% in 1995 to 17% in 2010⁵ while Francophonie services trade declined from 7.1% to 6.1%. Over the same time period, world services trade more than doubled from \$1.25 tr in 1995 to \$3.0 tr in 2010.

The within-group services trade for each colonial group rose sharply over this time period. Intra-commonwealth services trade as a share of the Commonwealth's total services trade increased from 4.1% in 1995 to 14.1% in 2010, suggesting that trade in services amongst Commonwealth countries was becoming an important part of the Commonwealth's total services trade. A similar trend was observed with respect to the Francophonie countries, with the comparable shares being 1.6% in 1995 and 7.1% in 2010.

Tables 1 and 2 report, for the Commonwealth and the Francophonie respectively, disaggregated analyses of intra- and total colonial group services exports for each member state of the two groups in 2005 and 2009. Table 1 suggests that 9 of the 53 Commonwealth members were reliant on the rest of the Commonwealth for more than 50% of their services exports in 2009, up from just 3 members in 2005. Countries like Barbados, Kiribati and Tonga had more than 80% of their services exports destined to the Commonwealth in 2009.

In comparison, 17 of the 34 Francophonie countries had more than 50% of their services exports destined to the rest of the Francophonie in 2009, up from just 7 members in 2005 (see Table 2). In 2009, countries like Bukina Faso, Central African Republic, Djibouti, Mali, New Caldonia and Niger were reliant on the Francophonie for more than 80% of their services exports. Barring New Caldonia, all the other countries are LDCs.

While Cote d'Ivoire, Lebanon and Madagascar witnessed large increases in their services exports to the Francophonie over 2005-2009, their services exports to the world actually fell over this period. The same was true of the Bahamas, Ghana, Lesotho, Mozambique, Seychelles and Zambia in the context of the Commonwealth; three of these six countries are LDCs.

⁵While more recent services trade data until 2014 are available in the UN Services Database (UNSD), the coverage of the former colonies' services trade in UNSD is much inferior to that in TSD. We therefore use the TSD for both descriptive statistics and the econometric analyses in this paper. This has implications for our time coverage - 1995-2010 in TSD versus 2000-2014 in UNSD. However, the overall trends observed using TSD are also evident using UNSD. For instance, the share of Commonwealth services trade in world services trade increased from 14.7% to 18.9% over 2000-2014 using UNSD and the share of intra-Commonwealth services trade in Commonwealth services trade increased from 8.5% to 10.1% over the same time period.

5 Results

Table 3 reports the results from the PPML estimation of our baseline specification for bilateral goods and services trade for the Commonwealth and Francophonie in columns (1)-(2) and (3)-(4), respectively. All estimations include time-varying importer and exporter fixed effects to control for multilateral resistance. Standard errors are clustered by trading partner pair and year.

These baseline estimates suggest that, everything else constant, Commonwealth membership is associated with 56.2% more services trade on average while being a Francophonie country quadruples services exports. The corresponding goods trade effects, though economically and statistically significant, are comparatively smaller at 13.5% for the Commonwealth and 186.9% for the Francophonie countries.

The impact of all other gravity controls is as expected and consistent with existing literature. Countries with a common language/legal system/colonial relationships or which are adjacent to each other also export larger values of goods and services to each other, though the effect of common language lacks statistical significance for goods trade. Distance is found to reduce the value of trade between partners for both goods and services, albeit with lower elasticities for services exports, which is consistent with services transacted cross-border or via Mode 1 in GATS parlance. PTA membership only has a positive impact on goods exports but not on services exports; the latter is consistent with some findings in this literature (Grünfeld and Moxnes, 2003; Walsh, 2006).

5.1 Results by level of development

Table 4 reports estimates of market access that exposure to the rest of the “colonial” group (in each case) provides the LDC and non-LDC Commonwealth and Francophonie countries. Econometrically, this is computed using the coefficient of the variable denoting either reporter or partner LDC (or non-LDC as the case may be) member of the Commonwealth or the Francophonie trading with the rest of the respective colonial group.

These results suggest that the positive effects of colonial legacy on services trade are not restricted to its OECD or developing (i.e. non-OECD and non-LDC) members but are equally important for its LDC members. This is especially true for the Francophonie countries where the services trade effect for LDC members (564.6%) is greater than that for non-LDC members (363.7%) and larger also compared to the baseline results reported in Table 3. In the case of the Commonwealth, while the effects are much larger for the OECD members

(71.9% greater services trade), they are by no means insignificant for the LDC members at 40.4% more services exports. The large magnitudes of these effects for the LDC members of both former colonial groups are consistent with the descriptive statistics reported in Tables 2 and 3 that suggest a growing reliance by these countries on the respective groups for their services trade.

5.2 Results over time

We also estimate the goods and services trade effects of colonial legacy for each group using the PPML for each year over 1995-2010 separately. These estimations include importer and exporter fixed effects to control for multilateral resistance; standard errors are clustered by trading partner pair.

Figure 2 plots these PPML estimates for goods and services trade over time for both the Commonwealth and the Francophonie and suggests that these effects dissipate over time, especially over 1999-2010, a period during which the coverage of bilateral services trade in the data amongst our sample countries was better.

This decline in the “colonial” coefficients over time for both goods and services trade is consistent with the findings in this literature (for instance Head et al. 2010). Moreover, as Figure 2 shows, the decline may have been the most pronounced in the case of services trade for the Commonwealth countries.

5.3 Decomposing results by margin of trade

Services trade effects of colonial legacy for both groups and their LDC members are decomposed at the extensive (probability of exporting) and intensive (value of exports) margins of trade by using the Heckman (1979) two-step estimator. Recognizing the exclusion restriction issue in Heckman-type estimations emphasized in the heterogeneous firm trade literature (for instance see Head and Mayer, 2013), we follow Helpman et al. (2008) in our estimation strategy and control both for sample selection and firm heterogeneity biases.

Stage one of the Heckman (the selection equation) involves estimating equation (2) with a different dependent variable - a binary dummy variable that denotes the probability of exporting - and an additional exclusion variable that affects trade only at the extensive margin. We use the log average dollar cost of exporting and importing a container within a dyad, from the World Bank’s Doing Business Indicators, as an exclusion variable. From

a theoretical viewpoint, the cost of trading should mainly affect the fixed cost of exporting and thus mainly the extensive margin.

Stage two of the Heckman or the outcome equation comprises an OLS estimation of the natural logarithm of positive exports as the dependent variable on the same set of control variables as in equation (2). The outcome equation additionally corrects for sample selection by including the inverse mills ratio (η_{ijt}) constructed using predicted probabilities ($\hat{\rho}_{ijt}$) from the selection equation and also controls for biases emanating from firm heterogeneity by including a cube polynomial of z_{jpt} where $z_{jpt} = \eta_{jpt} + \hat{\rho}_{jpt}$ ⁶.

Given the incidental parameter problem (Lancaster, 2000) in non-linear estimates with fixed effects, we estimate the Heckman using the linear probability model (LPM) in stage one; the estimates from LPM constitute reasonable approximations of average partial effects (Wooldridge, 2010).

The results from the Heckman estimation are reported in Table 5 and suggest that the positive effects of colonial legacy on services trade for each group and its LDC members are primarily observed at the extensive margin (see columns 1, 3, 5 and 7). In fact, these results suggest that being a member of the Commonwealth may have a negative effect on the value of services exports, both for the entire group and its LDC members.

However, the coefficients of the sample selection term - the inverse mills ratio (η_{ijt}) - reported in Table 5 lack statistical significance in columns 2, 4, 6 and 8 for both the Commonwealth and the Francophonie, pointing to the PPML as the preferred estimation strategy for our research (for instance see Xiong and Chen, 2014).

5.4 The effect of China and Brexit

The time period of our analysis coincides with the rise of China on the global trade scene. The rise of China both as a source of export competition and as a rapidly growing market may influence our estimates. In addition, it is of interest to assess the role the UK serves as a strategic destination for Commonwealth exports to (the rest of) the EU. This is salient in light of Brexit. We therefore examine the robustness of our baseline results to the exclusion of China and that of UK-EU trading partners from our full sample in distinct regressions for the Commonwealth and its LDC members.

Table 6 reports the PPML estimates of our baseline specification on the full sample of trading partners that is adjusted to exclude all observations where (i) China is either an importer

⁶Following Helpman et al. (2008), we do not use the normality assumption to recover η_{jpt} and z_{jpt} from the selection equation and instead work directly with the predicted probabilities, $\hat{\rho}_{jpt}$.

or an exporter (results reported in columns (1) and (2)); and (ii) the UK is the exporting country and anyone of the remaining EU26⁷ is the importing country (results reported in columns (3) and (4)). The overall results are robust to the sample adjustment in each case for both the Commonwealth and its LDC members.

In fact, compared to the results reported in Table 3, the exclusion of the UK-EU trading partners seems to dampen the services trade effect of Commonwealth membership more than the absence of China, though the latter seems to matter much more to the Commonwealth's LDC members. This is consistent with the UK serving as a strategic location for exporting services (especially financial services) to the rest of the EU and with the increasing role played by China in the economic activities of (African) LDCs.

Replicating the no-China analyses for the Francophonie and its LDC members (results reported in columns (5) and (6)) enhances the services trade effects compared to the results reported in Tables 3 and 4. This suggests that Chinese and intra-Francophonie services trade may be more in competition than being complementary as was the case with intra-Commonwealth services trade.

5.5 Endogeneity

De Sousa and Lochard (2012) review historical evidence that suggests that Britain's pre-colonial trade patterns determined its choice of colonies. This renders the colonial legacy-trade relationship, especially of the Commonwealth, endogenous, which is likely to yield biased estimates.

Head et al. (2010) suggest that the political and economic attributes of the metropole and potential colonies, as well as the strength of their bilateral association, may affect the likelihood of colonization. All these factors are also likely determinants of bilateral trade, again rendering the colonial legacy-trade relationship endogenous.

Baier and Bergstrand (2007) advocate the use of three-way fixed effects in a panel setting to account for such endogeneity. Since the colonial group membership variable is time-invariant over our sample period, it would be collinear with the dyadic fixed effects and hence omitted from the estimation output. Moreover, estimation of the PPML with three-way high-dimensional fixed effects, as in our case, is a computational challenge.

We address this issue in two different ways. First, following Carrère and Masood (2015), we estimate the baseline equation using PPML and "bonus-vetus" MR terms following the

⁷Croatia was not a member of the EU during the period of our analyses.

Baier and Bergstrand (2009) methodology. Second, we estimate the baseline equation using PPML and the Mundlak (1978) correction i.e. by adding the sample means of the time varying variables to the baseline equation. In addition to using importer, exporter and year fixed effects, both these empirical specifications also control for the nominal GDPs of the importing and exporting countries.

The results from these estimations, for both the Commonwealth and the Francophonie, are reported in Table 7. They suggest that our baseline estimates are robust to accounting for endogeneity via both the approaches.

5.6 Non-reciprocal tariff preferences

Many of our sample countries, especially LDCs, are targetted beneficiaries of non-reciprocal tariff preference schemes such as the Generalized System of Preferences (GSP and GSP+), Everything But Arms (EBA) and African Growth and Opportunity Act (AGOA)⁸.

Since nearly a fourth of the Commonwealth membership and almost half of the Francophonie countries comprise LDCs, it becomes useful to examine if the trade effects of colonial legacy, especially the goods estimates reported in Figure 2 and Tables 2 and 3, are robust to accounting for these non-reciprocal tariff preference schemes. Note that the services trade effects of colonial legacy would not be directly affected by these schemes as they only apply to the goods exports of the beneficiary countries. Moreover, the LDC Services Waiver was only adopted in December 2011 (i.e. after the time period of our panel dataset) while the decision to operationalize the Waiver was only taken in December 2013. This said, given complementarities between goods and services trade, the non-reciprocal tariff preferences may also affect the services trade effects in our results to the extent that they impact on the goods trade effects.

However, the coefficient of the variable representing the various non-reciprocal tariff preferences was found to be statistically indifferent from zero in all regressions and all the estimates reported in our analyses so far were almost identical⁹. Thus, the trade effects of colonial legacy are also found to be robust to accounting for non-reciprocal tariff preferences.

⁸The complete list of preference-granting countries and recipients under these schemes can be found in UNCTAD (2015).

⁹The results from these analyses are available upon request.

6 Conclusion

Controlling for all other factors, former colonies trade more within the colonial group than without and this empirical pattern is attributable to the existence of informal institutions, social networks, distribution and marketing channels that lower transaction costs and facilitate business. However, existing work examining the trade effect of colonial legacy does not consider services trade or the impact on LDCs. We bridge this gap by providing evidence from the Commonwealth and Francophonie countries using a large panel dataset for the period 1995-2010.

Commonwealth membership is found to increase services exports by 56.2% in our baseline estimates while being a Francophonie country is associated with four times more trade. Both effects are significantly larger than the corresponding effects for goods trade and are robust to accounting for endogeneity. However, the estimated trade effects are found to dissipate over time, which is consistent with the findings for goods trade in Head et al. (2010) and points to “the depreciation of trade-promoting capital embodied in institutions and networks of individuals with knowledge of trading opportunities”.

The data reveal the growing reliance of small, low-income former colonies on the respective “colonial groups” for their services trade. Services trade effects are much larger than average for ex-colonies that are LDCs. This is a significant finding, suggesting that colonial relationships may be more important for countries with weak institutional capacity. Neither the Commonwealth nor the Francophonie are institutionalized PTAs suggesting ample scope for building on these non-formal set-ups to enhance opportunities for both trade and development.

Our results are also robust to accounting for China and to Brexit (for the Commonwealth) but suggest that Commonwealth members may be exporting to the UK to get access to the rest of the EU, which has implications for the UK in a post-Brexit world. Chinese services trade is found to be complementary to intra-Commonwealth services trade in our results but a substitute for intra-Francophonie trade.

A recurring finding from our empirical analyses is the statistical insignificance of PTA membership for services trade across specifications. This suggests the scope for negotiating effective and deep services agreements within contiguous regions of each colonial group in a neighbourhood approach which may be more suitable for regulatory harmonization. This is likely to further enhance the magnitudes of services trade effects of colonial legacy that we see in our results irrespective of levels of development.

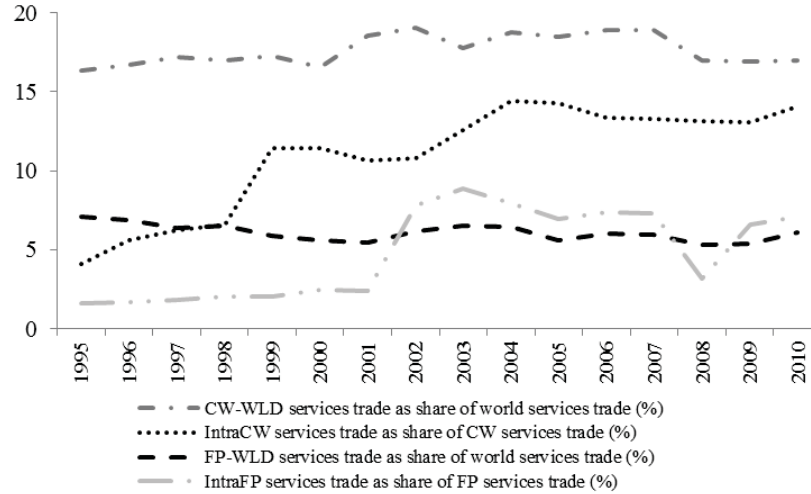
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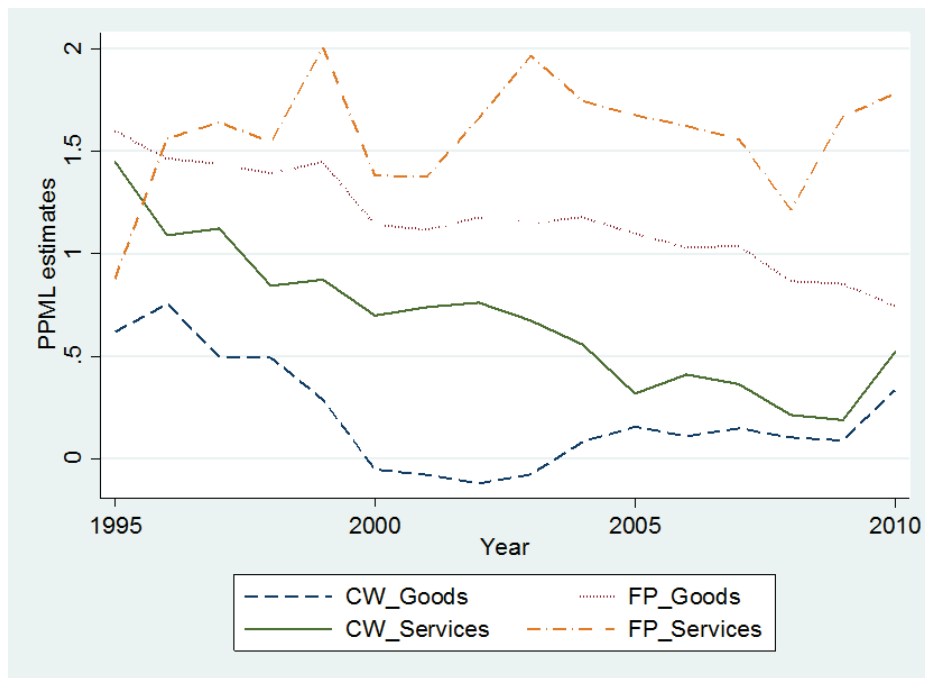
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Figure 1: Commonwealth and Francophonie services trade patterns (average of imports & exports, 1995-2010)



Source: Francois & Pindyuck (2013); own calculations

Figure 2: Trade effects of colonial legacy dissipate over time: PPML estimates



Note: Figure plots the PPML estimates of $Group_{CW/FP}$ for the Commonwealth and Francophonie goods and services for every year between 1995 and 2010 based on equation (2). Estimations include importer and exporter fixed effects. Standard errors are clustered by trading dyad.

Table 1: Breakdown of intra- and total Commonwealth services exports by member (2005 v 2009)

Commonwealth trade (\$ mn)	Exports to WLD		Exports to CW		% exports to CW		Export growth (% , 2005-09)	
	2005	2009	2005	2009	2005	2009	to WLD	to CW
Antigua & Barbuda	233.6	98.9	24.9	6.3	10.6	6.3	-57.7	-74.8
Australia	40698.9	47152.4	12782.6	13615.5	31.4	28.9	15.9	6.5
Bahamas	1375.4	925.0	142.8	336.8	10.4	36.4	-32.7	135.9
Bangladesh*	2207.6	582.4	166.9	264.8	7.6	45.5	-73.6	58.6
Barbados	1190.6	1202.1	999.0	973.9	83.9	81.0	1.0	-2.5
Belize	164.2	184.0	17.4	23.4	10.6	12.7	12.0	34.6
Botswana	857.7	3.2	58.5	1.1	6.8	34.2	-99.6	-98.1
Brunei	1391.6	1420.6	227.8	399.7	16.4	28.1	2.1	75.5
Cameroon	1455.4	534.7	93.3	164.5	6.4	30.8	-63.3	76.3
Canada	119186.0	87896.9	9685.5	7208.7	8.1	8.2	-26.3	-25.6
Cyprus	5763.9	8703.7	635.9	1059.4	11.0	12.2	51.0	66.6
Dominica	55.3	38.2	7.5	1.5	13.5	4.0	-31.0	-79.4
Fiji	525.1	25.3	196.1	14.1	37.3	55.8	-95.2	-92.8
Ghana	1273.5	976.1	169.2	504.2	13.3	51.7	-23.4	198.0
Great Britain	255856.0	278563.0	24337.8	22643.8	9.5	8.1	8.9	-7.0
Grenada	113.5	39.9	8.7	4.7	7.7	11.9	-64.8	-45.5
Guyana	207.2	124.3	87.1	56.4	42.0	45.3	-40.0	-35.3
India	75348.7	92670.0	13874.8	14392.6	18.4	15.5	23.0	3.7
Jamaica	1730.4	377.3	113.3	148.1	6.5	39.3	-78.2	30.7
Kenya	1210.2	890.9	170.4	273.2	14.1	30.7	-26.4	60.3
Kiribati*	1.2	4.7	1.2	4.7	100.0	100.0	281.3	281.3
Lesotho*	103.3	26.3	5.0	12.6	4.8	47.8	-74.6	152.4
Malawi*	57.2	97.2	27.4	45.7	47.8	47.0	69.9	66.9
Malaysia	25016.7	21604.1	5282.9	6737.9	21.1	31.2	-13.6	27.5
Maldives	213.6	38.9	22.4	17.2	10.5	44.2	-81.8	-23.4
Malta	7142.7	4450.1	1230.1	914.6	17.2	20.6	-37.7	-25.6
Mauritius	1227.7	646.1	138.4	248.2	11.3	38.4	-47.4	79.4
Mozambique*	650.0	424.6	52.2	131.6	8.0	31.0	-34.7	151.8
Nairu	2.2	0.1	0.0	0.0	0.0	0.0	-93.8	
Namibia	368.8	130.9	24.9	40.7	6.7	31.1	-64.5	63.8
New Zealand	14084.6	7337.0	3930.4	2053.3	27.9	28.0	-47.9	-47.8
Nigeria	7321.2	5810.9	1224.5	2101.2	16.7	36.2	-20.6	71.6
Pakistan	7510.0	1467.6	867.8	656.0	11.6	44.7	-80.5	-24.4
Papua New Guinea	1240.6	216.0	348.2	130.0	28.1	60.2	-82.6	-62.7
Rwanda*	304.6	70.6	14.9	11.0	4.9	15.6	-76.8	-26.2
Samoa	56.9	9.2	6.0	0.0	10.5	0.0	-83.8	-100.0
Seychelles	286.7	181.8	24.9	50.4	8.7	27.7	-36.6	102.4
Sierra Leone*	92.7	1416.7	24.9	73.7	26.8	5.2	1428.4	196.1
Singapore	58115.3	51705.6	8995.7	9862.6	15.5	19.1	-11.0	9.6
Solomon Islands*	58.0	10.9	7.5	9.5	12.9	87.2	-81.2	27.5
South Africa	16592.2	13944.3	3293.5	3753.6	19.8	26.9	-16.0	14.0
Sri Lanka	2089.9	366.5	130.6	131.0	6.2	35.7	-82.5	0.3
St. Kitts & Nevis	98.6	104.9	10.0	4.7	10.1	4.5	6.3	-52.3
St. Lucia	178.4	28.3	3.7	4.7	2.1	16.7	-84.1	27.1
St. Vincent & Grenadines	85.5	56.2	3.7	4.7	4.4	8.4	-34.3	27.1
Swaziland	514.6	76.6	38.6	45.8	7.5	59.7	-85.1	18.7
Tanzania*	1209.0	388.0	51.0	83.2	4.2	21.4	-67.9	63.1
Tonga	50.2	8.0	4.1	7.8	8.1	98.2	-84.1	92.4
Trinidad & Tobago	540.9	643.1	167.4	337.4	31.0	52.5	18.9	101.5
Tuvalu*	5.0	2.1	3.7	0.2	75.0	9.2	-58.4	-94.9
Uganda*	853.8	344.9	74.6	112.7	8.7	32.7	-59.6	51.0
Vanuatu*	73.8	9.9	1.2	1.5	1.7	15.5	-86.5	23.4
Zambia*	470.8	149.7	31.1	72.4	6.6	48.3	-68.2	132.7
Average	12404.9	11965.7	1695.1	1726.0	13.7	14.4	-3.5	1.8

Source: Francois & Pindyuck (2013); own calculations.

Note: * denotes LDC member.

Table 2: Breakdown of intra- and total Francophonie services exports by member (2005 v 2009)

Francophonie trade (\$ mn) Member	Exports to WLD		Exports to FP		% exports to FP		Export growth (% , 2005-09)	
	2005	2009	2005	2009	2005	2009	to WLD	to FP
Benin*	279.1	210.8	0.0	140.9	0.0	66.8	-24.5	
Burkina Faso*	125.4	257.3	90.8	217.6	72.4	84.6	105.2	139.7
Central African Republic*	78.6	56.1	0.0	47.4	0.0	84.6	-28.7	
Cote d'Ivoire	2447.3	768.4	230.1	525.9	9.4	68.4	-68.6	128.6
Cameroon	1455.4	534.7	144.3	277.6	9.9	51.9	-63.3	92.4
Congo	1690.2		154.2		9.1			
Comoros*	8.7	20.7	7.5	9.8	85.7	47.1	138.3	30.8
Djibouti*	83.8	136.7	0.0	128.3	0.0	93.9	63.2	
Algeria	2693.4	4456.9	1505.8	2064.2	55.9	46.3	65.5	37.1
France	144470.0	157594.0	7221.8	4055.9	5.0	2.6	9.1	-43.8
Gabon	1041.7	789.4	324.6	583.1	31.2	73.9	-24.2	79.6
Guinea*	199.1	193.4	114.9	124.2	57.7	64.2	-2.9	8.0
French Guiana		0.0						
Cambodia*	2286.3	1828.4	213.5	243.3	9.3	13.3	-20.0	14.0
Lao PDR*	58.2	59.7	6.2	18.1	10.7	30.4	2.7	191.6
Lebanon	7900.9	1200.3	70.9	739.4	0.9	61.6	-84.8	942.9
Morocco	4207.8	3683.6	992.1	1821.9	23.6	49.5	-12.5	83.6
Madagascar*	616.7	356.2	57.2	281.8	9.3	79.1	-42.3	392.6
Mali*	589.3	310.7	145.5	270.6	24.7	87.1	-47.3	86.0
Mauritania*	144.8	142.9	84.5	104.6	58.4	73.2	-1.3	23.8
New Caledonia	890.8	300.5	0.0	269.2	0.0	89.6	-66.3	
Niger*	279.3	215.8	185.3	175.8	66.3	81.5	-22.8	-5.2
French Polynesia	743.5	54.8	0.0	39.1	0.0	71.2	-92.6	
Senegal*	806.4	753.0	269.4	525.9	33.4	69.8	-6.6	95.2
Syria	2379.3	591.7	121.9	146.5	5.1	24.8	-75.1	20.2
Chad*	97.0	283.2	68.4	135.3	70.5	47.8	192.0	97.8
Togo*	250.7	149.9	0.0	118.6	0.0	79.1	-40.2	
Tunisia	2192.3	1655.8	698.3	747.8	31.9	45.2	-24.5	7.1
Vietnam	9357.5	10723.8	531.6	606.7	5.7	5.7	14.6	14.1
Vanuatu*	73.8	9.9	6.2	2.8	8.4	28.1	-86.5	-55.1
Average	6463.7	6460.0	456.7	515.1	7.1	8.0	-0.1	12.8

Source: Francois & Pindyuk (2013); own calculations.

Note: * denotes LDC member. There were no data on services trade for four of the 34 Francophonie countries (Guadeloupe, Martinique, Reunion and St. Pierre) for either of these years.

Table 3: Colonial legacy matters for services trade: PPML estimates

	Commonwealth		Francophonie	
	Goods (1) X_{ijt}	Services (2) X_{ijt}	Goods (3) X_{ijt}	Services (4) X_{ijt}
Group _{CW/FP}	0.127** (0.040)	0.446*** (0.040)	1.054*** (0.054)	1.613*** (0.053)
ln(Dist _{ij})	-0.800*** (0.013)	-0.650*** (0.012)	-0.802*** (0.013)	-0.648*** (0.012)
Contig _{ij}	0.426*** (0.021)	0.232*** (0.026)	0.439*** (0.021)	0.250*** (0.027)
Lang _{ij}	0.006 (0.023)	0.167*** (0.027)	-0.012 (0.023)	0.146*** (0.027)
Colony _{ij}	0.048# (0.026)	0.157*** (0.033)	0.025 (0.026)	0.163*** (0.033)
Leg _{ij}	0.237*** (0.014)	0.157*** (0.018)	0.245*** (0.014)	0.173*** (0.018)
PTA _{ijt}	0.427*** (0.026)	0.027 (0.028)	0.415*** (0.026)	-0.004 (0.029)
Constant	-3.026*** (0.225)	-0.112 (0.371)	-2.941*** (0.228)	0.248 (0.400)
N	84281	91927	84314	91924
r2	0.9286	0.8773	0.9287	0.8744
Fixed effects	it, jt	it, jt	it, jt	it, jt

Note: Significance levels - ***(0.1%), **(1%), *(5%), #(10%). Estimations include time-varying importer and exporter fixed effects. Standard errors are clustered by trading dyad and year.

Table 4: Services trade effects of colonial legacy by level of development: PPML estimates

	Commonwealth						Francophonie					
	OECD		LDC		Non-LDC		LDC		Non-LDC			
	Goods (1)	Services (2)	Goods (3)	Services (4)	Goods (5)	Services (6)	Goods (7)	Services (8)	Goods (9)	Services (10)	Goods	Services
X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}
Group _{CW/FP}	0.335*** (0.037)	0.542*** (0.041)	0.420*** (0.120)	0.339* (0.150)	-0.010 (0.043)	0.292*** (0.044)	1.294*** (0.082)	1.894*** (0.070)	1.016*** (0.056)	1.534*** (0.056)		
ln(Dist _{ij})	-0.805*** (0.013)	-0.659*** (0.012)	-0.801*** (0.013)	-0.646*** (0.012)	-0.802*** (0.013)	-0.646*** (0.012)	-0.801*** (0.013)	-0.647*** (0.012)	-0.802*** (0.013)	-0.648*** (0.012)		
Contig _{ij}	0.428*** (0.021)	0.234*** (0.026)	0.426*** (0.021)	0.227*** (0.027)	0.426*** (0.021)	0.227*** (0.027)	0.427*** (0.021)	0.230*** (0.027)	0.437*** (0.021)	0.246*** (0.027)		
Lang _{ij}	0.005 (0.023)	0.166*** (0.027)	0.010 (0.023)	0.177*** (0.027)	0.010 (0.023)	0.174*** (0.027)	0.008 (0.023)	0.173*** (0.027)	-0.010 (0.023)	0.151*** (0.027)		
Colony _i	0.029 (0.026)	0.141*** (0.033)	0.054* (0.026)	0.195*** (0.032)	0.055* (0.026)	0.182*** (0.033)	0.052* (0.026)	0.190*** (0.032)	0.028 (0.026)	0.169*** (0.033)		
Leg _i	0.234*** (0.014)	0.156*** (0.018)	0.239*** (0.014)	0.164*** (0.018)	0.240*** (0.014)	0.160*** (0.018)	0.240*** (0.014)	0.165*** (0.018)	0.245*** (0.014)	0.172*** (0.018)		
PTA _{ijt}	0.428*** (0.026)	0.020 (0.028)	0.421*** (0.026)	0.009 (0.029)	0.421*** (0.026)	0.014 (0.029)	0.421*** (0.026)	0.007 (0.029)	0.415*** (0.026)	-0.001 (0.029)		
Constant	-2.821*** (0.220)	0.380 (0.365)	-2.923*** (0.227)	0.230 (0.397)	-2.916*** (0.230)	-1.472*** (0.388)	-6.689*** (0.458)	-1.237*** (0.409)	-2.939*** (0.228)	0.245 (0.399)		
N	84280	91921	84269	91912	84295	91931	84332	91921	84275	91920		
r ²	0.9291	0.878	0.9283	0.8726	0.9283	0.8744	0.9284	0.8729	0.9287	0.8741		
Fixed effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt

Note: Significance levels - ***(0.1%), **(1%), *(5%), #(10%). Estimations include time-varying importer and exporter fixed effects. Standard errors are clustered by trading dyad and year.

Table 5: Services trade effects of colonial legacy by margins of trade: Heckman estimates

	Commonwealth				Francophonie			
	Services_all (1)	Services_LDCs (2)	Services_LDCs Pr($X_{ijt} > 0$) (3)	Services_LDCs ln(X_{ijt}) (4)	Services_all (5)	Services_all Pr($X_{ijt} > 0$) (6)	Services_LDCs (7)	Services_LDCs ln(X_{ijt}) (8)
Group _{CW/FP}	0.030** (0.011)	-0.661*** (0.071)	0.138*** (0.020)	-1.304*** (0.240)	0.047* (0.019)	0.627*** (0.125)	0.103*** (0.023)	0.092 (0.214)
ln(Dist _{ij})	-0.044*** (0.003)	-0.612*** (0.069)	-0.044*** (0.003)	-0.582*** (0.067)	-0.045*** (0.003)	-0.585*** (0.071)	-0.044*** (0.003)	-0.591*** (0.072)
Contig _{ij}	-0.058*** (0.010)	0.988*** (0.101)	-0.058*** (0.010)	1.043*** (0.099)	-0.059*** (0.010)	1.072*** (0.105)	-0.059*** (0.010)	1.048*** (0.105)
Lang _{ij}	0.013# (0.007)	-0.011 (0.043)	0.014# (0.007)	-0.085* (0.042)	0.016* (0.007)	-0.129** (0.045)	0.015* (0.007)	-0.103* (0.044)
Colony _{ij}	0.084*** (0.008)	0.374** (0.131)	0.082*** (0.008)	0.308* (0.125)	0.079*** (0.009)	0.196 (0.127)	0.077*** (0.008)	0.291* (0.125)
Leg _{ij}	0.041*** (0.004)	0.190** (0.064)	0.042*** (0.004)	0.134* (0.063)	0.043*** (0.004)	0.132# (0.068)	0.044*** (0.004)	0.135# (0.070)
PTA _{ijt}	-0.072*** (0.006)	0.614*** (0.113)	-0.072*** (0.006)	0.643*** (0.110)	-0.071*** (0.006)	0.619*** (0.114)	-0.071*** (0.006)	0.607*** (0.116)
ln(Cost _{ij})	-0.146*** (0.037)	-0.150*** (0.037)	-0.150*** (0.037)	-0.143*** (0.037)	-0.143*** (0.037)	-0.141*** (0.037)	-0.141*** (0.037)	-0.141*** (0.037)
Inverse mills (η_{ij})		-175.596 (332.913)		-178.747 (315.771)		-225.125 (324.018)		-262.567 (348.478)
Z _{ijt}		-3327.493 (9249.290)		-1642.626 (9582.275)		-3495.518 (9469.076)		-4824.223 (10088.542)
Z _{ijt} ²		4180.947 (13079.394)		201.895 (14113.421)		3270.865 (13765.628)		5323.700 (14643.695)
Z _{ijt} ³		-2168.443 (7111.080)		881.818 (7964.898)		-1010.908 (7702.492)		-2195.488 (8199.328)
N	41655	29518	41655	29518	41655	29518	41655	29518
r2	0.621	0.819	0.621	0.819	0.621	0.819	0.621	0.819
Method	LPM	OLS	LPM	OLS	LPM	OLS	LPM	OLS
Fixed effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt

Note: Significance levels - ***(0.1%), **(1%), *(5%), #(10%). Estimations include time-varying importer and exporter fixed effects. Standard errors are clustered by trading dyad and year. LPM = Linear Probability Model.

Table 6: PPML estimates of colonial legacy are robust to controlling for China and Brexit

	Commonwealth				Francophonie	
	No China		No UK to EU		No China	
	Services_all	Services_LDCs	Services_all	Services_LDCs	Services_all	Services_LDCs
	(1)	(2)	(3)	(4)	(5)	(6)
	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}
Group _{CW/FP}	0.441*** (0.040)	0.328* (0.148)	0.436*** (0.040)	0.340* (0.153)	1.643*** (0.052)	1.913*** (0.072)
ln(Dist _{it})	-0.654*** (0.012)	-0.650*** (0.012)	-0.647*** (0.012)	-0.645*** (0.012)	-0.652*** (0.012)	-0.650*** (0.012)
Contig _{it}	0.208*** (0.027)	0.202*** (0.027)	0.246*** (0.028)	0.242*** (0.029)	0.227*** (0.027)	0.206*** (0.027)
Lang _{it}	0.129*** (0.027)	0.139*** (0.027)	0.165*** (0.027)	0.173*** (0.027)	0.105*** (0.027)	0.135*** (0.027)
Colony _{it}	0.149*** (0.033)	0.187*** (0.032)	0.216*** (0.032)	0.251*** (0.032)	0.154*** (0.033)	0.182*** (0.032)
Leg _{it}	0.193*** (0.017)	0.200*** (0.017)	0.172*** (0.018)	0.179*** (0.018)	0.211*** (0.017)	0.201*** (0.017)
PTA _{it}	0.012 (0.027)	-0.007 (0.028)	0.009 (0.029)	-0.008 (0.029)	-0.022 (0.028)	-0.009 (0.028)
Constant	-0.067 (0.374)	-1.505*** (0.327)	-3.514*** (0.628)	-3.595*** (0.622)	-1.550*** (0.328)	0.271 (0.400)
	0		0		0	
N	90900	90902	91638	91636	90904	90900
r2	0.8852	0.8800	0.8823	0.8777	0.8820	0.8803
Fixed effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt

Note: Significance levels - ***(1%), **(5%), *(10%). Estimations include time-varying importer and exporter fixed effects. Standard errors are clustered by trading dyad and year. Columns (1), (2), (5) and (6) exclude Chinese and columns (3) and (4) exclude UK to EU trade flows from the full sample.

Table 7: PPML estimates of colonial legacy are robust to accounting for endogeneity

	Commonwealth				Francophonie			
	Bonus v etus PPML Services_LDCs (1)	PPML with Mundlak Services_all Services_LDCs (2)	PPML with Mundlak Services_all Services_LDCs (3)	PPML with Mundlak Services_all Services_LDCs (4)	Bonus v etus PPML Services_LDCs (5)	PPML with Mundlak Services_all Services_LDCs (6)	PPML with Mundlak Services_all Services_LDCs (7)	PPML with Mundlak Services_LDCs (8)
	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}	X_{ijt}
Group _{CW/FD}	0.448*** (0.0437)	0.355** (0.152)	0.467*** (0.0443)	0.350*** (0.131)	1.601*** (0.0634)	1.899*** (0.0822)	1.608*** (0.0659)	1.846*** (0.0876)
ln(NGDP) _{it}			0.947*** (0.0710)	0.946*** (0.0721)			0.945*** (0.0718)	0.946*** (0.0721)
ln(NGDP) _{it}			0.514*** (0.0623)	0.512*** (0.0633)			0.510*** (0.0630)	0.512*** (0.0632)
ln(NGDP) _{it} *(NGDP) _{it}	0.815*** (0.0547)	0.806*** (0.0561)			0.808*** (0.0559)	0.806*** (0.0561)		
ln(Dist) _{it}	-0.654*** (0.0131)	-0.653*** (0.0132)	-0.666*** (0.0137)	-0.664*** (0.0138)	-0.655*** (0.0132)	-0.653*** (0.0132)	-0.667*** (0.0137)	-0.664*** (0.0138)
Cont _{it} ξ _{it}	0.221*** (0.0287)	0.215*** (0.0292)	0.231*** (0.0284)	0.226*** (0.0289)	0.238*** (0.0291)	0.218*** (0.0292)	0.249*** (0.0288)	0.229*** (0.0289)
Lang _{it}	0.180*** (0.0298)	0.189*** (0.0299)	0.166*** (0.0298)	0.176*** (0.0298)	0.158*** (0.0299)	0.185*** (0.0299)	0.144*** (0.0297)	0.172*** (0.0298)
Colony _{it}	0.140*** (0.0364)	0.180*** (0.0359)	0.125*** (0.0367)	0.166*** (0.0361)	0.148*** (0.0363)	0.175*** (0.0360)	0.131*** (0.0365)	0.161*** (0.0362)
Leξ _{it}	0.148*** (0.0198)	0.155*** (0.0199)	0.149*** (0.0201)	0.158*** (0.0201)	0.164*** (0.0199)	0.157*** (0.0199)	0.167*** (0.0201)	0.159*** (0.0201)
PTA _{ijt}	0.0433 (0.0313)	0.0208 (0.0321)	0.161*** (0.0508)	0.145*** (0.0518)	0.00843 (0.0321)	0.0189 (0.0321)	0.150*** (0.0520)	0.146*** (0.0518)
Constant	-17.64*** (1.422)	-18.93*** (1.369)	-21.89*** (1.992)	-21.98*** (1.965)	-13.21*** (1.229)	-13.05*** (1.220)	-22.04*** (1.982)	-21.91*** (1.974)
N	88,666	88,666	88,666	88,666	88,666	88,666	88,666	88,666
r ²	0.8379	0.8313	0.8347	0.8300	0.8330	0.8315	0.8314	0.8298
Fixed effects	i, j, t	i, j, t	i, j, t	i, j, t	i, j, t	i, j, t	i, j, t	i, j, t
Bonus v etus MR terms	yes	yes	no	no	yes	yes	no	no
Mean of time-varying variables	no	no	yes	yes	no	no	yes	yes

Note: Significance levels - ***(1%), **(5%), *(10%). Standard errors are clustered by trading dyad and year. Columns (1), (2), (5) and (6) include “bonus vetus” MR terms ala Baier and Bergstrand (2009). Columns (3), (4), (7) and (8) use the Mundlak (1978) correction.

Annex Table 1: Country sample

Afghanistan, Albania, Algeria, Andorra, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Central African Republic, Chile, China, Colombia, Comoros, Congo, Cook Islands, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Djibouti, Dominica, Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Eritrea, Estonia, Ethiopia, Faeroe Islands, Fiji, Finland, Sudan, France, French Polynesia, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Greenland, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, South Korea, Kuwait, Kyrgyz Republic, Latvia, Lebanon, Lesotho, Libya, Lithuania, Luxembourg, Macao, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Mayotte, Mexico, Moldova, Mongolia, Montserrat, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, Netherlands Antilles, New Caledonia, New Zealand, Nicaragua, Niger, Nigeria, Norway, Palestine, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Singapore, Slovak Republic, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Syria, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Turks and Caicos Islands, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Vanuatu, Venezuela, Vietnam, Yemen, Yugoslavia, Zambia, Zimbabwe.

Annex Table 2: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Goods exports (\$mn)	105251	1003.8	6666.1	0	332846.7
Services exports (\$mn)	105251	275.9	1652.8	0	62765.5
Goods trade agreement	105251	0.17	0.38	0	1
Services trade agreement	105251	0.10	0.30	0	1
Contiguity	97023	0.03	0.16	0	1
Common language	97023	0.08	0.28	0	1
Distance	97023	6527.9	4326.5	20.3	19539.5
Common colony	97023	0.04	0.19	0	1
Common law	97023	0.25	0.43	0	1
Commonwealth_reporter	105251	0.17	0.37	0	1
Commonwealth_partner	105251	0.17	0.37	0	1
Commonwealth_both	105251	0.02	0.16	0	1
Francophonie_reporter	105251	0.07	0.25	0	1
Francophonie_partner	105251	0.07	0.25	0	1
Francophonie_both	105251	0.005	0.07	0	1

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