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Trade Impacts of Joining the Commonwealth: Evidence from Rwanda

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Abstract

The Commonwealth's member countries share unique historical ties, as well as resilient diaspora communities with linguistic and institutional similarities. These links could facilitate co-operation and contribute to increased trade, investment and labour flows. This working paper sets out to distill these linkages and their effects from other formal and informal mechanisms that can and do promote trade in the case of Rwanda. The difference in the growth rates of Rwanda's intra- and extra-Commonwealth exports before and after it became a member in 2009 shows some evidence of an increase in intra-Commonwealth trade, but this is not always statistically significant in the case of goods. Neighbouring countries with which Rwanda entered into a trade agreement in the same year account for an important part of the observed differences in growth rates. The model controls for exogenous factors such as language, colonial history and regulatory/legal heritage, as well as unobservable country-specific factors, so any effect of Commonwealth membership comes from other sources. This gives us an opportunity to examine more closely informal mechanisms such as those pertaining to information exchange that may support the evidence presented.

JEL Classification: F13, F15

Keywords: Informal networks; International trade policy; Economic integration; International trade and investment; Rwanda

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Abbreviations and acronyms

BaTIS	Balanced Trade in Services dataset
EAC	East African Community
OECD	Organisation for Economic Co-operation and Development
OLS	ordinary least squares
PTAs	preferential trade arrangements
RTAs	regional trade agreements
WTO	World Trade Organization

1. Introduction

‘We hope to tap into the trade and investment opportunities that the Commonwealth offers so that Rwanda can expand its economy and effectively participate in the global marketplace’ (Kagame, 2010).

The Commonwealth is an association of countries that operates on the basis of free, equal and voluntary co-operation. It does not have a trade agreement, although some individual member countries have trade agreements with other member countries. Notwithstanding this, membership in the Commonwealth typically reflects longstanding socioeconomic and political linkages. With a combined population of over 2 billion people, many of them in rapidly growing economies, there is clear scope to expand trade and investment links between Commonwealth partners. However, the potential extent of such an expansion remains an under-researched question.

One recent and intriguing case is that of Rwanda. When the country joined the Commonwealth in 2009, it was an important milestone both for the country and for the group itself. Despite being only the second non-British colony to join, Rwanda shares common values

with the other 53 Commonwealth nations. The country’s trajectory demonstrates a deepened mission to seize economic, political and trade opportunities and embodies a commitment to meeting the Sustainable Development Goals, in line with the objectives of other Commonwealth members. Thus, Rwanda represents a relevant and powerful case study for the benefits of being part of the group – particularly those pertaining to trade.

This working paper delves deeper into this issue and seeks to build on existing literature to examine the impact of Commonwealth membership on bilateral trade using Rwanda as a case study. The approach used is a difference-in-difference model that analyses the growth rates of intra- and extra-Commonwealth exports of Rwanda before and after it became a member in 2009. The next section presents some evidence to support the idea that Commonwealth membership may have an effect on trade, even in the absence of a formal trade agreement. Section 3 then presents the case study, first looking at descriptive statistics and then moving on to use an econometric model to distill the impact of Commonwealth membership. Section 4 concludes and discusses policy implications.

2. What evidence is there that informal links promote trade?

At the Commonwealth’s Heads of Government Meeting held in Colombo, Sri Lanka, in 2013, the Kotte Statement on International Trade and Investment was adopted:

‘[W]e recognise the potential for growth in intra-Commonwealth trade and investment as well as the importance of promoting practical measures to overcome constraints to such growth.’

A significant milestone, the statement signalled the Commonwealth’s commitment to promote opportunities for trade among member countries with or without the existence of formal trade policy support. The World Trade

Organization (WTO) in its 2011 World Trade Report defines regional trade agreements (RTAs) as ‘reciprocal trade agreements between two or more partners. They include free trade agreements and customs unions.’ Preferential trade arrangements (PTAs) in the WTO are defined as ‘unilateral trade preferences which include Generalized System of Preferences schemes (under which developed countries grant preferential tariffs to imports from developing countries), as well as other non-reciprocal preferential schemes granted a waiver by the General Council’. While the international trade landscape is increasingly defined by growth

in the number of RTAs and PTAs, the WTO analysis indicates that only about 16 per cent of world trade takes place on a preferential basis. As a result, it is important to understand the institutions and practices that shape trade flows outside formal agreements.

Evidence shows that trade borders in Africa have remained the source of significant barriers despite efforts to promote regional trade. For instance, while the share of intra-RTA trade worldwide, excluding the EU, was estimated at 35 per cent in 2008, intra-regional imports in total imports in main regional trade agreements in Africa have remained between 2 and 15 per cent (de Melo and Tsikata, 2015). In light of this dynamic, it is important to look at whether other agreements and structures, such as the Commonwealth, have contributed to the growth of trade flows in Africa, as well as with the rest of the world.

The Commonwealth's member countries share unique historical ties, as well as resilient diaspora communities with linguistic and institutional similarities. These links could facilitate co-operation and contribute to increased trade, investment and labour flows among members. Still, despite the existence of these linkages, as well as a number of PTAs involving Commonwealth members, there remain member countries that have not engaged in many agreements of either form (i.e. nonreciprocal or reciprocal).

Shingal and Razzaque (2016) examine bilateral trade data for 242 countries over the period 1995–2010 to test whether or not country pairs that are both members of the Commonwealth trade more than country pairs that are not both members. The study uses both descriptive statistics and econometric techniques to analyse

intra-Commonwealth trade: its determinants and the trade effect of being a member country. The authors find that, on average and after controlling for other influences, Commonwealth membership is linked to an increase in the value of 1) goods exported by 14.5–33.2 per cent and 2) services exported by 42.8 per cent. Even after controlling for some commonalities inherent in Commonwealth membership, such as linkages from the colonial period and a common language, the analysis finds that Commonwealth pairs tend to trade more.

The idea that informal mechanisms can promote trade—that is, even in the absence of a formal trade agreement—is not new to the literature. Rauch and Trindade (2003) showed that Chinese diaspora linkages tended to promote trade. Others subsequently extended this result to include migrant groups such as Vietnamese, Moroccan and Polish, thereby indicating that the phenomenon was not limited to a single geographical or cultural region (Felbermayr et al., 2011). The mechanisms underlying this result remain unclear, but one possibility is that migrant networks reduce the informational costs associated with accessing foreign markets (Rauch and Casella, 2003). Similarly, a grouping like the Commonwealth, in the absence of formal cooperation mechanisms, could facilitate information flows in intangible ways among member countries, which in turn could encourage trade and investment links.

Against this background, the remainder of this paper uses Rwanda's joining of the Commonwealth in 2009 as the basis for a case study looking at the potential of this move to promote trade with other Commonwealth members as compared with trade with the rest of the world.

3. Case study: Rwanda's membership of the Commonwealth

The Commonwealth, as it is currently known, can trace its origins back to 1949, since then numerous countries have joined the group. Instances of joining the Commonwealth enable a kind of 'natural experiment' that can be used to identify the impact of Commonwealth

membership, as one type of informal institution, on bilateral trade. Previous work in this area, such as Shingal and Razzaque (2016) discussed above, has implicitly made use of these instances of exogenous change by looking at trade patterns involving a large number

of countries over a significant period of time. It is important to note that, during the estimation period (1995–2010), Rwanda (2009) was one of only two countries that changed its membership status, the other being Zimbabwe (2003).¹ As a result, the Commonwealth membership variable is very close to equivalent to a set of pair dummies that are constant through time.

An alternative approach to using a large cross-sectional and time series dataset is to focus on a single natural experiment – such as Rwanda’s joining of the Commonwealth in 2009 – and to compare trade flows before and after joining with member countries and non-member countries alike, with the difference indicating the effect of joining. This is the essence of the commonly used difference-in-difference model (see, e.g., Bertrand et al., 2004). We apply this approach here to examine the impact that joining the Commonwealth has had on Rwanda’s trade relations. If Commonwealth membership is trade-promoting, we would expect to see a faster relative growth rate of exports to other Commonwealth members from 2009 onwards. Before moving to a fully specified econometric model, we conduct a preliminary analysis using descriptive statistics.

3.1 Descriptive statistics

We start by examining Rwanda’s goods trade over the 2004–13 period. This period is chosen because it gives a window of five years pre-membership (2004–08) and five years post-membership (2009–13). Our data source is UN

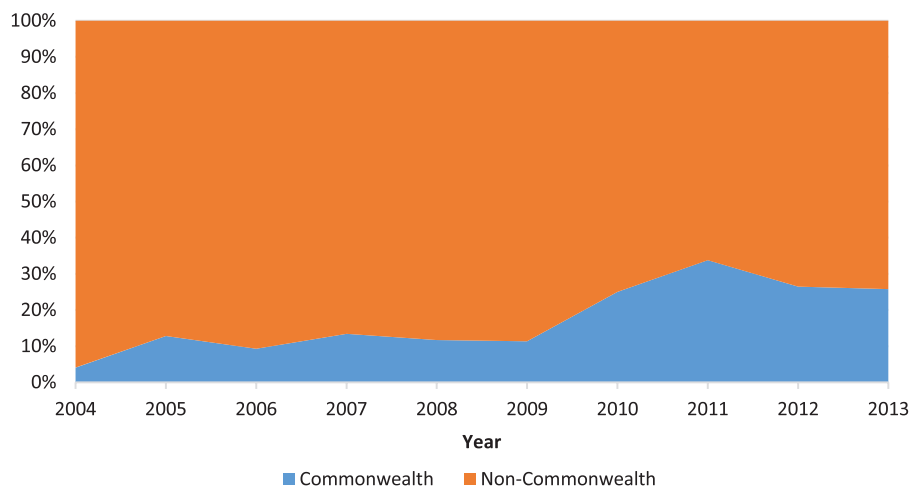
Comtrade, and we apply mirroring because reported imports by Rwanda’s trading partners are likely more accurate than Rwanda’s own reported exports. This technique is common in applied trade policy work.

Figure 1 shows a breakdown of Rwanda’s goods exports over the sample period, according to Commonwealth membership of the importing country. It is immediately clear that the proportion of Rwanda’s total exports going to Commonwealth members grew rapidly in the post 2009 period, in particular through until 2011, at which point it tapered off. The graph clearly shows that, while a steady share of exports went to Commonwealth countries prior to 2009, that share increased markedly – in fact, more than doubled – after Rwanda joined the Commonwealth in 2009.

To make the comparison more explicit, Table 1 presents average annualised growth rates of Rwanda’s exports to the two groups over the two periods of interest. In a way that is not clear from Figure 1, the table shows that Rwanda’s exports to Commonwealth countries were already growing faster than those to non-Commonwealth countries prior to joining. In fact, the difference in growth rates is only slightly higher in the 2009–13 sub-period. Clearly, a more rigorous investigation is required before we can conclude that joining the Commonwealth had a significant impact on Rwanda’s trade relations.

It is possible to repeat the analysis for Rwanda’s services exports, but with a major caveat relating to the source data. Rwanda, like

Figure 1. Rwanda’s goods exports to Commonwealth and non-Commonwealth partners, 2004–13 (% of total)



Source: Author’s calculations using UN Comtrade.

Table 1. Average annualised growth rates of Rwanda's goods exports to Commonwealth and non-Commonwealth countries, 2004–13 (%)

	Commonwealth	Non-Commonwealth
2004–08	17.060	-11.878
2009–13	36.704	6.396

Source: Author's calculations using UN Comtrade.

many low-income countries, does not maintain bilateral services trade data. Although it records data on total services exports with the world as an aggregate partner, it does not break this figure down into the proportions that flow to particular bilateral partners. Even using mirroring cannot fix the problem, as many of Rwanda's trading partners do not themselves maintain bilateral data on services imports.

To deal with this major difficulty, we use a newly constructed experimental database from the Organisation for Economic Co-operation and Development (OECD) and WTO: the Balanced Trade in Services dataset (BaTIS). This collects all available data and makes use of mirroring to fill in missing direct observations. In addition, it uses a gravity model to estimate remaining missing observations, then rebalances the matrix to reconcile export and import flows. It is the best available source for this kind of exercise, but in Rwanda's case much of the 'data' consists of synthetic estimates based on observed trade relationships elsewhere. We analyse the data for the information it may

provide but must issue a strong caveat in terms of the interpretation of results.

Subject to these serious data limitations, Figure 2 presents a breakdown of Rwanda's services exports by destination country group, in this case limited to 2005–12, as the end point is the latest year available in BaTIS. There is no obvious difference between the pre- and post-membership periods in terms of the proportion of Rwanda's exports going to Commonwealth partners: this remains constant at 15–20 per cent throughout the sample period.

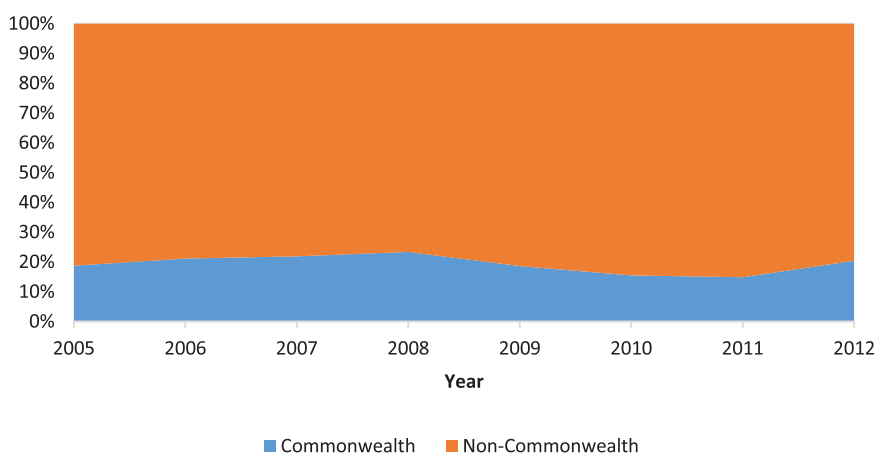
Comparing growth rates provides a more nuanced picture, but again exports to the Commonwealth grew more rapidly than those to other countries prior to membership. As was the case for goods trade, the difference in growth rates was less pronounced post-2009 than prior to it. The descriptive statistics are therefore still not informative of a concrete relationship, but it can be said that, at first glance, there is less evidence that Commonwealth membership promoted Rwanda's intra-group services exports than was the case for goods.

Table 2. Average annualised growth rates of Rwanda's services exports to Commonwealth and non-Commonwealth countries, 2005–12 (%)

	Commonwealth	Non-Commonwealth
2005–08	35.796	23.724
2009–12	12.004	7.857

Source: Author's calculations using OECD-WTO BaTIS.

Figure 2. Rwanda's services exports to Commonwealth and non-Commonwealth partners, 2004–13 (% of total)



Source: Author's calculations using OECD-WTO BaTIS.

3.2 Econometric model and results

The simplest difference-in-difference model, to which we will add progressively, takes the following form:

$$\log X_{ijt} = \text{time}_t + \text{treated}_j + b \cdot \text{time}_t * \text{treated}_j + e_{ijt}$$

Where: X indicates exports from Rwanda to country j at time t ; time_t is a dummy equal to unity after 2009; treated_j is a dummy equal to unity for other members of the Commonwealth; b is the parameter of interest; and e is an error term obeying standard assumptions. The model is usually estimated by Ordinary Least Squares (OLS).

We add to the basic model in a number of ways to deal with problems that have been identified in the literature. First, we progressively add fixed effects in two dimensions: by year and by importer. These take account of observable and unobservable factors that influence trade and that are not included in the baseline model. Second, we correct the estimated standard errors for clustering by importer, in line with the recommendation of Bertrand et al. (2004). This correction accounts for correlation over time within observational groups. Third, we add controls taken from the gravity model literature to reflect factors not captured by the fixed effects. Finally, to ensure our estimates are fully robust to this issue, we follow an

additional suggestion of Bertrand et al. (2004) and re-run the model using averaged data over the pre- and post-membership periods, so that there are only two time periods.

Results for goods exports are in Tables 3 and 4. The first of the two tables uses the full sample (all years), whereas the second uses the collapsed sample (pre- and post-membership averages). The parameter of interest is in bold. It is positive and statistically significant in all regressions. The addition of fixed effects substantially improves the model's fit. Column 5 shows that it is important to exclude East African Community (EAC) countries from the estimation sample, as Kenya and Tanzania are also Commonwealth members, and the trade-promoting effects of Rwanda joining the EAC in 2009 could act as a confounder in this case. The full sample results suggest that joining the Commonwealth had a robust and statistically significant positive impact on Rwanda's goods exports, with an increase ranging from 220 per cent to 266 per cent. This is a striking finding, both because of its size and because of its robustness across specifications. However, given that the sample is relatively small, we need to be concerned about the effects of correlation within cross-sectional units. Therefore, in line with Bertrand et al. (2004), we collapse the sample into pre- and post-periods, and re-estimate.

Table 3. Goods regressions (full sample)

	(1)	(2)	(3)	(4)	(5)
Time	-0.229 (0.256)	0.058 (0.453)	0.517 (0.447)	0.732 (0.624)	0.791 (0.642)
Treated	-0.315 (0.739)	-0.312 (0.742)	0.591** (0.274)	-0.124 (2.190)	-0.762 (2.238)
Time*Treated	1.169** (0.454)	1.166** (0.454)	1.277*** (0.431)	1.298*** (0.439)	1.163** (0.466)
Log(GDP)				-0.479 (1.469)	-0.955 (1.509)
Constant	4.084*** (0.331)	4.108*** (0.413)	2.090*** (0.381)	13.957 (36.589)	25.887 (37.606)
N	832	832	832	778	740
R2	0.006	0.008	0.752	0.744	0.738
Year fixed effects	No	Yes	Yes	Yes	Yes
Importer fixed effects	No	No	Yes	Yes	Yes
EAC excluded	No	No	No	No	Yes

Note: All estimates are by OLS. Robust standard errors corrected for clustering by importer are in parentheses below the parameter estimates. Statistical significance is indicated as follows: * (10%), ** (5%) and *** (1%).

Source: Authors' calculations.

Table 4. Goods regressions (collapsed sample)

	(1)	(2)	(3)
Time	-0.428 (0.423)	-0.077 (0.346)	-0.075 (0.352)
Treated	-0.428 (0.569)	2.554 (2.865)	2.341 (2.955)
Time*Treated	1.550* (0.826)	0.908* (0.545)	0.812 (0.572)
Log(GDP)	0.897*** (0.081)	1.090 (1.703)	0.913 (1.750)
Constant	-18.332*** (2.067)	-24.720 (42.620)	-20.274 (43.810)
N	233	233	225
R2	0.337	0.885	0.881
Importer fixed effects	No	Yes	Yes
EAC excluded	No	No	Yes

Note: All estimates are by OLS. Robust standard errors corrected for clustering by importer are in parentheses below the parameter estimates. Statistical significance is indicated as follows: * (10%), ** (5%) and *** (1%).

Source: Authors' calculations.

Table 4 presents results, with specifications becoming increasingly restrictive from left to right. The parameter of interest is positive in all three regressions, but its statistical significance is much weaker than in the full sample regressions. This finding tends to indicate that intra-group correlation is indeed a serious issue, so the results in Table 4 are more reliable than those in Table 3. Importantly, if we exclude EAC countries (column 3), the effect of Commonwealth membership is no longer statistically significant at the 10 per cent level (prob. = 0.159). The estimated magnitude is also smaller than in Table 3 once fixed effects are added to control for observable and unobservable characteristics of importing countries. If we take column 2 as a benchmark, it suggests that joining the Commonwealth increased Rwanda's goods exports to Commonwealth countries by just under 150 per cent, but it is important to keep in mind that the statistical significance of that effect disappears once we exclude the EAC countries, with which Rwanda entered into a trade agreement in the same year.

Table 5 turns to services. Results are quite different from those for goods. The parameter of interest is much smaller and is not statistically significant at conventional levels. This situation persists with the collapsed sample in

Table 5. Services regressions (full sample)

	(1)	(2)	(3)	(4)	(5)
Time	0.634*** (0.065)	1.118*** (0.108)	1.120*** (0.116)	0.862*** (0.158)	0.863*** (0.160)
Treated	-0.170 (0.307)	-0.170 (0.307)	0.091 (0.056)	-1.532** (0.655)	-1.346** (0.656)
Time*Treated	0.070 (0.104)	0.070 (0.104)	0.070 (0.112)	0.098 (0.113)	0.060 (0.114)
Log(GDP)				0.829** (0.319)	0.748** (0.319)
Constant	-2.260*** (0.160)	-2.537*** (0.172)	-3.161*** (0.073)	-20.969*** (6.829)	-19.244*** (6.843)
N	1455	1455	1455	1392	1360
R2	0.029	0.046	0.880	0.879	0.876
Year fixed effects	No	Yes	Yes	Yes	Yes
Importer fixed effects	No	No	Yes	Yes	Yes
EAC excluded	No	No	No	No	Yes

Note: All estimates are by OLS. Robust standard errors corrected for clustering by importer are in parentheses below the parameter estimates. Statistical significance is indicated as follows: * (10%), ** (5%) and *** (1%).

Source: Authors' calculations.

Table 6. Services regressions (collapsed sample)

	(1)	(2)	(3)
Time	0.511*** (0.186)	0.459*** (0.091)	0.478*** (0.091)
Treated	0.454** (0.211)	-1.530* (0.920)	-1.227 (0.942)
Time*Treated	0.076 (0.298)	0.086 (0.113)	0.035 (0.112)
Log(GDP)	0.523*** (0.029)	0.867** (0.423)	0.731* (0.429)
Constant	-14.809*** (0.705)	-21.498** (9.085)	-18.566** (9.210)
N	349	349	341
R2	0.030	0.492	0.487
Importer fixed effects	No	Yes	Yes
EAC excluded	No	No	Yes

Note: All estimates are by OLS. Robust standard errors corrected for clustering by importer are in parentheses below the parameter estimates. Statistical significance is indicated as follows: * (10%), ** (5%) and *** (1%).

Source: Authors' calculations.

Table 6. We therefore conclude that there is no evidence that joining the Commonwealth boosted Rwanda's services exports to other Commonwealth members, although we recall the substantial data problems that plague this

analysis, and in particular the fact that the regressions are based on synthetic data, not figures actually recorded by the Rwandan authorities or even, for the most part, their trading partners.

4. Conclusion and policy implications

The quantitative analysis presented in this paper demonstrates that there is evidence linking Commonwealth membership and increased trade, particularly goods trade, for Rwanda. However, this is more pronounced with neighbouring EAC countries where a trade agreement exists. Furthermore, the literature has typically attributed the trade effect to the linkages among member countries, including language, colonial history with the UK and regulatory/legal heritage and frameworks that have persisted. This said, as Rwanda is not associated with any

colonial history and the analysis includes country fixed effects in the models used, we cannot conclude that these factors are responsible, even partially, for the impact on trade found. These results suggest that even in the absence of formal co-operation mechanisms in relation to trade and investment, the Commonwealth can facilitate information flows in intangible ways among member countries, which in turn could encourage trade and investment links. They also suggest that proactive measures related to trade and investment could also realise greater gains.

Note

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- 1 In 1995, both Cameroon and Mozambique joined, but we assume they were coded as members during 1995, thus making them members for the entire estimation period.
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