

# **Immigration and Trade Creation: What Can the Evidence from Britain Tell Us?**

**By**

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**(Draft: Comments Invited)**

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## **1. Introduction**

Growing evidence has been found in support of the idea that immigration, apart from its impact on the labour market in the host country, has positive effects on the increase of trade between immigrants' host and home countries. Pioneering studies by Gould (1994) and Head and Ries (1997) find such immigrant-link effects for both imports and exports of the United States and Canada, respectively. Recent work by Dunlevy and Hutchinson (1999) also find evidence of pro-trade effects of immigration on U.S. imports in the late Nineteenth and early Twentieth centuries. These findings are important because they not only help fully understand the economic impact of immigrants on both immigrants' host and home countries but also might have relevant policy implications for immigrant-receiving countries. The purpose of this paper is to further investigate the robustness of the immigrant-link effect using UK data and attempt to identify a possible mechanism behind such linkage.

It is suggested in the literature that the immigrant-link influences bilateral trade flows through two basic channels. First, immigrants bring with them a preference for home-country products. Second, immigrants can reduce transaction costs of bilateral trade with their home countries. The former certainly would have an impact on imports of the host country but the latter is more important and would affect both imports and exports. In other words, the effects of immigration on the host country's imports from immigrants' home countries may come from both channels; those on its exports to immigrants' home countries come from the second one, the reduction of the transaction costs of bilateral trade.

While there are many possible mechanisms through which immigrants can reduce the transaction costs of bilateral trade, we believe that they can be broadly classified into two, depending on whether the effect of the immigrant-link is "individual-specific". The first kind of mechanisms is "individual-specific". For example, transaction costs of bilateral trade are reduced because of individual immigrant' business connections or personal contacts with

his/her home country. Under this mechanism, regardless of which country immigrants come from, immigration would always lower the transaction costs of bilateral trade. The second mechanism is “non-individual-specific”. For example, transaction costs of bilateral trade are reduced because of more knowledge, brought by immigrants, about foreign markets and different social institutions. Under the second mechanism, whether immigration would reduce the transaction costs of bilateral trade depends on which country that immigrants come from. If immigrants come from a country whose social and political institutions are similar to those in the host country, their impact would be lower on the reduction of transaction costs of bilateral trade.

The relative importance of these two mechanisms has not been formally investigated in the literature. Although these two mechanisms are not entirely exclusive, their relative importance could be identified in some host country’s export data. This paper is a first attempt in this direction.

We study the bilateral trade between the U.K. and its 48 trading partners. A unique aspect of this data set is that the countries under study can be classified into two distinct groups: 26 commonwealth<sup>1</sup> and 22 non-commonwealth countries. Our hypothesis is that the social and political institutions in commonwealth countries are much more similar to the U.K. because of colonial connections. Therefore, the knowledge about the social institutions of their countries brought by immigrants from commonwealth countries would have less value-added compared to those from non-commonwealth countries. This allows us to be able to test our hypothesis and assess the relative importance of the two mechanisms through which immigrants lower the transaction costs of bilateral trade. As discussed, based on the nature of the hypothesis, it is more adequate to carry out this exercise using export data. We also use import data, however, in order to make comparisons with other studies in the literature.

Our three findings are as follows. First, after controlling of other factors, in general Britain has a higher propensity to trade with commonwealth countries. This result is expected. Second, and interestingly, the effects of immigration on UK's exports are very different between commonwealth and non-commonwealth countries. Specifically, there is robust evidence that immigration from non-commonwealth countries has a significant trade-enhancing effect. A 10% increase in the stock of immigrants increases UK's exports to those countries by 1.6%. Strikingly, by contrast the effect of immigration from the commonwealth countries on UK's exports to them is statistically insignificant. This finding rejects the hypothesis of our first mechanism and supports that of the second mechanism. That is, our findings support the idea that immigration increases bilateral trade through the knowledge (brought by immigrants) about foreign markets and different social institutions rather than their business connections or personal contacts with their home countries.

Third, the effects of immigration on UK's imports are also different between commonwealth and non-commonwealth countries. We find a pro-trade effect of immigration from the non-commonwealth countries, similar to other studies in the literature, but reveal a "trade-substitution" effect of immigration from the commonwealth countries. The latter could be the result of import-substituting activities by immigrants from commonwealth countries. Since the immigrant population in the U.K. from commonwealth countries is relatively large compared to that from non-commonwealth countries, manufacturing activities could be more attractive than importing activities when there are economies of scale for production.

The network/search view of international trade was pioneered by Rauch (1996a, b). In his second paper, James Rauch finds empirical support for the view that common language/colonial ties are important in explaining international trade, especially for differentiated products. His findings are consistent with our first finding. However, Rauch's

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<sup>1</sup> Including Hong Kong

study does not examine the effects of immigration on trade. Investigating the effects on trade due to the interaction between immigration and colonial ties has never been done in the literature.

There are some indications from recent studies to suggest that the immigrant-link effect might be non-individual-specific. Dunlevy and Hutchinson (1996) investigate the links between *import* patterns and immigration of the U.S. for the period 1870 to 1910 using a data set which covers imports of 56 commodities from 18 countries. They discover that the larger the migrant stock, especially the greater the newer cohorts, the greater the association between immigration and imports. The smallest trade-immigration linkage is found for new immigrants coming from northern Europe (a group with the stronger linguistic and cultural similarity with the U.S.). On the other hand, immigration from Asia and Latin America offers the greatest opportunity for trade. Dunlevy and Hutchinson conjecture that the differences in culture and language as well as the possession of specialised information enabled immigrants from these parts of the world, and to a lesser extent from southern Europe, to exploit trade opportunities missed by American and northern European immigrants. However, these indications come from their study on the U.S. import data only, which are strongly affected by the preference effects of immigrants. Studies on the host country's export patterns, as in our paper, would provide a better picture over the relative importance of the two mechanisms through which immigrants lower the transaction costs of trade.

In a study of the border effects of trade among Canadian provinces and between Canadian provinces and US states, Helliwell (1997) finds the effects of migration for international but not for inter-provincial trade. It is argued that migrants across provincial boundaries have less effects in creating trade because the knowledge about the institutions and markets of their provinces are not new to the host provinces. As the author admits, however, the study is very preliminary because there is no direct data for migration between Canadian provinces and U.S. states. Moreover, if there are decreasing returns to migration in the migrant-link effect, the result could be attributed to the large migration flows among provinces. "Additional

migrants may trip over their predecessors when they attempt to make use of any special knowledge they brought with them about conditions back where they were born.” This concern is legitimate because Gould (1994) finds that the immigrant-link effect exhausts itself as the number of immigrants increases, and the effect on exports exhausts for a much smaller number of immigrants than does the effect on imports. In contrast, our U.K. immigration data is available for a relatively long period of time and reasonably reliable. More importantly, since immigration flows into the U.K are small in magnitude compared to domestic migration flows, we can avoid the effect of decreasing returns to immigration.

In the next section we first develop an econometric model that could test our hypothesis and assess the relative importance of the two mechanisms through which immigrants lower transaction costs of bilateral trade, and discuss the implications of our findings. Section 3 provides some concluding remarks.

## **2. The Model**

Following Gould (1994) and Head and Ries (1997), we use a gravity equation of trade augmented by immigration variables to assess the link between immigration and the bilateral trade between the U.K. and immigrants’ home countries. The gravity model is a standard and empirically successful method of evaluating the determinants of aggregate trade flows between pairs of countries. Its theoretical underpinnings have been discussed in Anderson (1979), Bergstrand (1985), Helpman (1984) and Deardorff (1995).

Our general specification is  $y_{it} = f(M_{it}; X_{it})$ , where  $y_{it}$  is UK’s exports to (or imports from) country  $i$  to at time  $t$ ;  $M_{it}$  denotes a measure of immigration from country  $i$  to the U.K. and  $X_{it}$  represents a vector of variables that influence bilateral trade between the U.K. and country  $i$  at time  $t$ . The gravity model predicts that the volume of bilateral trade is positively related to the product of the pair countries’ economic masses (as measured by gross domestic

products) and negatively related to the trade costs between them. We have no data on trade barriers (such as tariff are non-tariff barriers) and transportation costs, but we include across country language and distance as determinants of bilateral trade flows. Distance would reflect the time and cost of trading, and speaking a common language (i.e. English) facilitates trade. We also use per capita GDP and a remoteness index for each country with respect to all other countries except the U.K.<sup>2</sup> Wealthier countries are more open to international trade and the more remote a country is, the more it trades with the U.K.

### The Functional Form

The specific functional form that we use is as follows (all variables, except dummy variables, are in real terms and measured in natural logarithms):

$$y_{it} = g_0 M_{it} * CW_{it} + g_1 M_{it} * NCW_{it} + b_1 GDP_{it} + b_2 GDPC_{it} + b_3 Lang_{it} + b_4 Dist_{it} + b_5 Rem_{it} + D_t + e_{it}$$

where  $M_{it}$  is the immigration variable measured by the stock of immigrants in Britain.  $CW$  and  $NCW$  are the dummy variables for commonwealth and non-commonwealth countries. Thus the impact of immigration on trade is specified to vary according to whether immigrants are from commonwealth or non-commonwealth countries. We also use time dummies ( $D_t$ ) to capture macroeconomic factors that affect UK' s aggregate trade. Since we are only considering bilateral trade flows with the U.K, the latter's GDP and per capita GDP do not vary across trading partners and their effects are subsumed into the set of time dummies. Commonwealth and European Union dummies are also employed to capture potentially distinct effects on the level of trade. Following previous studies of gravity models [e.g., Gould (1994)] that have used lagged exports and imports to account for some form of momentum (such as production and delivery lags) in trading, we also estimate a dynamic version of the above equation to check the robustness of our results.

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<sup>2</sup> The remoteness index for country  $i$  is defined as  $Rem_i = \sum_{\forall j \neq i, UK} \frac{Dist_{ij}}{GDP_j}$ , where  $Dist_{ij}$  is the

## The Data

For the distance measure we use the Great Circle distance between capital cities, which is available from Jon Haveman's web-page (<http://www.eiit.org/>). The trading language dummy is constructed from Hunter (1992). The flow of immigration data is collected from various issues of *Control of Immigration Statistics*. Information on the stock of immigrant population by country of origin is obtained from the 1981 and 1991 *Population Censuses*. We combined these two sources to estimate the annual stocks of immigration by using the following stock-flow rule:  $S_{it} = (1 - \mathbf{d})S_{it-1} + F_{it}$ . Here  $i$  and  $t$  indexes country of origin and year respectively;  $S$  and  $F$  are immigrant stocks and inflows and  $\delta$  is the attrition rate resulting from death and departure from Britain. Like Head and Ries (1997) we assume that  $\delta$  is constant across time and countries. Using stock and annual flow data for the countries that are in both the 1981 and 1991 Censuses, and the *Control of Immigration Statistics*, we estimated  $\delta$  via the

following non-linear equation: 
$$S_{i,1991} = (1 - \mathbf{d})^{10} S_{i,1981} + \sum_{i=1}^{10} (1 - \mathbf{d})^{i-1} F_{1991-i} + error.$$

The equation fits the data very well, with an R-squared of 98%, and it is found that on average about 1 % of each year's immigrant's population departs from Britain or die. At the end of this exercise we obtain complete information on annual immigration stock for 48 countries between 1981 and 1993. The list of the countries included in this study is given in Table 1.

In Table 2 we report some descriptive statistics. The average yearly stock of immigrants in the sample is around 66500 for the commonwealth countries and 25460 for the non-commonwealth countries. This ranges from 2241 for Tunisia to 400398 for India (around .7% of the population in Britain). The annual flow of immigrants from the commonwealth countries is found to be twice as large as that from the non-commonwealth countries, but the

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distance between country  $i$  and country  $j$ .

stock of immigrants from the non-commonwealth countries has exhibited a higher annual growth rate at around 3%. In absolute terms, the UK's bilateral trade with the non-commonwealth countries is far more important than the one with its former colonies. This can be explained by the fact for the non-commonwealth countries, the average GDP is almost ten times as greater as that of a typical commonwealth country in the sample. It is also interesting to note from Table 3 that the correlation between the exports (imports) and the immigrant stock is three (five) times stronger for the non-commonwealth countries. This is perhaps an early indication that the impact of immigration on bilateral trade flows might differ across the two groups of countries.

### **The Estimated Results and Findings**

The explanatory powers of the gravity equations are very high and the control variables have all the expected signs. Controlling for economic masses and bilateral distance, the U.K. has a higher propensity to trade with commonwealth countries, as indicated by the positive and significant coefficients on the commonwealth dummy. For example, UK's exports to (imports from) the average commonwealth country is bigger by \$15 (12) million<sup>3</sup> compared to an equivalent non-commonwealth country. This finding confirms Rauch's (1996a, b) idea of the importance of colonial ties for international trade.

The effects on bilateral trade of immigration from commonwealth countries and non-commonwealth countries are also fundamentally different, however, in a very different way. We first discuss our estimated results and findings for UK export data, which is more adequate for testing our hypothesis, as discussed. We also use UK import data, however, in order to make comparisons with other studies. Both static and dynamic models are estimated to check the robustness of the results.

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<sup>3</sup> We took the exponent of the coefficient on the CW dummy in static exports and imports equation.

**Exports – Testing the Hypothesis.** The result from the UK export data rejects the hypothesis of the first mechanism and supports that of the second one. That is, it supports the idea that it is the knowledge about foreign markets and different social institutions brought by immigrants, that reduces transaction costs and facilitates the bilateral trade between immigrants' host and home countries. More specifically, there is robust evidence of a link between trade and immigration from non-commonwealth countries. The first two columns in Table 4 report the estimated coefficients for the UK export regressions. In the static model a 10% increase in the immigrant stock from non-commonwealth countries has the effect of increasing UK's exports by 1.6%. The dynamic version of our model shows that trade volume is strongly auto-regressive. This is consistent with Harris and Matyas's (1998) observation that the introduction of dynamics has the effect of wiping out the significance of most structural parameters of gravity equations. But the effects on exports of immigration from the non-commonwealth countries persist even in the presence of the lagged dependent variable. A 10% increase in the stock of immigrants has the *long run* effect of increasing UK's exports to the non-commonwealth countries by 5%.

Strikingly, by contrast, similar linkage between immigration and UK's exports is not found for commonwealth countries. The effect of the stock of immigrants from the commonwealth countries on UK's exports to these countries is statistically insignificant. This is found in both static and dynamic models. These findings of the effects of immigration on UK's exports support the idea that immigration enhances bilateral trade through the knowledge brought by immigrants, about the foreign markets and different social institutions rather than the business/personal contacts with their home countries.

The result, however, could be attributed to the effects due to trade diversification. During this period there might be a trend that UK's trade volumes were diversified from commonwealth to non-commonwealth countries and this might affect our results. To account for trade

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diversification and other macroeconomic factors between these two groups of countries, we let the time (year) dummy,  $D_t$ , interact with commonwealth and non-commonwealth dummy variables ( $CW$  and  $NCW$ ). Indeed, most estimated coefficients (and also the average) for  $D_t * CW$  are negative and all the estimated coefficients for  $D_t * NCW$  are positive. However, as reported in Table 5, our previous results and findings about the trade effects of immigration from commonwealth and non-commonwealth countries change little. Therefore, it seems that our findings are reasonably robust.

A potential concern over these results is that immigration and trade could be driven by the fact that whether a country is a member of commonwealth countries. Being a member of commonwealth countries could have positive effects on both immigration and trade with Britain. This concern must be dealt with if we use cross-section data. However, it is mitigated to a great extent in our study with the panel-data (time spanning from 1981 to 1993), provided that the effect of such affinity is relatively stable over the period of time. In addition, we also include other factors such as speaking the same language.

**Imports** The third column in Table 4 reports the estimated coefficients for the UK import regressions in the static model. The effect of the stock of immigrants on UK's imports is found to be positive for the non-commonwealth countries but negative for the commonwealth countries. A 10% increase in the immigrant stock from the non-commonwealth countries increases UK's imports by 1%. However, a 10% increase in the immigrant stock from the commonwealth countries reduces UK's imports by 1%. The former confirms the pro-trade effect of immigration found in Gould (1994), Head and Ries (1997), and Dunlevy and Hutchinson (1999). The latter, however, reveals a "trade-substitution" effect of immigration, which was discussed in Diaz-Alejandro (1970) as the immigrants' import-substituting activities. Since the immigrant stock from commonwealth countries is relatively large compared to that from non-commonwealth countries and there are economies of scale for

production, immigrant merchants from the commonwealth countries may well become manufacturing entrepreneurs. Therefore, it is not surprising such trade-substitution effect is found for UK's imports from the commonwealth rather than the non-commonwealth countries. In the dynamic model, however, the effects of immigration on imports are found to be insignificant. The results are reported in the fourth column of Table 4.

### **3. Concluding Remarks**

This paper explores a unique aspect of the UK immigration data: immigrants in Britain come from either commonwealth or non-commonwealth countries. Countries in the former have similar social institutions as the U.K. but those in the latter do not. The study could help further understanding of trade and immigration nexus. Using UK export data we find support for the idea that immigrants enhance the bilateral trade between Britain and their home countries through the knowledge (brought with them) about their home countries' market and different social institutions, rather than the business connections or personal contacts with their home countries. It is also interesting that using UK import data, this study reveals a trade-substitution effect of immigration from commonwealth countries.

The study is still preliminary, however. It only uses aggregate trade flows for the analyses. We can also do a similar analysis for trade flows by commodity group or individual commodity, as in Dunlevy and Hutchinson (1999). Also, it would be better if we have more variables for the gravity equation to control for the effects of trade policy and macroeconomic activity, although the time (year) dummy that we use would capture some of these effects.

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**Table 1****Immigrant stock, Exports and Imports : 1993**

Country	Immigrants	Exports (\$Million)	Imports (\$Million)
Algeria	4077	84	281
Australia*	74675	2399	1499
Austria	20463	1366	1456
Bangladesh*	108194	81	210
Barbados*	21970	42	38
Canada*	63359	2764	2786
China	24137	1112	1990
Cyprus*	77045	354	204
Denmark	14112	2195	2870
Egypt, Arab Rep.	23111	506	284
Finland	5439	1675	2857
France	52807	16151	18526
Ghana*	34827	323	108
Greece	14399	1228	439
Guyana*	20439	51.4	112.2
Hong Kong*	74947	3195	4498
India*	412006	1695	1635
Iran, Islamic Rep.	33838	746	369
Israel	12758	1315	826
Italy	89487	8291	9064
Jamaica*	142194	84	183
Japan	31593	3980	12785
Kenya*	111110	228	259
Malaysia*	43958	1447	2097
Malta*	30873	309	97
Mauritius*	23580	110	422.2
Morocco	10445	254	276
New Zealand*	41989	499	747
Nigeria*	51539	951	168
Norway	8939	2252	6236
Pakistan*	242270	495	486
Philippines	23710	461	415
Portugal	19630	1830	1690
Sierra Leone*	6742	30.2	24
Singapore*	33623	2144	2429
South Africa*	68634	1686	1498
Spain	38276	6069	4467
Sri Lanka*	40257	189.5	213.7
Sweden	11709	4324	5434
Switzerland	12720	3415	7100
Tanzania*	29689	163	38
Trinidad and Tobago*	17707	106	67
Tunisia	2558	93.5	59.3
Turkey	27907	1571	798
Uganda*	50119	45	11
United States	148350	23319	24642
Zambia*	16713	110	18
Zimbabwe*	21287	126	182

The superscript (\*) denotes Commonwealth member countries and Hong Kong.

**Table 2:**  
**Average values (and standard errors)**  
**Of some variables of interest**

	Commonwealth		Non-Commonwealth	
	Level	Growth(%)	Level	Growth
Exports	720 (931)	-.68 (23.76)	3269 (5022)	1.38 (18.89)
Imports	650 (924)	.83 (28.13)	4075 (5367)	3.23 (28.76)
GDP	48096 (95807)	3.19 (4.10)	473359(1026934)	3.0 (3.61)
Stock of immig	66549 (81514)	1.75 (6.11)	25463 (30811)	2.90 (7.38)
Flow of immig	1169 (1575)	3.19 (4.10)	570 (831)	.62 (23.52)

**Table 3:**  
**Correlation coefficients between bilateral**  
**trade and immigrant stock**

CW		NCW	
Exports	Imports	Exports	Imports
.267	.138	.807	.731

**Table 4****The impact of immigration on UK's exports and imports: 1981-93**

	Exports		Imports	
	Static	Dynamic	Static	Dynamic
Export <sub>t-1</sub> (Import <sub>t-1</sub> )		.926 (48.99)		.931 (45.27)
Immigration*noncomwlth	.162 (4.48)	.0369 (2.80)	.103 (2.44)	.013 (.68)
Immigration*comwlth	-.029 (.78)	-.006 (.30)	-.097 (2.02)	.004 (.17)
GDP	.648 (29.75)	.041 (2.49)	.562 (18.60)	.039 (2.58)
Per Capita GDP	.151 (6.88)	.0118 (1.48)	.283 (10.74)	.019 (1.30)
Distance	-.439 (11.12)	-.021 (1.17)	-.313 (5.25)	-.018 (.83)
Language	.663 (9.32)	.033 (.99)	.549 (6.22)	.008 (.23)
Remoteness	.054 (.88)	.0427 (2.18)	.365 (5.12)	.073 (2.33)
Commwlth	2.296 (5.74)	.445 (1.91)	2.467 (4.54)	.105 (.39)
EU	.287 (5.51)	.041 (1.99)	.285 (3.28)	.034 (1.09)
R-squared	89.5%	98.7%	85.9%	97.9%

**Notes:**

- (i) Time dummies are used in all of the above regressions.
- (ii) The asymptotic t-ratios, which are given in parentheses, are based on heteroscedasticity robust standard errors.

**Table 5**  
**The impact of immigration on UK's exports: 1981-93**

(With  $D_t * CW$  and  $D_t * NCW$  )

	<b>Exports</b>	
	<b>Static</b>	<b>Dynamic</b>
Export <sub>t-1</sub>		.923 (46.14)
Immigration*noncomwlth	.151 (3.99)	.0376 (2.93)
Immigration*comwlth	-.032 (.84)	-.007 (.33)
GDP	.649 (29.77)	.043 (2.48)
Per Capita GDP	.146 (6.60)	.0107 (1.35)
Distance	-.445 (11.03)	-.024 (1.29)
Language	.677 (9.38)	.038 (1.12)
Remoteness	.059 (.95)	.0401 (2.08)
Commwlth	3.16 (6.16)	(dropped)*
EU	.288 (5.45)	.042 (2.01)
R-squared	89.6%	98.7%

\* The Commonwealth dummy for the intercept was dropped due to multi-collinearity.