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The Link between Immigration and Trade: Evidence from the UK

by

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Abstract

This paper investigates the link between immigration and trade using recent U.K data. Imigration from non-Commonwealth countries is shown to have a significant export-enhancing effect. By contrast, immigration from Commonwealth countries is found to have no substantial impact on exports. We conjecture that this could be because immigrants from the U.K' s former colonies (*viz.* Commonwealth countries) do not bring with them any new information that can help substantially reduce the transaction cost of trade between their home countries and the host nation. The study also reveals a pro-imports effect of immigration from the non-Commonwealth countries, whereas immigration from the Commonwealth appears to be reducing imports, perhaps reflecting trade-substituting activities by immigrants.

Outline

1. Introduction
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Non-Technical Summary

Recent studies in the U.S and Canada have found support for the idea that immigration has positive effects on trade between immigrants' host and home countries. These findings are important because they help us understand the overall economic impact of immigrants on host and home countries. The purpose of this paper is twofold: first to investigate the robustness of the immigrant-link effect using UK data, and second to identify a possible mechanism behind such linkage.

The existing literature suggests that the immigrant-link influences bilateral trade flows because (a) immigrants bring with them a preference for home-country products and (b) immigrants can reduce transaction costs of bilateral trade with their home countries. The mechanisms through which immigrants can reduce the transaction costs of bilateral trade can be broadly classified into two. It can be "individual-specific" if the transaction costs of bilateral trade are reduced because of individual immigrant' business connections or personal contacts with his/her home country. Then regardless of which country the immigrants have come from, immigration would always have trade-enhancing effects. On the other hand, if transaction costs of bilateral trade are reduced because of additional knowledge brought by immigrants about foreign markets and different social institutions, the impact of immigration on trade would depend on which country the immigrants have come from. If they originate from a country whose social and political institutions are similar to those in the host country, their impact would be lower. This type of transaction costs reducing mechanism is dubbed "non individual-specific".

Using an augmented gravity model approach, we study bilateral trade between the U.K. and 48 trading partners. A unique aspect of our data set is that the countries can be classified into two distinct groups: Commonwealth and non-Commonwealth countries. We hypothesise 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 counties would have less value-added compared to those from non-Commonwealth countries. This allows us to assess the relative importance of the two mechanisms through which immigrants lower the transaction costs of bilateral trade.

Our key empirical results fall into three categories. First, after controlling for other factors, the U.K has a higher propensity to trade with Commonwealth countries. This result is expected in light of the fact that the gravity model literature has consistently yielded significant dummies for language and cultural similarities. Second, and interestingly, the impact of immigration on UK's exports is very different between Commonwealth and non-Commonwealth countries. Specifically, we establish 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. Thus, the econometric evidence seems to suggest that immigration enhance 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. Our study reveals a pro-trade effect of immigration from the non-Commonwealth countries, similar to other studies in the literature, but reveals a "trade-substitution" effect of immigration from the Commonwealth countries. The latter could be a result of import-substituting activities by immigrants. As the immigrant population in the U.K. from Commonwealth countries is relatively large compared to that from non-Commonwealth countries, it could be that manufacturing some goods could be more attractive than importing them due the economies of scale for production.

I.   Introduction

Growing evidence has been found in support of the idea that immigration has positive effects on trade between immigrants' host and home countries. Pioneering studies by Gould (1994) and Head and Ries (1998) document such immigrant-link effects for both imports and exports of the United States and Canada, respectively. Recent work by Dunlevy and Hutchinson (1999) also uncover evidence of pro-trade impact of immigration on U.S. imports in the late nineteenth and early twentieth centuries. These findings are important because they not only help us fully understand the economic impact of immigrants on host and home countries but also might have some relevant policy implications, especially for host countries. The purpose of this paper is twofold: first to investigate the robustness of the immigrant-link effect using UK data, and second to identify a possible mechanism behind such linkage.

The existing literature suggests 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 seems intuitively obvious and certainly could have an impact on imports of the host country, but the latter is potentially more important since it could affect both imports and exports. 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: individual-specific and non-individual-specific. In the former case, Where the mechanism is individual-specific, the effect of the immigrant-link would be 'universal'. 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. On the other hand, if the mechanism is non-individual-specific, the effect of the immigrant-link would be 'non-universal'. For example, transaction costs of bilateral trade are reduced because of additional 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 they originate from a country whose social and political institutions are similar to those in the host country, their impact on the reduction of transaction costs would be lower.

The relative importance of these two mechanisms, however, has not been formally investigated in the literature. Although they are not mutually exclusive, we believe that their relative importance could be identified in some host country's trade data. This paper is a first attempt in this direction. We study bilateral trade between the U.K. and 48 trading partners. A unique aspect of our data set

is that the countries can be classified into two distinct groups: 26 Commonwealth [1] and 22 non-Commonwealth countries. We hypothesise 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 counties would have less value-added compared to those from non-Commonwealth countries. This allows us to test our hypotheses and assess the relative importance of the two mechanisms through which immigrants lower the transaction costs of bilateral trade. Our key empirical results fall into three categories. First, after controlling for other factors, the U.K has a higher propensity to trade with Commonwealth countries. This result is expected in light of the fact that the gravity model literature has consistently yielded significant dummies for language and cultural similarities. Second, and interestingly, the impact of immigration on UK's exports is very different between Commonwealth and non-Commonwealth countries. Specifically, we establish a 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 supports the non-individual-specific mechanism. That is, the econometric evidence seems to suggest that immigration enhance 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. Our study reveals a pro-trade effect of immigration from the non-Commonwealth countries, similar to other studies in the literature, but reveals a "trade-substitution" effect of immigration from the Commonwealth countries. The latter could be a result of import-substituting activities by immigrants. As the immigrant population in the U.K. from Commonwealth countries is relatively large compared to that from non-Commonwealth countries, the manufacturing of some goods could be more attractive than importing them due the economies of scale for production.

The plan of the rest of the paper is as follows. Section II presents our modelling framework and Section II describes the data used in the study. In section III we discuss the estimation results and the implications of our major findings. Finally, Section IV provides some concluding remarks.

II. Modelling Framework.

Following Gould (1994) and Head and Ries (1998), 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

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[1] Including Hong Kong

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 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. Per capita GDP is also used to account for the wealth effect of the trading partner: wealthier countries are hypothesised to be more open to international trade. We have no data on trade barriers (such as tariff are non-tariff barriers) and transportation costs, but we include common language and across country 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. Our model also incorporates an index of the economic remoteness[2] of alternative markets or "third country options" (Helliwell ,1997). The less attractive are the "third country options" (the more remote are the alternative markets) for the trading partner, the more the latter is expected to trade with the U.K.

The specific functional form that we use is as follows

$$
\begin{aligned}
y_{it} = {} & g_0 M_{it} * CW_{it} + g_1 M_{it} * NCW_{it} + b_1 GDP_{it} + b_2 GDPC_{it} \\
& + b_3 Lang_{it} + b_4 Dist_{it} + b_5 \operatorname{Re} m_{it} + D_t + e_{it}
\end{aligned}
\tag{1}
$$

where all variables, except dummy variables, are in real terms and measured in natural logarithms. In the above equation, 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, which allows for the elasticity of immigration to vary across the two groups of countries. The use of time dummies (D_t) is to capture a host of macroeconomic and trade policy 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. Following previous studies using 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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[2] The remoteness index for country i is defined as $\operatorname{Re} m_i = \sum_{\forall j \neq i, UK} \dfrac{Dist_{ij}}{GDP_j}$, where $Dist_{ij}$ is the distance between country i and country j.

We chose not to use country-specific fixed effects[3] in our empirical model. To start with, this would be impossible to identify the impact of time-invariant regressors such as language and distance . But most importantly this would purge from our data all of the between-country variation[4] in trade and immigration: the very objects of our study. We have, however, included CW and EU specific fixed effect dummies to capture potentially distinct effects on the level of trade. A potential concern over the above specification is that immigration and trade could simultaneously be membership or otherwise of the Commonwealth. The use of the CW dummy will mitigated this concern, provided that the effect of such affinity is relatively stable over the period of our study. In the next section we briefly describe the salient features of the data used in this paper.

III. The Data

U.K. immigration data is available for a relatively long period of time and reasonably reliable. Information on the stock of immigrant population by country of origin is obtained from the 1981 and 1991 *Population Censuses* and flow information is collected from various issues of the *Control of Immigration Statistics* published by the U.K government. We combined these two sources of data, to estimate the annual stocks of immigration by using the following stock-flow rule: $S_{it} = (1 - \delta) S_{it-1} + F_{it}$. Here i and t indexes country of origin and year respectively; S and F are immigrant stocks and inflows and δ is the attrition rate resulting from death and departure from Britain. Like Head and Ries (1998) we assume that δ 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 δ via the following non-linear equation:

$$S_{i,1991} = (1 - \delta)^{10} S_{i,1981} + \sum_{i=1}^{10} (1 - \delta)^{i-1} F_{1991-i} + error. \tag{2}$$

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 dies. 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.

The IMF Direction of Trade Statistics was used to obtain bilateral trading data. All exports are valued 'free on board' (f.o.b) and all imports 'cost, insurance, and freight' (c.i.f) .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), whereas population and GDP figures are compiled from the World Bank's World Development Indicators CD_ROM.

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[4] The importance of between-country variation in our data can be seen from Table2.

Table 2 reports 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 twice as large as that from the non-Commonwealth countries, but the stock of immigrants from the latter 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 times greater than that of a typical Commonwealth country in the sample. This is also due to the U.K's membership of the EU and it's geographical proximity to the rest of Europe. 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.

IV. Key Findings

The explanatory powers of the gravity equations are very high and the control variables all have 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 CW dummy . For example , the UK's *propensity* to exports to the average Commonwealth country is greater by a factor of nine[5] compared to an equivalent non-Commonwealth and non-EU member country. Rauch (1996, 1999) has pioneered the network/search view of international trade[6] and reports empirical support for the view that common language/colonial ties are important in explaining international trade. This is consistent with our estimated results. However, to our knowledge, investigating the effects on trade due to the interaction between immigration and colonial tiers has never been considered in the literature. A key result of our study is that the bilateral trade impact of immigration from Commonwealth and non-Commonwealth countries is also fundamentally different, however, in a very different way.

We start our discussion by considering the findings from the export equations. Since imports are likely to be subject to strong immigrants preference effects for their home country products, exports data are probably more adequate to carry out the identification of the mechanism behind the immigrant link-effect. The first two columns of Table 4 report the estimated coefficients for the UK export regressions, and it seems that we have some robust evidence of a link between U.K exports and immigration from non-Commonwealth countries. In the static model a 10% increase in the

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[5] This is one minus the exponent of the coefficients on the CW dummy in the static model.

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. *Conditional* on past exports, variables such as distance and language seem to have a strong influence on exports 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 NCW immigration effect on exports appears to 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 exports is not found for Commonwealth countries. The CW immigration effects in both static and dynamic models fall short of statistical significance. Thus the econometric evidence does not support the hypothesis that the effect of the immigrant-link is universal, where immigration enhances bilateral trade through immigrants' business/personal contacts with their home countries. It supports, however, the idea that it is the knowledge about foreign markets and different social institutions brought by immigrants, that reduces transaction costs and facilitates bilateral trade between immigrants' host and home countries.

There are some indications from recent studies to suggest that the immigrant-link effect might not exist universally. In a study of trade among Canadian provinces and between Canadian provinces and US states, Helliwell (1997) finds trade effects of migration for international but not for inter-provincial trade. It is argued that migrants across provincial boundaries have less effect in creating trade because knowledge about the institutions and markets of their provinces are not new to the host provinces. As the author points out, 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 immigrant-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." (Helliwell, 1997). Gould (1994) also finds decreasing returns to migration for the U.S. Since immigration flows into the U.K are relatively small in magnitude, we are likely to avoid the effect of decreasing returns to immigration.

Our raw data reveal that UK's export volume to CW has exhibited some decline. In light of this fact, our finding of no significant trade impact from CW immigration could be attributed to trade diversification away from CW countries during the study period. To account for the potential bias due to trade diversification, we let the time (year) dummy, D_t, interact with Commonwealth and non-Commonwealth dummy variables (CW and NCW). Indeed, most estimated coefficients (and

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[6] Also see Rauch and Trindale (1999), Rauch and Casella (1998), and Greif (1993).

also the average) for $D_t * CW$ are negative and all the estimated coefficients for $D_t * NCW$ are positive[7]. However, as reported in Table 5, our previous findings about the trade effects of immigration from Commonwealth and non-Commonwealth countries change little. Therefore, our conclusion that the trade effect of immigrant-link is not universal appears to be robust.

The estimated coefficients for the UK import regressions are given in Table 4. 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 is estimated to have the effect of increasing UK imports from those countries 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 (1998), and Dunlevy and Hutchinson (1999). The latter, however, reveals a "trade-substitution" effect of immigration. This could be, as discussed in Diaz-Alejandro (1970), due to immigrants' import-substituting activities. Since the immigrant stock from Commonwealth countries is relatively large compared to that from non-Commonwealth countries, CW immigrant merchants may well become manufacturing entrepreneurs if there are economies of scale for production. Therefore, it is not surprising that such a trade-substitution effect is found for UK's imports from the Commonwealth rather than the non-Commonwealth countries. In the dynamic model reported in the fourth column of Table 4, however, the impact of immigration on imports falls short of significance.

V. Concluding Remarks.

To our knowledge, this paper is the first systematic empirical analysis of the link between trade and immigration using U.K data. To date, most of the economic studies focusing on U.K. immigrants has been confined to measuring their impact on the local labour markets[8]. We feel, therefore, that we made a contribution towards the understanding of the possible overall effects of immigration on the economy as a whole.

Another contribution of the paper is in helping further understand the mechanism behind the trade and immigration nexus. To do so we explored a unique aspect of the UK immigration data: immigrants in Britain come from either Commonwealth or non-Commonwealth countries. Countries in the former have a shared history and similar social institutions as the U.K, but those in the latter do not. Using the exports data we found a robust relationship between the stock of immigrants from non-Commonwealth countries, whereas we fail to establish any trade-enhancing effect from Commonwealth immigrants. We interpret this result as giving support to the idea that

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[7] The full results can be obtained from the authors upon request.
[8] For a recent review see Hatton and Whitely Price (1999).

the trade-immigration linkage is driven by the new information brought by immigrants about their home countries' market and different social institutions, rather than the business connections or personal contacts with their home countries.

A study of the imports data appears to reveal a trade-substitution effect of immigration from Commonwealth countries. This is an interesting finding and we wish to explore the issue further in the future. Future research is also planned to investigate the immigrant-link effect by considering trade flows by commodity groups. Data permitting, we also wish to extend the analysis of this paper to other European countries with similar colonial pasts. This would certainly help assess the robustness of our findings on the link between immigration and trade.

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 - Summary Statistics of Some Variables of Interest

Variable		Commonwealth		Non-Commonwealth	
		Mean	Std. Dev.	Mean	Std. Dev.
Immigrants (flow)	Overall	1169.102	1574.859	569.5804	830.7028
	Between		1535.702		829.77
	within		436.099		174.7547
	Growth(%)	3.19	4.10	.62	23.52
Immigrants(stock)	Overall	66549.1	81513.89	25463.44	30811.14
	Between		82329.17		31289.08
	within		6377.712		3397.237
	Growth(%)	1.75	6.11	2.90	7.38
Exports($ Million)	Overall	720.0844	930.6541	3268.693	5022.008
	Between		883.8844		5044.417
	within		328.9462		919.699
	Growth(%)	-.68	23.76	1.38	18.89
Imports($ Million)	Overall	649.7139	923.8715	4075.182	5367.068
	Between		901.8287		5334.596
	within		252.9732		1243.277
	Growth(%)	.83	28.13	3.23	28.76

Notes:

(i) Data on 26 Commonwealth and 22 Non-Commonwealth countries was observed over the 13 years period (1981-93)

(ii) STATA, the statistical package we used in this study, calculates between variation in x_{it}, based on the country averages $\overline{x}_{i.}$ and the within deviation based on $x_{it} - \overline{x}_{i.} + \overline{x}$, where the last term is the global mean. The reason why the global mean is added back is to make results comparable. One effect of this approach is to sometimes make the within variation greater than the overall one.

Table 3 - Correlation Coefficients between Bilateral Trade and Stock of Immigrants.

	Immigration	Exports	Imports	GDP
Non-Commonwealth Countries				
Immigration	1			
Exports	0.8072	1		
Imports	0.7311	0.9331	1	
GDP	0.7657	0.7732	0.8168	1
Commonwealth Countries				
Immigration	1			
Exports	0.2671	1		
Imports	0.1381	0.8345	1	
GDP	0.4508	0.7626	0.6971	1

Table 4 - The Impact of Immigration on UK's Exports and Imports

	Exports		Imports	
	Static	Dynamic	Static	Dynamic
Export$_{t-1}$ (Import$_{t-1}$)		.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 - Exports equation with varying time dummies

	Static	Dynamic
Export$_{t-1}$		.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)	.492 (1.85)
EU	.288 (5.45)	.042 (2.01)
R-squared	89.6%	98.7%

References:

Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *American Economic Review* 69: 106-16.

Bergstrand, J. H. (1985). The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence. *The Review of Economics and Statistics* 67: 474-81.

Control of Immigration Statistic, various issues . Government Publication, U.K.

Deardorff, A. (1995). Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World? In J. Frenkel (ed.), *Regionalization of the World Economy.* University of Chicago Press: Chicago.

Diaz-Alejandro, C. F. (1970). *Essays on the Economic History of the Argentine Republic.* Yale University Press: New Haven, CT.

Dunlevy , J. and W. Hutchinson (1999). The impact of immigration on American import trade in the late nineteenth and twentieth centuries. *Journal of Economic History* 59: 1043-62.

Gould, D. (1994). Immigration Links to the Home Country: Empirical Implications for U.S. Bilateral Trade Flow. *The Review of Economic and Statistics* 76:302-316.

Greif, A. (1993). Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition. *American Economic Review* 83: 525-48.

Harris, M. and L. Matyas (1998). Modelling International Trade Flows: Specification, Estimation and Hypothesis Testing. Paper presented at the 8th International Conference on Panel Data. Gothenburg.

Hatton , T.J. and S. Whetley (1999) . Migration , Migrants and Policy in the United Kingdom . The Institute for the Study of Labor (IZA) Discussion Paper No.81, Bonn.

Head, K. and J. Ries (1998). Immigration and Trade Creation: Econometric Evidence from Canada. *Canadian Journal of Economics* 31: 47--62.

Helliwell, J.(1997). National Borders, Trade and Migration .NBER. Working Paper No. 6072, Cambridge, Massachusetts .

Helpman, E. (1984). Increasing Returns, Imperfect Markets, and Trade Theory. In R. Jones and P. Kenen (eds.). *Handbook of International Economics.* North-Holland.

Hunter, B. F.(1992.). *Ethnologue: Language of the World.*

Rauch, J. E. (1996). Trade and search: Social Capital, Sogo Shosha, and Spillovers. NBER Working Paper No. 5618, Cambridge, Massachusetts.

Rauch, J. E. (1999). Networks versus markets in international trade. *Journal of International Economics* 48: 7-35.

Rauch, J.ames and Alessandra Casella (1998) Overcoming Informational Barriers to International Resource Allocation: Prices and Group Ties. NBER Working Paper No. 6628

Rauch, James and Vitor Trindale (1999) Ethnic Chinese Networks in International Trade, NBER Working Paper No. 7189. Cambridge, Massachusetts

Wei, Shang-Jin (1996) Intra-National Versus International Trade: How Stubborn Are Nations in Global Integration? NBER Working Paper No. 5531. Cambridge, Massachusetts

Population Censuses (1981 and 1991). Government Publication,U.K.

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