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The Persistence of Colonial Trade Patterns

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Abstract

Several decades after formally attaining independence, many developing countries continue to trade disproportionately with the European countries that once ruled them. Earlier attempts to examine this phenomenon have relied on inappropriate statistical techniques. After reviewing the existing literature, this paper draws on insights from economic history as well as the theory of industrial organization in order to motivate a different approach. History shows that there were crucial differences between the major colonial powers in respect of the nature and duration of the trade-diverting policies they imposed on their colonies; their treatment of different colonies; and of colonial exports as against imports. Theory suggests that when early entrants have sunk costs of marketing and distribution, market size is an important determinant of the entry of new suppliers. These insights are combined in an econometric specification that seeks to explain the market shares of Britain and France in different countries by their size, distance and (where relevant) time since independence. Exploratory tests, using panel data on imports by 119 developing countries for the period 1994-1999, give qualified support to the hypothesis that high market shares for the former colonial powers persist, especially in smaller, nearer, and more recently independent countries.

Keywords: Trade Patterns, Persistence, Colonialism, Developing Countries

JEL Classification: F14, N70, O19

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1. Introduction

In an increasingly integrated world economy, one would expect that trade flows should follow comparative advantage, with imports being procured from the cheapest source. Yet, several studies have found that a past colonial relationship significantly influences the volume of trade between pairs of countries. European countries have a much larger share of the market of their former colonies than the rest of the world, even decades after decolonization and the termination of institutionalized trade preferences should have ended any artificial diversion of trade towards the former colonial power. This was first noticed over a quarter century ago in a flurry of papers in leading academic journals. The debate soon died down, perhaps because the statistical tools used to demonstrate the trade bias were rudimentary, attempts to explain it were on the whole non-economic, and in any case the degree of bias appeared to be dwindling quite rapidly. In recent years, without referring to this earlier literature, many econometric investigations into the determinants of trade patterns have added a dummy variable representing ex-colonial status to the so-called 'gravity' equation, and found it to be strongly significant. But (with a few exceptions) these authors have not attempted to probe deeper into the reasons for the bias, and whether it is weakening over time.

After reviewing these two research episodes in Section 2, this paper draws on insights from economic history as well as the theory of industrial organization in Section 3, to obtain a better econometric specification, which is tested in Section 4. Section 5 concludes. But first, in order to motivate the discussion, Fig. 1 [reproduced at the end of this paper] illustrates the phenomenon graphically. It plots the British and French shares of 116 developing countries' imports from industrial countries, calculated using the latest available (1999) data from the IMF's *Direction of Trade Statistics Yearbook 2002*. Triangles representing countries that were colonies of neither former imperial power cluster near the origin (in fact most of them are obscured by the congestion near the origin) and around a hypothetical 45° line, indicating modest and roughly equal market shares. But observations for most of the former colonies are splayed out towards the respective axes, showing dramatically higher shares for their former rulers, especially France.[1] And this is despite the fact

[1] Interestingly, while British exports do not seem to have penetrated the former French colonies to any greater degree than countries that were not colonies, France seems to have secured larger market shares than Britain in several British colonies. These are the countries represented by diamond-shaped markers lying below the 45° line. They are, in increasing order of French market share: the Bahamas, Seychelles, Malta, Bahrain, Mauritius, and Bermuda. The Seychelles and Mauritius were under Dutch and then French control; Britain formally took over in 1814, and retained French as an official language, which shows that language and culture play a greater role than political control in influencing trade patterns. The case of Bermuda is particularly surprising because it was still a British colony in 1999. Note, however, that except for the Bahamas, the British market share in the other five

that almost all the colonies in the figure became independent more than 35 years earlier.[2]

2. Earlier studies

The first phase of research into this phenomenon involved a near-simultaneous 'discovery' of the trade bias by two scholars, followed by a brief interchange between them. Kleiman (1976) showed that in 1960-62, Europe's metropolitan[3] powers had shares in the trade of their former colonies and dependent overseas territories (collectively referred to as 'dependencies') which were much higher than their shares in the trade of all developing countries. For the dependencies' imports, the ratios between these shares (called the "enforcement ratio" by Kleiman) were: United Kingdom 3.0, France 7.8, Italy 11.7, Belgium 15.2, and Portugal 73.4 (Kleiman 1976, Table 2, p.463). Strikingly, of the British dependencies' imports, 38.9% came from the United Kingdom, but only 2.3% from France; conversely, France had a 60.5% market share in the imports of its own dependencies, but only 2.8% in those of the British dependencies (Table 3, p.465). Kleiman's study showed that the bias in trade patterns usually declined after attainment of formal independence, especially in the French dependencies, but remained perceptible even a decade later. In subsequent papers, he showed that the decline in the metropolitan share generally reflected trade diversification rather than takeover by another dominant power (Kleiman 1977); and that on average Spain displayed no similar disproportion in trade with its long-independent Latin American colonies in 1960-62, suggesting that lasting cultural ties could not be the explanation for the bias observed for the other European countries (Kleiman 1978a).[4] In a more limited study, Livingstone (1976) showed that in 1972 the shares of Britain and France in the imports of their former colonies, relative to

anomalous cases remains higher than in most of the countries that it did not rule at all. Also 1999 was exceptional: apart from Mauritius and Malta, in the case of no other former British colony was the British share lower than the French share for more than one year between 1994-1998.

[2] There is, however, a striking asymmetry that emerges if we reverse the perspective: while Britain and France continued to loom large as suppliers of imports to their former colonies, the latter *collectively* took only 24 (18) per cent of British (French) exports to developing countries in 1999. Relative to their exports to *all* destinations, the former colonies' collective share was less than five per cent for both countries.

[3] This term was commonly used in the influential 'dependency' literature of the time (and is still used by many historians) to describe a country having significant economic, political and cultural influence over others, with or without formal colonization. I shall use it as convenient shorthand.

[4] But see n.1 above for contrary evidence.

their import share in a control group of mainly European countries, had fallen as compared to the four years prior to and including the year of independence.[5]

In the last decade, scholars have increasingly used the "gravity" model to explain the magnitude of trade flows between pairs of countries. This model posits that bilateral trade is positively related to the countries' GNP and per capita income and negatively to the distance between them. Several researchers routinely supplement this specification with dummy variables, including colonial ties, to capture institutional features that would enhance bilateral trade flows over and above the levels predicted by the gravity variables. The focus of this research is usually something quite different: testing models of intra-industry trade (Hummels and Levinsohn 1995), estimating the effect of common borders,[6] preferential trade agreements, currency unions, or membership of international organizations on trade flows;[7] the trade-promoting role of ethnic networks (Rauch and Trindade 2002) or institutional similarity between countries (de Groot et al 2003); or the gravity model itself. In this burgeoning literature, the colony dummy is included, if at all, merely as an additional control, technically referred to as a 'nuisance variable'.

Different authors give different explanations for the persisting effect of colonization on trade patterns. Noting that France retained much higher market shares than did Britain, Kleiman suggested that tastes formed during colonial rule were responsible: "the result for the French group may be said to fit the popular view of the French cultivating in their colonies a taste for perfume and *pate de foie gras*" (Kleiman 1976, p. 465 n.). This, of course, would explain high shares for only certain consumer goods, but the phenomenon was also found for standardised intermediate goods like iron and steel (Yeats 1990). For Lazear (1999), the effect is entirely attributable to a common language. He presents evidence that countries trade disproportionately with others sharing the same language, which is usually that of the colonial power. He uses this as confirmation of his model of communication costs within firms employing multicultural teams with disjoint skill and information sets.

[5] In an ensuing exchange of limited relevance to this paper, Kleiman (1978b) and Livingstone (1978) debated the significance of import-substitution policies in the former colonies on the absolute volume of metropolitan exports, in order to calculate export losses attributable to decolonization. Svedberg (1981) applied the same methodology to the stock of foreign direct investment, and found greater persistence in the metropolitan share than in the case of trade.

[6] See Anderson and van Wincoop (2003) and the earlier literature cited there.

[7] Andrew Rose is the most prolific practitioner of this kind of analysis. All his published and forthcoming papers (as well as links to those of other researchers working in the same area) are accessible at http:/haas.berkeley.edu/arose. An interesting recent critique by Ritschl and Wolf (2003) shows that Rose's estimation of the effects of currency unions and trade agreements is inflated by endogeneity bias, arising from the fact that such arrangements were formed between countries that

Most authors in the gravity tradition also refer in passing to the obvious importance of cultural and linguistic similarities in reducing communication and transaction costs. Some, however, have delved slightly more deeply into the nature of the colonial link. Rauch (1999) shows that when separate dummies are used for a common language (which he takes as a proxy for taste similarity) and for a colonial tie (a proxy for business links), the former is never positive and significant, while the latter is always so, and larger for differentiated as compared to homogeneous products. One possible interpretation of the significance of this latter result is offered by Rauch and Trindade (2002), who find a similar (but weaker) effect of the presence of Chinese immigrant populations in promoting bilateral trade. According to them, there are two possible explanations for the role of ethnic ties in promoting trade: such ties facilitate the dissemination of information required for matching potential buyers and sellers, and they also provide informal mechanisms for enforcement of contracts. Because the latter should not differ between differentiated and homogeneous products, the finding of a greater impact for differentiated products suggests that matching is more important than contract enforcement. They also find that the importance of both social networks and colonial ties seems to have weakened between the two time points (1980 and 1990) of the study.

Eichengreen and Irwin (1998) examine the independent role of history by adding the value of the dependent variable (the magnitude of bilateral trade) for earlier years to the explanatory variables of the gravity specification, and find that current trade flows are invariably positively related to these past flows. Inclusion of the latter reduces the estimated coefficients for current income, distance, regional agreements and ex-colonial status. Coefficients for the trade flows of more recent years were invariably larger than for earlier ones, indicating a weakening influence of the past. Eichengreen and Irwin explain these findings in terms of market-specific sales, distribution and service networks that are set up during a historical conjuncture (such as colonial rule) which biased trade in a particular direction, but continue to facilitate it even afterwards.

Finally, using a non-gravity approach, Cassing and Husted (2004) show that simple time trends fitted to import market shares for 93 countries over the period 1980-2000 have slopes that are essentially flat in most cases, revealing remarkable stability of the shares. Inspired by the recent literature on geography and trade, they invoke sunk costs and scale economies in the development of transportation

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were already trading extensively with each other (as earlier shown by Eichengreen and Irwin 1995 for the 1930s). The same critique obviously does not apply to the colonial relationship.

networks, and mention colonial ties as one of several possible determinants of a high initial share, which tends to persist.

3. History, gravity and anti-gravity

If one sets out specifically to examine the influence of a colonial past on present trade patterns, the literature surveyed above suffers from several limitations. Kleiman and Livingstone estimated the decline over time in the share of trade with the metropolis for heterogeneous groups of ex-colonies, even though the rate of decline could have been mediated by country-specific variables. Conversely, the authors who added a colonial dummy to a gravity specification either ignored the temporal dimension, or picked it up by examining the coefficient on the dummy variable from cross-section estimates at two distinct time points. The use of an additive colonial dummy moreover amounts to capturing the effect of colonization as a shift of the intercept of gravity relationship, without recognizing the specificities of different colonial relationships, or the possibility that the effects of the gravity variables are different for the colonies. The first two problems can be dealt with by using panel data, and the third by interacting the colony dummy with the gravity variables.

There are however further problems with the gravity model itself in the context of colonial trade flows. Particularly troubling is the use of two-way bilateral flows (exports as well as imports) as the regressand.[8] Kleiman (1976) had already noticed, using data from the 1960s, that the bias in the former colonies' exports was declining more rapidly than the bias in their imports. He attributed this to the greater ease with which exports could be reoriented as compared to imports, which are influenced by preferences that change only slowly. I would like to suggest an alternative explanation. The stereotype of a "colonial" trade pattern is no doubt one in which the colony was developed as a source of raw materials for the metropolis and a market for the latter's exports, thereby artificially promoting bilateral trade in both directions. A brief excursion into economic history shows that actual policies differed systematically as between exports to and imports from the metropolis. It also shows that there were crucial differences between the nature and duration of British and French colonial policies which could have had a bearing on their long-term influence.[9]

[8] In some studies, only exports are included, but since the estimation is undertaken over all country pairs, this too amounts to looking at bilateral trade flows.

[9] The following is based on Drummond (1972, 1974), Pomfret (1988), Meredith (1996), Fieldhouse (1999), Hinds (2001), Krozewski (2001) and Cain and Hopkins (2002). Many of these authors attempt

3.1. Trade Preferences

The Cobden-Chevalier agreement of 1861 committed Britain and France to free trade at home and non-discrimination in their colonies. But from 1881 onwards, France began raising import duties and following a policy of tariff assimilation towards many of her colonies, meaning that they had to admit French products duty-free while goods of other industrial countries had to pay the relatively high French tariff. Britain, on the other hand, practiced what historians have called "the imperialism of free trade", refraining from imposing protective duties at home or abroad. This, however, involved a 'triangular' pattern of trade in which Britain ran a current account surplus with her colonies, who in turn ran a surplus with the rest of the world, enabling the metropolis to settle her chronic deficit with the latter. This changed in 1932, when in response to the Depression, Britain departed from free trade and the Ottawa Conference extended the limited system of Imperial Preference that had been initiated by the White Dominions in the late 19th century. Discriminatory tariffs and quotas were now instituted against non-empire imports.

These arrangements disproportionately benefited metropolitan exports to the colonies, rather than colonial exports to the metropoles. Until the 1930s the colonies paid the full French duty on some of their exports to France, while for most other primary products France maintained low or zero duties, leaving little scope for preferential treatment of colonial exports. True reciprocal preferences were initiated when France began raising barriers against imports from non-empire countries in 1931, allowing colonial exports a *surprix* over depressed world prices. Britain, however, maintained zero duties on most primary products even after departing from free trade, allowing no margin of preference. After 1939, she appropriated colonial exports through bulk purchases by marketing boards at low prices.

Preferences in favour of metropolitan exports were not enforced evenly throughout the two empires, with Britain securing fewer advantages than France. In former German territories held under League of Nations mandate, the mandatory power could not impose discrimination in its favour. The same was true of areas covered by various agreements arrived at between the European powers during their "scramble for Africa". France imposed preferences on her African colonies after withdrawing from the relevant sections of the Anglo-French convention in 1936. Britain continued to abide by her non-discrimination commitments to France, but

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to tally the costs and benefits of colonial trade and currency arrangements, for the metropoles as well as the colonies. My concern in this paper is merely to establish the argument made in the preceding

denounced the Anglo-Japanese convention of 1904 in respect of her West Indian and West African colonies, and imposed quotas on Japanese exports to these areas. In India (that is, the present India, Pakistan and Bangladesh), strong nationalist opposition limited the preferences that were granted to Britain, although again quotas were imposed on imports from Japan. Further, the benefits of preferences within the British empire also accrued to competitive manufacturers in Canada (for automobiles) and India (for textiles); France had no comparable rivals within its empire. Finally, the British colonies of Hong Kong and Singapore remained free-trading entrepôts.

Empire preferences continued after the War, shielded from the "Most Favoured Nation" principle of the GATT by a "grandfather clause" (Article I.2) that excluded existing preferential arrangements. Following the wave of decolonization of the late 1950s, some colonies became overseas departments of France, assimilated to the French tariff; others became overseas territories, giving preferential treatment to French goods but with duty-free access to France for their own; yet others became associated states with preferential access to the French market. When Belgium and France entered the European Economic Community, their reciprocal colonial preferences were extended to other members of the EEC. These arrangements were formalized by the Yaoundé Convention (1963) and the Arusha Agreement (1968) with the former colonies of sub-Saharan Africa. Again, this proved to be asymmetric as between exports and imports. Import quotas were divided amongst the six EC members, enabling France to share the burden of paying high prices on the exports of its former colonies. On the export front, "[i]n principle [France] had lost its unique trade advantages in these overseas markets; but in practice established market mechanisms, language and consumer preferences gave it a continued advantage" (Fieldhouse 1999, pp.101-102; see also Kreinin 1972 and McIntyre 1974). Britain instituted a more limited system of Commonwealth Preferences.

Such arrangements were phased out, or eroded by inflation (which reduced the ad valorem equivalent of preference margins on specific duties) or by the adoption of concessional GSP tariffs on imports from developing countries not covered by these preferences in the 1970s. The 1975 Lomé Convention gave duty-free access to the enlarged EC for the African, Caribbean and Pacific (ACP) signatories, without "reverse preferences" for EC exports. But again, "Goods covered by the EC's Common Agricultural Policy were largely excluded, while the EC's

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two sentences.

common external tariff on other primary products was low and often zero" (Pomfret 1988, p. 80). Manufactured products, for which preference margins were significant, were subject to elaborate rules of origin, and there were also instances of countries being asked to restrain their exports when they threatened EC producers.

3.2. Currency arrangements

After the breakdown of the Gold Standard in 1931, different countries coalesced into distinct currency blocs, with Britain anchoring the Sterling Area and France along with some other countries in Western Europe remaining on gold for a few years more. By removing exchange rate risk on trade between member countries, these arrangements should have promoted trade between them and diverted it away from non-members. Using the gravity model, Ritschl and Wolf (2003) have shown that in fact the countries that formed the sterling bloc already traded disproportionately with each other in 1928. Their data, however, are almost entirely confined to developed countries. In order to understand the impact of currency arrangements on the colonies, we must refer to the work of historians rather than economists.

Economic historians have increasingly questioned the traditional view of UK colonial policy as reflecting the interests of provincial manufacturers in assuring markets and raw material supplies. Instead, they argue that it served the interests of the City of London and its "gentlemanly capitalists" – the term employed in the influential work of Cain and Hopkins (2002) -- in maintaining the role of sterling as an international currency, the City as a financial centre, and the value of Britain's invisible earnings from overseas investments and financial services. On this reading, even Imperial Preference was designed not so much to give a sheltered market to British exporters, but to enable the colonies and Dominions to prop up their exports so as to be able to meet their debt service obligations to British financial institutions.

After withdrawing from the Gold Standard in 1931 and 1936 respectively, both Britain and France established currency zones in which almost all colonies used either the currency of the imperial power, or a currency pegged to it, with their gold and foreign currency reserves held by the metropolis. The Sterling Area took on a deliberately trade-diverting role with the onset of Britain's dollar crisis from 1939. Participants "agreed to sell surplus gold and dollar reserves to the Bank of England for sterling, and to exercise restraint in converting sterling into dollars … and to import goods from the Dollar Area only when these goods were not available within

the Sterling Area" (Hinds, 2001, p.11). Or, as a contemporary observer, the Cambridge economist Dennis Robertson more colourfully put it,

> *its mechanism was now to be used for the first time not merely as an instrument of war but, with more lasting effects, as an instrument of deliberate discrimination against certain products of certain not unfriendly countries.... It meant that each [member] country as a country agreed to hand over its surplus dollar earnings to Mother [Britain] in exchange for sterling, and to go to Mother when it wanted extra dollars to spend. Naturally the degree of confidence with which it exercised or presented claims on the dollar pool depended partly on its political status; the little black children, who were often the best earners, could be smacked on the head if they showed too great a propensity to spend dollars, while the grown-up white daughters [Australia and New Zealand], who were often pretty extravagant, could only be quietly reasoned with*.[10]

Formal and informal restrictions on imports from the Dollar Area were tightened after Britain's disastrous attempt to return to convertibility in 1947. This financial architecture meant that while the colonies' imports from the Dollar Area were restricted, they were encouraged to earn dollars with their exports so as to support the metropolitan currency, thus shoring up the triangular pattern of trade that had broken down during the 1930s. Again, the restrictions were unevenly enforced, with India proving to be a drain on the dollar pool. Similar restrictions were instituted by France in 1939,

> *for the same reasons as by Britain: to use colonial foreign-exchange earnings for imperial purposes. Convertibility was suspended and all foreign-exchange holdings and bullion were concentrated in the metropolitan, and later Free French, agencies. The system remained intact for all territories under effective French*

[10] Robertson (1954, pp.36, 38-39, emphasis in the original). The strong language used here does not imply that Robertson was sympathetic to the colonies. Far from it: he went on to argue that "with the rise in prices and in the volume of trade since 1945, it is natural that these territories should require to keep larger currency reserves and banking balances in London; and as to their exceptional [dollar] earnings in 1950, it would not have been true kindness to allow these simple peoples to dissipate them in the way that the sophisticated Australians chose to do. I do not think that on the whole it can be justly said that Britain has either unduly exploited or unduly neglected her colonial estate" (ibid, p.48). He also believed that the demand for dollars of the less developed members of the Sterling Area was excessive because of their over-ambitious development plans (pp.55-56).

> *control until the franc became fully convertible in 1958. As in the British case, this gave the metropolis dictatorial powers over the pattern of trade and was used to bolster the franc as an international currency. The same criticism applies: being forced to buy from France restricted the colonies' range of choice, contributed to inflation due to high French prices, and probably held back economic development.* (Fieldhouse 1999, p.114).

Restrictions on imports from outside the currency zones were dismantled by both Britain and France between 1952 and 1954 as they closed the dollar gap and moved towards convertibility in 1958. Most British colonies broke away from the Sterling Area when they became independent (although it was formally abolished only in 1972). Most of France's former colonies in Africa, however, retained the (convertible) CFA Franc, whose exchange rate with the French franc remained unchanged between 1948 and 1994, and then again until 1999 when it was pegged to the Euro. This meant that trade with France remained singularly free from exchange rate risk, even as the progressive overvaluation of the CFA Franc made imports more attractive and discouraged exports to the rest of the world.

The combined effect of trade preferences and currency zones ensured that the intensity of bilateral trade between the metropoles and their colonies peaked in the early 1950s. However, a British official Working Party set up in 1956 was sceptical about the benefits of trade preferences, whether for Britain or for the other European powers (Goldsworthy, 1994, p.395). Significantly, anticipating the arguments of the recent theoretical papers discussed above, it pointed out that

> *The close commercial ties between metropolitan countries and their DOTs [dependent overseas territories] is of great importance to the trade of the metropolitan countries and in spite of the limited scope of tariff preferences, the metropolitan countries in most cases have the largest individual share of their DOTs purchases from abroad. Discrimination in import controls may have had some influence at times but does not account, except in the case of the French DOTs, where quantitative restrictions are heavily used, for this striking situation. In most of the DOTs what seems to be of much more importance is the influence of long-standing technical and commercial connections. (ibid., p.142)*

4. An alternative framework

Our historical excursion shows that there were substantial differences between Britain and France in respect of the mechanics and duration of the trade-distorting measures they imposed on their colonies; their treatment of different colonies; and of imports as against exports. Further, to the extent that most colonies' exports to the metropolis were predominantly of homogenous primary products that did not require elaborate marketing, distribution and service networks, one would not expect the long-term effects discussed in the theoretical literature surveyed in Section 2. Their imports, on the other hand, comprised mainly differentiated manufactured goods that fit those explanations.[11] The gravity models' lumping together of imports and exports, and of bilateral trade between all country pairs, is therefore inappropriate for examining the persistence of colonial trade patterns. In any case, the EC continues to give Lomé Convention preferences to the ACP countries, and to other developing countries under the GSP, so some diversion of their export trade is only to be expected.[12] What needs to be explained is the bias in developing country *imports*, where there have been no formal preferences for the EC since 1975. Accordingly, the empirical exercise that follows confines itself to imports, returning to the market-share approach of the earliest (Kleiman/Livingstone) and latest (Cassing and Husted) contributions. Unlike those papers, I employ certain gravity variables as regressors (but with a different theoretical motivation), and use panel data which allows for individual country effects as well as the temporal dimension.[13]

For descriptive purposes, I use a modification of Kleiman's "enforcement ratio" to show the disproportionate metropolitan presence in the markets of former colonies. Like Kleiman, for each developing country, I normalize the market share of a metropolis in each country by its market share in all developing countries that were not its colonies. But unlike Kleiman, in order to ensure greater comparability in the range of goods and competitor countries, the market shares are calculated with reference to imports from all industrial countries, rather than the rest of the world. Instead of enforcement ratio, I refer to this ratio as an index of "Revealed Historical

[11] Recall that Rauch (1999) found that the "former colony effect" on trade intensity was larger for differentiated than for homogeneous products.

[12] Under the Cotonou Agreement of 2000, Lomé preferences are to give way to gradual transition to Free Trade Agreements from 2007 (which will reinstate "reverse preferences" for EU exporters). They have already been eroded by the EC's duty-free treatment of "Everything But Arms" imported from non-ACP Least-Developed Countries since 2001. But all the gravity studies surveyed above, as well as my own empirical analysis below, use data from the period when preferences under Lomé and the GSP were in force.

[13] Time series issues arising from the possibility of unit roots are no doubt important, but could not be addressed due to the short time span of the panel. They will be dealt with in future work.

Advantage" (RHA), due to its similarity to the widely-used measure of Revealed Comparative Advantage. More compactly,

$$RHA_{mi} = \frac{M_{im} / \sum_{j \in I} M_{ij}}{\sum_{k \notin E} M_{km} / \sum_{k \notin E} \sum_{j \in I} M_{kj}}$$

where M_{im} is the value of imports of the i^{th} importing country from the m^{th} metropolis, E is the set of all countries that were or are colonies of m, and I the set of all industrial countries. Figure 2 plots the unweighted average of the individual RHA indices, computed from import data in the IMF *Direction of Trade Statistics Yearbooks*, for the former British and French colonies for the period 1994-99. Clearly, as Kleiman (1976) found for the early 1960s, France remains better able to divert the imports of its former colonies than Britain, although the pull of both countries is perceptibly weakening.

For the regression analysis, however, I use the market shares (the numerator of the RHA expression) as the regressand, applying a standard logistic transformation to permit the disturbances to vary between plus and minus infinity.[14] The British (French) market share in other developing countries (the denominator of RHA) was used as a control variable on the right hand side, but proved to be insignificant as it was picked up by the time variable, and was dropped.[15] The other regressors resemble those of the gravity equation, but are grounded in an analytical approach drawn from industrial organization (IO) rather than trade theory. Recall that most of the authors who examined the persistence issue referred to the sunk costs of acquiring information about markets and setting up transport, marketing and distribution networks. Standard IO models suggest that such costs limit the number of competitors, and give a lasting advantage to early entrants, when they are large *relative to market size*.[16] If we aggregate from individual product markets to the national market, and from individual exporting firms to the countries in which they are based, this justifies the inclusion of the importing country's GDP and population as

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[14] That is, the market share is transformed as $s/(1-s)$, where s is the unadjusted market share.

[15] Regressions with RHA as the dependent variable were also attempted, and gave similar qualitative results, except for a significant coefficient on the time variable for the French regression. This was probably due to the trend in the denominator of RHA, since it could not be detected in the regressions for the numerator. A reason for the absence of trend in the market share is given below.

[16] Most IO models differ greatly in the way in which they treat the entry process and the nature of post-entry competition, but the "bounds approach" popularised by Sutton (1991, 2000) shows that there is a lower bound to concentration which is robust to these details.

determinants of the shares of their major suppliers. The ratio between these two variables (or the difference between their logarithmic transformations) also allows us to capture the effect of the destination country's per capita GDP on the former colonial power's trade share. This would be relevant if the latter's products are more suited, relative to those of competitor countries, to higher or lower income buyers. The inclusion of geographical distance from the exporter should need no justification.

Two alternative specifications were estimated, one capturing the intertemporal variation with a time trend, and the other with year-specific dummy variables. For the *i*th 'country' (some were actually overseas departments of France) and year *t*:

$$SHARE_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 POP_{it} + \beta_3 DIST_i + \beta_4 FD_i + \beta_5 FD_i * GDP_{it} + \beta_6 FD_i * POP_{it} + \beta_7 FD_i * DIST_i + \beta_8 FD_i * YRSINDEP_{it} + \beta_9 PD_i + \beta_{10} CFAD_i + \varepsilon \quad (1)$$

$$SHARE_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 POP_{it} + \beta_3 DIST_i + \beta_4 FD_i + \beta_5 FD_i * GDP_{it} + \beta_6 FD_i * POP_{it} + \beta_7 FD_i * DIST_i + \beta_8 FD_i * INDEPYR_{it} + \beta_9 PD_i + \beta_{10} CFAD_i + \sum_{95}^{99} \beta_t D_t + \varepsilon \quad (2)$$

where

$SHARE_{it}$	=	Logistic transformation of the British (French) share of imports of country *i* in year *t* from all industrial countries.
GDP_{it}	=	Natural logarithm of GDP of country *i* in year *t.*
POP_{it}	=	Natural logarithm of population of country *i* in year *t*
$DIST_i$	=	Natural logarithm of great circle distance from London (Paris) to capital or major port of country *i*
FD_i	=	Dummy variable taking the value 1 if country *i* was a former British (French) colony, 0 otherwise
PD_i	=	Dummy variable taking the value 1 if country *i* is still a British (French) colony, overseas department or territory, 0 otherwise
$INDEPYR_i$	=	Year of independence of country *i*
$YRSINDEP_{it}$	=	Number of years since independence of country *i* as of year *t*
$CFAD_I$	=	Dummy variable taking the value 1 if country *i* was a member of the CFA, 0 otherwise (French regressions only).
D_t	=	Year dummy, taking the value 1 for year *t*, 0 otherwise.

For each country, *DIST* and *INDEPYR* obviously remain unchanged through the six years of the panel. The colony dummies could in principle switch between 0 and 1 if a colony became independent during the sample period, but in fact there are no such cases. All other variables can change from year to year, and are therefore given time subscripts. Note that in equation (1), the number of years since independence is incremented for each year in the panel, while in (2) the year of independence remains fixed for each country, and temporal variation is picked up by the year dummies, using 1994 as the reference year. A priori, one would expect *SHARE* to be related negatively to the three gravity variables, as larger market size and greater distance from the metropolis encourage competitors from other countries. It should also be negatively related to *YRSINDEP* but positively to *INDEPYR* (the more recently a colony became independent, the greater the residual influence of the colonial trade pattern). Positive signs are expected for the colony dummies, and negative signs for the year dummies.

Specifications (1) and (2) were estimated separately for Britain and France, using an unbalanced panel of 119 developing countries for the years 1994-1999. *SHARE* was computed from import data in the IMF *Direction of Trade Statistics Yearbooks*. *GDP* and *POP* are from the World Bank *World Development Indicators 2002*, with a few exceptions.[17] *INDEPYR* was taken from the sources cited in Table 3; for countries that were not British (French) colonies it was set to 1, which drops out because this variable enters only interactively with *FD*, which is zero for such cases. YRSINDEP were calculated by subtracting *INDEPYR* for each former colony from the current year in the panel. *DIST* for most countries was taken from a readily-available source,[18] and calculated for others using a great circle distance calculator.[19] The former colonies of French Indo-China were not counted as French colonies due to their subsequent history, nor were Hong Kong and Singapore included in view of their high levels of development and historically free-trading status. As most of the remaining French colonies gained independence in a single

[17] GDP figures for Somalia, Djibouti, Netherlands Antilles, Bermuda, Macau, UAE, Qatar, Uganda, Seychelles, Brunei, Dominica, Zaire, Cuba, Liberia, Oman, Afghanistan; and population figure for Dominica (1999) from: "The World Factbook", Central Intelligence Agency, 1994 - 1999. Available at http://www.cia.gov/cia/publications/factbook/index.html.

[18] "Distance Measure in Useful Gravity Model Data", *Jon Haveman's International Trade Data*, available at: http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/Data/ Gravity/dist.txt. Although the great circle distance does not correspond to shipping distance, it is easily available for a large number of countries, and is invariably used in the gravity literature.

[19] Available at: http://www.wcrl.ars.usda.gov/cec/java/lat-long.htm. This calculates distances between any two locations based on their latitude and longitude, which were obtained from the CIA World Factbook.

year (1960), including both *FD* and *FD*INDEPYR* in specification (2) resulted in high colinearity between them. As the whole point of the specification is to pick up the time effect with the latter variable, I dropped *FD*. Although this problem did not arise in the case of Britain, *FD* was dropped from specification (2) there as well for consistency. These deletions caused minimal changes in the other estimated coefficients. In addition, a dummy variable for countries that had free trade agreements with the EU was tried, but the coefficient was never significant, and it was therefore dropped.

Random effects GLS estimates (as indicated by Breusch-Pagan tests), corrected for first-order autocorrelation, are reported in Table 1. While interpreting the results, the insignificant negative coefficient on *FD* should cause no alarm, because the "colony effect" is being picked up by this variable in conjunction with its interactions with the three gravity variables, each of which is large in magnitude. A few anomalous cases can be easily explained. For example, the coefficients on the gravity variables were often not significant in the British regression, but they were significantly distinguishable from zero when interacted with *FD*, indicating that the model works well for the former colonies. In the French case, the coefficients on the time variables in both specifications are not significantly different from zero, but this is probably because of another problem caused by the bunching of independence dates: insufficient variation in an independent variable translates into a high standard error and statistically insignificant coefficient for that variable. For Britain, whose colonies achieved independence over a much longer span of time, the coefficients are significant and of the expected signs.

There are, however, some puzzling findings. For Britain, a former colony's population seems to have an unexpectedly positive effect on the British market share, controlling for all other factors. One possible interpretation of this is as follows. Note that the estimates for the difference (β_1 - β_2) in conjunction with (β_5 – β_6) gives the responsiveness of *SHARE* to *per capita* GDP for the former colonies. This is negative for Britain in both specifications, indicating that she has a larger relative market share in the poorer countries once ruled by her. For France, the signs of the relevant coefficients are reversed, suggesting an advantage in higher-income markets.[20] In the French case, distance (as captured by *FD*DIST*, represented by β_7) turns out to have an unexpectedly positive effect, even after

[20] This inference is strengthened by the results of a slightly different specification (not reported here) in which *POP* is replaced by per capita GDP, as in some gravity models. Interacted with the colony dummy, the latter variable has a significantly positive effect for France, but negative for Britain.

taking into account the negative coefficient β_3 on *DIST.* This indicates that the effects of history seem to outweigh those of geography for the former French colonies, consistent with the much closer and longer-lasting ties that France established with them. The role of aid tied to procurement in the donor country cannot be ruled out as a relevant omitted variable.

5. Conclusion

On the whole, the main hypotheses of this paper seem to be confirmed by the empirical evidence. High metropolitan trade shares tend to persist after formal decolonisation, especially in countries that are small in terms of market size and more recently independent. Market presence seems to fall off with distance, but this is inexplicably reversed for the French colonies. In ongoing work, I hope to examine these issues with a longer panel, so as to apply error-correction methods appropriate for detecting persistence.

TABLE 1: SUMMARY OF REGRESSION RESULTS
(Dependent variable: *SHARE*)

	BRITAIN		FRANCE	
Independent variable	**Equation (1)**	**Equation (2)**	**Equation (1)**	**Equation (2)**
GDP	0.11**	0.12***	0.12**	0.13***
	(2.28)	(2.44)	(2.37)	(2.35)
POP	-0.06	-0.07	-0.10**	-0.12***
	(-1.40)	(-1.47)	(-2.24)	(-2.61)
DIST	-0.91***	-0.50***	-1.00***	-0.99***
	(-2.86)	(-2.81)	(-5.33)	(-4.98)
FD	10.99***		-13.10	
	(2.80)		(-1.96)	
FD*GDP	-0.49***	-0.51***	0.27	0.16
	(-3.68)	(-4.15)	(0.87)	(0.53)
FD*POP	0.44***	0.36***	-0.32	-0.31
	(4.08)	(3.45)	(-1.09)	(-0.98)
FD*DIST	-0.43	-0.33	1.75***	1.57***
	(-1.18)	(-0.88)	(3.11)	(2.72)
PD	0.70	0.66	4.14***	4.06***
	(0.71)	(0.92)	(12.11)	(11.01)
FD*YRSINDEP	-0.04***		-0.015	
	(-2.77)		(-0.56)	
FD*INDEPYR		.005***		-0.005
		(2.86)		(-1.22)
D95		-0.05		0.01
		(-0.92)		(0.27)
D96		-0.06		0.04
		(-1.24)		(0.67)
D97		-0.02		-0.05
		(-0.35)		(-0.84)
D98		-0.09*		0.02
		(-1.71)		(0.30)
D99		-0.05		0.11**
		(-1.00)		(1.85)
CFA			0.47***	0.45*
			(2.91)	(1.75)
CONSTANT	-0.44	-0.61	4.52	4.64
	(-0.29)	(-0.35)	(2.51)	(2.42)
N	689	689	700	700
R-Squared	0.46	0.45	0.65	0.65

(z-statistics in brackets)
* 10% significance level
** 5% significance level
*** 1% significance level

TABLE 2: MATRIX OF BIVARIATE CORRELATION COEFFICIENTS

	FRANCE			BRITAIN		
	GDP	POP	DIST	GDP	POP	DIST
GDP	1			1		
POP	0.8524	1		0.8497	1	
DIST	0.0321	0.0018	1	0.067	0.0328	1

TABLE 3: COUNTRIES IN SAMPLE

British Colonies	Year of independence	French Colonies	Year of independence
BERMUDA	PD	GUADELOUPE	PD
BAHAMAS, THE	1973	GUIANA, FRENCH	PD
BAHARAIN*	1971	MARTINIQUE	PD
BANGLADESH*	1947	NEW CALEDONIA	PD
BARBADOS*	1962	REUNION	PD
BELIZE	1981	ALGERIA	1962
BRUNEI DARUSSALAM	1984	BENIN*#	1960
CYPRUS	1960	BURKINA FASO*#	1960
DOMINICA	1978	CAMEROON#	1960
FIJI	1970	CENTRAL AFRICAN REPUBLIC#	1960
GAMBIA, THE	1965	CHAD#	1960
GHANA	1957	COMOROS*	1975
GRENADA	1974	CONGO, REPUBLIC OF#	1960
GUYANA	1966	COTE D'IVOIRE#	1960
INDIA	1947	DJIBOUTI*	1977
JAMAICA	1962	GABON#	1960
KENYA	1963	GUINEA*	1958
KUWAIT*	1961	MADAGASCAR	1960
MALAWI	1964	MALI#	1960
MALAYSIA	1957	MAURITANIA	1960
MALDIVES	1965	MOROCCO	1956
MALTA	1964	NIGER#	1960
MAURITIUS	1968	SENEGAL#	1960
MYANMAR	1948	TOGO#	1960
NIGERIA	1960	TUNISIA	1956
PAKISTAN	1947		
QATAR*	1971		
SEYCHELLES	1976		
SIERRA LEONE	1961		
SRI LANKA	1948		
SUDAN	1956		
St.VINCENT & GRENADINES	1979		
TANZANIA	1961		
TRINIDAD & TOBAGO*	1960		
UGANDA	1962		
UNITED ARAB EMIRATES*	1971		
ZAMBIA	1964		
ZIMBABWE	1980		

Source: Springhall (2001, pp. xii-xiii), except those marked (*), for which year of independence was taken from WORLD GEOGRAPHICAL ENCYCLOPEDIA Vols 1-5 Mc Graw Hill, 1994. PD indicates present colony, overseas territory or department.

Other Countries:

Equatorial Guinea[#] , Mozambique, Cape Verde, Macao, Rwanda, Guinea-Bissau[#] , Burundi, Angola, Zaire, Somalia, Peru, Vietnam, Cuba, Cambodia, Lao, P.D.Rep. , Liberia, Indonesia, Suriname, Venezuela, Netherlands Antilles, Oman, Egypt, Bolivia, Uruguay, Syrian Arab Rep., Yemen Republic, Israel, Iran, Jordan, Lebanon, Ethiopia, People's Rep. Of China, Brazil, Saudi Arabia, Argentina, Thailand, Papua New Guinea, Nepal, Mongolia, Philippines, Korea, Mexico, Honduras, Paraguay, Panama, Nicaragua, El Salvador, Costa Rica, Chile, Guatemala, Colombia, South Africa, Ecuador, Haiti, Vanuatu, Dominican Republic

[#]CFA country

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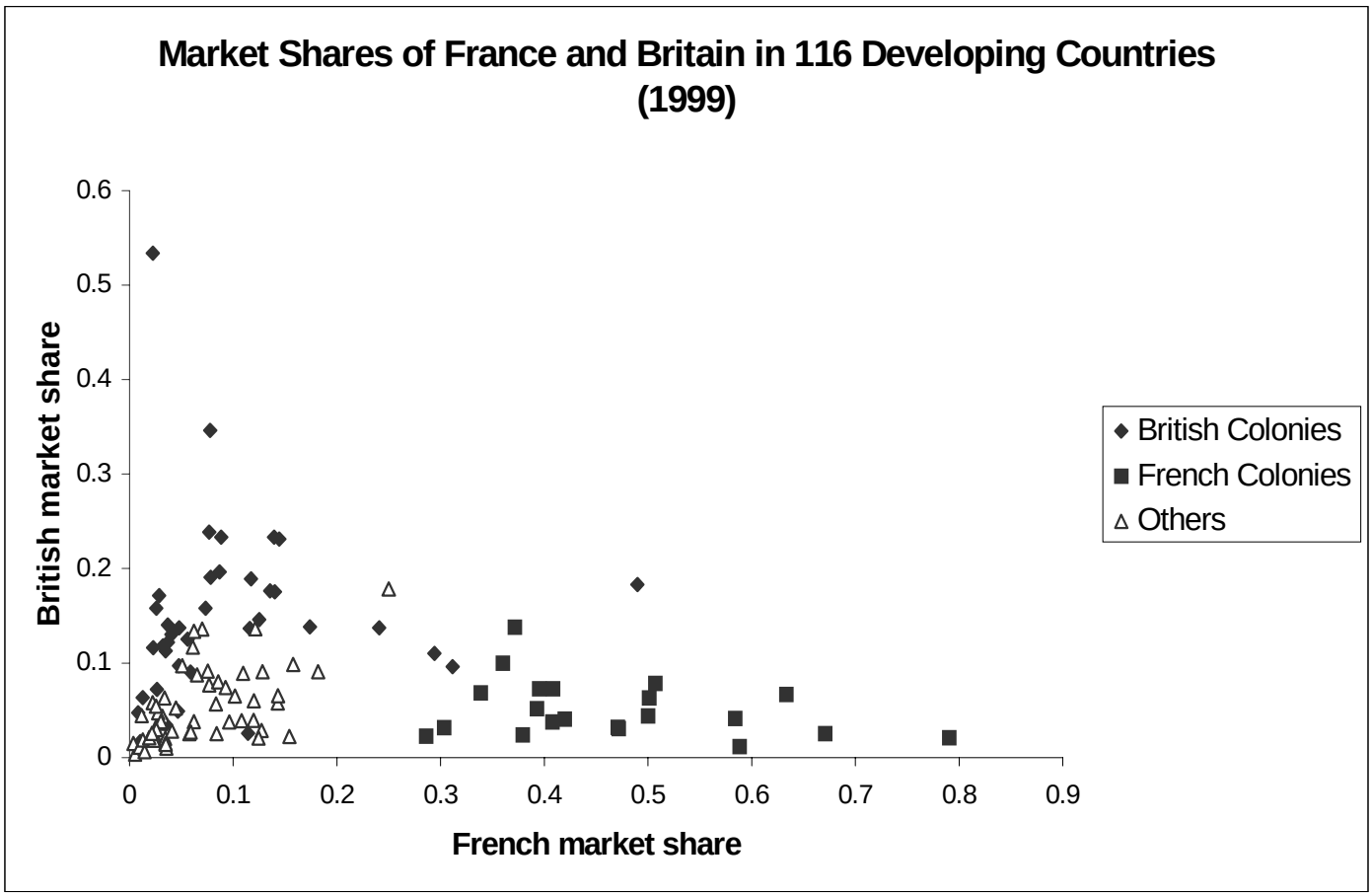
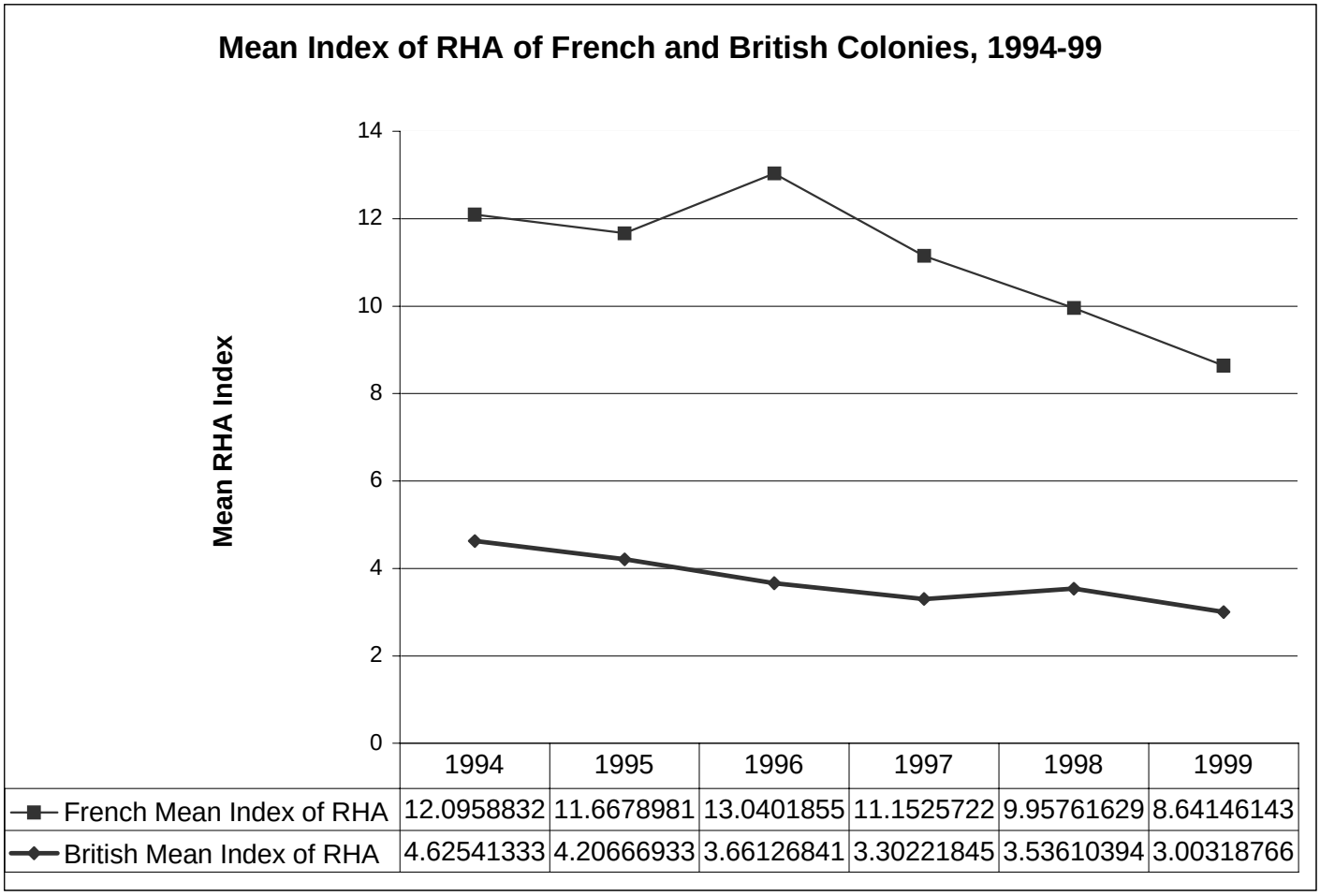
FIGURE 1



Source: Calculated from import data in IMF *Direction of Trade Statistics Yearbook 2002*

FIGURE 2



	1994	1995	1996	1997	1998	1999
French Mean Index of RHA	12.0958832	11.6678981	13.0401855	11.1525722	9.95761629	8.64146143
British Mean Index of RHA	4.62541333	4.20666933	3.66126841	3.30221845	3.53610394	3.00318766

Source: Calculated from import data in IMF *Direction of Trade Statistics Yearbooks*

* Complete list of working papers is available at the CDE website:
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