

# Why Do English-Speaking Countries Run a Trade Deficit? The Curse of Commercial Languages

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**Abstract** With the advance of globalization, English has become the language of commerce. While this lowers the trade costs for other countries, the opposite is not necessarily the case for English-speaking countries. This paper first provides empirical evidence that trade deficit is chronic in the US and in other English-speaking countries. It then compares the situation in countries where other commercial languages are the official language. Using a theoretically-grounded gravity model, it concludes that commercial language is a significant factor behind this phenomenon. Industry level analysis show support for this effect, which is more pronounced in industries where consumers prefer products with instructions or information. Such information is widely provided in major commercial languages.

*Keywords:* Language in product labels, gravity models, official language.

*JEL Classification:* F13, F14, F15

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## 1. Introduction

With the advance of globalization, English is emerging as the unofficial language of commerce. It is the preferred language in business meetings and in business communications, unless another common language is spoken in both parties' home countries. Furthermore, it is also observed that more and more products are labeled in two languages: the widely spoken language of the domestic country and English. Instructions or information about the product are in at least these two languages. These factors reduce trade barriers of English-speaking countries by lowering the cost of trading. However, these barriers still exist for companies from English-speaking countries who wish to export their products to other countries. Hence, having the widely spoken commercial language as the official language emerges as a disadvantage since it leads to trade deficit.

This paper provides evidence for this phenomenon. The methodology is fairly simple and relies on the literature's findings on gravity models, including Tinbergen (1962), Frankel et al (1995), Anderson and van Wincoop (2003), and Feenstra (2002). These studies examine the

determinants of international trade patterns using gravity-type models. In its simplest form, trade between two countries is a function of each country's gross domestic product, and the distance between them. The literature taught us what other determinants improve the specification of the model. One such determinant, specifically relevant for this paper, is the common language: Countries that speak the same language tend to trade more with each other due to lower trading costs. However, since trade promoting effects are observed in both imports and exports, this does not necessarily cause a trade deficit. This paper analyzes the implications of commercial languages on trade patterns after controlling for the common language as well as the real exchange rate, the appreciation of which is the primary cause of trade deficits.

This paper provides evidence for the trade deficit causing impact of commercial languages using a theoretically grounded model that is detailed in Section I. Other than English, French, Spanish and Arabic are also considered as possible commercial languages, although they are probably more regional. The data is described and the empirical evidence on English-speaking and other countries are provided in Section II. The last section discusses the results and provides an explanation which is supported by an industry level analysis.

## 2. Model

In his survey of testing trade theories, Deardorff (1984) state that gravity models have been extremely successful in predicting trade flows despite their "somewhat dubious theoretical heritage". Since then, the literature, notably, Bergstrand (1985), Helpman and Krugman (1985), Deardorff (1998), and more recently, Cieslik (2009) provided the link between this fairly simple empirical model, and the main trade theories. On the empirical side, Anderson and van Wincoop (2003) derived a correctly specified gravity model. As most recently illustrated by Paas, Tafenu and Scannell (2008), the results can have considerable sensitivity to specification, it is very important to work with one that produces consistent estimates. Feenstra (2002) showed that consistent estimates that such a model yields can be obtained much simply by the fixed effects approach.

With the theoretical framework provided in these studies, and taking into account the recent developments in empirical gravity models, the following simple equation is estimated to find the implications of commercial languages on trade patterns:

$$\ln\left(\frac{M_{ijt}}{Y_{it}Y_{jt}}\right) = \delta_i^m + \delta_j^x + \delta_{ij} + \rho \ln d_{ij}^w + \theta \ln RER_{ijt} + \sum_{c=1..9} \mu_c COL_{ij}^c + \phi CB_{ij} + \sum_{l=1..10} \sigma_l CL_{ij}^l + \sum_{l=1..4} \lambda_l L_i^l + \varepsilon_{ijt} \quad (1)$$

where  $M_{ijt}$  is country  $i$ 's imports from  $j$  at time  $t$ .  $Y_{it}$  and  $Y_{jt}$  are the importer and exporter countries' gross domestic products (GDP), respectively. Note that the choice of the dependent variable guarantees unit income elasticities as it should be in a theoretically-grounded gravity model (Anderson and van Wincoop, 2003).

Per Feenstra's (2002) consistent method,  $\delta_i^m$  and  $\delta_j^x$ , the fixed effects for the importer and the exporter countries of  $i$  and  $j$ , respectively, are included in the model. These effects control for country-specific heterogeneity, including multilateral resistance terms of destination and source countries (Anderson, 1979). An addition to Feenstra's (2002) model is  $\delta_{ij}$ , the bilateral fixed effect between countries  $i$  and  $j$ . Its inclusion allows control for the bilateral resistance term in Anderson (1979). This bilateral fixed effects term is also suggested by Egger and Pfaffermayr (2003) to control all influences to the trade of a country pair. It is set equal to one for all trades, imports or exports, between countries  $i$  and  $j$ .

$d_{ij}^w$  is the weighted average of distance between multiples of economic centers in each country, where the weights are each center's economic size. Helliwell and Verdier (2001) argue that especially for large countries with multiples of economic centers, a weighted distance better captures the geographic distance between the countries, and is expected to negatively impact the imports.

A very important factor determining the balance of trade,  $RER_{ijt}$ , the real exchange rate between the two countries, is also controlled in the model. Increases in the real exchange rate, defined as the price of one foreign good in terms of domestic goods, is expected to cause decreases in the imports.

Colonial relations are also shown to be important trade promoting factors affecting trade patterns by Frankel, Stein and Wei (1995) and more recently by Baranava (2008). In this model,  $COL_{ij}^c$  is set equal to one if the two countries share a colonial history, whether they are colonies of the same colonizer, or one is the colony of the other. The colonizers considered in the analysis are United Kingdom, France, Spain, Netherlands, Denmark, Portugal, Japan, Russia and Turkey. Although the impact of colonial links can be captured by bilateral fixed effects, they are separately included in this analysis since countries with a common colonial history tend to be familiar with each other's customs and/or speak the same language, reducing the trade costs. Furthermore, the four widely spoken languages considered in this paper are primarily a result of colonial history.

Other trade promoting factors are common border and common language. The common border variable,  $CB_{ij}$  assumes the value of one if countries  $i$  and  $j$  share a common border. Common language variable,  $CL_{ij}^l$  is set equal to one if at least 9% of the population of each country speak

the same language  $l$ . The languages included in the analysis are English, French, Spanish, Arabic, Chinese, Portuguese, Dutch, Russian, German, and Persian.

Lastly,  $L_i^l$  captures the impact of the official language of the importer country. They are set equal to one if the importer country  $i$  has  $l$  (one of English, French, Spanish or Arabic, considered separately) as its official language. For countries that have multiples of official languages, two or more of these dummy variables are set equal to 1. The impact of having one of these as the official language on the trade balance can be obtained using the coefficients of these dummy variables. The factor of trade deficit for countries that have a particular official language is simply exponential of that language's coefficient. More generally, the equation (2) below gives a measure of the trade deficit of importer  $i$  in against exporter  $j$  in the form of imports to exports ratio:

$$\frac{M_{ijt}}{M_{jit}} = e^{(\delta_i^m + \delta_j^x - \delta_j^m - \delta_i^x)} RER_{ijt}^{2\theta} e^{\left( \sum_{l=1..4} \lambda_l L_i^l - \sum_{l=1..4} \lambda_l L_j^l \right)} \quad (2)$$

### 3. Data

Trade patterns of 197 countries are analyzed. English is the official language of 62 countries. Belize and Puerto Rico have both Spanish and English as the official languages. There are altogether 25 countries that have Spanish as the official language. 35 countries have French as the official language. Equatorial Guinea is the only country that has French and Spanish as the official languages. Arabic is the official language of 24 countries primarily in North Africa and the Middle East, eight of which also have French as the official language. French and English are the official languages of seven countries. Figure 1 maps these countries. It is noteworthy that all official languages are rather regional with the exception of English, which is spread to five continents.

Table 1 shows trade balances of English-speaking countries in 2008, as well as the export/import ratios to measure the severity of the imbalances. Only 6 of 49 countries with available data experienced trade surpluses. For 27 out of 43 countries with trade deficits, exports account for less than half of their imports.

This is not an isolated situation just observed recently in 2008. Figure 2 depicts the trade balances as percentage of GDPs for English-speaking countries as well as other major languages for an older and longer time period of 1990-2004. While for other languages approximately half of the countries have trade deficits, and there are frequent switches back and forth between a deficit and a surplus, for English-speaking countries, a clear majority have long been running persistent deficits.

#### 4. Results and discussion

Table 2 provides the regression results of equation (1). All of the coefficients have the expected sign and are significant with very few exceptions. As expected, weighted distance and real exchange rate are negatively correlated with imports. Common border, common colonial history, and common language variables generally have the expected trade promoting effects. Only the German and the Japanese colonial relationships have negative impact on trade. Notably both have short lived, fairly recent and failed colonial history. The common Spanish language variable has the correct sign, but is insignificant at 95% confidence level. The common Chinese language variable has the incorrect sign.

Coefficients of official language variables support that having a widely-spoken language as the official language hurts the trade balance since it leads to more imports than exports. All coefficients are significant and positive. The only exception to this finding is the Spanish language. Taking the exponents of the coefficients implies that after controlling for other factors, having English as the official language results in 73% more imports than it would have been otherwise. This percentage is 99% for French, and 76% for Arabic. Imports are 43% lower in countries where Spanish is the official language relative to those that are not. The magnitudes of these coefficients show how important this factor is in the determination of trade balance. It is also surprising that the coefficients are actually higher for other official languages than English.

What can be done to remedy the situation? On an aggregate scale, the options are limited. Giving up English as the official language is not going to help as long as citizens of that country keep speaking that language. As a matter of fact, English is not stated as the official language of the US. Other than the official languages, the equation (2) relates the trade deficit positively to a country's fixed effect as the importer, and negatively to the same country's fixed effect as the exporter. Hence to remedy the situation, a particular country must identify what country-specific idiosyncracies make that country import more than its exports.

The equation (2) also relates the trade deficit between two countries to the real exchange rate. Hence, on a bilateral level, an appreciation of partner country's real exchange rate would help as well. Setting the equation (2) to one, and solving for the real exchange rate gives its desired level for a balanced trade between two countries, where one has the widely spoken language  $l$  as its official language and the other one has only its local language:

$$RER_{ij}^* = \exp\left(\frac{\delta_i^m + \delta_j^x - \delta_j^m - \delta_i^x + \lambda_l}{-2\theta}\right) \quad (3)$$

Computations done for the US reveal the figures given in Table (3) for its partners with which it has the largest trade deficit. Accordingly, the China and Germany are the only major trade partners where their real exchange rate is overvalued. In particular, the Chinese real exchange rate against the US needs to appreciate by 45%, and the German one by 17% for a balanced bilateral trade. For other major trade partners US has trade deficit against, it does not look like undervaluation is the source of the problem.

Another remedy to the situation, maybe a more reasonable one, can be found when an industry level analysis is done. Industry specific effects of English as the official language are reported in Table 4 in terms of excess of imports relative to exports in percentages after controlling for the factors given regression equation (1). Accordingly, industries where product labels or information booklets included in product packages, describing the content, its specifications, standards, instructions, warnings, etc. are important in consumers' purchasing decisions, typically have higher trade deficits due to English. Some examples include industries where information provided directly affects consumers' health such as beverages, fish preparations, animal and vegetable oils, sugar preparations, meat preparations, cereal preparations, dairy products. Consumers would like to be able to read the labels of products in these industries before making a purchasing decision. Hence if the labels in other countries are in English as well as the local language, the market access would be easier. This is indeed the reality as anyone that has done frequent international trips and had a chance to shop can testify. This practice has been more frequent since the advance of globalization in 1990s. Other industries where critical information needs to be provided in a booklet written a language its consumers can understand are also high on the list such as chemicals, explosives, fertilizers, sanitary products, etc. Given this finding, the remedy is easier to implement since that would be at the discretion of the economic agents of the importer country that is running a trade deficit. If the manufacturers of products in that country produced goods or services well documented in the language of the country they are running a deficit against, the problem would at least be alleviated.

## Endnotes

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**Figure 1. Official Languages of the World**

Notes: Countries marked in black have English as the official language, whereas it is French for those that are in grey. Official language is Spanish in countries marked with horizontal stripes. Arabic is the official language for countries with diagonal stripes.

Equatorial Guinea has both French and Spanish as the official languages. Cameroon, Canada, Dominica, Mauritius, Rwanda, Seychelles, and Vanuatu have both English and French as the official languages. Algeria, Chad, Comoros, Djibouti, Lebanon, Morocco, Niger and Tunisia have Arabic and French as the official languages.

Source: CIA World Fact book and CEPII

**Table 1. 2008 Trade Balances of English-Speaking Countries**

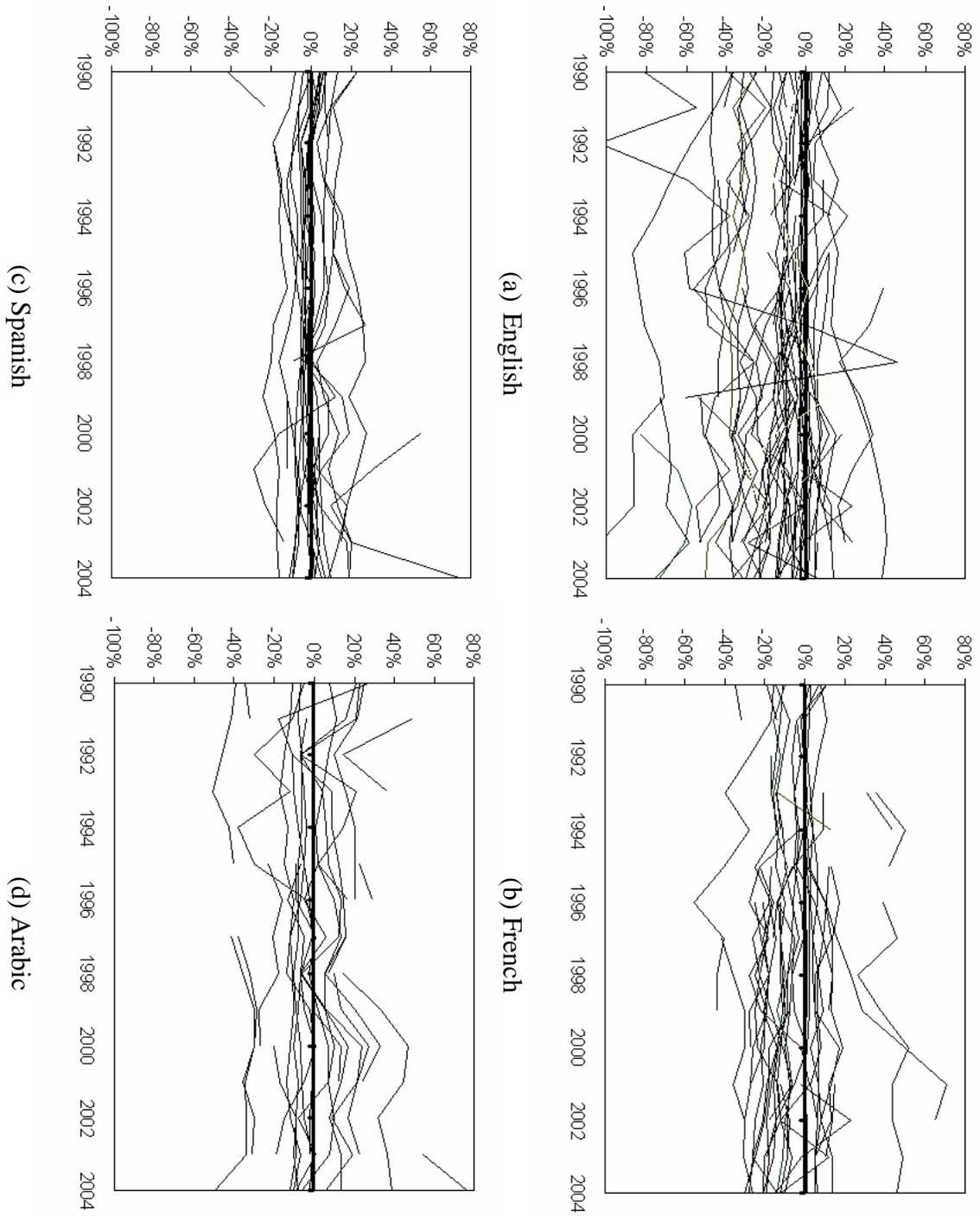

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Turks & Caicos (2007)	-564 (0.03)	Kenya	-7,045 (0.45)
Anguilla	-260 (0.04)	Pakistan	-22,048 (0.48)
Gambia	-315 (0.04)	Mauritius	-2,268 (0.51)
Tonga (2007)	-135 (0.06)	Solomon Isds. (2007)	-127 (0.56)
Grenada	-333 (0.08)	India	-133,851 (0.58)
Montserrat (2007)	-27 (0.09)	Guyana	-583 (0.59)
St. Kitts (2007)	-238 (0.13)	Malta	-2,037 (0.59)
St. Vincent & Grenadines	-321 (0.14)	USA	-864,935 (0.60)
Vanuatu (2007)	-172 (0.15)	Ghana (2006)	-1,715 (0.68)
Antigua & Barb. (2007)	-474 (0.17)	UK	-176,208 (0.72)
Ethiopia	-7,078 (0.18)	Philippines	-11,265 (0.81)
Dominica (2007)	-159 (0.19)	South Africa	-13,628 (0.84)
Bahamas (2007)	-2,433 (0.22)	New Zealand	-3,789 (0.89)
Samoa	-216 (0.25)	Zimbabwe (2007)	-284 (0.92)
St. Lucia	-492 (0.25)	Zambia	-298 (0.94)
Barbados	-1,290 (0.26)	Hong Kong	-22,721 (0.94)
Seychelles	-666 (0.27)	Israel (2007)	-2,528 (0.96)
Jamaica	-6,027 (0.29)	Australia	-4,487 (0.98)
Rwanda	-747 (0.35)	Singapore	18,396 (1.06)
Tanzania (2007)	-3,780 (0.36)	Canada	48,415 (1.12)
Uganda	-2802 (0.38)	Cameroon (2006)	426 (1.14)
Belize (2007)	-418 (0.39)	Ireland	42,827 (1.51)
Malawi	-1325 (0.40)	Trinidad (2007)	5,733 (1.75)
Fiji (2007)	-1034 (0.42)	Nigeria	52,910 (2.90)
Ghana	-5025 (0.45)		

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Notes: All figures are in millions of US\$. Numbers in parentheses are export/import ratios. Countries are sorted based on these ratios. For countries with no 2008 data, most recent year with data are given next to their names. Bermuda, British Virgin Isds., Cayman Isds., Liberia, Marshall Isds., FS of Micronesia, Nauru, Palau, Puerto Rico, Solomon Isds., and Somalia are also English-speaking countries with no available trade data.

Source: UN Comtrade database.



**Figure 2. Trade Balances of Countries with Different Official Languages**  
Source: UN Comtrade and National Accounts Main Aggregates databases.

**Table 2. Regression Results**

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$$\ln\left(\frac{M_{ijt}}{Y_{it}Y_{jt}}\right) = \delta_i^m + \delta_j^x + \delta_{ij} - 1.033 d_{ij}^w - 0.325 RER_{ijt} + 0.535 CB_{ij}$$

$$0.409 COL_{ij}^{GBR} + 0.224 COL_{ij}^{FRE} + 0.516 COL_{ij}^{SPA} + 1.518 COL_{ij}^{RUS} - 0.285 COL_{ij}^{GER} +$$

$$0.669 COL_{ij}^{POR} + 0.817 COL_{ij}^{DUT} - 1.048 COL_{ij}^{JPN} + 0.150 COL_{ij}^{TUR} +$$

$$0.166 CL_{ij}^{ENG} + 0.347 CL_{ij}^{FRE} + 0.020 CL_{ij}^{SPA} + 0.626 CL_{ij}^{ARB} - 0.163 CL_{ij}^{CHN} +$$

$$0.637 CL_{ij}^{POR} + 0.114 CL_{ij}^{GER} + 0.179 CL_{ij}^{PER} + 0.738 CL_{ij}^{RUS} + 0.070 CL_{ij}^{DUT} +$$

$$0.549 L_i^{ENG} + 0.687 L_i^{FRE} - 0.841 L_i^{SPA} + 0.565 L_i^{ARB}$$


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Notes: All coefficients are significant with 95% confidence, except  $CL_{ij}^{SPA}$ . All coefficients are significant with 99% confidence, except  $CL_{ij}^{PER}$  and  $CL_{ij}^{DUT}$ .

**Table 3. Top Five US Trade Deficits in 2007 and Real Exchange Rates**

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	Deficit	Desired RER	Under/Overvaluation
China	-274.9	1.98	-45%
Japan	-86.8	0.22	72%
Mexico	-76.4	0.44	68%
Canada	-69.1	0.53	49%
Germany	-47.0	1.19	-17%

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Notes: Deficit figures are in billions of US\$. 2007 is the most recent year with available data on GDP Implicit Deflators.

**Table 4. Industry Specific Effects**


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145%	Beverages
130%	Non-metallic mineral manufactures
121%	Fish and fish preparations
114%	Travel goods and handbags
110%	Processed animal and vegetable oils
109%	Crude chemicals from coal, petroleum and gas
108%	Petroleum and petroleum products
105%	Sugar and sugar preparations
105%	Manufactured fertilizers
103%	Explosives and pyrotechnic products
100%	Sanitary, plumbing, heating and lighting fixtures
100%	Plastic materials
95%	Perfume materials, toilet and cleansing preparations
93%	Paper and paperboard manufactures
92%	Footwear
91%	Crude rubber
90%	Animal oils and fats
89%	Furniture
89%	Meat and meat preparations
87%	Cereals and cereal preparations
86%	Dying, tanning and coloring materials
85%	Rubber manufactures
79%	Dairy products and eggs
77%	Scientific and control instruments, photographic goods, clocks
77%	Wood and cork manufactures
73%	Non-ferrous metal manufactures
73%	Chemical elements and compounds
65%	Fixed vegetable oils and fat
63%	Crude fertilizers and crude minerals
62%	Iron and steel manufactures
58%	Clothing
58%	Fruit and vegetables
57%	Electrical machinery, apparatus and appliances
56%	Non-electric machinery
51%	Transport equipment
50%	Leather and leather manufactures
48%	Wood, lumber and cork
45%	Textile yarn, and fabric manufactures
44%	Medicinal and pharmaceutical products
35%	Feeding stuff for animals
33%	Textile fibers
30%	Metalliferous ores and metal scrap
28%	Feeding stuff for animals
24%	Food and live animals

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