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Euro depreciation and trade asymmetries between Germany and Italy versus US: industry-level estimates.

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Abstract.

Since April 2014 to March 2015, the ECB expansionary monetary policy instigates a huge depreciation of the euro in terms of dollar. According to the mainstream monetary theory these dynamics should make cheaper the exports and at the same time make more expensive the imports. Has real depreciation of the euro helped in the improvement of European countries' trade balances? Following the main methodologies in the recent literature, our study analyses the effects of this depreciation both for Italy and Germany towards US. We use industry-level data at monthly frequency. The results are different from each bilateral relationship. We find that 11 industries register a long-run improvement (8 for Italy and 3 for Germany). The J-Curve effect is proven just in six cases, always for Italy. The inverted J-curve effect is proven in 8 cases, 4 for Germany, and 4 for Italy.
These results seem to be an indirect demonstration of the structural asymmetries between German and Italian economies: German economic system is abler to be competitive with a strong currency, than Italy.

1. Introduction.

At the end of 2012 and the beginning of 2013, the euro appreciated noticeably towards other currencies. Among others, the French president François Hollande stressed the necessity to discuss about potential interventions of the European Central Bank (ECB) in order to manage the exchange rate (Breuer and Klose 2015, p. 1966) [1]. Indeed, a persistent appreciation of the nominal exchange rate may determine lower exports and higher imports. While the EMU precludes the traditional mechanism of individual exchange rate adjustment, euro fluctuations may be relevant for trade outside the region.
Since the ECB announcement of quantitative easing in mid-2014[2], the euro has actually depreciated considerably against dollar, as shown in figure 1. The exchange rate goes from 0.732 €/$ (in April 2014) to 0.933 €/$ (in March 2015), then it becomes stable.

[1] About the possible advantages of the euro depreciation see the report published by Natixis (Artus 2012)

[2] In mid-2014, Mario Draghi, president of the ECB, announced that the bank plans to engage in a form of quantitative easing through the purchase of private sector credit, including asset-backed securities and covered bonds, in addition to a cut of the benchmark refinancing rate from 0.15% to 0.05% and the deposit rate from -0.1% to -0.2%. On 9 March 2015 the Public Sector Purchase Programme (PSPP) actually started. The ECB decided to buy €60 billion-worth of bonds a month as a way of injecting cash into European credit system. This was supposed to stop in September 2016 but, in December 2015, it has been extended by six months. The ECB has also said it will start buying regional and local government debt.

Fig.1. Nominal value of the euro in terms of the dollar, US-Germany real exchange rate and US-Italy real exchange rate. (January 2010- February 2016).

Contrary to Hollandes's thought, German business community worried especially after the ECB decision to sustain the euro depreciation through September 2015 by quantitative easing: for instance Anton Börner (president of the Federation of German Wholesale) affirmed that one of the reasons Germany has become so competitive is that German companies have been forced to contend with a strong currency, by increasing their innovative investments (Böll et al. 2015).

Has real depreciation of the euro helped in the improvement of European countries' trade balances? The European Economic Forecast, published by European Commission in February 2016, affirms that in 2015 depreciation of exchange rate represents one of the main causes of the strong increase in the current account surplus of the Euro-area (European Commission 2016, p. 5).

However, the Euro-area is characterized by important structural asymmetries that are also reflected in European trade imbalances. As shown, among others, by Botta (2014, p. 10), "German exports seem to concentrate even further in the medium/high-tech segment of manufacturing goods, while a process of increasing despecialization is taking place in labour and resource-intensive or low-tech sectors"; France and other Southern European countries are characterized by an export despecialization in the medium-tech capital good sector, notwithstanding Italy confirms its specialization in the mechanical industry. Then we should expect that the depreciation of the euro versus US dollar determined different consequences for trade balances, respectively, according to the aim of our study, for Germany and Italy. The US economy represents the first non-euro trade partner for German and Italian enterprises.

The most recent contributions that are relevant for our analysis are Verheyen (2013), Breur and Klose (2015) and Bahmani-Oskooee et al. (2013).

Verheyen (2013) investigates whether euro volatility against the US dollar has affected bilateral German exports to the US. His empirical results indicate that, in the period prior to financial crisis, the export demand equation for the US is stable. These findings are in line with Langwasser (2009) who proves that German exports are less exchange rate-sensitive compared with other EMU countries. From a policy point of view Verheyen (2013) suggests that German exporters can cope with strong euro, which cheapens commodity imports.

Breuer and Klose (2015) verify that there are substantial regional differences in the export elasticities of the Euro-countries: particularly for Germany and Italy, the US competitors are of more importance, while for other countries, like France and Spain, are more relevant Japanese or British competitors. They also find that for Germany, Italy and Spain, the real effective exchange rate does not seem to have a significant impact on imports. They conclude that euro depreciation would on average increase the trade balance, since exchange rates elasticities on exports are found to be statistically meaningful with correct sign in most cases.

In order to analyse the effects of depreciation on the trade balance, several studies tests the J-Curve phenomenon, firstly introduced by Magee (1973).[3] As known such statistical evidence

[3] From the seminal contribution of Magee (1973) it has developed an intense debate about the J-Curve phenomenon. The contributions can be divided into two groups: 1. A first one collects the scientific papers that uses aggregate data in order to estimate the phenomenon; 2. A second one collects the scientific papers that uses bilateral data. Clearly this division is based on the progress of the econometric techniques. The most relevant contributions in the first group are Miles (1979) and Himarios (1985); they are the first authors that proposed a precise definition of short and long-run in this field. Miles used several tests involving both the seemingly unrelated and pooled cross-section and time series regression techniques, while Himarios provided a critique of Miles' results. Among the first research studies in the second group see Rose and Yellen (1989), that explained the reasons for the preferable use of bilateral data, and Bahmani-Oskooee and Brooks (1999).

postulates that depreciation worsens the trade balance first, in the short run, and improves after the lags are realized, in the long run.

Bahmani-Oskooee et al. (2013) examine the specific case of trade between Italy and US at industry level using annual data from 1979 to 2010. They find that in only 19 cases (on 106) there is a long–run improvement after a depreciation, that are highly concentrate in miscellaneous manufactures.

In this study we examine the specific cases of trade between Germany and United States on one hand, and Italy and United States on the other one. To the best of our knowledge, we are the first to estimate the J-Curve on these countries using monthly data for the period 2010-2016.

Following the main methodologies in the recent literature, we examine the bilateral trade balances for the most representative 70 individual industries, respectively 35 for Germany and 35 for Italy. We find many significant results, which vary from industry to industry and from country to country. Differently by Bahmani-Oskooee et al. (2013) we analyse particularly the euro depreciation started in April 2014; we find that the long-run improvement after the depreciation regards eight industries for Italy and just three for Germany. It is interested to stress that, according to Rose and Yellen (1989) definition, a J-Curve effect occurs just for six Italian industries.

This contribution is organized as follows: paragraph 2 outlines the methodology. The main results are presented and discussed in paragraph 3. Paragraph 4 concludes. Our dataset is explained in the Appendix.

2. The Model and the Method.

Using a model, suggested among others by Bahmani-Oskooee and Wang (2008) who investigate the J-Curve phenomenon between China and US, we assume that the trade balance model for industry takes the following form:

$$\ln(TB_i)_t = \alpha + \beta_1 \ln Y_t^{US} + \beta_2 \ln Y_t^{fc} + \beta_3 \ln REX_t + \varepsilon_t, \qquad (i)$$

where TB is calculated as the ratio between exports and imports for industry *i*, Y^{US} is the national nominal GDP for US and Y^{fc} respectively for Italy and Germany and REX is the real exchange rate between US and singularly Italy and Germany as well. We used Italy and Germany as home country to analyse their different behaviour towards the US. REX is defined as $NEX^*(P_{US}/P_{fc})$ and NEX is defined as the number of American dollars per euro. Finally, ε is an error term.

Following the previous literature Y_t^{US} is expected to carry a positive coefficient, while Y_t^{fc} is expected to carry a negative one.[4]

Using equation *(i)* leads to two main problems. First this kind of equation does not reveal any information about the short-run dynamics and the J-Curve adjustment; secondly we need a method able to estimate at the same time variables characterized by stationarity, I(0), and not stationarity, I(1). Pesaran et al. (2001) prove that is possible to define cointegration between variables ruling out pre-unit-root test. Consequently, we will estimate the following equation:

$$\Delta\ln(TB_i)_t = \alpha + \sum_{k=1}^{n} \gamma_{1,t-k} \Delta\ln(TB_i)_{t-k} + \sum_{k=0}^{n} \gamma_{2,t-k} \Delta\ln Y_{t-k}^{US} + \sum_{k=0}^{n} \gamma_{3\,t-k} \Delta\ln Y_{t-k}^{fc} + \sum_{k=0}^{n} \gamma_{4,t-k} \Delta\ln REX_{t-k} + \theta_1 \ln(TB_i)_{t-1} + \theta_2 \ln Y_{t-1}^{US} + \theta_3 \ln Y_{t-1}^{fc} + \theta_4 \ln REX_{t-1} + \mu_t, \qquad (ii)$$

[4] See moreover Haliciglu (2007) about Turkey versus its main trade partners, Bahmani-Oskooee and Zhang (2013) about China and UK and Bahmani-Oskooee et al. (2013) about Italy and US.

Pesaran assumption is that the variables are either I(0) or I(1). In this set-up the short run effects are inferred by the coefficients attached to first difference variables and the long-run effects are inferred by the estimates of θ_2, θ_3 and θ_4 that are normalized on θ_1.

Equation (ii) is an Auto-Regressive Distributed Lags (ARDL), based on the Error Correcting Model (ECM), proposed by Engle and Granger (1987). This approach has become the standard for similar analysis, because it gives both short-run and long-run results simultaneously and it is robust with small samples.

After selecting the optimum number of lags *n* (out of three maximum)[5] by minimising the Akaike Information Criterion (AIC), we estimate equation *(ii)* using OLS for each industry. Given the ARDL "bounds testing" approach, there should be a (cointegrating) relationship among the variables only if the lagged level variables are jointly significant in the estimation of equation *(ii)*. The test is based on standard F-statistic, which specific critical values for its F-test, calculated by Pesaran et al. (2001) and Narayan (2005) for large and small samples, respectively. If the F-test lies above the "upper bound" we can say that the variables are cointegrated; finally if F-test lies between the upper and the lower bounds the result is not conclusive, if lies below the lower bound there is not cointegration. In our case, according to Narayan (2005), the critical value for the F-test is 3.898. In case the F-statistic is smaller than the critical value, following Bahmani-Oskooee and Hegerty (2011) we perform an additional test. According to Banerjee et al. (1998) and Bahmani-Oskooee et al. (2013) we re-run the equation (ii) replacing the lagged level variables by ECM_{t-1}[6] and test if the coefficient of ECM_{t-1} is negative and significant, the t-statistic absolute value must exceed 2.94. The cointegration relationship is confirmed in the long-run analysis. We will proceed to calculate the coefficients for both, short and long-run, just for the industries where cointegration if verified. Otherwise we only estimate the short-run coefficients. We will observe which industries benefit from a real currency depreciation in the long-run, while looking for possible J-Curve effects as well.

3. Empirical Results.

In this section we try to estimate the ECM (equation (ii)), for a significant sample of the industries that trade between US and Germany on one side, and US and Italy on the other. We will use monthly data over the period January 2010 to February 2016.[7] Eurostat database provides 99 industries. For some of them there are not enough available data.[8] We will analyse the industries that represent, at least, the 0.5% of the bilateral trade for at least a bilateral relationship. Therefore, the estimation is limited to 35 industries for each bilateral relationship, consequently we studied 70 bilateral industry level analysis. According to Pesaran et al. (2001) and Narayan (2005) we investigate the presence of cointegration between the variables. Table 1 provides the results for the F-test. Of our 70 relationships, 68 have statistics that exceed this critical value (3.898). In order to test the presence of cointegration in the two relevant industries, we use the ECM test. In both the cases the ECM assumes a negative and significant value. Table 1 shows that the cointegration between the variables is proven for all the 70 bilateral relationships tested. It means that is possible to investigate the J-curve phenomenon also in the long run.

[5] Bahami-Oskooee and Zhang (2013) used four lags maximum but the fourth lagged level variable is never significant.

[6] More precisely ε_{t-1}substitutes $\theta_1 \ln TB_{i,t-1} + \theta_2 \ln Y_{t-1}^{US} + \theta_3 \ln Y_{t-1}^{fc} + \theta_4 \ln REX_{t-1}$ in the equation (ii).

[7] See the Appendix for the complete explanation about the dataset.

[8] We had to exclude the industry number 47 for Italy and US (pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard).

Table 1. Cointegration test statistics.

Notes: the upper bound critical value of the F-test for cointegration is 3.898 at the 10% level of significance. Numbers inside parentheses are the t-ratios.

Table2. Short-run and long-run coefficients estimates.

Notes: Numbers inside parentheses are the t-ratios.

Table 2 provides the short and long run coefficients; in this table we have estimated the Pesaran model (equation (ii)) for the 35 industries and the 70 bilateral relationships. We impose the maximum of three lags and minimizing the AIC we select the optimal number of lags. The theory suggests that an increasing path of the GDP should be positively correlated with an increasing amount of the imports: *coeteris paribus* the trade balance account will worsen.[9] Consequently the US GDP should be positively correlated with the bilateral trade balance (both for Germany and Italy), while the German and the Italian GDP should be negatively correlated with the dependent variable. The data evidence shows that the German GDP is negative and significant in only 3 industries (41, 64 and 87) and it is positive for 3 industries as well (8, 33, 62). As regard the Italian GDP we obtain that it is negative and significant for 8 industries (30, 38, 39, 41, 71, 73, 87 and 90) and positive for 4 (4, 33, 64 and 76). Finally, the US GDP is characterized by a positive significance, in both cases, for 5 industries (29, 64, 82, 84 and 94) and by a negative significance for the industry number 40. The US GDP is also positive towards Germany for other 3 industries (61, 87 and 88) and towards Italy for other 9 industries (4, 33, 38, 41, 42, 62, 72, 76 and 90); it is negative and significant towards Germany for other 4 industries (8, 22, 33 and 41), and towards Italy for other 6 (12, 27, 30, 68, 73 and 87).
Studying the J-curve phenomenon according to Rose and Yellen (1989) we can observe that a significant negative value (for the real exchange rate) in the short run is followed by a positive and significant value in the long run just in 6 cases, always between US and Italy (27, 30, 41, 61, 68 and 87).
An inverted J-curve effect is present in 8 cases, 4 for Germany (29, 39, 73 and 84) and 4 for Italy (33, 39, 42 and 62). As known Bahmani-Oskooee et al. (2011) followed a different definition of the J-curve: only short run results are used in order to describe the J-curve as a negative and significant real exchange rate coefficient. According with this definition, we can find the presence of J-curve in other 13 cases, 7 for Germany (30, 33, 61, 68, 72, 82 and 90) and 6 for Italy (38, 70, 72, 85, 88 and 90). The evidence shows that just 2 industries are interested by the J-curve phenomenon both for Italy and Germany: "Iron and Steel" (72) and "Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical or Surgical Instruments and Apparatus, Parts and Accessories thereof" (90).

Table 3. Diagnostic statistics.

[9] This proposition is coherent with the so called multiplier approach as theorized by Meade (1948 and 1949) and described in many international economics handbooks, see for instance Gandolfo (2002), chap. 8.

Notes: Lagrange multiplier test of residual serial correlation; RESET, Ramsey's test for functional test. Both are distributed as a χ^2 with one degree of freedom; CUSUM, cumulative sum of residuals; CUSUMSQ, cumulative sum of squared residuals; S, 'Stable', US, 'Unstable'.

Following the literature and the previous studies we also report in Table 3 the main diagnostic statistics: the Lagrange Multiplier (LM) to test for autocorrelation and the Regression Equation Specification Error Test (RESET), for functional misspecification of optimum models; these are both distributed as a χ^2 with one degree of freedom, in this case the critical value is 3.84. Table 3 shows coefficients that are lower than 3.84 in the majority of cases, implying autocorrelation-free residuals in most models as well as confirming correctly specified optimum models. We provide also the well-know test Cumulative Sum (CUSUM) and Cumulative Sum of Square (CUSUMQ) to investigate the residual stability. Also in these cases the great majority seem to be stable. Finally, we add the Adjusted R^2 to provide the goodness of the estimations: generally, the values are aligned with previous contributions by Payne (2008) and Bahmani-Oskooee and Zang (2013) among others.

Table 4. Top 10 industries for trade share in Germany and Italy.

Examining table 4, which summarizes the first ten largest internationalized industries, both in Germany and Italy[10], we found a meaningful improvement in trade balance only in two cases: "Pharmaceutical Products" (30) for Germany, and "Vehicles other than Railway or Tramway Rolling-Stock, and Parts and Accessories Thereof" (87) for Italy. Our results are in line with Bahmani-Oskooee et al. (2013), indeed the largest industries (in terms of trade share), with just two exceptions, do not respond positively to currency fluctuation, probably because they are better able to edge against them. More precisely the long-run RER is positive and significant in 11 cases, 3 for Germany (22, 41 and 72), and 8 for Italy (27, 30, 40, 41, 48, 61, 68 and 87). As regard Germany the trade share of these industries varies from 0,032% to 0.636% i.e. they are not in the top 10. In the Italian case, only 3 industries (30 and 87) are part of the largest ones collected in table 4, while the other 6 industries present a trade share from 0,634 to 1.612. We cannot exclude a negative correlation between industry size and sensitivity of its trade balance to currency fluctuations.

By analysing the industries that are interested to a inverted J-curve effect we found, both for Germany and Italy, those sectors that are traditionally characterized by a significant market power which allows them to be competitive without lowering prices: specifically, "Organic Chemicals" (29) and "Nuclear Reactors, Boilers, Machinery and Mechanical Appliance, Parts thereof" (84) for Germany; and "Essential Oils and Resinous, Perfumery, Cosmetic or Toilet Preparations" (33), "Articles of Leather, Saddlery and Harness, Travel Goods, Hand Bags and Similar Containers, Articles of Animal Gut (Other than Silkworm Gut)" (42) and "Articles of Apparel and Clothing Accessories, not Knitted" (62) for Italy.

Among the industries that are particularly prone to a J-Curve effect we found the automobile (27 and 87) just in the case of Italy. Such result may be explained by considering that, as well known, German automobile industry is characterized by low price-elasticity of demand. We are left with another interesting result from this study: among the industries that are most responsive to currency depreciation there are not only manufactures, as knitted clothing or

[10] We considered the sum between import and export in order to weight the international trade share.

iron and steel, as found in Bahmani-Oskooee et al. (2013), but also "Pharmaceutical Products" for Italy (30) and "Beverages, Spirits and Vinegar" for Germany (22).

4. Conclusions.

The study of the effects of a currency depreciation on two important European countries' trade flows represents an original way to verify the structural differences inside the Euro-area. Due to adjustment lags, countries trade balances are not always able to improve after a currency depreciation. The bounds testing approach by Pesaran et al. (2001) offers the opportunity to differentiate short-run pattern from the long-run response of the trade balance to depreciation. In our study, we focus both on Germany and Italy's relationships with United States, which is the major importer that does not have a currency that is fixed to euro. We apply cointegration analysis on a monthly sample that runs from January 2010 to February 2016. We examine 70 industries, finding effects that a higher level of aggregation may hide. Our empirical results revealed that all the industries are characterized by cointegration. Contrary to Bahmani-Oskooee et al (2013) we do not find that the "fundamentals" (namely GDP) have a rather weak influence on industries trade balances: particularly, the data evidence shows that the German GDP is significantly negative in 3 industries and it is significantly positive for 3 industries as well, while the Italian GDP is significantly negative for 8 industries and significantly positive for 4. As regards the US GDP, it is characterized by a positive significance in 17 cases, and a negative significance for 11 industries. A first difference between German and Italian trade is that the former is less sensitive to its GDP dynamics.

A total of 11 industries have positive long-run pattern (8 for Italy and 3 for Germany) after the euro depreciation. However the J-Curve effect, according to Rose and Yellen (1989) definition, is only observed for 6 Italian industries. Measured by their trade shares these industries represent the 25.92% of the bilateral trade. The inverted J-curve effect characterizes the 27.25% of the German bilateral trade and the 6.24% for the Italian bilateral trade. These results seem to be an indirect demonstration that German economic system is able to be more competitive with a strong currency, than a weak one. In other words, Italian exporters' ability to be competitive in international markets is more based on prices dynamics. Also Italian automotive industry seems to be particularly sensitive to price fluctuations. Finally, our results suggest that a euro depreciation rather weakly impact on largest industries. Our results are in line with Artus (2016) that illustrates that the sharp euro depreciation in reality has done little to boost the Euro-zone economy.

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Appendix. Data Definition and Sources.

In our analysis, we used monthly data over the period January 2010 to February 2016. These data come from Eurostat. The variables used are the followings:
$TB_{i,t}$ that is the ratio between exports (X) and imports (M) for each industry (i) at time t. $Y_{i,t}$ is used as income measure for the country i at time t and it is proxied by the real GDP. The GDP is given quarterly, we used a specific filter to disaggregate the data in monthly observation. We weighted the disaggregation using the price index level dynamics and the industrial production that are given monthly by Eurostat.
RER is the real exchange rate that is defined as $NEX^*(P_{US}/P_{fc})$ where NEX is defined as the number of American dollars *per* euro and P_x is the price level index.
Eurostat database give 99 industries. We analyse just the industries that represent at least the 0.5% of the bilateral trade share for at least a bilateral relationship, this selection gives us 70 bilateral relationships. The trade share is calculated by the ratio between the sum of the imports and exports and the total of the bilateral trade.

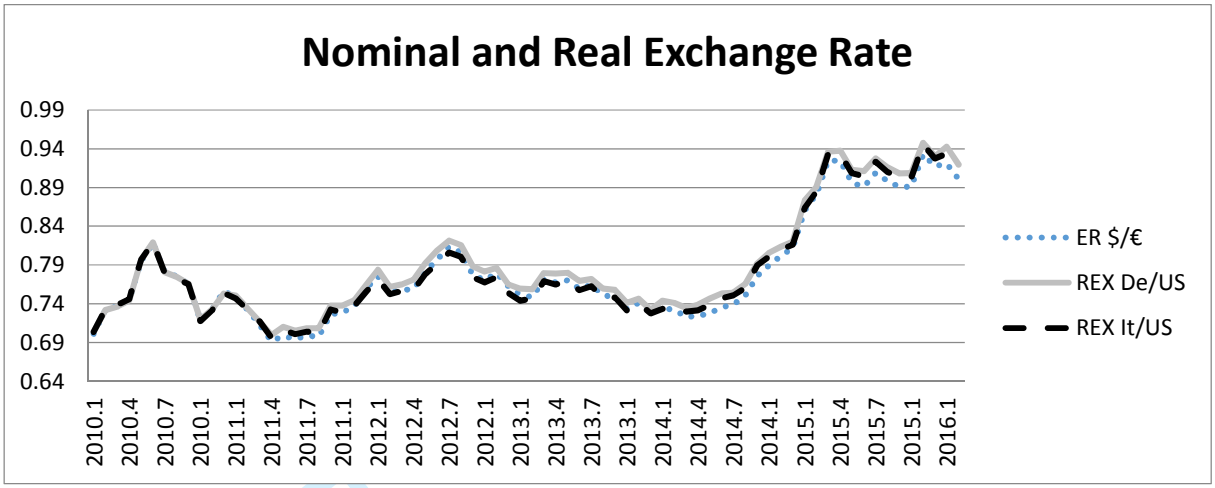

Fig.1. Nominal value of the euro in terms of the dollar, US-Germany real exchange rate and US-Italy real exchange rate. (January 2010- February 2016).

Industry Description	Industry Code	F-Test	ECM(t-1)	Cointegrated?
Dairy Produce; Birds' Eggs; Natural Honey; Edible Products Of Animal Origin Not Elsewhere Specified Or Included	TB De/US 4	5.72		Yes
	TB It/US 4	18.16		Yes
Edible Fruit And Nuts; Peel Of Citrus Fruits Or Melons	TB De/US 8	4.67		Yes
	TB It/US 8	9.24		Yes
Oil Seeds And Oleaginous Fruits; Miscellaneous Grains, Seeds And Fruit, Industrial Or Medicinal Plants, Straw And Fodder	TB De/US 12	3.49	-1.02 (-4.94)	Yes
	TB It/US 12	7.57		Yes
Animal Or Vegetable Fats And Oils And Their Cleavage Products, Prepared Edible Fats, Animal Or Vegetable Waxes	TB De/US 15	21.00		Yes
	TB It/US 15	5.94		Yes
Preparations Of Cereals, Flour, Starch Or Milk; Pastrycoo's Products	TB De/US 19	3.76	-0.62 (-5.64)	Yes
	TB It/US 19	27.03		Yes
Beverages, Spirits And Vinegar	TB De/US 22	16.41		Yes
	TB It/US 22	23.08		Yes
Mineral Fuels, Mineral Oils And Products Of Their Distillation, Bituminous Substances, Mineral Waxes	TB De/US 27	19.90		Yes
	TB It/US 27	39.24		Yes
Organic Chemicals	TB De/US 29	27.27		Yes
	TB It/US 29	39.13		Yes
Pharmaceutical Products	TB De/US 30	19.84		Yes
	TB It/US 30	19.88		Yes
Essential Oils And Resinous; Perfumery, Cosmetic Or Toilet Preparations	TB De/US 33	18.84		Yes
	TB It/US33	37.88		Yes
Miscellaneous Chemical Products	TB De/US 38	10.17		Yes
	TB It/US 38	15.85		Yes
Plastics And Articles Thereof	TB De/US 39	21.47		Yes
	TB It/US 39	23.10		Yes
Rubber And Articles Thereof	TB De/US 40	11.73		Yes
	TB It/US 40	22.81		Yes
Raw Hides And Skins (Other Than Furskins) And Leather	TB De/US 41	26.16		Yes
	TB It/US 41	35.32		Yes
Articles Of Leather; Saddlery And Harness; Travel Goods, Hand Bags And Similar Containers, Articles Of Animal Gut (Other Than Silkworm Gut)	TB De/US 42	23.21		Yes
	TB It/US 42	22.79		Yes
Paper And Paperboard; Articles Of Paper Pulp, Of Paper Or Paperboard	TB De/US 48	16.79		Yes
	TB It/US 48	47.99		Yes
Articles Of Apparel And Clothing Accessories, Knitted Or Crocheted.	TB De/US 61	21.87		Yes
	TB It/US 61	13.11		Yes
Articles Of Apparel And Clothing Accessories, Not Knitted	TB De/US 62	16.48		Yes
	TB It/US 62	15.87		Yes
Footwear, Gaiters And The Like; Parts Of Such Articles	TB De/US 64	23.38		Yes
	TB It/US 64	9.35		Yes
Articles Of Stone, Plaster, Cement, Asbestos, Mica Or Similar Materials.	TB De/US 68	11.23		Yes
	TB It/US 68	38.34		Yes
Glass And Glassware	TB De/US 70	15.05		Yes

	TB It/US 70	21.28		Yes
Natural Or Cultured Pearls, Precious Or Semi-Precious Stones, Precious Metal, Metal Clad With Precious Metal, And Articles Thereof, Imitation Jewellery Coin.	TB De/US 71	36.07		Yes
	TB It/US 71	15.37		Yes
Iron And Steel	TB De/US 72	21.31		Yes
	TB It/US 72	24.50		Yes
Articles Of Iron Or Steel	TB De/US 73	10.47		Yes
	TB It/US 73	43.86		Yes
Aluminium And Articles Thereof	TB De/US 76	9.55		Yes
	TB It/US 76	5.08		Yes
Tools, Implements, Cutlery, Spoons And Forks, Of Base Metal, Parts Thereof Base Metal	TB De/US 82	16.94		Yes
	TB It/US 82	31.51		Yes
Nuclear Reactors, Boilers, Machinery And Mechanical Appliance, Parts Thereof	TB De/US 84	13.07		Yes
	TB It/US 84	18.10		Yes
Electrical Machinery And Equipment And Parts Thereof; Sound Recorders And Reproducers, Television Image And Sound Recorders And Reproducers, And Parts And Accessories Of Such Articles.	TB De/US 85	15.11		Yes
	TB It/US 85	12.91		Yes
Vehicles Other Than Railway Or Tramway Rolling-Stock, And Parts And Accessories Thereof	TB De/US 87	8.55		Yes
	TB It/US 87	17.31		Yes
Aircraft, Spacecraft, And Parts Thereof	TB De/US 88	13.34		Yes
	TB It/US 88	54.29		Yes
Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments And Apparatus; Parts And Accessories Thereof	TB De/US 90	10.81		Yes
	TB It/US 90	32.16		Yes
Arms And Ammunition; Parts And Accessories Thereof	TB De/US 93	15.88		Yes
	TB It/US 93	6.44		Yes
Furniture; Bedding, Mattresses, Mattress Supports, Cushions And Similar Stuffed Furnishings, Lamps And Lighting Fittings, Not Elsewhere Specified Or Included; Illuminated Signs, Illuminated Name-Plants And The Like; Prefabricated Buildings.	TB De/US 94	11.61		Yes
	TB It/US 94	19.13		Yes
Other Products	TB De/US 99	28.78		Yes
	TB It/US 99	8.50		Yes

Table 1. Cointegration test statistics.

Notes: the upper bound critical value of the F-test for cointegration is 3.898 at the 10% level of significance. Numbers inside parentheses are the t-ratios.

Industry Description	Industry Code	Short-run coefficient estimate				Long-run coeffcient estimates				
		ΔIn REXt	ΔIn REXt-1	ΔIn REXt-2	ΔIn REXt-3	Constant	lnYDE	lnYIT	lnYUS	In REX
Dairy Produce; Birds' Eggs; Natural Honey; Edible Products Of Animal Origin Not Elsewhere Specified Or Included	TB De/US 4	1.53 (0.47)	-0.52 (-0.19)	-3.13 (-1.28)	0.85 (0.24)	-27.36 (-0.68)	3.22 (0.33)		1.24 (0.14)	-0.04 (-0.02)
	TB It/US 4	-5.47 (-1.41)	-1.46 (-0.4)	-1.94 (-0.64)	5.43 (1.14)	-314.8 (-2.6)		27.11 (2.68)	21.77 (2.5)	-3.92 (-1.95)
Edible Fruit And Nuts; Peel Of Citrus Fruits Or Melons	TB De/US 8	4.99 (2.55)	n	n	n	50.65 (1.49)	13.29 (1.87)		-14.44 (-2.18)	1.51 (0.98)
	TB It/US 8	-3.81 (-1.13)	4.52 (1.16)	-2.35 (-1.03)	-4.25 (-1.17)	78.24 (1.05)		-10.02 (-1.42)	-3.55 (-0.71)	1.29 (0.9)
Oil Seeds And Oleaginous Fruits; Miscellaneous Grains, Seeds And Fruit, Industrial Or Medicinal Plants, Straw And Fodder	TB De/US 12	-6.2 (-0.9)	5.55 (0.78)	2.33 (0.34)	-5.53 (-0.76)	49.66 (0.84)	12.68 (0.54)		-14.05 (-0.83)	-0.09 (-0.03)
	TB It/US 12	0.38 (0.12)	-2.47 (-0.88)	-4,08 (-1,39)	-2.6 (-0.73)	168.02 (2.66)		-4.87 (-0.88)	-16.98 (-3.56)	0.38 (0.12)
Animal Or Vegetable Fats And Oils And Their Cleavage Products, Prepared Edible Fats, Animal Or Vegetable Waxes	TB De/US 15	2.11 (0.45)	4.83 (0.81)	-2.71 (-0.59)	3.91 (0.89)	46.57 (1.4)	9.92 (0.53)		-11.67 (-0.86)	2.07 (1.17)
	TB It/US 15	6.03 (1.31)	n	n	n	35.94 (0.36)		-7.61 (-0.81)	0.81 (0.11)	3.46 (1.67)
Preparations Of Cereals, Flour, Starch Or Milk; Pastrycoo's Products	TB De/US 19	0.59 (0.22)	2.4 (0.89)	0.45 (0.18)	-3.6 (-1.35)	28.81 (1.35)	-14.19 (-1.64)		5.83 (0.93)	-0.04 (-0.04)
	TB It/US 19	3.53 (0.7)	-3.88 (-1.11)	-7.8 (-1.38)	-4.02 (-1.31)	-0.28 (-0.002)		-5.14 (-0.39)	3.63 (0.38)	0.22 (0.09)
Beverages, Spirits And Vinegar	TB De/US 22	1.27 (0.90)	-0.10 (-0.08)	-2.05 (-1.17)	0.92 (0.72)	48,51 (3.25)	8.84 (1.79)		-11.20 (-3.10)	1.62 (2.47)
	TB It/US 22	2.17 (1.07)	n	n	n	0.84 (0.02)		-2.39 (-0.66)	1.65 (0.63)	0.69 (0.96)
Mineral Fuels, Mineral Oils And Products Of Their Distillation, Bituminous Substances, Mineral Waxes	TB De/US 27	-0.26 (-0.07)	-1.62 (-0.36)	-2.93 (-0.60)	1.09 (0.32)	-38.63 (-1.25)	-11.53 (-0.73)		11.64 (1.00)	0.02 (0.01)
	TB It/US 27	7.44 (1.27)	-12.89 (-2.20)	-13.75 (-1.81)	-12-76 (-1.81)	594.81 (2.73)		-31.76 (-1.85)	-51.14(-3.04)	16.36 (3.18)
Organic Chemicals	TB De/US 29	-2.32 (-1.55)	3.92 (3.37)	1.32 (1.10)	4.02 (2.70)	-28.38 (-2.06)	-8.40 (-1.66)		8.69 (1.98)	-2.26 (-3.03)
	TB It/US 29	-1.61 (-0.78)	4.09 (2.39)	1.64 (0.88)	4.69 (2.39)	-50.99 (-1.48)		1.81 (0.63)	5.04 (1.93)	0.76 (0.83)
Pharmaceutical Products	TB De/US 30	-1.56 (-2.07)	n	n	n	-56.02 (-6.09)	3.85 (1.33)		4.21 (1.82)	-0.54 (-1.53)
	TB It/US 30	-2.76 (-1.29)	1.36 (0.806)	-4.76 (-2.15)	-1.09 (-0.57)	113.65 (1.86)		-9.51 (-2.705)	-7.87 (-2.55)	2.12 (1.89)
Essential Oils And Resinous; Perfumery, Cosmetic Or Toilet Preparations	TB De/US 33	0.12 (0.19)	0.40 (0.57)	-1.10 (-1.86)	-0.69 (-0.78)	15.14 (2.83)	6.93 (4.05)		-6.15 (-4.54)	-0.48 (-1.23)
	TB It/US33	0.07 (0.05)	4.14 (2.79)	-0.23 (-0.17)	3.86 (2.11)	-141.41 (-4.49)		13.46 (4.76)	9.04 (3.88)	-1.96 (-2.71)

Miscellaneous Chemical Products	TB De/US 38	0.53 (0.87)	n	n	n	1.53 (0.30)	0.27 (0.12)		-0.35 (-0.24)	-0.19 (-0.77)
	TB It/US 38	0.54 (0.66)	0.09 (0.11)	-1.92 (-2.22)	n	2.96 (0.19)		-5.49 (-4.30)	2.76 (2.10)	0.43 (0.22)
Plastics And Articles Thereof	TB De/US 39	-0.04 (-0.11)	-0.18 (-0.44)	-0.34 (-1.52)	1.44 (5.13)	-6,87 (-2.54)	0.63 (0.70)		0.41 (0.57)	-0.35 (-2.94)
	TB It/US 39	-0.03 (-0.05)	1.64 (2.00)	0.15 (0.19)	1.68 (2.46)	23.09 (1.16)		-6.34 (-2.74)	0.96 (0.86)	-0.80 (-2.79)
Rubber And Articles Thereof	TB De/US 40	0.25 (0.51)	n	n	n	-25.69 (-3.47)	-0.96 (-0.57)		3.67 (2.13)	-0.47 (-2.23)
	TB It/US 40	-0.69 (-0.79)	n	n	n	-64.34 (-2.61)		-0.07 (-0.04)	7.82 (3.93)	1.32 (3.02)
Raw Hides And Skins (Other Than Furskins) And Leather	TB De/US 41	-2.51 (-0.98)	n	n	n	-11.04 (-0.51)	-23.18 (-2.69)		16.00 (2.56)	2.58 (1.90)
	TB It/US 41	-2.23 (-1.38)	-3.56 (-1.40)	-4.83 (-3.54)	-3.62 (-1.87)	266,04 (6.72)		-27.67 (-7.04)	-15.23 (-5.88)	5.81 (7.50)
Articles Of Leather; Saddlery And Harness; Travel Goods, Hand Bags And Similar Containers, Articles Of Animal Gut (Other Than Silkworm Gut)	TB De/US 42	-0.90 (-0.72)	2.10 (2.36)	n	n	-1.97 (-0.18)	1.82 (0.71)		-0.82 (-0.34)	-0.70 (-1.20)
	TB It/US 42	2.98 (1.93)	2.50 (1.88)	n	n	-51.17 (-1.76)		-1.82 (-0.75)	7.57 (3.17)	-1.92 (-2.54)
Paper And Paperboard; Articles Of Paper Pulp, Of Paper Or Paperboard	TB De/US 48	1.22 (2.00)	-0.27 (-0.33)	0.33 (0.54)	1.81 (3.00)	-0.97 (-0.15)	0.61 (0.29)		-0.20 (-0.11)	0.13 (0.31)
	TB It/US 48	-1.08 (-1.14)	0.95 (0.97)	n	n	-5.41 (-0.24)		0.31 (0.15)	0.42 (0.26)	1.74 (3.65)
Articles Of Apparel And Clothing Accessories, Knitted Or Crocheted.	TB De/US 61	0.23 (0.27)	-3.12 (-3.42)	1.57 (1.60)	-2.31 (-1.88)	-68.71 (-5.81)	5.68 (1.83)		4.43 (2.04)	-0.08 (-0.23)
	TB It/US 61	-0.31 (-0.13)	0.32 (0.17)	-1.85 (-1.03)	-4.64 (-2.99)	30.60 (0.72)		-5.51 (-1.42)	-0.05 (-0.02)	2.35 (2.91)
Articles Of Apparel And Clothing Accessories, Not Knitted	TB De/US 62	0.93 (0.70)	-0.12 (-0.07)	3.09 (2.62)	n	-37.97 (-3.41)	10.54 (2.40)		-2.15 (-0.63)	-0.20 (-0.51)
	TB It/US 62	-0.15 (-0.13)	2.04 (1.93)	n	n	-33.48 (-1.43)		-2.54 (-1.17)	5.84 (3.41)	-1.49 (-3.13)
Footwear, Gaiters And The Like; Parts Of Such Articles	TB De/US 64	0.71 (0.48)	-0.36 (-0.30)	2.23 (1.26)	n	-58.46 (-4.56)	-12.69 (-2.28)		15.18 (3.64)	-1.77 (-3.04)
	TB It/US 64	-0.28 (-0.13)	n	n	n	-149.95 (-2.97)		12.62 (2.72)	11.28 (3.10)	-1.71 (-1.77)
Articles Of Stone, Plaster, Cement, Asbestos, Mica Or Similar Materials.	TB De/US 68	-0.71 (-1.00)	0.18 (27)	-1.67 (-1.86)	n	11.34 (2.11)	1.68 (0.64)		-2.39 (-1.20)	-0.10 (-0.22)
	TB It/US 68	-3.48 (-2.87)	1.84 (1.95)	-4.01 (-2.39)	n	42.93 (1.23)		-0.63 (-0.20)	-5.50 (-1.88)	1.16 (2.36)
Glass And Glassware	TB De/US 70	-0.89 (-1.51)	0.90 (1.30)	n	n	4.77 (-0.83)	1.36 (0.75)		-0.30 (0.18)	-0.28 (-0.18)
	TB It/US 70	-2.36 (-1.95)	n	n	n	0.69 (0.03)		0.04 (0.02)	0.01 (0.00)	0.54 (1.14)
Natural Or Cultured Pearls, Precious Or Semi-Precious Stones, Precious Metal, Metal Clad With Precious Metal, And Articles Thereof, Imitation	TB De/US 71	-0.52 (-0.26)	0.03 (0.04)	-2.94 (-1.82)	n	26.03 (2.44)	-1.21 (-0.22)		-2.27 (-0.54)	0.46 (0.92)
	TB It/US 71	-0.95 (-0.61)	n	n	n	21.47 (0.73)		-7.76 (-2.62)	1.95 (0.92)	0.74 (1.26)

Jewellery Coin.										
Iron And Steel	TB De/US 72	2.62 (3.81)	1.50 (1.36)	-1.96 (-3.00)	0.82 (1.18)	-25.37 (-3.75)	3.58 (1.63)		0.92 (0.47)	0.70 (2.08)
	TB It/US 72	-2.21 (-0.80)	1.65 (0.53)	-4.91 (-1.97)	2.71 (1.28)	-138.65 (-2.72)		5.20 (1.26)	13.42 (3.23)	1.17 (0.84)
Articles Of Iron Or Steel	TB De/US 73	-0.29 (-0.58)	0.72 (1.21)	-0.37 (-0.80)	1.78 (2.67)	-3.35 (-0.79)	2.27 (1.23)		-1.04 (-0.74)	-0.53 (-2.18)
	TB It/US 73	0.70 (0.63)	3.70 (3.66)	0.77 (0.57)	3.35 (3.07)	111.18 (4.71)		-15.27 (-6.47)	-3.98 (-2.40)	-0.19 (-0.41)
Aluminium And Articles Thereof	TB De/US 76	0.20 (0.15)	n	n	n	5.35 (0.59)	-3.63 (-1.45)		1.71 (0.83)	-1.59 (-2.65)
	TB It/US 76	0.38 (0.33)	1.46 (1.29)	-1.36 (-1.75)	2.59 (2.25)	-62.4 (-2.802)		5.65 (2.38)	4.09 (2.49)	-0.27 (-0.51)
Tools, Implements, Cutlery, Spoons And Forks, Of Base Metal, Parts Thereof Base Metal	TB De/US 82	-1.44 (-2.73)	n	n	n	-14.50 (-2.18)	-1.49 (-0.81)		2.73 (1.91)	-0.44 (-1.48)
	TB It/US 82	-0.36 (-0.36)	n	n	n	-60.56 (-1.81)		2.04 (0.708)	6.11 (2.51)	0.76 (1.44)
Nuclear Reactors, Boilers, Machinery And Mechanical Appliance, Parts Thereof	TB De/US 84	-0.03 (-0.07)	0.38 (0.88)	0.12 (0.37)	0.93 (1.90)	-23.41 (-5.75)	-1.46 (-1.60)		3.72 (5.35)	-0.76 (-5.34)
	TB It/US 84	-0.72 (-0.96)	1.71 (0.09)	n	n	-83.19 (-3.97)		1.03 (0.74)	9.28 (5.01)	-2.08 (-4.39)
Electrical Machinery And Equipment And Parts Thereof; Sound Recorders And Reproducers, Television Image And Sound Recorders And Reproducers, And Parts And Accessories Of Such Articles.	TB De/US 85	0.02 (0.08)	-0.04 (-0.16)	0.12 (0.38)	0.72 (2.34)	-12.95 (-3.33)	1.70 (1.69)		0.47 (0.86)	-0.39 (-3.40)
	TB It/US 85	-1.66 (-1.79)	2.64 (2.89)	-2.79 (-2.66)	-2.42 (-2.18)	-33.93 (-1.28)		2.203 (0.95)	2.75 (1.48)	0.05 (0.11)
Vehicles Other Than Railway Or Tramway Rolling-Stock, And Parts And Accessories Thereof	TB De/US 87	1.35 (1.18)	1.89 (1.38)	n	n	-11.83 (-1.24)	-7.69 (-3.31)		6.34 (2.88)	-0.77 (-1.55)
	TB It/US 87	1.55 (1.61)	-3.604 (-2.16)	n	n	107.91 (2.92)		-12.74 (-3.34)	-5.13 (-2.27)	2.07 (3.98)
Aircraft, Spacecraft, And Parts Thereof	TB De/US 88	-4.81 (-0.85)	n	n	n	-182.81 (-4.79)	-0.70 (-0.05)		27.77 (2.00)	-1.44 (-0.79)
	TB It/US 88	0.37 (0.13)	-3.61 (-1.38)	-7.38 (-2.42)	n	160.502 (1.81)		-15.91 (-1.82)	-9.59 (-1.82)	1.75 (1.31)
Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments And Apparatus; Parts And Accessories Thereof	TB De/US 90	0.03 (0.05)	-0.22 (-0.41)	-1.47 (-2.69)	-0.37 (-0.76)	1.83 (0.48)	1.16 (0.77)		-0.94 (-0.81)	0.23 (1.08)
	TB It/US 90	-0.42 (-0.81)	0.19 (0.42)	-1.201 (-1.99)	n	-28.57 (-1.63)		-2.59 (-1.92)	4.84 (3.106)	-0.24 (-0.96)
Arms And Ammunition; Parts And Accessories Thereof	TB De/US 93	1.28 (0.56)	-4.25 (-1.17)	n	n	1.16 (0.05)	8.86 (1.04)		-5.66 (-0.93)	-0.35 (-0.31)
	TB It/US 93	-5.53 (-1.41)	7.98 (2.307)	n	n	27.13 (0.24)		-2.04 (-0.17)	-2.03 (-0.30)	0.109 (0.07)

Furniture; Bedding, Mattresses, Mattress Supports, Cushions And Similar Stuffed Furnishings, Lamps And Lighting Fittings, Not Elsewhere Specified Or Included; Illuminated Signs, Illuminated Name-Plants And The Like; Prefabricated Buildings.	TB De/US 94	-0.43 (-0.60)	-0.89 (-1.01)	-1.56 (-1.63)	n	-15.88 (1.81)	-5,09 (-1.75)		5.15 (2.00)	-0.49 (-3.87)
	TB It/US 94	-1.603 (-1.04)	n	n	n	-10.38 (-0.33)		-5.59 (-1.78)	4.708 (1.97)	-0.94 (-5.55)
Other Products	TB De/US 99	-1.66 (-0.77)	4.02 (2.07)	3.19 (2.27)	3.95 (2.42)	-26.06 (-1.39)	-2.30 (-0.39)		4.44 (0.89)	-1.52 (-1.34)
	TB It/US 99	3.92 (2.17)	-0.6 (-0.22)	-1.85 (-1.01)	5.15 (2.22)	36.92 (0.78)		-2.73 (-0.75)	-2.82 (-.76)	0.33 (0.39)

Table2. Short-run and long-run coefficients estimates.

Notes: Numbers inside parentheses are the t-ratios.

Description	Industry Code	RESET	LM	Cusum	Cusumq	Adj R^2
Dairy Produce; Birds' Eggs; Natural Honey; Edible Products Of Animal Origin Not Elsewhere Specified Or Included	TB De/US 4	3.93	0.53	s	s	0.17
	TB It/US 4	3.61	9.11	s	s	0.42
Edible Fruit And Nuts; Peel Of Citrus Fruits Or Melons	TB De/US 8	0.82	4.35	s	us	0.17
	TB It/US 8	2.20	2.85	us	us	0.43
Oil Seeds And Oleaginous Fruits; Miscellaneous Grains, Seeds And Fruit, Industrial Or Medicinal Plants, Straw And Fodder	TB De/US 12	1.75	0.94	s	s	0.36
	TB It/US 12	0.48	0.58	s	s	0.40
Animal Or Vegetable Fats And Oils And Their Cleavage Products, Prepared Edible Fats, Animal Or Vegetable Waxes	TB De/US 15	0.09	10.50	s	s	0.60
	TB It/US 15	2.28	5.32	us	us	0.46
Preparations Of Cereals, Flour, Starch Or Milk; Pastrycoo's Products	TB De/US 19	1.62	3.42	s	s	0.39
	TB It/US 19	11.46	12.80	s	s	0.40
Beverages, Spirits And Vinegar	TB De/US 22	0.86	3.28	s	s	0.49
	TB It/US 22	1.35	1.58	s	s	0.61
Mineral Fuels, Mineral Oils And Products Of Their Distillation, Bituminous Substances, Mineral Waxes	TB De/US 27	0.02	0.16	s	s	0.37
	TB It/US 27	1.73	2.49	s	s	0.54
Organic Chemicals	TB De/US 29	1.40	3.33	s	s	0.57
	TB It/US 29	0.40	2.74	s	s	0.68
Pharmaceutical Products	TB De/US 30	0.92	4.41	s	s	0.49
	TB It/US 30	1.75	4.99	s	s	0.42
Essential Oils And Resinous; Perfumery, Cosmetic Or Toilet Preparations	TB De/US 33	0.52	2.10	s	us	0.40
	TB It/US33	0.68	0.06	s	s	0.61
Miscellaneous Chemical Products	TB De/US 38	1.81	4.73	s	s	0.26
	TB It/US 38	0.52	9.41	s	s	0.42
Plastics And Articles Thereof	TB De/US 39	0.80	12.43	s	s	0.34
	TB It/US 39	0.89	4.41	s	s	0.55
Rubber And Articles Thereof	TB De/US 40	0.09	7.92	us	s	0.34
	TB It/US 40	0.86	2.80	s	s	0.68
Raw Hides And Skins (Other Than Furskins) And Leather	TB De/US 41	0.64	3.16	s	s	0.58
	TB It/US 41	3.23	2.77	s	s	0.67
Articles Of Leather; Saddlery And Harness; Travel Goods, Hand Bags And Similar Containers, Articles Of Animal Gut (Other Than Silkworm Gut)	TB De/US 42	0.84	4.34	s	s	0.42
	TB It/US 42	0.75	4.05	s	s	0.62
Pulp Of Wood Or Of Other Fibrous Cellulosic Material; Recovered (Waste And Scrap) Paper Or Paperboard	TB De/US 47	1.13	7.48	s	s	0.33
	TB It/US 47					
Paper And Paperboard; Articles Of Paper Pulp, Of Paper Or Paperboard	TB De/US 48	1..88	12.88	s	s	0.52
	TB It/US 48	1.12	1.11	s	s	0.69
Articles Of Apparel And Clothing Accessories, Knitted Or Crocheted.	TB De/US 61	0.63	1.95	s	s	0.49
	TB It/US 61	0.13	21.88	s	s	0.39
Articles Of Apparel And Clothing Accessories, Not Knitted	TB De/US 62	0.82	5.63	s	s	0.47

	TB It/US 62	2.13	0.96	s	s	0.52
Footwear, Gaiters And The Like; Parts Of Such Articles	TB De/US 64	1.52	1.40	s	s	0.42
	TB It/US 64	0.03	2.28	s	s	0.59
Articles Of Stone, Plaster, Cement, Asbestos, Mica Or Similar Materials.	TB De/US 68	2.90	3.10	s	s	0.39
	TB It/US 68	1.68	1.14	s	s	0.59
Glass And Glassware	TB De/US 70	0.66	9.70	s	s	0.41
	TB It/US 70	3.89	7.20	s	s	0.49
Natural Or Cultured Pearls, Precious Or Semi-Precious Stones, Precious Metal, Metal Clad With Precious Metal, And Articles Thereof, Imitation Jewellery Coin.	TB De/US 71	0.71	6.32	s	s	0.56
	TB It/US 71	0.99	7.98	s	s	0.39
Iron And Steel	TB De/US 72	0.25	0.77	s	s	0.50
	TB It/US 72	0.31	0.67	s	s	0.58
Articles Of Iron Or Steel	TB De/US 73	3.59	2.99	s	s	0.47
	TB It/US 73	0.81	4.02	s	s	0.62
Aluminium And Articles Thereof	TB De/US 76	5.06	0.61	s	us	0.33
	TB It/US 76	1.59	4.01	s	s	0.48
Tools, Implements, Cutlery, Spoons And Forks, Of Base Metal, Parts Thereof Base Metal	TB De/US 82	0.61	7.40	s	s	0.43
	TB It/US 82	0.41	1.64	s	s	0.48
Nuclear Reactors, Boilers, Machinery And Mechanical Appliance, Parts Thereof	TB De/US 84	2.79	3.68	s	s	0.52
	TB It/US 84	1.39	1.67	s	s	0.68
Electrical Machinery And Equipment And Parts Thereof; Sound Recorders And Reproducers, Television Image And Sound Recorders And Reproducers, And Parts And Accessories Of Such Articles.	TB De/US 85	0.13	10.23	s	s	0.49
	TB It/US 85	0.85	1.208	us	us	0.501
Vehicles Other Than Railway Or Tramway Rolling-Stock, And Parts And Accessories Thereof	TB De/US 87	0.30	3.26	s	s	0.40
	TB It/US 87	0.44	4.405	s	s	0.43
Aircraft, Spacecraft, And Parts Thereof	TB De/US 88	0.48	4.77	s	s	0.42
	TB It/US 88	3.64	4.17	s	s	0.58
Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments And Apparatus; Parts And Accessories Thereof	TB De/US 90	0.34	1.70	s	s	0.42
	TB It/US 90	0.13	2.65	s	s	0.55
Arms And Ammunition; Parts And Accessories Thereof	TB De/US 93	2.67	6.25	s	s	0.41
	TB It/US 93	2.27	1.38	s	us	0.36
Furniture; Bedding, Mattresses, Mattress Supports, Cushions And Similar Stuffed Furnishings, Lamps And Lighting Fittings, Not Elsewhere Specified Or Included; Illuminated Signs, Illuminated Name-Plants And The Like; Prefabricated Buildings.	TB De/US 94	0.55	3.24	s	s	0.37
	TB It/US 94	0.51	5.62	s	s	0.49
Other Products	TB De/US 99	0.76	5.21	s	us	0.49
	TB It/US 99	3.69	0.89	s	s	0.27

Table 3. Diagnostic statistics.

Notes: Lagrange multiplier test of residual serial correlation; RESET, Ramsey's test for functional test. Both are distributed as a χ^2 with one degree of freedom; CUSUM, cumulative sum of residuals; CUSUMSQ, cumulative sum of squared residuals; S, 'Stable', US, 'Unstable'.

position	Germany		Italy		Sign. Pos. lnREX?	
	Sector	Share	Sector	Share	Germany	Italy
1	87	24,003	84	19,992	No	No
2	84	21,088	30	11,619	No	No
3	30	10,706	87	9,685	Yes	Yes
4	85	8,668	90	5,057	No	No
5	90	8,543	85	4,680	No	No
6	39	2,628	22	3,801	No	No
7	88	2,622	88	3,319	No	No
8	29	2,224	29	3,064	No	No
9	38	1,656	71	3,007	No	No
10	73	1,312	73	2,205	No	No

Table 4. Top 10 industries for trade share in Germany and Italy.