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RESEARCH ARTICLE

ECONOMIC GROWTH AND INTERNATIONAL TRADE. A MEASUREMENT OF EXPORTS INSTABILITY AND ITS EFFECTS ON DEVELOPMENT

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ABSTRACT

The article explores the fundamental relation between economic growth and international trade. In addition, it analyzes the effects of export instability to financial growth. Based on the findings of the study is proved that there exists a long lasting relationship between export instability, income terms of trade instability, investment and economic growth. An effective strategy may contribute to governmental efforts in order to differentiate country's international trade policy. In today's increasingly globalized world, exports and imports are key aggregates in the analysis of a country's economic situation. Whenever an economy slows down or accelerates, all other economies are potentially affected. Equally, imports reflect the same transactions from non-residents to residents. Not all goods need to physically enter a country's border to be recorded as an export or import. Transportation equipment, goods produced by residents in international waters sold directly to non-residents, and food consumed in ships or planes are but a few examples of transactions which may be recorded as exports or imports without physically crossing borders.

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INTRODUCTION

The EU-28, China and the United States have been the three largest global players for international trade (see Figure 1) since 2004 when China passed Japan. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016). In 2014, the relation between exports and imports (the cover ratio) was particularly high in favor of exports in Russia and Norway (see Figure 2), while in absolute terms. China and Russia have had the largest annual trade surpluses since 2005; in 2014, the United States had the largest annual deficit (see Figure 3). Looking at the flows of exports and imports, the EU-28 had the second largest share of global exports and imports of goods (see Figures 3 and 4) in 2014: the EU-28's exports of goods were equivalent to 15.0 % of the world total, and in 2014 were surpassed for the first time since the EU was founded by those of China (15.5 %), but still ahead of the United States (12.2 %); the United States had a larger share of world imports (15.9 %) than either the EU-28 (14.8 %) or China (12.9 %). (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016)

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Extra-EU Trade and Global Players

EU-28 international trade in goods with the rest of the world (the sum of extra-EU exports and imports) was valued at EUR 3 517 billion in 2015 (see Figure 4 and Table 1). Both imports and exports increased compared to 2014, but this increase was larger for exports (EUR 88 billion) than for imports (EUR 35 billion). As a result, the EU-28's trade surplus increased from EUR 11 billion in 2014 to EUR 64 billion in 2015. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016). After experiencing a sharp fall in both exports and imports in 2009, the EU-28 saw its exports rise 58.7 % over four years to a record level of EUR 1 737 billion in 2013. Exports then fell 1.9 % in 2014 before rising 5.1 % to a new peak in 2015 of EUR 1 791 billion. By contrast, the increase in imports after 2009 was 45.5 % over three years to peak in 2012 at EUR 1 798 billion. Imports fell 6.2 % in 2013 before stabilizing (up 0.3 %) in 2014 and increasing by 2.0 % in 2015, still below the value reached in 2012. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016). Germany was by far the largest Member State in relation to extra EU-28 trade in 2015, contributing 28.2 % of the EU-28's exports of goods to non-

member countries and accounting for almost one fifth (18.8 %) of the EU-28's imports.

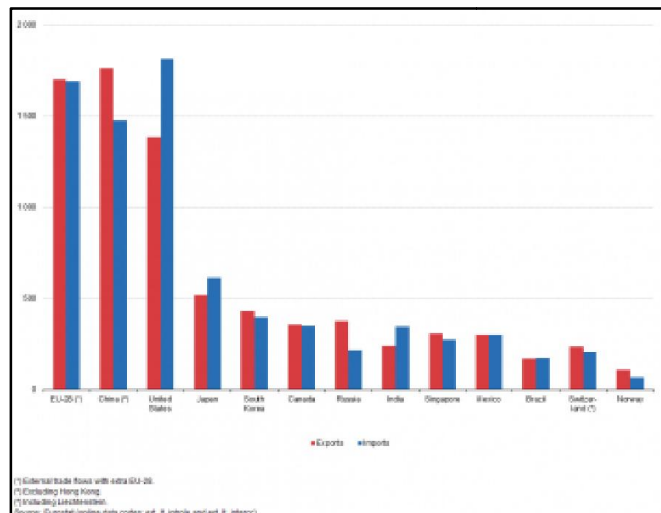


Figure 1. Global players for international trade

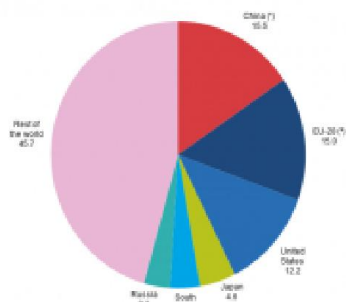


Figure 2. Relation between exports and imports

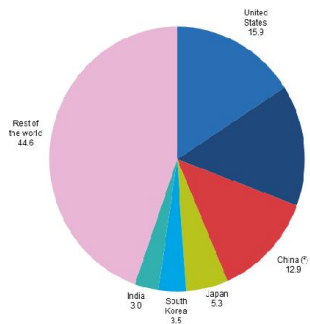


Figure 3. Global exports and imports

The next three largest exporters, the United Kingdom (12.9 %), France (10.5 %) and Italy (10.4 %), remained the same as in 2014 (although France's extra-EU-28 exports surpassed those of Italy), and were the only other EU Member States to account for a double-digit share of EU-28 exports.

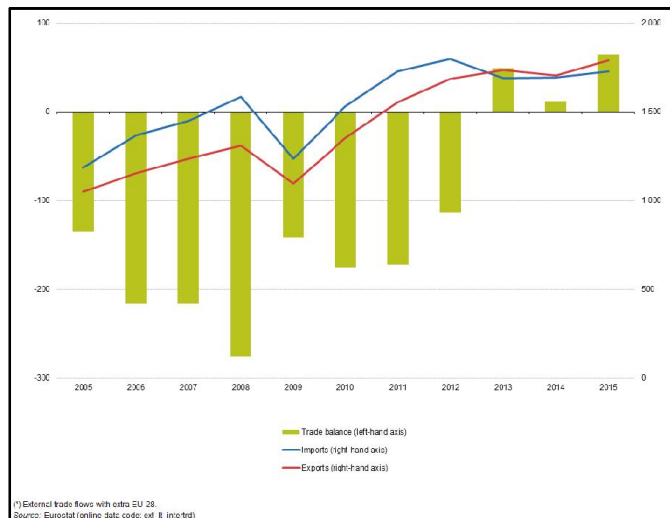


Figure 4. 2014-Global exports and imports of goods

The United Kingdom (15.2 %), the Netherlands (14.4 %), France (9.5 %) and Italy (8.9 %) followed Germany as the largest importers of goods from non-member countries in 2015. The relatively high share for the Netherlands can, at least in part, be explained by the considerable amount of goods that flow into the EU through Rotterdam, which is the EU's leading sea port. The largest extra EU-28 trade surplus in goods, valued at EUR 179.4 billion in 2015, was recorded by Germany, followed by Italy (EUR 33.7 billion) and Ireland (EUR 29.3 billion). (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods,25/10/2016)

Intra-EU Trade Issues

Trade in goods between EU Member States (intra-EU trade) was valued in terms of dispatches at EUR 3 070 billion in 2015. This was 71 % higher than the level recorded for exports leaving the EU-28 to non-member countries of EUR 1 791 billion (extra-EU trade). (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods,25/10/2016) Intra EU-28 trade again measured by dispatches increased by 4.7 % across the EU-28 between 2014 and 2015; this was the sixth consecutive annual rise since 2009. Considering arrivals and dispatches together, the biggest increases in intra-EU trade were registered for Ireland (13.4 %) and Croatia (12.3 %), while Estonia (-2.7 %), Latvia (-2.1 %), Belgium (-0.4 %) and Finland (-0.2 %) were the only EU Member States to record a reduction in intra-EU trade in 2015. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods,25/10/2016). As for extra EU-28 trade, Germany was also the largest Member State in relation to intra EU-28 trade in 2015, contributing 22.6 % of the EU-28's dispatches of goods to other Member States and also just over one fifth (20.9 %) of the EU-28's arrivals of goods from other Member States. The Netherlands (12.6 %) was the only other Member State to contribute more than one tenth of intra-EU dispatches, again a consequence of the Rotterdam effect, while France (11.8 %) and the United Kingdom (10.2 %) accounted for more than one tenth of intra-EU-28 arrivals. The importance of the EU's internal market is underlined by the fact that intra-EU trade in goods (dispatches and arrivals combined) was higher than extra-EU trade (exports and imports combined) for each EU Member State, with the exception of the United Kingdom.

Table 1. Sum of extra Eu exports and imports

	Exports			Imports			Trade balance	
	2014 (billion EUR)	2015	2014–15 growth rate (%)	2014 (billion EUR)	2015	2014–15 growth rate (%)	2014 (billion EUR)	2015
EU-28 (*)	1 703.0	1 790.7	5.1	1 691.9	1 726.5	2.0	11.1	64.2
Belgium	355.5	359.6	1.1	342.2	338.8	-1.0	13.3	20.8
Bulgaria	22.0	23.2	5.1	26.1	26.4	1.1	-4.1	-3.2
Czech Republic	131.8	142.8	8.4	116.2	126.8	9.1	15.6	16.0
Denmark	83.5	85.9	2.9	74.8	77.0	2.9	8.7	8.9
Germany	1 125.0	1 198.3	6.5	908.6	946.5	4.2	216.5	251.9
Estonia	12.1	11.6	-3.8	13.8	13.1	-5.1	-1.7	-1.4
Ireland	91.8	110.5	20.4	60.7	66.5	9.6	31.1	43.9
Greece	27.2	25.8	-5.2	48.0	43.6	-9.1	-20.8	-17.8
Spain	244.3	255.4	4.6	270.2	281.3	4.1	-25.9	-25.9
France	436.9	456.0	4.4	509.3	515.9	1.3	-72.4	-59.9
Croatia	10.4	11.7	11.9	17.2	18.6	8.2	-6.7	-6.9
Italy	398.9	413.9	3.8	356.9	368.7	3.3	41.9	45.2
Cyprus	1.4	1.6	20.9	5.1	5.0	-1.4	-3.7	-3.4
Latvia	11.0	10.9	-0.8	13.3	12.9	-2.9	-2.3	-2.0
Lithuania	24.4	23.0	-5.7	25.9	25.4	-1.9	-1.5	-2.4
Luxembourg	14.5	15.6	7.4	20.1	20.9	3.9	-5.6	-5.3
Hungary	83.3	88.9	6.8	79.0	83.5	5.7	4.3	5.4
Malta	2.2	2.3	5.4	5.1	5.2	1.7	-2.9	-2.9
Netherlands	506.3	511.3	1.0	443.7	456.4	2.9	62.7	55.0
Austria	134.2	137.8	2.7	137.0	140.1	2.3	-2.8	-2.4
Poland	165.7	178.7	7.8	168.4	175.0	3.9	-2.7	3.7
Portugal	48.1	49.9	3.6	59.0	60.2	2.0	-10.9	-10.3
Romania	52.5	54.6	4.0	58.6	63.0	7.6	-6.1	-8.4
Slovenia	27.1	28.8	6.4	25.6	26.8	4.8	1.5	2.0
Slovakia	65.1	68.0	4.5	61.7	66.3	7.5	3.4	1.7
Finland	56.0	53.9	-3.7	57.8	54.3	-6.1	-1.8	-0.4
Sweden	123.9	126.3	2.0	122.1	124.5	1.9	1.8	1.9
United Kingdom	380.3	414.8	9.1	519.7	564.2	8.6	-139.5	-149.4
Iceland	3.8	4.3	12.1	4.0	4.6	14.4	-0.2	-0.4
Norway	107.5	-	-	67.2	-	-	40.3	-
Switzerland (*)	234.8	261.6	11.4	207.6	225.9	8.8	27.2	35.7

(*) External trade flows with extra EU-28.

(*) Including Liechtenstein.

Source: Eurostat (online data codes: ext_it_intertrd, ext_it_intercc and ext_it_intrale)

The proportion of total trade in goods that was accounted for by intra-EU and extra-EU flows varied considerably across the Member States, reflecting to some degree historical ties and geographical location. The highest shares of intra-EU trade (around 80 % of total trade) were recorded for Luxembourg, Estonia, Hungary, the Czech Republic and Slovakia, with this ratio falling to 49.7 % in the United Kingdom. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016)

Analysis of Main Trading Partners

Between 2005 and 2015, the development of the EU-28's exports of goods by major trading partner varied considerably. Among the main trading partners, the highest growth rate was recorded for exports to China which more than trebled, while exports to South Korea and Brazil more than doubled. Exports to Japan and Russia grew more slowly and were approximately 30 % higher in 2015 than they had been in 2005. On the import side, between 2005 and 2015 the EU-28 saw a decrease in the value of its imports of goods from Japan (down 20 %). The greatest increases were registered for imports from China and India which more than doubled. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016). The United States remained, by far, the most common destination for goods exported from the EU-28 in 2015, although the share of EU-28 exports destined for the United States fell from 28.0 % of the total in 2002 to 16.7 % in 2013 before recovering to 20.7 % by 2015. China was the second most important destination market for EU-28 exports in 2015 (9.5 % of the EU-28 total), followed by Switzerland (8.4 %). In 2015, Turkey overtook Russia to be the fourth largest destination for EU-28 exports of goods. The seven largest destination markets for EU-28 exports of goods China,

the United States, Russia, Switzerland, Norway, Turkey and Japan accounted for more than half (53.1 %) of all EU-28 exports of goods. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016). The seven largest suppliers of EU-28 imports of goods were the same countries as the seven largest destination markets for EU-28 exports, although their order was slightly different.

These seven countries accounted for a larger share of the EU-28's imports of goods than their share of EU-28 exports of goods: nearly three fifths (59.8 %) of all imports of goods into the EU-28 came from these seven countries. China was the origin for more than one fifth (20.3 %) of all imports into the EU-28 in 2015 and was the largest supplier of goods imported into the EU-28. The United States' share of EU-28 imports of goods (14.4 %) was around 6 percentage points lower than that of China, while the share of Russia (7.9 %), which was the third largest supplier of goods to the EU-28, was a further 6 percentage points smaller. In 2015, Turkey overtook Japan to be the sixth largest supplier of EU-28 imports of goods. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016)

A Measurement of Main Product Groups

Between 2010 and 2015, the value of the EU-28's imports and exports increased for all product groups shown in Figure 13, except for the imports of mineral fuels and lubricant products which fell 14.7 %. The highest growth rate for exports was reported for food, drinks and tobacco for which an increase of 49.5 % was observed. The imports of these products also increased strongly (up 33.8 %), but this growth was surpassed by chemicals and related products where growth of 34.8 %

was recorded (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016). The EU-28's trade surplus for goods of EUR 64.2 billion in 2015 was driven by a positive trade balance in relation to machinery and transport equipment, which stood at EUR 218.0 billion, and in relation to chemicals and related products (EUR 129.9 billion). Between 2010 and 2015, the EU-28 reported an increase in the trade surplus for both of these product groups. For food, drinks and tobacco, the EU-28 moved from a small trade deficit in 2010 to a similar sized trade surplus in 2015. For the other three product groups shown in Figure 13 the EU-28 reported a smaller trade deficit in 2015 than it had in 2010. The largest trade deficit in 2015 was for mineral fuels and lubricant products where imports exceeded exports by EUR 243.2 billion. The structure of the EU-28's exports of goods changed between 2010 and 2015 most notably among the smaller product groups (see Figure 14). The share of food, drinks and tobacco products increased from 5.6 % to 6.3 % between these years while the share of mineral fuels and lubricant products fell from 5.8 % to 4.8 %. The largest change between 2010 and 2015 in the structure of the EU-28's imports was for mineral fuels and lubricant products, whose share fell from 25.2 % to 19.0 % (see Figure 15). By contrast, over the same period the share of other manufactured goods rose from 23.8 % to 26.1 %, while the share of machinery and transport equipment rose from 28.9 % to 31.0 %. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016). Figure 16 contrasts the structure of the EU-28's imports and exports in 2015: it should be borne in mind that the overall level of exports was around 3.7 % higher than imports. The most notable difference is the share of mineral fuels and lubricant products which was several times higher for imports than for exports. This was balanced by lower import shares for machinery and transport equipment and for chemicals and related products. (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016)

The following definitions of extra-EU-28 flows are used: (http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods, 25/10/2016)

- imports are goods which enter the statistical territory of the EU from a non-member country and are placed under the customs procedure for free circulation (as a general rule goods intended for consumption), inward processing, or processing under customs control (goods for working, processing), either immediately or after a period in a customs warehouse;
- exports are goods which leave the statistical territory of the EU for a non-member country after being placed under the customs procedure for exports (definitive export), outward processing, or re-exportation following either inward processing or processing under customs control.

Statistics on trade with non-member countries do not, therefore, include goods in transit or those placed under a customs procedure for bonded warehousing or temporary entry (for fairs, exhibitions, tests, etc.), nor do they include re-export following entry under one of these procedures. Statistics on trade between the EU Member States (intra-EU trade) cover arrivals and dispatches of goods recorded by each Member State. Arrivals and dispatches are defined as follows:

- Arrivals are goods in free circulation within the EU which enter the statistical territory of a given Member State;
- Dispatches are goods in free circulation within the EU which leave the statistical territory of a given Member State to enter another Member State.

Customs records are the traditional source of statistical data on trade in goods. The beginning of the single market on 1 January 1993, with its removal of customs formalities between EU Member States, made it necessary to adopt a new data collection system, Intrastat, as the basis for statistics on intra-EU trade. In the Intrastat system, statistical data are collected directly from trade operators who are requested to send monthly declarations to their national statistical administration (Engle, Granger, 1987). The statistical values of extra-EU trade and intra-EU trade are recorded at their free-on-board (FOB) value for exports/dispatches and their cost, insurance and freight (CIF) value for imports/arrivals. The values reported comprise only those subsidiary costs (freight and insurance) which relate, for exports/dispatches, to the journey within the territory of the Member State from which the goods are exported/ dispatched and, for imports/arrivals, to the journey outside the territory of the Member State into which the goods are imported/arrive.

Exports Instability and Financial Growth

There are three possible channels through which export instability can influence economic development; via its outcome on output, the level of investment, and the level of imports. Export instability can directly influence financial development by causing distortions, which means losses creation in output, and can influence in a direct way a result by influencing the level of investment, and hereafter capital accumulation, as well as by influencing the flow of imports into the domestic financial state (by creating import instability).

Therefore, economic growth (Y), investment (INV), export instability (XI) and import instability (MI) are the four economic variables involved in these reports. It is proposed the following course of these four parameters:

$$Z = (Y, INV, XI, MI) \quad (1)$$

The size of export income a state is capable of accumulating does not in itself reveal its capability to finance imports. This is because the capability to import does not only depend on the level of foreign exchange disposal but also on the level of import prices. An improved measure of the capability to import is better reproduced by the income terms of trade (ITT), which is derived by multiplying, the real export value by the terms of trade (Elliot *et al.*, 1996). An increase in ITT demonstrates that a state can accomplish a larger volume of imports from the sale of its exports. Additionally, income terms of trade instability (ITTI) is a better ration of import instability related to export instability. Therefore, to investigate the relation between export instability, income terms of trade instability, investment and economic growth, the equalization (1) is modified as:

$$Z = (Y, INV, XI, ITTI) \quad (2)$$

Where Y , INV , XI are the same as in (1) but $ITTI$ represents the instability of the income terms of trade. Gross domestic product (GDP) is used as a ration of economic development

and gross fixed capital accumulation is used as a substitution for investment. Both GDP and Investment are measured in real units using implicit GDP deflator with base 2000. Both these variables are also modeled in natural logarithms. The export variable is measured by real export earnings, which is the outcome by modifying the nominal export values by an export price index. (Afxentiou, Serletis, 2000). In order to calculate the income terms of trade the ratio of export price index is used to import price index and multiplying by real export earnings. Through the years, researchers have used different techniques to measure instability. Nevertheless, this article follows Basu and McLeod (1991), Tariq and Qazi (1995) and Ghirmay *et al.* (1999) to measure instability. Thus, the instability variable is obtained from the following regression

$$X = a + bt + u \quad (3)$$

Where t

X is the variable for which the instability is to be estimated, t is the time trend and u

u is the error term. Equation (3) is estimated by the least squares method and the instability measure is then obtained as squared deviations from the estimated exponential time trend. The results of the study had shown that between financial development, real investment, export instability and income terms of trade instability in India. The results indicated that in the short run both the economic growth and real investment Granger causes each other while a uni-directional causality runs from exports instability and income terms of trade instability to economic growth and real investment. In the long run a reverse causality is found between economic growth and investment. Export instability and income terms of trade instability are independent of each other, however both these variables Granger cause economic growth and investment in India.

Concluding Remarks

Export instability creates income instability which affects investment, whereas domestic savings will sustain the levels of the investment which will stabilize the growth path; both economic growth and investment are highly correlated. Thus on one hand, increase in investment will lead to production of more goods which will cause growth in the economy and on the other hand, economic growth will guarantee increase in

investment and promote exports. The established flow of exports as well as the consequential stable revenue flows offers the base for a stable development for any financial state. Exports not only makes easier the burden on the balance of payments but also generates employment chances and can rise intra-industry trade. The capability of trade to create evolution in developing countries has increasingly been underestimated by the weakening consequences of fluctuations in export earnings. Developing countries mostly export primary goods, which are characterized by lower consumer price and income elasticities of demand and supply than manufactured products. Moreover, a restricted quantity of commodities creates total exports, exposing the countries to the notions of a highly unstable universal financial environment. Finally, the trend of trade is focused on developed countries, whereas cyclical measures in these countries are quickly diffusing to less developed countries.

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