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Assessment of Commerce Potency on Economic Growth in Italy: Empirical Analysis

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Abstract

The link between exports, imports and economic growth in Italy has been extensively discussed by historiography. This paper investigates the relationship between exports, imports, and economic growth in Italy. In order to achieve this purpose, annual data were collected from the reports of the World Bank for the periods between 1960 and 2015, was tested by using Augmented Dickey-Fuller (ADF) stationary test, Co integration analysis of the Vector Auto Regression Model and the Granger-Causality tests. According to the empirical results, we found that exports and imports have not any effect on economic growth. Also, we discovered, according to the Granger-Causality tests that there is no any relationship of causality between trade and economic growth. However, and according to the results of the correlation analysis, we found that trade and economic growth in Italy are positively correlated, meaning that the strategy economic posing by Italy is not efficacious to solve economic problems.

Keywords: Export, Import, Economic Growth, Correlation, Cointegration, VAR and Causality

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I. Introduction

It has been theoretically disputed and argued that both export and import can act and precede a vital docket in economic development. The theoretical and empirical studies predominately condense and focus on either the acquaintance between export and growth or between import and growth or the association between export, import and economic growth. Exports of goods and services are seen as an engine of economic and social development through their power to influence economic growth and poverty reduction. They are also a source of foreign exchange inflows to deal with imports. Finally, they constitute a potential component of State revenue through customs duties they may generate or when they are carried out by public enterprises. In some cases, imports are seen as an important means for foreign technology and knowledge to infiltrate the national economy, as new technologies could be incorporated into imports of intermediate goods such as machinery and equipment and labor productivity could increase over time as workers gain knowledge of the new incarnated technique. Among the studies that have exposed that an improvement of trade has a significant positive impact on economic growth are Michaely, (1977); Balassa, (1978, 1989 and 1995); Tyler, (1981); Grossman and Helpman, (1989); Fosu, (1990); Tybout, (1991 and 1992); Rahman (1993); Savvides, (1995); Asmah, (1998); Sachs and Warner, (1997); Edward, (1998); Frankel and Romer, (1999); Ram, (1987). On the other hand, Tyler (1981), Helleiner (1986), Ahmad and Kwan (1991), Buffie (1992), Onafowora and Owoye, (1998) have signed that the positive acquaintance between trade and economic growth does not exist during certain periods in some countries. Italy has a capitalist economy with a high per capita GDP and the existence of an advanced infrastructure. According to the IMF, Italy was in 2008, the seventh largest economy in the world and the fourth largest economy in Europe. Italy is also considered in the Group of Eight industrialized nations and the European Union and the Organization for Economic Cooperation and Development members. Italy's economy in recession recorded in the second quarter of this year, due to the faltering economic recovery efforts in the third largest economy in the old continent that sends a powerful blow to the Italian Government. A decline in domestic demand caused by rising exports issued by the Italian statistics, which revealed slower GDP growth compared with the same period last year data. Preliminary estimates point to continued growth at the rate of zero percent in the period between April last two and June. As the growth rate rose slightly on an annual basis by zero point eight percent instead of zero point seven percent in August. More specifically, this item attempts to empirically discover and uncover a settlement for the query of whether exports conduct economic growth or imports bring economic growth or economic growth guide exports and imports to reach and to attain this unbiased the wrapper is organized as follows. In section 2, we pose the review literature touching the linkage between commercial exchange and economic growth. Secondly, we dispute the Methodology Model Specification and data involved in this survey in Section 3. Thirdly, Section 4 tables the empirical results as well as the analysis of the findings. Finally, Section 5 is devoted to our conclusion.

II. Literature Survey

Many research works exist that examines the causal interaction of openness trade and economic growth. Din (2004) examined the export-led growth hypothesis for the five largest economies of the South Asian region using a multivariate time-series framework. For India and Sri Lanka, the sample period is from 1960 to 2002, whereas for Nepal it is 1965–2002. In the case of Bangladesh and Pakistan, the sample period is from 1973 to 2002.The results reveal bidirectional causality between exports and output growth

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in Bangladesh India, and Sri Lanka in the short-run. The study finds long-run equilibrium relationships among exports, imports, and output for Bangladesh and Pakistan. However, for India, Nepal, and Sri Lanka, no evidence of a long-run relationship among the relevant variables is found. Saad (2012) provided an investigation on economic growth, exports and external debt of Lebanon over the period 1970-2010. By using VECM and Granger causality, he found that that both short run and long run relationships exist among these variables. Moreover, the finding suggests, i) bidirectional Granger causality between GDP and external debt servicing, ii) unidirectional Granger causality that runs from external debt to exports, iii) unidirectional causality running from exports to economic growth, and iv) unidirectional causality running from exchange rate to economic growth. A similar study Zeren and Ari (2013) investigated the relationship between exports, imports and economic growth for the G7 countries over the period 1977-2011. The study applied panel unit root test and Peseran's CIPS statistic. The empirical results reveal a bidirectional causal relationship for both developing and OECD countries. Finding is consistent with the endogenous theory that increased openness leads to higher growth, which thus. Dritsaki and Dritsaki (2013) analyzed the link between financial development, trade openness and economic growth in Bulgaria quarterly data over the period 1994-2000. They applied Engle-Granger cointegration technique and the Ordinary Least Squares (OLS). Multivariate error-correction model suggest unidirectional causation from financial development and trade openness to economic growth, as well as unidirectional causation from financial development and economic growth to trade openness in the long run. In the short run, a bidirectional causality between financial development and trade openness and a unidirectional causality running from economic growth to financial development. Caleb, Mazanai and Dhoro (2014) examined the causal relations among trade openness and economic growth for 87 selected countries, including both developing and OECD countries during the period 1970-2010. The empirical results revealed bidirectional causality between openness, trade and economic growth. Overall, it may be reasonable to conclude that openness, by leading to fewer prices, good information and technologies upgrade plays an important role in promoting growth. The evidence indicates the importance of a country's dependence on foreign trade to increase growth in OECD and developing countries, thereby increasing openness in turn. Abugamea (2015) examined the link between exports, imports and economic growth in Palestine through employing yearly data for the period 1968-2012. The results, based on Vector Error Correction model show the existence of the long run relationship between imports and economic growth given exports stationary. Moreover, both exports and imports are considered main determinants of economic growth in Palestine. Granger causality test shows no causality among exports and imports and economic growth. Mainly, causality tests confirm VECM results that import cause changes on economic growth in the long run but not in the short run. El Alaoui (2015) examined the relationship between exports, imports and economic growth in Morocco over the period 1980-2013. The study applied Granger causality test based on vector error correction model (VECM). The findings confirm the existence of the long-run relationship among these variables. For the short-run causality, the findings suggest (i) bidirectional causality between economic growth and import, (ii) unidirectional causality that run from export to import, and (iii) no-directional causality between economic growth and export. By using cointegration, the vector error correction model and the Granger causalities, Fitzová and Zídek (2015) examined the link between export, import and the GDP growth over the period (quarterly) 1996 Q1 to 2014 Q4 (Czech Republic) 1997 Q1 to 2014 Q4 (Slovak Republic). The results of the estimation for the Czech Republic support the hypothesis that growth of exports Granger-causes economic growth.

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Therefore the Czech economy's growth can be considered as export-led. The opposite direction of the causality between economic growth and growth in exports was not detected. The study also identified a mutual two-way relation between imports and GDP growth, which suggests import-led growth and growth-driven imports. The results for Slovakia support the hypothesis that growth of exports Granger-causes economic growth. Therefore the Slovak economy's growth can also be considered as export-led. The opposite direction of the causality between economic growth and growth in exports was not detected. The study also identified a one-way relation between imports and GDP which suggests growth-driven imports. The Hungarian economy's growth could not be considered as export-led. The study only detected a mutual two-way relationship between imports and GDP. The Polish economy can be considered as neither export-led nor import-led. Nikolaos and Stamatiou (2016) examined the relationship between trade openness and growth for 30 newest European Union Members using annual data from 1995 to 2013. Findings derived from the panel data analysis show that the impact of economic growth and trade openness is found to be positive. Finally, the panel Granger causality analysis reveals a unidirectional causal relationship running from trade openness to economic growth, both in the short and in the long-run. Idris, Yusop and Habibullah (2016) investigated the relationship between openness trade and economic growth over the period 1970-2010 in 87 selected countries, including both developing and OECD countries by using dynamic panel GMM. The empirical results revealed bidirectional causality between openness, trade and economic growth. The evidence indicates the importance of a country's dependence on foreign trade to increase growth in OECD and developing countries, thereby increasing openness. Bakari (2017) examined the impact of domestic investment, exports, imports on economic growth in Sudan for the periods between 1976 and 2015 by using cointegration analysis of Vector Error Correction Model and the Granger-Causality tests. According to the results of this study, Bakari found that there is no relationship between exports, imports and economic growth in the long run and the short run. Bakari and Mabrouki (2017) investigate the relationship between exports, imports, and economic growth in Panama. In order to achieve this purpose, annual data for the periods between 1980 and 2015 were tested using the Johansen co-integration analysis of the Vector Auto Regression Model and the Granger-Causality tests. According to the result of the analysis, it was determined that there is a strong evidence of bidirectional causality from imports to economic growth and from exports to economic growth. Bakari and Krit (2017) look into the acquaintance between exports, imports, and economic growth in Mauritania, by using co integration analysis of Vector Error Correction Model and the Granger-Causality tests. According to the Vector Error Correction Model, exports have a positive effect on economic growth. However, imports have a negative effect on economic growth. On the other hand, and according to the Granger-Causality tests, they defined that there is uni-directional causality between imports and economic growth. In addition, the result of the Granger Causality Tests shows that there is no relation of causality between exports and GDP.

III. Data, methodology and model specification:

1. The Data:

The analysis used in this study cover annual time series of 1960 to 2015 (or 55 observations) in Italy. The data set consists of observation for GDP, exports of goods and services (current US$), and imports of goods and services (current US$). All data set are taken from World Development Indicators 2016.

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2. Methodology

We will use the most appropriate method which consists firstly of determining the degree of integration of each variable. If the variables are all integrated in level, we apply an estimate based on a linear regression. On the other hand, if the variables are all integrated into the first difference, our estimates are based on an estimate of the VAR model. When the variables are integrated in the first difference we will examine and determine the cointegration between the variables, if the cointegration test indicates the absence of cointegration relation, we will use the model VAR. If the cointegration test indicates the presence of a cointegration relation between the different variables studied, the model VECM will be used.

3. Model specification:

Early empirical formulations tried to capture the causal link between exports and GDP growth by incorporating exports into the aggregate production function. The augmented production function including both exports and imports is expressed as:

$$\mathbf{GDP_t = f(exports, imports)} \qquad \mathbf{(1)}$$

The function can also be represented in a log-linear econometric format thus:

$$\mathbf{\log(GDP)_t = \beta_0 + \beta_1 \log(exports)_t + \beta_2 \log(imports)_t + \varepsilon_t} \qquad \mathbf{(2)}$$

Where:

- β_0 : The constant term.
- β_1: coefficient of variable (exports)
- β_2: coefficient of variables (imports)
- t: The time trend.
- ε: The random error term assumed to be normally, identically and independently distributed.

IV. EMPIRICAL ANALYSIS

1) Statistic descriptive

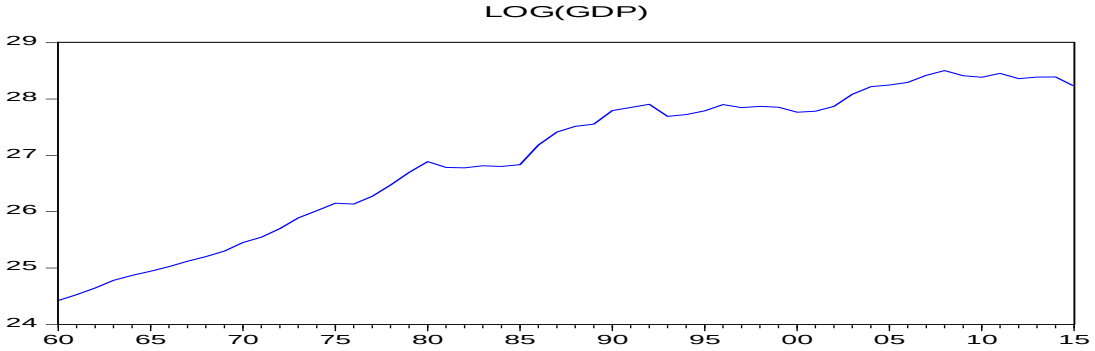
Table 1: Statistic Descriptive

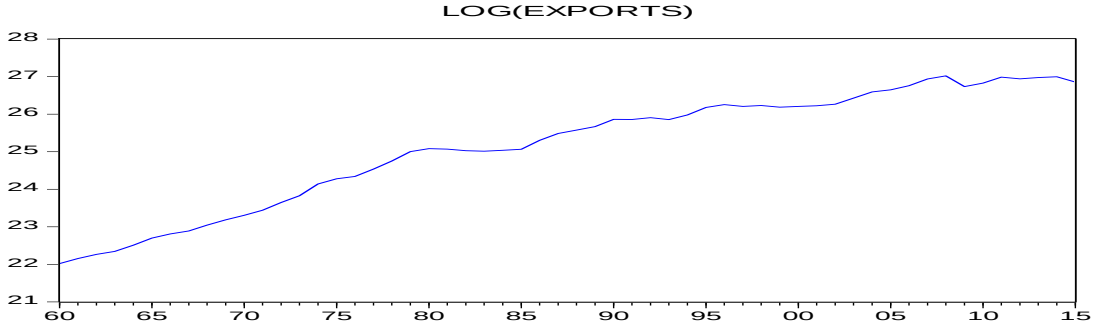
	GDP	EXPORTS	IMPORTS
Mean	9.10E+11	1.79E+11	1.79E+11
Median	8.46E+11	1.22E+11	1.32E+11
Maximum	2.39E+12	5.43E+11	5.62E+11
Minimum	4.04E+10	3.66E+09	4.73E+09
Std. Dev.	7.60E+11	1.74E+11	1.71E+11
Skewness	0.461585	0.801101	0.859980
Kurtosis	1.864834	2.344968	2.498835
Jarque-Bera	4.995300	6.990948	7.488659
Probability	0.082278	0.030334	0.023651
Sum	5.09E+13	1.00E+13	1.00E+13

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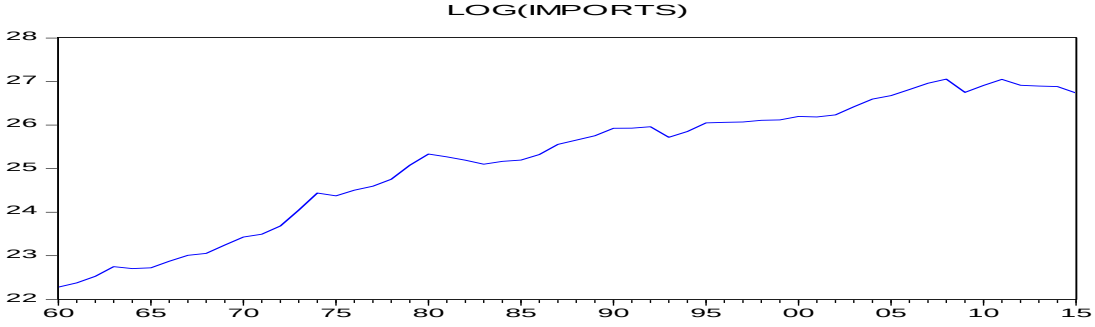
Sum Sq. Dev.	3.18E+25	1.66E+24	1.61E+24
Observations	56	56	56

Graph 1: Evolution of Log (GDP)





Graph 3: Evolution of Log (Imports)



This involves testing the order of integration of the individual series under consideration. Several procedures for the test of order of integration have been developed. The most popular ones is Augmented

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Dickey-Fuller (ADF) test due to Dickey and Fuller (1979, 1981). The general form of ADF test is estimated by the following regression:

$$\Delta Y_1 = a + \beta Y_{t-1} + \sum_{1=1}^{n} \beta_1 \Delta Y_1 + \varepsilon_t \quad ------(3)$$

- Δ: is the first difference operator
- Y : is a time series
- t : is a linear time trend
- α: is a constant
- n: is the optimum number of lags in the dependent variable
- ε: is the random error term.

a- Stationary of Log (GDP)

Table 2: ADF for GDP

Null Hypothesis: D(LOG(GDP)) has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic - based on SIC, max-lag=10)			
Augmented Dickey-Fuller test statistic		t-Statistic	Prob.*
		-4.663671	0.0004
Test critical values:	1% level	-3.557472	
	5% level	-2.916566	
	10% level	-2.596116	

b- Stationary of Log (EXPORTS)

3) Table 3: ADF for Exports

Null Hypothesis: D(LOG(EXPORTS)) has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic - based on SIC, max-lag=10)			
Augmented Dickey-Fuller test statistic		t-Statistic	Prob.*
		-4.745603	0.0003
Test critical values:	1% level	-3.557472	
	5% level	-2.916566	
	10% level	-2.596116	

c- Stationary of Log (IMPORTS)

4) Table 4: ADF for Imports

Null Hypothesis: D(LOG(IMPORTS)) has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, max-lag=10)		
Augmented Dickey-Fuller test statistic	t-Statistic	Prob.*

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		-5.605441	0.0000
Test critical values:	1% level	-3.557472	
	5% level	-2.916566	
	10% level	-2.596116	

According to the results of tables 2, 3 and 4 show that all the variables were not stationary in level form and for different level (1%, 5% and 10%). However, variable become stationary after first difference and in all levels (1%, 5% and 10%).

5) Lag order selection

Most VAR models are estimated using symmetric lags, he same lag length is used for all variables in all equations of the model. This lag length is frequently selected using an explicit statistical criterion such as the AIC or SIC.

$$AIC = 2k - 2\ln(L) \qquad (4)$$

$$SIC = -2\ln(L) + k.\ln(n) \qquad (5)$$

- L: The maximum values of the likelihood function for the model.
- K: the number of estimated parameters in the model.
- n: the number of observation.

Table 5: Lag Order Selection Criteria

VAR Lag Order Selection Criteria						
Endogenous variables: LOG(GDP) LOG(EXPORTS) LOG(IMPORTS)						
Exogenous variables: C						
Sample: 1960 2015						
Included observations: 51						
Lag	Log L	LR	FPE	AIC	SC	HQ
0	5.234271	NA	0.000184	-0.087618	0.026018	-0.044194
1	**181.4514**	**324.7923***	**2.61e-07***	**-6.645151***	**-6.190604***	**-6.471456***
2	189.8568	14.50358	2.69e-07	-6.621837	-5.826379	-6.317869
3	194.8704	8.061018	3.17e-07	-6.465506	-5.329138	-6.031266
4	200.6742	8.648761	3.66e-07	-6.340164	-4.862885	-5.775652
5	209.1015	11.56696	3.87e-07	-6.317707	-4.499518	-5.622924

It is clear from Table 5 that LR, FPE, AIC, SC, HQ and HQ statistics are chosen lag 1 for each endogenous variable in their autoregressive and distributed lag structures in the estimable VAR model. Therefore, lag of 1is used for estimation purpose.

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6) Cointegration test

The aim of the cointegration test is to check and explore whether there is a co-regression relationship between the different variables or not.

Johansen proposes two different likelihood ratio tests of the significance of these canonical correlations and thereby the reduced rank of the matrix ∏: the trace test and maximum Eigenvalue test, shown in equations (6) and (7) respectively.

$$J_{trace} = -T \sum_{i=r+1}^{n} \ln(1-\lambda_i) \quad (6)$$

$$J_{max} = -T \ln(1-\lambda_{r+1}) \quad (7)$$

Where λ_i denotes the estimated values of the characteristic roots obtained from the estimated π, and T is the number of observations.

Table 6: Cointegration Test

Sample (adjusted): 1962 2015				
Included observations: 54 after adjustments				
Trend assumption: Linear deterministic trend				
Series: LOG(GDP) LOG(EXPORTS) LOG(IMPORTS)				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.252866	27.29787	29.79707	**0.0945**
At most 1	0.134748	11.55625	15.49471	**0.1795**
At most 2	0.066926	3.740608	3.841466	**0.0531**
Trace test indicates no cointegration at the 0.05 level				
*** denotes rejection of the hypothesis at the 0.05 level**				
****MacKinnon-Haug-Michelis (1999) p-values**				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.252866	15.74161	21.13162	**0.2403**
At most 1	0.134748	7.815645	14.26460	**0.3977**
At most 2	0.066926	3.740608	3.841466	**0.0531**
Max-Eigen value test indicates no cointegration at the 0.05 level				
*** denotes rejection of the hypothesis at the 0.05 level**				

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****MacKinnon-Haug-Michelis (1999) p-values**

The results of the cointegration test indicate that there is no cointegration at the 0.05 level. For these reason we are obliged to use an estimation of the model Vector Auto-Regression (VAR).

7) VAR estimates

If the economic variables are not cointegrated, we can proceed to use the Vector Auto-regression (VAR) representation. This VAR can be rewritten as follows:

$$\Delta Y_t = \mu + \eta_{Yt-1} + \sum_{1=1}^{p-1} \tau_1 \Delta Y_{t-1} + \varepsilon_t \quad (8)$$

Table 7: Vector Auto-regression Estimation

Vector Auto-regression Estimates			
Sample (adjusted): 1961 2015			
Included observations: 55 after adjustments			
Standard errors in ( ) & t-statistics in [ ]			
	LOG(GDP)	LOG(EXPORTS)	LOG(IMPORTS)
LOG(GDP(-1))	0.838838	0.002187	-0.054578
	(0.12284)	(0.12235)	(0.15556)
	[6.82852]	**[0.01788]**	**[-0.35084]**
LOG(EXPORTS(-1))	0.125442	0.989683	0.388465
	(0.16428)	(0.16362)	(0.20804)
	[0.76358]	[6.04868]	[1.86731]
LOG(IMPORTS(-1))	-0.017731	-0.021982	0.609373
	(0.14176)	(0.14119)	(0.17952)
	[-0.12508]	[-0.15569]	[3.39449]
C	1.707800	0.840985	1.629242
	(0.79104)	(0.78786)	(1.00173)
	[2.15894]	[1.06743]	[1.62643]

The estimation of the VAR model shows that the variable that designates exports has a positive effect on the economic growth expressed by the GDP variable. On the other hand, imports have a negative effect on economic growth. Otherwise, and to verify the significance of the estimated variables, we have applied the estimation of the long-term equation.

8) Long run equation

Table 8: Long run equation estimation

Dependent Variable: LOG(GDP)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1961 2015
Included observations: 55 after adjustments

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LOG(GDP) = C(1)*LOG(GDP(-1)) + C(2)*LOG(EXPORTS(-1)) + C(3) *LOG(IMPORTS(-1)) + C(4)				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	**0.838838**	0.122843	6.828524	**0.0000**
C(2)	0.125442	0.164280	0.763585	0.4486
C(3)	-0.017731	0.141761	-0.125080	0.9010
C(4)	1.707800	0.791038	2.158935	0.0356

To check if exports and imports have effect on economic growth, C (1) must be significant, and the coefficient of C (1) should be negative for the VAR model to be significant. In our case C (1) is significant because the value of her probability is (0.0000), which is less than 5%, but the coefficient of C (1) is not negative. So, we can say that exports and imports have not any effect on economic in Italy.

9) Checking the quality of our estimation

Table 9: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.373819	Prob. F(3,51)	0.7722
Observation of R-squared	1.183391	Prob. Chi-Square(3)	0.7570
Scaled explained SS	1.333711	Prob. Chi-Square(3)	0.7211

Table 10: R-squared

R-squared	**0.994140**
Adjusted R-squared	0.993795

Table 11: Fisher Statistic

F-statistic	**2884.090**
Prob(F-statistic)	0.000000

Table 12: Normality Test

Jarque-Bera	**1.418055**
Probability	0.492122

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Table 13: Breusch-Godfrey Serial Correlation LM Test

F-statistic	**2.711841**	**Prob. F(2,49)**	**0.0764**
Obs*R-squared	5.481116	Prob. Chi-Square(2)	0.0645

Diagnostic tests (Table 9, 10, 11, 12 and 13) indicate that the overall specification adopted is satisfactory. The Jarque-Bera test does not reject the hypothesis of normality of errors. The tests performed to detect the presence of Breusch-Pagan-Godfrey in the estimated equation did not reveal any problem of heteroskedasticity at the 5% threshold. The R-squared is greater than 60%, which agrees that our estimate is acceptable. Otherwise the probability of Fisher is less than 5%, which indicates that our model is well treated.

10) Granger causality tests

The purpose of applying the causality test is to check if there is a causal relationship between the estimated variables. Granger's causality (1969) is an approach to causality that refers not to the theoretical causality (cause-effect) but to the predictive nature of the possible cause of the effect. According to Granger (1969), a variable X causes a variable Y, if the knowledge of the past values of X makes the prediction of Y better. In the case where there is a cause-and-effect relationship between the variables, which can go in only one direction, causality is said to be unidirectional, or in both directions, we are talking about bidirectional causality. Granger causality test takes the following form:

$$\Delta GDP_t = \sum_{i=1}^{n} \beta_{1t} \Delta GDP_{t-1} + \sum_{i=1}^{n} C_1 \Delta e^{t-1} + \sum_{i=1}^{n} d_{1t} \Delta Imp_{t-1} + \varepsilon_{2t} \quad (9)$$

$$\Delta e^t = \sum_{i=1}^{n} \beta_{3t} \Delta GDP_{t-1} + \sum_{i=1}^{n} C_{3t} \Delta e^{t-1} + \sum_{i=1}^{n} d_{3t} \Delta Imp_{t-1} + \varepsilon_{3t} \quad (10)$$

$$\Delta Im\, p_t = \sum_{i=1}^{n} \beta_{3t} \Delta GDP_{t-1} + \sum_{i=1}^{n} C_{3t} \Delta e^{t-1} + \sum_{i=1}^{n} d_{3t} \Delta Im\, p_{t-1} + \varepsilon_{3t} \quad (11)$$

Table 14: Granger Causality Tests

Pair-wise Granger Causality Tests			
Sample: 1960 2015			
Lags: 1			
Null Hypothesis:	Observations	F-Statistic	Probability
LOG(EXPORTS) does not Granger Cause LOG(GDP)	55	1.16734	0.2849
LOG(GDP) does not Granger Cause LOG(EXPORTS)	55	7.5E-05	0.9931
LOG(IMPORTS) does not Granger Cause LOG(GDP)	55	0.58249	0.4488
LOG(GDP) does not Granger Cause LOG(IMPORTS)	55	0.72803	0.3974
LOG(IMPORTS) does not Granger Cause LOG(EXPORTS)	55	0.02446	0.8763
LOG(EXPORTS) does not Granger Cause LOG(IMPORTS)	**55**	**4.19737**	**0.0455**

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The application of the causality test shows us in the first step that there is no causal relationship between exports and economic growth. In the second stage, we did not find a causal relationship between imports and economic growth. Finally, there is a unidirectional relationship of exports to imports.

11) Test of correlation

The objective of this test is to determine the existence of a positive or negative correlation between these three variables. The formula of the Pearson correlation coefficient value is written as follows:

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}} \quad (12)$$

Where:

- N = Number of pairs of scores
- $\sum XY$ = Sum of the products of paired scores
- $\sum X$ = Sum of X scores
- $\sum Y$ = Sum of Y scores
- $\sum X^2$ = Sum of squared X scores
- $\sum Y^2$ = Sum of squared Y scores

12)

Table 15: Pearson correlation coefficient value

	LOG(GDP)	LOG(EXPORTS)	LOG(IMPORTS)
LOG(GDP)	**1**	0.9963080454271399	0.9947108001295648
LOG(EXPORTS)	0.9963080454271399	**1**	0.9979350926698608
LOG(IMPORTS)	0.9947108001295648	0.9979350926698608	**1**

The results of the test of correlation show the relationship between the variables is positively correlated. According to the correlation matrix of the variables, it is found that the dependent variable (PIB) and the independent variable (exports) are positively correlated with a correlation coefficient equal to (0. 9963080454271399). Thus, if exports increase by 1%, gross domestic product (GDP) increases by 0.9963080454271399%. Otherwise, the dependent variable (GDP) and the independent variable (imports) are positively correlated with a correlation coefficient equal to (0. 9947108001295648). Thus, if imports increase by 1%, the gross domestic product (GDP) increases by 0. 9947108001295648%.

V. Conclusion

The target of this survey was to clarify and to clear the bond among exports, imports and economic growth of Italy in the course of the epoch 1990-2015. The cointegration test, VAR model and Granger causality tests are painstaking to look into the relationship between these three variables. The unit root properties of the data were examined using the Augmented Dickey Fuller test (ADF) after that the cointegration and causality tests were conducted. The cointegration test results show the absence of cointegration relation, which obliges us to use the VAR model. The estimation of the VAR model shows that exports and imports have no effect on Italian economic growth. On the other hand, we found that the three variables studied were correlated positively. Finally, and from the causality test, we find that exports

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and imports do not cause economic growth. On the other hand, the causality test proves the existence of a causal relationship between exports and imports. On the basis of these results, and especially the results of the causality test, it is noted that exports and imports are beneficial and essential for economic growth in Italy. But the reason that it has no effect on economic growth in the results of the model VAR estimates is the weak development strategy posed by the Italian government; this strategy makes economic growth increase very slowly. On the other hand, the increase in the values of imports relative to the values of exports will make it possible to rescind threats on the Italian trade balance. On the other hand, the Italians did not care trader's reputation abroad and due to their negligence improve techniques and media publicity of their products known to the outside world. Italians also became more slowly in the development of their products and are no longer as flexible as before.

This is in addition to that Italian companies do not get new loans from banks and due to the problems that experienced by Italian banks and the inability to bridge the huge debts accumulated.

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