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**THE IMPACT OF TRADE LIBERALIZATION ON GROWTH
THE CASE OF TURKEY**

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THE IMPACT OF TRADE LIBERALIZATION ON GROWTH, THE CASE OF TURKEY.

During the 90's, the debate of the 70's and 80's about the choice between a model based on exports and a model on imports' substitution is considered nearly closed. The importance of the trade liberalization and the commercial reforms centred on the market was admitted to arrive to a dynamic economic growth in accordance with the neoclassic theory of trade and growth. The multilateral trade liberalization contributed to growth as never before during the last 50 years.

We will sum up the theoretical basis that framed and accompanied these growth models. There are, on one hand, the traditional approach of the relationship between trade liberalization and growth (Solow, 1956), and, on the other hand, the contemporary approach. This last considers the analysis of Grossman and Helpman (1995), Krueger (1985), Bhagwati (1988), Bliss (1989) and Evans (1989). For them, a country that integrates the world economy can often take advantage of the other countries' experience. In this category of models, the international trade liberalization can stimulate innovation and growth in a set of countries and delay them in other countries.

However, even if its impact is going to be extremely positive, the increased trade liberalization requires an adjustment period. This effort of adjustment may reduce temporarily the export returns, burden the imports invoice or dig other balance of payments deficits. In other words, the commercial opening becomes beneficial only when countries apply an adjustment policy able to bridge the technological, organizational or qualitative gaps.

In this paper, we study the progressive adaptation of a country to international trade rules. We set up a model that allows us to identify the nature of the tie between international trade and growth.

Our empirical application is about Turkey because it is an example for other countries. Turkey has chosen trade liberalization since the beginning of the 80's. Its economy underwent this difficult passage repeatedly. The Customs union with the European Union was surely a crucial stage.

Section I: Theoretical approach.

The traditional (neoclassical) economic growth models consider the accumulation of capital as the motor of growth. The countries that save more will be able to invest more and therefore grow more quickly. First, the return of the investment is high, and then decreases as the capital stock in the economy increases. So, the growth rate decreases as the country becomes richer.

These models identify two fundamental reasons for which different countries cannot reach the same per capita income, even in the long-run. First, the production factors productivity, including human capital. Second, the capital intensity of the economy and indirectly the saving rate.

In these models, the liberalization of the foreign trade can influence the economic growth indirectly, making the economy more efficient. The trade liberalization implies a faster growth that results in an increase of saving and investment. The trade liberalization and the restructuring of the economy that it accompanies can stimulate growth during several decades, like in the East of Asia. The limits of growth are determined by the availability of the domestic saving and the capacity of foreign investment to finance the sectors in expansion and by the saturation of the world market.

The new growth models, in place these last three decades, brought important progress to the theory of growth. The evolution essentially consisted in replacing the traditional assumption of an exogenous (independent) progression of productivity (determined by an unexplained technical evolution) by an endogenous (dependent) process, determined by market strength. These models are called “models of endogenous growth”. They have been used to study the repercussions, on growth, of a large range of policies, notably fiscal policies, public expenses policies, education policies and commercial policies. Now let’s see the literature that is directly applicable to the relations between trade and growth.

Grossman and Helpman (1995) presume that the world integration has an influence on the private motivation to invest in the technology and on social repercussions. On the positive side, the integration widens the market and increases potential profit of a firm that succeeds in inventing a new product or a new process. In addition, a country that integrates the world economy can often learn from abroad. On the negative side, firms often mention international competition as being one big risk associated to investment in advanced technologies and like one argument in favour of an increased public sector intervention in the clarification of new technologies. In these models, international trade liberalization can stimulate innovation and growth in some countries and delay them in other countries.

In summary, a large range of very different studies arrive all to the same fundamental conclusion, that an opened trade regime stimulates growth.

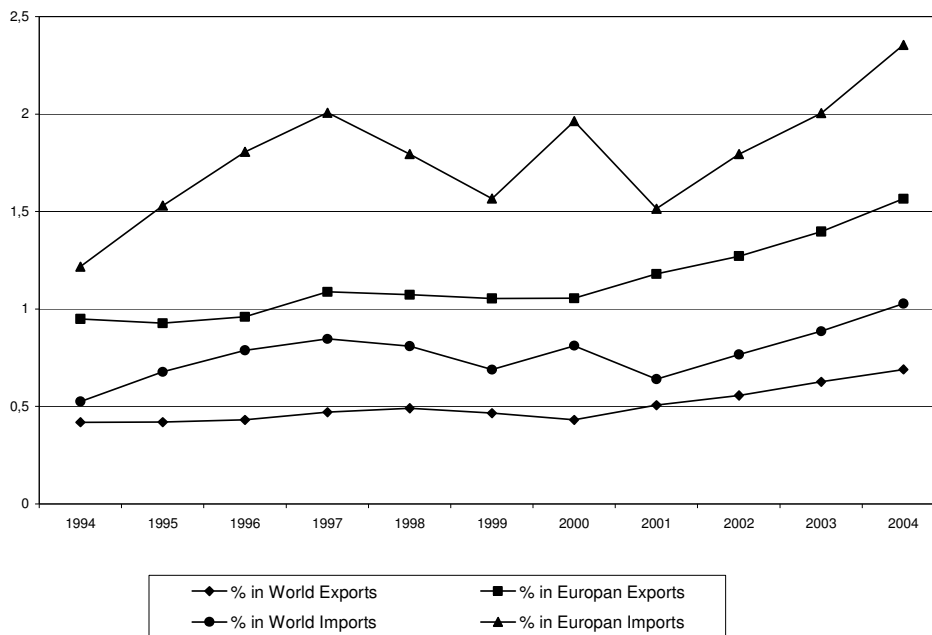
Section II: Empirical approach.

Turkey represented, during a long time, imports substitution policies. The nationalistic thought of modern Turkey's founder, Atatürk, played an essential role. In 1980, the balance of payments crisis and a disastrous management of its external debt drove, to a clear adoption of a liberal policy centred on exports. It implied that lots of changes and some deep reforms have been taken by Turgut Ozal, following a previous military stroke.

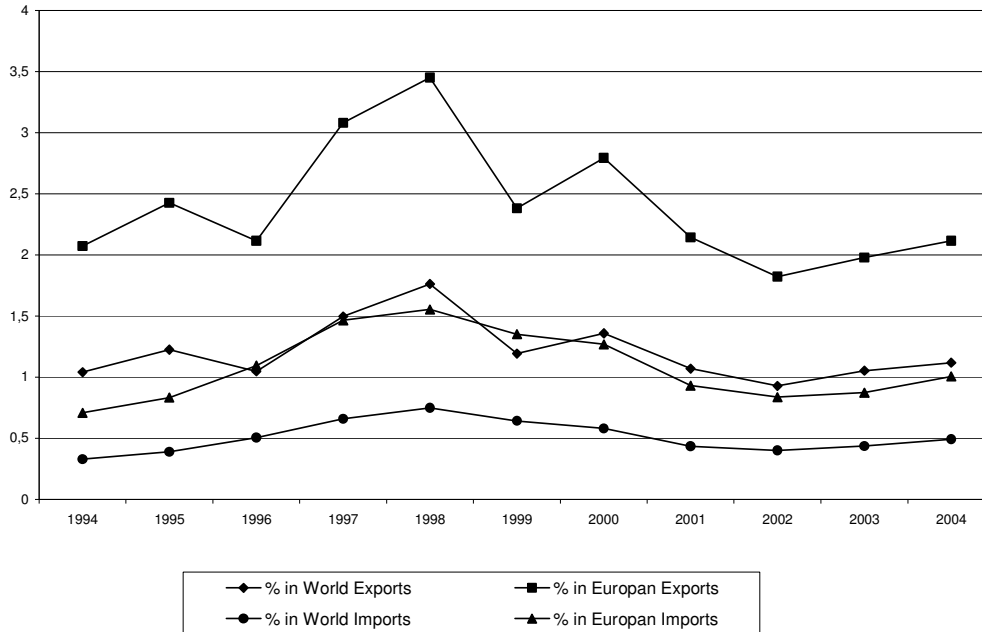
The adoption of this economic opening facilitated the presence of foreign businesses that introduced a bigger awareness of the quality in a mind of competitiveness, far from the tariffs.

These last years, the percentage of Turkey in the world trade didn't stop growing as showed the following diagrams:

Graphique 1 : Trade of goods, Part of Turkey in the world economy, 1994-2004



Graphique 2 : Trade of Services, Part of Turkey in the world economy, 1994-2004



SOURCE : OMC 2005

Indeed, it is clear that Turkish exports in world and European trade increased meaningfully. This rise comes essentially from the trade of goods: between 1994 and 2004, their exports increased from 0,42% to 0,69% of world exports and from 0,94% to 1,56% of European exports. About imports, their rise is even more spectacular: they progressed by more than half during the same period, passing from 0,52% to 1,02% to the world level and 1,21% to 2,03% to the European level. The diagram reflects perfectly these tendencies and clearly shows a meaningful rise in the year 2000, date of the Customs union setting up.

The observation of Diagram 2 about the evolution of services foreign trade in Turkey reflects a certain stability, even a non negligible decrease. The record level of 1998 has never been recovered again, even though one notes an improvement.

We have therefore, to this stage, the certainty that Turkey integrates better and better the world exchange system. However, we don't have a precise idea on the nature of the tie between exports increase and economic growth. This aspect will be the subject of some recent econometric applications.

Section III: Econometric Approach.

The use of these different econometric techniques is going to allow us to understand better the relation between export and GDP growth. This relation is the axis on which regional integration policies and trade internationalization are established. The theoretical aspects have

been discussed in the first part of our contribution. This third part is going to analyse the Turkish experience, a period of 25 years of trade liberalization.

The hypothesis according to which export growth is one of the major determinants of production growth is explained by positive exports externalities on the non tradable goods sector, by the setting up of a more efficient management, better production techniques, higher scale economy, better resources allocation, and therefore by its ability to constitute a dynamic comparative advantage. If some motives to increase the investment exist and improve the technologies, the result will be a better productivity in the tradable goods sector that uses more intensively the new methods of production. Therefore, even though exports development is to the detriment of other sectors, they bring beneficial effects on the whole economy. Finally, exports permit to face the lack of currencies.

On the empirical level, few studies succeeded in displaying as many certainties announced by the theoretical arguments. Time series are less conclusive and do not provide the strong basis of the growth models pulled by exports. The aim of our next section is to test the nature of the relation between exports and production growth through the econometric tests evoked previously.

In the empirical analysis of the trade data, a major problem appears because exports themselves are an integral part of the production according to the national accounting (Expenses = Resources). It is therefore frequent that the results of such a model tend to be skewed from the moment where the exports growth is itself a function of the production growth. To remedy it, we use the method followed by Feder (1982) according to which the economy can be divided in two sectors: exports and non-exports. We separate exports (X) economic influence on the production (Y) from the influence incorporated in the accountant identity using a new measure of GDP (Y') where exports are deducted ($Y' = Y - X$).

Therefore, we are going to take into account the yearly observations of the period 1970-2004. It will allow us to measure the change between the period previous to the trade liberalization and the present period that drove Turkey to a better regional, European and world integration. The Customs union of Turkey with the union European and its integration within the WTO can only confirm this certainty developed in the previous sections. The retained variables are the following ones:

- 1. Y: GDP (gross domestic product);**
- 2. YX: GDP net of exports ;**
- 3. RX: Real exports (by applying exports deflator on nominal values of exports);**
- 4. RIM : Real imports ;**
- 5. INV : Domestic investment (by applying GDP deflator on gross investment) ;**
- 6. EMP : Employment in the formal sector ;**

We use the GDP at constant prices. We apply the price index of exports on exports and the GDP deflator on investments. These manipulations are going to allow us to make inter-temporal comparisons. The numerical data of the variables are presented in the annex I.

The prefix 'L' designates the natural logarithm of the time series, and 'D' denotes the series differential. All econometric manipulations have been done on the software Eviews 4,1.

A. Survey of stationarity and cointegration.

Following a traditional approach of the stationarity study of the different model variables, we test the time series of these variables with the Augmented Dickey Fuller test (ADF), based on the information criteria by Schwarz, and Phillips-Perron (PP)¹, and based on the Newey-West method. The different tests results are presented here below² :

Table 1 : Unit root tests, ADF et PP test statistics.

	Level Augmented Dickey-Fuller test statistic	Level Phillips- Perron test statistic	First Difference ADF Test Statistic	First Difference PP Test Statistic
LYX	-1.964620	-1.635110	-7.603257	-7.589901
LXR	-0.723861	-0.723861	-4.912276	-4.909525
LMR	-0.938678	-1.338600	-5.645837	-5.811916
LINVR	-1.700792	-1.688341	-4.914420	-4.924262
EMP (Trend and Intercept)	-2.405281	-1.967639	-3.635055	-3.417539
1% Critical Value	-3.653730	-3.653730	-3.661661	-3.661661
1% Critical Value (Trend and Intercept)	-4.273277	-4.273277	-4.284580	-4.284580

It clearly appears that the variables, under their logarithmic shape, are clearly non stationary. The value of the different statistical tests is lower (in absolute value) to the critical value generally admitted at the 1% level.

On the contrary, the application of the same tests on the variables differentials of order 1 gives values distinctly superior to their critical values (still in absolute value). These values are highlighted in our table 1.

According to this multi-variable approach, we test the hypotheses of cointegration between, GDP on one hand, and exports/imports on the other hand. These variables have been chosen for three reasons. The first refers to the survey of Riezmann and al (1996) that suggested

¹ L'utilisation banalisée de ces tests nous autorise de faire l'impasse de leur présentation. Pour plus de détails, vous pouvez consulter les publications antérieures des auteurs.

² Une étude graphique de la stationnarité est présentée dans l'Annexe 2 de l'étude ci-présente.

that imports play a role of first importance during the causality test between exports and growth, because of their key role in the currencies constraint that most developing countries meet. The second reason simply comes from the usefulness of several variables' presence in our model analysis. It reinforces the objectivity of the results. Finally, we don't retain the two variables relative to investment and employment because their role is not essential in this cointegration survey. On one hand, taking into account the whole investment overlooks the IDE effect, and on the other hand, the employment variable remained underestimated, because of the informal sector importance in Turkey.

In our cointegration analysis, two cases are considered. First, we use Johansen's method to test the relation between exports, imports and GDP. Second, we consider exports, imports and GDP out of exports in order to eliminate the effect of the accountant identity evoked previously.

The results of the first and second cases are summarized in the following table:

Table 2 : Johansen's cointegration test (Log Y, Log X, Log M)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 % Critical Value	1 % Critical Value	Max-Eigen Statistic	5 % Critical Value	1 % Critical Value
None	0.399755	27.91209	29.68	35.65	15.82292	20.97	25.52
At most 1	0.311500	12.08917	15.41	20.04	11.57045	14.07	18.63
At most 2	0.016594	0.518726	3.76	6.65	0.518726	3.76	6.65

*Trace test indicates no cointegration at both 5% and 1% levels ;
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels*

Table 3 : Johansen's cointegration test (Log YX, Log X, Log M)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 % Critical Value	1 % Critical Value	Max-Eigen Statistic	5 % Critical Value	1 % Critical Value
None	0.338384	25.31447	29.68	35.65	12.80519	20.97	25.52
At most 1	0.302752	12.50929	15.41	20.04	11.17902	14.07	18.63
At most 2	0.042004	1.330265	3.76	6.65	1.330265	3.76	6.65

*Trace test indicates no cointegration at both 5% and 1% levels ;
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels*

According to the results, we can not exclude the null hypothesis of non cointegration at the 5% level. Consequently, we can not obtain a cointegration relation between the different studied variables. It is so impossible to predict a linear long-run relation linear between them. The cointegration method is not valid according to Johansen's test.

B. Causality survey according to Granger's test

The aim is to find causality between GDP (and GDP out of exports) on one hand, and exports on the other, thanks to Granger's causality test through the autoregression process of these two variables. Our goal is to test the validity of our model hypotheses (link between internationalization and growth) in the case of Turkey. In addition, beyond the arguments in the previous section, we admit that exports growth stimulates investments (gross fixed capital formation), especially if a gap of productivity exists between the sector of the tradable goods (and therefore exports) and the sector of the non tradable goods (GDP out of exports). In such a script, investments tend to increase in the economics sectors where a better productivity exists and so a better profitability. It goes without saying that theoretically the inverse is also plausible. Investment growth would also stimulate exports growth. If the investment reinforces the infrastructures, the human and social capital, or certain specific industries, a global beneficial effect of investment on exports becomes a reality.

Our causality tests consist therefore in testing:

- Null hypothesis according to which the exports X don't cause the production Y in the sense of Granger and vice versa.
- Null hypothesis according to which the exports X don't cause the production out of exports YX in the sense of Granger and vice versa.
- Null hypothesis according to which the exports X don't cause the investment INV in the sense of Granger and vice versa.

Table 4 : Causality tests in the sens of Granger

Null Hypothesis:	Obs	F-Statistic	Probability
X does not Granger Cause Y	31	4.17155	<u>0.02684</u>
Y does not Granger Cause X		1.19055	0.32009
X does not Granger Cause YX	31	3.94532	<u>0.03189</u>
YX does not Granger Cause X		1.59002	0.22312
X does not Granger Cause INV	31	3.09752	<u>0.06214</u>
INV does not Granger Cause X		0.61893	0.54627

Thanks to the results in the table 4, we can affirm, at a confidence level of 5%, the dismissal of the null hypotheses according to which exports increase doesn't influence production growth Y and production out of exports YX. In other words, the exports increase in Turkey plays a meaningful role in the dynamism of the economic activity in the two sectors, the tradable goods one and the non tradable goods one.

Thanks to the third and last part of the table 4, we can reject at a confidence level of 10% the null hypothesis according to which exports don't stimulate the total investment. In other words, the integration of Turkey in the international exchange system, through their exports rise, plays a determining role in the investment increase and not the contrary.

C. Analysis by the VAR Technique

We use here a VAR technique (Autoregressive Vector), a sort of generalization of the autoregressive models. The selected variables according to the studied problem have all, a priori, the same status. This approach is used when the economic analysis requires a structural modelling treating each variable in the system according to the passed values of the other variables.

It also permits to generate impulsive reactions functions (IRF) following a macroeconomic shock.

The VAR process coefficients can only be estimated from stationary series. However, since the variables of our model are neither stationary nor cointegrated, we use their differentials of order 1 that are stationary according to our stationarity analysis paragraph A.

Then, the choice of the gradual delays number gives the VAR model order. It is about classifying the different VAR models (one by period) according to the criteria of Akaike (AIC) and Schwarz (SC). We keep the one with the weakest AIC and SC criteria.

To the functional and empirical level, production, exports and investments are considered like endogenous and all other variables become exogenous variables.

Like in the annex 3, the model corresponding to the weakest criteria is the one that joins the order 1 differential of the log X to the other variables differentials. We identify the role of all the variables of the model in the logarithm of the real exports increase.

In other words, we have a linear regression model of exports differential:

$$\text{DXR} = \text{C}(2,1)*\text{DY}(-1) + \text{C}(2,2)*\text{DY}(-2) + \text{C}(2,3)*\text{DXR}(-1) + \text{C}(2,4)*\text{DXR}(-2) + \text{C}(2,5)*\text{DYX}(-1) + \text{C}(2,6)*\text{DYX}(-2) + \text{C}(2,7)*\text{DIR}(-1) + \text{C}(2,8)*\text{DIR}(-2) + \text{C}(2,9) + \text{C}(2,10)*\text{DMR} + \text{C}(2,11)*\text{DEMP}$$

The results, presented in details in the annex III, are:

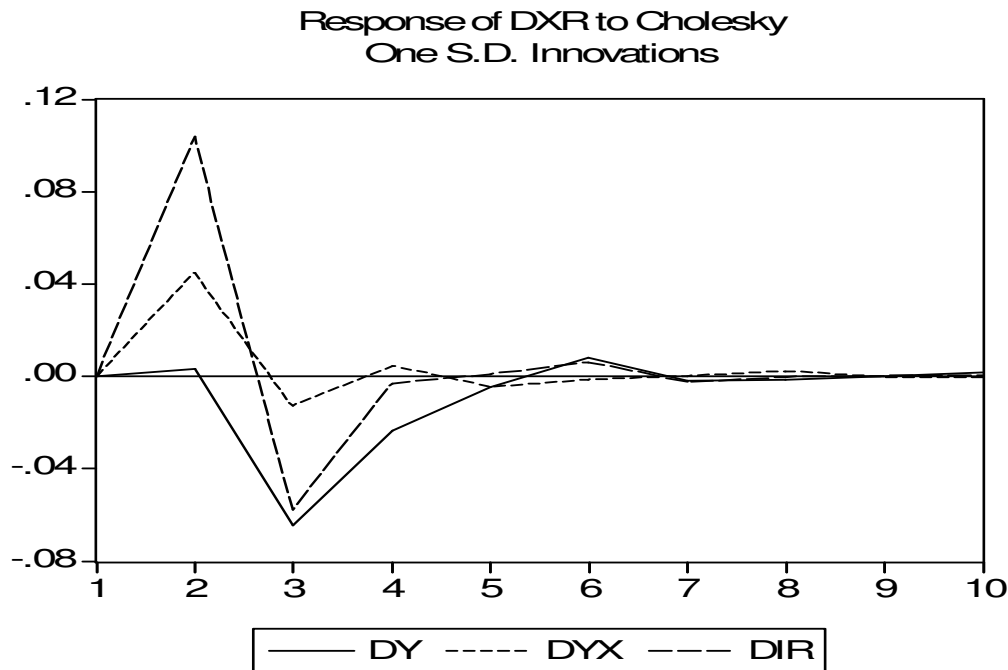
$$\text{DXR} = - 4.567*\text{DY}(-1) - 0.827*\text{DY}(-2) + 0.023*\text{DXR}(-1) + 0.1977*\text{DXR}(-2) + 0.8019*\text{DYX}(-1) + 0.3453*\text{DYX}(-2) + 1.4552*\text{DIR}(-1) - 0.8526*\text{DIR}(-2) + 0.1941 + 0.2890*\text{DMR} - 0.0611*\text{DEMP}$$

The variables that play a meaningful role are those lower to 5%. According to the summary table of this linear regression, of the variables relative to the investment differential of order 1 of the period -1 and -2, either DIR (-1) and DIR(-2). Otherwise, if we increase slightly our tolerance of confidence level, we note that the variable DY (-1) also plays a determining role.

Beyond this linear representation, the advantages of this analysis by the VAR Technique is to be able to test the impulsive reactions functions (IRF) following a macroeconomic shock. In

this case, it consists in representing the influences of the various identified factors dynamic shocks on the exports dynamism in Turkey.

Graphique 3 : Exports determinants dynamic shocks.



Finally, if we refer to the impulsive reactions diagrams in the annex III, we often note a positive role of exports on different endogenous variables. The diagram above confirms perfectly the results of our analysis of the causality tests in the sense of Granger.

We tested the shocks provoked by a rise in investment, production and production of the non-tradable goods on the exports dynamism in Turkey. All these factors play a positive role. The most influential is total investment. Its effect disappears at the end of the period 4. The second is production of goods out of exports. Its effect also disappears after 4 periods. Finally the last one is total production. At the beginning, its effect is too weak, then it becomes negative, and it disappears after 5 periods.

CONCLUSION

The use of these different econometric methods confirms that, in the case of Turkey, exports, under their real but also differential shapes, exercise a real influence on most economic variables, like investment, total production and production out of exports. It confirms, and of a nearly categorical manner, the success of the adoption by Turkey of a growth model pulled by exports. We note that the adoption of this model starts in the beginning of the 80's and implies a long process where the positively spectacular immediate effects were not always realized.

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ANNEX I : LIST OF THE USED VARIABLES.

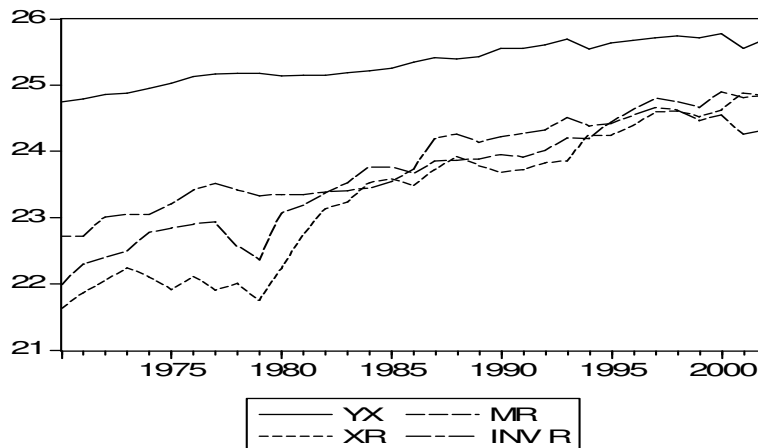
	LYX	LXR	LMR	LINVR	EMP
Years	Log of GDP minus Exp. Price 1995	Log of real Exp. Price 1995	Log of real Imp. Prix 1995	Log of real Inv. Price 1995	Rate of Employment
1970	24,75	21,63	21,99	22,72	ND
1971	24,79	21,86	22,30	22,72	ND
1972	24,86	22,05	22,40	23,01	ND
1973	24,88	22,24	22,50	23,04	ND
1974	24,95	22,10	22,77	23,04	ND
1975	25,03	21,91	22,84	23,20	ND
1976	25,12	22,11	22,89	23,42	ND
1977	25,17	21,90	22,93	23,52	ND
1978	25,18	22,01	22,57	23,42	ND
1979	25,18	21,75	22,36	23,33	ND
1980	25,14	22,23	23,06	23,35	ND
1981	25,15	22,74	23,19	23,35	ND
1982	25,15	23,14	23,38	23,38	89,10
1983	25,19	23,24	23,52	23,41	87,90
1984	25,22	23,53	23,76	23,45	88,10
1985	25,25	23,59	23,76	23,55	88,80
1986	25,35	23,48	23,67	23,73	ND
1987	25,42	23,73	23,86	24,19	91,30
1988	25,40	23,93	23,87	24,26	91,60
1989	25,43	23,79	23,88	24,13	91,40
1990	25,55	23,68	23,96	24,22	92,00
1991	25,56	23,73	23,91	24,27	92,00
1992	25,61	23,83	24,01	24,32	91,70
1993	25,69	23,85	24,20	24,51	91,30
1994	25,55	24,24	24,20	24,38	91,60
1995	25,63	24,24	24,44	24,42	92,50
1996	25,68	24,39	24,63	24,54	93,50
1997	25,71	24,59	24,80	24,66	93,30
1998	25,75	24,61	24,75	24,62	93,20
1999	25,71	24,52	24,66	24,46	92,30
2000	25,77	24,62	24,89	24,55	93,40
2001	25,56	24,88	24,81	24,27	91,50
2002	25,69	24,83	24,84	24,31	89,40

SOURCE : World Development Indicators 2004.

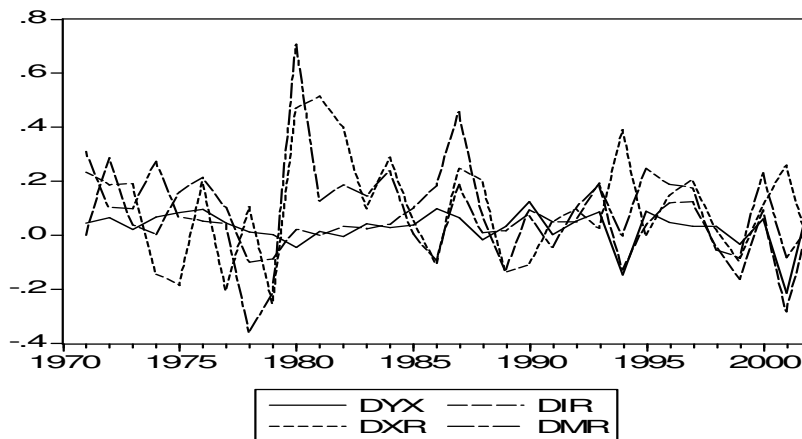
ANNEX II : STUDY OF UNIT ROOT.

The summary of the results of our different statistical tests (ADF and PP) of the variables kept in our model are exposed in our econometric survey. However, we wanted to add a schematic dimension to this Unit Root analysis.

Thus, as the shows the diagram below, the set of the model variables, under their logarithmic shape and with the exception of the variable of Employment, evolves always in a positive manner and therefore the absence of Unit Root is a certainty.



On the other hand, the graphic analysis of the differentials of order 1 of the same variables deal the following results :



These variations irregular of the curves form a formal proof of the Unit Root of the differentials order 1 of the model variables. This report allows us to get involved in a cointegration analysis according to the approach of the test of Johansen. This method aims to prove the existence of a linear regression relation but solely of long length.

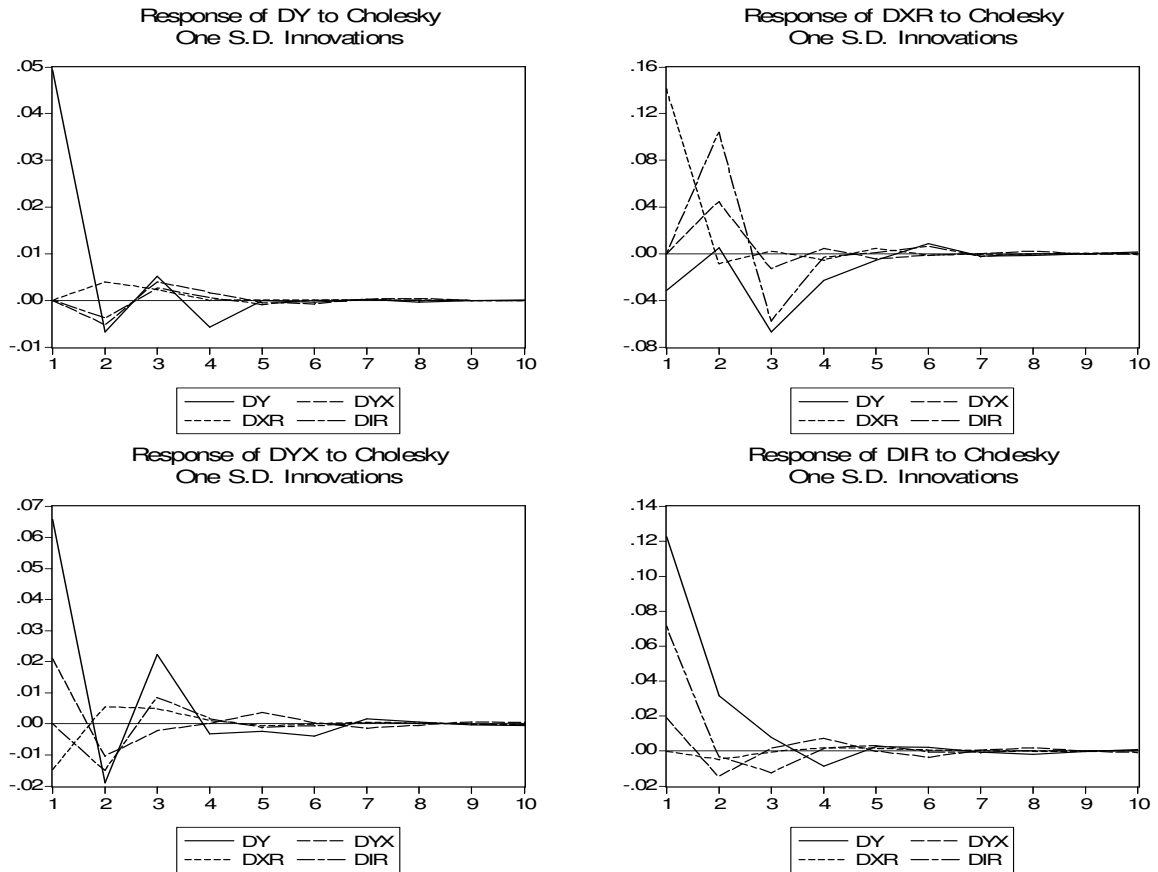
ANNEX III : THE EVALUATION OF VAR MODEL.

Vector Autoregression Estimates				
Date: 10/29/06 Time: 23:07				
Sample(adjusted): 1973 2002				
Included observations: 30 after adjusting endpoints				
Standard errors in () & t-statistics in []				
	DY	DXR	DYX	DIR
DY(-1)	0.274445 (0.77194) [0.35552]	-4.567744 (2.27120) [-2.01116]	0.544663 (1.10536) [0.49275]	1.544655 (2.24199) [0.68896]
DY(-2)	-0.024947 (1.07382) [-0.02323]	-0.827597 (3.15938) [-0.26195]	0.821346 (1.53762) [0.53417]	-0.184356 (3.11875) [-0.05911]
DXR(-1)	0.005509 (0.07733) [0.07124]	0.023316 (0.22750) [0.10248]	0.005757 (0.11072) [0.05200]	-0.103063 (0.22458) [-0.45892]
DXR(-2)	0.025572 (0.09047) [0.28265]	0.197764 (0.26619) [0.74295]	-0.011494 (0.12955) [-0.08872]	0.013921 (0.26277) [0.05298]
DYX(-1)	-0.205783 (0.52293) [-0.39351]	0.801939 (1.53857) [0.52122]	-0.301874 (0.74880) [-0.40314]	-0.638434 (1.51878) [-0.42036]
DYX(-2)	0.107370 (0.75669) [0.14189]	0.345320 (2.22632) [0.15511]	-0.331885 (1.08351) [-0.30630]	0.410175 (2.19768) [0.18664]
DIR(-1)	-0.053833 (0.13937) [-0.38625]	1.455263 (0.41006) [3.54891]	-0.210369 (0.19957) [-1.05411]	-0.046840 (0.40479) [-0.11572]
DIR(-2)	-0.001832 (0.11746) [-0.01559]	-0.852616 (0.34560) [-2.46709]	0.064966 (0.16820) [0.38625]	-0.075101 (0.34115) [-0.22014]
C	0.026703 (0.02601) [1.02677]	0.194179 (0.07652) [2.53772]	-0.003603 (0.03724) [-0.09676]	-0.008386 (0.07553) [-0.11103]
DMR	0.051787 (0.05704) [0.90795]	0.289067 (0.16781) [1.72256]	0.058039 (0.08167) [0.71064]	0.284795 (0.16565) [1.71921]
DEMP	0.018420 (0.01310) [1.40613]	-0.061104 (0.03854) [-1.58540]	0.026310 (0.01876) [1.40264]	0.051483 (0.03805) [1.35317]
R-squared	0.209187	0.667515	0.364610	0.285517
Adj. R-squared	-0.207030	0.492523	0.030194	-0.090526
F-statistic	0.502591	3.814549	1.090287	0.759267
Log likelihood	54.60168	22.22713	43.83132	22.61546
Akaike AIC	-2.906779	-0.748475	-2.188755	-0.774364
Schwarz SC	-2.393007	-0.234703	-1.674982	-0.260592
Mean dependent	0.037639	0.092731	0.027831	0.043497
S.D. dependent	0.044838	0.203455	0.071628	0.137005
Log Likelihood (d.f. adjusted)	173.6514			
Akaike Information Criteria	-8.643430			
Schwarz Criteria	-6.588340			

Linear evaluation of the better placed variable.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DY(-1)	-4.567744	2.271203	-2.011156	0.0587
DY(-2)	-0.827597	3.159380	-0.261949	0.7962
DXR(-1)	0.023316	0.227505	0.102484	0.9194
DXR(-2)	0.197764	0.266189	0.742947	0.4666
DYX(-1)	0.801939	1.538571	0.521223	0.6082
DYX(-2)	0.345320	2.226317	0.155108	0.8784
DIR(-1)	1.455263	0.410060	3.548907	0.0021
DIR(-2)	-0.852616	0.345596	-2.467090	0.0233
C	0.194179	0.076517	2.537725	0.0201
DMR	0.289067	0.167813	1.722557	0.1012
D(EMP)	-0.061104	0.038542	-1.585396	0.1294
R-squared	0.667515	Mean dependent var		0.092731
Adjusted R-squared	0.492523	S.D. dependent var		0.203455
S.E. of regression	0.144936	Akaike info criterion		-0.748475
Sum squared resid	0.399122	Schwarz criterion		-0.234703
Log likelihood	22.22713	F-statistic		3.814549
Durbin-Watson stat	2.102724	Prob(F-statistic)		0.005871

Graphic representation of the functions of impulsive reactions.



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