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Abstract

This paper aims to study the simultaneous effects of Dutsh Disease (DD) phenomenon on the industrial and agricultural sectors for five oil-exporting countries with different development levels. To proceed, we propose to study the dynamic relationship between oil rent, industrial added value and agricultural added value in a structural multivariate framework. The idea is to capture both short and long term dynamics of this relationship, by performing the model's cycle-trend dichotomy using SVECM approach. The results have shown that the DD phenomenon effects both agricultural and industrial sectors in the considered countries with one exception for each sector. The impacts and adverse effects that might have the DD phenomenon on each sector accordingly whether it is permanent or transient, depend on the economy nature and the strategy adopted. The findings confirmed that the DD phenomenon affecting the industrial sector ephemerally however the agricultural sector is rather being affected in the long term.The results also, have indicated that developing countries notably Morocco, is model to consolidate, and that the case of great emerging country like China, should be a subject of reconsideration by the economists.

keywords: Dutch Disease, industrial sector, agricol sector, cycle-trend, SVECM

Introduction

The empirical observation, which is almost becoming currently obvious, stating energy and oil shocks could affect macro economies aggregates, has always puzzled economists. This finding, is all being confirmed during the last five decennia, each time an oil and energy shock occurs being triggered by various historical events and getting accumulated.

All has started by 1970, date of the first crisis wherein, for both oil importing economies as well as the exporting ones, it's been recorded an increased

dependence on oil's resources' and revenues, on oil's market strong fluctuation, and remarkable decline of the macro economic performance indicators.

Several other oil and energy shocks followed the 1970's one, notably oil prices collapse of 1986, prices boom of the year 2000, oil prices increase following the Gulf war on 1990 as well as Iraq's war on 2003. The phenomenal serial of oil prices shocks has reached, nowadays, to unequivocal energy prices collapse, approaching the $35 for the crude oil barrel. Therefore, it's quite plausible to suspect an eventual existence of causal relationship between oil prices and rents from one side and macro economies aggregates following historical events causing the energy shocks from the other side and noting their impact on the economy.

At this level; some questions raises up, which are still intriguing economists, and yet a consensus has not been reached around their answers, and they are as follow : would the oil rents be held as the ultimate responsible of the economic fluctuations, of recessions, of periods of excessive inflation, of decreased productivity and lowering of the economic growth in the oil exporting countries? and if it turns out to confirm a positive answer to this question, the impact caused by these annuities would it be short termed, long termed or both?

Addressing these issues, will require to take in consideration two assumptions. First, in our point of view, it's not sufficient to study the consequences of oil rents on industrial and agricultural sectors separately, as being conducted by the overwhelming majority of the existing literature. Secondly, we do believe, understanding the implication of petrodollars on oil-exporting economies, particularly the most vulnerable among them and most emerging, should be investigated in the short term as well as the long term.

It's precisely within this framework that the paper is fitting. The idea is to capture the DD phenomenon dynamics in the both short and long terms. To achieve this purpose, we consider a structural multivariate modeling to perform the cycle-trend dichotomy of the relationship between industrial added value, agricultural added value and oil rent. The explanatory mechanisms for transmitting energy shocks to oil exporting economies indicates that the most vulnerable and most exposed to the DD phenomenon are the developing countries and emerging ones, therefore we have chosen a panel of five countries with different development levels on which we have based the study.

The structure of this paper is as follows. The second section will be devoted to the presentation of energy shocks transmission mechanisms to oil exporting economies. The third section will be dedicated to the review of the existing literature that addresses the issue of the paper. The methodology and data will be the subject of the fourth section. In the fifth section we will conduct the analysis. The sixth and final section will be reserved to the Economic implications and the conclusion.

1 Transmission Mechanisms of the Energy Shocks to oil Exporting economies

It's being unanimously agreed that oil rents, represent a major state's budget financing source of oil exporting economies, to the extent that, in the emergent and developing ones, oil income is being considered the ultimate main funding source of physical and social infrastructure. The oil revenue dependence, has reached an increased level in those countries, that oil shocks represent nowadays, the main trigger of macroeconomic fluctuations and their important consequences on political and economic policies, as well as real activity. Accumulation of oil revenue on these countries, impacts significantly their economies performances, given the implications on government's spending, money supply, inflation, real exchange rate and imports.

A vast theoretical and empirical literatures focused on the identification of various transmission channels of the energy prices shocks to economic activities, in the oil importing countries. However, such literature is much less abundant, when it comes to study the subject on emerging and developing oil exporting countries. Following an oil price shock, several Macroeconomic implications, might be envisaged. In fact, an oil boom might affect the economic activity of these countries, whether it's in terms of demand or supply.

One of the transmission channels of the energy shocks to oil exporting economies, is a phenomenon known as the "Dutch Disease". It considers that, the real exchange rate appreciation, caused by the oil export increase, would have negative externalities on the industrial and agricultural sectors. In fact, this result is explained by the impact of the real exchange rate appreciation, on increasing the production costs, and consequently on the labor and capital factors, leading to a productivity and exports decline of the above mentioned sectors.

In the addition to the effects on the production costs, Benjamin et Al (1989), adds in this regard, both increased imports resulted by real exchange rate appreciation, and inflation caused by the pressure of aggregates demand resulting of the implementation of an expansionist fiscal and monetary policies, would contribute to the decline of domestic production and hence slowing the economic growth.

Furthermore, several empirical studies, as Sachs and Warner (1999) and Auty (2001), have concluded that the economic growth in some countries, with abundant natural resources', is slower than in some others with fewer resources'. According to Stum et Al (2009), the phenomenon known as "the resource curse" based on four main reasons. The first reason is the Dutch Disease, which we have explained earlier. Second reason consists on the fact that the abundance of natural resources may reduce the incentive to exploit and develop the human resources skills . Third reason would be the resulted effects of a high volatility of oil revenues for example on investments and the difficulty to set up a balanced fiscal policy. Fourth reason, given by Sturm et Al, related to all kind of conflicts around the oil resources and rents, political instability, corruption and

inequality.

The second impact that could have a shock of energy revenues, comes from government use of these annuities, named in the energy jargon by "petrodollars", for the purpose of financing their spending. Therefore, the fiscal policy, following the increase and accumulation of oil revenues, would be qualified by expansionist. Barro and Sala-i-Martin(1992) consider in this regard, that, if government spending used to feed the private sector, it follows that the said expenses in the form of public goods and infrastructure could stimulate investment and production. However, according to Dar Khalkhali and Amir(2002), the relationship between public spending and investment takes negative aspect. Indeed, these authors believe that public spending can lead to diminishing productivity and that excessive use of these expenders causes a crowding out of private investment, which results in an economic growth drop.

In addition to the excessive use of the public expenditures, inefficiency, distortion in the resources allocation, corruption, are also considered as transmission channels having a negative impact on production. Moreover and giving the difficulty to access to alternative capital resources, in the case of oil revenues falling, the economy could suffer a liquidity problem, mainly in the presence of capital market imperfection.

Another transmission channel through which shock in the oil revenues might affect the production is the money supply. With increasing oil revenues and government spending, these petro dollars are to be exchanged against local currencies and consequently, local central banks, should sell these recopies at the domestic market prices of exchange rates.

The offer of all oil revenues, would cause a depreciation of foreign exchange rates, resulting in lower prices of the imported goods that benefits domestic consumers. In such circumstances, automatically, an increased importation would be in place, giving a raised bankruptcy possibilities of the domestic enterprises, and hence an increased unemployment. To avoid these negative implications, oil exporting countries's governments, should consider increasing foreign exchange reserves of the central banks by maintaining parts of the petrodollars.

For Bernanke and Gertler(2015), such a transmission mechanism of monetary policy, implies an increase in the money supply, which causes an increased production via assets prices and credit channels. According to the authors, by increasing reserves and bank deposits, an expansionary monetary policy would promote an increased credit lines offered to companies, triggering a surge in the investment and production.

Still, the effects felt of the said Dutch Disease phenomenon, in key sectors of the economy, heavily weighting on these areas, in a manner that the above mentioned measures, of the exchange reserve share increase on one hand, and the expansionist monetary policy, on the other hand, would be partially ineffective and wouldn't produce the desired effect on the considered sectors.

2 Literature review

The literature devoted to the study of the phenomenon of DD and its impacts on the oil exporting economies, including countries with all levels of development, is considered relatively recent. In fact, although the definition and meaning which the syndrome refers back to the negative effects of commercialism bullionist[1], it's only by the nineties that the first empirical works have started. This literature has focused on the effects that DD phenomenon on manufacturing and more recently on the industrial sector as a whole. It also examined the effect of pensions on the agricultural sector. The presentation of most of these literature review, will take in consideration these two types of work.

Indeed, the works of Corden and Neary (1982), Eastwood and Venables (1982) and Pervis and Buiter (1982) are among the first attempts to assess the implications of the Dutch disease phenomenon on industrial manufacturing of a panel of countries belonging to OPEC. Generally, these studies have concluded that the massive export of energy resources has not only negative effect on the manufacturing sector by making it less competitive and less productive but also on the labor market. These works have also concluded that oil rents would have as consequences simultaneous increase in current and permanent income which, by the same token, would lead to the increase in money demand and the appreciation of the exchange rate.

Still in the same line of works on the impact of rents on industrial manufacturing, Cox and Harvie (2010) showed that despite the positive effects of rising resource prices on real income and current account, negative implications can be felt on the demand and supply of manufactured goods. These authors have concluded that the positive effects of energy rents are short-term ones, whereas the negative effects of these rents on the manufacturing sector, on its competitiveness, on the real sphere, on employment and consequently on growth would be felt in the long-term.

HC Bjørnland (1996) used a SVAR model to study the effects of an energy boom and oil rents it can generate on the manufacturing sector of two developed countries highly endowed with energy resources namely: Norway and the United Kingdom. By adapting the same type of econometric approach, HC Bjørnland (1998) identified a Blanchard and Quah long term SVAR model in order to study the energy shock effects on manufacturing production both for Norway and the UK. The author concluded the absence of the Dutch Disease phenomenon in the case of Norway and that the UK is affected by such a phenomenon in the long-term.

Olusi and Olagunju (2005) used structural multivariate approach to test the eventual existence of a DD phenomenon affecting an African country endowed with oil such as Nigeria. The authors showed that the Nigerian economy is very affected by the DD phenomenon in the long-term and that the consequences of such a phenomenon on the considered country are heavy given the fragility of

[1] For more details on the relationship between mercantilism bullionist and the phenomenon of Dutch Disease, a brief explanation is provided by Issaoui.F, Boufateh.T and El Montasser.G (2013)

its economy.

Issaoui, Boufateh and El Montasser (2013) also used a SVAR model by adopting Blanchard and Quah long-term identification scheme to study the long run dynamic of the DD phenomenon in a sample of eight countries with different development levels. By adopting the same approach as Quah and Vahey (1994), the authors have successfully identified two types of shock: a real shock and a nominal shock. They concluded that the DD phenomenon is an ephemeral phenomenon and that the most developed countries are more able to deal with such a syndrome.

Whether the analysis focuses on the effect of oil rents on the manufacturing sector or on the industry as a whole, this assumes that the effect of an oil boom could have negative repercussion on real activity of oil exporting economies, particularly developing and emerging ones, both in terms of supply and demand. This also assumes consequently that the agricultural sector is negatively affected. The negative implications on agriculture are felt either on the supply side as the manufacturing sector would achieve a short-term profitability to the detriment of the agricultural sector. Either on the demand side as the agricultural sector, which depends in the case of developing and emerging countries in imports of manufactured goods, will be penalized by the rise in world prices of these products.

It follows that a very recent literature relating to the effect of the DD phenomenon on the agricultural sector is evolving. By soliciting both the Toda-Yamamoto linear causal approach and Diks-Panchenko nonlinear approach, Nazlioglu (2011) attempted to study the causal relationship between the world oil price on the one hand and the price of three agricultural products (maize, soy and wheat) on the other. The results of this study indicate the existence of a unidirectional causality from world oil to the three agricultural products.

Nazlioglu feat Soytas (2012) have used the Granger causality in the framework of a cointegrated Panel model to test the causality between world oil prices and prices of twenty four agricultural products. Using monthly data for the period 1980- 2010, the authors conclude that, contrary to several studies that consider that agricultural prices are not affected by oil price fluctuations, the causal relationship between these two components is an undeniable evidence.

Along the same lines of these works, Apergis et al (2014) used a panel cointegrated model to test the long-term causality between oil rents and agricultural added value of MENA oil producers. The authors confirm the existence of a negative long-term causal relationship between the two variables of the model. The authors also confirm the contraction of the agricultural sector of the concerned panel of countries after an oil boom.

3 Methodology and Data

This paper aims to study the simultaneous effects of Dutsh Disease phenomenon on the industrial and agricultural sectors for five Oil-exporting countries with different development levels. To do, we saw a need to study the dynamic

relationship between oil revenues, industrial added value and agricultural added value in a structural multivariate framework.

Most of the works that addressed the issue of the DD phenomenon and its relationship with the economy are limited, at least to our knowledge, either to the impact of the said phenomenon on the industrial sector fully fledged, or to its impact on agricultural sector. We intend, however, to study the double potential impact that would exert such a phenomenon on the two considered sectors simultaneously.

It is also important to specify that this literature has focused on the study of the dynamic impact (short term or long term) of the DD phenomenon on one of the two considered sectors. We will attempt in this paper to capture both short run and long run dynamics linking the DD phenomenon to both industrial and agricultural sectors using a SVEC model. This will be done by performing the cycle-trend dichotomy of each of the five models regarding the five countries examined.

3.1 Structural approach

The structural VAR methodology (SVAR), introduced by Sims (1986), Bernanke (1986), Blanchard and Watson (1986) and Blanchard and Quah (1989) seeks to specify an economically interpretable analysis framework[2] to overcome standard VAR models limitations and to enable tracing the transmission of an economic policy impulse to the economy. Indeed, the growing success and interest awarded to such structural multivariate approach lie in its ability to provide a rigorous interpretation in two major areas of research: the business cycle fluctuations of macroeconomic variables and the identification of effects and transmission mechanisms of economic policies.

The idea upon which this methodology is designed by its pioneers is to identify a series of independent shocks by imposing a limited number of short run and /or long run identifying restrictions emanating from economic fundamentals. These restrictions are considered as short term restrictions when they reflect the absence of instantaneous responses of some variables to some structural impulses. They are called long term restrictions when certain impulses have no lasting effect on some components of the system[3].

The structural form of VAR model is expressed as follows:

$$B_0 Y_t = \sum_{i=1}^{p} B_i Y_{t-i} + w_t \tag{1}$$

where B_0 is a $(N \times N)$ matrix with terms equal to unity on the main diagonal and which represents relations of simultaneity between the N variables

[2] Result analysis made in the VAR framework is performed by studying causality between variables, forecast error variance decomposition and impulse response functions.

[3] The fact that the impact of these impulses is spread over a long period implies nonstationarity of one or more variables in the model, given that the shocks continue to accumulate over time due to their permanent nature.

constituting Y_t, the square matrices B_i, for $i = 1, \ldots, p$, contains the structural parameters of the model and the vector $w_t = (w_{1t} \ldots w_{Nt})'$ contains the N structural innovations (shocks).

The reduced form of this model is given by:

$$\begin{aligned} Y_t &= \sum_{i=1}^{p} B_0^{-1} B_i Y_{t-i} + B_0^{-1} w_t \\ &= \sum_{i=1}^{p} A_i Y_{t-i} + \varepsilon_t \end{aligned} \tag{2}$$

The square matrices A_i, for $i = 1, \ldots, p$, contain the model parameters related to the vectors Y_{t-i} for a lag order p. The vector $\varepsilon_t = (\varepsilon_{1t} \ldots \varepsilon_{Nt})'$ contains the N canonical innovations.The structure of interdependence of canonical stochastic innovations ε_t is described by the $(N \times N)$ symmetric variance-covariance matrix Σ_ε . Structural VAR representation is derived from the standard representation VAR assuming that the vector of canonical innovations ε_t is a linear combination of structural innovations w_t of the same date such that $\varepsilon_t = B_0^{-1} w_t$.

It follows that the knowledge of B_0 leads to the identification of the SVAR model. However, given that the matrix B_0 is unknown, it is first necessary to estimate the standard VAR model. Identification of the structural model is achieved by assuming that $v(w) = \Omega = I$[4], which amounts to consider that $\Sigma_\varepsilon = B_0^{-1}(B_0^{-1})'$ or else $B_0 \Sigma_\varepsilon B_0' = \Omega = I$. Given that the variance-covariance matrix Σ_ε is symmetric, $\frac{N(N+1)}{2}$ restrictions are provided by the model. However B_0 comprises N^2 unknown elements, it remains therefore at least $\frac{N(N-1)}{2}$ additional restrictions to identify the structural form.

3.2 Cointegration and SVECM

The abovementioned information relating to the identification and estimation of SVAR model assumed that the vector moving average (VMA) representation of the VAR model in question exists. Given that the existence of the VMA representation is conditioned by the stationarity of the VAR process considered, the identifying approaches were applied to stationary patterns in level or in difference. . Indeed, when a VAR model contains non-stationary components, VMA representation is achieved after having differentiated the non-stationary series. However, the differentiation of non-stationary series cover their long term properties all the more so the Granger representation theorem[5] indicates that, in the presence of cointegration relationships, VECM should be specified.

[4] To facilitate the identification of the parameters of B_0^{-1} (or B_0) we generally assume the normalization of the structural form innovations $v(w) = \Omega = I$. This condition mainly implies that structural innovations w_t are uncorrelated and that their variances are equal to unity.

[5] The pioneering works of Granger (1981, 1983), Granger and Weiss (1983) and Engle and Granger (1987) are the starting point of the cointegration theory.

The economic particularity of a dynamic representation such as VECM lies in its high flexibility to model adjustments that lead to long-run equilibrium. This type of model is an intermediate representation between the VAR model in level, where all series are assumed stationary, and the VAR model in first differences characterized by the absence of cointegration.

The idea behind co-integration theory is that if there is at least one stationary linear combination between components of the model which are integrated of same order (most commonly $I(1)$), they are said cointegrated. he cointegration relationships between variables $I(1)$ are considered as long-term equilibrium relationships that could translate in a certain sense, the compensation of these non-stationary series.[6].

If the number of series constituting Y_t is $N = 3$ and that these three series are $I(1)$) and are cointegrated of order $(1, 1)$, the VAR model made by (2) should therefore be expressed as a VECM as follows:

$$\Delta Y_t = \alpha\beta' Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + \varepsilon_t \quad (3)$$

$$= \Pi Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + \varepsilon_t \quad (4)$$

Where $\Gamma_i = -(A_{i+1} + \ldots + A_p)$ for $i = 1, \ldots, p-1$, the rank $\Pi = -(I_N - A_1 - \ldots - A_p)$ is equal to $r < 3$ (which amounts to considering that $r = 1$ since the three series are cointegrated of order $(1, 1)$), α (the weight matrix) and β (the matrix of cointegration) are of dimension $(3, 1)$, and rank equal to $r = 1$, Δ is the first difference operator.

The VECM inversion procedure realized to deduce VMA form is made using the common trend representation.This representation introduced by the pioneering works of Warne (1991, 1993), Lütkepohl et Reimers (1992) et Johanson(1995), is the second alternative representation of a cointegrated system.

This representation amounts to considering that if the rank of cointegration of the vector $Y_t \backsim CI(1, 1)$ is $r = 1$, this then implies that r stochastic trends are eliminated and that only $k = N - r = 2$ trends remain, which become common to the N components of Y_t. The long-term comovement of cointegrated series is governed by a common trend, which implies reducing the number of stochastic trends.

The VECM equation given by (4) may be reformulated in VMA form of Beveridge-Nelson decomposition of Y_t as follows:

$$Y_t = Y_0^* + +\Xi^*(L)\varepsilon_t + \Xi \sum_{i=1}^{t} \varepsilon_i \quad (5)$$

[6]Series of order one $I(1)$ can be divergent in the short term because they are both non-stationary, but they can grow together in the long term.

Where Y_0^* contains the initial values of the series $\Xi^*(L)\varepsilon_t = \sum_{j=0}^{\infty} \Xi_j^* \varepsilon_{t-j}$ is the stationary component of Y_t and $\Xi = \beta_\perp \left[\alpha'_\perp \left(I_N - \sum_{i=1}^{p-1} \Gamma_i\right) \beta_\perp\right]^{-1} \alpha'_\perp$.

Which remains to break down the process of Y_t into two parts: $I(1)$ and $I(0)$. Thus, Y_t is governed by $k = N - r$ components $I(1)$ represented by $\Xi \sum_{i=1}^{t} \varepsilon_i$ and r components $I(0)$ represented by $\Xi^*(L)\varepsilon_t = \sum_{j=0}^{\infty} \Xi_j^* \varepsilon_{t-j}$[7]. Once the N structural innovations w_t deduced from the expression $\varepsilon_t = B_0^{-1} w_t$ are identified, we can consider that only r of them would have short-term effects[8]. Substituting equation $\varepsilon_t = B_0^{-1} w_t$ in the expression of common trends gives $\Xi B_0^{-1} \sum_{i=1}^{t} w_i$. It follows that the long-term effects of structural shocks are given by the matrix ΞB_0^{-1}.

Regarding the number of identification restrictions to be imposed, given that just identification of the structural model requires the imposition of $\frac{N(N-1)}{2}$ additional restrictions, $\frac{1}{2}r(r-1)$ restrictions are needed to identify transitory shocks and $\frac{1}{2}k(k-1)$ restrictions are required to identify permanent shocks. Therefore, we will need, in a case similar to our model where the vector Y_t consists of three $I(1)$ series cointegrated of order $(1,1)$, $\frac{1}{2}r(r-1) = 0$ additional restriction to identify temporary shock and $\frac{1}{2}k(k-1) = 1$ additional restriction to identify permanent shocks.

Such identifying scheme assumes that the structural innovations vector comprises three shocks: two permanent shocks and a transitory shock. Placing the two permanent shocks as the first components of the vector w_t and assuming that the second long term shock exerts no permanent effect on the first variable, we may write the restrictions as follows::

$$\Xi B_0^{-1} = \begin{bmatrix} * & 0 & 0 \\ * & * & 0 \\ * & * & 0 \end{bmatrix} \text{ et } B_0^{-1} = \begin{bmatrix} * & * & * \\ * & * & * \\ * & * & * \end{bmatrix} \tag{6}$$

The asterisks represent unrestricted elements to estimate.

3.3 Data

As mentioned above, The adapted model in this study is a trivariate model containing Industrial value-added, agricultural value added and the oil rent. The series of industrial value added (current US $), agricultural value added (current US $) and oil rent (% of GDP) are obtained from the World Bank.

[7] Stationarity of the r transitory components of Y_t implies absolute summability of matrices Ξ_j^* capturing the short run impact of shocks. This amounts to considering that these matrices converge to zero as j tends to ∞.

[8] The first k nonstationary components known also as common trends of Y_t drive the system in its long-term trajectory. The r transitory components that remain describe the short-term behavior of the process.

Data are annual and spread over the 1970-2013 for the panel of considered countries which includes China, Malaysia, Ecuador, Morocco and Turkey.

The results of the usual unit root tests (Augmented Dickey-Fuller (ADF) and Phillips Perron (PP)) indicate that oil rent ($rent_t$) and logarithms of industrial value added (ind_t) and that of agricultural value added ($agri_t$) are $I(1)$ (see Table 1). The three series seem to exhibit an upward trend as they move together in the same direction. We suspect therefore the eventual existence of a cointegration relationship between the three considered series. The Johansen procedure (1988) is urged in this context to test the eventual existence of cointegration.

Table 1: Results of ADF and PP tests

		ADF		*PP*	
Country/ variable		*Level*	*First diff*	*Level*	*First diff*
China	*ind*	-0.515	-6.119	-0.506	-6.115
	oil	-0.994	-5.328	-1.134	-5.323
	agri	1.542	-5.368	2.132	-5.347
	5% *C.V*	-3.520	-3.520	-3.518	-3.520
Morocco	*ind*	-2.056	-4.340	-1.912	-4.261
	oil	-0.980	-9.373	-1.182	-9.533
	agri	-1.429	-9.652	-1.508	-9.621
	5% *C.V*	-2.931	-2.933	-2.931	-2.933
Malaysia	*ind*	-2.449	-4.838	-2.611	-5.411
	oil	-0.671	-6.798	-0.636	-6.798
	agri	-1.567	-5.261	-1.567	-4.946
	5% *C.V*	-2.931	-2.933	-2.931	-2.933
Turkey	*ind*	-1.571	-6.949	-1.609	-6.943
	oil	-2.153	-6.792	-2.266	-7.011
	agri	1.794	-6.349	1.795	-6.413
	5% *C.V*	-2.931	-2.933	-2.931	-2.933
Ecador	*ind*	-1.278	-5.101	-1.248	-5.212
	oil	-0.573	-6.169	-0.326	-7.817
	agri	1.790	-3.818	2.176	-3.818
	5% *C.V*	-2.931	-2.933	-2.931	-2.933

It is crucial to take into consideration that the application of Johansen procedure (1988) is intrinsically dependent on the type of specification that we want to test according to which cointegration and VECM contains or not a constant and / or trend. This is explained by the direct influence this choice on Likelihood ratio tests (trace test statistic and maximum eigenvalue test) and the critical values derived from these tests.[9].

[9] We have recourse in this paper to the trace test statistic which is much more widely used

The retained specification in this paper is that which supposes absence of trend in the cointegration relationship and the presence of a constant in the VECM. This choice is based on two considerations. The first consideration is an economic one and stipulates that, in a long-run equilibrium situation, the relationship between oil rent and incomes sectors has no trend. The second, associated with the presence of a constant in the VECM, considers fact that (ind_t), $(agri_t)$ and $(rent_t)$ have an upward linear trend.

Table 2 summarizes the results of the trace test statistics made through the Johansen procedure for the five considered countries. As indicated in this table, the calculated values of the trace statistics for China, Malaysia, Ecuador, Morocco and Turkey are respectively 54.17 ; 35.43 ; 47.25 ; 40.14 et 40.01. Given that these values are respectively higher than critical value at a 5% risk level (35.07 for the five models), we deduce therefore rejection of the null hypothesis of no cointegration for the five countries. However, the null hypotheses according to which there is at most one cointegration relationship are accepted ($17.19 < 20.16$; $13.90 < 20.16$; $15.70 < 20.16$; $14.43 < 20.16$ and $15.44 < 20.16$) at a 5% risk level. It follows then that the test procedure should be stopped at the cointegration rank $r = 1$. We conclude thereby with the existence of only one cointegration relationship between oil rent and logarithms of industrial value added and agricultural value added ($r = 1$) for the five countries under consideration.

Table 2: Johansen cointegration test

Number of cointegrating vector		*Eigenvalue*	*Trace statistic*	*5% critical value*	*Rank r*
China	*None*	0.585	54.17	35.07	0
	at most 1	0.219	17.9	20.16	1
	at most 2	0.148	06.77	09.14	2
Morocco	*None*	0.457	40.14	35.07	0
	at most 1	0.221	14.43	20.16	1
	at most 2	0.089	03.94	09.14	2
Malaysia	*None*	0.401	35.43	35.07	0
	at most 1	0.188	13.90	20.16	1
	at most 2	0.115	05.14	09.14	2
Turkey	*None*	0.442	40.01	35.07	0
	at most 1	0.197	15.44	20.16	1
	at most 2	0.137	06.21	09.14	2
Ecador	*None*	0.528	47.25	35.07	0
	at most 1	0.265	15.70	20.16	1
	at most 2	0.063	02.74	09.14	2

It results in light of these informations that the appropriate multivariate specification that should be retained for the five countries is the VECM. The choice of the VECM order is based on the AIC selection criterion. We retain a

in econometric literature.

number of lags in our VECM equal to 1 for China, Malaysia, and Turkey, 4 for Morocco and 3 for Ecuador.

Once the VECM models of the five countries are estimated, it is matter to deduce the structural form of each model. This requires the identification of the matrix ΞB_0^{-1}. Given that the five models are trivariate models with a single cointegration relationship, the just identification of each of the five SVECM models therefore requires only one longterm additional restriction ($\frac{1}{2}r(r-1) = 0$ and $\frac{1}{2}k(k-1) = 1$). This restriction is derived from neoclassic theory which assumes the long-run neutrality of a monetary shock on production. We have recourse to neoclassic theory to deduce this restriction which assumes the long-run neutrality of a nominal shock (emanating from oil rent) on industrial real activity. The structural innovations vector w_t contains three shocks: two permanent shocks (a first shock qualified of real shock emanating from industry and a second shock qualified of nominal shock emanating from oil rent) and a transitory shock (the second real shock emanating from agriculture). Respecting this order of shocks at the level of vector w_t, the restriction takes the form described by equation (6).

4 Analysis of the results

Result analysis and recommendations, are closely related to the country panel which is taken in consideration in this paper. It's therefore important to explain the reasons for choosing a panel of five countries with different levels of development. Indeed, we have ensured that this panel includes developing countries (Ecuador and Morocco), emerging markets (Malaysia and Turkey) and a great emerging country that is part of the BRICS (China).

Beyond the fact the choice of such a heterogeneous panel is to conduct a comparative analysis of different scenarios reactions to real and nominal shocks, it reflects the desire to highlight and test the ability of oil exporting countries, including those developing and emerging, to guard and counteract the adverse effects of the DD phenomenon.

This choice, reflects also the desire to decide on the appropriate measures that economists and politicians should consider to detect the dynamics in both short and long terms of the DD phenomenon and anticipate the reaction to various type of shocks.

4.1 Impulse responses

The impulse responses' analysis is conducted by the study and interpretation of the Impulse Response Function's (IRF) results. The IRF is intrinsically linked to the identification scheme adopted. In this paper, we have adopted the SVECM model for each of the five countries. Each model is supposed to trace the impulse transmission to the considered economy and studying its propagation depending on whether it is the model's cyclical component or a trend component.

This dichotomy is performed by adopting a SVECM model's identification scheme assuming that the structural innovation vector contains three types of shocks: two first permanent shocks (industrial real shock and nominal shock) that describe the long term system trajectory, and a third transitory shock (agricultural real shock) that characterizes the cyclical component.

4.1.1 Trend Component

Figures 1 to 5, indicate respectively responses in the five countries of ind_t, $rent_t$ and $agri_t$ (from up to down), to the first two permanent shocks: industrial real shock (left) and nominal shock (right)[10].

Effects of industrial real Shock (the first permanent shock) With reference to the first permanent shock, we notice that the effect of industrial real shock in the long term is unanimously positive for all studied countries, however , behavioral differences characterizes industrial activity in two countries notably Malaysia and Ecuador. In fact, while the response in the rest of the countries to an industrial positive shock is almost instant, there has been a delayed response in the case of Malaysia and Ecuador, where, the response started only by the second period. Also one more finding characterizing the Malaysian industrial activity, is its long term spread effect to the shock, is lesser significant compared to the other countries. These initial results provides information about China's, Morocco's and Turkey's orientations to a long term industrial strategy more pronounced.

The effect of a positive industrial shock on oil rents divides the studied countries panel into three groups. First group relative to China in which the response of rent is slightly negative at the beginning of the period and trends to become shyly positive at the long term. The fact that the rent's response to an industrial shock in this country is positive and very low in the long term , especially when comparing with the response of industrial real sphere to this shock, reflects that the supplement industrial added value realized exerts less proportional effect on oil rents. Hence, it seems that the answer to China's industrial real shock, partly reflects an orientation to new farms gradually lesser economic.

A second group of: Morocco, Malaysia and Turkey, in which the industrial positive shock impacts negatively the oil rents in the long term. This negative effect is lesser proportional for the Moroccan case compared to Malaysia and Turkey. This reveals that Morocco and even more Malaysia and turkey are moving toward an industrialized era with rare oil resources. The positive real shocks in these countries is attracting invested capital to the energy sector, resulting a reallocation of resources and a consequent fall in the short term of the oil rents.

A third group, representing the Ecuador, which records an exponential positive response of oil rents, following an industrial real shock. These results reveal

[10] horizontal axis in years, vertical axis indicates the response of the variables.

an increasingly reliant strategy on oil rents following an industrial shock for the Ecadorian case. This result, reflects also, the inability of this country to attract investors and fed the productive machine by other means than oil rents.

The effect of industrial shock on agriculture, is generally positive, with behavioral reaction nuances characterizing the countries. In fact despite the general tendency toward a positive reaction, we note an instantaneous response with an increasing trend in the long term of the agricultural activity for the case of Morocco and Turkey. This reflects the fact that the agricultural structure in these countries is strong and that a positive industrial shock would promote simultaneously both industrial and agricultural activities, without a section of either one of both sectors. That also reflects, the strategy adopted mainly by Turkey , in which, part of the industrial activity is geared toward the agricultural sector.

For the rest of the countries, China, Malaysia and Ecuador, we can say without much risk, that the response of the agricultural activity to an industrial shock, is as expected. Indeed, the response structure, in these countries usually indicates a feedback delay of four to six periods and the long term effect is less proportional than that exerted on the industrial activity especially in the case of Malaysia. This result reflects the reality of importing economies, even if only partially, of agricultural and alimentation products.

Effects of a nominal shock (the second permanent Shock) The first striking observation concerning the industrial activity response to a nominal shock in the five considered countries is the one related to the nominal sphere neutrality assumption. Indeed, While the adopted identification scheme assumes that the nominal shock has no effects on industrial activity in the long term , this assumption is verified only for the case of Morocco. In fact, except Morocco, the positive nominal shock effect on industrial added value, is negative and growing over time. However, this negative effect is stabilized in the long term before entering a threshold effect phase.

Two key lessons can be drawn from these results. First, in the case of China, Ecuador and less proportionally, Malaysia and Turkey, the negative effects on the industrial added value, confirms the short term aspect of the DD phenomenon affecting a priori the industrial sectors of these countries. The short termist nature of the DD phenomenon, comes from the fact that in these countries, the response to the permanent nominal shock, which is nothing other than accumulated response, reach a threshold effect from where it stabilizes and keeps the same pace in the long term. This is reflecting the fact that a supplement of oil rents following a boom or oil price shock, would have a negative influences on industry in the short term. Economically, the underlying mechanisms of such implications are related to the appreciation of the exchange rate caused by the boom and the successive oil price shocks which have as effects the competitiveness decline of the industrial sector. It turns out that the DD phenomenon affecting the industrial sectors of the considered countries (China, Ecuador, and in a lower rhythms Malaysia and Turkey), is an ephemeral phenomenon.

Second, in the case of Morocco, we note that the nominal shock had a positive effect in the short term and no one in the long term. Two possible explanations might elucidate such an exclusive result for the Moroccan case. The first explanation is related to the orientation toward a strategy increasingly industrial and the trade balance's positive results that this country is currently achieving. This would have as consequences, the fact that the nominal shock leads to short term depriciation of the exchange rate which, by the same token, results in a temporary increase in the competitiveness of the industrial sector.

The second explanation is that, given that the country under consideration (Morocco) is a developing country, a nominal shock caused by oil rents, has no negative effect on real activity as the shock does not affect all the goods vector. Basic necessities are spared from such shocks since they are often subsidized in those countries. It follows that in the short term, the increased prices of certain categories of goods, including oil derivatives, would have only partial effects on the aggregate demand, which is a stimulator for companies to invest and produce more.

Generally speaking, the effect of the nominal shock on oil rent, for all the studied countries, is positive and increasing. This result is relevant as it helps to highlight the negative impact of DD phenomenon. Indeed, while it is expected that the positive and exponential response of oil rents to a positive nominal shock contributes to the revival of the industrial sector, the opposite phenomenon has been rather recorded. This is explained by the fact that the oil rent supplement realized could be a source of market failure. In fact, this supplement of rent creates a kind of fictitious wealth without a real counterparty. Which causes an increase of the goods and services prices, leading to appreciation of the inputs prices, and hence a decline in the corporate profits and competitiveness of the whole industrial sector.

Except for the case of Turkey, the response of the agricultural value added to nominal shock seems to be negative and growing over the time horizon. Indeed, for China, Morocco and Ecuador, the agricultural sector seems to be suffering from the implications of a persistent DD phenomenon. Nevertheless, although existing for the Morocco and Ecuador, this phenomenon appears to be more pronounced for China and Malaysia, in which the difference in the negative response is more important in the long term. In summary, overall in the considered countries (China, Malaysia, Morocco, and Ecuador), the agricultural sector is under the grip of a long term DD phenomenon.

Regarding Turkey, the agricultural activity response to a nominal shock is positive and increasing slowly in the long term. The agricultural sector in this country is immune to adverse impact of the DD syndrome. Again, this is explained by the fact that this country has been able to develop a strategy toward industrialization part of which is related to agricultural equipment. This finding also reflects the robustness of the agricultural fabric in Turkey, which seems following the trajectory of developed countries.

4.1.2 Cyclical Component

Figures 6 to 10, respectively indicate the response in the five countries of ind_t, $rent_t$ and $agri_t$ (up and down) to the transitory shock: Agricultural real Shock.

Impact of the agricultural real shock (the transitory Shock) Generally speaking, the impact of a positive real agricultural shock on the industrial added value is instantaneous and positive. Indeed, in all the countries studied, we record an instantaneous reaction to shock emanating from a primary sector. Given that the component under consideration of the model is the cyclical component, this impact tend to vanish in the medium and long term. The fact that the impact of the short-term shock vanishes after a few periods is quite logical since it represents the stationary component of the model.

Economically, the fact that the response of industry to agricultural positive shock is instantaneous and positive is quite plausible. In fact, the supplement relaized by the agricultural sector, as a primary sector, would serve even partially to finance the industry. This finding is especially valid for the case of Malaysia, where the impact of a real short termed agricultural shock, on the industrial sector, continued to spread until the sixteenth period, date on which the impact vanishes.

Again the result seems logical, mainly for the Malaysian case, as being one of the newly industrialized countries (NIC's). In fact, the country's economy, has gone through transition in the recent decades, from being an agriculture based economy, to be a more industry oriented economy, which is the current main growth's engine for country. It's so true, that according to the recent official statistics, the agricultural sector employs about 12% of the Malaysian population with about 10% contribution to the GDP, against 28% employability and 40% GDP's contribution, to the industrial sector.

With regards to the impact of the agricultural shock on oil rent, we note the existence of a positive instantaneous impact for the whole studied countries' panel, except for Morocco, wherein although it's qualified as short termed, the impact is negative and finds the equilibrium after one to two periods. This reaction implies that Morocco is lesser dependent on oil revenues than the rest of the countries. Moreover, in terms of oil production, this country ranks the lowest in the listing of the studied countries. Economically, such result reflects the fact that real shocks, including those emanating from a pillar sector such as the agriculture one in the Moroccan case, are rarely energy sourced, just like the resource scarcity itself.

The response of the agricultural added value, to an agricultural shock, is typically consistent with the reaction of real sphere to a shock of real origin. Indeed, for all the studied panel this reaction is positive at time zero, and the shock tends to vanish over the horizons. However, the return to the equilibrium and the extent of the shock's impact vary from one country to another.

4.2 Forecast Error Variance Decomposition

Performing forecast error-variance decomposition (FEVD)), as part of the structural multivariate modeling, returns to highlight the contribution of each shock to the variation of a target variable. Regarding this paper, the emphasis is on the proportions of the prediction error variance of three series due to the three identified shocks: the first two permanent shocks and the transitory shock.

For each of the five countries, tables 3, 4 and 5 show respectively, FEVDs of industrial added value , of oil rent and the of agricultural added value over fourteen-period span[11].

4.2.1 Contribution of shocks to industrial added value's fluctuation

Generally, the FEVD of industrial added value results show that, over horizons, the industrial real shock contribution intensifies till almost monopolizing all the responsibility of the industrial activity variation at the end of the period. These results show also that the nominal shock contribution, is minimal and short termed. Indeed, while for China and Ecuador, the nominal shock contribution has reached 30% in the beginning of the period, its share of responsibility doesn't exceed 10% for the rest of the countries and even vanishes after few periods.

Two main conclusion might be drawn from the above results. The first concerns the long term predominance of shocks of real nature into the explanation of industrial activity. This is confirming that the impact of the DD phenomenon on the industrial activity is ephemeral, and that the long term fate of the sector, for all the studied countries, is independent from the cashed rents. The second observation is relative to China's and Ecuador's cases, where the share of the nominal shock responsibility is relatively more important in the short term, despite the real shocks dominance.

Economically, two lessons should be drown from the established findings. First, for the developing countries, two situations to be considered: the Moroccan case, where the productive strategy is based for the most part on real innovation allowing the diversity of the production fabric. In fact, unlikely to the Ecuador, the Moroccan case can be seen as a good model of developing countries to consolidate, at least for the industrial sector. This finding is all the more confirmed as this country is adopting a strategy based on strengthening its productive capacity and wealth source diversifying, while avoiding depending on rare nonrenewable resources.

Secondly, the lesson to be learned about the emerging countries, is relative to the China's case. Despite the fact that this country is considered as the second world power, its impressive economic performance currently realized is likely to cloud failures particularly in terms of sustainable development. In fact, unlike Turkey, the industrial added value of China appears to be depending on short term nominal shocks. This model should be considered, by economists and politicians, with more caution and vigilance.

[11] Contribution of each shck is expressed in percentage.

table 3 FEVD of 'ind' with relative contribution of real industrial shock, nominal shock and real agrical shock

Horizon		1	2	3	4	5	10	20	40
China	real ind	39	37	48	60	70	89	96	98
	nominal	32	36	32	25	19	07	03	01
	real agri	30	27	20	15	11	04	02	01
Morocco	real ind	58	66	76	85	90	95	97	99
	nominal	10	06	04	03	02	01	01	00
	real agri	32	28	20	12	08	04	02	01
Malaysia	real ind	08	09	13	17	22	45	71	86
	nominal	00	03	05	06	06	05	03	01
	real agri	92	88	82	77	72	50	27	13
Turkey	real ind	49	66	75	81	85	93	97	99
	nominal	06	04	03	02	02	01	00	00
	real agri	45	30	22	17	13	06	03	01
Ecador	real ind	50	43	49	63	75	94	98	99
	nominal	15	28	26	22	16	04	01	01
	real agri	35	29	25	15	09	02	01	00

4.2.2 Contribution of shocks to oil rent's Fluctuation

Table 4 indicates that the variation of oil rents is dominated in the case of China, Malaysia and Turkey, both on the short and long term, by real and nominal Shocks. However, towards the end of the period, the nominal shock dominance should be highlighted for all the studied countries. In the case of Morocco, almost all the rent fluctuations is being governed by a nominal shock in the short and long term. This fluctuation is mitigated in the case of Ecuador on all horizons.

Thus, three types of countries is to be distinguished. A first Type characterized by an oil rent which the overwhelming majority is governed by a shock of nominal type like the example of Morocco. Second category of countries (China, Malaysia and Turkey) with an oil rent ruled, in short and medium term, by the two identified shocks types, nevertheless, characterized in the long term by nominal shocks. Third type, representing the Ecuadorian case, where the rent variation is explained, on the great majority, by real shocks.

Such results reveals two economic realities. The first is linked to the country models in which rents are explained exclusively or at least in the grand majority by nominal shocks. For such countries (Morocco), rents fluctuation mainly caused by brutal changes in the global energy market, rather than shocks of real nature and origin.

The second reality encompasses the case of developing countries such as the Ecuador as well as emerging country such as China, and in a lesser pronounced manner Malaysia and Turkey. Altough this reasoning is only applicable in emerging countries in the short term, this second reality reflects a kind of dependence of the industry to the energy sector. It reflects also; mainly for the Chinese, Turkish and Malaysian cases; that the recorded real innovations in the real economy, serve even if only partially, to fed the energy sector and thereby

exert a positive effect on the energy production and cashed rents.

table 4 FEVD of 'oil' with relative contribution of real industrial shock, nominal shock and real agrical shock

Horizon		1	2	3	4	5	10	20	40
China	real ind	31	31	22	16	12	06	05	05
	nominal	30	46	62	72	79	90	94	95
	real agri	39	23	16	12	09	04	02	01
Morocco	real ind	01	13	11	10	08	05	03	01
	nominal	93	83	86	87	90	93	96	98
	real agri	06	04	03	03	02	02	01	01
Malaysia	real ind	28	28	28	28	28	24	17	11
	nominal	36	31	31	34	36	49	67	80
	real agri	36	39	39	38	36	27	16	09
Turkey	real ind	56	51	48	46	42	31	20	12
	nominal	07	09	13	17	22	42	63	78
	real agri	37	40	39	37	36	27	17	10
Ecador	real ind	03	12	14	29	33	40	45	48
	nominal	14	37	43	36	37	46	48	50
	real agri	83	51	43	35	30	14	07	02

4.2.3 Contribution of shocks to agricultural added value's fluctuation

FEVD of agricultural added value divides the studied panel into two distinct groups. A first group that includes China, Morocco, Turkey and Ecuador, in which the variation of the real agricultural activity is explained by both real shocks (agricultural shock at the beginning of the period and industrial one throughout the period) and nominal shock. However, for the case of the Ecuador, the greatest responsibility is assigned to the shock of nominal origin (exclusive in the short term and mitigated in the long term) with a total lack of the agricultural real shock. The second group, being represented by Malaysia, where the agricultural added value is governed almost entirely by a permanent nominal shock.

In the light of these results, we can say that the real agricultural activity of all surveyed countries is being affected by the DD phenomenon with behavioral nuances that differs from one country to another and in terms of time horizon. In fact, with regards to China, the results reflect the reality of a country in which, the agricultural sector seems to benefit the most from the industrial activity and its positive innovations. This reveals the reality of a sector which doesn't seem to be part of the economic priorities of the policy makers in the country. Which might be considered as quite plausible given that part of alimentation and agricultural needs of this country is being ensured via importations.

Although similar to the Chinese case, specifically in terms of long term behavior, the Turkish agricultural activity shows a kind of resistance to the DD phenomenon in both short and long terms. In fact, compared to the rest of countries, the share of nominal shock responsibility is the least among all, with a contribution of the industrial real shock which takes over. This finding reflects,

the Turkey's assertive strategy to promote simultaneously both industry and agriculture with a share of industrialization dedicated to agricultural equipment.

The case of Morocco shows that the short term agricultural added value is governed by transitory agricultural real shock. The long term of this component joins the case of China and Turkey. Such short term resistance of the Moroccan agriculture to the DD phenomenon, is mainly due to the positive impact of the developing country's orientation to strengthen agricultural productive capacity to satisfy the local market supply as well as improving the trade balance result through increasing the agro- food products export.

For the Ecuadorian and mainly Malaysian cases, the result shows that the agricultural sector in both countries, compared to the rest of studied countries, are considered the most affected in both short and long term by the DD syndrome. However, a short term contribution of the agricultural shock in the Malaysian case should be pointed, against a total absence of this shock in the explanation of the Ecuadorian agricultural activity variation.

These Findings reflect an economic evidence of a declared Malaysian agricultural regression. It reflects also, an agricultural model governed more and more by nominal shocks. In such agricultural model, specific shocks of the relevant sector, emanating from agriculture real sphere, are almost absent and doesn't contribute to the added value surplus.

table 5 FEVD of 'agri' with relative contribution of real industrial shock, nominal shock and real agrical shock

Horizon		1	2	3	4	5	10	20	40
China	real ind	01	02	02	05	10	36	59	71
	nominal	67	75	79	79	76	56	37	27
	real agri	32	23	19	16	14	07	03	02
Morocco	real ind	00	21	31	49	54	65	71	75
	nominal	10	08	20	22	25	23	23	22
	real agri	90	71	49	29	21	12	06	03
Malaysia	real ind	02	01	01	01	01	02	06	09
	nominal	40	59	67	72	75	82	85	86
	real agri	58	40	32	27	24	16	09	05
Turkey	real ind	48	55	60	64	67	73	76	77
	nominal	12	20	22	22	22	22	22	22
	real agri	40	25	18	14	11	05	02	01
Ecador	real ind	01	01	02	02	04	25	44	52
	nominal	98	96	95	96	94	74	56	48
	real agri	01	03	03	02	02	01	00	00

5 Economic Implications and conclusion

In conclusion, we can say that this paper has allowed us to conclude that the DD syndrome affects, at very few exceptions, both Agricultural and industrial sectors in the considered countries. The impact on each sector and the adverse effects that might have such a phenomenon, according to whether they are permanent or transient, depends however on the nature of the economy in question

and it's adopted strategy.

Indeed, the results we have achieved confirm, with the Moroccan exception, that the industrial sectors of the rest of countries considered (China, Ecuador, and less proportionally Malaysia and Turkey) suffer from a short term DD phenomenon. Regarding the agricultural sector, it was found that the DD problem affects all the considered countries panel in the long term, exception made for Turkey, where the agricultural sector seems to be spared.

Two main lessons to be raised with regards to the industrial sector. First, the fact that China, Ecuador, and less proportionately Malaysia and Turkey are characterized by a short term DD problem, reflects that in these countries, an supplement oil rents resulting from a boom or a price shock, would negatively influence the industrial sector in the short term. Secondly, beyond the fact that the positive industry's short term response to nominal shock and the checked nominal variable neutrality hypothesis, reflect both the fact that the Moroccan industrial sector is being spared from the DD syndrome, they reflect also, the correct orientation of the said country toward an increasingly industrial strategy.

Coming to the agricultural sector, three results have been concluded. First, unlike the rest of the studied countries, the response of agricultural added value to an industrial shock, for the case of Morocco and even more Turkey, reflects the reality of a solid agricultural fabric in both countries. Moreover, the positive industrial shock would help promote simultaneously industrial and agricultural activities without sanctioning either or both sectors.

Second, the fact that agricultural sector in Turkey is immune from the DD phenomenon fallouts, confirms the first result and translates the fact that this country has been able to develop a strategy towards industrialization of which, part goes to agricultural equipment. Which can be seen as an assertive strategy of this country, oriented to a simultaneous promotion of both industrial and agricultural sectors, and hence, country can be qualified as following the trajectory of developed ones. Third, the Malaysian agricultural sector results, particularly reveal an economic evidence of a reported and felt regression of such sector in that country and prove, by the same token, that this sector is being increasingly governed by nominal shocks.

In terms of economic implications and recommendation, this paper has enabled us first to conclude that, unlike the Ecuadorian example, Morocco is a case of developing country to consolidate. Indeed, this country seems to follow a productive strategy based for the most, on innovations of real type, on increasing its productive capacity and diversifying its wealth resources. Which allows the country to avoid the rare and non-renewable natural resource dependency. Then, with regards to the emerging countries, the economic impressive positive result of China, as the second world power and part of the super emerging countries, is currently conducting may veil failures, particularly in terms of sustainable development. Such a finding should prompt economists and politicians to consider such a model with more caution and vigilance.

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