

Global Economic Downturn and the Manufacturing Sector Performance in the Nigerian Economy (A Quarterly Empirical Analysis)

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Abstract

This paper was able to analyse the position of the Manufacturing sector in the Nigerian economy both descriptively and empirically before the global meltdown and during the period of the global meltdown. The significance of the study is that the manufacturing sector of the Nigeria economy will be able to know its competitive strengths and weaknesses during and after the global meltdown, and if possible take advantage of it. Descriptively, the two years before the meltdown and two years into the meltdown were analyzed in quarterly time series (i.e. 2005Q1 – 2006Q4 and 2007Q1 to 2008Q4) and also empirically Pooled data for the two periods were also used in order to have reasonable observations (16). Descriptively, the performance of the Nigerian manufacturing sector was analyzed using the indices of performance such as (index of manufacturing production, manufacturing export, import, capacity utilization and share in total GDP). It was discovered that before the meltdown, all indicators of performance used shows a downward trend. The period during the meltdown shows some little insignificant improvement in some of the performance indicators such as manufacturing GDP, capacity utilization. The results of the empirical analysis from the pooled data from 2005Q1 to 2008Q4 does not really give a better result as compared to the descriptive analysis. Variables such as capacity utilization (CU), Inflation rate (INF), Lending rate (LR) both shows a positive but insignificant shock on the manufacturing performance. Only direct foreign investment was significant but negative in its impact on the manufacturing sectors performance. The outcome of the results shows that the global meltdown has insignificant effect on the manufacturing sector of the Nigerian economy

Keywords: global downturn, manufacturing, error correction, structural stability Nigeria

INTRODUCTION

Generally speaking, the manufacturing sector plays a catalytic role in a modern economy and has many dynamic benefits crucial for economic transformation. In any advanced economy or even growing economy, the manufacturing sector is a leading sector in many respects. It is an avenue for increasing productivity in relation to import replacement and export expansion, creating foreign exchange earning capacity, rising employment and per capita income, which causes unique consumption patterns. Furthermore, it creates investment capital at a faster rate than any other sector of the economy while promoting wider and more effective linkages among different sectors (Ogwuma 1995). In terms of contributing to the Gross Domestic Products, the manufacturing sector is recognized, but it has been overtaken by the services sector in a number of countries, including Nigeria. Before independence, agricultural production dominated Nigeria's economy and accounted for the major share of its foreign earnings. Early efforts in the manufacturing sector were oriented towards the adoption of an import substitution strategy in which light industry and assembly related manufacturing ventures were

embarked upon by the former trading companies. Up to about 1970 the prime mover in the manufacturing activities was the private sector which established some agro-based light manufacturing units, such as vegetable oil extraction, plants, tobacco etc. The import-dependent industrialization strategy virtually came to a halt in the late 1970s and early 1980s when the liberal importation policy expanded the imports of finished goods to the detriment of domestic production. This led to relative decline in manufacturing production of exportable and thus, little diversification in products and production processes was achieved.

The Structural Adjustment Programme (SAP) introduced in 1986 was partly designed to revitalize the manufacturing sector by shifting emphasis to increased domestic sourcing of inputs through monetary and fiscal incentives. The deregulation of the foreign exchange market was also effected to make non-oil exports especially manufactures more competitive even though, this also resulted in massive escalation in input costs. Looking at the manufacturing sector over the years shows that the share of the manufacturing in the GDP has been

relatively low. In 1970, it was about 9%, 1980, about 10%, 1990, about 8% and 1998 about 6% and 2008 about 5.9% (CBN Annual Report). Even though in the 90's especially 1994, manufacturing shares in GDP was about 7%, the growth rate was a negative of 8%. Also at that same period, the overall manufacturing capacity utilization fell from over 70% in 1973 to 39% in 1986 and to about 27% in 1998.

It is only when firms are efficient that their potential for job creation, for promoting technology adoption, and ensuring equitable distribution of economic opportunities and the macro stability of the economy can be fulfilled. (Inegbenebor, 1995). He stressed further that the determinants of the performance of enterprises are many and interwoven but could be grouped under three main headings:

1. Individual enterprise characteristics and behaviour,
2. External/ecological factors and
3. Internal structure arrangements of the enterprise.

Essien (2005) in his studies also stressed the point that more countries of the world have undertaken one form of economic reform or another at a time in their history. The goals of these reforms may differ from country to country; nevertheless, they are all closely aligned towards putting their economies on a path of sustainable growth and development. In developing economies such as Nigeria, such reforms have characterized the development strategy. In recent times and in virtually all cases, structural weaknesses in the economy, high debt service burden, spatial and sectoral unevenness and poor growth performance have been some of the most compelling reasons for their implementation. The recent reform by the Nigeria government is the (NEEDS). In this new reform there is strong emphasis on the manufacturing and agricultural development. The emphasis on these two is predicated on the fact that these two sectors are very important in any economy.

Omanukwue (2005) pointed out that manufacturing and agriculture have become a complex activity, more so in the light of dynamic changes and innovations that have pervaded the global economy. In a developing economy like Nigeria, this becomes much more challenging given the desire and need to compete both domestically and internationally. Consequently, Government in 2004 launched an economic reform programme, the National Economic Empowerment and Development Strategy (NEEDS). There was a strong concern especially for manufacturing and agriculture and that there need to develop these sectors among others. In this paper manufacturing performance of the Nigerian economy will be the focus and will be analyzed in two groups (two sections). Section one will look at the performance indicators for the manufacturing in the

descriptive form. The second section will analyse the performance of the sector empirically.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Economic recession will basically lead to sectoral decline; there will be unemployment, reduced earnings, investment and savings. This is the posit of the theory of economic shocks. When there is a shock, it is more or less a change in the economic performance, which might be temporary. However, the business cycle theories stressed that if there is insufficient consumption and unstable investment, it can bring about fluctuations in output and unemployment Keynes (1993) stressed that in a depressed economy where savings and investment are determined by other factors neither than the interest rates, a way out is to stimulate demand. According to Keynes, this could be achieved through government intervention.

The importance of manufacturing can be looked into in various angles. The Governments of Nigeria has in recent years been pursuing several policy initiatives to augment the process of manufacturing production in the country. It is of considerable importance both for the policy makers as well as researcher to take stock of the impact of these policy measures on the performance of the manufacturing sector. The dynamics of manufacturing sector can be assessed in terms of its size, composition, contribution and growth. Papanek (1962) noted that changes in the economic environment would stimulate the successful transfer of Nigerian entrepreneurial talent into the large scale-manufacturing sector. But according to him, manufacturing industries have been growing slowly and the values added of Nigerian industries have increased less significantly over the years. The contribution of the Nigerian manufacturing sector to Gross domestic product is still very insignificant.

One of the main reasons for industrialization is the expansion and generation of employment. According to Oladokun et al (1979), the proportion of labour employed in manufacturing has slowed down greatly. This may be due to the under-utilization of capacity. In the manufacturing industry, the capacity utilization in 1980 was 70.1 and by 2000, it was below 35%. Kayode (1987), made us to believe that the industrial sector and in particular, the manufacturing sub-sector is the heart of any economy. He went further to confirm that faulty or poor industrial development policies have long been recognized as major factors that adversely affect the well-being and socioeconomic improvement of the people in developing countries. He argued that such policies are the major contributing factors to low value added and low economic growth. Uzaoga (1981) also threw more light on the low performance of the

manufacturing sector in Nigeria. He made us to believe that Nigeria being a colony of Britain had to specialize on the production of raw materials while Britain serves as the main supplier of manufactured goods. According to him, this unfortunate pattern of investment promoted the theory based on a static scheme of comparative advantage whereby diverting the Nigerian economy into activities that offered little opportunity for technical progress. The few industries established depended on foreign inputs. All these distortions according to him affected the performance of the industrial sector in terms of its contribution to the gross domestic product, employment generation, capacity utilization; export and value added which are indices for measuring the performance of the manufacturing sub-sector.

Investment structure in the manufacturing sector also affects the performance of the sector, looking at it from aggregate investment behaviour in the sector. Value added is a crucial indicator in measuring the significance of manufacturing in an economy. Bakitt and Bhattacharya (1991) made us to believe that if the share of manufacturing in total GDP of an economy is low, the value added will surely be very low. Low share according to them is associated with low value added. According to the paper presented in July 1983 at the national workshop on Raw Materials for Nigerian Industries, which read that: For a developing country of the size and potential of Nigeria, industrialization is essential if it is to achieve rapid economic and social development. Industrialization is also imperative, for in the world of today, every country is pursuing a policy of efficiency and effective participation in the global economy. Development is nothing more than ensuring that maximum use is made of available minerals and vegetable resources for the benefit of the citizens of the country.

Manufacturing in Nigeria however is still at an infant stage. It accounted for only about 6.18% of the gross Domestic Products in 1998. The industrial base is small and there is great scope for expansion. The Nigerian Industries are concentrated in light consumer goods. There is hardly any production of capital and intermediate goods. Another feature of the manufacturing sector is its over-dependence on imports for the supply of raw materials and spare parts. There is no single industrial product in which the country is entirely self-sufficient. The Nigeria's import bill is dominated by the cost of raw materials and spare parts for industries. This explains why in the 1980's the economic stabilization measures designed to conserve foreign exchange affected industries most adversely. Many factories as a result of this reduced their scale of operations completely and even some had to close down completely with increase in our unemployment rates.

So many literatures confirmed the insignificant nature of the Nigerian manufacturing industries in terms of its contribution to economic development Enisan Akinlo (1996) also confirmed this by stressing that the industrial sector of the Nigerian economy was relatively insignificant even starting from independence in terms of its contribution to the gross domestic product (GDP). Most of the earliest manufacturing industries, established by the colonial trading companies and a handful of other international firms, concentrated on the production of light industrial commodities such as detergents soft drinks, leather work, textiles and confectionery (Olukoshi 1991). He went further to point out that the pre-owned post-colonial production policy occasioned distortions in the sector, which was as a result of neglecting research and an excessive reliance on foreign input. The manufacturing sub-sector is still characterized by distortions despite the adjustment programmes. This needs to be eliminated according to him if the sector is to experience substantial growth.

METHODOLOGY, HYPOTHESIS TO BE TESTED AND DATA GENERATION

For the essence of examining the effect of global economic meltdown on the manufacturing sector performance of the Nigerian economy, this study employed the structural regression model that is able to capture the performance of manufacturing sector before the global meltdown and during the meltdown. The major performance indicators expected to be shock response before the crisis and during the crisis includes: manufacturing production, direct foreign investment in manufacturing, bank lending rate, inflation rate, exchange rate, export, and world output prices. The production emanating from manufacturing sector is used as the dependent variable for the study. The models for the study are as specified below:

Model 1 - Before and during crisis together

$$LMGDP = \alpha_0 + \alpha_1 LDin + \alpha_2 LLR + \alpha_3 Lin + \alpha_4 Lexch + \alpha_5 Lexp + \mu \quad (1)$$

Pre-Crisis period from 2005 first quarter to 2006 last quarter

$$LMGDP = \beta_0 + \beta_1 LDin + \beta_2 LLR + \beta_3 Lin + \beta_4 Lexch + \beta_5 Lexp + \mu \quad (2)$$

Where

LMGDP = Log of Manufacturing GDP

LDin = Log of Direct Foreign Investment

LLR = Log of Lending Rate

Lin = Log of Inflation

Lexch = Log of Exchange Rate

Lexp = log of Export.

Crisis period: From 1st quarter of 2007 to last quarter of 2008

$$LMGDP = \pi_0 + \pi_1 LDin + \pi_2 LLR + \pi_3 Lin + \pi_4 Lexch + \pi_5 Lexp + \mu \quad (3)$$

The paper focused on manufacturing performance and the global economic downturn. The analysis was

carried out in both descriptive and empirical forms, the study made use of the OLS regression. In order to test for the stability of the variables the study also tested for unit root and error correction.

SOURCES OF DATA

- The study made use of secondary data sourced from:
1. CBN Annual Report and statement of account (various issues)
 2. CBN Statistical Bulletin (various issues)
 3. CBN Economic Survey.

DATA GENERATION

The data used for the regression analysis are quarterly time series data for the estimation of equations 1 – 3. The data were generated by interpolation

HYPOTHESIS TO BE TESTED

- H₀: Global Economic downturn has no significant impact on the performance of the manufacturing sector of the Nigerian economy.
 H₁: Global Economic downturn has significant impact on the manufacturing sector performance of the Nigerian economy.

DESCRIPTIVE ANALYSIS

Performance of the Nigerian Manufacturing Sector before the Global Crisis

How has the manufacturing industry been performing between 1980 -2002? This is the period before the economic meltdown. The true performance could be analyzed using the performance indicators. This is shown in the table below

Table 1: Performance Indicators

INDICATORS	1980	1985	1990	1992	1995	1997	2000	2001	2002
Mfg Share in GDP (%)	10.2	9.3	8.2	7.9	6.7	6.3	5.82	5.97	5.98
Share in total export (%)	0.22	0.06	0.46	0.30	0.25	0.31	0.34	0.26	38
Capacity utilization (%)	70.1	37.1	40.3	38.1	29.1	34.0	34.5	42.5	44.3
Share in total import (%)	60.3	68.2	73.7	62.3	66.8	62.2	60.7	61.0	59.8
Manufacturing employment *(000)	294.2	335.2	340.1	271.3	241.1	211.6	209.8	201	196.0
Share in total employment (%)	17.0	18.2	10	8.1	6.1	5.1	4.2	4.0	3.93
Manufacturing GDP growth rate (%)	8.6	-20.3	8.8	4.8	-5.5	0.3	2.3	2.9	3.0
Real GDP growth rate	2.5	-9.4	8.2	3.0	2.2	3.2	3.9	4.2	3.27

Source: CBN Annual Reports (various issues) FOS Statistical Bulletin (various issues) Trade Statistics (various issues)

Table 2: Percentage Share of Manufacturing In GDP, Exports and Imports (Nigeria)

YEAR	SHARE IN GDP	SHARE IN EXPORTS	SHARE IN IMPORTS
1970	7.2	7.4	72.9
1975	5.6	1.09	76.5
1980	5.4	0.28	69.0
1985	10.7	0.52	60.2
1990	8.1	0.51	67.7
1995	6.8	0.70	54.8
1996	6.5	0.40	54.6
1997	6.3	0.70	57.4
1998	6.2	1.70	57.0
1999	5.73	1.73	57.1
2000	5.59	1.61	57.2
2001	5.57	1.76	58.0
2002	5.98	1.69	57.9

Source: CBN Annual Reports (various issues) FOS Statistical Bulletin (various issues)

Table 3: Average Growth Rates of Nigerian’s Exports (%)

CATEGORY	1981-85	1986-90	1990-95	1996-2000
1. Oil	-7.76	33.55	-24.47	.10
2. Non-Oil	-5.06	7.14	-39.83	-6.09
2.3 Manufactured Goods	-32.96	170.30	-43.43	-3.58
3. Miscellaneous items	18.44	-16.39	-36.31	-6.64
TOTAL	-7.68	32.19	-25.10	8.24

Source: Computed From FOS Trade Statistics (Various Issues) 1980 - 2002

All indicators points towards declining performance. This shows that the manufacturing industry in the Nigerian economy even before global meltdown was already a sick baby. One would expect the manufacturing to be at a comma during the meltdown. The state of the manufacturing industry during the meltdown period could also be analyzed using the critical performance indicators to judge. This analysis was carried out in the second section below.

Effect of Global Economic Downturn on Manufacturing Sector

The world global meltdown affected the whole world economy. The degree of the impact varied from economy to economy. This impact depends on the movement of world incomes, prices inflation and the terms of trade. The global economy without any doubt experienced serious turmoil especially in the year 2007, 2008, 2009, and even till now. World inflation rates was on the increase, caused by the surge in food and fuel prices. Global trade decline in 2008, while the foreign exchange market experienced instability as major currencies experienced weaknesses.

The global trade decline and net commodity importers suffered. There is a downward trend in economic activities in the advanced economies. World export demand was weak. There is decline in the demand from Western Europe.

But in the Nigerian economy there is an increase in the domestic demand. There is a positive terms of trade. High international commodity prices benefited net commodity exporters. The impact of all these could be analyzed using the performance indicators as shown below.

Table 4: Index of Manufacturing Production

YEAR	MFG	ALL SECTORS	MFG CU
2004	90	122	46
2005	90	122	49
2006	90	121	45
2007	90	121	53.5
2008	91	117	53.9

Source: Cement industry contributed to the improved performance in 2008

Table 5: Sectoral Growth Rate of Gross Domestic Product

YEAR	AGRIC	MFG	INDUSTRY
2004	6.5	10	4.2
2005	7.1	9.6	1.7
2006	7.4	9.4	-2.5
2007	7.2	9.6	-2.2
2008	6.5	9.3	-2.2

Source: Computed From FOS Trade Statistics (Various Issues)

During this period of world economic meltdown, one would have expected a terrible blow on the manufacturing sector. But, the effect is more or less a neutral one, in the sense that between 2004 and 2009 there is an insignificant improvement in the performance of the manufacturing industry in terms of index of manufacturing production and capacity utilization and contribution to GDP.

The index of manufacturing production estimated in the CBN annual report at 91.2 (1990 = 100) increased by 2.3% above the level in 2007. The average capacity utilization rate in the sub-sector also increased from 53.5% in 2007 to 53.9% in 2008. This marginal improvement as stated by the CBN document was attributed to the improved performance in the cement industry. However, there is room for improvement in those areas that served as impediments to improved performance in the manufacturing sub-sector. These impediments include:

- i. Massive importation of manufactured goods.
- ii. Dumping and smuggling.
- iii. Importation of inferior goods.
- iv. Multiple taxes and levies.
- v. Administrative competence.
- vi. Inadequate access to credits etc

PRESENTATION OF RESULTS

The three models specified above, equations 1 – 3 were used to run the regressions for the study. These three equations comprises of the pooled data from 2005Q₁ to 2008Q₄, the pre-Crisis period i.e. 2005Q₁,

to 2006Q₄ and the crisis period i.e. 2007Q₁ to 2008Q₄. The regression coefficients show very insignificant contributions to manufacturing performance, especially the pre-and during crisis periods (tables 7&8). Hence, relying on OLS alone might give spurious results; therefore, the variables were subjected to stationarity and error correction tests. In order to achieve this aim, only the pooled data is adequate in terms of number of observations. The pre-crisis and crisis period cannot be tested for error correction effectively, because of limited observations.

However, the regression results for the pooled data, the pre-crisis period and the crisis period are shown in the appendix (tables 6-8) The pooled data regression gives a better result than the other two regressions (i.e. the pre-crisis and crisis period). The pooled data is used for the unit root test and the error correction test. The results of these are contained in tables 9 and 10 in the appendix.

DISCUSSION OF RESULTS

To test for the stationarity of the variables used, the study adopted the Dickey Fuller approach. This result is shown in table 9 in the appendix. None of the variables was stationary at level. All of them were differenced once or twice before achieving stationarity at 1% critical level. The error correction model was tested to show the long-run relationship between the variables used, and also to show the speed of adjustment, when there is a shock. The coefficients of the error correction model were used to test the impact of the global meltdown on the manufacturing performance in the Nigerian economy from 2005Q₁ to 2008Q₄ (Pooled data)

The results shows that capacity utilization rate (CU) Inflation rate (INF), Leading rate (LR) both shows a positive but not significant shock on the manufacturing sector performance in the Nigerian economy. The lending rate is positive and not significant; the direct foreign investment is significant in its impact on manufacturing performance but negative at 1% significant level. The f-statistic and the adjusted R-Squared results shows that the variables used are stable. The F-statistics stood at 28.33 and the adjusted R-square at 74% from the foregoing analysis, the results shows that the performance of the manufacturing sector is not significantly affected by the global meltdown. The performance followed the same pattern from 2005Q₁ to 2008Q₄. Though, one reason that could affect the result could be the shortness of the period examined. Also, the manufacturing sector of the Nigerian economy is not yet fully integrated into the world economy as a result the shock in the global market might not affect it significantly.

SUMMARY

This paper was able to analyze the position of the Nigerian economy both descriptively and empirically during and before the global meltdown.

Descriptively, the two years before the meltdown and two years into the meltdown were analyzed in quarterly time series (i.e. 2005Q₁ – 2006Q₄ and 2007Q₁ to 2008Q₄) and also empirically pooled data for the two periods were used in order to have reasonable observations (16). Descriptively, the performance of the Nigerian manufacturing was analyzed using the indices of performance such as (index of manufacturing production, manufacturing export, import, capacity utilization and share in total GDP) table 1. It was discovered that before the meltdown, all indicators of performance used shows a downward trend. The period during the meltdown shows some little insignificant improvement in some of the performance indicators such as manufacturing GDP, capacity utilization. The results of the empirical analysis from the pooled data from 2005Q₁ to 2008Q₄, based on the coefficients, does not really give a better result. Variables such as capacity utilization (CU), Inflation rate (INF), Lending rate (LR), both shows a positive but insignificant shock on the manufacturing performance. Only direct foreign investment was significant but negative in its impact on the manufacturing sectors performance.

CONCLUSION

From the analysis so far this paper was able to analyze the impact of global meltdown on the manufacturing performance in the Nigerian economy both descriptively and empirically. The descriptive analysis analyzed the performance of the manufacturing sector before and during the meltdown using quarterly time series data. The empirical analysis pooled the period from 2005Q₁ to 2008Q₄ in order to have a reasonable number of observations to run a meaningful regression. The results before the meltdown and during meltdown were not significantly different from each other. Also, the pooled data result gave identical outcome as compared to the before and during meltdown in the sense that the global meltdown does not significantly affect the manufacturing sector performance in Nigeria. This outcome was based on the magnitude and the level of significance of the coefficients, the adjusted R-squared and the F-statistics.

POLICY RECOMMENDATION

The paper discussed the performance of the manufacturing sector before and during economic meltdown. The paper discovered that the performance of this sector before and during the meltdown are not significantly different from each other, hence there is need for government to pay particular attention to this very important sector of the economy. Since efficiency is very essential for economic growth and development, the government should do more to

focused her attention to this sector. Manufacturing industries are experiencing series of countries. Government should looked into these constraints. These constraints include

1. Inadequate financial support for the manufacturing sector.
2. Poor infrastructural facilities particularly, the epileptic power supply, whereby some of the manufacturers will have to provide their own generator the cost of diesel is enormous. All these will add to the unit price of their product, which will now make them not to compute effectively in the international market.

Massive importation of finished goods, smuggling and dumping of prohibited goods must also be checked. The sector must be free from multiple taxes and levies, in order to encourage production. Government need to support manufacturing sector in the area of:

1. Given lower interest for borrowing.
2. Certain incentives for the use of local raw materials.

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APPENDIX

Table 6: Regression Result for the Pooled Data for the Pre- Crisis and During the Crisis Periods (2005Q₁ – 2008Q₄)

Dependent Variable: IMP				
Method: Least Squares				
Date: 05/09/10 Time: 02:27				
Sample: 2005: 1 2008:4				
Included Observations: 16				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTICS	PROB.
C	101.6018	8.662061	11.72951	0.0000
CU	-0.151227	0.100062	-1.511334	0.1616
INF	0.025258	0.091274	0.276726	0.7876
EXR	-0.034370	0.080097	-0.429107	0.6769
LR	-0.251922	0.252924	-0.996037	0.3427
DFI	0.148320	0.251764	0.589125	0.5688
R-Squared	0.295751	Mean dependent Variable		91.06250
Adjusted R-Squared	-0.056374	S.D. dependent Variable		1.340087
S.E of Regression	1.377342	Akaike Info Criterion		3.758185
Sum of Square resid.	18.97072	Schwartz Criterion		4.047906
Log likelihood	-24.06548	F-statistic		0.839903
Durbin – Watson Stat.	2.556358	Prob.(S-F-statistic)		0.550851

Table 7: Regression Result For The Crisis Period (2005Q₁ – 2006Q₄)

Dependent Variable: IMP				
Method: Least Squares				
Date: 05/10/10 Time: 00:32				
Sample: 2005Q1: 2006Q4				
Included Observations: 16				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTICS	PROB.
C	98.01968	20.67634	4.740669	0.0417
CU	-0.092074	0.134115	-0.686536	0.5633
INF	0.042696	0.274275	0.154526	0.8906
EXR	0.017509	0.113307	0.154526	0.8914
LR	0.255593	0.698031	0.366163	0.7493
DFI	-0.258936	0.513844	-0.503920	0.6643
R-Squared	0.409085	Mean dependent Variable		90.75000
Adjusted R-Squared	-1.068201	S.D. dependent Variable		0.886405
S.E of Regression	1.274761	Akaike Info Criterion		3.437100
Sum of Square resid.	3.250031	Schwartz Criterion		3.496681
Log likelihood	-7.748400	F-statistic		0.276917
Durbin – Watson Stat.	2.395591	Prob.(S-F-statistic)		0.892963

Table 8: Regression Result for the Crisis Period (2007Q₁ – 2008Q₄)

Dependent Variable: IMP				
Method: Least Squares				
Date: 05/10/10 Time: 09:05				
Sample: 2007Q ₁ : 2008Q ₄				
Included Observations: 8				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTICS	PROB.
C	29.90110	34.11049	0.876596	0.4732
CU	0.295476	0.242711	1.217399	0.3476
INF	0.949127	0.430057	2.206978	0.1580
EXR	-0.335824	0.274476	-1.223510	0.3457
LR	0.242829	0.423698	-0.573118	0.6244
DFI	2.342268	0.863457	2.712662	0.1133
R-Squared	0.868905	Mean dependent Variable		91.37500
Adjusted R-Squared	0.54168	S.D. dependent Variable		1.685018
S.E of Regression	1.141382	Akaike Info Criterion		3.216063
Sum of Square resid.	2.605508	Schwartz Criterion		3.275644
Log likelihood	-6.864253	F-statistic		2.651228
Durbin – Watson Stat.	2.799309	Prob.(S-F-statistic)		0.296229

Table 9: Unit Root Test

VARIABLE	ADF VALUE	MACKINNON CRITICAL VALUE AT 1%	NO. OF DIFFERENCE
IMP	-4.69973	-4.2207	2
CU	-5.027321	-4.0681	1
INF	-6.426293	-4.0661	2
EXR	-5.875496	-4.0681	2
LR	-6.378307	-4.0681	2
DFI	-7.020438	-4.0681	1

Table 10: Error Correction Model Manufacturing Sector

Dependent Variable: IMP				
Method: Least Squares				
Sample: (Adjusted (2005Q ₁ : 2008Q ₄				
Included Observations: 15 after adjusting endpoints				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTICS	PROB.
C	78.2	15.4	5.2	0.01
CU	0.3	0.1	1.2	0.11
INF	0.2	0.1	1.9	0.15
EXR	0.06	0.1	0.5	0.63
LR	0.7	0.4	1.4	0.13
DFI	-0.55	0.3	-2.1	0.13
ECM (-1)	-0.044	0.1	-0.4	0.71
R-Squared	0.85	Mean dependent Variable		91.30000
Adjusted R-Squared	0.74	S.D. dependent Variable		18.49444
S.E of Regression	1.00	Akaike Info Criterion		6.039069
Sum of Square resid.	-8.12	Schwartz Criterion		28.32742
Durbin – Watson Stat.	2.18	Prob. (statistic)		0.002109