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NATURAL RESOURCES, CONFLICT AND GROWTH: UNCOVERING THE TRANSMISSION MECHANISM

Shahida Wizarat

Director Research, Chief Editor Pakistan Business Review & HOD Economics, Institute of Business Management (IOBM), Karachi, Pakistan

ABSTRACT

Using panel data and GMM estimators for the developed countries (DCs) and the less developed countries (LDCs) we find a positive and significant impact of conflict on DC GDP and a negative and significant impact on LDC GDP during the period 1980-2009. Our result on conflict is robust irrespective of model specification and country categorization. Both fuel and ores and minerals have a positive and significant impact on GDP in the LDCs in some specifications contradicting the predominant 'resource curse' view. While openness has a negative and significant impact on GDP in the LDCs. Government expenditure has a negative and significant impact in DCs in one specification, which is an interesting finding in view of the social expenditure reductions in the DCs post 9/11. The use of panel data ensures that non-stationarity of the variables is not a problem and the use of GMM estimators yields estimates that are not biased on account of endogeneity.

Keywords: GDP, Conflict, Resource abundance, Resource curse, Dutch disease.

JEL Classification: F 54, C 33, O 47, Q 34.

1. INTRODUCTION

The present global scenario has rekindled interest on natural resources, conflict and growth issues. While according to a vast body of literature natural resources are a curse rather than a blessing, different explanations have been attributed as the likely causes. The Dutch Disease explanation has two variants: it may be via the low saving and investment route, e.g. Sachs and Warner (1997; 1999), Gylfason (2001; 1999), Gylfason and Zoega (2003), Barbier (2002), Auty (2007), etc. Or, alternatively, it may be via the exchange rate mechanism, as for example in Corden and Neary (1982), Gylfason (1999). Some studies have emphasized the negative impact emanating from rent seeking and poor governance, and include Auty (2001), Torvik (2002), Gylfason and Zoega (2006). While there is a whole body of literature that attributes the slow growth of resource abundant economies to the absence of the rule of law, property rights on

account of institutional decay, etc. Notable among these are Vijayaraghavan and Ward (2001), Murshed (2004), Bulte *et al.* (2005), Mehlum *et al.* (2005; 2006a; 2006b), Olsson (2005; 2006), Arezki and Ploeg (2006). Conflict has also been found to be an important factor in resource abundant economies, as for example Easterly and Levine (1997), Collier and Hoeffler (1998; 2003; 2004), Ross (2002), Mejia (2004), Koubi (2005), Humphreys (2005), Lindgren (2006), etc.

Sachs and Warner (1997) explored whether natural resource abundance gives rise to the Dutch disease by looking at the annual growth rates of a sample of 95 developing countries during 1970-90 using natural resource-based exports as a percentage of GDP. They state that the rate of growth of natural resource abundant countries is lower due to the direct impact emanating from rent-seeking, corruption and poor governance, and the indirect impact through reduction in investment demand. Moreover, resource wealth in developing countries leads to protectionist policies. This results in lowering investment and growth rates. Moreover, Sachs and Warner state that in resource abundant countries the quality of institutions is poor. In a later study Sachs and Warner (1999) explored whether natural resource booms are beneficial as per the predictions of the Big Push theory. Using Hirschman (1958) backward and forward linkages, they state that natural resource booms result in slower growth rates since revenues from booms are mostly consumed rather than invested. The authors report that the resource boom had a positive impact on per capita income in Ecuador, while in Bolivia, Mexico, Peru and Venezuela the per capita income actually declined both before and after the boom, while Chile and Columbia were unaffected by the boom.

Anderson (1998) compared world's fastest growing economies like Japan, Hong Kong, Singapore, Taiwan, South Korea and China, which are densely populated and have scarce natural resources and agricultural land with land abundant countries like Argentina, Australia and New Zealand and Sub-Saharan African countries. He attributed the negative and statistically significant relationship between GDP growth rates and natural resource endowments to "riches leading to sloth."

Anderson resorted to the Prebisch-Singer theories of decline in the terms of trade of resource abundant economies due to low income and price elasticity of demand for their products. He says only a small part of the poor growth performance of resource abundant countries is attributable to declining terms of trade for primary exporters. And that the more important causes of the poor performance are Adam Smith and David Ricardo's externalities in manufacturing and Marshall's increasing returns as compared with decreasing returns in primary production. The author concluded that the major causes of the relatively slow growth of resource abundant countries are not declining terms of trade, positive spillovers, or protectionism abroad, but distortions. And the removal of these distortions in Australia and New Zealand elevated them from poorest-performing countries to best-performing countries.

Gylfason (1999) attributed the resource curse to the second variant of the Dutch Disease model. In a two-sector model with tradable and non-tradable goods, an appreciation of the domestic currency in real terms lowers the price of tradable output, causing reduction in investment, learning and growth. Stijns (2000) asked how resource rich Britain, Germany and US became world leaders

in industrial production, while other resource abundant countries have lower growth rates? He stated that the formulation of a well-defined property rights system ensures that natural resource boom does not lead to a war of attrition. But the lack of such a system, results in rent seeking, income inequality, lack of consensus on economic policy formulation, etc. He stated that fuel and mineral abundance has not been an important determinant of growth. He stated that while the impact of natural resources can be positive or negative, but oil, gas and land abundant countries suffer from the Dutch Disease, while for coal the evidence is mixed.

Auty (2001) attributed the good performance of resource-poor countries to their being developmental states, while most resource-abundant countries are predatory states. Ding and Field (2005) explained the variations in average annual growth rates in per capita GDP during 1970-90 by using initial GDP, investment rate, openness, rule of law, changes in terms of trade, resource dependence and resource endowments as explanatory variables. In single equation estimates resource dependence has a significant negative impact on growth, but re-estimation of the equation by the use of a recursive model resource dependence and resource endowment does not have a significant impact on growth. All the other variables like human capital and physical capital have a positive and significant impact on growth.

But more recent research contradicts this consensus view. Using cross sectional data, Lederman and Maloney (2007) did not find support for a negative relationship between natural resources abundance and economic growth. Export concentration measured by the Herfindahl index and natural resource exports as a percentage of total exports had a negative impact on growth, which is extremely robust in cross sectional data, but not in panel data. Lederman and Maloney, therefore, refute the resource curse hypothesis.

Brunnschweiler and Bulte (2008a; 2008b) challenged the resource curse view by pointing out that the ratio of natural resource exports to GDP is actually a measure of resource dependence rather than resource abundance. They state that the denominator of the proxy is determined by government policies and institutions, and is, therefore endogenous and cannot be used as an exogenous variable. After correcting for this problem, the authors find that natural resources are actually a blessing rather than a curse. And this is corroborated in Brunnschweiler and Bulte (2008a) where both OLS and 2SLS estimates reveal that mineral reserves had a positive impact on real GDP growth during 1970-2000, even when institutional quality is controlled. The authors do not find resource abundance impacting negatively on institutional quality through rent seeking and conclude that natural resource abundance is not a curse, but a boom.

We find that in most of the studies reviewed above the causes of slow growth of resource abundant economies have been attributed to internal rather than external factors. Although colonial powers looted and plundered natural resources of Latin American, Asian and African countries and continue to do so today, the impact of the external factor on the growth rate of resource abundant countries has not received the attention that it deserves. Arezki and Ploeg (2006), Humphreys (2005), Travaglianti (2006) are among the very few studies that incorporate the impact of the external factor. Travaglianti (2006) stated that countries are amenable to political, economic and

financial domination by their former colonial masters. And Humphreys (2005) "greedy outsiders mechanism"[12] stated that natural resources are an incentive for third parties, i.e. corporations and states to bring about conflict. He gave the example of the escalation of civil war in the Democratic Republic of Congo as a result of the involvement of the country's neighbors, on account of the country's natural resources. Humphreys pointed out that the secessionist movement in Congo was supported by the Belgian firm Union Miner du Haut Katanga and escalated as a result of French oil corporation Elf [13].

Propounding the "domestic conflict premium mechanism" Humphreys says groups that benefit from conflict are more interested in fighting rather than winning, i.e. spoilers to peace. Explaining the "weak state mechanism" Humphreys said that states dependant on natural resources rather than taxation have weak state structures and are unable to withstand threats. He stated that natural resources affect conflict through impacting on state capacity, i.e. lootable resources lead to conflict, and its impact is determined by state strength. Countries dependent on agricultural commodities are at risk irrespective of their oil and diamond endowments. He also found strong evidence to support the weak state structure rather than state capture hypothesis.

In their study of 54 large civil wars Collier and Hoeffler (2004) stated that the higher the share of primary commodity exports in GDP the higher the risk of conflict. Countries where the share of primary commodities in GDP is between 10 – 25 %, the risk of civil war increases by 11 – 29 % during the next five years, when other variables are held constant. And at high levels of per capita income, the risk of civil war is unlikely irrespective of the natural resource endowments of the country. Ross (2004) stated that oil dependence is linked to conflict initiation rather than conflict duration, while gemstones, opium, coca and cannabis are not linked to conflict initiation, but to its duration. While agricultural commodities are neither linked to conflict initiation nor its duration.

Koubi (2005) studied the consequences of inter and intra state wars on economic growth for a cross-section of countries for the period 1960-89. The study showed that cross-country differences in economic growth are systematically related to severity and duration of war. The author reported that countries engaged in severe and prolonged war performed poorly, but the effect of war through postwar economic reconstruction has a positive impact on account of growth-enhancing post war reconstruction. The study showed that an increase in war duration by 10% causes the average growth rate to increase by 2.1% [14].

Articulating the transmission mechanism between conflict and growth, Mejia (2004) emphasized the diversion of resources from productive to unproductive activities. He studied the impact of conflict on investment in physical and human capital accumulation and the positive relationship between military expenditure and economic growth, via increase in productivity to infrastructure development, human capital formation and discipline[11]. The author recognizes that while there is consensus on the negative effect of conflict on economic growth, the channels through which conflict affects development are very diverse. Most researchers have attributed this to the diversion of resources to non-productive rent seeking activities; others emphasize the destruction of capital and wealth that comes with violent conflict. This gives rise to insecurity,

rising interest rates, reduction in investment and crowding out resources on account of military expenditures.

In an unpublished study (Wizarat, forthcoming) provides a comparative analysis of growth rates of natural resource abundant and scarce countries. The rate of growth of GDP of resource rich countries was in conformity with the predictions of the resource curse literature for the 1980s only. While during the decades of the 1990 and 2000 the rates of growth of resource rich countries have been higher than the rates of growth of resource scarce countries. The rate of GDP growth of resource scarce countries at 2.96 percent was higher than the rate of growth of top oil and gas exporting countries at 2.05 percent and the rate of growth of ore and mineral rich countries at 2.70 percent during the 1980s. But the rate of growth of resource scarce countries at 3.50 percent was much less than the rate of growth of the top oil and gas exporting countries at 4.68 percent and mineral and ore rich countries at 3.89 percent during the 1990s. The same trend continued during the 2000 decade, with natural resource scarce countries GDP increasing at the annual average rate of 3.78 percent compared with the GDP growth rate of 5.23 percent for top oil and gas exporting countries and 4.30 percent for ore and mineral rich countries. The study, therefore, refutes the predictions of the resource curse literature for the last two decades.

Wizarat states that of the high performing countries during the last three decades at least thirteen were resource rich. They were not afflicted by the 'resource curse', till such time that they got involved in conflicts, as is borne out by the experience of Congo, Indonesia, Iraq, etc. The study concludes that the resource curse literature with its heavy emphasis on the Dutch Disease, rent seeking, dysfunctional institutions and civil wars, focus on the internal dimensions of the problem. And without taking the external dimension of the problem into cognizance, it is not possible to explain the growth performance of countries.

And finally, many studies e.g. Vijayaraghavan and Ward (2001), Murshed (2004), Bulte *et al.* (2005), Mehlum *et al.* (2005; 2006a; 2006b), Olsson (2005; 2006), Arezki and Ploeg (2006) have shown that natural resources are a blessing for countries that have developed their institutions. While institutions are certainly very important for economic development, they might also be acting as a proxy for some other variable. Since the same countries that have well developed institutions are also militarily strong. Institutions might, therefore, be acting as a proxy for military might.

Similarly, in Collier and Hoeffler (2004) where the share of primary commodity exports in GDP increases the risk of conflict and higher level of per capita income reduces the onset of conflict, both the variables might be acting as proxies for other variables. That is, higher share of primary commodity exports in GDP might be acting as a proxy for military weakness and higher per capita income level acting as a proxy for military strength.

2. MODEL FORMULATION AND DATA SOURCES

Several explanatory variables affect GDP differently in the DCs as compared with the LDCs, as most of the studies find the impact of natural resources on growth to be positive in the DCs and

negative in the LDCs. Similarly, conflict can have a destabilizing effect on growth in the LDCs on account of death, destruction, loss of infrastructure, uncertainty, etc. But since post world war II most conflicts do not take place in rich countries, their work force and infrastructure is not affected as a result of conflict. On the other hand, conflicts increase the demand for armaments, and since arms constitute a large component of the GDP in the developed world (Kidron, 1967), increase in conflict through increasing arms export increases GDP in the DCs. On account of these differential impacts emanating from many of our explanatory variables to the dependant variable, we will estimate the models separately for the DCs and the LDCs. The list of countries in the two groups are contained in Appendices 1 and 2.

We are not aware of any studies that have incorporated conflict as an independent variable in a production function framework. For reasons stated earlier, we expect conflict to have a positive impact on growth in the DCs on account of increase in GDP through increase in armament exports by the DCs and a negative impact on growth in the LDCs on account of death, destruction of infrastructure, instability, etc in the latter. Our conflict variable is in terms of world deaths in conflicts and has been taken from Leitenberg (2006)[1] for the period 1980-2006, while for latter years the conflict data have been obtained from the Encyclopedia of the Nations.

In the production function in equation (1) the dependant variable GDP is Gross Domestic Product in constant (year 2000) US $s. Labour depicted by HR is measured by the percentage of secondary school enrolment in total enrolment. Capital is measured in terms of gross fixed capital formation in constant dollars in the year 2000 and is denoted by CAP. The impact of government expenditure on growth, measured in constant US$ in the year 2000, is the percentage of final government consumption as a percentage of GDP and is denoted by GEX. Trade openness or OPEN is exports + imports as a percentage of GDP. These data have been taken from World Development Indicator (WDI) CD ROM 2009, 10 and 11.

Like Brunnschweiler and Bulte (2008a) our natural resource variable is oil, gas and coal production and not export of these as a percentage of GDP. Our estimates should therefore be free of biases due to bi-directional causality from the explanatory variables to the dependant variable. Coal and oil production in million tons have been taken from BP Statistical Review of World Energy 2009, while gas production given in the World Development Indicators (WDI) was in billion cubic meters, the latter was converted into million cubic meters. This variable is denoted by FUEL. While ore and metals are export of ores and metals/GDP for individual LDCs obtained from the WDIs. Although this variable is expressed as a ratio of GDP, it will not give biased estimates on account of endogeneity,[2] as we are using Generalized Method of Moments (GMM) option in Eviews 6 and 7,[3] instead of OLS.

[1] Deaths in Wars and Conflicts in the 20th Century, Leitenberg (2006).

[2] These are discussed in detail in Bond (2002). Blundell and Bond (1998; 2000).

[3] Pedroni test for cointegration can be applied by using Eviews 6 and 7, but the software does not have the Fully Modified Ordinary Least Squares. We will, therefore, confine ourselves to estimating the equation by the use of GMM.

Incorporating these variables, we write equation (1) as follows:

GDP it = α ot + α 1 HR it + α 2 CAP it + α 3 GEX it + α 4 OPEN it + α 5 CON + α 6 FUEL it + μ it -------(1)

where

GDP = Gross Domestic Product (GDP)

HR = Human resources

CAP = Gross fixed capital formation.

GEX =Final government consumption / GDP)*100.

OPEN = Trade Openness i.e. (Exports + Imports / GDP) * 100

CON = Conflict measured by world deaths in conflicts

FUEL = Production of oil, gas and coal.

μ it = error term

Writing the equation in estimable form gives equation (2)

Ln (GDP it) = α ot + α 1 Ln (HR it) + α 2 Ln (CAPit) + α 3 Ln (GEX it) + α 4 Ln (OPEN it) + α 5 Ln (CON it) + α 6 Ln (FUEL it) + μ it ---------- (2)

Where Ln refers to natural logs.

We will estimate equations (2) using data for DCs and LDCs for the period 1980- 2009.

3. EMPIRICAL FINDINGS

Having specified the model and data sources in the previous section, and as stated earlier, we opted for the Generalised Method of Moments (GMM) option in Eviews 6 and 7[4] since OLS estimates are inappropriate in the presence of endogeneity. As we are using panel data techniques, the non-stationarity of the variables is not a problem as pointed out by Garcia and Peron (1996) and the prior application of the unit root test is not necessary. We used panel data for 97 countries for the period 1980 to 2009.

In Table 1 we report panel data GMM estimates for the DCs for the period 1980-2009 by estimating equation 2. We find that the coefficient for physical capital is large and significant at the 100 percent confidence level, whereas the coefficient for human capital is negative but insignificant. Government expenditure is positive and significant at the 6 percent level, while natural resources and openness have positive though insignificant impacts. The really interesting finding is that conflict captured by world deaths has a positive and significant impact on rich countries output. We find that one percent increase in world conflict increases DC GDP by 7.7

[4] Pedroni test for cointegration can be applied by using Eviews 6 and 7, but the software does not have the Fully Modified Ordinary Least Squares. We will, therefore, confine ourselves to estimating the equation by the use of GMM.

percent. The R-square is almost 73 percent, reflecting that 73 percent of the variations in rich countries GDP are explained by the model.[5]

In Table 2 we have presented panel data GMM estimates for the LDCs. We find that both physical and human capital have large and highly significant impacts on LDC GDP. Government expenditure also has a positive impact, although it is not significant at any of the conventional levels. Openness has a negative and significant impact on GDP in the LDCs, reflecting that liberalization is adversely impacting LDC economies. While the contribution of fuel is positive and significant, contradicting the predominant 'resource curse' view discussed in section 2. And the really interesting finding is that conflict has a negative and significant impact on GDP in the LDCs.[6] Our results reveal that one percent increase in world conflict results in decline in LDC GDP by 3.8 percent.

The intriguing finding on the positive contribution of the natural resource variable led us to add ores and minerals to the estimating equation. These estimates for LDCs are contained in Table 3. We find a very large contribution of human capital which is highly significant, while physical capital is also exerting a positive and significant impact on GDP in the LDCs. Government expenditure is also positive, but the positive and highly significant contribution of both fuel and ores and minerals corroborates our earlier estimates. It corroborates Wizarat (forthcoming) that from the 1990s onwards natural resource abundant countries were able to maintain their high growth performance, unless they got bogged down with conflicts resulting in declining rates of growth.[7]

4. CONCLUSION

Our finding that natural resources are not a curse is in agreement with the findings of Lederman and Maloney (2007), Arezki and Ploeg (2006), Brunnschweiler (2007) and Brunnschweiler and Bulte (2008a; 2008b). We find that the transmission mechanism of resource abundance on output is via conflict. It is only when high performing countries are engaged in conflict that their performance nose dives. These findings lend support to Gylfason and Zoega (2006) who observed that Botswana had a remarkable growth performance due to the absence of conflict and Sierra Leone remained poor as it remained bogged down with conflict. Our stance that the transmission mechanism is via conflict supports Arezki and Ploeg (2006), Boschini *et al.* (2007), Mejia (2004), Koubi (2005) and Collier and Hoeffler (1998; 2004) stances that increase in

[5] Changing the specification of the dependant variable to per capita GDP and including initial GDP we re-estimated the model using panel data and GMM estimators for the DCs. We find that the magnitude and significance level of the conflict coefficient increases substantially in this specification.

[6] Change in model specification for the LDCs causes the conflict coefficient to become larger while remaining negative and significant at the one percent level.

[7] Removal of China and Russia from the LDC category and their inclusion in the DC category does not make much difference to the results of both the groups.

defense capabilities of a country reduces conflict. Our findings on conflict reveal that one percent increase in world conflict causes GDP in LDCs to decline by 3.8 percent, while the same increase in world conflict causes a 7.7 percent increase in GDP in the rich countries. These are very important findings as they lend support to the Marxist view that death and destructions in the developing countries brings prosperity to the rich countries.

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APPENDIX 1

List of DCs

1	Australia
2	Austria
3	Belgium
4	Canada
5	Denmark
6	Finland
7	France
8	Germany
9	Hungary
10	Iceland
11	Ireland
12	Italy
13	Japan
14	New Zealand
15	Norway
16	Spain
17	Sweden
18	Switzerland
19	United Kingdom
20	United States

APPENDIX 2

List of LDCs

1	Algeria	32	Guatemala	63	South Africa
2	Antigua and Barbuda	33	Guinea-Bissau	64	Sri Lanka
3	Argentina	34	Guyana	65	St. Vincent and the Grenadines
4	Azerbaijan	35	Honduras	66	Sudan
5	Bangladesh	36	Hong Kong, China	67	Swaziland
6	Belize	37	India	68	Syrian Arab Republic
7	Benin	38	Indonesia	69	Thailand
8	Bolivia	39	Jordan	70	Togo
9	Bosnia and Herzegovina	40	Kenya	71	Trinidad and Tobago
10	Botswana	41	Korea, Rep.	72	Tunisia
11	Brazil	42	Lesotho	73	Uruguay
12	Bulgaria	43	Luxembourg	74	Venezuela
13	Burkina Faso	44	Madagascar	75	Zambia
14	Cameroon	45	Malawi	76	Zimbabwe
15	Chad	46	Malaysia	77	Russian Federation
16	Chile	47	Mali		
17	China	48	Mauritania		
18	Colombia	49	Mauritius		
19	Cameroon	50	Mexico		
20	Congo, Dem. Rep.	51	Morocco		
21	Costa Rica	52	Mozambique		
22	Cote d'Ivoire	53	Namibia		
23	Dominican Republic	54	Nicaragua		
24	Ecuador	55	Nigeria		
25	Egypt, Arab Rep.	56	Pakistan		
26	El Salvador	57	Panama		
27	Ethiopia	58	Paraguay		
28	Gabon	59	Peru		
29	Gambia	60	Philippines		
30	Ghana	61	Rwanda		
31	Greece	62	Senegal		

Table-1. Panel Data GMM Estimates for DCs (1980-2009) (Eq. 2 Estimates)
Dependent Variable: GDP
Method: Panel Generalized Method of Moments
Sample: 1980 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.423910	1.532308	-0.929258	0.3531
HR	-0.002954	0.042190	-0.070024	0.9442
CAP	0.716651	0.128581	5.573534	0.0000
FUEL	0.019420	0.048760	0.398283	0.6906
OPEN	0.138681	0.118375	1.171542	0.2419
CON	0.076831	0.044863	1.712562	0.0873
GEX	0.341691	0.123935	2.757015	0.0060

R-squared	0.726942	Mean dependent variable	26.36642
Adjusted R-squared	0.724156	S.D. dependent variable	1.960663
S.E. of regression	1.029758	Sum squared residuals	623.5157
Durbin-Watson statistics	1.022636	J-statistic	1.50E-15
Instrument rank	7		

Table-2. Panel Data GMM Estimates for LDCs (1980-2009) (Eq. 2 estimates)
Dependent Variable: GDP
Method: Panel GMM EGLS (Cross-section weights)
Sample: 1980 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.73054	0.298933	52.62224	0.0000
HR	0.799173	0.026071	30.65396	0.0000
CAP	0.249757	0.011016	22.67197	0.0000
FUEL	0.154803	0.009619	16.09408	0.0000
OPEN	-0.128882	0.034179	-3.770746	0.0002
CON	-0.038443	0.014845	-2.589578	0.0097
GEX	0.009362	0.008668	1.080080	0.2802

Weighted Statistics

R-squared	0.701922	Mean dependent variable	67.06314
Adjusted R-squared	0.701104	S.D. dependent variable	59.90265
S.E. of regression	2.645572	Sum squared residuals	15299.92

Table-3. Panel Data GMM for LDCs 1980-2009
Dependent Variable: GDP
Method: Panel GMM EGLS (Cross-section weights)
Sample: 1980 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.26630	0.311208	52.26823	0.0000
HR	0.823482	0.026152	31.48782	0.0000
CAP	0.238209	0.010784	22.08840	0.0000
FUEL	0.074078	0.007292	10.15931	0.0000
O&M	0.063366	0.009306	6.809278	0.0000
OPEN	-0.177941	0.036595	-4.862440	0.0000
CON	-0.049341	0.015523	-3.178507	0.0015
GEX	0.012878	0.008171	1.575979	0.1152
Weighted Statistics				
R-squared	0.643721	Mean dependent variable		65.03803
Adjusted R-squared	0.642579	S.D. dependent variable		53.49391
S.E. of regression	2.612276	Sum squared residuals		14903.59
Durbin-Watson statistics	0.205169	J-statistic		2.15E-18
Instrument rank	8.000000			