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An Empirical Study of Inter-sectoral Linkages and Economic Growth

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ABSTRACT

The structural changes of an economy entail that in the long run, the dynamics of sector shares (industrial, agricultural and services) are related to each other and to economic growth as well. In this study, the hypothesis that there is a long-term relationship between agricultural growth and other economic sectors growth is tested for the case of Iran, using autoregressive distributed lag model (ARDL) and variance decomposition analysis also. The time series data consists of data for the period 1959-2010. The results indicate that the long run relationship exists when the variables gross domestic product (Y), industrial value added (IN), agricultural value added (AG), services value added (SS) and oil and gas value added (O and S) remain to be dependent variables. The long run elasticity also shows that one percent increase in value added of IN, AG, SS and Oil and Gas, will cause the gross domestic product to increase by 0.216, 0.091, 0.431 and 0.156 percent respectively.

Key words: Agricultural sector, economic growth, value added, ARDL, gross domestic product

INTRODUCTION

The neoclassical growth approach is based on the view that the structural change is an unimportant side effect of the economic development (Cristina, 1997). On the other side economists associated with the World Bank, including Kuznets (1971), Rostow (1971), Chenery and Syrquin (1975) and Baumol *et al.* (1989) claim that growth is brought by the changes in economy's sectoral composition (Linden and Mahmood, 2007). As far as the case of developing countries is concerned, there is a general agreement that poverty is widespread and prevalent in developing countries and the focus of poverty reduction strategies has been on agricultural growth as the pathway out of extreme poverty (Babatunde, 2008). In this regard, agriculture plays an important role in economic development, such as provision of food to the nation, enlarging exports, transfer of manpower to non-agricultural sectors, contribution to capital formation and securing markets for industrialization (Shadmehri, 2008). The need to provide food to meet the growing demand of increasing population necessitates adoption of sectoral inter-relationship strategy (Sulaiman and Ja'afar-Furo, 2010). For instance, that is reported that the present world population of over 6.5 billion rising from 2.5 billion in 1950 is estimated to reach 8.9 billion by the year 2050 (Ochi and Toro, 2007). In the past the role of agriculture in economic development has been recognized by many authors (Johnston and Mellor, 1961; Hayami and Ruttan, 1985). They found that agricultural growth is determined by the level of technology as well as the level of efficiency that is associated with the utilization of given technology (Piya *et al.*, 2012). For many reasons the inter-sectoral linkages is proven to be effective in the case of agricultural activities since they have

got strong, direct forward linkages to agricultural processing and backward linkages to input-supply industries (Johnston and Mellor, 1961). Now a day for many developing economies a large share of manufacturing in the early stages of development is agriculturally related (Pryor and Holt, 1999; Gemmell *et al*., 2000).

The main objective of the research is to model the dynamic relationship between agricultural sector growth and other economic sectors growth (i.e., industrial, services and oil and gas sector growth) and economic growth of Iran; using the advanced co-integration technique (ARDL) for the period 1959-2010. The economy of Iran is a transition economy with a large public sector and an estimated 50% of the economy is centrally planned. With respect to natural endowments, Iran is the second largest oil producer following Saudi Arabia among the Organization of the Petroleum Exporting Countries (OPEC) members and also posses the second largest natural gas reserves globally, following Russia. Major part of total exports (80%) and government revenue (60%) in 2010, is dominated by oil and gas sector products (Qazavi, 2009). Economic activities are primarily dominated by industrial sector activities, including oil and gas, petrochemicals, steel, textile and automotive manufacturing which represent about 45% of the GDP. The services sector accounts for another 43% of the GDP and finally, Agricultural sector accounts for the rest 12% of the GDP and continues to be one of the economy's largest employers; representing one-fifth of all jobs (Ilias, 2010). At present Iran's territory consists of 30 provinces which are governed by a local centre, usually the largest local city. Provincial authority is headed by a governor (Ostandar), who is appointed by the Minister of Interior, subject to approval of the cabinet. Regional planning is directed through the budgeting system which is annually proposed by the central government and approved by the parliament (Sepehrdoust, 2009).

The interaction between Agricultural growth and sectoral growth is extensively studied in developing countries on the theoretical and empirical grounds. For example Lewis model (1954), provides pioneer theoretical literature on interaction between agricultural and industry in economy. He states that agriculture sector provides input raw material, surplus labor and savings for the other sectors of the economy in order to enhance the overall economic growth or output. Further this view has been supported by Hirschman (1958), Johnston and Juselius (1961), Ranis and Fei (1961), Fei and Ranis (1964), Sah and Stiglitz (1984), Rattso (1988), Nachane *et al*. (1989) and Taylor (1989). Henneberry *et al*. (2000) concluded in his study that, industry tends to benefit more from agricultural growth in case of Pakistan. Further, Katircioglu (2004) examined the link between economic growth and sectoral growth in a case study of north Cyprus. He has found a long-run relationship between economic growth and sectoral growth in the country. The causality result of his study indicates unidirectional causality from GDP growth to agricultural sector growth and also concludes that GDP growth gives unidirectional causation to industry and services sector growth. In another study, Katircioglu (2006) investigated the impact of agricultural sector growth on the overall economy growth; using time series data of 1975-2002. He has found bidirectional relationship between agricultural output growth and economic growth in the case of North Cyprus. Craigwell *et al*. (2008) described in their research on Barbados economy that, state industrial output is associated with lower agricultural GDP in the long run but in the short run, changes in industrial output promoted agricultural output. Hye (2009) investigated the link between agricultural and industrial output; using the data of autoregressive distributed lag model. The author found bidirectional long run relationship between agriculture and industrial output in Pakistan. As far as the adjustment term is concerned, the research indicates that agricultural output adjusted more quickly from short run disequilibrium to long run equilibrium

if the shock in industrial output in the short run. In another research, Chebbi (2010) examines the link between agriculture growth and other sectors growth of the economy (i.e., manufacturing, transportation, tourism and telecommunication, commerce and service sector); using the J.J. Co-integration and Granger causality in the case of Tunisia. The author concluded the existence of a long run relationship between agricultural growth and other sectors of the economy. In addition he rejected the weak exogeneity for agricultural sector and suggests possible long run linkages between agriculture and other sectors of the economy. The main objective of the research is to investigate the same issue for Iran, since it has not yet been discussed at extent.

MATERIALS AND METHODS

To determine the order of integration, this study employs the Augmented Dickey Fuller (ADF) and Dickey Fuller Generalized Least Square (DF-GLS) techniques. Elliott *et al.* (1996) enhanced the power of ADF test by de trending criteria and the test finally based on the ADF test Eq. 1, where y_t is the series and x_t is constant or a constant and linear time trend:

$$\Delta y_t = \alpha y_t + x'\delta + \beta_1 y_t + \beta_2 y_{t-2} + \text{-----} + \beta_\rho \Delta y_{t-\rho} + v_t \quad (1)$$

The long run relationship between each pair of variables under consideration is tested by using the Autoregressive Distributed Lag (ARDL) approach to co-integration (Pesaran *et al.*, 2001). The ARDL method of cointegration is concerned by estimating the error correction model as depicted in Eq. 2:

$$\Delta Ln(Y)_t = \lambda_0 + \sum_{i=1}^{\rho} \lambda_i \Delta Ln(Y)_{t-i} + \sum_{i=0}^{\rho} \lambda_i \Delta Ln(X)_{t-i} + \alpha_1 Ln(Y)_{t-1} + \alpha_2 Ln(X)_{t-1} + \psi_t \quad (2)$$

In Eq. 2, Δ is the difference operator, $Ln(Y)_t$ is the log of dependent variable, $Ln(X)_t$ is the log of independent variable and ψ_t is a serially independent random error with mean zero and finite covariance matrix. The existence of long-run relationship among the variables is tested by using overall F-test statistic. The no co-integration null hypothesis is $H_0 = \alpha_1 = \alpha_2 = 0$ and the alternative hypothesis of co-integration is $H_1 = \alpha_1 = \alpha_2 \neq 0$. The long run relationship is confirmed if the computed F-test exceeds the upper critical bound value; the H_0 (null hypothesis) is thus rejected. If the F-test statistic is between the bounds, then the test becomes inconclusive. If the F-test statistic is below the lower critical bound value, it implies no co-integration. When a long-run relationship exists then the next step entails estimating the long run coefficients.

This study also employs the variance decomposition method in order to test the strength of causal relationship among the GDP growth and other variables including agriculture, industry, oil and gas and service sector's growth. The Generalized forecast error variance decomposition method is estimated through VAR system. It shows the proportion contribution in one variable caused by the shocks in order variables (Pesaran and Shin, 1998). The main advantage of using generalized method over the orthogonalized forecast error variance decomposition, i.e. it is invariant to the ordering of the variables entering to VAR system, thus it is uniquely determined. In addition it permits to estimate the contemporaneous shocks effects. A VAR (p) model is written as; $\omega_t = \forall' x_\tau + \mu_\tau$, where, $t = 1, 2, 3, ..., n$, $x_\tau = 1, x_{t-1}, x_{t-2}, ..., x_{t-\rho}$ and ω_t is a m×1 vector. The residuals μ_τ are supposed to be normally distributed and white noise process with the covariance matrix and finally there is no multicollinearity between the independent variables. Hence, the VAR model

can be rewritten in the form of infinite moving average as Eq. 3 and further substituting the conditional expectations, yields the expression 4:

$$\omega_t = \sum_{i}^{\infty} \forall_i \mu_{t-i} \tag{3}$$

$$COV[\partial_t(n)] = \sum_{k=0}^{n} \forall_k \sum \forall_k^i - \delta_{jj}^{-1} \left[\sum_{k=0}^{n} \forall_k \sum \in_t \in_t^{'} \sum \forall_k^{'} \right] \tag{4}$$

RESULTS AND DISCUSSION

This study employs annual time series macro economic data of Iran during the period 1959-2010. The relevant data has been collected from the Central Bank of Iran, the Organization of Management and Programming and Statistical Centre of Iran. In order to show the real growth rate, all variables including gross domestic product (GDP), industrial sector value added (IN) agricultural sector value added, service sector value added and oil and gas sector value added (O and S) are measured in basic prices of 1997 and also for estimation purposes, all variables are used in natural logarithmic form. As it has been depicted in introductory part of the study, the oil and gas sector is heavily state-dominated in Iran. With oil exports accounting for half the government's budget and around 80 to 90 percent of total export earnings, Iran's economy is highly dependent on the production and export of crude oil to finance government spending and consequently is vulnerable to fluctuations in international oil prices (Economist, 2003). As it is shown in Fig. 1, in the mid-1970s, with a production level of more than 6 million barrels per day (mbd), Iran was one of the world's leading energy producers.

The unit root test results including augmented dickey fuller and dickey fuller-GLS methods are presented in Table 1. The results indicate that gross domestic product (Y), industrial (IN); agricultural (AG), services (SS) and oil and gas (O and S) sectors growth are integrated order one.

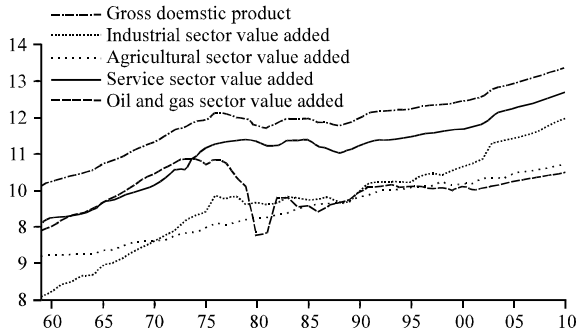

Fig. 1: Graph of overall GDP and sectoral value added growth trend, Source: Statistical center of Iran, Annual Center, years (2000-2010)

Table 1: Results of unit root test

Variable	ADF	Significance	DF-GLS	Significance
Y	-2.066	-3.961*	-1.707	-4.009*
IN	-1.828	-6.296*	-1.401	-6.419*
AG	-2.565	-5.754*	-1.911	-5.608*
SS	-1.693	-4.302*	-1.487	-4.313*
O and S	-2.778	-5.593*	-1.881	-5.632*

*1% level of significance

Table 2: Long run relationship results using autoregressive distributed lag (ARDL)

	Without deterministic trends		With deterministic trends			
	F_{III}	T_{III}	F_{IV}	F_V	T_V	H_0: No cointegration
Y = F (IN, AG, SS, O and S)	2.579[b]	-1.239[c]	3.289[b]	3.901[a]	-1.786[c]	Reject
IN = F (Y, AG, SS, O and S)	3.632[b]	-3.869[a]	3.001[c]	3.554[b]	-3.703[b]	Reject
AG = F (Y, IN, SS, O and S)	2.293[b]	-0.663[c]	3.474[b]	4.158[a]	-2.803[c]	Reject
SS = F (Y, IN, AG, O and S)	2.602[b]	-0.242[c]	3.062[b]	3.638[b]	-1.533[c]	Reject
O and S = F (Y, IN, AG, SS)	2.211[c]	-2.207[c]	5.351[a]	5.965[a]	-5.196[a]	Reject

H_0: No cointegration, a: Statistic lies above the 0.10 upper bound, b: Statistic falls within the 0.10 bounds, c: Statistic lies below the 0.10 lower bound. F_{IV}: F-statistic of the model with unrestricted intercept and restricted trend, F_V: F-statistic of the model with unrestricted intercept trend, T_V and T_{III}: are the t ratios for testing a_1 is respectively with and without deterministic linear trend

Table 3: Critical values for ARDL modelling approach

	0.10		0.05		0.01	
K = 4	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F_{III}	2.578	3.710	3.068	4.334	4.244	5.726
F_{IV}	3.210	4.294	3.794	4.986	5.108	6.494
F_V	2.868	3.782	3.358	4.365	4.445	5.615
T_V	-3.130	-4.040	-3.410	-4.360	-3.960	-4.960
T_{III}	-2.570	-3.660	-2.860	-3.990	-3.430	-4.600

Source: Narayan (2005) for F-statistic and (Pesaran *et al*., 2001) for t-statistics, k: No. of regressors, F_{III}: F-statistic of the model with unrestricted intercept and no trend, F_{IV}: F-statistic of the model with unrestricted intercept and restricted trend, F_V: F-statistic of the model with unrestricted intercept trend, T_V and T_{III}: are the t ratios for testing a_1 is respectively with and without deterministic linear trend

After determining the order of integration, in next step, the long-run relationship is investigated by using the autoregressive distributed lag (ARDL) approach to cointegration. Table 2 represents the results of ARDL co-integration between Y, IN, AG, SS and O and S for Iran within three different frameworks as proposed by Pesaran *et al*. (2001). The three different frameworks are as follows: without deterministic trends (F_{III}); with restricted deterministic trends (F_{IV}) and with unrestricted deterministic trends (F_V). Intercepts in these frameworks are all unrestricted.

The long run relationship results as shown in Table 2, suggest the existence of a long-run relationship for the majority of pairs of dependent variable at 0.01, 0.05 or 0.10 levels. It is very clear that the long run relationship exists when Y, IN, AG and O and S are dependent variables but for SS dependent variable, the F-statistics lies in between the range of lower and upper bound (means inconclusive) and T-statistics lies below the lower bound critical values (means no cointegration). Critical values of F-statistic are taken from Narayan (2005) study and t-statistics are taken from Pesaran *et al*. (2001) study. Both critical values are presented together in Table 3.

The next step goes to estimate the long run coefficients of long run cointegrated combinations. The results as shown in Table 4 indicate that the industrial, agricultural, services and oil and gas sector value added are positively related to overall economic growth or GDP. That is clear that, one percent increase in variables IN, AG, SS and O and S enhances 0.216, 0.091, 0.431 and 0.156 percent in Y (GDP) respectively. On the other hand, economic growth (Y) and agricultural growth positively affect industrial sector growth (IN), while Service sector growth and oil and gas

Table 4: Long run coefficients

	Dependent variables			
Regressors	Y	IN	AG	O and S
Y	-	1.989 [0.000]	0.021 [0.976]	5.321 [0.000]
IN	0.216 [0.000]	-	1.109 [0.001]	-1.122 [0.000]
AG	0.091 [0.055]	0.164 [0.055]	-	-0.566 [0.029]
SS	0.431 [0.000]	-0.404 [0.025]	-0.641 [0.005]	-2.276 [0.000]
O and S	0.156 [0.000]	-0.317 [0.000]	-0.264 [0.123]	-
Constant	2.509 [0.000]	-7.633 [0.000]	8.565 [0.000]	-10.998 [0.000]

Table 5: Error correction model

	Dependent variables			
Regressor	Y	IN	AG	O and S
Y	-	2.628 [0.000]	0.979 [0.000]	5.075 [0.000]
IN	0.177 [0.000]	-	-0.153 [0.10]	-0.767 [0.000]
IN(-1)	-	-	-	0.625 [0.008]
AG	0.121 [0.006]	-0.241 [0.153]	-	-0.226 [0.438]
AG(-1)	0.182 [0.000]	-	-0.321 [0.006]	-0.675 [0.016]
SS	0.401 [0.000]	-0.762 [0.000]	-0.331 [0.041]	-2.107 [0.000]
SS(-1)	-	-	-	1.005 [0.011]
O and S	0.146 [0.000]	-0.341 [0.000]	-0.091 [0.102]	-
O and S(-1)	-	-	-	0.416 [0.001]
Constant	0.007 [0.025]	0.004 [0.673]	0.008 [0.391]	-0.056 [0.019]
ECM(-1)	-0.129 [0.000]	-0.513 [0.000]	-0.159 [0.000]	-0.481 [0.000]
R^2	0.974	0.815	0.471	0.924
Adjusted R^2	0.971	0.795	0.396	0.904
F-statistic [Prob.]	271.056 [0.000]	39.846 [0.000]	6.356 [0.000]	47.641 [0.000]

sector growth are negatively related to industrial sector growth (IN). Moreover service sector growth and oil and gas sector growth are negatively related to agricultural growth.

Table 5 shows the short run coefficients. The results indicate that the industrial, agricultural, services and oil and gas sector value added are positively related to overall economic growth or GDP in the short run also. The economic growth indicator is positively related when dependent variables are IN and AG only. In the short run at level, the economic growth and at first difference, the AG, IN and SS are positively related to oil and gas sector growth.

In order to test the strength of causal relationship among the variables GDP, agriculture, industry, oil and gas and services growth, this study uses the variance decomposition method. The results are presented in Table 6. The first panel A shows the variance decomposition of Y. In the first round, shock in Y is completely explained by its own innovation. In the third round, respectively 10.392, 2.136, 0.370 and 0.363 percent of the variations in Y are explained by the variables SS, IN, Oil and Gas and AG innovations. As time period increases, the SS; AG and Oil and Gas explanation of shock in Y also increases. The panel B represents the variance decomposition of IN. 54.327 percent of shock in IN is instantly explained by Y in first period, but as the time horizon increases, the percentage of variation explained by Y in IN, reduces after third period. The variance decomposition of AG in panel C shows that the shock in AG is completely explained by Y innovation in the first round and as the time horizon increases the percentage of

Table 6: Variance decomposition analysis

Period	Y	IN	AG	O and S	SS
Panel-A: Variance decomposition of G					
1	100.000	0.000	0.000	0.000	0.000
3	86.736	2.136	0.363	0.370	10.392
5	65.156	3.165	2.016	2.137	27.523
7	46.534	3.226	4.621	4.543	41.073
9	33.851	2.938	7.567	6.708	48.933
11	25.884	2.594	10.560	8.368	52.593
13	20.958	2.289	13.496	9.546	53.707
15	17.892	2.046	16.326	10.334	53.401
Panel-B: Variance decomposition of IN					
1	54.327	45.672	0.000	0.000	0.000
3	64.924	27.296	2.126	1.603	4.049
5	59.616	18.026	4.971	3.247	14.138
7	48.941	12.761	7.912	4.896	25.487
9	38.711	9.541	10.826	6.468	34.451
11	30.827	7.488	13.665	7.816	40.201
13	25.260	6.136	16.421	8.874	43.307
15	21.459	5.219	19.087	9.649	44.583
Panel-C: Variance decomposition of AG					
1	18.922	0.000	81.077	0.000	0.000
3	22.032	0.076	77.728	0.1533	0.009
5	25.951	0.060	73.657	0.304	0.025
7	29.584	0.054	69.548	0.497	0.315
9	32.199	0.099	65.588	0.802	1.310
11	33.424	0.191	61.833	1.269	3.281
13	33.276	0.307	58.363	1.901	6.151
15	32.077	0.419	55.302	2.655	9.544
Panel-D: Variance decomposition of O and S					
1	42.263	15.394	0.731	41.610	0.000
3	42.357	9.162	0.677	36.239	11.563
5	33.578	7.041	0.931	27.137	31.310
7	25.737	5.629	2.279	22.033	44.318
9	21.483	4.700	4.149	20.051	49.615
11	19.656	4.147	6.073	19.385	50.736
13	19.039	3.856	7.811	19.155	50.137
15	18.893	3.732	9.218	19.022	49.133
Panel-E: Variance decomposition of SS					
1	54.805	0.000	0.234	22.601	22.356
3	76.888	2.117	0.513	10.232	10.247
5	79.266	3.644	0.348	6.711	10.029
7	68.060	4.225	1.087	5.996	20.629
9	52.833	4.108	3.002	6.724	33.330
11	40.042	3.693	5.605	7.964	42.693
13	31.076	3.237	8.456	9.171	48.058
15	25.197	2.841	11.335	10.143	50.482

shock in AG explained by Y and SS innovations increases. In period fifteen, respectively 32.077, 9.544, 2.655 and 0.419 percent of shock in AG are explained by Y, SS, Oil and Gas and IN. In first period of panel D, the shock in Oil and Gas value added is immediately explained 42.263 percent

by Y, 15.394 percent by IN and 0.731 percent by AG innovations. In the remaining period of the panel, the shock of Oil and Gas explanations reduces by the Y and IN and increases by SS. And finally the panel E shows that the shock in SS in the first round is explained 54.805 percent by Y innovation, 22.601 percent by Oil and Gas and 0.234 percent by AG. While in the 5th round, the shock of SS is explained respectively by 79.266, 6.711, 3.644 and 0.348 percent innovations of Y, Oil and Gas, IN and AG.

CONCLUSIONS

Being traditionally an agricultural society, by the 1970's, Iran had achieved significant industrialization and economic modernization, largely helped by the growing worldwide demand for oil. Iran's economic situation began to improve partly from an oil windfall in 1990's onward. High oil prices in recent years also allowed the country to increase its export earnings and amass over $70 billion in foreign exchange reserves and accordingly take major steps of financial investments in economic development program of agricultural, industrial and service sectors of the economy. Moreover, it is said that high oil prices have increased Iran's leverage in dealing with international issues. With a large public sector, Iran's economy is a transition economy and an estimated 50% of the economy is centrally planned by the federal government. Since the relationship between the economic growth and sectoral growth is rather complex, the aim of this study is to examine the relationship, i.e., agricultural (AG), industrial (IN), services (SS) and oil and gas sectors growth, using time series data of the years 1959-2010. The estimation evidence is provided by using the auto regressive distributed lag approach to cointegration and variance decomposition methods.

The results indicate that the long run relationship exist when the variables Y, IN, AG and Oil and Gas are the dependent variables. The long run elasticities show that one percent increases in IN, AG, SS and Oil and Gas results the increase in GDP respectively by 0.216, 0.091, 0.431 and 0.156 percent. On the other hand, one percent increase in agricultural sector growth enhances industrial sector growth by 0.164 percent and one percent increase in industrial sector growth expedites the agricultural sector growth by 1.109 percent. That is also concluded that one percent increase in economic growth will result in industrial, agricultural and oil sector growth by 1.989, 0.021 and 5.321 percent, respectively. The variance decomposition results explain that, the shock in GDP (Y) is highly explained by the service sector and the shock in IN and Oil and Gas are first explained by the innovation of Y and then gradually shift on the service sector. On the other hand the shock in AG is highly explained by the GDP(Y). Therefore on the basis of empirical conclusions derived, few policy implications are suggested as follows:

Today, Iran's economy is struggling as a result of inefficient state sector and an overdependence on the oil and gas export which provides over 85 percent of government revenues and consequently is vulnerable to fluctuations in international oil prices. The industrial sector is positively associated to economic growth and also to agricultural sector growth (elasticity of economic growth with respect to industrial sector growth is 0.216 and the elasticity of agricultural sector growth with respective to industrial growth is 1.109 but it is plagued by low labor productivity and shortages of raw materials and capital investment. Therefore it remains to be uncompetitive against foreign imports and consequently holds low capacity for creating job opportunities for unemployed willing labor force. These hindrances result in severe unemployment and brain drainage of skilled labor to international labor markets. However, unemployment statistics only tell part of the story, since underemployment continues to affect a large portion of Iran's young and educated workforce. In

such situation, there is a need to draw the attention of policy makers towards industrial sector for making it more productive and contributing in the economic growth. For generating employment opportunities, that is needed to build up strong internal industrial development policy including the sectors of manufacturing sector, automotives sector, food products sector and petrochemicals sectors. In this regard a privatization plan is proposed to reduce the role of the government in several major industries including gas and oil.

The agricultural sector on the other hand is positively linked with economic growth and industrial sector growth also. The government has made some progress on rural development, including; electrification, road building and increased access to education. But despite significant rural development achievements, an inadequate market structure and organization for commodity markets, land fragmentation and shortages of capital are hindering further development in agriculture and rural areas. Although, Iran is a major world provider of certain agricultural products like caviar and pistachio nuts and its climatic conditions support tobacco, tea, wheat and barley among other non-oil exports but still agricultural exports in general, face several constraints that arise from conflicting domestic policies relating to production, storage, distribution, food security and pricing concerns. However, rising international food commodity prices combined with a large population increase, have placed pressure on Iran's economy to use oil export revenues for paying agricultural imports.

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