Article No: 168

Quantitative Analysis of Services & Sub- Service Sectors in the Iranian Economy

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Abstract

Despite the huge share of services sector in the world economy, its importance appears to be different in the process of development. Although, this sector has a very high share in the Iranian economy, some researchers and policy makers look at it as being non-productive. In this article, we maintain that such thinking regarding this sector can't reveal the real picture of the importance of the services sector in the fast structural changes of the global economy. In order to analyze the role of services sector, one needs new classifications and concepts which are currently used by many analysts. In this article, we classify the services sector to in four sub-sectors such as: Producer Services, Distributive Services, Social Services and Personal Services and then use two approaches to quantitatively analyze the structural changes of the Iranian economy with respected to new classifications. The first is comparative static approach based on national accounts of SCI during 1961-2006 and the second is static approach based on 2001 I-O Table of Iran. The results which are presented and analyze in the sixth consecutive periods, show that the Iranian economy signified as a services economy from the fifth and sixth periods (1997-2004 and 2005-2006). The structural changes whit respects to the four sub-sector of services reveals that except the second and third periods where the social services has dominant share, the distributive services appears to have huge shares in other periods. Using IO model as a static approach, we find that key sectors are mainly sub-industrial sectors in traditional linkages where as sub-service sectors are propellant in modern approach.

Keywords: Tertiary Sector, Distributive Services, Producer Services, Personal Services, Social Services, Traditional & Modern Approaches.

Paper Will Presented to the 18th International Input-output Conference, Sydney, Australia, 20-25, June, 2010.

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1-Introduction

Although There isn't any unique and standard definition for services, but some researcher from the latest decade of 1930 as Clark, Fisher and Chenry and then Kuznets attempted by determining structure of economy in three major formats, primary sector as agriculture and mining, secondary sector as industrial, construction and utility and tertiary sector as services. Through this structure they evaluated structural change base on Stage-Theory of Development (Park and Chen, 1989). According this analysis service sector and its related activities consider as residual for a long time. It means some activities which don't have characteristics of the other two sectors, consider as service sector (Daniels, 2004). Because of economic world transformation in 1970decade, particular in 1980 decade such as oil shock and advent of some expression such as service economy, deindustrialization, post industrialization and information economy, provided triple classification from Fisher-Clark, Chenry, Kuznets about structure transformation. For example, some economist such as Kuatouzian (1970), Gershuny and Miles (1983), Park and Chan (1989) and Miles and Boden(2000) attempted defy role and importance of tertiary sector in classification of services sector and sub-sector in format of producer services, distributive services, Social services and personal services or as old services, complementary services, knowledge services and information services. The major role of this classification is separation of different activities with different application which called "Services". This definition makes agreement in evaluating development stage base on World Economic. Form the ancient time within the transformation of world economy until industrial revolution, agriculture sector has major role in GDP and GNP, but after industrial revolution the industrial sector replaced instead of agriculture sector so that form 1960 decade this economic transformation focus on service sector. These days service sector has high share in GDP in compare of two other

sector, for example in year 2001, 66% of world GDP allocated to service sector while this share in year 1990 was only 60% (Singh, 2006). This trend observed in most developed countries, while in developing countries without taking developed countries experience process. Service sector in recent decade has increasing trend, the major share of GDP allocated to service sector, (Management & Planning Organization, 1983). Iran also as one of the developing country has the same characteristics, it means service sector has higher share in GDP and employment in compare of other sectors of economy, cause of dominated role of brokerage, approaches of authorities in this sector was negative, while this sector in the world was one of the producer and profitable sectors. Services sector could have special role in changing structure of the Iran's economy, (Management and Planning Organization, 1983).

This expression can lead to two fold approach in service sector in Iran's economy. In one hand there isn't any positive point of view, on the other hand the role of service sector in development literature didn't consider properly and the ignoring service sector in sub-sector, caused hampering for politicians. This kind of perception from service sector with considering new classification, definition couldn't demonstrate actual performance of different activities of this sector in economic transformation. It created at least two figures, first cause misunderstanding about similar appearance with developed countries, second all of the sub-sector services consider as the same. Productivity of service sector created by new definition content and classification so that service sector find common features with world economy transformation particular with post industrialized and informative economy. Evaluating these dimension of service sector divided to four sub-sector as Producer, Personal, Distributive and Social services. The major aim of this paper classified in five sections. First, paper presents the historical and theoretical features of service sector and new context and classification of service sector. Second situation of service

sector in The Iran's economy evaluated within years 1961-2006 by comparative static analysis. Third applied backward and forward linkage on traditional and modern approaches, these analysis have done base on Iran's Input-Output table of year 2001. Finally the paper explains results and discussions.

2- Aspects of historical and theoretical definitions, concepts and new categories of services Sector

Within the transformation structure of the economy from the initial civilization until latest 17th century, services and industrial sectors weren't important in compare of agriculture sector. However Adam Smith (1776) in his book mentioned about the importance of specialization of economic activities but he used vocabularies such as producer and unproductive, real and unreal about agriculture sector. He considered strange definition about service sector base on durability of services. For example repairing activity is durable but singer's songs aren't production cause of non durability Maier at el. (1991). Until 1930 decade most classic and neoclassic economic emphasized on productivity of service sector activities, but they don't pay attention enough to service sector. Advent of macro-economic pattern by Keynes recommended increasing production with considering empty capacity of production with expansion financial system, but he didn't mention any thing about which sector of the economy can improve production more than others. This vacancy cause more analysis by later researchers.

Fisher (1933) in his important dissertation "capital and knowledge growth" determined the structure of major three sector of economy Katouzian (1970). C. Clark in year 1940 in his book as"Condition of Economic Growth" mentioned the employees of agriculture sector during the time decrease in compare of industrial sector and also the number of people employed in industrial decrease in compare of service sector Maier at el. (1991). In his book for first time he divided economic activities to these sectors; first sector: Agriculture, Forestry, Fishing, Mining;

second sector as Industrial and third sector as Services, Bell (2000).Thus separation of economic activities to three sectors became known as Stage-Theory of Development and Theory of Fisher-Clark. Holis B. Chenry (1960) mentioned about change of agriculture, industrial and services shares in economy, Katouzian (1970). Kuznets (1965) in book Modern Growth of Economy declared" Within modern growth of economy transformation of structure of economy had happen in that manner the relative importance of agriculture sector decrease and the importance of other sectors particular industry increased. Although during 1930-1970 effort of some economist such as Clark, Chenry, Fisher and Kuznets cause to completion of Stage-Theory of Development and improve in definition of service sector but again service sector considered as residuals of other sectors, Miles and Boden (2003). Within decade 1960 to 1970 increasing share of service sector became common, so this growth of service sector declared by different groups such as politicians, socialists, geographers and this was the entrance to deindustrialization age for developed countries and created similar situation for east of European countries, Miles and Boden (2000). By considering transformation of world economy in 1970 decade particular major change in service sector in 1980 decade, it sound these kind of analysis couldn't explain role of service sector and its activities. For this purpose economist and statisticians presented new definitions, context and classification for service sector. Katouzian (1970) with presentation of new definition of service sector attempted to explain historical role of service sector. In his idea for developing service sector changing of per capita income must be considered. For this purpose he divided service sector to three groups: The new services, Complementary services and Old services then evaluated historical role of them within 16th century until 1970 decade, Katouzian (1970). In researcher's idea, one of the result of oil shock was the age of service sector economy and come into existence of structural change in production process and effort

started to increase productivity, innovation, research & development in production, financial engineering, transportation, distribution and consumption, Kumar and Mathur (1996).

Gershuny and Miles (1983) attempted to classify service sector in four groups: Producer services, Distributive services, Social services and Personal services. Their purpose from the classification of service sector was the better analysis of relationship between services and industry within economic transformation. From their opinion producer services contain these components as below: 1- Finance, Banking, Credit and Insurance 2-Profesional services: Civil, Engineering and Architecture 3- Other servicess: Cleanliness, Security and Protection; distributive services contain: 1- Transportation and Storing 2- Communication 3- Whole sales and Retail sales; Personal services contain: 1- Domestic services (Barber and Laundry) 2- Hotel and Restaurant 3- Repairing 4- Public, Judicial and Military services. Gershuny and Miles (1983) classifiedproducer , distributive and personal services as Marketed services and considered social services as Nonmarketed services. Park and Chan (1989) did research base on classification which have done by Gershuny and Miles by applying input-output technique. They evaluated relationship between sub-sectors of services and industrial sector base on level of income of 26 developed and developing countries. Their research shows the advantages of classification service sector to four sectors. On the track of research of Clark and Kuznets on employment of different sectors and structural change of economy they brought up “Deindustrialization” or “Reindustrialization” statements which referred to transfer economy from industry to services.

The relative importance of different sectors of the shows the structure of economy. Base on Transformation of economy and structure of the economy first the share of employment in agriculture was the highest which can be call it the early stage of development then the share of industry increased opposite the share of agriculture decreased, this was the second stage of

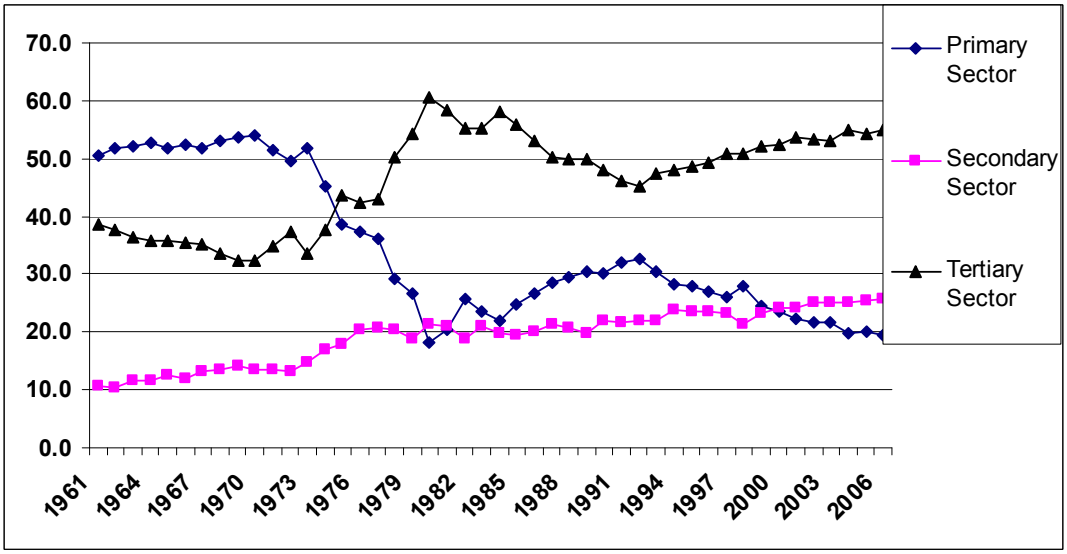
development; within 1970 and 1980 decades the share of services increase opposite the share of industry decreased this was the third stage of development and call it deindustrialization. Thus in recent decades in any countries even in developed, developing, less developed and oil exporter countries share of first and second sector of economy as agriculture and industry sectors decrease and the share of third sector of economy as services increases. By consider this point that value added of activities of second and third sectors of economy in developing countries increase more than developed countries, so it reveals that developing countries industrialized more rapid than developed countries and they decrease the gap with developed countries faster (Management and Planning organization 2001).So if we consider triple classification of services as a benchmark of first, second and third stages of development, we can see that stages of development for developing countries is different from developed countries. In this way some developing countries without passing the second stage is entered to third stage of development and they have some characteristics of post industrialized countries. But structural change of developed countries while entering to 21 century shows two major transformations. In one hand service sector economy of post industrialized countries extended and on the other hand technology, innovation, invention and knowledge grew which is called Knowledge-base economy (Miles and Boden 2000). These days forth section as information can present the Forth stage of development and itsdimensi on with post industrialized mechanism. Although evaluating of different features of information is very important but it is beyond of the scope of this paper.

3-Inspect of services sector of Iran's economy within years 1961-2006

The scope of evaluating of service sector in Iran, refer to recent 50 years due to collection of national account and development planning. Before 50 years ago cause of lack of data and traditional society there wasn't accurate data (Azimi 2004). Figure 1 demonstrated trend of value

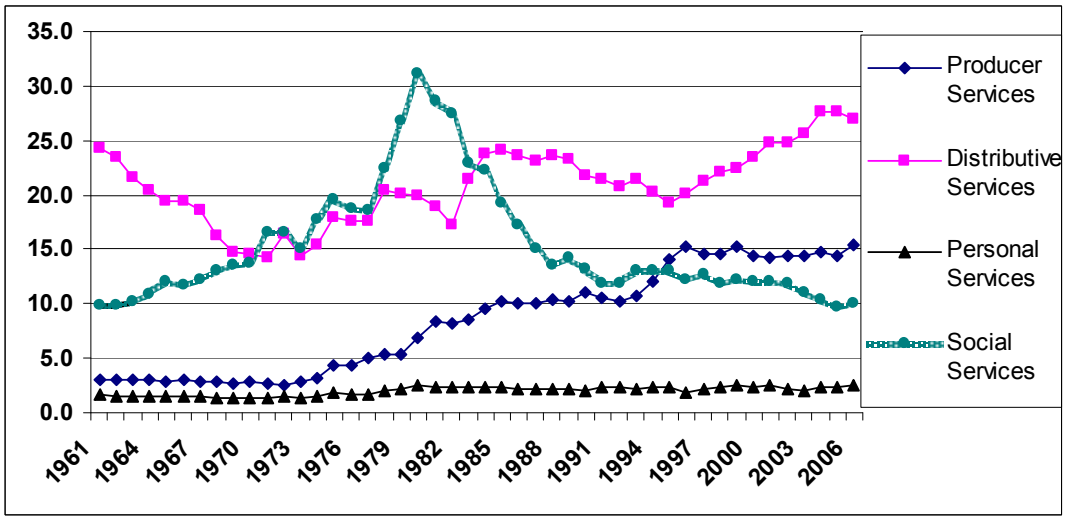
added of major sectors of economy and figure2 shows value added of quadric sub-sectors of services and table 1 present average share of value added of activities of major sectors of economy and sub-sectors of services base on national account.

Figure 1 - the share of value added economic activities in major economic sectors times gross domestic product at constant prices for the years 1997 to 1961-2006 (percent)



Reference: Statistical Center of Iran (2008) the 1991-2006 periods of national accounts current and constant prices

Figure 2 - the share of value added economic activities subsectors four times gross domestic product in the service sector in the years 1961-2006 to 1997 constant prices (percent)



Reference: Statistical Center of Iran (2008) the 1991-2006 periods of national accounts current and constant prices

Table1- The average share of value added economic activities of major economic activities and times of four sub-service sectors in gross domestic product in selected periods in 1997 constant prices (percent)

Sector / Year	Primary Sector	Secondary Sector	Tertiary Sector	Producer Services	Distributive Services	Personal Services	Social Services
1961-1972	52.10	12.50	35.40	2.80	18.60	1.50	12.50
1973-1978	41.80	18.10	40.10	3.90	16.50	1.60	17.90
1979-1988	25.10	20.30	54.70	8.40	21.50	2.30	22.50
1989-1996	29.80	22.30	47.80	11.70	21.10	2.20	12.80
1997-2004	23.40	23.90	52.60	14.60	24.00	2.30	11.80
2004-2006	19.80	25.60	54.50	14.90	27.30	2.50	9.90
1961-2006	**34.30**	**19.20**	**46.50**	**8.40**	**20.80**	**2.00**	**15.30**

Reference: Statistical Center of Iran (2008) the 1991-2006 periods of national accounts current and constant prices

According to table1 and figures 1and2, trend of changing structure of three sectors of economy and four sub-sectors of services are observable as below, Azimi (2001), Katouzian (1995) and Azad (2007):

1-First period (1961-1972): This period was time of created structure of the economy; this period accompanied with third and forth plans of development, land reform and white revolution. In this period infrastructure investment such as building dam, still mill, power plants, roads, etc had done and they were accompanied with transformation of Second World War and growth in physical capital. As we can see in figure 1 the share of value added of first sector was greater than others. So the average shares of sectors from GDP were, 52% for agriculture, 12.5% for industrial and 35.4 % for services. According the previous section we can say that Iran was in first stage of development in this period. As figure 2 shows, until 1969 distributive services had the higher share but after that social services had the grater share in compare of others due to growing of government services (Azad 2007).

2- Second period (1973-1978): This period is the time of increasing the oil income and consumption congestion. Although huge consumption is one of the characteristics of developed countries but in Iran cause of nonexistence of structure of economy, society, policy led to social crisis and growing gap between poor and reach. That time Iran couldn't absorb the exchange of

exporting oil so it led to high volatility and inflation and economic crisis. These kinds of reason cause to Islamic revolution and after the latest of this period service sector started to grow (Katouzian 1995). Thus increasing country's foreign exchange reserve and huge import particular consumption goods cause to increasing value added in service sectors such as business, transportation, storing; but social services had the highest share among the rest of other parts of services. This period faced with decreasing share of first sector and increasing the second and third sectors (Azad 2007).

3-Third period (1978-1988): This period accompanied with Islamic revolution and imposed war. One of the major points of this time was growing of social services due to increasing role of government in economy, social ensuring , high cost of defense & security, rural development and public health.

4- Forth period (1989-1996): In this stage country entered to stage similar to period 1961-72, they believed by expanding roads, factories, dam, etc could achieve development. Some called this period as constructiveness or reconstruction. Country faced with devaluation of national money and many incomplete projects (Azimi, 2004). Although in this period service sector has the highest share among others but it trend was decreasing, so that the average share of first sector was 29.8%, second sector was 22.3% and third sector was 47.8%. Distributive services sector had the highest share among sub-sectors of services (Azad 2007).

5- Fifth period (1997-2004): They emphasized on social and cultural development and civil society but it faced by decreasing oil price in year 1998 (Azimi 2004). In this period for the first time the share of producer services surpassed the share of the social services due to extending business condition. Some researchers by applying input-output technique in some countries such as England, France, Germany, Italy,. Japan, Iran and India shows in developed countries

importance of producer services in compare of other services increases, while in developing countries such as India and Iran it is vice versa (Banouei, Momeni, Azad 2008).

6-Sixth period (2005-2006): The government focused on social and economical justice and service sector and it's sub sectors kept the same trend.

With above explanation we can observe below points:

First: Based on evaluating social, economical and political change in these 6 periods, we can see that the average share of first sector from 52.1% in first period decreased to 19.8% in last period. The opposite trend happened in third sector as average share of third sector to value added increased from 12.5% to 25.6 % form first period to sixth period. So the average decreasing share of first sector is greater than decreasing average share of second sector.

Second: The average share of value added of third sector increased from 35.4% to 54.5% within all periods.

Third: If we consider 50% of value added of three sectors of economy as benchmark of entrance of economy to service-based economy, the results of table 1 shows Iranian economy in fifth stag feignedly entered to new stage which is known today as service economy.

Forth: Within years 1978-88, third sector with 54.7 % had the highest share in compare of other periods. This share in next period decreased and again increased in other periods. Because of special situation of economy due to Islamic revolution and Imposed war this period couldn't be the representative of service sector. Boosting of service sector in this period depended on political decision and it led to increasing social and distributive services.

Fifth: If we evaluate service sector in quadric sub-sector format, trend and performance of services would be more obvious. The average share of distributive services in all periods, all economy and among sub-sectors of services was the higher than social, personal and producer

services exception second and third periods. According the researchers because of two reasons share of social services was greater than others; first cause of special situation of economy due to oil income, Islamic revolution and Imposed war; second increasing social services depend on political situation and it didn't depend on market mechanism.

4-Methodology and statistical base of static analysis

Because comparative static analysis of national account can't evaluate the effects of services and it's sub-sectors so we applied input-output technique base on table 2000; for this purpose forward and backward linkage of this table computed in both modern and traditional approaches. In traditional approach, key sector is the sector with highest backward and forward linkage, also methodology's forward linkages determined base on Leontief's demand side input-output model and backward linkages settle with Ghosh's supply side input-output model. Modern approach is pattern base on assumptive omission in this paper we apply second type of omission or method of Cella (1984) in demand side; we applied Dietzenbacher at el. in supply side (Dietzenbacher at el. (1993) and van der Linden (1997).

In this paper we applied the input-output table year 2001, with 99 sectors. This table is built on Use table-Absorption matrix (99 activities & 147 commodities) and Supply table-Make matrix (147 activities & 99 commodities) by Banouei at el. (2007).

5- Results and discussions

The analysis of this section have done base on analysis of some researches such as Fisher (1933), Chenry (1986, 1960), Kuznets (1965), Gershuny and Miles (1983), Park and Chan (1989). Classification of all economy have done base on three major categories of economy, and

classification of services is base on classification of major sectors of economy base on Stage-Theory of Development of Fisher, Clark and Kuznets; Katouzian (1970). First sector category refer to agriculture and mining (oil & gas extracting, etc) and second sector refer to industries which depend on agriculture, energy industry, utility and construction; Chenry at el. (1989). Service sector divided to four sub-sector as producer, distributive, personal and social services, Park and Chan (1989). Table 2 presents backwards and forwards linkages in traditional and modern approaches in 99 sectors.

Table2- Backward & Forward Linkages in Traditional & Modern approach

Sector number[1]	Traditional Linkages						Modern Linkages							
	(1)BL	(2)Rasmussen	(3)Rank	(4)FL	(5)Rasmussen	(6)Rank	BL or TLd- Billion Rials(7)	(8)Rasmussen	(9) Relative Effect Percent	(10)Rank	(11)FL or TLs-Billion Rials	(5)Rasmussen	(13) Relative Effect Percent	(14)Rank
1	1.382	0.931	55	1.828	1.124	34	42384	4.478	3.66	5	50660	5.371	4.37	3
2	1.359	0.916	60	1.094	0.672	78	11307	1.195	0.98	23	8706	0.923	0.75	26
3	1.583	1.066	31	2.562	1.575	9	8043	0.85	0.69	31	10250	1.087	0.88	22
4	1.876	1.263	11	1.898	1.167	31	44050	4.654	3.8	4	41489	4.398	3.58	5
5	2.097	1.412	2	2.257	1.387	16	28497	3.011	2.46	12	27131	2.876	2.34	11
6	1.718	1.157	22	1.096	0.674	77	415	0.044	0.04	93	263	0.028	0.02	94
7	1.291	0.869	73	2.47	1.518	11	2265	0.239	0.2	61	3594	0.381	0.31	46
8	1.652	1.112	24	1.188	0.73	70	2534	0.268	0.22	58	1886	0.2	0.16	66
9	1.344	0.905	65	3.326	2.044	1	952	0.101	0.08	81	1804	0.191	0.16	68
10	1.039	0.7	99	1.17	0.719	73	14361	1.517	1.24	19	22449	2.38	1.94	15
11	1.202	0.809	90	3.277	2.014	2	1736	0.183	0.15	70	3573	0.379	0.31	47
12	1.225	0.825	83	3.201	1.968	3	1419	0.15	0.12	74	8706	0.923	0.75	27
13	1.398	0.941	51	2.676	1.645	6	3875	0.409	0.33	47	5175	0.549	0.45	39
14	1.22	0.822	84	2.361	1.451	14	940	0.099	0.08	82	1468	0.156	0.13	73
15	1.94	1.307	7	1.75	1.076	36	5059	0.535	0.44	36	5110	0.542	0.44	40
16	2.305	1.552	1	1.373	0.844	54	100215	10.589	8.64	1	77710	8.238	6.7	2
17	1.322	0.89	69	1.004	0.617	96	818	0.086	0.07	85	572	0.061	0.05	86
18	1.893	1.275	10	1.606	0.987	42	14762	1.56	1.27	16	14185	1.504	1.22	20
19	1.437	0.968	44	1.221	0.75	65	4503	0.476	0.39	39	1804	0.191	0.16	69
20	1.556	1.048	35	1.274	0.783	62	2698	0.285	0.23	54	2299	0.244	0.2	60
21	1.836	1.236	15	2.17	1.334	20	3919	0.414	0.34	46	3929	0.417	0.34	44
22	1.651	1.112	25	2.602	1.599	7	6051	0.639	0.52	34	7396	0.784	0.64	33

23	1.596	1.075	30	2.568	1.578	8	3193	0.337	0.28	50	4145	0.439	0.36	43
24	1.552	1.045	36	1.969	1.21	29	21586	2.281	1.86	13	28476	3.019	2.46	10
25	1.462	0.985	42	2.082	1.28	24	31262	3.303	2.7	9	37734	4	3.25	6
26	1.797	1.211	17	2.35	1.445	15	14531	1.535	1.25	17	17127	1.816	1.48	17
27	1.637	1.102	27	1.847	1.136	33	2251	0.238	0.19	62	2345	0.249	0.2	59
28	1.735	1.169	21	2.109	1.296	22	29020	3.066	2.5	10	28555	3.027	2.46	9
29	1.812	1.22	16	2.363	1.452	13	35862	3.789	3.09	7	36535	3.873	3.15	8
30	1.491	1.004	41	2.194	1.349	19	5823	0.615	0.5	35	7235	0.767	0.62	34
31	1.949	1.313	5	2.475	1.521	10	4991	0.527	0.43	37	5287	0.56	0.46	38
32	1.688	1.137	23	2.14	1.315	21	4064	0.429	0.35	44	4489	0.476	0.39	42
33	1.736	1.169	20	1.682	1.034	38	21456	2.267	1.85	14	20568	2.18	1.77	16
34	1.274	0.858	78	1.65	1.014	41	10387	1.097	0.9	25	251	0.027	0.02	95
35	1.384	0.932	53	1.23	0.756	64	11245	1.188	0.97	24	8751	0.928	0.75	25
36	1.848	1.244	13	1.187	0.729	71	4328	0.457	0.37	41	3261	0.346	0.28	50
37	1.185	0.798	92	1.118	0.687	75	260	0.027	0.02	95	251	0.027	0.02	96
38	1.625	1.095	29	1.385	0.851	51	9287	0.981	0.8	26	8138	0.863	0.7	29
39	1.403	0.945	49	1.396	0.858	49	2381	0.252	0.21	59	2351	0.249	0.2	58
40	1.323	0.891	67	1.293	0.795	59	1016	0.107	0.09	78	857	0.091	0.07	81
41	1.168	0.786	94	1.139	0.7	74	724	0.077	0.06	87	698	0.074	0.06	82
42	1.84	1.239	14	1.36	0.836	56	28775	3.04	2.48	11	26065	2.763	2.25	12
43	1.579	1.063	33	1.407	0.865	48	3389	0.358	0.29	49	3114	0.33	0.27	52
44	1.789	1.205	19	1.295	0.796	58	2689	0.284	0.23	55	2157	0.229	0.19	64
45	1.905	1.283	9	1.71	1.051	37	2549	0.269	0.22	57	2557	0.271	0.22	54
46	1.941	1.307	6	2.871	1.764	5	21082	2.228	1.82	15	23646	2.507	2.04	14
47	1.371	0.923	59	2.213	1.36	18	4140	0.437	0.36	43	6549	0.694	0.56	35
48	1.627	1.095	28	2.076	1.276	25	4448	0.47	0.38	40	4824	0.511	0.42	41
49	1.915	1.29	8	1.19	0.731	69	34693	3.666	2.99	8	24232	2.569	2.09	13
50	1.989	1.34	4	1.19	0.732	68	49793	5.261	4.29	3	37229	3.947	3.21	7
51	1.28	0.862	76	1.563	0.961	43	73180	7.732	6.31	2	84999	9.011	7.33	1
52	1.378	0.928	58	1.892	1.163	32	11990	1.267	1.03	20	14891	1.579	1.28	18
53	1.56	1.051	34	1.394	0.857	50	1870	0.198	0.16	66	1688	0.179	0.15	70
54	1.85	1.246	12	1.211	0.744	67	11566	1.222	1	22	7552	0.801	0.65	32
55	1.383	0.931	54	2.103	1.292	23	1861	0.197	0.16	67	2630	0.279	0.23	53
56	1.548	1.042	37	1.288	0.792	61	9275	0.98	0.8	27	8338	0.884	0.72	28
57	1.402	0.944	50	2.026	1.246	27	39269	4.149	3.39	6	47615	5.048	4.11	4
58	1.58	1.064	32	1.458	0.896	44	540	0.057	0.05	89	513	0.054	0.04	88
59	1.639	1.104	26	1.658	1.019	40	8363	0.884	0.72	29	8930	0.947	0.77	24
60	2.011	1.355	3	1.377	0.846	52	6093	0.644	0.53	33	5380	0.57	0.46	37
61	1.352	0.911	62	2.24	1.377	17	7455	0.788	0.64	32	9680	1.026	0.83	23
62	1.278	0.861	77	1.449	0.891	45	3013	0.318	0.26	53	3293	0.349	0.28	49
63	1.273	0.857	79	2.054	1.263	26	11989	1.267	1.03	21	14701	1.559	1.27	19
64	1.124	0.757	97	1.954	1.201	30	1753	0.185	0.15	69	2403	0.255	0.21	56
65	1.437	0.968	45	2.457	1.51	12	2031	0.215	0.18	64	2422	0.257	0.21	55
66	1.217	0.82	85	1	0.615	98	14378	1.519	1.24	18	8071	0.856	0.7	30
67	1.214	0.818	88	1.006	0.618	95	3041	0.321	0.26	52	1813	0.192	0.16	67

68	1.428	0.962	48	3.161	1.943	4	4560	0.482	0.39	38	7731	0.82	0.67	31
69	1.216	0.819	87	1.171	0.72	72	416	0.044	0.04	92	426	0.045	0.04	89
70	1.293	0.871	72	1.672	1.028	39	1157	0.122	0.1	77	1374	0.146	0.12	75
71	1.149	0.774	95	1.376	0.846	53	1304	0.138	0.11	75	1584	0.168	0.14	72
72	1.333	0.898	66	1.432	0.88	47	1830	0.193	0.16	68	2019	0.214	0.17	65
73	1.251	0.843	81	2.004	1.232	28	8326	0.88	0.72	30	10369	1.099	0.89	21
74	1.252	0.843	80	1.016	0.624	91	4224	0.446	0.36	42	3165	0.336	0.27	51
75	1.302	0.877	71	1.104	0.678	76	2647	0.28	0.23	56	2232	0.237	0.19	62
76	1.347	0.907	64	1.014	0.623	92	8415	0.889	0.73	28	5872	0.622	0.51	36
77	1.379	0.929	56	1.017	0.625	89	3137	0.331	0.27	51	2158	0.229	0.19	63
78	1.283	0.864	75	1	0.615	99	415	0.044	0.04	94	287	0.03	0.02	93
79	1.101	0.742	98	1.001	0.615	97	955	0.101	0.08	80	598	0.063	0.05	85
80	1.517	1.022	38	1.021	0.627	85	189	0.02	0.02	98	121	0.013	0.01	98
81	1.13	0.761	96	1.006	0.618	94	1491	0.158	0.13	73	981	0.104	0.08	80
82	1.435	0.966	46	1.018	0.626	87	535	0.056	0.05	90	342	0.036	0.03	91
83	1.351	0.91	63	1.027	0.631	83	2118	0.224	0.18	63	3341	0.354	0.29	48
84	1.212	0.816	89	1.05	0.645	81	863	0.091	0.07	84	662	0.07	0.06	83
85	1.39	0.936	52	1.263	0.776	63	705	0.075	0.06	88	646	0.068	0.06	84
86	1.358	0.915	61	1.292	0.794	60	972	0.103	0.08	79	1173	0.124	0.1	77
87	1.45	0.977	43	1.011	0.621	93	3463	0.366	0.3	48	2278	0.242	0.2	61
88	1.497	1.008	40	1.018	0.626	88	1913	0.202	0.17	65	1279	0.136	0.11	76
89	1.322	0.891	68	1.019	0.626	86	1661	0.175	0.14	72	1173	0.124	0.1	78
90	1.174	0.791	93	1.068	0.656	80	1701	0.18	0.15	71	1384	0.147	0.12	74
91	1.245	0.839	82	1.016	0.625	90	491	0.052	0.04	91	336	0.036	0.03	92
92	1.188	0.8	91	1.752	1.077	35	242	0.026	0.02	96	367	0.039	0.03	90
93	1.432	0.965	47	1.031	0.634	82	778	0.082	0.07	86	520	0.055	0.04	87
94	1.793	1.207	18	1.447	0.889	46	4005	0.423	0.35	45	3611	0.383	0.31	45
95	1.312	0.883	70	1.215	0.747	66	1175	0.124	0.1	76	1071	0.114	0.09	79
96	1.504	1.013	39	1.075	0.661	79	31	0.003	0	99	22	0.002	0	99
97	1.217	0.82	86	1.021	0.627	84	237	0.025	0.02	97	175	0.019	0.02	97
98	1.378	0.928	57	1.365	0.839	55	940	0.099	0.08	83	1676	0.178	0.14	71
99	1.288	0.868	74	1.357	0.834	57	2374	0.251	0.2	60	2365	0.251	0.2	57

Reference: Authors calculation

In traditional approach, key sector is one with higher or more than unit normalized backward and forward linkage. Because importance of each sector, determined based on transaction between sectors and coefficient matrix. So the magnitude of final demand and value added didn't affect of magnitude of sectors due to impose unite weight. If we consider traditional approach as a benchmark of determination of key sectors, we found that 20 sectors of 99 sectors of economy

verify as key sectors. If we consider these results base on triple sectors of economy and it's sub-sectors we find below outcomes:

First: The results shoes Iran's economy is industry-base economy. In agriculture sector we have just three key sectors and in services just one sector are as key sectors due to existence of intermediate transaction between sectors and their high share in final demand and value added.

Second: among agriculture just 3 sector (agricultural service, livestock, poultry) of 14 sector determined as key sectors.

Third: 16 Sub-sectors of 20 sectors of second sector (industry, utility, construction) is 80% of key sectors.

Forth: In third sector just see transportation computed as key sector of economy.

Fifth: Highest forward sectors such as coke & lignite in supply side and highest backward sectors such as food and beverage in demand side, don't settle in key sectors.

In modern approach importance of magnitude of each sector depends on intermediate transaction between sectors and coefficient matrix and also depends on magnitude of final demand and value added, so 20 sectors of economy determined as key sectors of economy. Total observation base on triple sectors of economy and it's sub-sectors brings as below:

First: Numbers of columns 8 and 12 show real effects (total linkage).These numbers reveal the magnitude of decreasing production of economy due to simultaneously omission of purchasing the same sector from the rest of economy and sell to other sectors base on LDM and GSM. Under this condition we can see that biggest decreased in economy (100215 billon Rials) refer to Make Other Food and Beverage sectors (sector's 16) based on Leontief's Demand Side Input-Output Model. Retail and Whole sale sectors (sector's 51) decreased (84999 billion Rials) based on Ghosh's Supply Side Input-Output Model (GSM).These sectors are second order of backward

and forward linkages respectively so they are key sectors of economy base on modern approach. The lowest decreasing in economy refer to sector's 96 or News Agents (31 billion Rials) based on LDM pattern and (22 billion Rials) base on GSM pattern. We can analysis the rest of numbers in this manner.

Second: among the sub-sectors of agriculture, 4 sectors of 14 sectors computed as key sectors, as we mentioned previously. In Mining sector Oil & Gas extracting verify as key sectors.

Third: Among sub-sectors of second sector, 2 sector of in agriculture-depended industry, 7sectors of energy & infrastructure industry and 3 sectors of infrastructures are computed as key sectors.

Forth: We have 4 sectors as key sectors in forth sector, 2 sectors distributive services, 1 sector from producer services and 2 sectors from personal services are key sectors of economy.

5- Conclusion

The results of comparative statistic analysis of statistical center of Iran within 1961 2006 years which comprise six periods of political, social and economical deregulation shows that in first period within 1961-72 years Iran was in first step of development and share of agriculture sector was more than others. In second period 1973-77 which accompanied with increasing oil income the share of agriculture sector decrease and share of other tow sectors increase so that increasing rate of service sector was more than growth rate of industrial. In third and forth periods there were social, political and economical transformation and structural change of trial sector of economy was the same as second period. If we consider 50% of value added as criteria of economy become as service economy, so in fifth period Iranian economy entered to service economy but apparently and also the process of changing structure of economy was similar to the other developing countries. But the sub-sectors of service sector shows different depiction in

different periods so that distributive services had dominated role except second and third periods within years 1973-77 and 1978-88, in second and third periods the role of social services was greater. The producer services had always growth in all periods as in fifth period within years 1997-2004 the average share of producer services was greater than even social sector led to expanding business situation. This trend continued in sixth period. Social services in first and second period had growing trend but in second and third periods had the highest share among sub-sectors of service middlingly but in fourth and fifth transformation periods social services had the decreasing trend. The results show stability in personal services within these five periods. The results of static analysis of forward and backward linkage (Direct and Indirect) in traditional approach dedicate 20 sectors of 99 sectors of input-output table in year 2001 are key sectors of economy, and 65% (12 sector of 20 key sectors) of key sectors belong to Energy and Fundamental industry, just one sectors is from sub-sectors of services, this indicate industry base of Iranian economy. So for measure importance of sectors of economy traditional approach is insufficient. According this method importance of each sector determine base on intermediate transaction and coefficient matrix and it doesn't consider magnitude of final demand and value added of each sector due to impose equal unique weight, this is one of the insufficiency of traditional approach. The results of static analysis of total forward and backward linkage by modern approach indicate 20 sectors of 99 sectors of input-output table of Iran in year 2001, are key sectors of economy. These sectors are some distributive services (whole sale, retail, road transportation), industrial agriculture (other food industry, beverage, textile) in early ranks. The energy and fundamental industry in regard to magnitude are in next rank. And also Bank sector as producer services, repairing motor car and motorbike, home& personal instrument as personal services and extract oil & gas as mining are key sectors. Finally modern approach indicates

different face of structure of economy in compare of traditional approach. In traditional approach energy and fundamental sectors are key sectors of economy. According modern approach direct and indirect effect of expanding different key sectors lead to increase of production of other sectors. In modern approach importance of sectors determine base on intermediate technology, final demand and value added of sectors so direct and indirect effect of quadrille sub-sectors of services particular distributive services indicate obviously, this shows Iranian economy is service-base economy.

Endnote:

[1] sectors Name:1- Farming, 2-Gardening 3- Agricultural & animal husbandry service activities 4-Farming of animals 5-Farming of poultry 6-Bee-keeping & raising of silk worms 7-Forestry 8-Fishing 9-Mining of coal & lignite 10-Extraction of crude petroleum & natural gas 11-Mining of iron ores 12-Mining of copper 13-Quarrying of stone, sand & clay 14-Mining of other metal & nonmetal ores 15-Manufacture of vegetable and animal oils & fats 16-Manufacture of other food products & beverages 17-Manufacture of tobacco products 18-Manufacture of textiles 19- Manufacture of wearing apparel; dressing & dyeing of fur 20-Tanning & fabricating of leather; manufacture of luggage, handbags, saddler, harness & footwear 21-Manufacture of wood & products of wood & cork 22- Manufacture of paper & paper products 23-Publishing, printing & reproduction of recorded media 24- Manufacture of coke, refined petroleum products & nuclear fuel 25- Manufacture of chemicals & chemical products 26- Manufacture of rubber & plastics products27- Manufacture of glass & glass products 28- Manufacture of other non-metallic mineral products 29- Manufacture of basic iron & steel 30- Manufacture of basic copper 31- Manufacture of basic aluminum 32- Manufacture of other basic metal & casting metals 33- Manufacture of fabricated metal products except machinery & equipment 34- Manufacture of general-purpose machinery 35- Manufacture of special-purpose machinery 36- Manufacture of domestic appliances 37- Manufacture of office, accounting & computing machinery 38- Manufacture of electrical machinery & apparatus n. e. c 39-Manufacture of radio, television & communication equipment & apparatus 40- Manufacture of medical & surgical instruments 41- Manufacture of optical instrument & photographic equipment & watches & clock 42- Manufacture of motor vehicles, trailers & semi-trailers 43- Manufacture of other transport equipment 44- Manufacture of furniture 45- Manufacturing n. e. c. & recycling 46- Production, collection and distribution of electricity 47- Manufacture & distribution of gas 48- Collection, purification & distribution of water 49- Dwelling constructions 50- Other constructions 51- Wholesale & retail trade 52- Repair of motor vehicles, Motorcycles & personal & household goods 53- Short -stay accommodation 54- Restaurants 55-Transport via railways 56- Land transport of passengers 57- Land transport of freight 58- Transport via pipelines 59- Water transport 60- Air transport 61- Supporting transport services 62- Post & telecommunications 63- Banks 64- Other financial intermediation 65- Insurance 66- Self-owned dwelling activities 67- Leased residential building activities 68- Leased non-residential building activities 69- Real estate activities on a fee or contract basis 70- Renting of machinery and equipment without operator and of personal and household goods 71- Computer & related activities 72- Research & development 73-Other business activities 74- Public administration 73- Other business activities 74- Public administration 75- Municipal service activities 76- Defence activities 77- Public order activities 78- Compulsory social security activities 79- Governmental primary education 80- Private primary education 81- Governmental general secondary & technical & vocational secondary education 82- Private general secondary & technical & vocational secondary education 83- Governmental higher education 84- Private higher education 85- Governmental adult & other education 86- Private adult & other education 87-

Governmental hospital activities 88- Other governmental health & treatment activities 89- Private hospital activities 90- Private medical & dental practice activities 91- Other private health & treatment activities 92- Veterinary activities 93- Social work activities 94- Religious & political activities 95- Cinema, radio, television, & other arts activities 95- News agency activities 96- Library, Museum & other cultural activities 97- Library, Museum & other cultural activities 98- Sporting & other recreational activities 99- Other service activities

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