

Spillover effect of the foreign direct investment on employment Level of the service sector in Iran

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Abstract

In this study one of the most important effects of the economic Globalization process which is the inflow of foreign direct investment, is analyzed on the employment position of the sub-sector of the service sector in Iran. For this purpose the impact of the gap between labor productivity in service sector of Iran and developed countries on the ratio of the skilled over unskilled labor while the multinational corporation are entering to the economy are studied by using a panel data during the period of 1997-2004.

The findings indicate that when the multinational corporations are entering to the economy the active companies in various field of service sector can employ skilled labor which will lead to greater labor productivity and in turn the domestic companies can compete better with the foreign companies (spillover effect). Of course, the rental-properties and other business activities are in first rank in employing the skilled labor and improving the ratio of skilled over unskilled labor.

Keyword: economic Globalization, foreign direct investment, skilled and unskilled labor, spillover effect, productivity gap, service sector.

JEL: E24, FO2

1-Introduction

Today, the effect of globalization on the real economic variable such as production and employment is regarded as one of the most important concerns of policy makers and economists. Economic globalization means convergence and combination of economic markets- including goods, work, money and capital the international level. During two latest decades, this has been ever-affecting on the domestic economy of different countries through the growth at international trade, information and communication technology (ICT) and Foreign Direct Investment (FDI).consequently, most of studies in the same field indicate that almost no country has the capability to obtain the conducive policies improving the domestic welfare, employment, production and etc, regardless of international changes. The current paper, therefore, attempts to predict the role that FDI plays on the stage of job and employment depending on identification of both the consequences of globalization and job structure in Iranian service sector. In addition the paper aims to provide some results introducing some solutions to reduce the negative and induce the positive impacts of globalization.

The paper obtains a unique methodology identifying the structure of labor market of Iranian service sector and the effect of globalization on the same sector. Therefore, whole the sub sectors of service sector are evaluated depending on the 2- ISIC-Digit which holds commercial services (wholesale and retail trade),hotel and restaurants ,transport , storage and communications ,financial intermediation (bank and insurance),real estate ,renting and business activities, public administration and ,defense, compulsory social security and other services. The paper use the Panel Data techniques for this important.

2-Service sector and economic globalization

Along with the convergence of economic globalization, the structure of economic sectors has been changed regarding the value added and employment .these change could increase the share of service sector and decrease the share of agricultural and industrial one. Since the beginning of 1960s, such a process has accelerated to currently allocate 50 to 70percente of employment in most of countries in service sector¹ .now it has to be asserted that there are some questions raised due to the intention of economic structure toward the service sector consistent with the global growth and market convergence. First, is there any relationship between the

¹ WDI(2003)

development of service sector and economic globalization? Second, what are the main reasons beyond the increase in employment share of service sector? Next, is the same increase true about the developing countries? Finally, does the recent service sector include any new additional sub sector? Such questions motivate the current paper to evaluate the historical changes of service sector, the literature of employment of the same sector and relationship of those changes with economic globalization.

3-Service sector and the employment share of it in economy.

In the past, both developed and developing countries used to regard the service sector as an obstacle in front of economic growth. It has been mostly observed in developed countries that industrial sector has to be empowered by all means rather than improving the service sector. Developing countries also behind that the only way to achieve the same level of development as the development states is to step toward the process of industrialization. In general, service sector was considered as last detective element of employment in economy.

Therefore, service sector was generally judged as an inefficient sector holding decreasing rate of return, low rate of technological development and high elasticity of income for demand. While industrial and agricultural sector was totally believed to be able to have fast technological development, increasing rate of return, high efficiency and low income elasticity.

As a result, economic and policy makers were not interested in service sector. Although, in some rare cases, some developmental theorizing mentioned the importance of infrastructural issues and financial service in the process of development, the key role of service sector was not properly discovered. However, following the service revolution developed countries, several changes occurred in service sector. Since the service was acquiring an important role in value added of goods, it was acquitted of insensibility and invisibility. Additionally, the new technology led to change the inability of service to be saved and made some of traditional and most of new services transferable which high tend the necessity of producer and consumer presence in a same place, at same time .

Consequently, the more expanded service sector, became the more share was located to the employment of service sector, therefore developed countries took the first steps toward changing the structures of economy that resulted in advent of new terms such as “service revolution “,”new economy of service”,” weightless economy” and “post industrialization” indicating to the

role of service in economy. The historical movement of employment share from agricultural to industrial and then service sector motivated the literature of economic development to name agriculture, industry and service as the first, second and third sector respectively. In other words, these chronologically construct the three sectors of economy. In 1940, Clark showed that the number of firms working on the first area of activity was gradually reducing, while the exact opposite was true about the third sector .table. (1) Is to show how the share of employment in six European countries and U.S passed the first and then second sector to be transferred to the third one from 1870 to 2001.

Table 1: historical share employment in six European countries and US

countries	1870			1960			1984			2001		
	agricultural	industrial	service	agricultural	industrial	service	agricultural	industrial	service	agricultural	industrial	service sector
Germany	50	29	22	14	48	38	5	42	53	3	33	65
France	49	28	23	21	36	43	8	32	60	2	25	74
Poland	37	29	34	11	41	48	5	28	67	3	21	73
Switzerland	54	—	—	15	42	43	5	29	66	2	24	74
U.K	23	42	35	5	46	49	3	32	65	1	25	73
Japan	73	—	—	33	30	37	9	34	57	5	31	64
U.S	50	24	26	8	31	61	3	25	72	2	22	75

Source: Anxo Dominique and stories Donald “The Job creation potential of the service sector in Europe”, European commission (2000)”

The table shows the long-term structure of employment in different economic sectors. As the table indicates, most of European countries (except U.K) had agriculture holding the highest share of employment in 1870.

In 1960, however, it was replaced by industry and then by service sector in 1984 and 2001. then the intention of employment had been gradually changing from agriculture to service during 1870 to 1984. for a 147 years period , therefore , there has been a remarkable change in a employment sector .such decrease in the share of employment in agricultural-industrial sector is due to two main reasons including the growth of productivity among whole productive elements of agricultural - industrial sectors and income elasticity due to the low demand of agricultural productions composed with industrial ones ,in other words, the increase of per capita income during same 147 years period, the less demand for agricultural productions which are mainly regarded as necessary goods. While the exact opposite is true about the service products which hold a high rate of income elasticity (kuzenets 1966 and chenrey1979)

There are some considerable points in table(1): first, the growth of employment share in service sector can be observed in all selected countries, next; England and Netherlands could hold the first and second rank of highest employment share of service sector , last; the countries generally experienced a period of induction and the reduction of employment in industrial sector. Where as so some countries, like Japan and U.S, did never experience the industrial employment accelerating the service one. In addition, economic industrialization holding the highest rate of employment reached its peak during 1960s.

4-Financial Integration and employment

Liberalization in financial markets means freedom in entering and exiting capital between countries. In other words, more flexibility in capital account in foreign balance payments of a country means the increase of openness degree of financial transactions. The capital flow between countries in present economy is done in two forms, the flow of capital in the form of portfolio (investment in asset portfolio) which primarily is related to the difference between interest rates between countries and the flow of capital will be toward the countries with higher interest rate. Of course, this process depended on many variables like economic political and the interest rate, which are shown as the transfer cost of capital by some researchers (Eckel2004, Haufler 1997). The second capital flow is FDI, in which foreign investors use their capitals in the forms of physical in machines, land and primarily the effective factors for absorption of these kinds of capital are capital security, profitability, the market in host country, and frequency of

cheap labor. The effect of financial transaction growth and capital flow between countries on employment and labor market, in terms of theoretical fundamentals and based on the labor demand function, which is a derivative function of production and demand for products, is in the form that the entrance of capital and its result i.e. new investment leads to production growth and eventually increase demand for labor, and in contrast, exiting of capital, leads to investment reduction and decrease demand of labor.

In 1980s a group of developing countries especially Asian south east countries, by Liberalization of financial markets succeeded to absorb much capitals from developed countries which most of them were in the form of portfolio, and could attain a substantial growth for their economy. But the 1997 crisis which leads to escape of capital from these countries and this crisis, which was popularized as financial crisis, caused some changes in financial markets literatures and also the recommendations of international institutions for developing countries change (Fisher 2003), because Liberalization of capital market in these countries caused disability of government to control capitals inside the country, and by creating one shock in international economy the escape of capital from these countries began. Therefore, despite this financial crisis, most economists (Fisher, Rama 2003, Lall 2002, et. al) concluded that the most suitable approach for foreign investment is to motivate for FDI absorption. So if a country can absorb FDI through financial liberalization, it will have higher degree of financial openness than those of disable to absorb foreign investment. FDI are divided in two categories. First is horizontal FDI (Markusen 1984, Horstman and Markusen 1992, Brainard 1993, Markusen and Nablos 2000, De Santis and Stahler 2004) and second is Vertical investment (Helpman 1984, Helpman and Krugman 1985). Horizontal FDI is primarily defined for advanced industrialized countries in view of their sameness in production capabilities and stock. In this case by establishing new businesses in other countries by multinational companies, instead of exporting of product or service, the transfer of business itself will occur. This movement depends on the market of host country and saving of trade costs. Therefore, horizontal FDI substitutes for trade. This kind of FDI has allocated big volume to itself (Brainard 1997, Blonigen 2001, markusen and Maskus 2000). but vertical FDI is of more importance and occur between the countries that don't have the same capabilities of production and stock. Vertical FDI occurs when an industry needs two factors of skilled and labor.

In this case, the transfer of part of factory which needs unskilled labor to another country which has frequent and cheap unskilled labor will be profitable.

Therefore such FDI is complementary for trade. Generally, these multinational companies have the greatest investors and biggest property so they do not grant their license to foreign companies and their transfer is because of production factors and raw material, and in case they can import raw material with lower transportation cost, they will not make such investment.

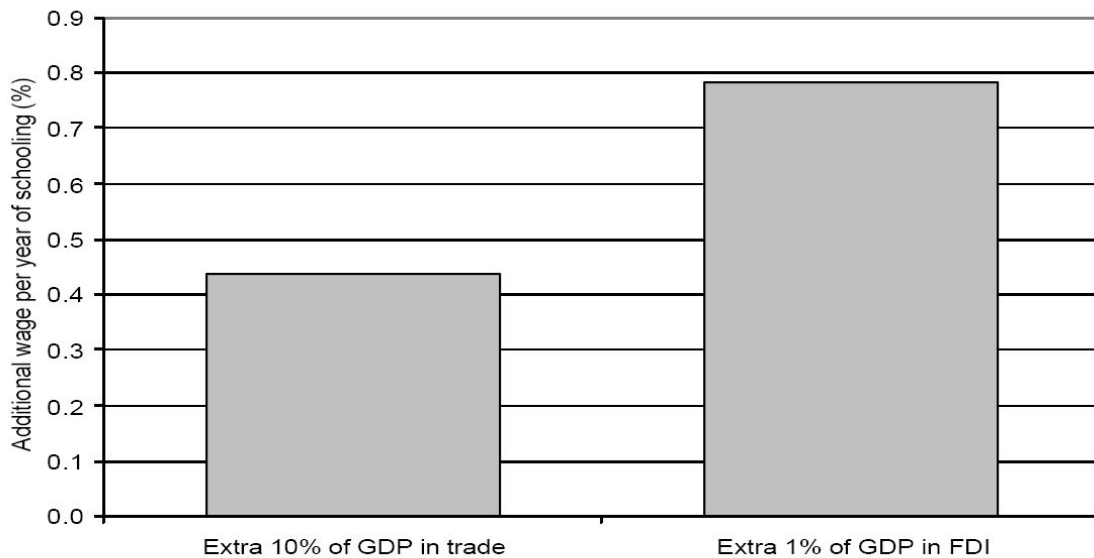
Meanwhile, the effect of these kinds of investment on employment growth and demand increase for labor is like investment growth theory, production and then employment.

For this purpose most economists introduce the proportion of FDI to GDP of a country as an index for openness of financial or financial Integration². Among the evidences for this we can offer, is the study of Rama (2003) which indicates the effect of FDI on Wages in short term is positive, so that in short term a 10% increase in FDI proportion to GDP cause a 2% in wage levels, but by passing the time the effect of FDI on wages level decreases but the effect of trade openness increases and can neutralize it; so that after 5 years the effect of FDI on wages levels insignificant. In this study it is shown that FDI leads to university graduates employment increases and interesting that the financial openness level or FDI proportion growth to GDP also leads to increase rate of university education. In this view, Green, Dickerson, Arbache (2000) found that the combination of employment and wage level before and after trade and financial liberalization in Brazil is on the beneficiary of skilled labor and also university educations rate increases. Other issues mentioned in FDI literature and employment growth is the role of multinational companies in financial liberalization position in the host countries. Since capital and labor are two complimentary factors for production, so the arrival of capital from industrial to developing countries leads to demand increase for labor, but since FDI arises in the form of multinational companies in the host countries, the demand for skilled workers is more than unskilled and normal labor; because these companies generally have higher productivity than local companies so their demand for skilled labor in the host country. FDI affects on the proportion of skilled and unskilled labor in internal companies(spillover effect) and they also try to increase productivity and covering the productivity gap between themselves and multinational companies through increasing the demand for skilled labor(taylor and Driffeild 2001). But it is believed that the spillover effect (the proportion of skilled to unskilled labor) arises when (1) there is the productivity gap between local and foreign companies and (2) this gap

²- This index titled by Heritage institute, Freezer, A.T. Kearny and And also international trade economists use this index as financial openness of a country.

should not be too much. Therefore if technology gap is in a specific limit, the spillover effect of foreign companies to local businesses shows itself in the form of demand increase for skilled labor.

Figure 1. . Returns to Education and Globalization



Source: Based on Rama (2001b).

Figure (1) illustrates that globalization is shown by two indices of trade openness and the proportion of FDI to GDP, which can affect positively on wage increase of skilled labor. This figure is resulted from 200 studies done by different methods of econometrics. In this figure the second bar shows

that if one percent in the proportion of $\frac{FDI}{GDP}$ increases, about one year is increased to educated and normal labor. It should be mentioned that the wage increase of educated labor is a stimulus for increase of education rate.

Of course financial liberalization which is shown by the proportion of $\frac{FDI}{GDP}$ has destroying effect on job opportunities in a closed economy which among them the existence temporary and permanent jobs, job insecurity, and flexibility in related regulation between and labor and employers and also in case of great productivity gap, the possibility of no adaptation local companies with foreign companies exists which leads to closing of these companies.

5-Studies relevant to financial liberalization and labor market

Walter Elberfeld, Georg gotz and Frank Stahler (2004) in an article titled “vertical direct investment, welfare, and employment” studied the vertical FDI effect on employment in the origin and destination countries. In this research a total cost function is established in which inputs or factors are skilled labor, unskilled labor, so that W_s and W_u

are respectively skilled labor wage and unskilled labor wage in the origin country, and unskilled labor wage that a multinational company will face in the destination country is shown by W_m . and it is assumed that there is no skilled labor in the destination country and this factor is formed through transfer of skilled labor from origin country. They show that the number of multinational companies and the production volume of multinational companies affects positively on demand for labor in the origin country.

Eckel (2000) believes that the effect of capital flow on wages and employment is not clear as one of the incomes of globalization. But Bhagawti and Dehejia (1994) state that capital arrival causes the increase in wages gap, meanwhile Richardson(1995) in a standard model of 2 by 2 shows that an increase in capital does not affect on the total production factor productivity and relative prices of goods will remain fixed(according to Rybczynski theory)³, but Rybczynski theory is stated in a standard model that is when the number products and the number of factors are equal, but the study of dasgupata and Osang (1999) shows the effect of changes in capital stock on factors relative wages, they found that a positive effect because of change in capital stock on relative wage is on the beneficiary of wage in skilled sector. Eckel examines the effects of three important elements of economy globalization i.e. trade, technology and capital market consistency separately and for showing the total globalization effect on labor market, the effects of all theses elements must be studied together. For this purpose, two importers and exporters countries are considered separately and the results are shown in the following table:

³ 2 by 2 model means 2 products and 2 production factors is considered in trade.

Table 2: changes in inequality of wage θ (the ratio of skilled to unskilled labor) and unemployment rate of unskilled labor (u) for importer and exporter countries while facing economy globalization

	Capital Movements	Biased Technological Change	International Trade	Total Impact
Capital Importing Country	$\theta \uparrow$ $u \downarrow$	$\theta \uparrow$ \bar{u}	$\theta \uparrow$ $u \uparrow$	$\theta \uparrow \uparrow$ $u \uparrow \downarrow$
Capital Exporting Country	$\theta \downarrow$ $u \uparrow$	$\theta \uparrow$ \bar{u}	$\theta \uparrow$ $u \uparrow$	$\theta \uparrow \downarrow$ $u \uparrow \uparrow$

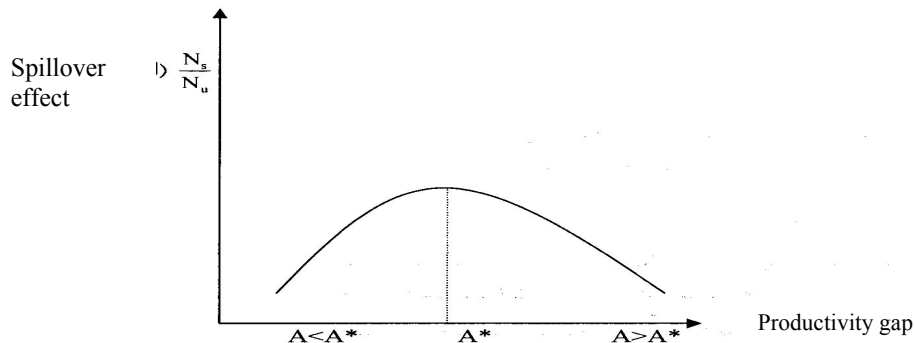
Source: Eckel Carsten (2000)

Therefore in capital importer countries, the inequality of wages is clear (it is incremental) but the unemployment rate is not clear (like U.S.A in recent two decades) and in capital exporter countries the wage inequality is not clear but the unemployment rate increases(like Germany and Italy during 1985- 1995)

6-Methodology of Foreign Direct Investment spillover effect on labor market

Taylor and Drifeld, (2002), argue that the effect of Foreign Direct Investment(FDI) spillover to the host country is known as the productivity gap level between internal and external businesses so that if no gap existed between internal and external businesses, the effect of spillover will no exist either and the labor structure will not be changed. But if the productivity gap between internal and external businesses exist and this gap is in a logical limitation, the effect of spillover will exist and foreign direct investment will cause a change in the labor structure in labor market. Therefore, the relation of spillover effect on technology differences(internal and external in an industry) is not a linear relation, so in this research a critical value is considered for productivity gap in which most impact will be seen and higher or lower than it the spillover will be decrease resulting less effect on employment structure. This issue is shown in figure (2).

Figure (2): the effect of foreign direct investment spillover on the proportion of skilled to unskilled labor



$$A = \text{FLP} / \text{DLP} \tag{1}$$

FLP= labor productivity of foreign business

DLP= labor productivity of internal or local business

When A moves toward A* the spillover effect increases. According to this analysis, the offered model for this research is as follow:

The proportion of skilled labor employment to unskilled one is a function of existed capital (k), production(y) and other factors (z).

$$\frac{N_s}{N_u} = F(y, k, z) \tag{2}$$

Ns is the skilled labor employment and Nu shows the unskilled labor employment.

Hanson and Fennstra (1996), Autor, Katz, Krueger (1998), Blonigen and Slaughter (1996) studies show that transfer of the labor demand function is possible by some variables like technology and trade effects, and they believe foreign direct investment somehow causes the transfer of labor demand function. Thus the variable z, in this function, is a function of technology, trade, and foreign direct investment which is shown by the proportion of foreign to internal productivity.

$$Z = [\text{technology, trade, FDI (A)}]$$

In each sector the substitute for technology is the amount of R&D and for foreign competition, import variable is considered. Therefore, we will show, in this method, that how the proportion of skilled labor to unskilled is affected by FDI. The model is as follow:

$$\left(\frac{N_s}{N_u} \right) = \Omega + \lambda K_{it} + \gamma y_{it} + \phi (R \& D / y)_{it-1} + \theta (\text{Im ports} / y)_{it} + \pi A_{it} + \beta M_{it} + V_{it}$$

(4)

$$V_{it} = \delta_i + \psi_t + \varepsilon_{it}$$

(5)

$$\varepsilon_{it} \approx IID(0, \sigma^2)$$

(6)

Say *i* shows the industry, *t* is time, *N* is employment, *y* is product, *k* is present capital, *R&D/ y* shows technology (the proportion of research expenditures to production), *import/y* shows the trade (the proportion of import to production), *A* is already defined, Ω is fixed coefficient and *M* is a vector of other factors affecting on the proportion of skilled to unskilled labor in different areas and industries, and δI shows the unobservable effects in the industry level and ψ_i is time effects, and ε_{it} is the error term.

According to Hanson and Fennstra (1996), Autor, Katz, Krueger (1998),

Blonigen, Slaughter (1996), the relation between *R&D/y* with $\frac{N_s}{N_u}$ is accompanied by a stoppage, because the simultaneous and significant

relation between *R&D* and $\frac{N_s}{N_u}$ is vague. But we have theoretically that:

$$\frac{\partial (N_s / N_u)_{it}}{\partial (R \& D / y)_{it-1}} > 0$$

(7)

And the effect of FDI on $\frac{N_s}{N_u}$ considering spillover must be positive that is:

$$\frac{\partial(N_s / N_u)_{it}}{\partial(FDI)_{it}} > 0$$

(9)

In other word, spillover of technology requires skills. The difference between the effects of FDI among different sectors is measured through the differences among the productivity in foreign companies to local companies, so that the effect of technology or labor productivity (A) on the ratio of

skilled to unskilled labor $\left(\frac{N_s}{N_u}\right)$ is as follow:

$$\frac{\partial\left(\frac{N_s}{N_u}\right)}{\partial(A)} > 0 \tag{10}$$

$$\frac{\partial^2\left(\frac{N_s}{N_u}\right)}{\partial(A)^2} < 0$$

(11)

So we can rewrite the equation (4) as follow:

$$\begin{aligned} \left(\frac{N_s}{N_u}\right) &= \Omega + \lambda K_{it} + \gamma Y_{it} + \phi(R \& D / y)_{it-1} + \theta(\text{Im ports} / y)_{it} \\ &+ P_1 A_{it} - P_2 A_{it}^2 + \beta M_{it} + V_{it} \end{aligned} \tag{12}$$

$$V_{it} = \delta_i + \psi_t + \varepsilon_{it}$$

(13)

$$\varepsilon_{it} \approx IID(0, \sigma^2)$$

(14)

This equation has a maximum, so we considered the sign of P2 negative. The information used in this research is the use of the data of 5 sub sectors of service in Iran separated by ISIC codes. The estimated model for this

purpose is the panel model data through five sub sectors of service in the period of 1998-2005 including the investment cost (R), value added of each sector (Vi) and the labor productivity gap of sub sector ith with the ith sub sector of developed countries (Ai).

$$\left(\frac{N_s}{N_u} \right)_{it} = C_{it} + \beta_{1it} R_{sit} + \beta_{2it} V_{it} + \beta_{3it} A_{it} - \beta_{4it} A_{it}^2$$

(15)

In the above equation, t states the time period of 1997 to 2004 and i indicates the five sub sectors of service i.e. retail selling, whole selling, hotels and restaurants, transportation, storage and communications, financial intermediation, real states- rent and personal business activities. Meanwhile, the ratio of imports to production variables and the ratio of R&D expenditures to production were not used because of lack of information for the separated ISIC groups of service sector in the model.

The information related to proficient labor and unskilled labor is gained through synonymizing of skill versus higher education which its information resource is sampling of employment features and family unemployment from Iran Statistics Center and the estimation of employment made by the macro economic office of Iran Management Planning and Organization (MPO). The information of capital cost, which is shown by Rs in the model, is the capital cost percapita of the service sector, because capital cost percapita in different service sectors were not possible to measure due to lack of capital in different sub sectors of service. The information of variable A, the ratio of labor productivity of ith sector in developed countries to labor productivity of the ith sector in Iran, was gained, by considering the ratio of value added to labor as an index of labor productivity for Iran labor productivity of sub sectors; the information collected through Central bank and Iran Planning and Management Organization. It was assumed that if Iran is successful in transaction with the global economy, the FDI input will be through the framework of European multinational company⁴. Therefore labor productivity, the ratio of value added to employment, was computed by using the information from the sub sectors of service from these countries.⁵

⁴ In this research the average labor productivity of three countries of England, France and Germany was considered.

⁵ WDI(2005)

7-The comparison study of labor productivity gap in Iran's service sub sectors with developed countries (model estimation)

In this section the labor productivity gap between Iran's service sub sectors with developed countries is computed to show how the adaptation of the present businesses productivity in Iran's service sub sectors with multinational companies of developed countries active in these sub sectors while facing the globalization of economy. Then, by using the panel data model for service sub sectors of Iran during 1997-2004, the effect of productivity gap(A) to the ratio of skilled and unskilled labor(Ls/ Lu), based on Drifeld and Taylor model(2001) were studied(the effect of spillover). For this purpose, we used five service sub sectors of retailing and wholesaling, hotels and restaurants, transportation, storage and communications, financial intermediations, real states, rent and business activities as periodic variable during 1the years of 1997- 2004; and two public services and other services sub sectors were eliminated in this research because they are public and private sector is less active in these sectors. The other reason of their elimination is their nature; these sectors are public goods producers and therefore the effect of globalization on these sectors is rarely observable.

Using the estimation model of Taylor and Drifeld, panel data, the estimate results based on equation (16) has been performed in three cases.

$$\text{Log}(Ls / Lu)_{it} = C_{it} + \beta_{it} \text{Log}(V)_{it} + \beta_{it} \text{Log}(R_s)_{it} + \beta_{it} \text{Log}(A)_{it} + D_{it} + \varepsilon_{it} \quad (16)$$

With $i= 1 \dots 5$ including commercial services, hotels and restaurants, transportation an communication, financial intermediation, real state, rent and business activities, and $t= 1997-2004$ also we used dummy variable(D) for outranged observations.

The case 1 is the estimation of equation (16) by variability of intercept⁶ for each cross sectional variables and its results is shown in second column of table (3).

The case 2 is the estimation of equation (16) with fixed intercept but different coefficient of productivity gap variable (A) for each sector.⁷ The results are shown in the third column of table (3).

The case 3 is the estimation of equation (16) by adding the variable A2. Of course in this case the intercept coefficient for each cross sectional variables is considered to be variable and their results are shown in the forth column of table (3).

⁶ Fixed effect

⁷ Common effect

According to first case (table 3), we see that the value added coefficient (V) is positive and significant. The capital cost coefficient (Rs) is negative but statistically is not significant, but the coefficient, in this model, which is important for us, is productivity labor gap (A) that is positive and significant.

Table 3: model estimation

	First model		Second model		Third model	
Value added (V)	0.186	(9.22)	0.181	(7.74)	0.191	(9.63)
Capital cost (R_s)	-0.107	(-1.28)	-0.088	(-1.09)	-0.102	(-1.26)
Productivity gap(A)	0.0826	(12.15)			0.0881	(12.3)
Squared productivity gap (A^2)					-0.0177	(-1.909)
Productivity gap of internal commerce sub sector(wholesaling, retail selling) (A_R)			0.072	(6.92)		
Productivity gap of hotels and restaurant (A_H)			0.066	(5.4)		
Productivity gap of transportation, storage and communications(A_T)			0.0908	(6.27)		
Productivity gap of financial intermediations sub sector (A_F)			0.093	(6.73)		
Productivity gap of real states, rent and business activities sub sector(A_B)			0.095	(10.48)		
Dummy variable (D)	0.103	(29.22)	0.096	(22.05)	0.097	(22.3)
Fixed coefficient of first sector (C_R)	-571				-5.75	
Fixed coefficient of second sector (C_H)	-5.55				-5.56	
Fixed coefficient of third sector(C_T)	-5.43				-5.46	
Fixed coefficient of fourth sector (C_F)	-3.33				-3.36	
Fixed coefficient of fifth sector (C_B)	-3.44				-3.47	
Recognition coefficient (R^2)	99%		99%		99%	
Durbin Watson (D.W)	1.85		2		1.9	

Source: the research findings

Therefore, Iran's service sectors productivity gap with service sector of developed countries shows that by increasing the gap (between sectors), the share of skilled labor to unskilled labor increases. In the other word, by entering service multinational businesses to Iran, present service businesses in service sub sectors of retailing, wholesaling, hotels and restaurants, transportation, storage and communication, financial intermediations, real states and rents, and business activities, by structure changing of their labor

toward absorbing skilled labor (increase in the ratio of L_s/L_u), increase their labor productivity aiming decreasing the productivity gap with foreign businesses. Now, to compare this adaptation between different service sub sectors, pay attention to second model in the third column of table (3), in which productivity gap coefficients for each sub sector have been estimated separately. We see that the highest coefficient is related to real state services and rents and business activities (.095) while the least coefficient is related to service activities of hotels and restaurants, so the sub sector of real states, rent and business activities can cover the productivity gap by less adaptation. The sub sector of hotel and restaurant must decrease the gap by more adaptation, in other words, the real states and rent, and business activities can develop this adaptation by less absorption of skilled labor. One reason for this is the existence of technical and engineering services in the mentioned sub sector which cause higher productivity in this sub sector than others.(komeijani, ghavidel 2006). Yet in hotel and restaurant sector we should absorb more skilled worker aiming this adaptation. In summary the acceleration arrangement in productivity gap adaptation in 5 mentioned sub sectors are shown in table (4).

Table 4- ranking of acceleration arrangement in labor productivity gap reduction of Iran service sub sectors while facing economy globalization process

Sector	Acceleration rank in productivity gap reduction while facing globalization
Real states, rent and business activities	1
Financial intermediation	2
Transportation, storage and communication	3
Wholesaling and retailing	4
Hotels and restaurants	5

Source: research findings

Now, based on Taylor and Drifeld studies (2001), internal businesses can adapt themselves to multinational businesses, concerning productivity gap, if the gap being in a logical level. Therefore if no productivity gap exists between internal and external businesses, no adaptation will take place for encountering multinational companies (one of the most important index for

globalization). But if productivity gap exist, internal businesses by increasing the wage of skilled labor and reducing the wage of unskilled labor and employed of skilled labor, will adapt their productivity to foreign businesses.

This happens if the productivity gap will not exceed from a determined limit. If it exceeds from this limit, internal business may exit from the given sector (exit from market) and no adaptation will take place. Therefore the productivity gap with the ratio of skilled to unskilled labor is squared equation. This is shown in the forth column of table (3) titled third model. As we see the squared productivity gap (A2) has coefficient amount of (-.0177) and is statistically significant. Therefore, relation of skilled to unskilled labor variable and productivity gap between service sub sectors of Iran during the years of 1997- 2004 has a squared equation by having a maximum amount (like figure 2). Now we can calculate that the maximum amount of third model in table (3):

$$\frac{L_s}{L_u} = C + 0.0881A - 0.0177A^2$$

(17)

$$\frac{\partial \left(\frac{L_s}{L_u} \right)}{\partial A} = 0.0881 - 0.0354A = 0$$

$$A^* = 2.5$$

(18)

Therefore, the average amount productivity gap up to 2.5 times (external to internal companies) will cause reduction of productivity gap (the area of $A < A^*$), and if the productivity gap is 2.5 times more ($A > A^*$), the reduction possibility of skilled to unskilled labor, in other words no adaptation of internal companies to external ones exists in which some businesses may quit and exit the industry which results the employment decrease and missing of job opportunities. Thus, the reduction of labor productivity gap in service sub sectors, which indeed their priorities is shown in table (3), is the most important actions for reduction of losses stem from economy globalization. This critical factor is avoidable by skilled labor absorption.

8-Conclusion and suggestions

Productivity gap of Iran's service sector with the service sector of developed countries is in such manner that by increasing the gap (between sub sectors), the share of skilled to unskilled labor increases. In other word, by entering service multinational businesses to Iran, present service businesses in service sub sectors of retailing, and wholesaling, hotels and restaurants, transportation, storage and communication, financial intermediations, real states and rent and business activities by changing their labor structure toward skilled labor absorption (increase of the proportion of L_s/L_u) increase their labor productivity aiming the reduction of productivity gap with foreign businesses. Real state, rent and business activities sub sector can cover their productivity gap by less adjustment. Hotel and restaurant sub sector should reduce their gap by more adjustment. In other word, real state, rent and business activity can adjust their gap by less absorption of skilled labor, which is because of the existence of technical and engineering service in this sector that cause higher productivity in this sub sector than others. Also hotel and restaurant sub sector must adjust by more absorption of skilled labor. Therefore the reduction labor productivity gap in service sub sectors, which indeed their priority shown in table (4), is one of the most important actions for reduction of losses stem from economy globalization. This important action can be predictable by skilled labor absorption and converting unskilled labors to skilled ones through training.

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