



شعوب متمكنة -
أمم صامدة.



وزارة العمل والحرف اليدوية



The Informal Sector in the Jordanian Economy

Chapter One:

Overview

1.1 Introduction:

The discovery of the informal sector began to materialize in the early seventies. The notion, although alien to many, showed logic and started to develop to this day. The debate over the importance of the informal sector/economy continued, some believed that the informal sector is associated with poor countries and economies and it would disappear once these countries achieved sufficient economic growth.

The evolution of the informal sector theory throughout the past four decades showed that it can no longer be considered as a temporary phenomenon. It is not considered to be a fixed characteristic in countries where incomes and assets are not equitably distributed.

The past decades have indicated that the informal sector is clearly a potential engine of job and income generation, thus the main challenges exist in developing innovative and supportive policies that recognize the contributions, workforce of the informal economy and finding the correct method of integrating this economy into the formal economy.

After initially realizing the existence of the formal economy another huge challenge arose. How do we measure the informal economy? The first problem of measuring the informal economy is finding a suitable definition of it. At the outset, it needs to be made clear that “the informal sector manifests itself in different ways in different countries, in different cities within the same country”.

For the purposes of the present study the term ‘informal economy’ is preferred to the term ‘informal sector’ for the following two reasons. First of all, the informal and formal parts of the economy are so inter-related that it is difficult to imagine them as two distinct sectors. Second of all, the term ‘sector’ is more commonly used to classify industry groups. (Chen, Jhabvala & Lund, 2001)

Smith (1994), for example, defines the informal economy as “market based production of goods and services, whether legal or illegal, that escapes detection in the official estimates of GDP.” Schneider (1986) also describes the informal economy as all economic activity that contributes to value added, but which is presently not registered by national measurement agencies. Hartzenburg & Leimann (1992), too, prefer a broad definition: “all economic activities pursued without the sanction of the authorities; i.e. those not recorded in the national accounts.”

The purpose of this study is to shed light on the status of the informal sector in Jordan, by being able to better identify and measure it. Additionally the study will define the sectors in which the informal economy operates.

In this paper we use a new and original data set, the Jordan Labor Market Panel Survey of 2010 (JLMPS 2010) to study changes in the structure and evolution of employment in Jordan. We strive to better address the challenge of measuring the informal economy in Jordan. Previously conducted studies have used the Employment and Unemployment Survey to estimate the informal sector. The JLMPS 2010 data is also offers significant advantages over the Employment and Unemployment Survey in its ability to identify informal employment in its various guises, including wage and salary employment without contracts or social insurance and self-employment and unpaid family employment. It also offers a more detailed view of employment conditions including paid and unpaid leaves, the presence of health insurance, hours of work, and the type and size of economic unit in which the worker is employed.

1.2 The Informality:

As mentioned in the introduction, the definition and measurement of the informal economy presents a huge obstacle and we will be referring to it as informal economy as mentioned earlier as well.

At the same time the criteria used to define ‘informal economy’ varies depending on the legal, technical, financial and organizational use to which

the term is to be put. Researchers, therefore, typically define the informal economy according to the criteria specific to their research and these criteria are not generally applicable to other studies. For this reason, the present study will focus on generalized definitions of the informal economy that may be used by a variety of studies.

One of the most important influences on the study of the informal economy has been the International Labor Organization (ILO) in Geneva. The ILO (1993) probably offers the most comprehensive and widely used definition of the informal economy: “The informal economy is broadly characterized as consisting of units engaged in the production of goods and services with the primary objective of generating employment and income to the persons concerned.” The informal sector then is defined as comprising those households with market production that are:

- Informal own-account enterprises may comprise either all own-account enterprises or only those which are not registered under specific forms of national legislations;
- Enterprises of informal employers may be defined in terms of either the size of the unit below a specified level of employment, or the non-registration of the enterprise or its employees.

The System of National Accounts (SNA), which is a coherent and integrated set of internationally accepted accounting concepts and rules devised by the United Nations, takes its definition directly from the ILO definition. For statistical purposes, then, the SNA regards the informal economy as a group of production units which form part of the household sector as household enterprises, or equivalently, non-incorporated enterprises owned by households. (Prinsloo, 1999).

Despite the heterogeneity of the informal economy it is possible to use a classification of either the type of economic unit, or the employment status of workers. Informal economy units can be micro-enterprises, family businesses, and own-account operations. Workers in the informal economy are sometimes actual employees of informal enterprises, but more often than not they are domestic workers without regular contracts, casual

workers without fixed employers, temporary workers who get paid through an agency, part-time workers for fixed employers, and unregistered workers (ILO, 2001).

1.3 The Issue of Measurement:

Measurement of the informal economy is difficult because of its nature and composition. The informal economy comprises of (i) households with at least some market production; and (ii) production units with low levels of organization and technology, and with unclear distinction between labor and capital or between household and production operations. Other typical characteristics of these units are high mobility and turnover, seasonality, lack of recognizable features for identification, and reluctance to share information. These units usually are not covered by establishment or enterprise surveys, because they are not included in the sampling frames for these surveys. However, these units might be covered by household surveys, which usually do not include questions pertaining to production. Because of these issues, informal sector statistics are not collected through the regular survey system of national statistical offices (NSOs). Therefore, informal sector statistics can be compiled only through special surveys for this purpose.

Since data on the informal economy and informal employment are not available regularly, if at all, the national accounts statistics cannot cover this sector, resulting in distorted estimates of the structure of the economy. This lack of information also hinders the understanding of policy makers in government, the private sector, and the public about many social and economic issues related to informal sector activities, such as lack of social protection; limited access to credit, training, and markets; and differentials in wages and working conditions. As such, the policies and interventions that are formulated and implemented to reduce poverty by generating decent work might not result in the desired outcome.

The collection of data on the informal sector can take many approaches independent surveys, mixed household–enterprise surveys, labor force or

other household surveys, or the expansion of coverage of establishment surveys and economic censuses. Developing countries with limited public funds cannot sustain many of these approaches, because conducting regular national surveys requires sizeable budgets. However, many of these same countries have large informal sectors and informal employment that need to be measured.

1.4 The benefits of Informality:

The reasons why people operate in the informal economy, either partially or completely can be shown using cost/benefit analysis. It has been shown in a large number of international studies (Thomas 1999) that the increase in taxation and other social security contribution burdens has been the most important contributing factor in the increase in the size of informal economies. An increase in the marginal tax rate in the formal economy would result in an increase in the opportunity cost of remaining in the formal economy. The substitution of the informal economy by the formal economy would therefore result in a net welfare loss due to the tax distortion.

Schneider & Enste (2003) use a modified form of the Laffer Curve to show the relationship between the tax rate and the size of the various economic sectors (the public sector, the official sector, and the informal sector). The Laffer Curve shows the relationship between the tax rate and the tax yield.

When taxes are introduced there is a positive incentive to move from the informal economy into the formal economy, as the benefits derived from the public sector (ensuring property rights and public services) outweigh the costs; ultimately this process reaches an optimal level. At a certain point, however, any further rise in tax rates results in negative incentives to work in the formal economy due to the high tax rates. This naturally has the effect, of expanding the informal economy.

Increased regulation of the economy (i.e. a greater number of regulatory laws and licenses), and inefficient bureaucracies are two further factors that

increase the opportunity cost of operating in the formal economy. In fact there is a direct correlation between increased regulation and increasing in size of the informal economy: the greater the regulation of countries' economies, the more informal activity there is.

A strong social welfare system also has the net effect of increasing the size of the informal economy by raising the opportunity cost of operating in the formal economy. At the same time, however, a social welfare system provides a major incentive to receive unemployment benefits – despite working in the informal economy.

On the other hand, enforcing minimum wages which are too high might have the effect of driving firms into the informal sector. By making labor more expensive, high minimum wages push firms (partially those which hire low-skilled workers) to either increase their capital-labor ratio, reducing their demand for labor, or to shift to the informal sector where wages are not regulated.

A dramatic increase in the informal economy leads to a decrease in the level of government tax revenue, which leads to a reduction in government expenditure on public goods and services. In order to improve expenditure on public goods and services, governments often increase tax rates.

According to Schneider (2002) findings such as the above demonstrate that governments should put greater emphasis on improving law enforcement and regulations rather than on simply increasing the number of regulations. However, in practice governments seem to increase the number of laws and regulations in response to the growth of the informal economy.

1.5 The Costs of Informality:

The cost of operating in the informal economy can be presented in the fact that operating in the informal economy means one cannot take advantage of government services that are provided to the formal economy.

There are various public services that are not provided to the informal economy. The most important of these services is probably access to the legal system. This would ensure property rights and the enforcement of

trade law. Because it does not have any legal support for any contracts or documents, the informal company operates in an uncertain environment. This increases the risk and cost of doing business. The increase in risk raises the cost of capital (i.e. 'informal' interest rates) and this, in turn, leads to lower levels of investment.

However, the benefits of operating in the informal economy tend to outweigh the costs. Even if the costs of operating in the informal economy increase, mistrust of the formal economy tends, in the end, to prevent firms from 'formalizing' their operations.

1.6 Informality in the Jordanian Economy:

In 2008, the Jordanian Department of Statistics (DOS) published a report which concentrated on female employment in informal sector; the study covered greater Amman area. In order to establish the study, the World Bank identified the informal economy as work in home, which means people who are not related to a company, or who don't have a job contract with a specific company; most of these people don't pay taxes, and might not have a social insurance record.

Based on this survey, in 2009, Al- Budirate presented a paper in the global forum on gender statistics" Jordanian Experience in measuring Employment in the Informal sector". The author viewed women participation in the Jordanian working force, according to 2007 figures, 97.7% of inactive females are housewives and students, self-employed females constituted 2.4% of the total employed females while employer females constituted less than 1.7%.

In 2011 the World Bank issued the study under the title" Striving for Better Jobs: The Challenge of Informality in the Middle East and North Africa". The study resulted that the informal sector size varies in the Middle East and particularly in the non-gulf countries. The size of the informal sector depends on the availability of the natural resources and manpower in addition to the demographic state. The data showed that countries with

abundant labor and natural resources suffer from high rates of informal employment such as (Iran, Syria and Yemen). Additionally, the data showed that 80% to 90% of the labor force doesn't contribute to the social security system; in spite of the high rate the rate of the non-observed part of the GDP estimated around 20% to 25%.

On the other side , countries with low employment and natural resources such as Jordan, Tunisia and Morocco, the percentage of the non-observed GDP in it reached 36% to 40%, while the proportion of the labor force who don't contribute to the social security system reached 45% to 67%.

The IMF in its last report "Regional Economic Outlook: Middle East and Central Asia" estimated the size of the informal sector in the Jordanian economy at 26%, they used in their methodology the Multiple Indicator-Multiple Cause (MIMIC) model.

1.7 The Methodology of the Study in Measuring the Informality:

In collaboration between the Department of Statistics and the National Central of Human Resources Development, a survey was conducted to track the Jordanian Labor market (JLMPS 2010). The survey focused on studying the characteristics of the Jordanian labor market during the quarter of the last century. In addition, the survey focused on new employment to the market and pursued the evolvement of this employment over time. This survey in its approach characterized by its ability to monitor the informal employment in its various guises, including wage and salary employment without contracts or social insurance and self-employment and unpaid family employment.

In this study, we will distinguish between five types of employment, namely: (i) government employment, (ii) formal private wage work, which includes wage and salary employment with either a legal employment contract or social insurance coverage in either the private sector or in state-owned enterprises, (iii) informal private wage work, which includes wage and salary work in the private sector with neither a contract nor social

insurance coverage, (iv) employers and self-employed individuals in the private sector, and finally (v) unpaid family workers in the private sector.

Chapter Two: The reality of the labor market in Jordan

2.1 The Labor Market in Jordan:

In the last six decades, Jordan has witnessed key economic, social and demographic changes especially after the 1948 war, which led to forced migration towards the Kingdom which increased the numbers of the population and caused structural imbalances in the Jordanian labor market. The labor supply exceeded the domestic demand due to the inability of the economy to absorb the large numbers the newcomers to the labor force, which aggravated the unemployment problem.

In the seventies and eighties, the Jordanian labor market has witnessed marked developments reflecting the conditions experienced by Jordan and the Arab Region in general regarding the political, economic and social development. As a result, the size of the workforce in Jordan increased from 332.8 thousand workers in 1973 to 420 thousand in 1980, to 630.1 thousand in 1990 and then to 1142.3 thousand in 2000. Hence, the total participation rate in the past years has increased from 19.83% to 20.24%, 21.5% and to 26.4% respectively, while the unemployment rate has seen a marked fluctuation during the period (1973-2000) and reached 11.1%, 3.5%, 16.8% and 13.7% respectively. In 2010, the estimated size of the workforce was about 1412.1 thousand workers, the crude participation rate was 25.1%, and the unemployment rate was 12.5%. (Al-Talafhah, 1993 and the Ministry of Labor, 2010).

Unemployment rates have passed several stages since 1973, where the Jordanian economy turned around towards semi-full employment of human resources, and calling for foreign workers to bridge the gap caused by the developments in the Jordanian labor market. This has coincided with the economic development plans (1973-1975), (1976-1980) and (1981-1985). This situation continued until the mid-eighties, where the Jordanian economy witnessed a noticeable decline in production and employment,

which led to accelerated rates of unemployment. This coincided with the decline in domestic and external demand for Jordanian labor. During this period, the return of the Jordanian emigrant labor started especially from the Gulf countries (Khasawneh, 1986). Then the external demand for Jordanian labor increased during the nineties, which contributed to a gradual decline in the unemployment rates.

In terms of the sectoral distribution of the Jordanian labor, it has witnessed a continuous decline of contribution from the agricultural sector in the total employment from 16.8% in 1973, 10.2% in 1980, 7.3% in 1990 and then to 4.6% in 2000. This significant decline was due to the low return on agricultural production and therefore workers in agriculture moved to other sectors, especially services, whose share in total employment increased from 63.7% to 67.7%, 71.3% and to 73.3% respectively. The ratio of the contribution of the industrial sector was 9.9%, 9.5%, 11.5% and 15.5% respectively and the construction sector's contribution was 9.7%, 12.6%, 9.9% and 6.5% respectively. In 2004, the agricultural sector absorbed 3.55% of the total employment compared to 15.51% for the industrial sector, 7.11% for construction and 73.83% for the service sector. In 2010, the agricultural sector employed only 2.0% of the total employment, compared to 12.3% in the industrial sector, 6.6% in the construction sector and 79.3% in the services sector. (Ibrahim, 1989, the Ministry of Labor, 2004 and 2010).

Regarding the educational distribution of Jordanian employment, there was a significant improvement due to the focus on investment in human resources through the establishment of different institutions of higher education in the Kingdom, so the proportion of the Jordanian labor carrying the Secondary Certificate and lower degrees decreased to less than 89.0% in 1973, 85.4% in 1980, 75.9% in 1990 and 69.0% in 2000, while the percentage of those carrying the bachelor's degree and other higher degrees increased from 6.1% to 7.2%, 12.2% and to 17.6% respectively. In 2010, the percentage of those holding the secondary certificates and lower

degrees reached less than 49.6% versus 25.2% for Bachelor and higher degrees holders (Ibrahim 1989, the Ministry of Labor, 2010).

The occupational distribution of employment in Jordan and its professional distribution was affected by changes in the sectoral and educational distribution in the Jordanian labor market, it was in 1973 as follows: specialists: 8.4%, administrators: 1.3%, clerks: 5.9%, in sales: 7.5%, employees in services: 6.2%, workers in agriculture: 15.8%, and workers in production: 54.9%. The previous figures were in 1980 as follows: 13.3%, 1.6%, 6.4% and 8.2%, 6.4%, 10.1% and 54.1% respectively. While the percentages in 1990 were: 19.3%, 2.6%, 6.5% ,8.9%, 5.2% , 5.4%, and 52.1%, and in 2000, they were: 27.7% , 0.9%, 8.3 % , 0.1%, 15.0% , 3.3% and 44.8%. In 2010, the previous percentages were as follows: Specialists 23.5%, administrators 0.5%, clerks 6.2%, workers in services and sales together 27.4%, workers in agriculture 1.5%, workers in production 40.9% (Ibrahim 1989, the Ministry of Labor , 2010).

2.2 Characteristics of the Jordanian labor market:

The Jordanian economy and the Jordanian labor market were affected by the political and economic previously experienced developments in the region, which have produced a changing demographic reality for Jordan and imposed different economic pressures such as the forced migrations to Jordan in 1948, 1967, 1991 and 2003.

2.2.1 Imbalance in the labor market:

The reason of the imbalance in the Jordanian labor market could be resulted by the rapid changes experienced by the Jordanian economy since 1948, accompanied by political and economic conditions whose prerogatives are present to this day. By analyzing the supply and demand in the labor market, we can conclude the reasons for this imbalance. Regarding supply, the high population growth increased the supply of manpower, especially, where the rate of population growth in Jordan exceeds 28 per thousand. This is caused mainly by migration to Jordan and low mortality rates, which reached 7 per thousand, as well as high birth

rates, which reached 30.1 per thousand in 2010 (Department of Statistics, 2010). Furthermore, there is a continuous influx of foreign workers to Jordan since 1973, in addition to an accelerated increase in the outputs of the educational system in Jordan. Regarding demand, there was an obvious fluctuation in the demand for the Jordanian labor force the political conditions as well as the Jordanian relations with the hosting countries of the Jordanian.

2.2.2. Fluctuating rates of unemployment:

The labor market in Jordan witnessed during the period (1973-2010) a noticeable fluctuation in unemployment rates which ranged from 1.6% in 1976 to 18.8% in 1993, while they were 11.1% in 1973 (Ibrahim, 1989); however, the rate began to decline significantly since 1975 (below 9%) and began to increase significantly since 1989 because of the economic crisis that hit Jordan that year and led to the low exchange rate of the Jordanian Dinar for about the half in addition to the subsequent negative effects of the second Gulf War on the Jordanian economy, which led to a decline in the external demand (particularly from the Gulf countries) for Jordanian labor. The unemployment rate reached its peak in 1993 where it was (18.8%) and fluctuation started again until it reached 12.5% in 2004 and 2010 (Ministry of Labor, 2004 and 2010). The reasons for the high rates of unemployment in the Jordanian labor market since the fifties are due to the economic and political conditions which are still valid to this day. The reasons were associated with the competition between foreign and national workers in various economic activities. The most important reasons can be summarized as follows:

1. Slowdown in the economic growth since the eighties, compared with growth in the seventies when Jordan witnessed important economic leaps and high growth rates (Al-Omari, 2002).
2. Rapid increase in the outputs of the educational system at different levels and lack of harmony between these outputs and the needs of the Jordanian labor market.

3. The vocational education represents only a modest proportion (about 10%) of the output of the educational system in Jordan, which focuses on the academic education as a whole.
4. High rates of population growth in Jordan (2.2% in 2010), which often exceed the economic growth rates; therefore, the population increase will cause (especially in the long run) excess labor supply that cannot be absorbed by the labor market.
5. The employment saturation reached by the public sector in Jordan, the largest employer in Jordan, and the trend towards privatization of some public bodies led to a decline in the public sector's demand for workforce.
6. The competition between foreign workers and national workers in Jordan for some professions, and differences in wages. Foreign workers usually accept lower wages than the Jordanian workers are willing to accept for the same job. Additionally foreign workers are more willing to work in difficult conditions and for long hours, thus creating a better labor supply in those professions.
7. Decline in the external demand for Jordanian labor due to the retreat in the volume of investments in the countries which have been considered traditional markets for the Jordanian labor, and the nationalization of jobs policy whereby foreign labor is substituted in those markets by national workers.
8. Political conditions that were a result from turmoil and wars in the region, especially the second Gulf War in 1991 which forced a large numbers of Jordanians living in the Gulf (about 350 thousand) to return home and look for jobs, consequently unemployment rates began to increase rapidly and peaked in 1993 (18.8%).

2.2.3. Low crude rate of participation:

The crude activity rate in the labor force reached about 23% during the period (1973-2010), which is low, despite the gradual rise it went through, which is much lower than those in other countries, as well as for the

refined activity rate in Jordan during the period (2006-2010), which was 39.3%, compared with 65% in the U.S. ,62% in the UK , 58% in Israel and 58% in India (<http://data.worldbank.org/indicator/SL.TLF.CACT.ZS>).

The reasons for the low crude activity rate economic participation are:

1. Low rate of female participation in the labor force, which did not exceed 9.4% in 2010 due to customs and traditions, such as marriage, child-bearing and family desires for better activities for females, which reduced the rate of the contribution of women in the labor force in Jordan (Talafha and Fahdawi, 1998 and DOS, 2010).
2. The age composition of the Jordanian population, where children under the age of fifteen represent about 37.1% of the total population because of the high fertility rate, which leads to lower proportion of people of working age (between 15 and 65 years).
3. The expansion of the educational system in Jordan which is mainly directed to investing in human capital, and therefore it delays the entrance of part of the population into the labor market, where those who still receive their education at different stages in Jordan represent about a third of the Kingdom's population (Ibrahim A, 1989).
4. The persistent migration of young workers to work abroad, especially in the Gulf Countries despite the slow pace of this migration for more than 15 years is still within narrow limits especially for talented people, professionals and non-traditional jobs.

Early pension systems for a large part of the population (Amira, 1991), especially for those who work outside the system of retirement of the General Organization of Social Security. The early retirement systems include civilian and military retirement systems before 1994; however, the social security system has been lately applied to cover on any person appointed in the different governmental institutions so as to include all the workers under one umbrella, the social security retirement system.

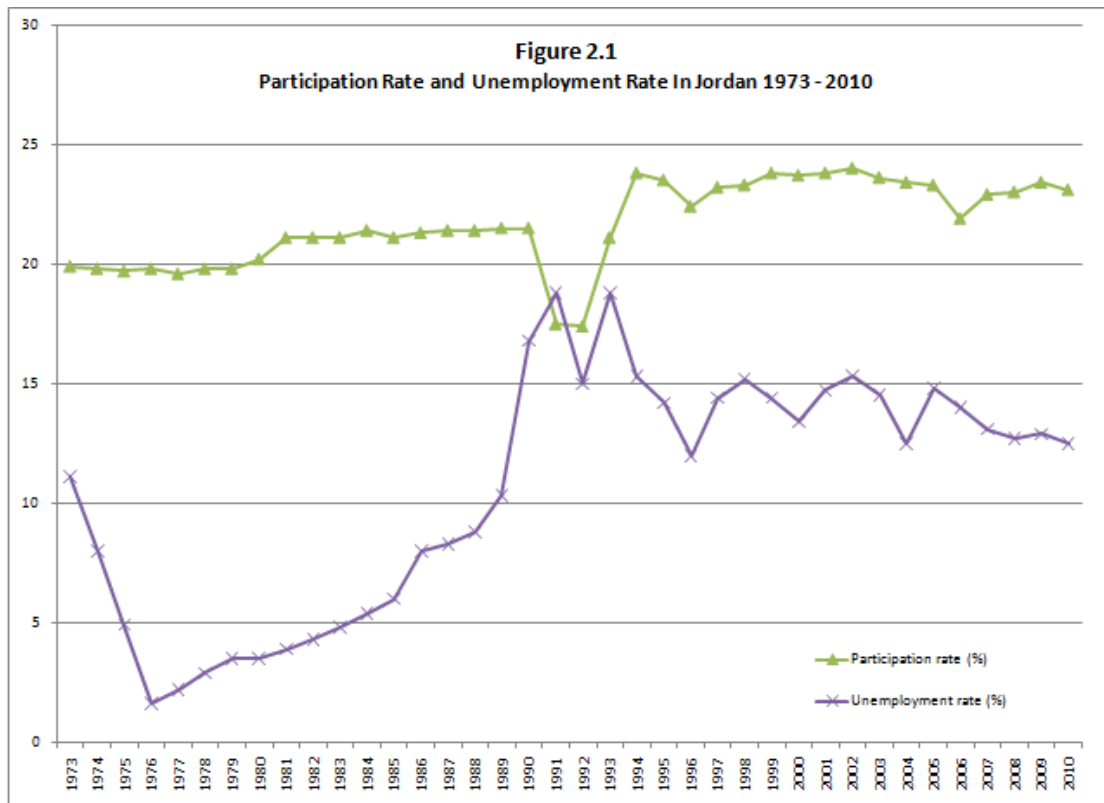
Table 2.1
Labor force, Workers, Participation Rates and
Unemployment Rates (1973-2010)

Year	Total Labor Force (thousand)	Workers in the economy (thousand)	Participation rate (%)	Unemployment rate (%)
1973	333.8	296.0	19.9	11.1
1974	343.9	316.4	19.8	8.0
1975	355.4	338.1	19.7	4.9
1976	367.2	361.3	19.8	1.6
1977	379.5	371.0	19.6	2.2
1978	392.2	380.9	19.8	2.9
1979	405.3	391.1	19.8	3.5
1980	420.0	405.3	20.2	3.5
1981	435.4	418.4	21.1	3.9
1982	451.2	431.8	21.1	4.3
1983	467.7	445.3	21.1	4.8
1984	484.7	458.5	21.4	5.4
1985	502.4	472.3	21.1	6.0
1986	535.4	492.5	21.3	8.0
1987	555.7	509.3	21.4	8.3
1988	572.2	521.8	21.4	8.8
1989	583.5	523.5	21.5	10.3
1990	630.1	524.2	21.5	16.8
1991	646.6	525.0	17.5	18.8
1992	706.0	600.0	17.4	15.0
1993	809.3	657.2	21.1	18.8
1994	948.7	803.5	23.8	15.3
1995	974.6	836.2	23.5	14.2
1996	994.0	874.7	22.4	12.0
1997	1032.7	884.0	23.2	14.4
1998	1064.8	903.0	23.3	15.2
1999	1116.2	955.5	23.8	14.4
2000	1142.3	989.2	23.7	13.4
2001	1175.7	1002.9	23.8	14.7
2002	1216.8	1030.6	24.0	15.3
2003	1227.2	1049.3	23.6	14.5
2004	1250.3	1094.0	23.4	12.5
2005	1273.3	1073.3	23.3	14.8
2006	1226.2	1055.8	21.9	14.0
2007	1312.6	1140.4	22.9	13.1
2008	1342.8	1172.7	23.0	12.7
2009	1400.8	1220.5	23.4	12.9
2010	1412.1	1235.9	23.1	12.5

Source:

- Talafha, Hussein (1993), Labor Supply and the Rate of Participation in the Labor Force in Jordan, ABHATH ALYARMOUK-Humanities and Social Sciences Series, Volume IX, No. IV, pp. 271-307.

- Ministry of Labor, Annual Report, from 1991-2010.



2.2.4. Imbalance in sectoral distribution:

The area fit for cultivation in Jordan is decreasing due to expansion of construction, limited water resources, outdated technology used in the agricultural sector, and low returns in agriculture which led to a declining contribution of this sector in total employment for the benefit of other economic sectors, particularly services and industry. In 2010, the percentage of contribution of the agricultural sector in total employment came to 2.0% versus 79.1% for the services sector and 12.3% for the industrial sector, while the previous proportions were in 1973 16.8%, 63.7% and 9.9% respectively. (Issa Ibrahim, 1989, the Ministry of Labor, 2010); the annual rate of the decline in the proportion of using the agricultural sector for a part of the overall employment during (1973-2010) was 5.9%.

2.2.5. Imbalance in the geographical distribution:

Employment in Jordan is concentrated on the Greater Amman area. In 2010, the central region, which includes the Governorates of Amman,

Zarqa, Balqa and Madaba had the largest proportion of the workforce (68.1%), followed by the northern region, which includes the Governorates of Irbid, Mafraq, Jerash and Ajloun (21.2%), and the southern region, which includes the Governorates of Karak, Ma'an, Tafileh and Aqaba (10.7%). It seems evident that the proportion of the workforce in each region of the total workforce in Jordan is a reflection of the proportion of the population in the same region, where the central region is inhabited by the largest proportion (62.8%), followed by the north region, which is inhabited by (27.8%) and finally the southern region which is inhabited by (9.4%) (Ministry of Labor, 2010). This is attributed partially to the fact that the central region includes ministries, official departments, public services institutions, factories, private interests and investments.

2.2.6 Sending and receiving market:

The labor market in Jordan is considered to be an importer and exporter of labor. Jordan imports labor from Arab and foreign countries and also exports workers to Arab countries, especially the Gulf Countries. The peak of the import and export of workforce in Jordan was in the eighties, when Jordan benefited from the differences in wages between what was paid for the Jordanian workers abroad and what is paid to the foreign workers coming to Jordan, especially for similar professional groups.

In 1985, for example, the total number of Jordanian emigrant labor was about 339 thousands workers, which represents about 67.5% of the total work force of Jordan and 12.6% of the total population. In the same year, the volume of foreign workers coming to Jordan was 143 thousand workers, which constitutes about 28.5% of the total labor force in Jordan, 30.3% of all the workers in the economy and 5.3% of the total population. In 2010, the number of registered foreign workers coming to Jordan was 298,342, while the number of Jordanian workers abroad was about 350 thousand (Athamneh, 2011).

2.3. The Structural changes in the labor force:

The economic, social and political developments witnessed by Jordan caused structural changes in the labor market of the Kingdom during the last four decades.

2.3.1. Employment according to the economic activity:

The sectoral distribution of employment in Jordan is characterized as being imbalanced due to the nature of each economic activity, in addition to the technological development used in these activities. The structural changes in the GDP between economic sectors play an important role in the distribution of the labor force in the same sectors; i.e. the sectoral distribution of employment is reflected in the sectoral distribution of the GDP (Al-Talafhah, 1990); therefore, the economic sectors that are growing at high rates should employ more people than the sectors which grow at lower rates.

Table (2.2) refers to a significant decline in the number of workers in the agricultural sector from 49.8 thousand workers in 1973 to 24.7 thousand in 2010 with an annual decline of 1.9%. The proportion of workers in the agricultural sector in the above two years decreased from 16.8% to 2.0% respectively because of the decreasing cultivated lands and rapid technological developments which have been entered into the agricultural sector and contributed to the presence of employment in addition to the low economic returns in this sector compared with other economic sectors.

Table (2.2)
The Distribution of the Labor Force by Economic Activity in Jordan (1973-2010)
(Thousand Worker)

Year	Workers in the economy	Agriculture		Industry		Construction		Services	
		No.	%	No.	%	No.	%	No.	%
1973	296.0	49.8	16.8	29.4	9.9	28.8	9.7	188.5	63.5
1974	316.4	50.4	15.9	31.4	9.9	32.5	10.3	202.1	63.9
1975	338.1	50.2	14.9	32.8	9.7	36.2	10.7	218.9	64.7
1976	361.3	49.5	13.7	34.1	9.4	39.4	11.0	238.1	65.9
1977	371.0	48.0	13.0	34.8	9.4	43.4	11.7	244.7	65.9
1978	380.9	46.6	12.2	35.5	9.3	47.0	12.3	251.9	66.1
1979	391.1	45.1	11.5	36.1	9.2	50.8	12.9	259.4	66.3
1980	405.3	41.4	10.2	38.6	9.5	50.9	12.6	274.4	67.7
1981	418.4	39.0	9.3	42.2	10.1	52.5	12.6	284.5	68.0
1982	431.8	35.8	8.3	45.5	10.5	52.6	12.2	297.7	69.0
1983	445.3	32.8	7.4	48.7	10.9	52.7	11.8	311.1	69.8
1984	458.5	34.9	7.6	52.0	11.3	52.7	11.5	318.9	69.6
1985	472.3	36.9	7.8	55.1	11.7	51.9	11.0	328.5	69.6
1986	492.5	37.4	7.6	58.1	11.8	54.2	11.0	342.8	69.9
1987	509.3	37.7	7.4	62.1	12.2	53.4	10.5	356.2	70.3
1988	521.8	39.7	7.6	62.2	11.9	52.6	10.1	367.0	71.3
1989	523.5	37.7	7.2	61.8	11.7	51.8	9.9	373.0	71.3
1990	524.2	38.3	7.3	60.3	11.5	51.9	9.9	373.8	71.3
1991	525.0	40.8	7.4	64.3	11.6	54.0	9.8	393.0	71.2
1992	600.0	44.4	7.4	68.4	11.4	60.0	10.0	437.0	71.2
1993	657.2	42.0	6.4	74.3	11.3	46.0	7.0	494.8	75.3
1994	834.8	54.3	6.5	97.7	11.7	79.3	9.5	603.6	72.3
1995	836.2	57.7	6.9	107.0	12.8	83.6	10.0	587.8	70.3
1996	874.7	82.2	9.4	100.6	11.5	84.8	9.7	607.0	69.4
1997	884.0	68.0	7.7	141.4	16.0	84.0	9.5	590.5	66.8
1998	903.0	60.5	6.7	145.4	16.1	72.2	8.0	624.9	69.2
1999	955.5	58.3	6.1	143.3	15.0	68.8	7.2	686.0	71.8
2000	989.2	45.5	4.6	153.3	15.5	64.3	6.5	725.1	73.3
2001	1002.9	41.1	4.1	151.4	15.1	68.2	6.8	742.1	74.0
2002	1030.6	41.2	4.0	155.6	15.1	64.9	6.3	768.8	74.6
2003	1049.3	37.8	3.6	160.5	15.3	67.2	6.4	783.8	74.7
2004	1094.0	39.4	3.6	169.6	15.5	77.7	7.1	807.4	73.8
2005	1073.3	36.5	3.4	154.6	14.4	67.6	6.3	814.6	75.9
2006	1055.8	32.7	3.1	144.6	13.7	66.5	6.3	811.9	76.9
2007	1140.4	30.8	2.7	151.7	13.3	76.4	6.7	881.5	77.3
2008	1172.7	30.5	2.6	151.3	12.9	75.1	6.4	915.9	78.1
2009	1220.5	34.2	2.8	156.2	12.8	81.8	6.7	948.3	77.7
2010	1235.9	24.7	2.0	152.0	12.3	79.1	6.4	980.1	79.3

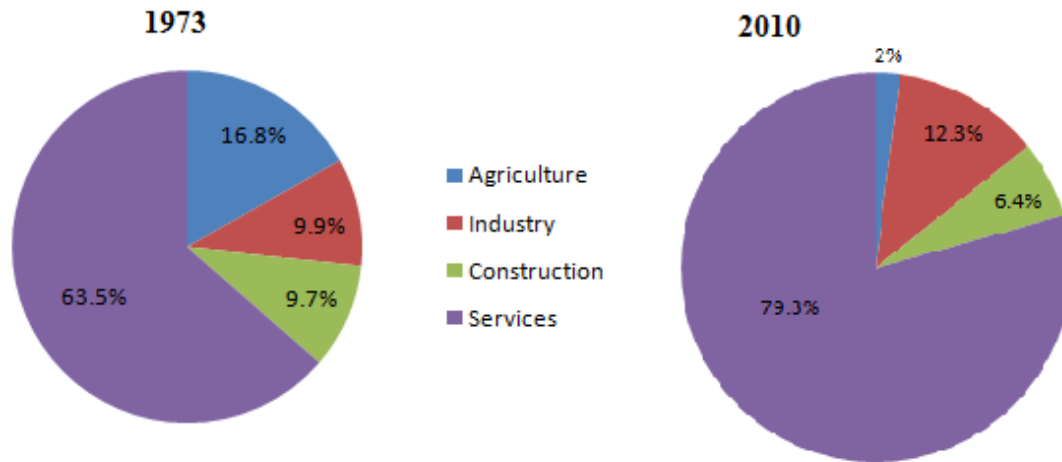
Source:

- Issa Ibrahim and others (1989), the Study of the Reality and Future of the Jordanian Labor Market, part III, the Jordanian Labor Market Database, Royal Scientific Society, Amman, table (3-11), p. 62.

- Ministry of Labor, Annual Report, for the years (1990-2010).

Figure 2.2

The Distribution of the Labor Force by Economic Activity in Jordan



As for the industrial sector, it is evident from the same table that there is a steady increase in the number of employees in the sector from 29.4 thousand in 1973 to 152.0 thousand in 2010 with an annual growth of 4.5%; as a result of this, the contribution of the industrial sector in the total employment in the two years has increased from 9.9% to 12.3%, respectively. The reason for the ability of the Jordanian industrial sector in absorbing the growing labor is the Unbalanced Growth strategy adopted by Jordan in order to achieve economic development by focusing on the industrial sector as an engine for the economic development.

Regarding the construction sector, its employment has increased from 28.8 thousand in 1973 to 79.1 thousand in 2010 with an annual growth rate of 2.8%. Despite the marked increase in the number of workers employed by the sector, the percentage of the sector's employment out of the total employment has declined between the above-mentioned years from 9.7% to 6.4%, respectively because of the construction sector largely depends on the foreign labor, which increased from 224 thousand workers in 1980 to 336 thousand in 2010.

With regard to the services sector, it has the largest share of the total labor force whereby the number of employees increased from 188.5 thousand workers in 1973 to 980.1 thousand in 2010 with an annual growth rate of 4.6%. Workers as a percentage of the total employment in the service sector increased in the two years from 63.5% to 79.3%, respectively. The services sector is thus considered the main employer for the new entrants to the labor market, where Jordanians prefer

to work in the public sector (the public sector with all its bodies and the armed forces), which constitutes a high percentage of the total workforce (about 37% in 2010, for example).

2.3.2. Employment according to the educational level:

The labor market in Jordan has witnessed remarkable development in the educational levels of the workforce because of the focus on investment in the human capital in order to meet the growing development needs in the Kingdom at all the economic and social dimensions. This has resulted in the establishment of universities, technical institutes and schools in order to provide the labor market with qualified workers to meet the needs of employment. As a result, the labor force's holding of high academic qualifications increased due to the acceleration of the pace of education that emerged from the interdependence of wages with the educational level (Abu-Jaber, 1991).

Table (2.3) shows that the proportion of workers holding the Secondary and lower certificates has declined from 89% in 1973 to 75.9% in 1990 and then to 73.5% in 2010. The number of those workers in the same years increased from 296.2 to 478.2 and to 960.3 thousand workers, respectively with an annual growth rate of 4.1% during the period (1973-2010).

The number of individuals holding a Diploma has increased from 15.6 thousand in 1973 to 75.0 thousand in 1990 and then to 102.6 thousand workers in 2010 with an annual growth of 5.2% during the period (1973-2010). Their percentage of the total employment in the same years was 4.7%, 11.9% and 8.3% respectively.

With regard to those holding the Bachelor and higher degrees, their number has increased from 21.0 thousand in 1973 to 76.9 thousand in 1990 and then to 173.0 thousand workers in 2010 with an annual growth rate of 5.9% during the same period. Their percentages from the total employment in the previous years have increased from 6.3% to 12.2% and to 14.0%. Despite the significant rise in the number of the university graduates, their percentage from the total labor force is still low; the labor market in Jordan still suffers from a shortage in the needs of professions and disciplines, especially during the economic boom which motivated Jordanian labor in this category to emigrate (Ibrahim A, 1989, and

DOS, 2010). The emigration of part of the Jordanian labor has also increased this shortage, where the number of emigrants from the Diploma and Bachelor holders was estimated by 33% from the total Jordanian emigrants in 1985 (Al-Talafha, 1989).

Table (2.3)

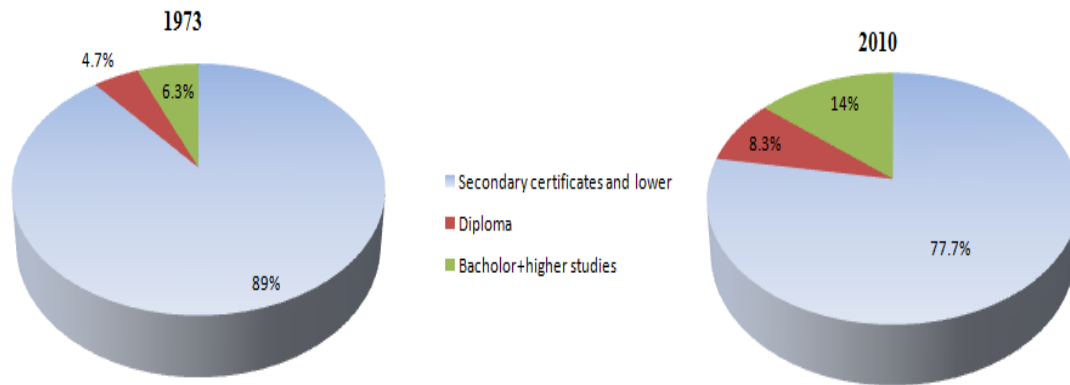
Distribution of the Labor Force by the Educational Level in Jordan (1973-2010)

year	Labor force	Secondary certificates and lower		Diploma		Bachelor+higher studies	
		No.	%	No.	%	No.	%
1973	332.8	296.2	89.0	15.6	4.7	21.0	6.3
1974	343.9	304.8	88.6	17.2	5.0	21.9	6.4
1975	355.4	313.5	88.2	18.9	5.3	23.0	6.5
1976	367.2	322.2	87.7	20.8	5.7	24.2	6.6
1977	379.5	331.3	87.3	22.9	6.0	25.3	6.7
1978	392.2	340.4	86.8	25.3	6.5	26.5	6.8
1979	405.3	349.7	86.3	27.8	6.8	27.8	6.9
1980	420.0	358.6	85.4	31.0	7.4	30.4	7.2
1981	435.4	367.9	84.5	34.0	7.8	33.5	7.7
1982	451.2	377.1	83.6	37.1	8.2	37.0	8.2
1983	467.7	386.7	82.7	40.4	8.6	40.6	8.7
1984	484.7	396.4	81.8	43.5	9.0	44.8	9.2
1985	502.4	406.5	80.9	47.4	9.4	48.5	9.7
1986	535.4	429.1	80.1	52.3	9.8	54.0	10.1
1987	555.7	438.9	79.0	57.6	10.4	59.2	10.7
1988	572.2	445.7	77.9	62.4	10.9	64.4	11.3
1989	583.5	448.7	76.9	66.5	11.4	68.5	11.7
1990	630.1	478.2	75.9	75.0	11.9	76.9	12.2
1991	646.6	488.1	75.5	80.2	12.4	78.2	12.1
1992	706.0	529.5	75.0	89.6	12.7	86.9	12.3
1993	809.3	602.1	74.4	105.2	13.0	102.0	12.6
1994	948.7	708.7	74.7	124.3	13.1	115.7	12.2
1995	974.6	723.2	74.2	124.8	12.8	126.7	13.0
1996	994.0	730.6	73.5	126.2	12.7	137.2	13.8
1997	1032.7	728.1	70.5	135.3	13.1	169.4	16.4
1998	1126.0	799.5	71.0	148.6	13.2	176.8	15.7
1999	1195.0	841.3	70.4	153.0	12.8	202.0	16.9
2000	1209.4	834.5	69.0	162.1	13.4	213.0	17.6
2001	1175.7	979.3	83.3	97.6	8.1	101.1	8.6
2002	1216.8	1003.9	82.5	101.0	8.3	111.9	9.2
2003	1227.2	1012.4	82.5	99.4	8.1	115.4	9.4
2004	1250.3	1041.5	83.3	91.3	7.3	117.5	9.4
2005	1073.3	870.4	81.1	93.4	8.7	109.5	10.2
2006	1055.8	856.3	81.1	91.9	8.7	107.7	10.2
2007	1140.4	899.8	78.9	95.8	8.4	144.8	12.7
2008	1172.7	925.3	78.9	98.5	8.4	148.9	12.7
2009	1220.5	959.3	78.6	102.5	8.4	158.7	13
2010	1235.9	960.3	77.7	102.6	8.3	173.0	14.0

Source:

- Issa Ibrahim and others (1989), the Study of the Reality and Future of the Jordanian Labor Market, part III, the Jordanian Labor Market Database, Royal Scientific Society, Amman, p. 76.
- Ministry of Labor, Annual Report, various issues.
- Department of Statistics, Employment and Unemployment Survey for the years (1993-2010).

Figure 2.3
Distribution of the Labor Force by the Educational Level in Jordan



2.3.3. Employment according to professions:

The category of "workers in the production and the non-classified" still holds the largest proportion of the total workforce that it has increased from 182.7 in 1973 to 328.4 in 1990 and then to 505.5 thousand workers in 2010 with an annual growth rate of 2.8% during the period (1973-2010). However, the proportion of those workers from the total employment decreased in the same years from 54.9% to 52.1% and then to 48.1%, respectively. It is well known that this category of employment does not require high academic qualifications; therefore, we can see a reflection of the changes in the sectoral and educational distribution of the workforce in the labor market on their professional distribution.

This can be confirmed by Table (2.4), where the category of "professionals and technicians" came in second place and the number of the employees in the three years has increased from 28.0 to 121.6 and then to 290.4 thousands, respectively with an annual growth rate of 6.5% during the study period. This high rate reflects the extent of development reached by the methods of production and specialization in the labor market in Jordan. It is worth pointing out that the number of workers in agriculture as a profession has significantly decreased between 1973 and 2004 from 52.6 thousand workers to 18.5 thousand, respectively with an annual decline rate of 2.8% during the period (1973-2010).

From the above, we can conclude that the professional dynamicity in the labor market was reflected by the trend towards the professional, administrative, and technical jobs and refraining from the agricultural work and some service

activities, which resulted in the need for foreign labor force to fill vacancies in these occupations (Al-Talafha and Al-Fahdawi, 1998).

Table (2.4)

Distribution of the labor Force by Major Occupational Groups in Jordan (1973-2010)

(Thousand Workers)

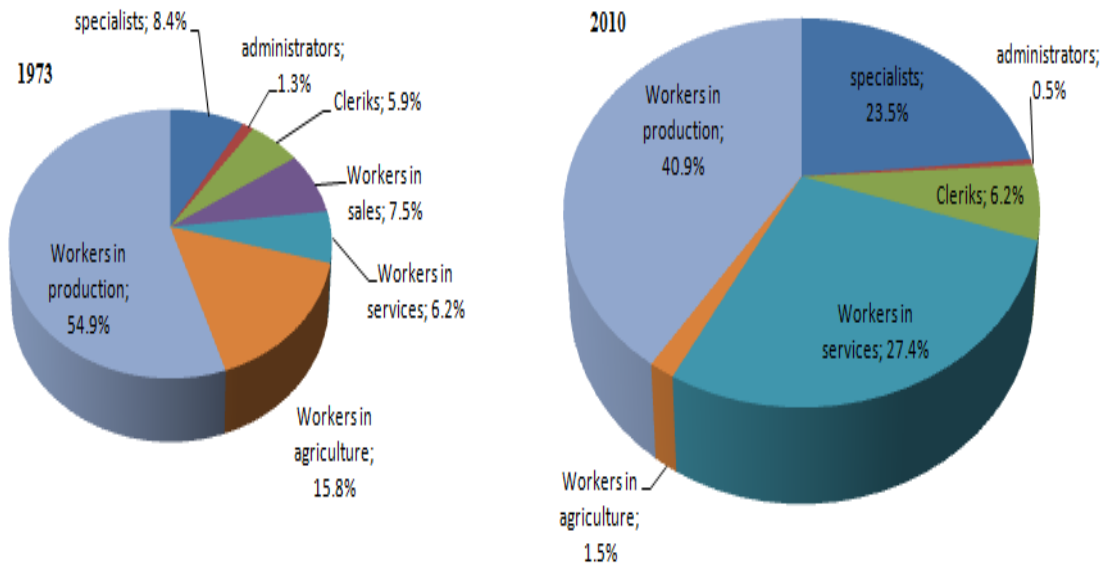
Year	Labor force	Specialists		Administrators		Clerks		Workers in sales		Workers in services		Workers in agriculture		Workers in production	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1973	332.8	28.0	8.4	4.2	1.3	19.7	5.9	24.9	7.5	20.6	6.2	52.6	15.8	182.7	54.9
1974	343.9	31.2	9.1	4.6	1.3	20.8	6.1	26.0	7.6	21.3	6.2	51.2	14.9	185.8	54.9
1975	355.4	34.7	9.8	4.9	1.4	21.9	6.2	27.2	7.7	22.1	6.2	49.8	14.0	194.8	54.8
1976	367.2	38.6	10.5	5.4	1.5	23.0	6.3	28.4	7.7	22.9	6.2	48.8	13.3	200.5	54.6
1977	379.5	42.9	11.3	5.9	1.6	24.2	6.4	29.7	7.8	23.8	6.3	47.1	12.4	205.9	54.3
1978	392.2	47.7	12.2	6.4	1.6	25.5	6.5	31.1	7.9	24.7	6.3	45.8	11.7	211.1	53.8
1979	405.3	54.0	13.3	6.9	1.7	26.8	6.6	32.5	8.0	25.6	6.3	44.6	11.0	215.9	53.3
1980	420.0	55.7	13.3	6.9	1.6	26.8	6.4	34.6	8.2	26.7	6.4	42.2	10.1	227.2	54.1
1981	435.4	58.6	13.5	6.9	1.6	26.8	6.2	36.8	8.5	27.6	6.3	40.0	9.2	238.7	54.8
1982	451.2	61.8	13.7	6.9	1.5	28.9	6.4	38.7	8.6	28.7	6.4	37.8	8.4	248.2	55.0
1983	467.7	64.8	13.9	7.0	1.5	26.9	5.8	41.5	8.9	29.8	6.4	35.8	7.7	261.9	56.0
1984	484.7	68.1	14.1	7.0	1.4	26.9	5.6	44.2	9.1	30.9	6.4	33.9	7.0	273.8	56.5
1985	502.4	72.8	14.5	7.0	1.4	28.6	5.7	45.7	9.1	32.1	6.4	30.7	6.1	285.4	56.8
1986	535.4	80.3	15.0	7.5	1.4	31.3	5.8	48.7	9.1	33.7	6.3	32.1	6.0	302.5	56.5
1987	555.7	89.4	16.1	8.3	1.5	32.8	5.9	48.4	8.7	34.3	6.2	32.2	5.8	312.9	56.3
1988	572.2	95.0	16.6	9.7	1.7	34.3	6.0	49.2	8.6	31.5	5.5	33.8	5.9	318.7	55.7
1989	583.5	98.0	16.8	10.5	1.8	35.6	6.1	50.2	8.6	31.5	5.4	33.3	5.7	324.4	55.6
1990	630.1	121.6	19.3	16.4	2.6	40.9	6.5	56.1	8.9	32.7	5.2	34.0	5.4	328.4	52.1
1991	646.6	147.4	22.8	29.1	4.5	47.8	7.4	-	-	56.9	8.8	38.8	6.0	326.6	50.5
1992	706.0	157.4	22.3	29.0	4.1	43.8	6.2	-	-	68.5	9.7	40.2	5.7	367.1	52.0
1993	809.3	182.1	22.5	25.9	3.2	44.5	5.5	-	-	95.5	11.8	41.3	5.1	420.0	51.9
1994	948.7	195.4	20.6	20.0	2.1	68.3	7.2	-	-	119.5	12.6	51.2	5.4	484.8	51.1
1995	974.6	182.3	18.7	13.6	1.4	72.1	7.4	-	-	120.9	12.4	61.4	6.3	524.3	53.8
1996	994.0	199.8	20.1	23.9	2.4	81.5	8.2	-	-	121.3	12.2	81.5	8.2	487.1	49.0
1997	1032.7	259.2	25.1	27.9	2.7	96.0	9.3	-	-	136.3	13.4	62.0	6.0	449.2	43.5
1998	1126.0	280.4	24.9	19.1	1.7	87.8	7.8	-	-	158.8	14.1	47.3	4.2	538.2	47.8
1999	1195.0	304.7	25.5	14.3	1.2	99.2	8.3	-	-	164.9	13.8	65.7	5.5	547.3	45.8
2000	1209.4	330.2	27.7	10.9	0.9	100.4	8.3	-	-	181.4	15.0	40.0	3.3	541.8	44.8
2001	1175.7	328	27.9	7.1	0.6	94.1	8.0	-	-	182.2	15.5	29.4	2.5	534.9	45.5
2002	1216.8	355.3	29.2	4.9	0.4	97.3	8.0	-	-	188.6	15.5	31.6	2.6	539.0	44.3
2003	227.2	353.4	28.8	3.7	0.3	92.0	7.5	-	-	182.9	14.9	28.2	2.3	565.7	46.1
2004	1250.3	360.1	28.8	1.3	0.1	76.3	6.1	-	-	181.3	14.5	28.8	2.3	601.4	48.1
2005	1073.3	195.3	18.2	1.1	0.1	70.8	6.6	-	-	162.1	15.1	20.4	1.9	623.6	58.1
2006	1055.8	163.6	15.5	1.1	0.1	60.2	5.7	-	-	153.1	14.5	19.0	1.8	658.8	62.4
2007	1140.4	250.9	22	1.1	0.1	65.0	5.7	-	-	158.5	13.9	18.2	1.6	646.6	56.7
2008	1172.7	256.8	21.9	1.2	0.1	73.9	6.3	-	-	161.8	13.8	17.6	1.5	661.4	56.4
2009	1220.5	261.2	21.4	2.4	0.2	75.7	6.2	-	-	181.9	14.9	19.5	1.6	679.8	55.7
2010	1235.9	290.4	23.5	6.2	0.5	76.6	6.2	-	-	338.6	27.4	18.5	1.5	505.5	40.9

Source:

- Issa Ibrahim and others (1989), the Study of the Reality and Future of the Jordanian Labor Market, part III, the Jordanian Labor Market Database, Royal Scientific Society, Amman, p. 76.
- Ministry of Labor, Annual Report, various issues.
- Department of Statistics, Employment and Unemployment Survey for the years (1993-2010).

Figure 2.4

Distribution of the labor Force by Major Occupational Groups in Jordan



Chapter Three:

The Informal Employment in the Jordanian Labor Market

3.1 Introduction:

We reviewed in chapter one the concept of the informal sector and how to measure its size in the national economy. Additionally, we demonstrated the benefits of informality, its costs, and the methodology which this study will use to measure informal sector in Jordan. While the second chapter introduced labor market developments in Jordan concerning characteristics, market imbalances, participation rates, and structural changes.

In this chapter we will try to measure the size of the informal sector in the Jordanian economy, and the extent of its presence in the economic sectors as well as its distribution by sex, rural and urban areas, age groups, educational level, and employment status. Measurement will cover two levels; labor market as whole and the private sector. Measurement will depend on the results of the survey on "Following-up the Jordanian labor market 2010" which was conducted by the Department of Statistics in Jordan in 2010 in collaboration with the Economic Research Forum in Egypt and the National Center for Human Resources Development. The survey sample constituted of 5760 households representing all the governorates of the Kingdom. The sample was based on the framework provided by the General Census of Population and Housing 2004.

The main aim of that survey was to provide data about workers conditions in the Jordanian labor market, the size of the labor force and the economically active population. Additionally, it provided detailed data on the labor force such as age, gender place of residence, educational status, marital status, employment status, economic activity, occupation, employment sector, unemployment ...etc.

Measuring the size of informal sector in the Jordanian economy will rely on the outputs and results of the previous survey, which provided a detailed and appropriate database to estimate the size and characteristics of the informal sector in Jordan more than any other survey or study.

The survey also aimed at studying the characteristics of the Jordanian labor market during the past 25 years; the focus of this survey is on the labor market entrants and follow-up on their professional development over time. The tracking survey is characterized by its ability to monitor the informal employment, which is known as "those working without contract or social security, those working for their private account and workers for households without pay." The survey results indicate that the Jordanian labor market suffers from structural imbalances where the economic growth does not lead to a reduction in unemployment rates despite the fact that high growth rates were achieved during the past decade, the unemployment rates remained relatively stable in addition to the fact that the drop in the economic growth led to increasing the proportion of informal employment.

From the survey, employment in Jordan was classified into five groups, represented by the following:

1. Employment in the public sector
2. Formal employment in the private sector (those working with payment, and those who have a contract or a social security). The formal employment in the private sector is divided into permanent and temporary contracts.
3. Informal employment in the private sector (those working without a contract or social security)
4. Those working for their private account
5. Working for households without pay.

3.2 The distribution of informal employment:

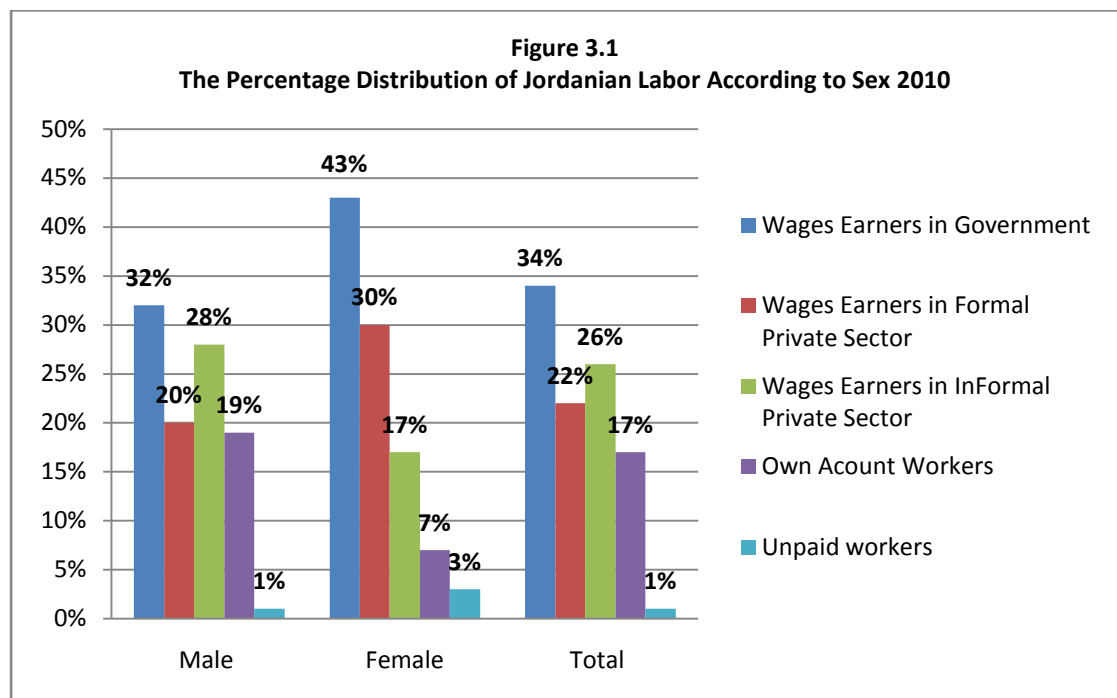
3.2.1 The percentage distribution by sex:

The informal employment in the private sector represented (26%) of total workers in 2010, in contrast with (22%) of the formal employment in the private sector. About (34%) of the workers in the public sector as well as (17%) of those working for their own account and (1%) workers in households without pay.

It is noted from the results of the survey that males are "workers in the public" (32%), (28%) informal workers in the private sector, (20%) formal workers in the private sector constituted, (19%) workers for their own accounts, and (1%)

workers in households without pay. But concerning females, the above mentioned percentages came to (44%), (17%), (30%), (7%) and (3%) respectively. The same ratio concerning total labor force were (34%), (26%), (22%), (17%) and (1%) respectively.

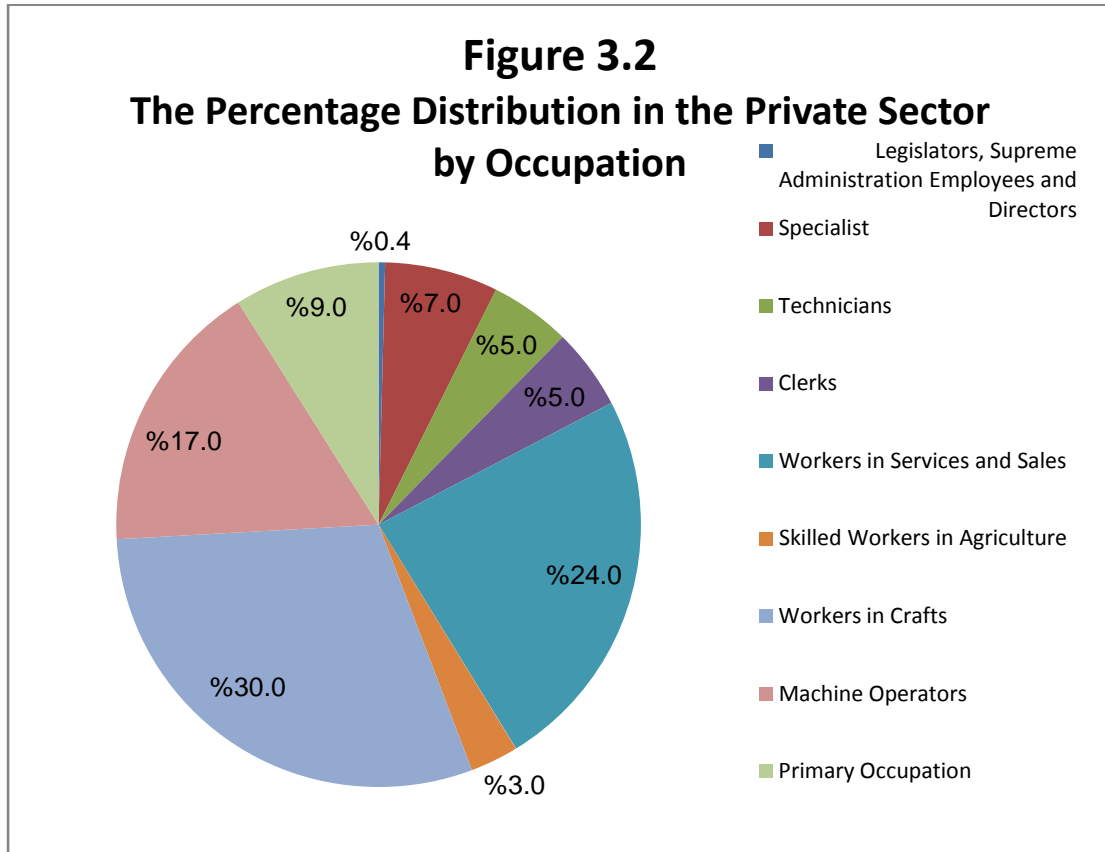
Here, we conclude that the share of employment out of total employment is represented by "informal labor in the private sector" and "workers in households without pay", and in this regard, the informal employment represents (44%) of the total employment in the Jordanian Economy.



3.2.2 The percentage distribution of informal employment in the private sector by occupation

The survey analysis reported a high proportion of informal employment in the private sector for each of the workers in the crafts, services and sales and machinery operators whose proportions were (30%), (24%), (14%) of the total employment, respectively. While the percentage of workers in the elementary occupations was (9%) of the informal employment in the private sector, followed by the specialists (7%), technicians (5%) and clerks (5%) while the percentage of skilled workers in agriculture was (3%).

On the other hand, it is noted that the percentage of the informal labor in the private sector in the supreme administrative jobs represented (0.4%) of the total informal employment in the private sector.



3.2.3 The percentage distribution of informal employment in the private sector by economic sector

The results of the survey brought out that (30%) of informal employment in the private sector is concentrated in the wholesale and retail trade and repair of engines and motorcycles, (18.6%) in manufacturing, (11.7%) in transportation and storage, and (11.1%) in construction.

Additionally, the proportion of informal employment in the supply of electricity, gas, steam, and air conditioning, the supply of water and sewerage and waste management and the activities of arts, entertainment and recreation is low where the employment in these sectors was (0.1%), (0.2%) and (0.3%), respectively.

With respect to the classification of informal employment in the private sector by gender, (32.4%) of males work in wholesale, retail trade and repair of motor

vehicles and motorcycles and (19.4%) work in manufacturing. As for females, informal employment is concentrated in the activities of human health and social services by (17%), followed by agriculture, forestry and fishing, and education by (16.4%) and (16.1%), respectively.

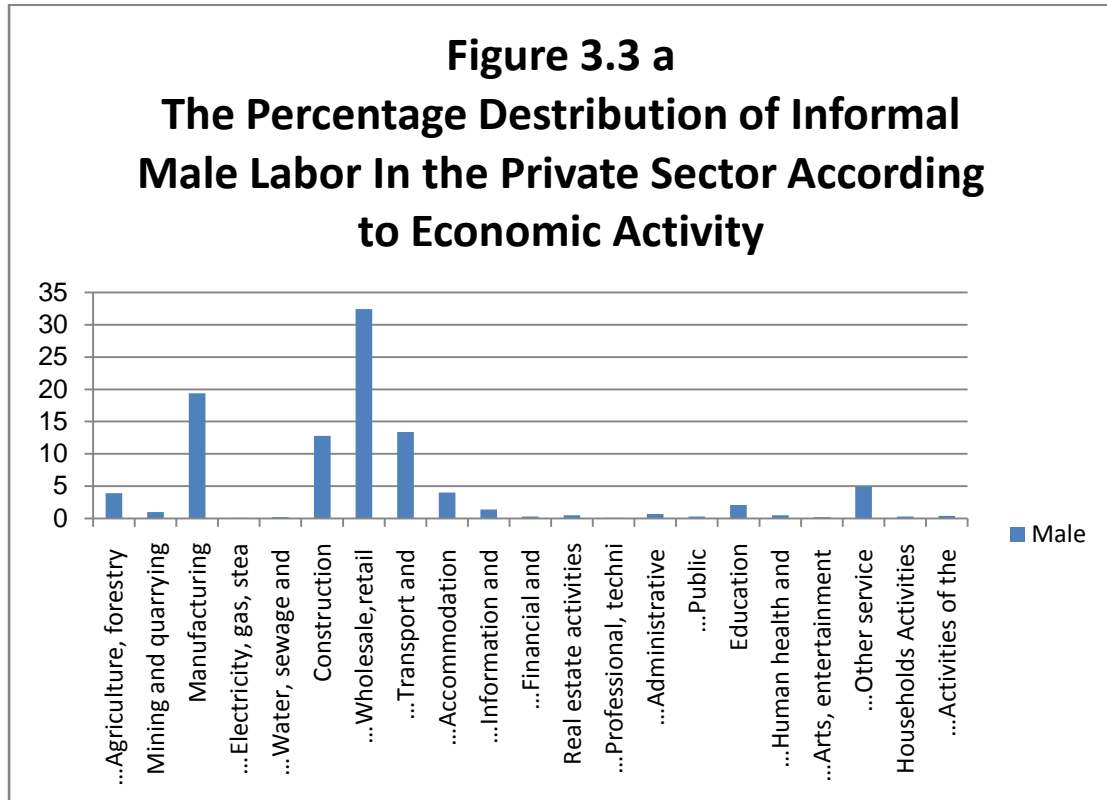


Figure 3.3 b
The Percentage Distribution of Informal Female Labor In the Private Sector According to Economic Activity

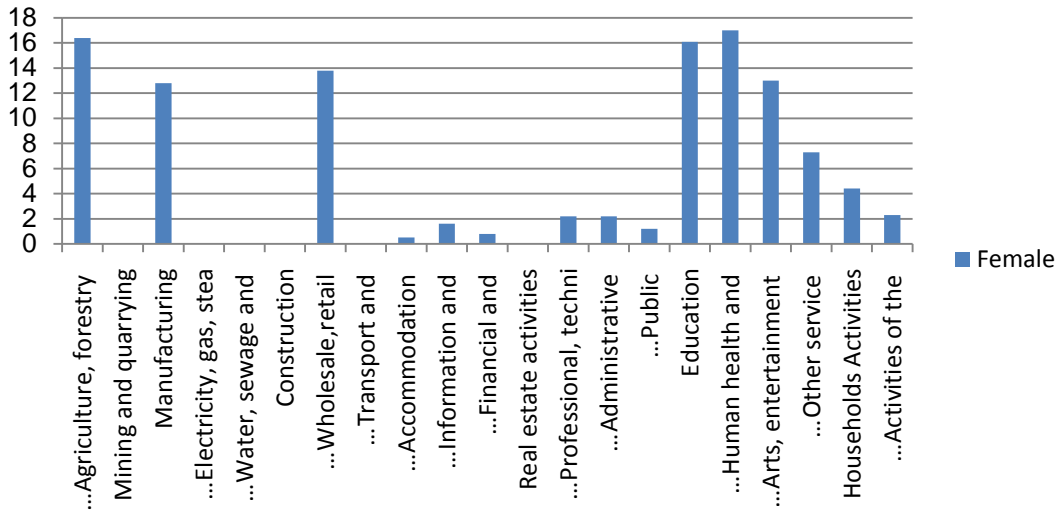
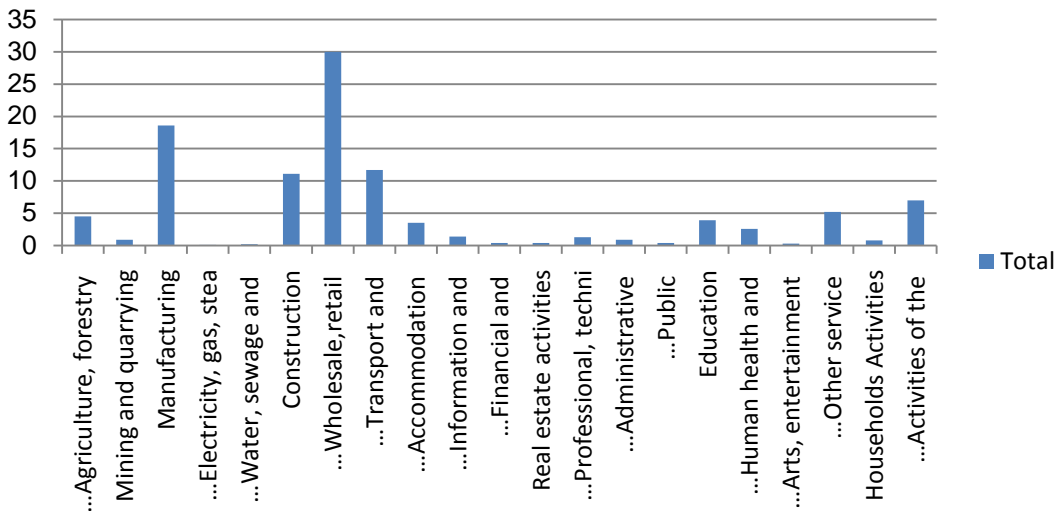


Figure 3.3
The Percentage Distribution of Informal Labor In the Private Sector According to Economic Activity

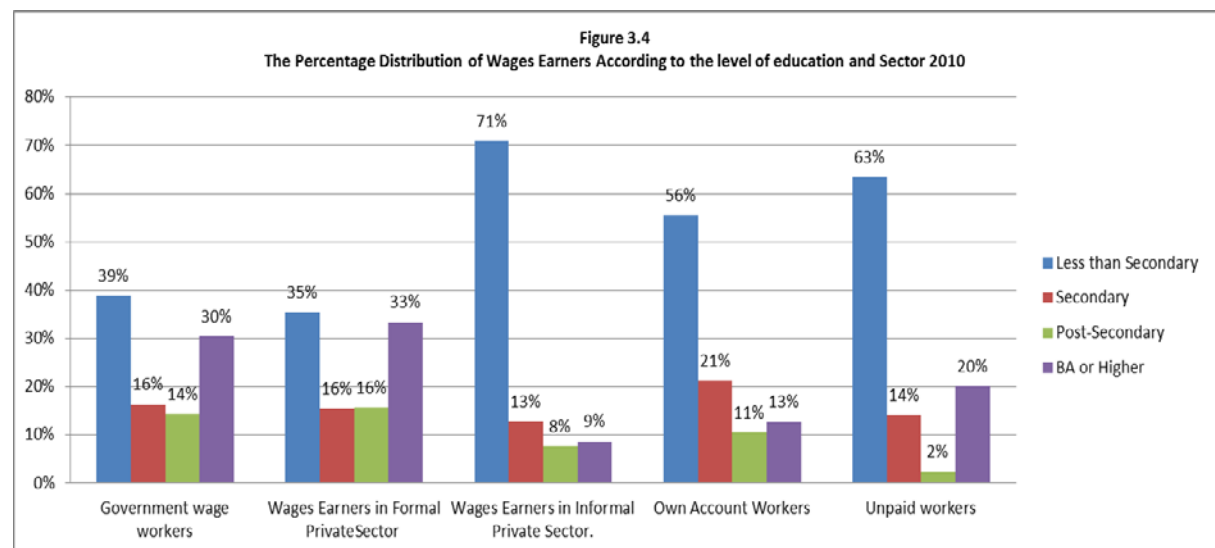


3.2.4 The distribution of wage earner workers by the level of education and economic sector

The data extracted from the survey showed that (39%) of wage earner workers in 2010 are holders only less than secondary in the public sector while there was (30%) of those holding the bachelor's degree or higher degrees out of the total wage earner workers.

As for the distribution of wage earner workers in the private sector, the wage earners workers in the formal private sector holding a degree less than the Secondary Certificate and Bachelor degree or higher constituted (35%) and (33%) compared to (71%) and (9%) respectively for the wage earner workers in the informal sector.(with higher degrees)

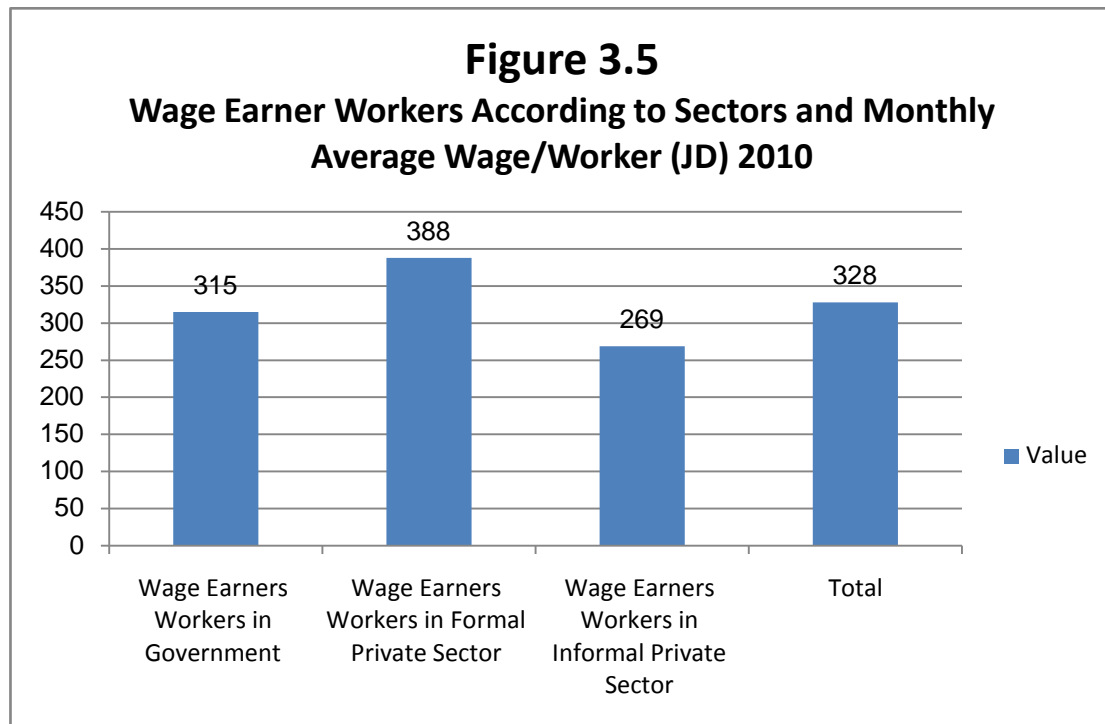
Whereas the percentage of own-account workers holding only less than secondary were (56%) compared with (13%) of those holding the bachelor degree or higher degrees. While the percentage of unpaid workers holding less than Secondary Certificate and bachelor degree or higher degrees were (63 %) and (20%) respectively.



3.2.5 The distribution of wage earner workers by sector and monthly wage

The survey showed that the increase in wages tend to favor wage earner workers in the formal private sector, where the average monthly wage for workers in the formal private sector was (388) JDs in 2010, compared with the average monthly

wage of (315 JDs) and (269 JDs) for workers in the public sector and workers in the informal private sector, respectively, during the same year.

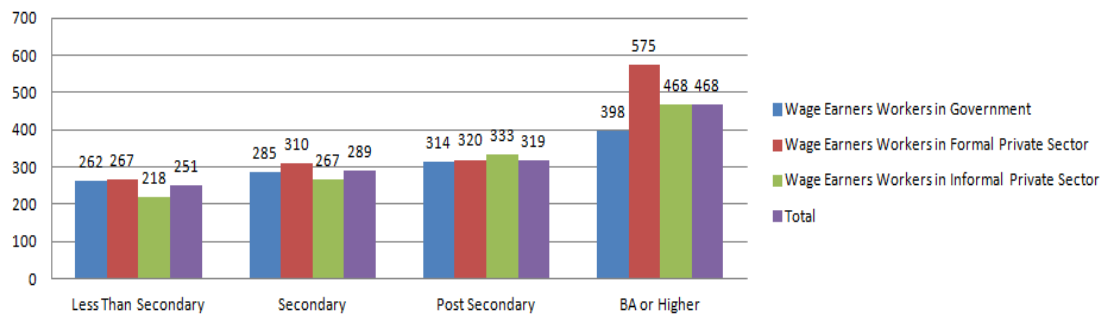


3.2.6 The distribution of wage earner workers by sector, level of education and the average monthly wage

The results indicated a significant increase in the average monthly wage for wage earner workers holding 'BA and higher degrees in the formal and informal private sector compared with an average monthly wage for the same educational level of wage earner workers in the public sector; workers in the private sector receive (575 JDs) followed by the workers in the informal private sector (468 JDs), while the average monthly wage received by the workers in the public sector was (398 JDs) in 2010.

The results also indicated, as expected, that the wage earner workers holding less than secondary degrees receive low average monthly wage in both public and private sectors; the average monthly wage for workers in the public sector who have lower degrees than the secondary level receive (262 JDs) and workers in the formal private sector receive (267 JDs) compared with workers in the informal private sector who receive (218 JDs).

Figure 3.6
Wage Earner Workers According to the Level Education and Monthly Average Wage/Worker (JD) 2010



3.3 The characteristics of wage earner workers in the private sector

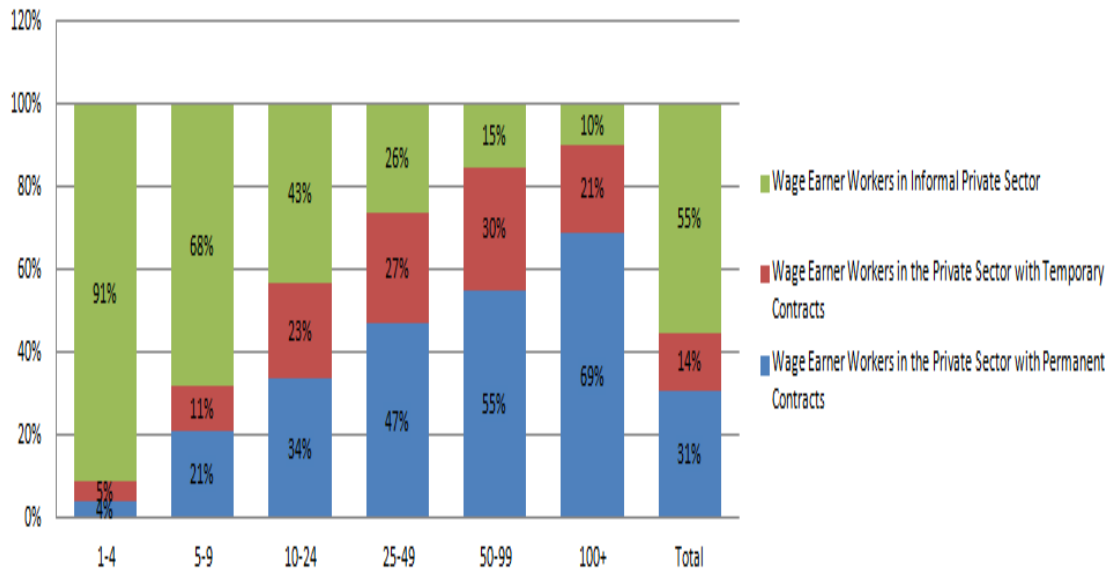
3.3.1 The distribution of wage earner workers in the private sector by the size of the institution:

The survey indicated that (45%) of wage earner workers in the private sector represent formal employment; (31%) of them were permanent workers, while informal workers represented (55%) of the total number of wage earner workers in the firms of the private sector.

The informal workers constituted (92%) of wage earner workers in the private sector firms which employ less than 5 workers and about (68%) in the firms which employ (5-9 workers), while there were only (10%) of the firms employ 100 workers or more.

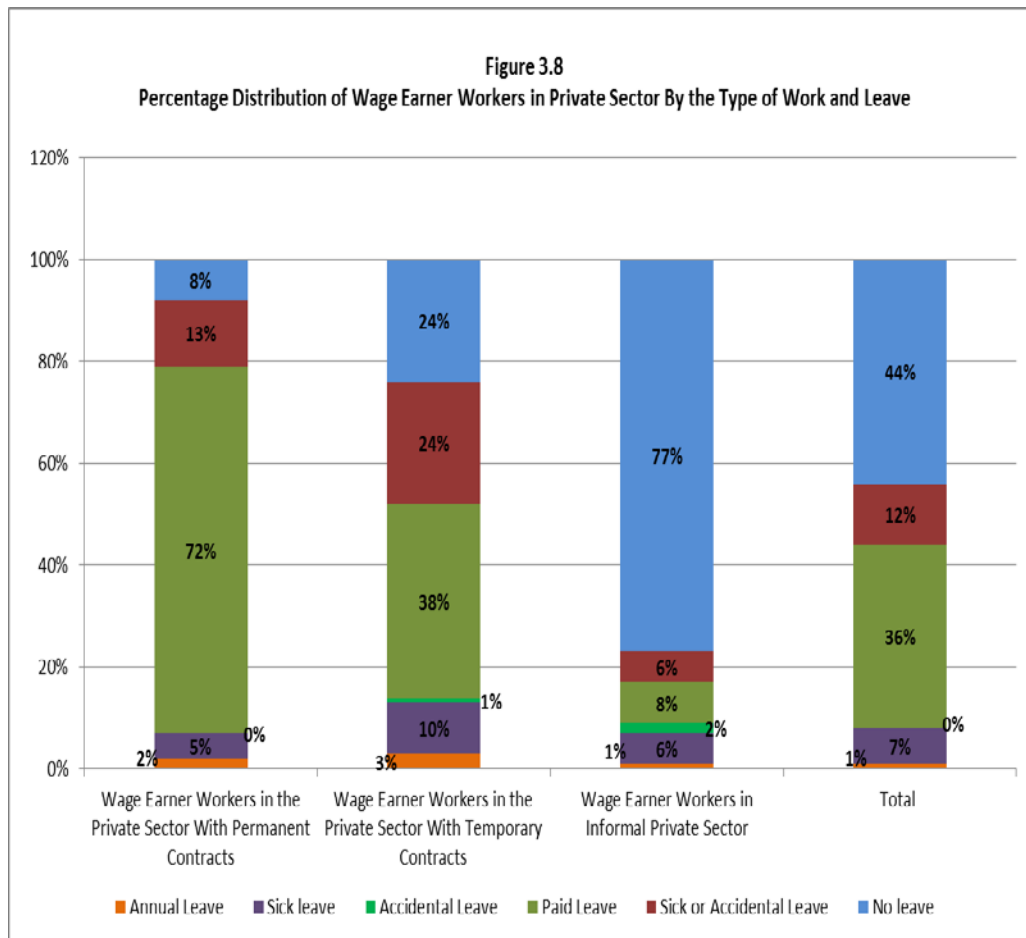
Figure 3.7

Percentage Distribution of Wage Earner Workers in Private Sector By Size of the Firm



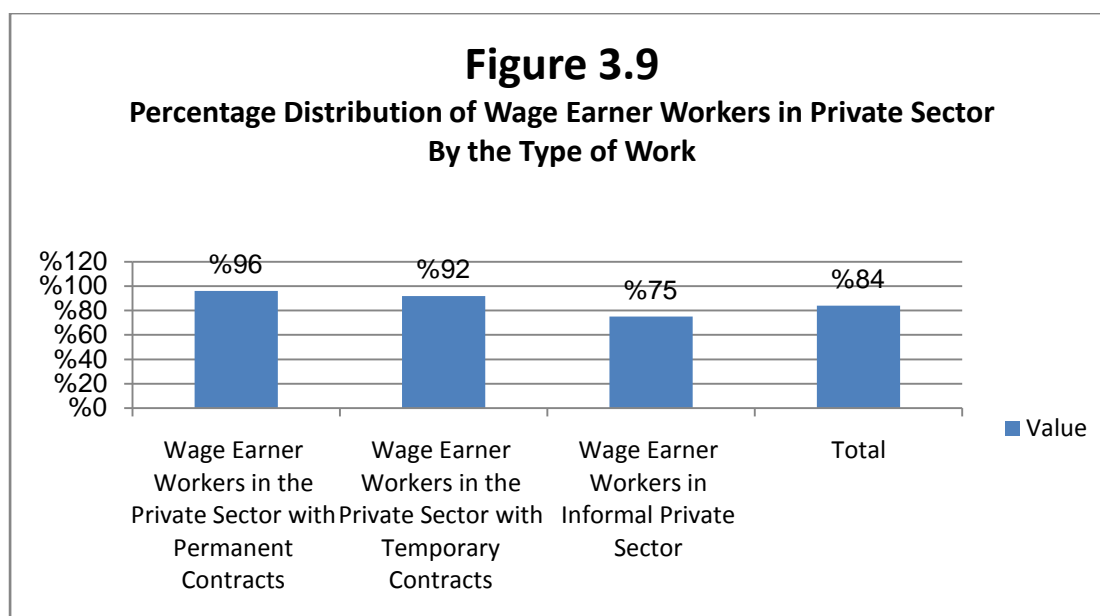
3.3.2 The distribution of wage earner workers in the private sector by type of leave and type of work:

The data of the survey showed that (36%) of wage earner workers in the private sector have an access to a fully paid leave compared with (44%) who do not get any kind of paid leaves. Additionally, about (72%) of wage earner workers in the private sector occupies formal permanent jobs and can get a paid leave against (77%) of informal workers who haven't access to any kind of leaves.



3.3.3 Non-Jordanian workers in the private sector:

Non-Jordanian labor constituted about (16%) of the wage earner workers in the private sector at which this labor shared in (25%) of the total employment in the informal sector. It should be noted that most of the foreign workers in the informal sector are concentrated in micro and small enterprises taking into consideration that the sample of this survey does not represent non-Jordanians because it is built on the basis of households living in traditional dwellings, so the coverage of the households of non-Jordanians is incomplete and therefore, the data about them is only indicative.



3.3 The size of informal sector:

In 2010, the number of workers in the informal sector in the Jordanian labor market was (487,861) compared with (744,724) workers in the formal sector. Consequently, the informal employment constituted 44% of the total employment in the Jordanian Economy.

Table 3.1

The Distribution of Employment (Formal, Informal and Total) by Occupation 2010

Occupation	Total Employment	Informal Employment		Formal Employment		Informal Employment to Total Employment (%)
		Number	%	Number	%	
Legislators, Supreme Administration and Directors	19984	5541	1.1	14443	1.9	27.7
Specialist	247049	34803	7.1	212246	28.5	14.1
Technicians	94540	21295	4.4	73245	9.8	22.5
Clerks	120842	23253	4.8	97589	13.1	19.2
Workers in Services and Sales	325358	137239	28.1	188119	25.3	42.2
Skilled Workers in Agriculture	24449	22564	4.6	1885	0.3	92.3
Workers in Crafts	188141	128072	26.4	60069	8.1	68.1
Machine Operators	135562	86161	17.7	49401	6.6	63.6
Primary Occupation	76663	28936	5.9	47727	6.4	37.7
Total	1232585	487861	100	744724	100	Average=44

Table 3.2
The Distribution of Employment (Formal, Informal and Total)
by Economic Activity 2010

Economic Activity	Total Employment	Informal Employment		Formal Employment		Informal Employment to Total Employment (%)
		Number	%	Number	%	
Agriculture, forestry and fishing	31139	29039	6.0	2100	0.3	93.3
Mining and quarrying	10178	3098	0.6	7079	1.0	30.4
Manufacturing	148556	71682	14.7	76874	10.3	48.3
Electricity, Gas, Steam and Air Conditioning	10741	257	0.1	10485	1.4	2.4
Water, sewage and waste management	3505	1170	0.2	2335	0.3	33.4
Construction	67860	52948	10.9	14912	2.0	78.0
Wholesale, retail trade, repair of motor vehicles and motorcycles	183600	157236	32.2	26365	3.5	85.6
Transport and Storage	103295	72063	14.8	31231	4.2	69.8
Accommodation and food services activities	29479	14887	3.1	14591	2.0	50.5
Information and communication	19198	4759	1.0	14439	1.9	24.8
Financial and insurance activities	19876	1385	0.3	18491	2.5	7.0
Real estate activities	4976	3698	0.8	1278	0.2	74.3
Professional, technical and scientific activities	24142	12786	2.6	11356	1.5	53.0
Administrative service and support activities	12541	5887	1.2	6654	0.9	46.9
Public Administration, civil defense and Social security	299205	1182	0.2	298024	40.0	0.4
Education	162082	13597	2.8	148485	19.9	8.4
Human health and social service activities	53976	10685	2.2	43291	5.8	19.8
Arts, entertainment and recreation activities	4888	1125	0.2	3763	0.5	23.0
Other service activities	36999	26264	5.4	10736	1.4	71.0
Households Activities	2753	2193	0.4	560	0.1	79.7
Activities of the organizations and bodies outside the scope of territorial jurisdiction	3595	1920	0.4	1675	0.2	53.4
Total	1232585	487861	100.0	744724	100.0	Average= 44

It is obvious from table 3.1 that more than 72% of the employment in the informal sector concentrated mainly in three occupations; "workers in services and sales" (28.1%), "workers in crafts" (26.4%) and "machine operators" (17.7%). The "legislators, supreme administration employees and directors" category became in the last instance and employed only (1.1%).

In contrast to the formal sector, at which the "specialist" become first and this category employed (28.5%), then "workers in services and sales" (25.3%), and then "clerks" (13.1%), while "skilled workers in agriculture" came last (0.30%). Here one can conclude that "workers in services and sales" category employ a significant portion of the total employment (formal and informal) (26.4%), however other occupation showed disparity in the ratios of the employment between formal and informal employments.

The same table shows that the informal sector employs (92.3%) of the total employment in the "skilled workers in agriculture" category, (68.1%) of the total employment of "workers in craft", and (63.6%) of the total employment of "machine operators". The ratio of "specialists" employed the lowest ratio in the informal sector (14.1%).

Concerning the percentage distribution of informal sector by economic activity, the activity of "wholesale, retail trade, repair of motor vehicles and motorcycles" employed (32.2%) of the total informal labor, followed by the "transport and storage" (14.8%) and then by the "manufacturing" (14.7%). On the other hand, in the formal sector, the "public administration, civil defense and social security" employed (40.0%) of the total formal labor, while the "education" activity came second (19.9%), and then the "manufacturing" activity" (10.3%) in which this activity stands as a common employer for both formal and informal labor.

With respect to the participation of the informal labor in the total employment in economic activities, the activity of "agriculture, forestry and fishing" employed high ratio (93.3%) as well as " wholesale, retail trade, repair of motor vehicles and motorcycles" (85.6%) and the "real estate activities" (74.3%). The activity of "public administration, civil defense and social security" came in the last (0.40%). This result is ultimately reasonable since this sector represents an important part

of the public sector which subject to different pension systems and the social security system.

It is rather important to mention here that females constituted only (11.0%) of the informal labor in 2010, while female participation in formal employment was (22.7%) and (22.0%) in the labor market as whole.

Chapter Four:

Model Specification, Research Method and Empirical Results

In this chapter we will measure the size of the informal economy using the currency demand approach Cagan, (1958), Guttman (1977), Tanzi, (1999), and Faal, (2003). The specification of the model and the method will be presented before explaining the results.

The key assumptions of the currency demand approach are maintained as follows:

1. Informal economic activity uses currency to conclude transactions.
2. Informal income velocity of money is the same as in the formal economy.

Multiple regression analysis will be used to econometrically estimate a currency demand function in order to estimate the size of the informal economy. Within the broad framework of the general functional form, alternative variables and proxies were used during trial estimations. Only the estimations using log-log are given in the study as they proved to be the most robust.

4.1 Model Specification:

The model, which can be used to estimate the size of the informal economy, can be specified as follows:

$$Y=F(X_1, X_2, \mu) \quad \dots\dots\dots(1)$$

Where Y, the dependent variable, may represent the ratio of currency in circulation outside the banks to demand deposits, narrowly defined money supply or broadly defined money supply. X1 is the set of traditional independent variables considered to be the major determinants of Y. X2 are the proxy variables that stimulate informal economic activity, while μ refers to the error term.

When the variables that stimulate the informal economy are assigned their lowest historical value, the regression equation yields an estimate of the demand for currency of the formal economy. When the variables that stimulate the informal economy are assigned their highest historical values the regression equation yields an estimate of the demand for currency of both the formal and informal economies combined. The difference, then, between the two estimates provides an estimate of the currency held in the informal economy. When multiplied by the income velocity of money, an indication of the size of the informal economy can be derived.

The demand for currency equation for Jordan for the period 1976-2010 is initially specified as :

$$\ln(NCM) = \beta_0 + \beta_1 \ln(GR) + \beta_2 \ln(WS) + \beta_3 \ln(R) + \beta_4 \ln(YN) + \beta_5 \ln(G) + \mu \quad \dots(2)$$

Where;

Ln: the natural log

NCM: the ratio of notes and coins holdings to broad money supply.

GR: the ratio of government revenue to GDP.

WS: the proportion of final consumption expenditure in national income (to capture changing payment and money holding patterns).

R: the nominal interest (to capture the opportunity cost of holding cash).

YN: the real per capita income, i.e. Nominal income deflated by the GDP deflator.

G: general government index (to capture government intervention).

μ the error term.

Economic theory has shown, there are a number of different factors that might influence the ratio of cash holdings. To account for these factors the model introduces a number of variables such as: the proportion of final consumption expenditure in national income (to capture changing payment and money holding patterns), the nominal interest paid (to capture the

opportunity cost of holding cash), the general government index (to capture government intervention).

Under the assumption that the informal economy uses currency to conclude transactions and that income velocity of money in the informal economy is the same as it is in the formal economy, the velocity of money was obtained by dividing official GDP by nominal money, narrowly defined for the formal economy as M1 (i.e. equal to the sum of the estimated nominal formal currency and the actual demand deposits present in the economy).

The velocity of money can be defined formally as the ratio of income to the quantity of money:

$$v = \frac{y}{c} \quad \text{or} \quad v = \frac{y}{M1} \quad \dots\dots\dots(3)$$

Where;

Y represent real GDP, *C* is the sum of currency, and *M* is a narrow definition of money .

4.2 Method:

Before the results of the multiple regressions are used to estimate the currency demand function, each variable in the time series is tested for the underlying assumption of stationarity.

The results of the analysis are then used to report on the overall strength of the relationship between the dependent and independent variables, as well as the results of the overall significance tests. The t-test is performed to determine the significance variables (at 5% level of significance) and confirm the expected signs for the coefficients on the variables. To measure the goodness of the fit of the regression equation (i.e. the proportion of the total variation in the dependent variable explained by the explanatory variables), the adjusted R² is used. The problem with the measure is that the “goodness of fit” improves as more and more variables are included in the model. Besides the adjusted R², Akaiik’s information Criterion (AIC) is used to offer guidance on the selection of the

numbers of terms in the equation. Ideally, the AIC should be as small as possible to select the most appropriate model.

4.3 Empirical Results:

Following the currency demand approached, as presented in equation (2), the size of the informal economy for the period 1976-2010 estimated through this equation.

Table number 4.1 presents the results of equation (2). The table shows that the estimated coefficients for the regression model were all statistically significant at 5% level of significance (except for R), with t-statistics value. The overall regression fit, as measured by the adjusted R² value, indicates that 94% of the variation in currency demand is explained by the independent variables. The overall F-statistics shows a value of (117) indicating that the model is significant at 1% level. The Durbin-Watson statistics of (1.8) shows that the equation is free of serial correlation.

Table 4.1
OLS Estimation Results of the Size of the Informal
Economy in Jordan 1976-2010

$$\ln(CM)_t = 2.172 + 0.521 \ln(GR)_t - 0.628 \ln(PC)_t + 0.086 \ln(R)_t - 0.389 \ln(PCI)_t - 0.379 \ln(G)_t + \mu_t$$

<i>Variables</i>	<i>Coefficients</i>	<i>Probability</i>
<i>Constant</i>	2.172 (1.069)	0.294
<i>GM</i>	0.521 (3.05)	0.005
<i>PC</i>	-0.628 (0.012)	0.012
<i>R</i>	0.086 (0.466)	0.645
<i>PCI</i>	0.389 (2.40)	0.023
<i>G</i>	-0.379 (-13.2)	0.000
<i>R squared</i>	0.953	
<i>Adjusted R-squared</i>	0.945	
<i>F-Statistics</i>	117.95	0.000

Using the regression output from table (4.1), the size of the informal economy was estimated for Jordan using the detailed method mentioned before. The informal economy nominal GDP (GDPI), the nominal GDP (GDP), the ratio of informal economy nominal GDP to nominal GDP (GDPI/GDP) and the nominal growth rates for GDPI are calculated and presented in table (4.2).

Table (4.2)
The Size of the Informal Economy

Year	GDPI (JD millions)	GDP (JD millions)	GDPI/GDP	GDPI Growth rate
1976	39.54	567.25	6.97%	
1977	51.10	690.38	7.40%	29.2%
1978	59.14	795.39	7.44%	15.7%
1979	73.20	982.50	7.45%	23.8%
1980	82.88	1164.77	7.12%	13.2%
1981	109.30	1448.70	7.54%	31.9%
1982	123.31	1649.95	7.47%	12.8%
1983	129.86	1786.65	7.27%	5.3%
1984	145.68	1909.66	7.63%	12.2%
1985	162.09	1970.52	8.23%	11.3%
1986	199.84	2240.51	8.92%	23.3%
1987	190.23	2286.73	8.32%	-4.8%
1988	169.77	2349.52	7.23%	-10.8%
1989	162.75	2425.37	6.71%	-4.1%
1990	189.74	2760.91	6.87%	16.6%
1991	199.30	2957.96	6.74%	5.0%
1992	266.18	3610.50	7.37%	33.6%
1993	307.51	3884.19	7.92%	15.5%
1994	387.02	4357.45	8.88%	25.9%
1995	456.47	4714.70	9.68%	17.9%
1996	557.07	4911.33	11.34%	22.0%
1997	561.44	5137.38	10.93%	0.8%
1998	675.90	5609.86	12.05%	20.4%
1999	654.81	5778.11	11.33%	-3.1%
2000	611.30	5998.62	10.19%	-6.6%
2001	656.29	6363.74	10.31%	7.4%
2002	688.45	6793.96	10.13%	4.9%
2003	629.88	7228.77	8.71%	-8.5%
2004	716.51	8090.67	8.86%	13.8%
2005	674.68	8925.36	7.56%	-5.8%
2006	862.24	10675.37	8.08%	27.8%
2007	1056.35	12131.40	8.71%	22.5%
2008	1546.14	15593.41	9.92%	46.4%
2009	1649.44	16912.21	9.75%	6.7%
2010	1890.00	18761.84	10.07%	14.6%

The table above shows the informal economy out of the nominal GDP had reached 10.07% in the year 2010. The highest rate of the informal economy in 1998 was 12.05%. The average estimation of the informal economy in the study period 1976-2010 was 8.6%. In the past ten years, the average size of the informal

economy was around 9%. From the table above we can notice that in the years that the economy had witnessed high economic growth rate, the informal sector expanded because of the effect of that growth rate, this can be shown specifically in the period 2006-2008 as the economic growth on average was around 7% and the growth rate of the informal economy was 27.8%, 22.5%, 46.4% respectively. We also notice that the years that came after the economic shocks, the Gulf Wars and influx of refugees had an increase in the rates of the informal sector, whereby in 1990 the informal economy was around 6.87% where it grew of around 16% from the previous year.

The empirical evidence suggests that the informal economy needs to be explicitly taken into account when any macroeconomic policy is formulated. There are number of reasons for this:

1. Empirical findings show that the informal economy is currently estimated at about 10% of GDP, which suggests that the size is sufficient to be given importance within the macroeconomic framework.
2. An informal economy that contributes to the overall economy can produce economic benefits for society by creating employment opportunities.
3. The informal economy can be managed through applicable government economic policies.

The empirical contribution of the study led to a new understanding of the informal economy's role in the macro economy. One important issue, for example, is whether the informal economy is simply a survival strategy of the poor, or if it can have an active role in promoting economic growth. Although informal employment is deemed better than unemployment, the informal economy should not be seen as the solution to the poor performance of the formal economy. All things considered, then, the informal economy should be of paramount importance in national policy formation.

4.4 Recommendations and policy implication:

The study of the informal sector suffers from the absence of registration of individual firms in the official records, such as: real estate registry, the records of industry, work permits, etc., and therefore extracting data for this sector is very difficult, especially since firms of the informal sector are characterized by small size of employment and investments, and mostly depend on labor intensive activities.

There are problems associated with this sector, among of which: tax evasion, which in turn grants the firms of this sector a comparative advantage in the cost of production compared to firms in the formal sector, which are subject to taxes and other fees and therefore incurred addition costs. Consequently, it is important to transform the informal sector to the formal sector, as this will increase the financial resources of the government, and give establishments in the National Economy many advantages, such as: the protection of intellectual property rights, to take advantage of the various services provided by the government, particularly the infrastructure, in addition to that, the transition to the formal sector will make the firms eligible for credit facilities to finance the their investments.

Here an important question arises; how does the Government convince producers and employers in the informal sector to enter into the formal sector, or how to prevent the escape of producers and employers in the formal sector to work in accordance with the rules of the informal sector?

1. Simplification of procedures for the launch of economic projects including the establishment of one reference body that deals with new investors. In addition, transparency in procedures and policies should be reinforced through announcing them by media.
2. It important to reduce the start-up costs and licensing fees, and to impose one-time fees, which investors should pay, commensurate with the nature of the activity and its size (micro or small).
3. Simplification of the tax measures creates confidence between producers and the government, including the granting of tax exemptions, especially for small projects.

4. Expand the scope of social security for individual, which was applied by the Social Security Corporation in some governorates, to cover individuals in the rest governorates of the Kingdom.

References

- Abu Jaber, Kamel (1991), *The Labor Market in Jordan: Development, Characteristics, Policies and Future*, Dar Al-Bashir, Amman.
- Al-Talafha and Al-Fahdawi, (1998), *An Analytical Study of Unemployment in the Jordanian Economy (1968-1996)*, Yarmouk University, Irbid-Jordan.
- Talafha, Hussain, (1989), "The Role of Guest Workers in the Economy of Jordan", *Abhath Al-Yarmouk-Humanities and Social Sciences Series*, Vol.5, No.1, Irbid-Jordan, P67-92.
- Talafha, Hussain, (1993), "The Supply of Labor and the Labor Force Participation Rate in Jordan", *Abhath Al-Yarmouk, Humanities and Social Sciences Series*, Vol.9, No.4, Irbid-Jordan, P271-307.
- Ameerah, Mohamad (1991), *Labor Market and Unemployment in Jordan* (In: *The Structure of Man Power in the Jordanian Labor Market*: Nabeel Khouri and Ahmed Qasem, Royal Scientific Society and International Labor Organization, First edition, Amman.
- Athamneh, Abdel Baset (2011), *Gender and Migration in and from Jordan*, Carim Analytic and Synthetic Notes 2011/22, European University Institute, Florence, Italy.
- Cagan, P. (1958). The Demand for Currency Relative to the Total Money Supply. *The Journal of Political Economy*, 66 (4): 303-328.
- Chen, M. A., Jhabvala, R., & Lund, F. (2001). Supporting Works in the Informal Economy: A Policy Framework, *International Labor Office Task Force on the Informal Economy* : 1-61.
- Department of Statistics, *Employment and Unemployment Survey for the years (1993-2010)*, Amman.
- Faal, E. (2003). Currency Demand, The Underground Economy, and Tax Evasion: The Case of Guyana. *International Monetary Fund Working Paper*, 3 (7) : 1-31.

- Guttman, P. (1977). The Subterranean Economy. *Financial Analysts Journal*, 34 (1) : 24-27.
- Hartzenberg, G. M. & Leimann A. (1992). The Informal Economy and its Growth Potential. In *Economic Growth in South Africa*. Edited by Abedian, A. Oxford: Oxford University Press: 187-214.
- - International Labour Organization (1993). Resolution Concerning Statistics of Employment in the Informal Sector. 15th International Conference of Labour Statisticians. Geneva, International Labour Organization.
- - Issa Ibrahim and others (1989), the Study of the Reality and Future of the Jordanian Labor Market, part III, the Jordanian Labor Market Database, Royal Scientific Society, Amman.
- - Ministry of Labor, Annual Report, for the years (1990-2010), Amman.
- Khasawneh, Saleh (1986), "The Development and Organization of the Jordanian Labor Market", *Journal of Labor (Jordan)*, Vol.9, No.33, Amman.
- Omari, Mokhullud 2002, The Absorption Capacity of Labor in Jordanian Economy: An Econometric Study (1968-2000), Unpublished MA Thesis, Department of Economics, Yarmouk University, Irbid-Jordan.
- Prinsloo, J. W. (1999). South Africa's National Accounts: An Overview of Sources and Methods. *South African Reserve Bank Bulletin*, June 1999: 1-60.
- Schneider, F. (1986). Estimating the Size of the Danish Shadow Economy Using the Currency Demand Approach: An Attempt. *The Scandinavian Journal of Economics*, 88 (4) : 193-212.
- Schneider, F. (2002).The Size and Development of the Shadow Economy and Shadow Economy Labour Force of 22 Transition and 21 OECD Countries. Invited Paper Prepared for the Round Table Conference held in Sofia, Bulgaria. April 18-20, 2002.

- Schneider, F. & Enste, D. (2003). *The Shadow Economy: An International Survey*. Cambridge: Cambridge University Press.
- Smith, P. (1994). Assessing the size of the Underground Economy: The Canadian Statistical Perspectives. *Canadian Economic Observer*, 3 (11-010): 16-33.
- Tanzi, V. (1999). The Underground Economy in the United states: Annual Estimates, 1930-1980. *International Monetary Fund Staff Papers*, 30 (2): 283-305.
- Thomas, J. (1999). Quantifying the Black Economy: 'Measurement without Theory' Yet again? *The Economic Journal*, 109 (456): 381-390.
- <http://data.worldbank.org/indicator/SL.TLF.CACT.ZS>.