
Analysis of Construction Industry in Jordan 1980 - 1990.

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Abstract

The purpose of this paper is to describe and analyze the performance of the construction industry in Jordan during the past decade. For this purpose the authors addressed the following issues:1) The size of the industry which is expressed in terms of volume and contribution to gross domestic products (GDP). In this section, the causes and effects of fluctuations are discussed, 2) Contribution of the industry to the country's fixed asset formations, and finally, 3) The structure of construction contractors.

ملخص

يهدف البحث الى وصف وتحليل اداء قطاع الانشاءات في الأردن خلال عقد الثمانينات. ولهذه الغاية فقد تم بحث الأمور التالية: (١) تحليل حجم العمل في قطاع الانشاءات ومدى مساهمة هذا القطاع في الناتج المحلي الاجمالي (٢) مساهمة قطاع الانشاءات في التكوين الثابت لرأس المال (٣) طبيعة تكوين المقاول الانشائي.

Introduction

The construction industry, in general, of which Jordan, is no exception, has the characteristics that the product of this industry is large, heavy, time consuming, mostly fixed, and relatively expensive. Another important characteristic of this industry is that almost each single product is unique by its shape, effort, complexity, specifications, and usage. In each project numerous finished and semi-finished products are used. Each construction project usually incorporates the effort of large numbers of organizations for completion. Moreover, it is also characterized by its high risk, since the pricing of its product is done prior to the physical construction of the project. The work of construction is complicated by the fact that job environment is less controllable than other types of industries.

The purpose of this paper is to explore, describe, and analyze the performance of the Jordanian construction industry in order to build a tentative and pragmatic framework to view the industry during an important period of Jordan's development. Since construction affects the demand and output, employment, balance of payments, and price level [11], three major issues will be tackled in this paper. The first issue is the size of this industry which is expressed in different ways in terms of volume of work and contribution to gross domestic product (GDP). In this section, an attempt has been made to analyze the effect and causes of fluctuations in volume of work. The second issue is the size of investment - goods which is also expressed in terms of the

industry's contribution to fixed asset formations. Finally, the major issue is the structure of construction contractors. Another important issue in the manpower employed in construction industry which will be the subject of another paper.

At the end of the paper, conclusions and recommendations have been suggested to improve the performance of the construction industry.

I. Size of the Industry

The construction industry plays an important role in the national economy. It is the second largest in the industrial sector in terms of employment. The contribution of construction industry to gross domestic product is significant as shown in table (1). In spite the fact that the relative importance of construction industry to Jordan's economy in terms of its contribution to GDP, has been on decline since 1983 as shown in figure (1), the role of the construction industry should not be underestimated because the industrialization process of the country (except mining industry) is in its infancy stage.

The volume of work done by the construction industry in Jordan is also another indicator of its size. As the case in many developing countries, and even in many developed countries, the public sector is a prime promoter of the country's construction industry. In certain years the volume of work done for the public sector exceeds 50 percent of the total volume [17]. The role of the government (the owner of the public sector) is not limited to being a major client to the industry; it heavily influences the country's economical climate. It does not only generate the demand on the industry, but also modifies regulations and laws, changes tax custom regulations, controls the interest rate, determines the money exchange rate, etc [6].

The volume of activities in constructions industry in Jordan, is fluctuating from year to another, similar to most developing countries and even developed countries. The fluctuations in Jordan however, tend to be sharp and violent as evident from table (1). In 1984, the output of the construction industry amounted to 12.9 percent of GDP, while in 1989 it amounted to

only 6.7 percent of GDP, the lowest in any time since 1980 [3]. Most of these fluctuations are attributed to the public sector as shown in table (2) In 1989 for example, the volume of construction done for this sector amounted to only 58 percent of the previous year, 1988 [18].

The degree of fluctuations in the volume of work in the private sector is also sharp (but to a lesser extent than the public sector). In 1985 for example, the private sector witnessed a drop of 26 percent from the activities of the previous year. In the following year 1986 however, this size increased by 20 percent as shown in table (2).

It is important to note that any increase in the activities of one sector does not necessarily mean a proportional increase in the activities of the other sector as shown in figure (2).

- Effect of Fluctuation.

The lack of stability coupled with sharp fluctuations damages the country's construction and, consequently, makes planning, directing, and organizing the industry, a difficult task. The natural consequence under these circumstances, is an inefficient use of the industry's resources because the return on investment has a negative effect on subsequent projects. Moreover, the effect of fluctuations on construction contractors is such that they should stay flexible in size by prompt shrinkage and expansion in accordance with the market. In order to survive, contractors are also expected to be flexible with the type of work they do, with the ability to switch from one line of work to another. The results of such an environment are, difficulties for contractors to expand, lower level of investment, and lesser expertise in specialists than would be the case if the fluctuations were less [11]. Another unfavorable results of fluctuations is that the construction industry becomes an unattractive place for employment because

the demand for manpower is fluctuating between sudden high demands and sudden unemployment, something that many workers do not like. The consequence of these factors is an impaired construction industry that cannot meet the country's needs [24]. Strong evidence of this is that, in 1990, the Jordan Contractors Associations witnessed a drop in its membership by as much as 25 percent [13].

The conclusion that may be derived is that the government has to adopt a clear policy with regard to construction work. It should as much as possible, evenly distribute the available work over the years of development plans [24].

- Causes of Fluctuations

The fluctuations in both the public and private sectors may be attributed to the three major factors: population, credit, and shocks [23]. The population of Jordan has an almost 3.5 percent growth rate (a figure that is generally considered to be very high). This high growth rate requires significant investments in the construction industry, which, in turn, accumulates heavy pressure on the country's resources and capabilities. A growth in population does not only create a demand on housing, but also requires a similar growth in the infra structure of the country. Fortunately, such demands which stem from population growth can be anticipated and consequently planned for. The availability of funds and the money needed for construction is another major source of fluctuation. This reason was and still is a major concern to Jordan for which obtaining the funds needed for investment is associated with high uncertainty because of the country's high dependency on foreign debt and financial Arab aid. The development planning process, in such circumstances is difficult and as a result one can expect, that according to received aid and loaned money; the governmental projects are unevenly

distributed over the years of development plans. In 1982, the second year of the development plan (1981 - 1985) the public sector awarded construction contracts of 622 million J.D., the highest ever in the history of Jordan. In the following year, however, it awarded projects of value of only 178 million J.D; 72 percent reduction of the previous year [17]. This variability can be seen in all types of public sector projects.

Another monetary reason is the fluctuations in the remittance of Jordanians working in oil rich countries result from fluctuations in oil revenues of these host countries themselves. This factor especially affects private construction activities because most of the expatriate remittance goes to investments in real estate, especially in apartments, houses, and villas in readiness for eventual return [7]. The available statistics support this conclusion because during 1983 and 1984 (as shown in table 3) the country's private construction activities specially in residential buildings were the highest during the period 1982 - 1984 as shown in figure (3). The remittance of expatriate Jordanians transferred into the country were also the highest for that period; It was estimated that expatriate Jordanians, during the years 1983 and 1984 transferred into the country 403 and 405 million J.D, respectively [1].

The third major reason for fluctuations, for which Jordan is vulnerable, are shocks. For the past 50 years the region has witnessed several wars and many political and economical unrest. The results of which on Jordan, were waves of refugees, economical disasters and major recessions. In short, Jordan's economy, in general, and the construction industry itself was severely affected. Unlike the other factors affecting fluctuations, this factor is difficult to predict and impossible to plan for.

II. Contribution To Fixed Capital Formation

Another measure for the vital role of the construction industry to the economy of the country is the amount of investment expressed in terms of the industry's contribution to the capital fixed formation. Because construction assets account to more than 50 % of the fixed asset formation, the health of the economy is affected both directly and indirectly by the size of investment in construction. If the output is down, total investment will also be down [11].

Table (4) shows the values of fixed capital formation (FCF) of residential and non-residential constructions. The last column of the table shows gross fixed capital formation, including both residential and non-residential construction. It can be noted from the table that, the increasing trend of construction FCF which prevailed until the year 1984, turned into decreasing trend since 1985.

It is important to note that, similar to most developing countries, the contribution of the industry to fixed capital formation in Jordan is high. For developed countries, however, these figures tend to be lower. In 1981, for example, the contribution of this industry to gross capital formation of Britain was 44.4 percent [10]. The same figure for Jordan, however, was 64.25 percent of the gross capital formation.

III. Structure of Construction Contractors

Although the number of organized contractors is on the rise, the number of unorganized contractors is still very large and is

difficult to estimate. Prior to 1987, official registration of contractors was mandatory only for those who were competing for public projects. In 1987 however, the Government of Jordan issued a mandate stipulating that no contractor is allowed to conduct any type of construction activities without being classified according to the type of work by the Ministry of Public Works [21]. In addition, the law stated that these contractors be registered (as a member) in the construction contractors Association. The classification process as well as the registration are to be renewed annually. The development in number of contractors who were classified shows slight improvement. In 1983 there were 93 classified contractors. Next year, however, this number jumped to 246. The increase in number continued for the years 1985, 1986, 1987, and 1988 for which the number of classified contractors were 316, 345, 412, and 650, respectively. In spite of this increase in number of classified contractors, it can be concluded that the enforcement of the law has had little success because the number of unorganized contractors remains high.

It was found that the majority of the organized contractors in terms of size, employment, and capabilities are small. This can be attributed to two major reasons. First, most awarded public projects to local contractors are small. Second, many projects, which are significantly large by volume, are carried out by international contractors. The chances for relatively big local contractors to obtain large projects are affected by competition from international firms. Table (5) shows volume of awarded public projects for different years according to the nationality of contractors.

The effect of awarding some contracts to international construction firms on country's economy is double sided. In one hand, these companies can perform selected projects efficiently

because they have the experience and necessary technology that the local contractor does not have. Their work, if associated with technology transfer, is vital to the development of the country's construction industry in general and specifically the country's contractors. On the other hand, awarding international firms can be deterrent to the economy and to the construction industry especially when no technology acquisition takes place. Because international contractors are not interested in small projects and in maintenance works, the world Bank [24] urges that local contractors be developed and actively engaged in the construction process. For this purpose, the bank recommends to follow what is called "slice and package policy"; that is, each relatively large project to be divided among several local contractors. Zahlan [25] also urged government to award public construction works to local contractors. He states:

"The key element in this process of technology, innovation, and development is that activity has to occur in the main within the same economy: the innovator, by utilizing national resources, contributes to the development of technology which leads to a wave of new investments. The investments are then associated with a large multiplier factor and result in rapid economic growth in related economy. If the innovation is foreign and implanted into the economy by foreign firms with no technological acquisitions by the host country the economic consequences will be limited for a number of reasons. First, the cost of importing the benefits of the innovation will be high, otherwise it would be worth the while of for foreign entrepreneurs to take the risk to supply the innovations. At this higher cost the economic returns to the importing country may only cover the capital cost of the new import. Second, the new technology must also be maintained: this treats additional costs in foreign exchange. Third most new technologies induce a chain effect and create

other needs and additional imports unless the process is accompanied by swift technology transfer."

Unfortunately, Jordan had a minimal benefit from the construction of large scale projects such as potash works, cement factories, airports, highways, water and waste water treatment plants, irrigation projects, and many other public projects. All these projects were executed by international firms with almost no technology transfer [25].

Conclusions

- The relative importance of construction industry in Jordan had a decreasing trend over the years 1983 - 1989. In the light of Jordan's limited resources, the importance of construction industry is expected to remain high.

- The volume of work in construction showed sharp fluctuations even when considering inflation. The fluctuations were evident for both the private and public sector.

- With the absence of the careful planning and clear policy toward construction, sharp fluctuations in volume of work are expected to continue along with the associated negative consequences. Unless the region is free of economical, political, and social shocks, these violent fluctuations are expected to prevail.

- When analyzing the volume of awarded public projects by the nationality of the contractors, it was found that with the exception of little amount of work which were carried out jointly by national and international construction firms, a significant amount of construction works was carried out by international contractors with which no or little technological transfer has taken place.

Recommendations

- The Government is urged to adopt a planning policy toward construction, in order to reduce the fluctuations in volume of work.
- The even distribution of public projects over several years and the relative stability in the volume of construction works should be considered.
- The industry's structure also has to be addressed, and stronger support of the local contractors is required.
- There is an essential need for more detailed statistics in construction, for example, so far no accurate estimation of the industry's private sector is available.
- To improve the performance of the industry, laws and regulations concerning construction have to be enforced more rigorously.
- The effort of developing the existing regulations and laws has to continue.
- Finally for future research, manpower is a very important issue in construction industry and it needs a thorough and accurate investigation.

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Table (1)
Gross Industrial GDP and Construction GDP, Ref. [3,6]

Year	Construction Product in Million J.D★	Share in % to GDP	GDP of all industries in Ml. J.D. *
1980	97.5	N. A.	N. A.
1981	110.6	N. A.	N. A.
1982	121.9	N. A.	N. A.
1983	188	14.7	1281
1984	177.6	12.9	1376
1985	144.5	10.6	1359.9
1986	131.9	9.7	1358.9
1987	124.3	8.9	1402.5
1988	126.6	8.5	1481
1989	129.1	7.6	1690.5

★ J.D., Jordanian Dinar which currently equals \$ 1.5. It used to equal \$ 3.0 prior to Nov. 1988.

TABLE (2)
Value of Construction Works in Jordan In Current Prices
And in 1980 Prices Ref. [18,19,20]

Year	Public Sector		Private Sector		Total	
	Current	Adjusted	Current	Adjusted	Current	Adjusted
1981	96	88.0	NA	NA	NA	NA
1982	622	533.0	NA	NA	NA	NA
1983	178	152.0	200	170.9	378	323
1984	134	112.7	200	168.2	334	281
1985	145	120.1	150	124.2	295	244
1986	193	160.2	180	149.4	373	310
1987	118	97.1	160	132.2	278	229
1988	169	126.8	153	115.1	322	242
1989	98	54.9	176	98.6	273	154

TABLE (3)
Volume Of Work According to Nationality In Million J.O.
Ref.[17, 18, 19, 20]

Year	Jordanian	Arab	Non Arab	Total
1981	74.0	78.0	0.0	152.0
1982	78.0	46.0	0.0	124.0
1983	115.0	61.8	3.0	179.8
1984	95.3	71.1	13.8	180.2
1985	116.7	86.3	1.3	204.3
1986	101.0	57.3	20.0	178.3
1987	80.8	48.4	18.9	148.1
1988	120.3	74.2	7.9	202.4
1989	34.1	56.0	1.3	91.4

TABLE (3)
Licensed Building Area in Jordan In Thousand Sq.
Meters Ref. [2.9]

Year	Residential	Non-Residential	Total Area
1980	1671.7	273.7	1945.4
1981	2163.2	309.5	2472.7
1982	2369.8	752.7	3122.5
1983	2378.1	632.3	3010.4
1984	2591.5	353.6	2945.1
1985	1782.7	427.7	2210.4
1986	1781.9	484.7	2266.6
1987	1667.1	399.9	2067
1988	1858.7	195.5	2054.2
1990	2130.4	293.9	2424.3
1991	2477.3	181	2658.3

TABLE (4)
Cross Capital Formation in Milllon J.D. Fef.[6]

Year	Residental	Non-Residental	Total FCF
1980	120.5	127.0	397.8
1981	147.1	140.4	588.3
1982	157.6	167.0	619.3
1983	158.6	188.6	601.9
1984	163.0	177.8	561.4
1985	124.4	151.1	494.6
1986	114.7	143.2	453.2
1987	85.0	150.9	473.5
1988	85.7	152.9	415.0
1989	96.0	170.4	465.0

TABLE (5)
Volume Of Work According to Nationality In Million J.D.
Ref.[17, 18, 19, 20]

Year	Local		Joint-Venture		International		Total
	Value	Percent	Value	Percent	Value	Percent	
1981	75.0	78.1	0.0	0.0	21.0	21.9	96
1982	282.0	45.0	0.0	0.0	344.0	55.0	626
1983	110.0	61.8	0.0	0.0	68.0	38.2	178
1984	95.3	71.1	19.8	14.8	18.9	14.1	134
1985	116.1	86.3	2.0	1.5	16.4	12.2	135
1986	101.0	52.3	20.0	10.4	72.0	37.3	193
1987	80.5	68.5	18.9	16.1	18.2	15.5	118
1988	120.3	71.2	0.5	0.3	48.2	28.5	169
1989	94.1	96.5	1.2	1.2	2.2	2.3	98

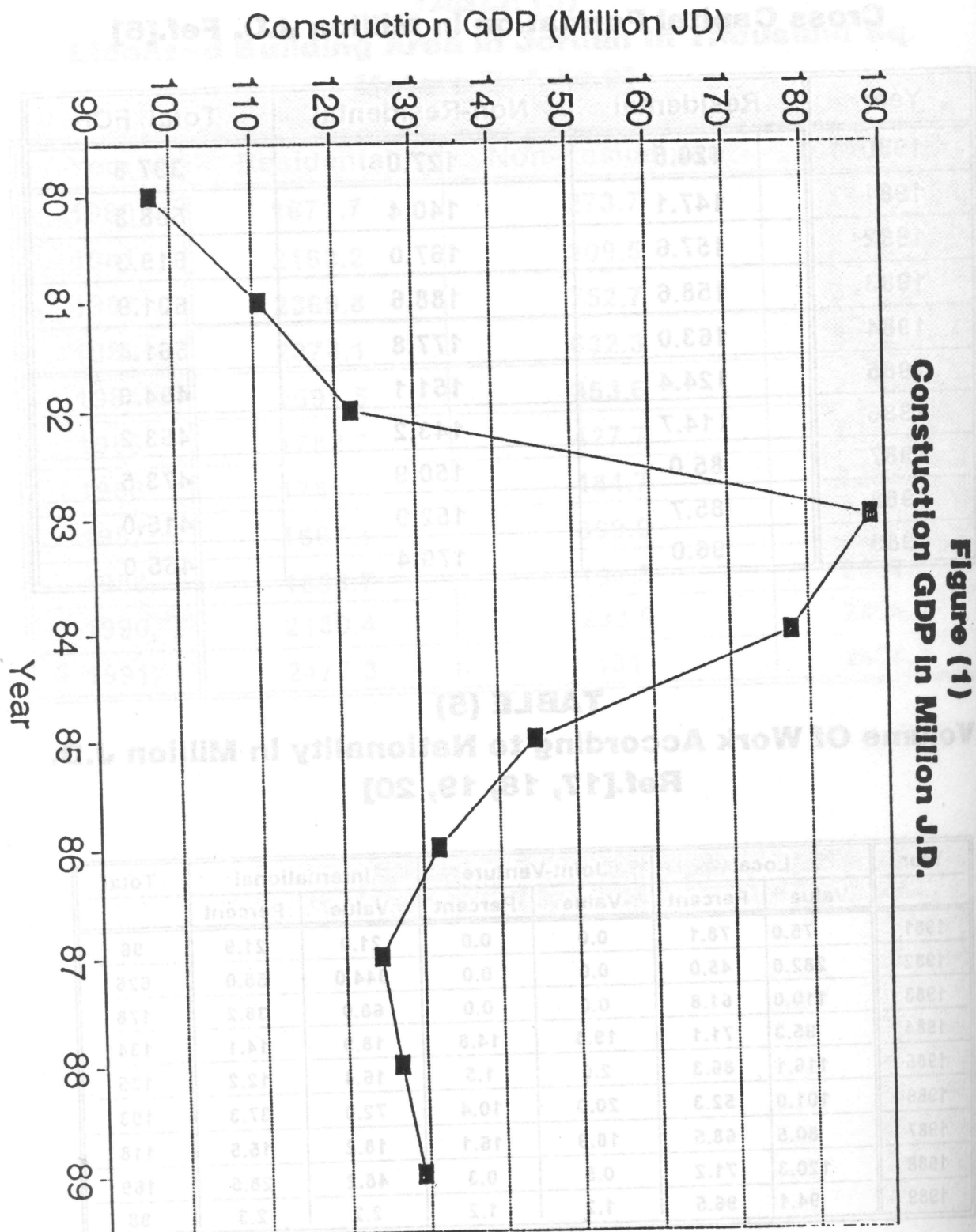


Figure (2)
Values of Construction Works in Jordan in Adjusted Prices.

