

Macroeconomic Evaluation of Privatization in Jordan (1998-2011) Theoretical, Descriptive and Empirical Analysis

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Abstract

It has been fifteen years since Jordan started privatizing its public sector in 1998. Several articles¹ have been carried out to study privatization in microeconomic level in particular the efficiency of Privatized Firms in Jordan. One important motivation for privatization in Jordan is to help develop the economy by boosting GDP growth rates. This study provides a descriptive, and empirical analysis of Jordan's Privatization process. It tries to investigate the effect of Privatization in Jordan on several macroeconomic indicators such as economic growth, public debt, unemployment rate, foreign direct Investment and financial development. The results from Engle Granger Method of cointegration show no significant evidences have been found between privatization and some of these macroeconomic variables which are integrated from the same level. However, privatization in Jordan was found to be accompanied by a growth in the levels of inflation rates and foreign direct investments during the period of study. Privatization in Jordan exercises its positive effects on the growth of GDP indirectly via its positive impact on the foreign direct investment.

Keywords: Privatization, Jordanian economy, macroeconomic impacts of privatization, Granger Method of cointegration.

1. Introduction

Until the end of 1980s, the monetary and financial policies in Jordan were characterized by the intervention of the government in the economy. They aimed at encouraging the local investors by offering them low interest rates and allocating resources in specific sectors. In the beginning of 1990s, Jordan started applying financial liberalization programs. The reform program consisted of measures in order to reduce the budget deficit, stabilize the exchange rate of Jordanian Dinar, and to liberalize the financial system by removing the financial restrictions. So the monetary and financial authorities in Jordan have adopted financial liberalization programs including: The liberalization of interest rates, financial deregulation, privatization and opening their financial markets for foreign investments in order to stimulate the economic growth. Jordan agreed to apply a structural adjustment program (SAP) proposed by the World Bank and IMF. The World Bank classified the privatization program in Jordan as one of the most successful in The Middle East. This study aims at examining the effect of privatization process on the major macroeconomic indicators in Jordan: The economic growth, public debt, public finance, unemployment rate, foreign direct Investment and financial development. The Jordanian privatization program –as part of SAP- hadn't started early. It was implemented widely eight years later, in the year 1998. The Jordanian government started with privatizing its infrastructure sector estimated inefficient and unprofitable (Public Transport Corporation, Jordanian Water Authorities, Jordanian Telecommunication Corporation, Royal Jordanian and Public Electricity Corporation).

This study is organized in five sections. In section 2, definitions of privatization will be reviewed. Section 3 tries to give the reader a good idea about the motivations of privatization in Jordan. In other words, why Jordan has decided to privatize its public sector? Section 4 provides the two main theoretical models on which depend those who claim to privatize the economy: The Neoclassical Growth Model and the Endogenous Growth Model. In section 5 theoretical and descriptive macroeconomic analyses have been done to evaluate macroeconomic effects of privatization in Jordan on financial development, Budget deficit, public debt, economic growth and unemployment rate. Then in section 6 an empirical test has been applied in order to check an eventual statistical relationship between privatization as an independent variable and the five indicators mentioned above. Finally, section 7 concludes with the results which have been drawn from previous sections concerning the possible relation between privatization and macroeconomic indicators.

2. The definition of Privatization

Awamleh (2002) defines it as a comprehensive and a complicated socio-economic and political philosophy. It refers to an increasing of the role of private sector and a decreasing of the role of government in economic

¹ Khrisat, Khasawneh & Al-Waked (2012), Hassoneh, Ershaida, Mobaydeen & Rezq (2010), Bdour, Qaqish & Ta'ani (2007) and Al-Tarawneh (1999).

activities in particular and in society in general. Privatization involves the release of an economy from legal and bureaucratic barriers and the encouragement of free functioning of private enterprises. Privatization implies larger reliance on market systems and mechanisms.

Bdour, Qaqish, Ta'ani (2007), see in it a restriction of the role of government by putting forward some methods policies to strengthen free market economy, which entails more reliance on the private sector to meet the needs of a society.

The Jordanian Executive Privatization Commission defines it as the adoption of an economic methodology supported by a strong political will with the main objective of creating a solid and supportive environment for sustainable economic growth.

According to Boubakari, Smaoui & Zammiti (2009), << privatization constitutes a fundamental structural change of ownership which is transferred from the public to the private sector, leading to a drastic shift in the underlying incentives of the respective owners and in the objectives of the firm from politically oriented to profit oriented>>.p(17)

From a Chinese point of view, it is a major step in transforming centralized economies into market economies [Gan (2009)].

Savas (2000) sees in the privatization << The act of reducing the role of government or increasing the role of private institutions of society in satisfying people's needs, it means relying more on the private sector and less on government>> p(2). Privatization and Public-private partnerships reflect market principles and together constitute a strategy for improving public management. So from this point of view, an effective privatization needs an effective governmental intervention in the economy in order to:

- 1) Supply risk capital when massive investments are needed in uncharted areas.
- 2) Establish roles for an increasingly interactive, urbanized nation where people get in each other's way.
- 3) Plan for and provide, directly and indirectly, services deemed necessary and to subsidize them if unaided market forces can not satisfy society's need.
- 4) Handle external costs that otherwise desirable activities impose on others.
- 5) Regulate natural monopolies.

In this regard, Filipovic (2006) defines the process of privatization as <<an effective way to bring about fundamental structural change by formalizing and establishing property rights which directly create strong individual incentives>> p(1). He believes that the free market economy largely depends on well defined property rights in which people make individual decisions in their own interests.

In fact, as it is mentioned by Estrin, Hanousek, Kocenda & Svejnar (2009), privatization has started since early 1980s to be defended as an efficient tool of establishing clear property rights, providing economic incentives and stimulating superior economic performance of firms and economies. In the same direction, Rahbar, Sargolzaei, Ahmadi , Ahmadi (2012) define privatization process as an approach to gradually access to the market mechanism. They consider it as an effective step towards achieving a competitive society based on market economy which can help to achieve higher growth and development.

3. The justifications of the application of privatization in Jordan

Bdour, Qaqish and Ta'ani (2007) summarized the justifications of the adoption of privatization programs in Jordan by the following reasons:

- 1) The failure of economic public sectors restructuring programs which started in the years 1970s.
- 2) The public sectors inability to keep abreast of production processes in local and foreign private sectors.
- 3) Lifting the burdens on the public budget through stopping the subsidies and reducing the size of internal and external indebtedness through the reduction of borrowing.
- 4) Ending the governmental intervention in the production process in some sectors as it is an obstacle to the expansion of investment and improvement of productivity.

The study of Hassouneh, Akho-Ershaida, Mobaydeen, and Rezaq (2010) advanced four motives which incite and persuade Jordan to adopt the privatization program:

- 1) Increase the economic growth and encourage investment opportunities.
- 2) Remove the crowding phenomenon between private sector and public sector.
- 3) Rise the efficiency of Jordanian economy and ameliorate its performance.
- 4) Reduce budget deficits and subsidies.

These four justifications and four motives mentioned above correspond to the six specific objectives articulated by Megginson and Netter (2001) for privatization programs adopted by Thatcher government in early 1980s:

- 1) Raising new revenue for the state.
- 2) Reducing government interference in the economy.
- 3) Promoting wider share ownership as privatization is a response to the failing of the state ownership.
- 4) Providing the opportunity to introduce competition.

- 5) Promoting economic efficiency as the firms which operate in competitive markets will be forced to operate efficiently.
- 6) Developing capital markets in allocating resources. In fact the success of privatization process itself depends on the strengthening of the capital market. In this regard, it should be mentioned that the third stage in the sequences of Jordanian Financial Liberalization Program aimed at developing the stock financial market.

In fact, the four objectives of the Jordanian privatization program are in full accordance with these six objectives mentioned above. The Jordanian Privatization Law No. 25 of the year 2000 determines the objectives of privatization process in Jordan as following:

- 1) To raise the efficiency, productivity and competitiveness of economic enterprises through strengthening the market forces and eliminating structural imbalances.
- 2) To contribute to the encouragement of Local, Arab and International investments in order to strengthen the local capital market and the national economy.
- 3) To alleviate the debt burden of the Treasury by ceasing its obligation to offer aids to unsuccessful and unprofitable enterprises.
- 4) To manage enterprises with modern methods which include the use of advanced technology in order to enable such firms to create stable markets and penetrate new markets through their ability to compete in international markets.

4. Theoretical Background

There are two main theoretical models on which depends those who argument and advocate the advantages of implementation of the privatization process on economic development: The Neoclassical Growth Model and the Endogenous Growth Model.

These two main models are based on the idea that the positive microeconomic effects of privatized State Owned Enterprises (SOEs) shall have a positive effect on the macroeconomic performances represented by the increase of investment and national economic output.

For this reason the neoclassical growth theory urges to decrease the role of government in the economy via free market practices which will lead to economic growth [Naguib (2010)]. While the Neoclassical growth theory consider the technical progress as exogenous factor, the theorists of endogenous growth theory emphasis that the technical progress is an endogenous product within the economic system [Romer (1986), Lucas (1988), Barro (1991), Greenwood & Jovanovic (1990), Levine (1997) and others]. They use in their models the equation ΔK . They consider the technological progress as an independent factor which can be affected by many endogenous factors which influence the growth itself. For example, the privatization of SOEs can stimulate the technological progress in order to accelerate the growth. So in the endogenous theory of growth, the privatization process will be treated as an endogenous variable which explain the accumulation of capital (Stock capital (K) and Human capital (HK)). In this regard, Naguib (2010) mentioned in her study that FDI and privatization will have endogenous effects on other factors of production (e.g. human capital and technological level), which will lead to long-run endogenous economic growth. In fact, the endogenous theory allows the privatization process to play an important role as a motor of growth: Accumulation of capital and inducing technological progress which can lead to long-run economic growth. It isn't the privatization itself which increase GDP growth, but the positive effects accompanying this process such as depth institutional reforms, budget constraints and developing the stock market [Zinnes, Eilat & Sachs (2001)]. In addition, the high accelerated competition expected after the application of privatization programs will lead to many other benefits such as : providing high quality goods and services with low prices and higher productivity. The privatization will also encourage innovations and new investors to enter the market which will affect positively the economic growth as a final outcome. As a result, unemployment rate is anticipated to be reduced as enterprises hire more labor to raise their output. Furthermore, it is anticipated to develop the stock market. Megginson and Netter (1997) indicate that : << developing the national capital market is usually a major objective of privatization programs, and Share Issue Privatizations (SIPs) have the capacity to transform. Greater investors' participation leads to increase market liquidity which is represented by Turnover Ratio or Value Traded Ratio. This liquidity attracts more corporate equity issuance, both by the government and firms seeking capitals>>. p(31)

Cook & Uchida (2001) indicate that privatization increases the opportunities for investment in newly enterprise by releasing them from the capital ownership which can increase the efficiency and by consequent raise productivity and GDP growth.

On the other hand, many economists opposed and criticized the tendency to privatize the economy.

Guriev & Megginson (2005) indicate that economics' welfare theorems can work in an economy with public ownership, where firms are publicly owned but exchange occurs in a competitive market, and SOEs' managers are incentivized via performance contracts. This has been successfully implemented in China. They add that

while privatization raises revenues for government and strengthens the incentives for profit maximization which increase productivity and efficiency, the privatization may involve substantial costs as there are possibilities of market failures related to externalities, monopolies and public goods. These failures themselves are the reason for the government to intervene in the economy as a partner via public ownership.

Kallianiotis (2009) argues that privatization which creates private monopolies may cause security problems, unemployment, high prices and other types of suffering to the citizens (both consumers and labor). He believes that profit and value maximization of the firm must not be superior than social welfare maximization of the society. Although Kallianiotis (2009) admits that SIP can broaden and deepen domestic markets, increase investment opportunities and potentially economic growth, he warns from the risk involved by the lack of enough buyers, so prices can be low, capital gains insignificant and transaction costs very high. Thus the stock market will be an inefficient tool to allocate capital.

Kay & Thompson (1986) show that privatization doesn't promote economic efficiency; only governments have raised significant revenues through the sale of SOEs. Parker (1999) thinks that privatization leads only to redistribution of income and economic power without any positive effect on efficiency.

Savas (2000) believes in the necessity of a continuous role of government during and after the privatization process in order to supply risk capital.

Jugovic, Bisticic and Debelic (2010), conclude that privatization per se is not a significant determination of economic success, but the privatization methods which lead to permanent changes in ownership structure of an economy and have different influences on output level. So privatization model and not privatization per se is the key for realization of optimal economic results on both microeconomic and macroeconomic levels translated by higher level of efficiency with stability and business continuity assurance. This conclusion is in accordance with Filipovics' study (2005) which concluded that it isn't the privatization itself but the method of privatization accompanied by suitable structural reforms which create incentives to increase investment, adopt new technologies, improve economic efficiency and as final result induce a higher economic growth.

Guriev & Megginson (2005) indicate that there are significant complementarities between privatization and other reforms, such as: openness and competition, good governance, low corruption, hard budget constraints, property right protection and optimal regulation. In fact, Jordanian privatization process is a complement part of Structural Adjustment Program and Financial Liberalization Policy which supposed to include all what have been mentioned above by Guriev & Megginson (2005).

5. Macroeconomic evaluation of privatization in Jordan

To study the effect of privatization, I adopt two methods: A descriptive macroeconomic analysis for each of the five indicators: financial development, budget deficit, public debt, economic growth and unemployment rate. An empirical analysis will be presented in section 6. These five indicators can be presented as following:

5.1 GDP Growth rate

Cook & Uchida (2001) refer directly the relation between privatization and economic growth to the microeconomic theories used to justify privatization. The main assumption of privatization theories is that free forces of market increase the efficiency of a firm. Privatization theories are based on the fact that the public companies are inefficient because of their high exchange costs [Rahbar, Sargolzaei, Ahmadi and Ahmadi (2012)]. Several empirical studies show a positive effect of privatization on the economic growth.

Plane (1997) studied a sample of 35 developing countries. He found that privatization had a significant positive effect on economic growth, particularly when it takes place in infrastructural and industrial sectors rather than other sectors.

Barnett (2000), employed data of 18 countries to examine the effects of privatization on real GDP growth rates, investment and unemployment. His empirical results indicate that privatization deals of 1% of GDP raise the real growth rate of GDP by 0.5% in the next year and by 0.4% in the following year.

Palia and Phelps (2003) employed data of 43 countries over the period (1960-1985). Using five modern cross-section growth rate regressions, they found after controlling many other factors that the private ownership is significantly and positively correlated with economic growth rate.

Filipovic (2005) used a sample of 83 developing countries and he employed a cross country regressions analysis in order to examine the relationship between growth and privatization from an incentives perspective. He concluded that the results obtained don't lead to generalize of whether or not privatization can promote growth in developing countries. He concluded also that the very dependence of privatization on other economic factors might imply that privatization decisions should be made based on specific social, political and economic conditions for each particular country.

Table (1) shows a continuous sustainable growth of GDP after the application of privatization in Jordan - at current prices and at constant prices- until the year 2008 when these rates have started slowing down as a result

of the global recession [See also Figure (1)]. In this figure, the two curves demonstrate a simultaneous unidirectional trend (ups and downs) between GDP growth rate and Privatization in percentage of GDP. Boubakri, Smaoui & Zammiti (2009), used panel data of 56 developing countries over a long period (1980-2004). They found that privatization proceeds over GDP have a robust positive effect on economic growth. They found also that SIP method through the stock market is positively correlated with economic growth especially when it is accompanied with a good institutional environment that protects property rights.

5.2 Budget deficit

There is some evidences that Tax revenue as a share of GDP permanently increases following an episode of privatization which ameliorates the public finance [Barnet (2000)].

The importance of controlling the deficit in the public budget is attributable to the fact that when the deficit rises this will raise borrowing, which leads to augment the public debt. Jordan has always suffered from chronic deficit budget. An important part of this big deficit is due to government's support for many goods and vital sectors such as: food commodities (wheat, sugar and rice), petroleum derivatives (gasoline and diesel) and fodder. Since the application of privatization program in 1998, Jordan had succeeded continuously in reducing the deficit budget in percentage of GDP from its high levels (6.4% and 6.3% in the years 1997 and 1998 respectively) to 2.7% in 2004 before rebounding to 5.3% in 2005. In general, these ratios don't exceed the acceptable international standard for developing countries (6%). However, these ratios significantly exceed the acceptable standard ratio if we exclude the grants and foreign aids. For example, if we calculate the deficit budget in % of GDP without grants for the years (1997-2001), we will obtain the following ratios respectively: (10.4%, 10%, 7.3%, 7.4%, 7%) instead of those appeared in the table (2). If we take the year 2008 –the year dated the end of the privatization program- we will find that the deficit was 476.3 million US \$ representing 2.4% of GDP. But auditing well these statistics reveals that: The deficit contains the amount sale of Aqaba land (499.2 million \$) which is a non-recurring income inside the governmental budget. In this case, by excluding it, the deficit would become 975.6 million \$ instead of 499.2 million \$ which represents 4.6% of GDP. Furthermore, excluding foreign aids, the deficit in the year 2008 would be 1987.3 million \$ representing 9.4% of GDP. In the following year 2009, the deficit after aids reached 1370.4 million \$ representing 8.9% of GDP. These statistics put the government of Jordan in a very embarrassing situation. The government doesn't have more enough reasons to justify this record deficit of budget, given the fact of privatization program which has allowed the government to stop subsidies towards many vital sectors and in the mean time increased the revenue of the government by imposing new taxes. Galal, Jones, Tandon & Vogelsang (1994) emphasis that the taxes paid by privatized firms are higher than those collected before privatization process. One can see in this historical deficit budget in Jordan as a kind of administrative laxity and a wasting of public money. The continuity of this deficit is the biggest challenge because the public debt is positively correlated with it.

Unfortunately, it seems to me that the government of Jordan views the budget deficit as a financial problem rather than a structural problem which reflects the fragility of the economic base. So when the privatization process came to its end in 2008, the deficit has rapidly reappeared in a crude form in the following years 2009, 2010 and 2011 [See Table (2)]. According to Katsoulakos & Likoyanni (2002) success of privatization is related to taxes efficiency. In this case, privatization can have a positive effect on public finances. Mackenzie (1998) affirms that privatization has a positive effect on the GDP growth only if it isn't used as a tool for more public spending.

5.3 Public debt

Controlling and reducing the public debt is very important to insure the success of privatization program; due to its negative effects on inflation and on GDP growth. The empirical study of Reinhart & Rogoff (2010) concerning a group of developing countries indicates that higher public debt ratios in % of GDP mean higher inflation rates. Moreover, the study found a negative significant correlation between the high levels of external debt and the GDP growth rates. The results for developing countries indicate that raising the external debt ratio in % of GDP up to (60%) leads to reduce the growth of GDP by 2%. So it is fundamental for the government to reduce its deficit in order to lower its need to borrow. Therefore, the negative effects on the main macroeconomic indicators (e.g. inflation and growth rates) can be avoided or limited.

In this regard, Public Debt Management Law No. 26 of the year 2001 was issued in order to put a ceiling which must be respected by the government of Jordan. The law impels that the outstanding domestic public debt may not, at any time, exceed (60%) of GDP at current prices of the last year for which data is available. And the outstanding external public debt may not, at any time, exceed (60%) of GDP. The total outstanding public debt may not, at any time, exceed (80%) of GDP. In 2008, the law was modified by lowering the two partial ceilings from 60% to 40%, and lowering the general ceiling from 80% to 60%.

In 1990, the public debt represented 230.5% of GDP, which exceeded largely the acceptable standard ratio for the solvency of states. This ratio has dropped significantly among years to reach 98.2 % by the end of 2003 [See Table (3)]. However, it remained bigger than the ceiling fixed by the law No. 26 before being modified, and

which was (80%). By the end of 2006, this ratio dropped to 70.8% beneficiary from a substantial economic growth rate (12.1%). Here I have to mention that the debt as an amount has not stopped going up among years. The decreasing of the debt ratio was due to the high increasing of GDP during the same period (2000-2008). We can remark that the public debt ratios in the year 2010 and 2011 exceeded the ceiling of 60% of GDP imposed by the modified law. This is due to the high historical levels of public deficits recorded in these years. Cook P & Uchida Y (2001) affirm that lack of suitable governmental reforms could lead to a negative relationship between privatization and economic growth. Dolenc (2009) found a negative relationship between privatization and economic growth in the case of Slovenia as a result of failing in controlling its public expenses and applying convenient governmental reforms.

5.4 Financial Market development

Yeaple & Moskovitz (1995) emphasis that privatization boosts the efficiency of capital market. The efforts of the financial reforms in Jordan can be presented in three sequences:

First phase (1990-1998): It aimed at reforming the financial system. The banking system was restructured by reinforcing its establishments and its capitals. In this context, the authorities completed the liberalization of interest rates and the allegation the restrictions imposed on the banks in order to strengthen their role in the financial intermediation. In 1997, the securities Law No. 23 was enacted with an intention to reform the Jordanian capital market. This happened one year before the selling of Jordan Telecom to a strategic partner (France Telecom). According to this law three new establishments have been emerged replacing what had been called till 1997 (Amman Financial Market). They are:

- 1- Amman Stock Exchange Market (ASE).
- 2- Jordan Securities Commission, which is related and managed by the government. It has a regulatory and an administrative role.
- 3- The securities Depository Center, which is directed by private sector. It has an operational nature.

Second phase (1999-2001): It aimed at ameliorating the efficiency of the financial system and strengthening its capacity to open up to the global financial markets. Three axes of procedures were in the heart of this second period of reform:

- 1- The enact of the banking law No.28 for the year 2000, which aims at allowing banks to provide several non-traditional services by adopting the universal bank model.
- 2- In September 2000, Jordan Deposit Insurance Corporation law No.33 was published.
- 3- The development of payment system.

Third phase (2002-2003): This stage characterized by the development of stock market and more dependency on it in order to attract the foreign investments. Megginson, Nash, Netter and Poulsen (2004) emphasis that Less Developed Capital Markets prefer to privatize via share issues in order to develop their financial markets. In brief, the third stage of Jordanian financial reform plan was for objective to develop the financial market with a view to have more dependency on it in financing Jordanian firms. A well-developed financial market was seen by the government of Jordan as an excellent tool to privatize SOEs via public share offering. Megginson and Netter (1997) explained the reasons why governments have adopted Share Issue Privatization (SIP) as their preferred divestment vehicle:

- 1) SIPs are the only practical method of selling off the very largest SOEs from both operational and financial perspective. In China for example, SIP is used for privatizing large SOEs that government intends to retain, under the policy of retaining the large, releasing the small.
- 2) A public share offering is by far the most transparent method of selling corporate assets.
- 3) Governments have realized that they can modify the share allocation, pricing and other terms of public share offering to achieve political and economic objectives.
- 4) SIPs have proved their increasing of total capitalization and trading value of almost every major non-US stock market.

Privatization program of many of SOEs in Jordan was completed over several phases via public share offering. For example, the privatization of Jordan Telecommunication Company JTC was accomplished over four phases. The study of Gouret (2007) shows that Transition countries which implemented gradual privatization, generated on average 72% higher GDP recovery rate than economies with fast privatization process. But one can see in the slow gradual public sector privatization unfavorable policy. Instead, fast type is necessary to ensure company efficiency.

Boubakari, Smaoui & Zammiti (2009) emphasis that in developing countries like Jordan, privatization is often concomitant with financial liberalization in order to encourage foreign investment. They indicate that assessing the separate effect of privatization is a challenging task.

Ostrom (1990) confirms that transactions costs may be high in the controlled SOEs, which in turn work against achieving efficiency. In addition, the government control of SOEs may also lead to corruption as government officials try to profit from the resources put in their care. In contrast, Akerlof, Romer, Hall & Mankiw (1993)

indicate that private investors may also seek chances – legal or illegal – to loot their own firms in mature or emerging markets regardless. So the mismanagement attributed to public property is not even technically coherent. Chun (2009) wonders how can the supposed individual rationality of seeking personal gains be reconciled with the collective rationality of Pareto optimality.

Chun (2009) mentioned that some of Chinese privatized SOEs were robbed inside and out by their new private owners through liquidation without liability and reselling for instant cash returns. In this regard, Jie Gan (2009) indicates that the private ownership was an unfamiliar phenomenon in China. When the delayed privatization happened, market institutions have been developed and equally importantly, the private sector has become a big part of the economy. Moreover, capital market is developed enough to provide the new owners an exit strategy to fully capitalize the efficiency gains. So Jie Gan wants to say that capitalizing the gains of new owners must not be seen as a robbery or a looting.

The privatization process had a major impact on developing the capital market in Jordan reflected by the rapid growth in the capitalization ratio, Value Traded and Turnover ratios. Table (4) shows the evolution of the main ratios in ASE market during the period (1996 – 2011).

Cook & Colin (1998) indicate that privatization in developing countries raise capitalization of stock markets and boosts its liquidity. Since 1996, privatization has played a role in developing the major indicators of the capital market in Jordan (Size indicators as well as liquidity indicators). The aim was to attract the FDI in order to finance the Jordanian firms listed in the market. Many Jordanian firms entered the market in order to be financed directly at low cost comparing with the cost of the indirect finance given by banks.

The empirical study of Boutchkova & Megginson (2000) regress the Turnover ratios of several individual financial markets over numbers of privatization deals in a given country in a particular year. They found that after each privatization deal the stock market liquidity increased by 2.3% in the next year and by 1.7% the year after that. This is in accordance with what actually happened in Jordan after the implementing of privatization program in 1998. The liquidity reflected by the Turnover ratio had raised significantly since 2000 until 2008 (the year which dated the beginning of the financial crisis). The capitalization ratio which was 5,9 billion \$ in 1998 – reflecting a small market size – had also raised continuously to reach 41,15 billion \$ in 2007. This represent a growth of 604%.

5.5 Un employment rate

Many of economists see in the privatization process as an enemy of workers because the new owners of privatized firms usually get rid rapidly of redundant workers in their quest to improve efficiency and as divesting government cut the workforce to prepare for privatization. So large employment reductions have often accompanied the privatization of state enterprises that were in the past heavily subsidized and protected from competition [Kikeri (1998)]. Advocates of privatization see in increasing of unemployment rate directly after privatization as a correct path which is necessarily needed as a part of economic reforms. But on long-run perspective privatization leads to higher employment.

Based on a sample of non-transition countries, the empirical study of Barnette (2000) indicates that increased privatization is associated with declines in unemployment rate. However, he emphasis that if privatization leads to significant layoffs in the privatized firms, then the unemployment could temporarily increase.

While Boubakri & Cosset (1998) found that privatization doesn't cause unemployment, Bhaskar & Khan (1995) found that privatization in Bangladesh has reduced employment significantly. The divergence and the variance between these two studies can be explained by what Kikeri (1998) concluded in his study << In general, privatization has had a minimal effect on employment in countries that carried out labor reforms well before privatization. Privatization has also had a minimal effect on workers in competitive enterprises. Ghana, Morocco, Mexico and Tunisia are among many countries that have been able to sell such enterprises with their labor force more or less intact>>. p.(5)

Since the application of privatization in Jordan, the unemployment rates have been stable around its unacceptable high average level of 13.5% [See table (5)]. In fact, the privatization process and the high levels of economic growth during the period of study have not been accompanied by any amelioration in unemployment rates as it was hoped in the beginning of the application of privatization program.

5.6 Foreign Direct Investment

Foreign direct investment is net inflows of investment to acquire a lasting interest in or management control over an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvested earnings, other long-term capital, and short-term capital, as shown in the balance of payments.

The results of the empirical study of Merlevede & Schoors (2005) suggest that current direct privatization has an immediate concurrent positive effect on the equilibrium level of FDI. Privatization history increases equilibrium FDI stocks, independently of the method applied. Table (6) shows the evolution of FDI directly after the application of Privatization process in Jordan in the year 1998. Figure (2) indicates clearly that when Privatization indicator goes up, the FDI indicator follows it in the same direction.

As it has mentioned before, the privatization in Jordan was a part of the financial liberalization reforms which tended to increase the presence of foreign investors as the latter can exchange freely without any restriction [Boubakri, Cosset, Debab & Valery (2009)]. Their empirical study using (GMM) approach in a dynamic panel of 53 countries over the period 1984-2005, suggests that :<< Privatization can be instrumental in attracting FDI, which can contribute to domestic economic growth. By the same token, privatization constitutes a credible signal of less policy risk for foreign investors, and contributes to attract more FDI>>. pp.82

6. Empirical Test

6.1. Methodology

In this empirical test I would like to investigate separately a possible effect of privatization indicator on each macroeconomic indicator. I will use a co-integration test which aims at verifying a possible co-integrating relation between a group of non stationary time series. In my case: (the privatization indicator as an independent variable with each one of the five macroeconomic variables)². The main pre-condition to proceed a co-integration test is that the time series have the same integrated levels and their levels is bigger than zero or that these series contain a deterministic trend which can be given by ADF test or Phillips Perron test.

Engle Granger (1987) method can be used. The Engle Granger equation for co-integrating regression will be:

$$D_t = a + b X_t + \mu_t \quad (1)$$

Where:

Dt: the dependent variable which is one of the five macroeconomic indicators for the period (1998 - 2011):

LGDP (the logarithm of GDP), **LUE** (the logarithm of Unemployment Rate), **LFD** (the logarithm of Foreign Direct Investment), **LBD** (the logarithm of Budget Deficit), **LPD** (the logarithm of Public Debt), **LVT** (the logarithm of Value Traded).

Xt: the independent variable (the logarithm of Privatization indicator **LPRIV**³).

t: The time (Year)

μ_t : The residual

If the results of Phillips Perron or ADF test indicate that the original series individually have a unit root (they are not stationary).

If the serie becomes stationary after taking the First Difference so the original serie is integrated from level one **I(1)**. If the serie becomes stationary only after taking the Second Difference so the original serie is integrated from second level **I(2)**. If both series are integrated from the same level, then we can proceed the co-integrating test by regressing the original second serie over the original first serie using OLS method.

Then we obtain the residual (μ):

$$\mu_t = D_t - a + b X_t \quad (2)$$

In the third step we examine whether the residual serie itself is stationary. If the residual is stationary, so the variables are said to be co-integrated, they have a possible long run relationship. So if the regression produces an I(0) error term, the equation number (1) above is said to be cointegrated. In fact, the non-stationary I(1) series (Dt and Xt) are supposed to cancel each other out to produce a stationary I(0) residual μ_t . In other words, we are interested in testing whether a linear function of these two variables is I(0) [Batchelor R (2000)]. If μ_t is stationary I(0) then we can -in the last step- estimate the error correction model ECM [Abed Alkader M (2007)] in order to see the short run relationship between privatization Xt and each macroeconomic indicator Dt.

The ECM provides evidence of the short-run relationship by regressing the difference of dependent variable ΔD_t , for example the difference of GDP on the lagged difference of GDP including the lagged value of the residual as explanatory variable. A basic error correction model can be represented as following:

$$\Delta D_t = \chi_0 + \chi_1 \Delta x_t + \chi_2 \Delta D_{t-1} - \tau(u_{t-1}) + \varepsilon_t \quad (3)$$

Where τ is the error correction term coefficient, which theory suggests should be negative and whose value measures the speed of adjustment back to equilibrium following an exogenous shock.

6.2 Test for Stationary of time series

Table (7) shows the results of Phillips Perron Test for stationary of my series.

As we can remark from the results, the pre-condition which is required in order to proceed a co-integration test is only possible between **LPRIV** and three macroeconomic variables which are integrated from the same level **I(1)**: the Log of GDP (**LGDP**), the Log of Budget Deficit (**LBD**) and the Log of Foreign Direct Investment (**LFD**).

² This analysis was performed on yearly data for the period 1998-2011.

³ The privatization indicator is measured as the total privatization proceeds during the study period (1998-2011) in percentage of GDP.

6.3. Regression Results

6.3.1. Cointegration test: gross privatization proceeds LPRIV vs. budget deficit LBD

Both Phillips Perron and ADF calculated statistics for stationary of the residual μ_t of this regression are insignificant at 1% and 5% levels which indicate no possible co-integration relationship between these two variables (LPRIV and LBD) [See table (8)].

6.3.2 Cointegration test: gross privatization proceeds LPRIV vs. economic growth LGDP

Both Phillips Perron and ADF calculated statistics for stationary of the residual μ_t of this regression are insignificant at all levels which indicate no possible co-integration relationship between privatization and the growth of GDP over the period of study [Table (10)]. But, as we can remark in this table $R^2 = (0.001)$ which means that there are many omitted variables and the model must be well determined.

I will introduce in my regression two more variables supposed by the theory to explain economic growth: the Inflation rate (LINF) and the Log of Foreign Direct Investment (LFD) which are integrated from the same level (1). Before proceeding this regression, a Pearson correlation test between LPRIV and LFD is useful to test whether these two variables are correlated in order to avoid any collinearity problem [Table (9)]. According to the t statistics value⁴, we conclude an absence of significance correlation between these two variables.

We introduce these two variables in the general regression [See Table (11)]. It is interesting to remark that the positive significant coefficients of LINF and LFD indicate that Privatization in Jordan was accompanied by a growth of inflation rates and high levels of foreign direct investment.

A rapid Granger Test of Causality between these three variables at 5% significance level over the sample period of study indicates primary a unidirectional causality between foreign direct investment and growth of GDP. This means that foreign direct investment causes growth of GDP (LFD \rightarrow LGDP) and not vice-versa. A unidirectional causality exists also between privatization and foreign direct investment (LPRIV \rightarrow LFD) [Table (12)]. No causality exists between privatization and growth of GDP.

6.3.3 Cointegration test: gross privatization proceeds LPRIV vs. foreign direct investment LFD

The Durbin Watson statistics is 0.699 which indicates a positive autocorrelation between residuals [Table (13)]. LPRIV has a positive but insignificant correlation with LFD. The Test for stationary of the residual is insignificant so there is no evidence of a possible co-integration between these two variables (LPRIV and LFD) over the sample period of study.

7. Conclusion

The quantitative descriptive analysis during the privatization period (1998-2008) shows a constantly rises of economic growth rates, a development of the financial market indicators and an up growth of Foreign direct investment. On the other hand, the high levels of unemployment rates during the period study indicate that privatization has not been accompanied by any reduction in unemployment rates. Moreover, the slowdown of budget debt and Public debt indicators were due to the high levels of GDP during economic vogue rather than to the privatization process itself. However, The improvement of some indicators mentioned above can't be related only and directly to privatization program as privatization itself is a part of a vast program of structural adjustment which includes many other reforms which have their own influence.

In this empirical analysis, macroeconomic variables aren't found to be cointegrated with privatization indicator over the sample period of study (1998-2011). The negative insignificant value of LPRIV coefficient leads me to conclude that privatization in Jordan hasn't had any positive effect on economic growth since its application in 1998. This might go with what Cook & Uchida (2001) and Dolenc (2009) concluded about a negative relationship between privatization and economic growth in developing countries if they fail in controlling their public expenses and applying convenient governmental reforms. In fact, Jordan failed in overcoming and mitigating its budget deficit which has led the public debt to unacceptable levels. This might affect negatively the relationship between privatization and economic growth as it works oppositely of what theory suggest.

On the other hand, the empirical evidence indicates that privatization in Jordan was accompanied by a growth in the levels of inflation rates during the period of study as well as a growth of foreign direct investment. The test of causality indicates that privatization causes foreign direct investment and not vice-versa. In the same time, foreign direct investment causes growth of GDP. So this leads me to conclude that privatization influences the

$$^4 t^* = \frac{|\rho_{x,y}|}{\sqrt{\frac{(1 - \rho^2_{x,y})}{n - 2}}} = 1.127 \quad ,$$

Critical value at 1% level = 3.055

growth of GDP indirectly via its positive effect on the foreign direct investment which is significantly correlated with the growth of GDP [Table 11]. This confirms what Zinnes, Eilat & Sachs (2001) concluded in their study that privatization itself doesn't increase GDP growth, but the positive effects accompanying this process such as the depth of institutional reforms, budget constraints and developing the stock market by attracting foreign direct investment.

Finally, I have to admit that my empirical results must be taken with some reservations as I have a sample size of 14 years only. Further studies might be needed to endorse my results.

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Tables and Figures:

Table (1): Gross Domestic Product in Jordan (1998-2011) in Billions of U.S \$

	GDP at Current Prices	GDP Growth Rate at Current Prices (%)	GDP at Constant Prices	GDP Growth Rate at Constant Prices (%)
1998	7,901	9.7	7,080	
1999	8,138	3.0	7,321	3.4
2000	8,449	3.8	7,632	4.3
2001	8,963	6.1	8,034	5.3
2002	9,569	6.8	8,499	5.8
2003	10,180	6.4	8,852	4.2
2004	11,395	11.9	9,611	8.6
2005	12,571	10.3	10,394	8.2
2006	15,036	19.6	11,235	8.1
2007	17,087	13.6	12,154	8.2
2008	21,963	28.5	13,033	7.2
2009	23,820	8.5	13,746	5.5
2010	26,425	10.9	14,064	2.3
2011	28,840	9.1	14,428	2.6

Source: Central Bank of Jordan, National Accounts, Statistical Databases.

Table (2): Budget deficit in percentage of GDP in Jordan (1997-2011)

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
-6.4	-6.3	-3.9	-3.4	-3.6	-4.1	-2.7	-2.7	-5.3	-4.2	-5.2	-2.4	-8.9	-5.6	-6.8

Source: 1997-2008: Department of Statistics in Jordan (Annual Reports).

2009-2011: Ministry of Finance, General Government Finance Bulletin, July 2012.

Table (3): Public debt (PD) in Jordan (1998-2011) (Billions US \$) and in % of GDP

1998	1999	2000	2001	2002	2003	2004	2005	2006	07	08	09	10	2011
7,988	9,06	8,727	8,623	9,416	9,994	10,116	10,555	10,352	11,55	12,04	13,6	16,1	18,8
101.1	111.5	103.5	96.2	98.4	98.2	88.9	84.0	70.8	68.0	56.8	57.1	61.1	65.5

Source: Ministry of Finance, Public Debt Department, Public Debt Bulletins: Quarterly Bulletin: March 2012, Quarterly Bulletin: December 2009, Quarterly Bulletin: March 2007 and Quarterly Bulletin: March 2005.

Table (4): Main indicators of Amman Stock Exchange Market (1996-2011)

	No. of listed companies	No. of Traded Shares (Billions of shares)	Market Capitalization (billions US \$)	Capitalization/GDP (%)	Value Traded of shares (billions US \$)	Value Traded Ratio (%)	Turnover Ratio (%)
1996	98	0.165	4,875.0	70.4	0.351	5.1	6.5
1997	139	0.191	5,439.4	75.1	0.500	6.9	9.2
1998	150	0.248	5,854.9	74.1	0.654	8.3	11.2
1999	152	0.271	5,828.2	71.7	0.549	6.8	9.4
2000	163	0.228	4,943.7	58.5	0.472	5.6	8.4
2001	161	0.341	6,304.2	70.6	0.942	11.2	14.8
2002	158	0.462	7,083.1	74.0	1,338.0	14.0	18.9
2003	161	1,009	10,947.9	107.5	2,654.9	26.1	23.8
2004	192	1,339	18,357.8	161.1	5,342.3	46.9	29.0
2005	201	2,582	37,557.2	297.8	23,762.0	189.0	63.3
2006	227	4,104	29,687.3	200.3	20,014.1	133.1	67.5
2007	245	4,479	41,146.5	249.2	17,391.6	101.8	42.3
2008	262	5,442	35,783.1	179.1	28,616.9	130.3	79.9
2009	272	6,022	31,728.2	133.2	13,612.7	57.2	42.9
2010	277	6,989	30,7858.9	116.5	9,422.5	35.7	30.6
2011	247	4,072	27,145.0	94.1	4,014.1	13.9	14.8

Source: Amman Stock Exchange market Data Base.

- To calculate the Market Capitalization and the Value Traded in percentage of the size of the economy, I divided each of them by the GDP in current prices. Note that the sources of GDP in current prices are:

(1996-1997) : Data of Arab Monetary Fund. (199 8-2011) : Data of Central Bank of Jordan.

Table (5): Unemployment Rate in Jordan (1998-2011)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Rate (%)	13.5	14.4	13.7	14.7	15.3	14.5	12.5	13.4	14.0	13.1	12.7	12.9	12.5	13.1

Source: Department of Statistics in Jordan, Labor Statistics (Annual Reports).

Table (6): Foreign Direct Investment in Jordan (1998-2011)

	FDI (in current U.S. \$) Net Inflows (Millions of \$)	FDI in % of GDP*
1998	310,014,100.00	3.9%
1999	153,455,600.00	1.9%
2000	904,654,500.00	10.7%
2001	242,034,400.00	2.7%
2002	224,400,600.00	2.4%
2003	550,634,700.00	5.4%
2004	918,617,800.00	8.1%
2005	1,821,298,000.00	14.5%
2006	3,682,087,000.00	24.5%
2007	2,574,049,000.00	15.1%
2008	2,813,926,000.00	12.8%
2009	2,354,225,000.00	9.9%
2010	1,672,958,000.00	6.3%
2011	1,469,014,085.00	5.1%

Source: [Indexmundi](http://indexmundi.com) : IMF, International Financial Statistics and Balance of Payments databases/ World Bank, Global Development Finance.

FDI in % of GDP: Calculated by us by divided the FDI (at current U.S. \$) over the GDP at current prices.

Table (7): The Results of Phillips Perron Test⁵ for stationary of the series

	Exogenous variables	Test for Unit Root	Truncation Lag	P-P Test Statistic	Critical Values at 1% level	Critical Values at 5% level	Level of Stationary
LPRIV	Intercept +	Level	Lag(2)	-4.73	-4.88	-3.83	No
	Trend	1 st Difference	Lag(2)	-7.66	-4.98	-3.87	I(1)
LGDP	Intercept +	Level	Lag(2)	-3.20	-4.88	-3.83	No
	Trend	1 st Difference	Lag(2)	-7.63	-4.98	-3.87	I(1)
LUE	Intercept +	Level	Lag(2)	-3.29	-4.88	-3.82	No
	Trend	1 st Difference	Lag(2)	-3.83	-4.98	-3.87	No
		2 nd Difference	Lag(2)	-5.10	-5.11	-3.93	No
LFD	Intercept +	Level	Lag(2)	-1.99	-4.88	-3.83	No
	Trend	1 st Difference	Lag(2)	-5.24	-4.98	-3.87	I(1)
LBD	Intercept +	Level	Lag(2)	-4.47	-4.88	-3.83	No
	Trend	1 st Difference	Lag(2)	-9.81	-4.99	-3.87	I(1)
LPD	Intercept +	Level	Lag(2)	-1.84	-4.88	-3.83	No
	Trend	1 st Difference	Lag(2)	-2.13	-4.99	-3.87	No
		2 nd Difference	Lag(2)	-3.52	-5.11	-3.93	No
LVT	Intercept +	Level	Lag(2)	-0.03	-4.88	-3.83	No
	Trend	1 st Difference	Lag(2)	-2.69	-4.99	-3.87	No
		2 nd Difference	Lag(2)	-7.74	-5.12	-3.93	I(2)

⁵ ADF test was also employed just to confirm the same results obtained by Phillips Perron Test.

Table (8): Regression LBD over LPRIV

Dependent Variable: LBD **Method:** Least Squares

Sample : 1998 2011 **Included observations:**14

LPRIV	0.092 [1.46] (0.168)
Constant	0.59*** [15.02] (0.0000)
R ²	0.152
F-Statistic	2.15
Durbin-Watson	2.00

Probabilities between ()

Between [] the value of *t* Student corrected of Heteroskedasticity

White Heteroskedasticity-Consistent Standard Errors & Covariance

*** Significant at 1% ** Significant at 5% * Significant at 10%

Table (9): Correlation Matrix between LPRIV and LFD

	LPRIV	LFD
LPRIV	1	0.309
LFD	0.309	1

Table (10): Regression LGDP over LPRIV

Dependent Variable: LGDP **Method:** Least Squares

Sample : 1998 2011 **Included observations:**14

LPRIV	0.014 [0.133] (0.896)
Constant	0.955*** [13.242] (0.0000)
R ²	0.001
F-Statistic	0.017
Durbin-Watson	1.06

Table (11): Regression LGDP over LPRIV, LINF and LFD

Dependent Variable: LGDP **Method:** Least Squares

Sample (adjusted): 1998 2011 **Included observations:** 14

LPRIV	-0.027 [-0.65] (0.529)
LINF	0.475*** [6.189] (0.0001)
LFD	0.248** [2.526] (0.030)
Constant	0.457*** [7.007] (0.0000)
R ²	0.89
F-Statistic	26.49
Durbin-Watson	1.79

Probabilities between () Between [] the value of *t* Student corrected of Heteroskedasticity

White Heteroskedasticity-Consistent Standard Errors & Covariance

*** Significant at 1% ** Significant at 5% * Significant at 10%

Table (12): Pairwise Granger Causality Tests

Sample : 1998 2011

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Probability
LPRIV does not Granger Cause LGDP	13	0.31506	0.58695
LGDP does not Granger Cause LPRIV		0.16098	0.69670
LFD does not Granger Cause LGDP	13	5.74300**	0.03754
LGDP does not Granger Cause LFD		0.09194	0.76794
LFD does not Granger Cause LPRIV	13	0.16813	0.69042
LPRIV does not Granger Cause LFD		5.32379**	0.04371

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table (13): Regression LFD over LPRIV
Dependent Variable: LFD **Method:** Least Squares
Sample (adjusted): 1998-2011 **Included observations:** 14

LPRIV	0.147 [1.126] (0.282)
Constant	0.850*** [9.540] (0.000)
R ²	0.095
F-Statistic	1.26
Durbin-Watson	0.699

Probabilities between () Between [] the value of *t* Student corrected of Heteroskedasticity
 White Heteroskedasticity-Consistent Standard Errors & Covariance

*** Significant at 1% ** Significant at 5% * Significant at 10%

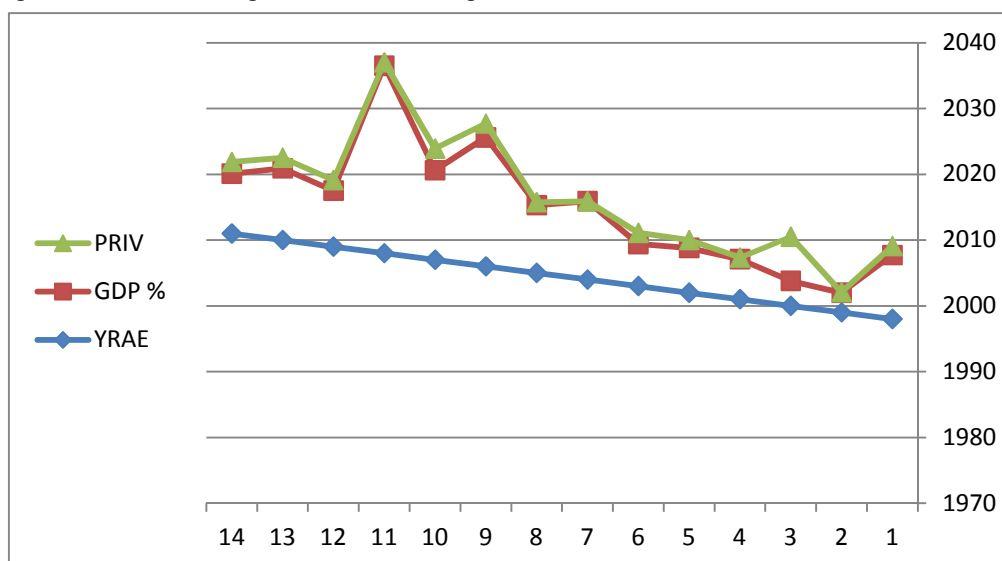


Figure (1): The Evolution of Privatization and GDP Growth Rate at Current Prices (1998-2011)

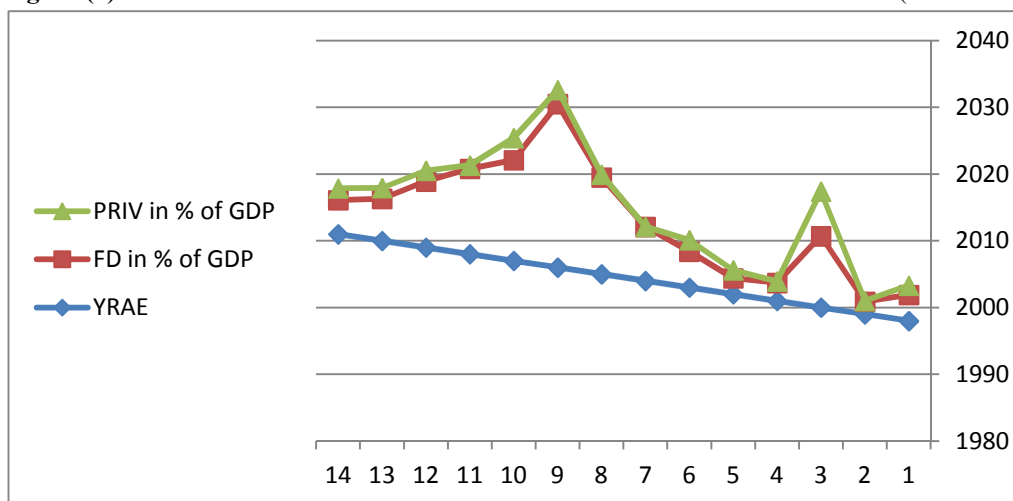


Figure (2): Evolution of Privatization and Foreign direct investment in Jordan (1998-2011)

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