

The Impact of Inward FDI Stocks on Income Inequality in Jordan[1]

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Abstract
This paper explores how inward foreign direct investment (FDI) stocks and other determinants impact income inequality in Jordan. We apply the partial correlation which is suitable for small samples. The data for the study cover the years from 1986 to 2013. The result shows that three is no significant relationship between FDI and Income Inequality in Jordan during the period (1986 – 2013). In order to control factors of income inequality other than FDI, we include some control variables, GDP per capita, inflation, government expenditure, and services sector.The results of all these variables indicate that no significant relationship with Income Inequality in Jordan during the period (1986 – 2013).
Keywords: Income inequality, FDI, Jordan.

1. Introduction:

Numerous investigations related to this topic have been conducted. Studies have indicated that income and wage inequality have risen in many countries since the 1970s.sice many studies have dealt with income inequality as a result of inequality, the previous studies have worked hard to investigate the relationship between income inequality and varied factors that influence the distribution of income. Thus, it was the desire of the researcher to investigate other factors that affect income inequality.

This paper tries to contribute to the existing literature by exploring the distributional impact of FDI on income inequality in Jordan. We investigate how FDI inflows affect domestic income inequality by using the partial correlation which is suitable for small samples. The rest of the paper is organized as follows: Section 2 provides the literature review and an overview of previous studies. Section 3 explains the General trends in FDI inflow and income inequality in Jordan. Section 4 explains the data and methodology used for examining the relationship between FDI inflows and domestic income inequality in Jordan. Section 5 analyses the relationship and results. Section 6 evaluates the findings.

2. Literature Review

There is a growing interest in examining the relationship between FDI and income inequality lately. Choi (2006) states that, with the recent increase in FDI, concerns about the effects of FDI on income inequality have heightened. However, there are very few studies that examine this issue in Jordan. In this section, we present the results of recent studies which analyze the relationship between income inequality and FDI. We should mention that theories regarding the impact of FDI show that FDI may increase or decrease income inequality. The issue cannot be settled theoretically. However, empirical findings on the effects of FDI on income distributions are mixed as well. The following table summarizes the results:

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Table (1)
Summary of the empirical results

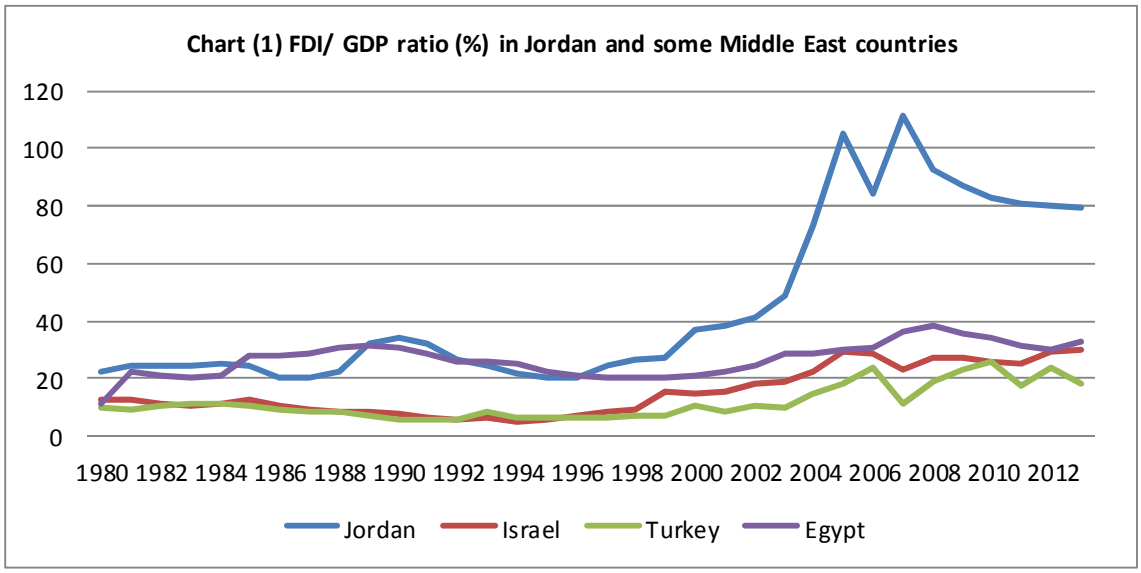
Authors	investigation	Sample	Data	Estimation method	Results
Choi (2006)	analyses the relationship between FDI and income inequality	119 countries	1993 - 2002	pooled Gin coefficients	Income inequality increases as FDI stocks (as a percentage of GDP) increase
Figini and Görg (2011)	the relationship between FDI and wage inequality	more than 100 countries	1980 - 2002		The effects of FDI differ according to the level of development.
Herzer and Nunnenkamp (2013)	the effects of inward and outward FDI on income inequality	Europe		Panel cointegration techniques and unbalanced panel regressions.	both inward and outward FDI have a negative long-run effect on income inequality
Bhandari (2007)	the link between FDI and income inequality	transitional countries in Eastern Europe and Central Asia	1990-2002		
Herzer, Hühne and Nunnenkamp (2014)	the long-run impact of FDI on income inequality	Five Latin American host countries, namely Bolivia, Chile, Colombia, Mexico and Uruguay		country-specific and panel cointegration techniques	Except for Uruguay, FDI contributes to widening income gaps in all individual sample countries.
Jensen and Rosas (2007)	the relationship between (foreign direct investment) and income inequality	Mexico		instrumental variables approach	Increased FDI inflows are associated with a decrease in income inequality within Mexico's thirty-two states
Tang and Selvanathan (2005)	the relationship between FDI inflows and regional income inequality at national, rural and urban levels	China.	1978 - 2002		FDI inflows are one of the main factors that have led to increasing regional income inequality at the national level, as well as in rural and urban regions
Sun (2007)	the relationship between FDI, economic growth, and income inequality	68countries	1970-2000	pooled time-series cross-section statistical model	There is no effect of FDI stocks on income inequality while the effect of FDI inflows on income inequality is non-linear
Asteriou et al. (2014)	the link between FDI and income inequality	27 EU countries			The highest contribution to income inequality comes from FDI. Also, the financial crisis significantly increased inequality in the EU-periphery and the new member states
Halmos (2011)	he relationship between FDI, exports, GDP and income inequality	15 Eastern European countries	1991 to 2006	Akaike, Schwarz and Hannan-Quinn model	FDI leads to higher income inequality
Svilena MIHAYLOVA (2015)	the impact of foreign direct investment (FDI) on income inequality	ten countries from Central and Eastern Europe (CEE)	1990 – 2012.	fixed effects regression models	FDI has the potential to exert influence on income inequality but this effect varies depending on the level of education and economic development of the host countries.
MeltemUcal, et al. (2014)	how foreign direct investment (FDI) and other determinants impact income inequality in the short- and long-run	Turkey	1970 - 2008	ARDL (Autoregressive Distributed Lag) modeling approach	FDI increases income inequality initially somewhat but this effect disappears in the long run

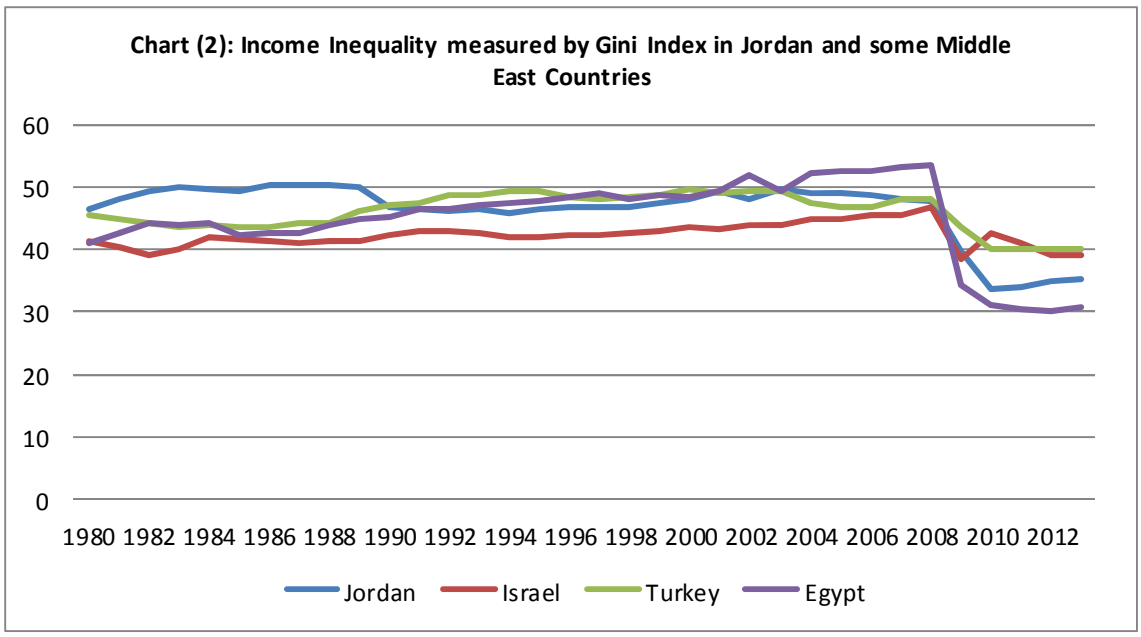
Source: author collection

3. General trends in FDI inflow and income inequality in Jordan

the general behavior of the inequality in income distribution in the stages of economic growth in Jordan takes the inverse of a character (U), and depending on the time series of the rates of GDP growth and Gini coefficient

during the time period of the study, and from which emerged from chart (2), shows that the shape of the relationship between them does not take the inverse of a character (U) as assumed by Kuznets Hence, this study shows non-application of Kuznets cycle in the form of the relationship between GDP in Jordan and the Gini coefficient as a measures of inequality in income distribution.





4. Data and methodological issues

We use FDI inward stocks as a percentage of GDP, and it is the main independent variable. As in Herzer and Nunnenkamp (2011), we use FDI stock rather than FDI inflow because FDI stock captures long-run effects more effectively than annual FDI inflow, which fluctuates considerably. Data source for FDI stock is UNCTAD. Thus we verified the validity of the following hypotheses:

Hypothesis 1: The greater the FDI inflow volume in a given year, the greater the income inequality.

In order to control for factors of income inequality other than FDI, we include several control variables. GDP per capita (GDPPC) is included. It is introduced in order to control for the possibility that within country income inequality can be affected by the stage of economic development, as for instance theorized by Kuznets (1955).

Hypothesis 2: Increase in GDP per go with a rise in income inequality.

Due to the distributional impact of inflation we add the inflation rate (INFL)as a control variable. As inflation erodes real wages and disproportionately affects those in the bottom part of the distribution, it tends to increase

income inequality. The variable is measured by the annual growth rate of the consumer price index and is expected to have a positive effect on the Gini index.

Hypothesis 3: The inflation affects positively income inequality.

Within-country income distribution may also be shaped by the government through its fiscal policy. It has been suggested in the literature that the retrenchment of government spending might be one of the factors explaining the upswing in income inequality. Hence, we include a variable which controls for this effect (GOVERN). It is measured as general government final consumption expenditure as a percentage of GDP and is expected to have a negative impact on the dependent variable.

Hypothesis 4: The government spending affects negatively income inequality.

It has been suggested that the substantial increase of the service sector, which is typically characterized by higher wage differential, might be one of the key factors behind the rise in income inequality (Ivaschenko, 2002; Franco and Gerussi, 2010). Given that, we include services (SERV) as a control variable, which is measured by the value added of the service sector as a percentage of GDP and is expected to increase income inequality.

Hypothesis 5: The rapid growth of the service sector affects positively income inequality.

Data for all control variables is taken from the World development indicators of the World Bank.

5. Empirical results

Table (2) descriptive statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Gini Index	11	32.63	43.36	36.82	3.14
FDI stocks as % of GDP	11	20.04	111.12	57.50	33.43
GDP per Capita (current UD$)	11	14186.00	46562.00	26835.27	10473.35
inflation rate	11	-0.20	14.90	4.24	4.15
Government expenditure (% of GDP)	11	19.70	25.70	22.48	2.21
Service value added (%of GDP)	11	63.50	70.80	67.30	2.40

Testing the hypothesis

Hypothesis 1: A greater volume of FDI inflow in a given year increases income inequality

Table (3) partial correlation between the FDI and income inequality controlled for (GDP /cap)

relation	r	sig
FDI – income inequality (Gini Index)	0.195	0.590

The correlation value between FDI and income inequality index (Gini Index) controlled GDP/cap was (0.195), this value is considered to be small and weak (less than 0.29) in addition its considered to be not statistically significant as the significance level (0.590) was > 0.05. As a result the study hypothesis is rejected and we conclude that no significant relationship between FDI and Gini Index during the period (1986 – 2013)

Hypothesis 2: the increase in GDP per capital is accompanied by a rise in income inequality.

Table (4) partial correlation between the GDP per capital and income inequality controlled for (inflation)

relation	r	sig
GDP per capital – income inequality (Gini Index)	- 0.522	0.122

The correlation value between GDP per capital and income inequality index (Gini Index) controlled inflation was (- 0.522) this value is considered to be negative and moderate (0.30 – 0.69) in addition it's considered to be not statistically significant as the significance level (0.122) was > 0.05. As a result the study hypothesis is rejected and we conclude that no significant relationship between GDP per capital and Gini Index during the period (1986 – 2013)

Hypothesis 3: The inflation has a positive effect on income inequality.

Table (5) partial correlation between the inflation and income inequality controlled for (government expenditures)

relation	r	sig
inflation – income inequality (Gini Index)	- 0.450	0.191

The correlation value between inflation and income inequality index (Gini Index) controlled government expenditures was (- 0.450) this value is considered to be negative and moderate (0.30 – 0.69) in addition its considered to be not statistically significant as the significance level (0.191) was > 0.05. As a result

the study hypothesis is rejected and we conclude that no significant relationship between inflation and Gini Index during the period (1986 – 2013).

Hypothesis 4: The government spending has a negative impact on income inequality

Table (6) partial correlation between the government expenditures and income inequality controlled for (GDP /cap)

relation	r	sig
government expenditures – income inequality (Gini Index)	0.062	0.866

The correlation value between government expenditures and income inequality index (Gini Index) controlled service sector growth was (0.062) this value is considered to be small and weak (less than 0.29) in addition its considered to be not statistically significant as the significance level (0.866) was > 0.05. As a result the study hypothesis is rejected and we conclude that no significant relationship between government expenditures and Gini Index during the period (1986 – 2013).

Hypothesis 5: The rapid growth of the service sector is a key determinant of income inequality.

Table (7) person correlation between the service sector growth and income inequality controlled for (GDP /cap)

relation	r	sig
service sector growth – income inequality (Gini Index)	0.085	0.803

The correlation value between service sector growth and income inequality index (Gini Index) was (0.085) this value is considered to be small and weak (less than 0.29) in addition its considered to be not statistically significant as the significance level (0.803) was > 0.05. As a result the study hypothesis is rejected and we conclude that no significant relationship between services sector growth and Gini Index during the period (1986 – 2013).

6. Finding Evaluation

The purpose of this paper is to explores how inward foreign direct investment (FDI) stocks and other determinants impact income inequality in Jordan. We apply the partial correlation which is suitable for small samples. The data for the study cover the years from 1986 to 2013. The empirical results indicate that no significant relationship between FDI and Income Inequality in Jordan during the period (1986 – 2013). In order to control for factors of income inequality other than FDI, we include several control variables. A traditional measure of economic development, GDP per capita, inflation, government expenditure, and services sector is included. The results of all these variables indicate that no significant relationship with Income Inequality in Jordan during the period (1986 – 2013). This result matches the results of Herzer and Nunnenkamp (2013) and Sun (2007) studies.

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