Foreign Capital Inflow, Consumption, and Economic Growth: The Experience of Jordan, 1968 – 1987

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Abstract. The purpose of this study is to investigate the effect of foreign capital inflows on consumption and investment. This is to figure out the causes behined the low productivity of foreign capital indicated by previous studies. Our statistical results revealed that foreign capital was a significant explanatory variable in both the consumption and investment functions.

According to this study, Jordan has allowed productivity of foreign capital because: some proportion of foreign flows is consumed and the investment generated through foreign flows is not quite effective.

The study recommends to revise the allocation policy followed in distribution foreign capital among sectors. Also, it strongly emphasizes the need to develop and implement some policy measures to increase domestic savings. The reliance on foreign resources is not in our favour from both economic and political view.

Introduction

Foreign Capital has played an important role in the economic development of many countries which are presently considered developed economics. Most of less developed countries (LDCs) are still at stage where their development depends mainly on the flow of foreign capital in the form of grants, loans, and direct foreign investment. It is therefore not surprising that substantial research effort has been directed to the study of the relation between economic development and foreign capital flows.

The theoretical debate on the effect of foreign capital on growth has been investigated by several economists. The main conclusion of their analysis is that, foreign capital adds to national savings and investment. Each dollar of foreign capital would result in an increase of one dollar in savings and investment [1,2]. However, recent studies in the field were critical of this conclusion. Their basic argument is that,

foreign capital inflows affect domestic savings adversely. This is due to the fact that, part of foreign capital inflows supplements consumption [3,4].

Because of the dearth of capital and natural resources, the government of Jordan had to rely on foreign resources to speed up economic growth and overcome the economic and social problems. Dependence on foreign capital has increased since the six – Day war in 1967. This has been the result of substantial amounts of aid from both Arab and Foreign countries, coupled with rapid increase in public external borrowing since the mid 1970s. The impact of foreign capital on Jordan's economic growth has been examined by several writers [5,6] The empirical evidence of such studies has indicated that foreign capital is not highly productive.[1] This, therefore, may suggest two important things: 1) Foreign capital inflows to Jordan contributed substantially to consumption more than it did to investment, and/or 2) the investment generated through foreign capital is not quite effective.

The purpose of this study is to investigate the above issues by examining the impact of foreign capital inflows on aggregate consumption and investment expenditures in Jordan. The study covers the period 1968 - 1987. Data and information will be derived from the Central Bank of Jordan monthly Bulletin.

The study is organized as follows: In section (I) we review the orthodox (dual - gap) models of foreign capital, section (II) briefly discusses the new approach to consumption and foreign capital. Whereas section (III) reports the experience of Jordan in this respect.

I. The Orthodox Macroeconomics of Foreign Capital

The majority of economists argue that, LDCs are underdeveloped because they lack capital, technology and skills. This is due to their inability to save (savings problem) or their inability to acquire foreign exchange via exporting (foreign exchange problem). Thus, LDCs are caught in vicious circle, as capital deficiency leads to low labor productivity and low real per capita income, with the result being low national ratios of savings and investment. Foreign capital imports may enable these countries to break this vicious circle and attain higher levels of development [7].

According to the orthodox macroeconomic models (usually referred to as dual gap - models) foreign capital supplements savings and foreign exchange and thus increase the absorptive capacity of the recipient country. As a result, the investment capacity rises, thus leading to higher rate of economic growth [1,2].

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[1]One study found that, the productivity of an additional unit of foreign capital [aid + borrowing] is (0.4) during the period 1967 - 1985. However, another study found the productivity of an additional unit of foreign aid to be (0.26) during the period 1967 - 1983.

The main conclusion of the orthodox models is that, each dollar of foreign capital results in an increase of one dollar in investment. As such all foreign capital inflows are used to supplement domestic savings and none is devoted to consumption.

II. Foreign Capital and Consumption: the Recent Challenge

The traditional view that foreign capital supplements savings has been met with serious doubts from recent studies. The theoretical and empirical evidence of such studies has indicated that foreign capital inflows affect domestic savings adversely [3,4,8].

Study by Griffen [4] noted that foreign capital inflow is essentially a substitute for savings and that large fraction of foreign capital inflows is used to increase consumption rather than investment. Therefore not all of the foreign capital inflows add to the domestic savings of the recipient country since large share has been used for consumption purposes.

Haavelmo, in discussion with Leontief, postulated that domestic savings is not only function of income but also of their foreign resources. According to Haavelmo, if the inflow of foreign capital is very large, domestic savings can be related inversely to the inflow of foreign capital.

There are many channels through which an increase in foreign capital inflow leads to reduction (increase) in domestic savings (consumption). Griffen [4] described them as follows: **First,** public savings will decline due to 1) reduction of taxes, 2) less effort to collect taxes, 3) an inelastic tax system combined with inflation and 4) change in the composition of government expenditures in favor of consumption. **Secondly,** private savings will decline due to 1) the availability of finance on soft terms and 2) pre-emption of profitable opportunities which would have generated savings by local investors [4].

Many studies have been made to find evidence to the thesis that foreign capital inflows and domestic savings are inversely related. Most of them used single equation regression techniques and the majority have specified savings as the dependent variable rather than investment. They used cross sectional and time series data. Table 1 summarizes some of the findings of these studies [9]. The evidence cited indicates that only fraction of foreign resources inflow has an additive effect on domestic savings, while large share was used to augment consumption.

The above analysis has been criticized . Some writers focused on the direction of the causal relationship between foreign capital inflows and savings. Their basic argument is that, the deterioration in domestic savings that causes increases in capital

Table 1. The impact of foreign capital inflows on savings and investment

No. of observations		Timeseries(T) or cross country (C)	Savings(s) or investment	Regression coefficient
Griffen & Enos	32	C	S	− 0.73
Griffen	32	C	S	− 0.73
Rahman	31	C	S	− 0.25
Areskoug	22	T	I	+ 0.40
Weisskopf	38	T	S	− 0.23
Chenery	16	T	S	+0.64 to 1.15
Chenery	90	C	I	+ 0.11

Source: ref. [9]

imports. There are several factors determining the negative   relationship between foreign capital inflows and domestic savings. These factors are **1)** war, civil war, or major political problems. (*e.g.* South Korea, Taiwan, Israel and Philipines), **2)** deterioration in the terms of trade (*e.g.* Columbia, and Ghana) and **3)** natural disasters (*e.g.* earthquake in Morrocco, floods in Tunisia) [9,10].

For the above controversy over the role of foreign capital inflows in LDCs, can not be adequately tested empirically by specifying savings functions. Alternatively, the specification of consumption functions seems to pose lesser problems and the estimated coefficients are probably easier to handle.

III. The Experience of Jordan

A) Consumption and Foreign Capital Inflows

Regarding the evidence cited in the previous sections, there are two main arguments: **First,** the dual – gap theory emphasizes that foreign capital can bridge the savings constraint in LDCs by adding to domestic savings. **Second,** some writers argue that. large fraction of foreign capital is used to increase consumption rather than investment. To test these arguments, we examined the relationship between total domestic consumption, gross domestic product (GDP) and foreign capital inflows. The consumption function is specified as: $C = c$ (GDP, B.F. Pv). Where C stands for present consumption, B, is public external debt, F, is the foreign assistance. and Pv is the short-term and long-term private loans.

Regression estimates of total consumption using the ordinary least squares method (OLS) is presented in equation (1), where number in parentheses denote t - values and starred values denote coefficients significant at the 5% level.[2]

$$C = 1.33 + 0.87 \ GDP + 0.778 + 0.11 \ F + 1.3 \ Pv \qquad (1)$$

$$(11.3)^* \quad (1.37) \qquad (0.65) \quad (0.65) \qquad (0.91)$$

$$\bar{R}^2 = 0.97, \ D.W. = 1.6, \ N = 20 \ (1968 - 1987)$$

The consumption function in equation (1) explains 97 percent of the variation in the dependent variable. The regression estimates confirm that consumption is strongly related to income. The marginal propensity to consume is (0.87). This strong association supports the predictions of the traditional macro-economic theory of consumption.

The results in equation (1) show positive relationship between foreign capital inflows and domestic consumption. Although, the estimated coefficients of all foreign flows are not statistically significant, the positive sign of these coefficients tends to suggest that an increase in foreign inflows increase the level of consumption.

The positive sign of the coefficients of foreign capital inflows can be explained by the fact that portion of foreign inflows was used for consumption purposes. It may be used for purchasing imported consumer goods or may converted into local currency and spent for labor and raw materials. In such case, the increase in money income will increase the level of consumption.

The above results may not support the argument that foreign capital may reduce savings by stimulating the consumption of importables. Regression estimates of consumer goods imports (Cm) using (OLS) presented in equation (2), where numbers in parentheses denote t - values and starred values denote coefficients significant at the 5% level.

$$Cm = 0.16 + 0.14 \ GDP + 0.37B + 0.11F + 1.73 \ Pv \qquad (2)$$

$$(3.9)^* \qquad (1.5) \quad (1.56) \quad (2.7)^*$$

$$\bar{R}^2 = 0.93, \ D.W = 1.63, \ N = 20$$

The regression coefficients in equation (2) indicate that foreign capital inflows have positive impact on consumed goods imports.

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[2] Such relations may suffer from multicollinearity, by using what is called "R^2 - delete" measure, our results indicated that, the degree of Multicollinearity is very low.

The increased availability of imported consumer goods which foreign capital facilitates may lead to the increase in consumption but may not reduce domestic savings. Such situation arises only when the positive coefficients relating foreign capital inflows to consumption are greater than unity which our results do not confirm.

As indicated by Griffen [4], foreign capital may reduce public savings. This is due to reduction in taxes and less effort to collect taxes. To test this proposition, we regressed total domestic revenues (TR) against GDP and foreign capital inflows. The regression estimates using (OLS) are presented in equation (3).

$$TR = 0.19 + 0.17\,GDP + 0.33B - 0.13F + 0.51\,Pv \tag{3}$$
$$(7.5)^* \qquad (2.02)^* \;\; (-0.27)\,(1.19)$$
$$\bar{R}^2 = 0.96, \, D.W = 1.6, \, N = 20$$

According to regression equation (3), both public external debt and short and long term loans have positive impact on government domestic revenues. However, the coefficient of private short and long term loans is statistically insignificant. Foreign assistance has negative but insignificant impact on government domestic revenues. In conclusion, our results do not confirm the proposition put forward by Griffen [4].

B) Foreign Capital Inflows and Investment

The investment level is determined by the total resources channeled to capital formation. As noted earlier, the traditional view considered foreign financial resources as an addition to the domestic resources in recipient country which are channeled in to investment purposes. Moreover, foreign flows may increase the capacity of importing capital goods, thereby increasing investment.

To examine the impact of foreign capital inflows on investment expenditures, a multivariate regression analysis is used in this respect, and we regressed aggregate investment (I) against GDP and foreign capital inflows. The regression estimates are presented in equation (4), where the numbers in parentheses denote t – values and starred values denote coefficients significant at the 5 percent level.

$$I = -1.09 + 0.25\,GDP + 1.7B + 0.47F + 3.9\,Pv \tag{4}$$
$$(5.4)^* \qquad (5.8)^* \;\; (4.8)^* \;\; (4.6)^*$$
$$\bar{R}^2 = 0.96, \, D.W = 1.97, \, N = 20$$

The goodness of fit is measured by $\overline{R}^2$ explains 96 percent of the variation in total investments. The estimated coefficient of the GDP shows positive sign as expected and is significant at the 99 percent level of confidence.

According to equation (4), there is high positive association between foreign capital inflows and investment. The regression findings presented above indicate that public external debt, foreign assistance and short and long-term loans has statistically significant positive impact on the level of gross domestic investment in Jordan during 1968 – 1987.

The marginal propensity to spend out of foreign capital [the marginal to invest] is quite high, this phenomenon can be attributed to two factors [11]:

1)	The extent to which foreign capital inflows influence the balance of payment. Foreign capital inflows adversely affect Jordan's balance of payments. This impact stems from the impact on both exports and imports. Recent study concerning this issue, indicated that, foreign capital inflows (aid + external borrowing) increase imports by more than the amount of the inflow [12]. Also, the insignificant impact of foreign capital inflows on exports and the increase in debt servicing burden associated with the inflows has reduced the export earnings available for development and generated further pressure on the balance of payments.

2)	The process of monetizing the subsistence sector. When the integration of non-monetary sector in the market economy takes place through the introduction of importing new products in this sector, subsistence producers will be persuaded to sell their products so as to finance their new consumption habits. Thus aggregate consumption will rise considerably.

The estimated marginal propensity to invest out of foreign capital is quite high. However, as indicated earlier the consequences for growth were quite small. This concludes that, the investment generated through foreign capital is not highly effective, and furthermore it raised the incremental capital output ratio.

To examine such hypothesis, we regressed the incremental capital output ratio(g) against foreign capital inflows.[3] The results are presented in equations (5) and (6), where the numbers in parentheses denote t – values and starred values denote coefficients significant at the 5 percent level.

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[3] $G = \dfrac{\text{change in capital stock}}{\text{change in GDP}} = \dfrac{\text{gross investment}}{\text{change in GDP}}$

$$Q = 1.095 + 0.18Fc \qquad\qquad (5)$$
$$(2.26)^*$$
$$\bar{R}^2 = 0.22, \ D.W = 1.8 \ , \ N = 20$$
$$g = 1.74 + 0.15B + 0.02F - 0.03 \ Pv \qquad\qquad (6)$$
$$(3.7)^* \qquad (1.4) \ \ (-0.4)$$
$$\bar{R}^2 = 0.51, \ D.W = 1.94 \ , \ N = 20$$

Regression (5) confirms the proposition that total foreign capital inflows (Fc = B + F + Pv) is associated with higher overall incremental capital – output ratio. Regression (6) shows that, there is positive and significant relationship between the incremental capital – output ratio and public external debt. The estimated coefficient of the foreign assistance shows a positive sign but it is insignificant. The coefficient of short and long-term loans is negative but statistically insignificant.

The capital – output ratio is likely to rise in response to foreign capital inflows due to:

1) The concentration of foreign capital inflows in social projects with low economic returns;

2) Foreign capital may alter the pattern of investment in favor of social overhead capital and economic infrastructure. These activities [roads, airports, education, housing, dams ....] in general are not directly productive and have large gestation period;

3) Some loans may be tied to specific projects and to procurement from the lending market. Such conditions may create negative effect because most capital goods and machinery are appropriate for the lending country and not borrowing country. This results from creditors selecting projects, goods and machinery for such projects.

Conclusions

The statistical results of this study indicate that foreign capital inflows have positive effect on both consumption and investment. The results revealed that foreign capital was significant explanatory variable in both of the consumption and investment functions. Jordan has a low productivity of foreign capital because some proportion of foreign flows is consumed and the investment generated through foreign flows is not quite effective. And it increased the incremental capital – output ratio.

Therefore, it is recommended to revise the allocation policy followed in distribution foreign capital among sectors.

As noted earlier, foreign capital may pre-empt the most profitable investment opportunities. As a result, the chances of national capital to grow and make profit will be reduced. If this persists, foreign capital may inhibit economic independence. The result may be either an intervention in decisions regarding type, and direction of economic development or the shift of power regarding such decisions from national to international institutions. Moreover, foreign capital may affect the national sovereignty. Some writers argue that, foreign capital is a mean through which developed countries try to obtain influence over developing nations, particularly those of strategic importance.

The evidences presented in this study and others, strongly suggest that it is time to resort to national policy of self reliance that carries with it well defined objectives and effective methods of implementation. Our results indicate that the marginal propensity to save out of GDP is very small. Thus, left on its own, the Jordanian economy would generate little savings. Nontheless, if the government develops and implements series of carefully thought-out policy measures and actions to increase domestic savings, the situation may change all together.

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Appendix I

Year	Gross domestic product (GDP)	Consumption (C)	Investment (I)	Imports of con-sumption goods (CM)
1968	156.1	183.3	17.0	27.60
1969	183.4	220.8	38.8	33.88
1970	174.4	211.5	25.2	33.02
1971	186.2	222.1	30.7	33.44
1972	207.2	245.7	36.3	46.28
1973	218.3	263.1	47.2	50.59
1974	247.3	297.5	63.2	69.62
1975	312.1	405.5	87.9	90.51
1976	421.6	518.5	138.0	133.33
1977	514.2	627.1	197.0	147.18
1978	632.2	750.4	229.1	175.66
1979	753.0	957.9	294.5	215.21
1980	979.5	1073.1	397.8	240.15
1981	1165.7	1339.1	564.8	325.21
1982	1323.2	1545.6	597.0	368.30
1983	1422.7	1696.4	502.8	365.05
1984	1498.7	1750.8	485.6	383.20
1985	1605.9	1806.9	473.1	369.30
1986	1639.9	1688.3	459.7	329.14
1987	1686.3	1741.3	446.0	333.49

* All figures are expressed in JD million.

Source: Central Bank of Jordan, Monthly Bulletin, Different Issues.

Appendix II

Year	External public dept. (B)	Foreign assistance (F)	Shoft and long term loans (Pv)	Total domestic revenues (TR)
1968	4.07	54.48	0.0	19.09
1969	6.13	45.30	.8	22.99
1970	3.2	40.65	0.0	21.46
1971	9.5	36.61	0.0	23.30
1972	10.92	68.29	0.0	27.75
1973	12.84	64.6	0.0	34.12
1974	15.07	86.65	2.13	43.58
1975	32.7	140.36	8.42	58.14
1976	29.69	127.85	6.87	89.07
1977	71.23	168.75	9.11	117.73
1978	66.08	107.8	18.6	123.28
1979	73.7	320.69	8.2	151.09
1980	88.03	401.0	11.04	174.66
1981	161.54	432.46	44.5	232.97
1982	130.77	375.36	31.93	263.12
1983	161.77	296.79	13.7	293.60
1984	155.56	282.59	29.92	305.43
1985	217.05	317.54	9.6	317.28
1986	179.1	240.54	10.47	309.23
1987	116.3	206.27	13.50	330.89

Source: Monthly statistical Bulletin. The Central Bank (Special Issue, 1964-1983), and Issue No. 12, Vol. 24, 1988.
* Annual Report. the Central Bank. Different Issues.

تدفق رأس المال الأجنبي وعلاقته بالاستهلاك والنمو الاقتصادي
تجربة الأردن ١٩٦٨-١٩٨٧م

رياض المومني

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ملخص البحث. كان الغرض من الدراسة الحالية استقصاء أثر رأس المال الأجنبي على كل من الاستهلاك والاستثمار في الأردن للفترة ١٩٦٨-١٩٨٧م، وذلك للتعرف على الأسباب الكامنة وراء ظاهرة تدنّي إنتاجية رأس المال الأجنبي التي أشارت اليه دراسات سابقة. وقد تبين من النتائج الإحصائية أن لرأس المال الأجنبي تأثيراً إيجابياً وقوى الدلالة على كل من الاستهلاك والاستثمار. لذلك تعزو الدراسة الحالية الظاهرة السابقة إلى أمرين:

٭ تحويل جزء من تدفقات رأس المال الأجنبي إلى أغراض استهلاكية.

٭ الاستثمارات التي تم تمويلها من الموارد المالية الأجنبية لم تكن ذات إنتاجية عالية.

وتوصي الدراسة بضرورة مراجعة سياسة توزيع المصادر المالية الأجنبية بين القطاعات الاقتصادية، كما تؤكد على ضرورة الإسراع باتخاذ الإجراءات المناسبة لتعبئة المدّخرات المحلية، وذلك للتخلص من التبعية للخارج التي بدون شك سيكون لها آثارها السلبية من الناحية الاقتصادية والسياسية في المستقبل.