

Private Investment in Fiji: 1977-1994 Did Government Investment Have Any Crowding-out Effect ?

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Abstract

Private investment in Fiji has been stagnant since the mid eighties. This paper seeks to undertake an analysis of the causes behind the stagnation. The empirical analysis shows that government investment had a crowding-out effect on private investment despite its emphasis on public infrastructure. However, the relationship between the two is not robust. On the other hand, the relationships between private investment and growth expectations and past behaviour are statistically highly significant. Another major factor of importance which also emerged with statistical significance is the political climate which has been found not conducive for private investment. The immediate issue that has to be dealt with by government is with regard to improvement in private investor confidence.

Key words: crowding-out effect, private investment, political uncertainties, constitution review, investor confidence

Introduction

Private investment has been stagnant in the South Pacific island countries (SPICs) during the last decade and the trend still seems to be persisting. Fiji is no exception. Although the country has a better manufacturing base as well as relatively abundant natural and human resource endowments than other SPICs, persistent ethnic-oriented political problems and the uncertainties associated with the constitutional review seemed to have had an adverse impact on the private sector's investment decisions. Further, there has been a slow implementation of public sector reforms, which were initiated from the late eighties and continued in the early nineties. One nagging question is whether Fiji's public sector in the past has been a drag and whether it crowded out private investment.

As the government investment in Fiji from the seventies has had heavy emphasis on major physical infrastructure facilities, the question deserves careful examination, since these infrastructures are expected to contribute to the profitability of investment, thereby promoting the private investment rate. It was brought out in a six-country cross-sectional study of macroeconomic environment determining private investment behaviour for a period of eight years (1983-1990), that government investment in the South Pacific was generally competitive with rather than complementary to private investment (JAYARAMAN

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1996). However, the study did not examine Fiji's private investment behaviour for an extended period with reference to the crowding-out effect of public investment on private investment. The objective of this paper is to take up a study of resource competition between the public and private sectors in Fiji and examine whether the dominance of the public sector did affect private sector initiatives and whether there was any reduced resource availability for the private sector.

The paper is organised into three sections. The first section gives a brief background of Fiji's economy with specific reference to investment in the public and private sectors. The second section outlines the model employed for the empirical study and the third section reports the results and offers some conclusions.

Background

Table 1 provides a comparative picture of private and public investment trends in six SPICs (Fiji, Kiribati, the Solomon Islands, Tonga, Vanuatu, Western Samoa) for an eight year period (1983-1990) for which data for all countries are available. For the six SPICs, the average gross investment rate, which is defined as the ratio of gross investment to gross domestic product (GDP) during the eight year period was 29 percent. The government investment rate (the ratio of government investment to GDP) was 17 percent and private investment rate (defined as the ratio of private investment to GDP) was 12 percent. There has, however, been considerable variation among the six countries in regard to the relative importance of private investment as compared to government investment. In Western Samoa, Kiribati, and Tonga, the government investment rate was much higher than private investment rate. In Fiji and the Solomon Islands, both private and government investment rates have been very similar. In Vanuatu, the private investment rate has been higher than the government investment rate.

In Fiji, in respect of which data for a longer period is available dating back from the mid seventies, we observe a perceptible fall in the gross investment as well as in private and

Country	Gross Investment /GDP (ave.percent per year)	Private Investment /GDP (ave.percent per year)	Public Investment/GDP (ave.percent per year)	Rate of Growth (ave.percent per year)
Fiji *	18.1	9.2	8.9	2.4
Kiribati	31.0	12.0	19.0	0.8
Solomon Islands	30.7	15.1	15.6	3.2
Tonga	30.0	10.4	19.6	2.1
Vanuatu	32.4	20.4	12.0	2.8
Western Samoa	32.1	5.6	26.5	1.0

* 1983-1990

Source: World Bank (1995a)

government investment rates. The gross investment rate fell from the all-time high of 26.5 percent in 1981 to a record low figure of 12 percent in 1988 (Table 2). A major reason for this was a decreasing trend in the rate of government investment after 1982, as most of the infrastructure construction activities initiated during the early 1970s were completed by 1985 (TREADGOLD 1992).

During 1981-1985, as the government investment rate decreased, the private investment rate rose to 12.2 percent in 1985 after an initial fall in the early 1980s. It was close to 10 percent in 1986 and 1987 but never recovered thereafter. As noted earlier, it appears that the two military coups of 1987 have had an adverse effect on private investment. However, it is well recognised that there has been a clear downward trend in the gross investment rate and the decline in the private investment was pronounced (FALLON and KING 1995, HUNT and CHANDRA 1995).

The immediate period following the two military coups in the second half of 1987 witnessed heavy capital outflows. With a view to stemming the outflows of capital, two massive devaluations of the Fijian dollar by about 35 percent were resorted to. Despite a surge in domestic price level, these two nominal devaluations resulted in substantial depreciation of real currency exchange rate (JAYARAMAN 1997). Further, the temporary freeze

FIJI: Private, Government and Total Investment to GDP (%) and Annual Real GDP Growth Rate				
Year	pi (% of GDP)	gi (% of GDP)	i (% of GDP)	Real GDP Growth Rate
1975	6	8.5	14.5	0.1
1976	4.4	11.6	16	2.7
1977	10.6	8.9	19.5	4.4
1978	12.2	9.1	21.3	1.8
1979	13	10.1	23.1	12
1980	13.6	11.7	25.3	-1.7
1981	12.3	14.2	26.5	6.1
1982	10.2	13.4	23.6	-6.3
1983	9.8	11.1	20.9	-4.0
1984	10.3	6.8	17.1	8.4
1985	12.2	6	18.2	-5.1
1986	9.9	4.8	14.7	8.3
1987	9.9	5.8	15.7	-6.6
1988	6.8	5.2	12	2.4
1989	6.3	6.2	12.5	12.5
1990	5.4	10.3	15.7	3.7
1991	5.5	6.8	12.3	0.5
1992	4.9	6.9	11.8	3.2
1993	4.7	8.8	13.5	1.8
1994	4.7	7.8	12.5	4.5

pi = PI/GDP

gi = GI/GDP

i = I/GDP

Source: National Centre for Development Studies (1996)

on wages in the public and private sectors during 1987-89 and the limited wage settlements below the variation in consumer price index, which were reached with public and private sectors' employees in 1990 were helpful. They improved not only the competitiveness of exports but also contributed to the emergence of new export oriented industries, which included garments and consumer goods, as distinguished from the traditional primary processing industries such as sugar (SIWATIBAU 1993).

In addition, deregulation measures including reforms in the financial sector which were introduced in the late 1980s, encouraged the determination of interest rates by market forces. Restrictions on capital movements were slowly relaxed from 1990. The country's outward looking strategy was further supported by tax reforms including the introduction of a broad based value-added tax to replace cumbersome commodity trade taxes. Import licenses were also replaced by low tariff rates.

Since 1990, the government took a few major steps towards reducing the role of public sector and promoting private sector development. The efforts included downsizing the civil service and pruning the budgets. In addition, the government aimed at fiscal stability by deliberately trying to balance budgets. Measures for privatisation and corporatisation of major public enterprises were set in motion. Deregulation in the labour market has also been on the agenda of reforms. Although progress has been slow, the government's commitment is clear and private sector has seen the signals.

The emergence of new industries such as garment making in 1988 and 1989 kept the private investment at close 10 percent. The introduction of tax free factory and tax free zone schemes also encouraged foreign direct investment activity. However, the private investment rate in the next four years declined. An increase in public investment during 1987-1990 failed to boost private investment which continued to remain sluggish. Since the domestic saving rate of Fiji is fairly healthy at about 18 percent of GDP, which is the highest among all SPICs (JAYARAMAN 1996), the inadequacy of domestic resources or lack of institutional arrangements for their channelling into investment in the face of well-established development finance agencies cannot be held as the causes for poor private investment activity. HUNT and CHANDRA (1995), however, identified the continuing political uncertainties, the price of labour and the overvalued exchange rate as possible reasons for the lacklustre private sector performance. The recent concluded review of the country's current constitution and the announcement of political reforms, which would pave the way for creation of a more equitable democratic state are expected to promote a better environment for private sector operations (*The Review* 1997).

As regards the macroeconomic environment affecting private investment in SPICs, a recent study (JAYARAMAN 1996) has shown that private investment was indeed affected by adverse movements in real exchange rate. It should be noted, however, that instability in the real exchange rate is a product of many factors and these include domestic budgetary imbalances, wage rigidities and shortages which give rise to inflation, and inflexibility in effecting changes in the nominal exchange rate. Turning to the question whether the

dominant role by the government was in any way responsible for poor private investment, we have to examine the resource availability situation for the private sector. The next section delineates the model to be employed for an empirical investigation.

The Model

Based on the contributions of WAI and WONG (1982), LIM (1982), private investment can be hypothesised to be a function of government investment, the change in bank credit and the inflow of foreign capital to the private sector. The government affects private investment in several ways. If the resources are not fully employed, the government investment would lead to increases in income through multiplier effects, ultimately raising the profitability of private investment as there would be expectations of increased demand for final products. It is also likely that if the government investment is in the area of physical infrastructure such as roads and electricity, the profitability of private investment would increase as input costs would be lower. In both cases, private investment and government investment are expected to be positively associated. On the other hand, if there is a near full employment of resources, increases in government investment would lead to competition for the limited investable resources and in the process, private investment would be subject to crowding-out effects and hence it might decline. Thus, there is a possibility that the relationship between private and government investments might be negative. Hence, the total impact comprising the positive and negative effects might be uncertain, thus ruling out any *a priori* conclusion about the relationship between the two.

However, one can be more certain about the relationship between private investment and credit. Availability of bank credit, either short-term or medium-term loans would relieve pressures on entrepreneurs for financing their day-to-day operations, thus enabling them to devote their own resources to a greater extent for capital investment. This is especially so in developing countries which are heavily dependent upon self-financing of investment in the absence of a well-functioning capital market. Further, credit availability would facilitate greater imports of capital goods, promoting domestic investment. External capital, either in the form of trade credit, loans or equities, creates additional source of funds which also lead to greater investment. If the external capital takes the form of foreign direct investment (FDI), it may have greater potential of leading to further increases in domestic investment as well, because of the linkage effects of FDI with domestic input requirements.

In a developing country, the dominance of the public sector is undeniably greater either on the ground that private investment is dormant for historical reasons (JAYARAMAN 1995) or because of a facilitative approach deliberately adopted by the government in investing in physical infrastructures for encouraging private investment by providing inexpensive inputs as power, harbour facilities and road transportation (YU 1997). Consequently, the government might pre-empt the use of domestic credit and

obtain external capital through grants from bilateral sources or loans from international lending agencies. Any residual amount of resources, namely domestic credit available to the private sector after use by the government and the external capital inflows to private sector which determine private investment, might be much less.

Utilising the above hypothesised relationships, we can construct a recursive model on the following lines:

$$R_g = f(GI) \dots\dots\dots(1)$$

$$R_p = TR - R_g \dots\dots\dots(2)$$

$$PI = f(GI, R_p, PI_{-1}, GR_{-1}) \dots\dots(3)$$

where,

R_g = Resources available to government, measured by changes in the banking system's claims on government and external capital inflows to government;

R_p = resources available to private sector, measured by changes in the banking system's claims on private sector and external capital inflows to private sector;

TR = total resources available to the economy, measured by changes in the banking system's total domestic credit and total external capital inflows;

PI = private investment;

GI = Government investment

The equation (1) states that resources used by the government are a direct function of government investment. The equation (2) is an identity, as the resources available for private investment are only residual. The equation (3) shows that private investment is influenced by government investment which might be in a positive manner, if the investment is of a complementary nature. It is also hypothesised that private investment is directly related to resources available for the private sector and associated with expectations of the growth of the economy, which is represented by the lagged growth rate of the economy as well as the past behaviour of private investment, which is represented by the lagged dependent variable.

The linear equations for estimation purposes, except (2) which is an identity, are:

$$R_g = a_0 + a_1GI + u \dots\dots\dots(4)$$

$$PI = b_0 + b_1GI + b_2R_p + b_3GR_{-1} + b_4PI_{-1} + v \dots\dots\dots(5)$$

The coefficient b_1 in equation (5) is the direct effect of government investment on private investment, given the residual resources available to the private sector. The financial crowding-out effect cannot be discerned from this equation, which can be arrived at only by determining the combined direct (complementary) and indirect (competitive or financial crowding-out impact) effect of the government investment on private investment with the incorporation of the constrained resource availability. For this purpose, the reduced form of functional relationship for estimation purposes is helpful, which is derived as follows:

$$PI = c_0 + c_1GI + c_2TR + c_4PI_{-1} + c_4GR_{-1} + w \dots\dots\dots(6)$$

where

$$c_0 = b_0 - b_2a_0;$$

$$c_1 = b_1 - b_2a_1;$$

$$c_2 = b_2;$$

$$c_3 = b_3;$$

$$c_4 = b_4;$$
 and

w = composite disturbance term.

The combined direct and indirect effect of government investment is captured by c_1 , the coefficient of GI, whereas the effects of the availability of total resources and past behaviour on private investment are represented by c_2 and c_3 respectively. If the sign of c_1 is positive, we can conclude that the total net effect of government investment is not only complementary but also sizeable enough to more than compensate any competitive impact, ruling out any crowding-out effect. If the sign of the coefficient, on the other hand, is negative, it would be established that the crowding-out effect is much more than the complementary effect. It is, however, expected that the signs of c_2 , c_3 and c_4 would be positive. The next section presents empirical results.

Results of Empirical Analysis

Data for the eighteen-year period (1977-1994) have been drawn from three sources: Asian Development Bank (1996), National Centre for Development Studies (1997), and IMF (1996). Three variables, namely PI, GI and TR were scaled to GDP and expressed as percentages of GDP, whereas the annual GDP growth rate (GR) was in percent. The scaled

Total Resources for Investment in Fiji: 1977-1994 (as percent of GDP)			
Year	Change in Total Domestic Credit	Net Annual Capital Inflows	Total Resources for Domestic Investment
1978	4.5	5.4	9.9
1979	6.1	6.5	12.6
1980	0.8	3.8	4.6
1981	4.5	13.6	18.1
1982	4.9	7.5	12.4
1983	4.2	5.7	9.9
1984	2.4	2.3	4.7
1985	2.1	1.1	3.2
1986	2.2	-0.5	1.7
1987	4.7	0.4	5.2
1988	-3.1	-3.3	-6.4
1989	7.3	-0.8	6.5
1990	6.6	3.3	9.9
1991	7.9	-0.1	7.9
1992	5.3	-0.6	4.7
1993	5.3	4.4	9.8
1994	1.9	3.1	5.0

Source: Asian Development Bank (1996)

variables are denoted in lower cases, as pi, gi, and tr. The data employed in the analysis are given in Tables 2 and 3.

In addition to the independent explanatory variables and the lagged dependent variable, a dummy variable (D) was added in the estimation procedure with a view to capturing the dampening effects of the military coups of 1987 and their aftermath in the succeeding years, on the dependent variable. The dummy variable assumed the value of zero for each year up to 1986 and the value of unity for 1987 and each year thereafter. The equation (6) was estimated by ordinary least squares method.

The estimated equation is as follows:

$$\text{pi} = 5.205 - 0.261 \text{gi}^{**} + 0.081 \text{tr} + 0.123 \text{GR}^* + 0.683 \text{pi}_{-1}^* - 3.235 \text{D}^*$$

(2.743) (-1.699) (1.054) (2.816) (4.430) (-2.948)

(Figures in parentheses denote calculated 't' values)

Adj.R² = 0.908 F - Ratio = 32.529

*significant at 5 percent level by one-tailed test

**significant at 10 percent level by one tailed test

The results, which are presented in Table 4, show that the estimated equation is a fairly

TABLE 4		
Regression Results (Dependent Variable: pi)		
Variable	Coefficients	p-values
Constant	5.206 (2.743)	0.019
ig	-0.261 (-1.700)	0.117
tr	0.081 (1.054)	0.314
GR-1	0.123 (2.816)	0.017
Dummy	-2.691 (2.948)	0.013
pi-1	0.683 (4.430)	0.001
Adj R sq.	0.908	
Degrees of Freedom	11	
F-Ratio	32.599	0.001
Diagnostic Tests		
Auto Correlation Test (Lagrange Multiplier test distributed as F)	0.538	0.601
Chi-Square Test	1.818	0.402
ARCH Test (Distributed as F)	0.487	0.497
Chi-Square Test	0.538	0.463
White Test - F Ratio	0.489	0.842
Chi-Square Test	6.569	0.681
Ramsey Reset Test	0.001	0.991

The figures in parentheses denote calculated 't' values p-values denote probability values

Source: Author's calculations

satisfactory fit in terms of fairly high adjusted R^2 and F ratio. About 91 percent of variations in private investment rate have been explained by the included variables. The high calculated F ratio and the associated low probability value (p-value) indicates the rejection of the null hypothesis that all the estimated coefficients are jointly equal to zero. The diagnostic tests for Lagrange multiplier chi-square and F ratio joint tests for serial correlation and the ARCH test for heteroskedasticity, together with high probability values show that the null hypotheses of no serial correlation and absence of heteroskedasticity cannot be rejected. Similarly, the Ramsey RESET test statistic indicates that it is not possible to reject the null hypothesis of no misspecification error. Thus, the estimation procedure, the functional form adopted and the variables included in the equation are quite appropriate.

Among the explanatory variables, the estimated coefficient of total resources tr has emerged with the expected positive sign, indicating that availability of total investable resources is positively associated with private investment. However, it is not found significant even at 10 percent level. Among the others, we find the estimated coefficients of the lagged growth rate, the lagged dependent variable and dummy variable for political uncertainties have the theoretically expected signs and are found significant at 5 percent level. These results confirm that the growth expectations and past private investment economic growth and past behaviour have positively influenced private investment rate, whereas the political uncertainties have had a negative impact. The estimated coefficient of government investment rate, which had a negative sign indicating that the total composite effect was negative apparently due to the dominance of competitive effect over complementary effect, was significant at 10 percent level.

Summary and Conclusions

Private investment in Fiji has been sluggish ever since the mid-eighties. From an all time high of 12 percent of GDP in 1985, just before the two military coups had occurred in 1987, it has been steadily falling and it reached the lowest in 1994, when it was just less than 5 percent of GDP. Total investment in the country has also been declining during the corresponding period, having fallen from the highest 21 percent in 1983 to 12 percent in 1994. Although government investment was declining during the first half of the eighties due to completion of major physical infrastructure-oriented investments, witnessing the fall in private sector investment, government tried to revive the investment climate by keeping up its own rate of investment. There has not been any marked decline of resources for investment in general.

An empirical study utilising the available data was undertaken with the objective of determining whether the dominant public sector had any crowding-out effect on private sector investment. The empirical analysis has shown that (i) although government investment seems to have had a crowding-out effect, no robust inference can be drawn from the results, as the level of significance is rather low; (ii) economic growth expectations and

past private investment behaviour have, however, had positive effects of highly significant nature on private investment behaviour; and (iii) uncertainties, which are associated ever since the military coups, with the constitutional review and unsolved ethnic issues, especially land leases, have been eroding investor confidence.

The policy implications are obvious: the private sector should be given clear signals of a positive commitment on the part of the government to solve land leases issues in favour of a better investment environment. Further, implementation of the recently announced constitutional reforms should be earnestly begun and implemented expeditiously. These steps would contribute to ending the lingering uncertainties, thereby improving the investment climate and raising growth expectations.

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