Fiji's Public-Private Sector Investment, Policy, Institutions and Economic Growth: Evidence from Time Series Data

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Abstract

Fiji experienced two military coups in 1987 and a coup in 2000. Their effects on investment and growth need to be estimated. This paper attempts to do this. In particular, it provides an empirical analysis of the effects of public and private investment on growth, as well as the impacts of 'policy' and coups on private and public investment components. It also examines the links between democracy and economic growth. Results show that private investment plays a far more important role than public investment. Coups and political instability adversely affect economic growth. Fiji has good investment policy, however coups negatively affect this. The impact of policy on private investment is negative. Democracy is relevant and irrespective of the level of economic freedom a democratic government is important for growth prospects.

Introduction

Integration into the world economy has become an overriding goal of economic policy for many small island economies. Fiji is no exception to this. Towards this end, in the 1990's Fiji moved from import substitution to export promotion and adopted market oriented policies for growth. A consideration of the role of public and private sector investment in the growth process and their relative contributions to economic growth, is important. Studies that evaluate the roles of public and private investment in the growth process for a cross section of countries have differed in their results. A recent call for caution of cross section studies has been

that particular circumstances of particular countries need to be taken into account to explain growth (Kenny and Williams, 2001: 16). Given the adverse effects of political instability on growth it becomes important to analyse Fiji's economic performance taking also those factors into consideration that contribute to growth differentials.

This paper examines the effects of public and private investment on growth. Second, it examines whether policy-induced investment increases growth, and measures the impacts in the pre- and post-coup period for each investment component. Third, it measures the impact of public-private investment in the post-coup period to see how each investment component is affected by political instability. Fourth, it tests the importance of democracy and economic efficiency for growth.

Investment, Policy-Governance and Growth Literature

Several growth models since the post-war period have clarified the impact of various determinants on growth. The classical models of growth suggest that the decisive cause of high economic growth in some countries has been high investment ratio. The neo-classical models stress technical progress and note that the higher the marginal capital output ratio of a country, the higher the net investment ratio. Economists since than have explained the modern concepts of technical progress, increasing returns of scale and learning by doing. Recent literature relating to endogenous growth theory and the on-going processes of liberalization and privatisation in developing countries, have examined the relationship between public and private investment and their potential impacts on growth. Economic growth depends ultimately on the inputs of productive resources and the efficiency with which they are used. Resource input and efficiency are both affected by the actions of the private sectors of the economy and by government policy. Given that resources and policy-induced growth are important variables explaining growth empirical analysis needs to be undertaken to examine these aspects.

Several studies have applied the neoclassical growth theory associated with the Solow framework to determine the effect of investment, and have highlighted the importance of inter-sectoral externalities through the development of an efficient and internationally competitive management, the training of skilled workers, and the spillover effect of scale expansion. New growth theories have emerged to take into account the fact that empirically, labour, capital and other relevant inputs have not been able to explain the growth that has occurred in the past. This has meant that 'the residual', which has been attributed to 'technical change', has been very

large.[1] Recent years has seen a growing interest in the 'other' determinants of long-term growth. The new growth models suggest an active role for public policy (investment in human capital, infrastructure, research and development) in promoting growth and development.[2] Essentially, human capital as a 'wealth of nation', with an improved ability to undertake productive work, has been given a central role.

The recent investment-growth empirical literature advocating an investment-oriented development policy has demonstrated, without exception, a positive association between investment and economic growth. Otani and Villanue (1990) apply the endogenous growth models to a cross-sectional study that confirms this conclusion. However, some studies have found that public and private investment can have differential impacts on growth (Khan and Kumar, 1997; Ram 1996; Khan and Reinhart, 1990). Other factors, such as political-institutional aspects, have been regarded as affecting growth through policy choices (Alesina and Perotti, 1995). The relationships between the measures of political instability and growth have differed. Benhabib and Spiegel (1992) found weak effects of political instability on investment while Barro (1991) and Easterly and Rebelo (1993) found stronger negative impact on growth. Scully's (1988) engaging discussion on institutional framework and economic development concluded that politically open societies that subscribe to political, civil, and economic liberty grow at three times the rate of societies in which these freedoms are restricted. Gounder (1999) found that political instability has hindered growth and reduced the supply of factors such as labour and capital in the case of Fiji. Also, investment had been discouraged due to increased risk of capital loss which adversely impacted on future investment decisions.

The macro-political economy literature and the various links between policy choices and growth are central for the growth process (Persson and Tabellini, 1990, and Alesina and Perotti, 1995). Studies that

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[1] In the Solow-Swan conception, technical change has been treated as exogenous, varying simply with time. The endogenous growth theorists have been unwilling to accept this view and regard technical change as an outcome of economic forces at work within the economy and hence have focused attention on variables such as human capital, and research and development expenditures (see Barro and Sala-i-Martin, 1995).

[2] 'New Approaches to Economic Growth' are discussed in a series of papers in the *Oxford Review of Economic Policy*, (1992) 8: 1-69 (five papers). See Jones (1995) and the literature cited therein for a discussion of economic growth models.

measure the impact of political instability on growth for African, Latin American and Asian countries, utilizing production function models, concluded that political instability has led to a decline in economic growth, reduced the supply of factors such as labour and capital, and investment has been discouraged due to increased risk of capital loss and adverse influence on property rights. Barro's (1991) results from a sample of 98 countries indicate that restricted political rights are associated with lower per capita growth. Recent studies suggest that military coups and ethnic conflicts, lack of property rights and land tenure, corruption, inefficient bureaucracy, political instability, lack of political freedom and economic efficiency adversely affect growth (Fosu, 1992, Barro and Sala-i-Martin, 1995, Besley, 1995, Mauro, 1995, Knack and Keefer, 1995, de Haan and Siermann, 1996, Clague et al., 1996, Prasad, 1997, Nelson and Singh, 1998, Collier, 2000, Easterly, 2001 and Gounder, 2002). A study on the alternative channels through which institutions affect growth indicates that free-market institutions have a positive effect on growth, with economic freedom affecting growth through both a direct effect on total factor productivity and an indirect effect on investment (Dawson, 1998). Nelson and Singh (1998) note that a lack of democracy and political freedom seriously hurts economic performance. Wu and Davis (1999) note the fundamental contribution of political and economic freedom in fostering growth.

Experiences of growth and development in many developing countries suggest that an economy will generate its maximum income only if there is a high investment and that much of the return on investments is received long after the investments are made (Olson, 2000). Empirical studies on the role of public spending in capital accumulation and economic growth, and public spending - private investment nexus, have been undertaken utilizing cross section and time series analysis for developing countries. Some of the recent studies include Ashauer (1989a, 1989b), Apergis (2000), Narayan (2004) and Ismihan et al., (2005)[3]. Ismihan et al., (2005) point out that in the case of Turkey chronic and increasing macroeconomic instability has seriously affected capital formation and growth. In addition, macroeconomic instability seems to be a serious impediment to public investment, and it may reverse the complementarity between public and private investment in the long run. Narayan's (2004) study on whether public investment crowded out or crowded in private investment in the case of Fiji presents the evidence that government in-

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[3] An extensive empirical studies literature has been cited in Ismihan *et al*., (2005) in this area.

vestment had crowded in private investment for the period 1950-1975 and the relationship between government investment and private investment was weak during the period 1975-2001.

As new theoretical trends in growth economics and performance differences noted in recent literature, the traditional growth economics approach has been combined by the political-economic and institutional approach to explain growth in Fiji. The theoretical analysis of economic determinants (exogenous/endogenous factors, shocks/processes, production functions and other macroeconomic variables) and the political-institutional factors are utilized to explain medium and long-term growth performance. The question arises why a slow-growing developing country, which overcomes some crucial obstacles, is locked into a no-growth steady state. As growth factors such as labour, capital and technology are mobile, the developing countries need a strategy for domestic investment under which production and exchange takes place. These factors will only bring potential benefits to further a country's development if the right domestic institutions and policies are in place. Improving the economy and implementing policy reforms require favourable institutions and economic-political environment. However, macroeconomic stability alone is not sufficient for catching up; establishment of institutions to protect property and contractual rights is at least as important. The forces responsible for changes in the economy relating to the political-economic regimes have been added to evaluate the performance of a country.[4] Given the relevance and impact of such factors on growth the empirical investigation undertaken here incorporates these variables.

Economic Strategies for Investment and Growth in Fiji

Fiji's investment-led growth has been one of the main strategies since independence in 1970. Policies introduced to ensure an increase in investment were on export promotion strategy, liberalisation of financial markets and the banking sector, macroeconomic stability, providing basic infrastructure and education facilities, and promotion of foreign direct investments (FDI). Investment in Fiji was generally above the average of other developing South Pacific countries between 1970 to mid-1980s. After the 1987 military coups investment declined steadily to 16 percent of Gross Domestic Product (GDP) while other South Pacific islands' investment averaged around 20 percent of GDP. Perceptions of political

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[4] Gounder (2002) has discussed in detail the relationships between these measures of political instability and growth.

uncertainty and (the then) continuing discussion of constitutional reform contributed to low investment in Fiji (World Bank, 1996).[5] Deterioration of business and consumer confidence further weakened the investment climate. Also, failure to resolve the agricultural land lease problems prolonged the problem of low investment (EIU, 1998).

With agricultural growth fluctuating in the 1980s, Fiji put forward development of the industrial sector (that included promotion of industries and manufacturing sectors) as one of the main growth strategies. As far as macroeconomic variables were concerned, inflation and interest rates were maintained, the budget deficit was under control, and public borrowing as measured by total debt to GDP or debt stock to exports was at manageable levels. The growth of manufacturing sector had been significant, mainly due to increased foreign and domestic investment and the growth of exports. In the pre-1987 coup period, industrial policies strongly favoured import substitution. Investment promotion schemes such as tariff policies and tax regimes ensured that domestic industries were sufficiently protected. In the post-1987 period import substitution had been replaced by export-led growth strategies, and domestic industries were encouraged to become competitive in the international markets. Thus, creation of appropriate capital became a crucial factor for long-term growth. The government introduced various initiatives in terms of fiscal, monetary and exchange rate policies to improve the competitiveness of exports and encouraging investors to undertake export-oriented activities (Siwatibau, 1993). These measures led to growth in labour-intensive industries (e.g. garment and footwear industries). Investment in the export-oriented industries was facilitated by real wage decreases through wage restraints and price rises associated with currency devaluation (Siwatibau, 1993; AusAID 1995).

The high economic growth rates that Fiji experienced in the pre-1987 coup period was significantly affected by political instability resulting in serious implications for private and foreign investment. While economic growth rate averaged 5 percent in the pre-coup period, it declined in 1987 and stagnated in 1988; between 1991 and 1994 GDP growth averaged 2.5 percent per annum and fell to 1.4 percent in 1995 (World

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[5] The main constraints that hinder investment opportunities for Fiji are unstable political and macroeconomic environment, lack of property rights and to some extend the administrative processes. For investment growth and economic progress certainty of property rights and sound democratic principles are essential (Prasad, 1997). Failure to perform as desired can lead to endemic institutional instability, poor long-term growth and development.

Bank, 1996). The post-2000 political crises once again led to an adverse impact on GDP growth. It also led to capital and human resource flight. The private sector's capital performance declined severely compared to public sector investment. Real investment fell from around 11% of GDP in 1976 to 3.4% of GDP in 2001, while in the corresponding period real government investment increased from 18% of GDP to 22% of GDP (Narayan, 2004: 752). Uncertainty on the return of private investment has led to caution on future investment decisions. Investment is also affected by low savings rate; this rate declined from 20.4 percent to 6.7 percent of GDP in 2000 (World Bank, 2001). The low savings is reflected in poor credit availability as well. High interest rates in the 1990s in Fiji limited financial borrowers and thus reduced feasible investment opportunities and potential growth prospects. The creation of investment climate by the government for domestic and foreign investors will be crucial for future development.

The scarcity of domestic capital means that Fiji relies on foreign investment to meet its resource needs, especially in developing natural resources, tourism, transport and financial services. FDI is regarded to play a crucial role for technology, skills and market networks which are important ingredients for growth, thus it forms part of the nation's long-term strategies for development. Studies have found that FDI promotes economic growth by stimulating private fixed investment (Atukorala and Menon, 1995; Jansen, 1995). But in Fiji FDI declined considerably in the post-1987 coup period (Gounder and Xayavong, 2002). To increase FDI flows and have a positive impact on domestic investment, would require a stable macroeconomic regime, a non-discriminatory regulatory environment, supply of skilled labour and provision of physical infrastructure.[6] On the other hand public investment is generally believed to be of critical importance not only as a component of final aggregate demand but also in terms of its impact on the economy's growth and employment opportunities. In the climate of globalisation public investment becomes crucial for the proper functioning of a market system. For example, public investment in social and economic infrastructure facilitates the implementation of private investment plans. This complementary role smoothes the path for competition and generates substantial spillover effects for private investment.

Increase in public and private investment is crucial, raising marginal

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[6] See also Fiji Trade and Investment Board (1996). The result for Turkey shows that chronic macroeconomic instability has seriously affected capital formation and growth (Ismiham, *et al*., 2005).

productivity of the private capital stock, and increasing output. During the pre-coup period, public sector investment was focused mainly on development of physical infrastructure which also had a complementary role with private investment (Jayaraman, 1998). However, during the period of political instability public investment has gone towards unproductive or consumption investment rather than capital investment (Narayan, 2004). This not only limits capital for economic and social infrastructure development, it also does not allow public investment to play the complementary role for private investment.[7] Since 1990, the relationship between government and private investments has further weakened.

Generally, foreign aid would be a crucial source of funds for the government to finance public sector investment projects. In real terms foreign aid flows to Fiji was between 3 to 5 percent of GDP during the last two decades (World Bank, 2001). In a declining foreign aid climate Fiji will have to rely increasingly on a combination of its savings, private external flows and foreign savings to finance development. Savings is an important source of investment funds. However, Fiji's savings rate has been low by developing country standards. Moreover, total savings is low as a large proportion of the population earns low incomes (Reddy, 2001).[8] As private capital formation has been lagging key policy issues are necessary to promote savings for economic growth.

Another serious problem is the lack of skilled labour force. This affects capital formation adversely, which in turn affects productivity (Gounder and Xayavong, 2002). This further accelerates emigration of skilled manpower.[9]

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[7] It was noted in the 2003 Budget Speech by the Minister of Finance that cost of funding the operations of the public service increases, which leaves less for investing in roads, water and sewage, construction of new schools, health centres and so on (Kubuabola, 2002: 28).

[8] See Reddy (2001) for savings data and the discussion on trends and determinants of capital formation in Fiji.

[9] The majority of emigrants after the 1987 coups were professional and technical workers (consisting of architects, accountants, teachers, medical workers, transport workers, clerical and supervisors, administrative and managerial workers, sales personnel, agriculture, animal husbandry and forestry workers, fishermen as well as service workers), which had a direct effect on those sectors that employ such professional manpower. Indo-Fijians made up some 90 percent of the skilled emigrants, ethnic Fijians and other ethnic groups comprised 6.3 and 3.7 percent of total emigrants in 1995, respectively. The first half of year 2000 emigration saw a 14 percent increase over the same period in 1999 (Reserve Bank of Fiji, 2000).

An important factor discussed in the endogenous growth theory is skilled human capital in terms of educated labour force. As human capital is probably more important than labour in the growth process, secondary, tertiary, basic vocational and technical graduates are needed to perform technical and administrative functions in the public and private sectors. Measuring human capital as a multidimensional concept includes indices of education, health, nutrition and life expectancy. Where time-series data is not available human capital can be included in the analysis of the growth process by creating an index comprising the proportion of student enrolments in the secondary and tertiary levels as a proportion of labour force to total population, an indicator of effective labour force.

Essentially a number of factors become crucial in generating growth. These are trade liberalization, macroeconomic stability, good governance, higher investment in human and physical capital, and savings. The role of the state is central in the island nations to provide the necessary capital and macroeconomic infrastructures as markets do not provide these vital ingredients for growth. For capital and growth while the level of investment *per se* is of overriding importance, ultimately the rate of return on investment matters a good deal too. Besides these, how well market institutions operate, and distortions in the relative prices in the economy, are relevant. All these are influenced by good policy. The empirical investigation below analyses the institutional-policy-investment-growth nexus.

Growth Models

In the framework of the augmented Solow growth model, the growth of output is sensitive to the accumulation of factor inputs and other factors affecting growth (Solow 1956). The full expression of the growth model is not shown here; the reader is referred to Khan and Reinhart (1990). The application of the model is similar to most past empirical work in development literature. For this analysis data sources include Bureau of Statistics (2002), Gastil (various), Gwartney and Lawson (2002), World Bank (2001). The estimation period is 1968 to 1999; all relevant data are in constant prices. In the estimation of macroeconomic models, attention is given to the dynamic interactions among the variables under investigation, and hence, the need to capture the long-run relationship of those variables.

Since the analysis evaluates the contributions of public and private investment components, the growth models are expanded to include other conditioning factors in the following specific forms:

$$\hat{Y} ? ?_0 ? ?_1 \hat{L}_{eff} ? ?_2(TIY) ? ?_3 \hat{X} ? ?_4 POLICY ? ?_5 POLICYMC ? ?_{1t}$$

(1)

$$\hat{Y} ? ?_0 ? ?_1 \hat{L}_{eff} ? ?_2(PUKY) ? ?_3(PRKY) ? ?_4 \hat{X} ? ?_5 POLICY$$
$$? ?_6 MC ? ?_7 CD ? ?_{2t}$$

(2)

$$\hat{Y} ? ?_0 ? ?_1 \hat{L}_{eff} ? ?_2(PUKY) ? ?_3(PRKY) ? ?_4 \hat{X} ? ?_5 POLICY ?$$
$$?_6 PUKDV ? ?_7 PRKDV ? ?_8 CD ? ?_{3t}$$

(3)

$$\hat{Y} ? ?_0 ? ?_1 \hat{L}_{eff} ? ?_2(PUKY) ? ?_3(PRKY) ? ?_4 \hat{X} ? ?_5 PPUKY$$
$$? ?_6 PPRKY ? ?_7 CD ? ?_{4t}$$

(4)

where $\hat{Y}$ is annual growth in GDP, $\hat{L}_{eff}$ is growth rate of effective labour force, defined as the ratio of student enrolment in the secondary and tertiary levels and labour force to total population, TIY is total investment to output ratio; $\hat{X}$ is annual growth rate in export; PUKY is public investment to output ratio; PRKY is private investment to output ratio; MC is military coups dummy variable (value of 1 for years 1987 to 1999 or zero otherwise); CD is cyclone/drought dummy (value of 1 for the year of cyclone/drought or zero otherwise); POLICY is an index that incorporates inflation, openness and fiscal balance [10]; POLICYMC is interactive policy and coup variable; PUKDV and PRKDV are impacts of coup on public and private investment, respectively; PPUKY and PPRKY are interactive policy for public-private investments, respectively; and $?_{1t...}?_{nt,}$ are the random error terms assumed to have zero means and variance-covariance matrices $?_1^2 I_{n...} ?_n^2 I_n$, respectively.

The next step incorporates political-institutional factors. It is suggested that democracy alone is not only relevant for growth in developing countries (especially small island economies), but economic freedom is as

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[10] Policy variable is calculated using inflation (INFL), openness (ratio of export and imports to GDP), and fiscal balance (overall budget deficit, including grants to GDP ratio), the results are as follow:

GY = -0.0229*INFL+0.047*OPEN -0.001*FISCAL
      (1.99)   (2.02)   (0.35)
                              Adj. R^2 = 0.41, SEE = 0.03, N = 31.

important. Political stability, and economic and political freedom are important conditioning factors for investment and growth. These variables are incorporated here.[11] Assuming that the effect of democracy (DEMO) on growth depends on the level of economic freedom, a variable DEFI is included in the expanded model, as follows:

(5)

$$Y ? ?_0 ? ?_1 L^?_{eff} ? ?_2 PUKY ? ?_3 PRKY ? ?_4 X ? ?_5 DEMO ? ?_6 DEFI ? ?_{6t}$$

where DEMO is civil liberties and political rights index with 7 offering the highest level of political and civil liberties, and 1 the lowest level of political and civil liberties.[12] DEFI is democracy and economic freedom index.

In the econometric analysis of time series data, particular attention is given to possible non-stationarity of the variables to avoid spurious correlations in the analysis. The prescription in this situation is to difference the non-stationary variables (to achieve stationarity) and use such transformed data together with the other (stationary) variables. This procedure, while statistically acceptable, has the disadvantage of ignoring long-run relationships. In the case of small samples, long-run properties of the data may be dimly reflected between the variables (Harvey, 1990: 256).[13]

The equations are estimated utilising the Autoregressive Distributed Lag (ARDL) approach to cointegration, recently developed by Pesaran, et al., (2001). All relevant data are in constant prices. Under the ARDL method, the long-run relationship being investigated is embedded within a sufficiently complex dynamic specification, including the lagged dependent and independent variables. This method avoids the requirements of pre-testing the order of integration, which is necessary in other cointegration methodologies and avoids the problems of serial correlation that arise in the residual-based cointegration methods by an appropriate augmentation (Pesaran and Pesaran, 1997). In the estimation of macroeconomic models, attention is given to the dynamic interactions among the variables under investigation, and hence, the need to capture long-run relationship of those variables. Time series procedures and analysis for breaks have been conducted to avoid estimating spurious relations while

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[11] See studies by Nelson and Singh (1998) and de Haan and Siermann (1996).

[12] Following Nelson and Singh (1988) the index has been scaled so that higher values imply greater democracy.

[13] See also Banerjee, *et al.* (1993) for a discussion on cointegration, error corrections and the econometric analysis of non-stationary data. Hendry (1995) presents the general to specific modelling procedure that minimises the possibility of estimating spurious relations while retaining the long-run information.

retaining the long-run relationship information.

As a first step F statistic is computed to examine the existence of a stable long run relationship. The computed F statistic for each model falls outside the band of critical values, thus a conclusive decision can be made that we reject the null hypothesis of no long-run relationship.[14] Exogeneity of democracy variable and model specifications have been estimated using a procedure suggested by Madalla (1992).[15] The final parsimonious estimated equations are selected based on the Schwarz Bayesian Criterion. Model diagnostic tests for serial correlation, functional form, normality of the residuals, and heteroscedasticity reported in the tables indicate no econometric concerns.[16] Different combinations of the conditioning variables have been cautiously used to avoid the problem of multicollinearity. The signs of the estimated coefficients are expected to be positive, except for dummy variable coefficients if the military coups, cyclones, investment policy in the post-coup period and the components of investment have an adverse effect on growth.

Empirical Results

The results of the growth models are reported in Tables 1 and 2. Overall, the equations have a relatively high explanatory power in terms of adjusted R^2. The F statistics are significant at the one percent level. The equations performed satisfactorily in terms of model diagnostic tests which indicate no econometric concerns. The comments on each estimated coefficient and the impact on economic growth are made below.

Regarding equation (A) in Table 1, all coefficients have the expected sign, except for exports, and are statistically significant at their re-

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[14] As the results of the F statistic falls outside the band of critical values there is the existence of the long-run relationship. The results not reported here are available from the author on request. Details of this test and the critical values of the bounds F statistic are stated in Pesaran and Pesaran (1997, Table F, p.478). See also Pesaran and Shin (1995) and Pesaran *et al*., (2001). Applying the critical values of the Bounds tests stated in Narayan (2004) does not change the results. See Kanioura and Turner (2005) for a discussion of F test for cointegration in a multivariate model.

[15] Incorporating the residual values from Eq. (1) to the expanded model yields a coefficient (i.e. demo-demohat) of 0.036 (*t* value = 0.431), which is not significant, thus endogeneity hypothesis is rejected. This result also rejects the reverse causality argument (lack of growth causes political instability). Thus, the democracy variable can be treated as an exogenous variable in the growth equation.

[16] See Hendry (1995) model diagnostic tests for time-series analysis.

spective levels. The effective labour force ($\overset{?}{L}_{eff}$), total investment (TKY) and policy (POLICY) coefficients are positive and statistically significant in the short run and long run demonstrating their contributions to growth. Exports ($\overset{?}{X}$) coefficient is negative both in the short run and long run. This may be due to the inclusion of the policy variable, where openness incorporates exports and imports to GDP ratio which in turn gives rise to correlation between exports and policy variables. When the policy variable is excluded the sign of export coefficient is positive but insignificant (see Equations C, D, E). The lack of significance of export coefficient suggests a drawback in export-promotion policies, lack of diversified exports, and political instability.[17]

In the long run the TKY coefficient is positive and significant, although the size of this coefficient has declined. Thus, a one percentage point increase in investment ratio is associated with an increase in GDP growth rate of almost half a percentage point. So, disaggregating investment into private and public investment is important to see the level of contribution of each component on growth (see equation B). The short run and long run public investment (PUKY) and private investment (PRKY) coefficients are positive and significant. In the long run PRKY contribution is substantially larger than PUKY. As political instability affects the rate of investment the PRKY coefficient declined from 1.32 to 0.96 and PUKY coefficient declined from 0.47 to 0.34. The significance of the POLICY variable indicates that Fiji has adopted policies that benefit long run growth. Good investment opportunities require a stable political system. But the estimated coefficient for policy-coups (POLICYMC) variable is negative and statistically significant. Thus, policy has been adversely affected by coups, which has a detrimental effect on growth. All components of the policy variable (i.e. inflation, exports and imports GDP shares and fiscal balance) have been affected adversely. The Minister of Finance points out that, 'to create confidence, Government must be clear and be consistent in its policy. Investors need to secure the future intentions of Government. Inconsistent policies create uncertainty and suspicion' (Koy, 1998: 6). Cyclone-drought (CD) has a detrimental growth impact.

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[17] See Narayan and Prasad (2003) and Narayan (2001) for the insignificance of export coefficients.

Table 1 Results for Fiji's Investment, Policy & Coups
Total Investment, Policy & Impact of Coups on Policy (Eq. A)

$$\hat{Y} = -.11 - .22\,\hat{Y}_{t-1} + .26\,?\,\hat{L}eff_t + .55\,TKY_t - .002\,?\,\hat{X}_t - .007\,\hat{X}_{t-1} + 1.92\,?POLICY_t - 1.38\,?POLICYMC_t - .02CD$$

(2.09)† (1.73)§ (3.61)‡ (2.34)† (0.51) (1.92)§ (2.06)† (2.59)‡ (1.69)§

$$\overline{R}^2 = 0.57 \; F_{(8,19)} = 5.12\ddagger \; SEE = .03 \; h = .54 \; LM\,?^2(1) = .60 \; Reset\,?^2(1) = .05 \; JBN\,?^2(2) = .16 \; ARCH\,?^2(1) = 1.12$$

Long-run $\hat{Y} = 0.21\,\hat{L}_{eff} + .44TKY - 0.006\,\hat{X} + 1.56POLICY - 1.12POLICYMC - .02CD$

Coefficient: (3.44)‡ (2.33)† (1.62) (2.01)‡ (2.52)† (1.67)§

Public-Private Investment, Policy & Impact of Coups (Eq. B)

$$\hat{Y} = -.19 - .36\,\hat{Y}_{t-1} + .17\,?\,\hat{L}eff_t + .47\,?PUKY_t + 1.32\,?PRKY_t + .007\,?\,\hat{X}_t - .005\,\hat{X}_{t-1} + 1.87\,?\,POLICY_t - .02\,?MC_t - .01\,?CD_t$$

(2.73)‡ (2.67)‡ (2.14)§ (1.99)§ (2.81)‡ (0.21) (1.72)§ (2.46)† (1.99)§ (1.83)§

$$\overline{R}^2 = 0.61 \; F_{(10,17)} = 5.65\ddagger \; SEE = .03 \; h = .91 \; LM\,?^2(1) = 2.51 \; Reset\,?^2(1) = 1.68 \; JBN\,?^2(2) = .81 \; ARCH\,?^2(1) = 1.52$$

Long-run $\hat{Y} = .12\,\hat{L}_{eff} + .34PUKY + .96PRKY - .004\,\hat{X} + 1.36POLICY - .02MC - .01CD$

Coefficient: (2.03)† (1.94)§ (3.07)‡ (1.21) (2.48)† (1.68)§ (.35)

Notes: ‡, † and § - significance level at the one, five and ten percent level. *t* ratios in brackets. Critical values for the various tests are as follows: $?^2(1) = 6.63$, $?^2(2) = 9.21$. Test statistics: LM = Lagrange multiplier test for serial correlation, RESET = Ramsey test for functional form; JBN=Jarque-Bera test for normality of the residuals, ARCH = Engle's Autoregressive conditional heteroscedasticity test.

Legend: $\hat{?}$ is annual growth in GDP, $\hat{L}_{eff}$ is growth rate of effective labour force, TIY is total investment to output ratio; $\hat{X}$ is annual growth rate in export; PUKY is public investment to output ratio; PRKY is private investment to output ratio; MC is military coups dummy variable; CD is cyclone/drought dummy; POLICY is policy index (inflation, openness, fiscal balance).

Table 2 Results for Fiji's Investment, Policy, Democracy, Economic Efficiency & Coups

Public-Private Investment, Impact of Coups on Components of Investment (Eq. C)

$$\hat{Y} = -0.22 - 0.57\hat{Y}_{t-1} + .02?\hat{L}\,eff_t - .31?PUKY_t + 0.56PUKY_{t-1} + 2.25?PRKY_t + .005?\hat{X}_t + 1.26?PUKDV_t$$

(3.27)‡ (3.94)‡   (0.72)   (0.93)   (1.94)§   (4.43)‡   (1.59)   (2.59)‡

$$- 1.14?PRKDV_t - 0.03?CD_t$$

(2.10)†   (2.23)†

$\overline{R}^2 = 0.68\ F_{(10,17)}=7.26$‡ SEE $=.02\ h=-.43$ LM$?^2(1)=.47$ Reset $?^2(1)=.49$ JBN$?^2(2)=1.76$ ARCH$?^2(1)=.68$

Long-run Coefficient: $\hat{Y} = .02\hat{L}_{eff} + .16PUKY + 1.42PRKY + .003\hat{X} + .79PUKDV - .68PRKDV - .02CD$

(0.26)   (0.68)   (5.48)‡   (1.62)   (2.89)‡   (2.17)†   (2.14)†

Public-Private Investment, Impact of Policy on Components of Investment (Eq. D)

$$\hat{Y} = -.23 - .49\hat{Y}_{t-1} + .13?\hat{L}\,eff_t - .20?PUKY_t + .57PUKY_{t-1} + 1.99?PRKY_t + 009?\hat{X}_t + 16.85?PPUKY_t - 3.20?PPUKY_t - .03CD_t$$

(4.08)‡ (3.58)† (1.79)§   (0.61)   (1.91)§   (4.24)‡   (0.32)   (2.03)†   (0.45)   (2.57)‡

$\overline{R}^2 = 0.64\ F_{(9,18)}=6.43$‡ SEE $= .03\ h=-.41$ LM$?^2(1)=0.71$ Reset $?^2(1)=.04$ JBN$?^2(2)=0.16$ ARCH$?^2(1)=2.44$

Long-run Coefficient $\hat{Y} = .09\hat{L}_{eff} + .24PUKY + 1.33PRKY + .006\hat{X} + 11.29PPUKY - 2.14PPRKY - .02CD$

(1.72)§   (0.98)   (4.80)‡   (0.32)   (2.15)†   (0.45)   (2.50)†

Public-Private Investment, Democracy, Economic Efficiency (Eq. E)

$$\hat{Y} = .97 - .49\hat{Y}_{t-1} + .16?\hat{L}_{t-1} + .27?PUKY_t + .65PUKY_{t-1} + 1.87?PRKY_{t+} + .002?\hat{X}_t + .07?DEMO_t + .14?DEFI_t - .03CD$$

(1.72)§ (3.42)‡ (2.13)†   (1.01)   (2.19)†   (3.92)‡   (0.77)   (2.09)†   (2.00)§   (3.10)‡

$\overline{R}^2 = .65\ F_{(9,17)}=6.22$‡ SEE $=.03\ h=.96$ LM$?^2(1)=4.23$ Reset $?^2(1)=.001$ JBN$?^2(2)=1.19$ ARCH$?^2(1)=2.21$

Long-run Coefficient $\hat{Y} = 0.11\hat{L}_{eff} + 0.62PUKY + 1.25PRKY + 0.003\hat{X} + 0.05DEMO + 0.10DEFI - 0.03CD$

(2.02)§   (3.32)‡   (4.33)‡   (0.76)   (2.23)†   (2.12)†   (2.96)‡

Notes: As for Table 1. *Additional Legends*: POLICYMC is interactive policy and coup variable; PUKDV and PRKDV is impact of coup on public and private investment, respectively; PPUKY and PPRKY are interactive policy for public-private investment, respectively.

Overall, the magnitude of the contribution of private investment is larger in both the short and long run. Although the PRKY declined significantly in the post-coup period its contribution has still been substantial, i.e. one percentage point increase in the ratio of private investment is associated with an increase in GDP of almost one percentage point. On the other hand a one percentage point increase in the PUKY indicates only a one-third percentage point increase in growth. When the military coup (MC) variable is included in the equation the size of the contribution of long run educated labour force coefficient declined from 0.21 (in equation A) to 0.12 (in equation B). The result supports the view that military coups led to a contraction in skilled manpower and reduced its contribution to the economy. The estimated size of the MC coefficient is larger than CD coeffic ient, so the decline in the growth due to the coups is significantly higher than devastating tropical cyclones and drought.[1] The results suggest that recovering from the adverse effects of cyclones-droughts are faster as Fiji receives assistance (foreign aid) that helps the nation out of hardships caused by such natural disasters. In the case of military coups, on the other hand, foreign aid from donors tend to be withdrawn; often it takes long for aid to recommence. This indicates that institutional quality is of relevance as it affects the stability of flow of sector aid. Thus, the adverse impacts from the coups are larger; it also takes longer for the economy to recover.

Equation C in Table 2 shows that both private and public components of investments contribute to growth, policy promotes growth, while the coups of 1987 and natural disasters adversely affected growth. As military coups create uncertainty, and political instability affects investment decisions in the long run, the impact of uncertainty on investment is measured by including the interactive terms, i.e. impact of political instability on public investment (PUKDV) and private investment (PRKDV). The PUKDV coefficient is positive and significant while the PRKDV coefficient is negative and significant. We see a differential effect of political instability on public and private investment in the post-coup period. As the Government's response was to increase public investment in the post-coup period, this shows as a positive PUKDV coefficient. The estimated PRKDV coefficient is negative and significant, indicating that the

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[1] Chand (2000) obtained similar results for measuring time trend, impact of coups and cyclones on Fiji's growth.

coups adversely affected private investment, growth declined by almost one percentage point due to this impact. It also implies that the observed independent adverse effects of political instability on economic growth worked through the adverse effects on private investment as instability affects the volume and efficiency of new investment as well.

Expanding the model to measure the impact of policy on public and private investment on growth (equation D), the interactive policy-public investment variable (PPUKY) and policy-private investment variable (PPRKY) are created. The estimated PPUKY coefficient is positive and statistically significant, which suggests that policy favours public investment and impacts on growth positively. However, the policy-private investment nexus is negative. This result is not surprising, seeing that private investment declined over time and the policy environment (in terms of inflation, openness and fiscal balance) had not been conducive to private investment. Public investment ratio (PUKY) coefficient, though positive, is not significant in the long run even though the policy environment is good for public investment. Given that most public investment expenditure has been utilised for public service consumption rather than for social and economic infrastructure development, the contribution of public investment is not significant. Private investment ratio (PRKY) coefficient remains positive and significant, hence private investment is a crucial determinant of growth. More important is the difference seen for each of the estimated coefficient of public and private investment. Private investment is more efficient and is in those sectors that contribute to growth. In such a case government should provide those incentives that support macroeconomic policies (e.g. tax, interest rate, inflation), create a stable investment environment to encourage private investment, and increase the performance of capital investment so that it supports the export sector.

Equation E analyses whether democracy and economic efficiency (political-institutional and economic factors) contribute to growth. As investment relies on the quality of institutions and economic efficiency, the long run public and private investment and policy variables contribute positively to growth. The long run PUKY coefficient is positive and significant with the democracy variable, so public investment performs better in a democratic climate (Equation D). The democracy and economic freedom coefficients obtained have the expected positive signs and are statistically significant in the long run. These are important factors for growth. In a market economy within a globalized environment, well defined government laws and policies, political and economic freedom, and

the ability to form long-tem contractual arrangement are vital factors for investors. These factors provide certainty that returns from investment will not be seized. This is particularly important for smaller developing countries as they do not dictate the markets. Fiji, therefore, will have to provide a climate conducive for private investment.

High-quality institutions are important in attracting investment, and reducing investment volatility. Improvement in policy regime may attract more investment as well. The social, economic and political advantages, combined with availability of resources, can assist in growing the confidence necessary for growth. Overall, given the robustness of the results it can be said that a lack of democracy, and political and civil rights can have a detrimental effect on growth. This result unambiguously shows that democracy is as relevant to the public sector as it is to the private sector contribution to economic growth.

Significance of the Results

The results obtained here can be compared to other studies that have investigated the productivity of public and private investment in developing countries. Some such studies are based on cross-sectional analysis; results are varied.[2] Khan and Reinhart (1990) show that in 1970s private investment appears vastly more productive than public investment, but a reversed pattern was noted for the 1980s, i.e. public investment seemed more productive. Their results for the two decades indicate that private investment is slightly larger than public investment. Ram (1996) notes that public investment appears more productive than private investment, and caution is urged when making strong claims that the productivity of private investment in developing countries is higher than that of public investment. Khan and Kumar (1997) show that private investment had a much larger impact than public investment during the 1980s. The relationship holds up even when other determinants of growth are taken into

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[2] The use of cross-sectional data suffers from two main limitations First, cross-sectional studies implicitly assume that the observed relationship is homogenous across all countries. The characteristics of developing countries are taken to be the same when indeed a specific developing country may differ in several aspects, i.e. politically, economically and socially. Second, and more importantly, the use of cross-sectional data makes it impossible to control for unobserved country-specific differences, possibly biasing the results. Both Feder (1982) and Ram (1987) suggest that caution is required when interpreting cross section results in terms of inter-country diversity in the p arameter estimates.

account.

The empirical results for Fiji show that private investment has a larger impact on growth than public investment and consistently contributes to growth in the short and long run. It continuously contributes of economic growth under various conditioning factors of policy, military coups, democracy and economic efficiency, and cyclones. The results to some extent indicate that public investment plays a complementary role to the private sector. The political instability factor has an adverse effect on the factors of production, where the productivity of educated labour force, public and private investment and exports have declined in all the equations.

In a market economy the state has to play a critical role to make the economy work; there are linkages between the market and politics. The results suggest that Fiji has to provide a stable political environment where economic and civil liberty can provide markets and its people public goods. It also needs to remedy market failures, ensure good governance and quality policies, and retain skilled labour for growth. These in turn are important for political, economic and social development as a whole.

In terms of modelling, as earlier studies indicate mixed results as well as a reversal for different time periods, thereby suggesting caution, it is relevant to estimate models on time series data based closely on a country's particular circumstances. Cross section studies implicitly assume that the observed relationship is homogenous across *all* countries. Clearly, even if a country's performance may be explained on *average* by public investment, growth to a specific country may instead be explained by private investment. Furthermore, time series data makes it possible to control for country-specific conditions and differences to explain growth determinants, as reflected in this case study.

Concluding Remarks

This study employed growth models to investigate the contribution of public and private investment to economic growth in Fiji. The results show that private investment has a larger impact on growth than public investment and consistently contributes to growth in both the short-run and long run. This result holds for private investment under various specifications of conditioning factors such as state policy, military coups, and natural disasters. Political instability has an adverse effect on the economy, both directly and indirectly through its impact on private invest-

ment. While public investment increased in the post-coup period its marginal productivity is statistically weak. Political instability has a large adverse effect on private investment. It also reduced marginal productivity of capital by reducing availability of skilled labour through emigration. This result is of crucial importance for policy makers. State policy variable shows a negative effect on private investment. This implies that state policy affects the volume and efficiency of new investment. It takes considerable time to convince potential investors of a shift towards policies which are more conducive to private investment. Thus, a stable macroeconomic environment for investment is important. Medium and long-term strategies and restoring investor confidence, instead of just providing a concession package for investors, are necessary for sustained economic growth. Public investment performs better in a democratic climate than in a climate with good policy but without democracy. This result shows that democracy is as relevant to the public sector as it is to the private sector. Democracy, good governance and quality policies are necessary for better economic performance.

While private investment is important for growth, it ought to be kept in mind that a national economy cannot operate effectively without the provision of public investment infrastructure. Markets and private sector investment cannot be efficient without public investment. The under-provision of public investment may cause long term disadvantages to the society. Therefore, public investment is necessary as the benefits of public investment obviously go beyond the purely economic variables.

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