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Can Fiscal Incentives Stimulate Regional
Investment in the Philippines?
(An Update of Empirical Results)

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CAN FISCAL INCENTIVES STIMULATE REGIONAL INVESTMENT IN THE PHILIPPINES? (An update of empirical results)

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Abstract

This study updates earlier estimates of the sensitivity of regional investment flows in the Philippines to fiscal incentives - income tax holidays and other fiscal inducements provided by government. All other factors held constant, the strength and significance of the investment-inducing effect of a given set of incentives can be gleaned from the size and significance of proxies used for incentives in investment regression equations. Using regional data, the regressions confirm that proxy variables for incentives are not good predictors for regional investment in the Philippines. The results reinforce previous empirical findings that, consistent with international evidence on the power of incentives, the power of incentives to influence patterns of regional investment within the Philippines is also weak. This reinforces the policy implications of Reside's (2006) paper - rather than waste resources providing ineffective investment subsidies, each region in the country would be better off if the Philippine government streamlined fiscal incentives, raised a sufficient amount of taxes and then procured the productivity-enhancing public goods (access to good .education and infrastructure) that really mattered more for investment and investors.

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I. INTRODUCTION

This study statistically estimates the sensitivity' of regional investment in the Philippines to fiscal incentives - subsidies provided for investment in each region of the country. It presents an updated set of empirical outcomes that improves upon the empirical work performed in Reside's (2006) initial study on the impact of fiscal incentives on regional investment in the Philippines.

Fiscal incentives include income tax holidays, tax deductions, tax credits and other fiscal inducements provided by governments around the world in the expectation that they are necessary to induce foreign *and* domestic direct investments. Thus, the analysis contributes to the current debate on fiscal incentives as subsidies for investment in the Philippines, where they are under scrutiny in the wake of recurring budget deficits. All other factors held constant one way to evaluate the investment-inducing strength of a given set of fiscal incentives is to examine the size and significance of proxies used for incentives in regressions where cross-regional investment as a dependent variable is regressed against various potential determinants of regional location (within the Philippines).

II. CROSS-COUNTRY EVIDENCE ON THE EFFICACY OF INVESTMENT FISCAL INCENTIVES

The influence exerted by fiscal incentives on investor decisions is typically analyzed within the broader context of the many factors influencing a firm's decision to geographically locate a particular investment. The literature on investment location analyzes cross-country determinants of foreign direct investment (FDI). *However, empirically estimated cross country evidence is mixed at best - incentives have not been among the main cross-country determinants of FDI location.* Most cross-country investment location studies point out that incentives play a secondary role relative to more fundamental determinants of location such as level of population literacy, quality of infrastructure, and wage cost. *In studies which focus specifically on the role of incentives for foreign investment, such as Wheeler and Mody (1992), the evidence on their potency is weak.* There are virtually no studies on the ability of incentives to induce domestic investments. The data used in this study includes investments made by domestic firms.

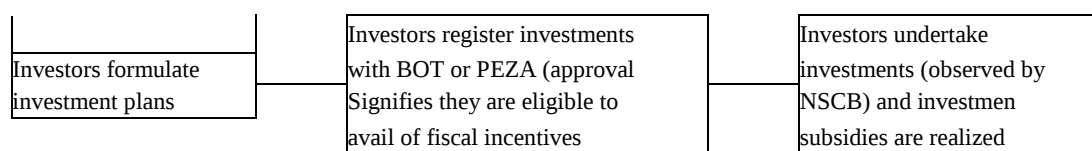
Previous studies have used imperfect proxies for incentives to measure their influence on investment. In Cheng and Kwan (2000), the number of special economic zones (SEZs) has a positive and statistically significant effect on the *location* of FDI *within* China, but there is no evidence that incentives *by themselves* actually attract FDI into China. Special economic zones are a mix of infrastructure and incentive inducements, and the authors make no attempt to isolate the effect of incentives. In a recent study of the locational choices of US multinational firms, Mutti and Grubert (2004) report that investments geared towards export markets, rather than the domestic market, is sensitive to host country taxation, that this sensitivity appears to be greater in developing countries than developed countries, and that the sensitivity is increasing over time. The level of taxation is proxied by the level of average effective income tax rates. Note that this study does not focus on the role of fiscal incentives per se, but on the impact of various inducements on investment location. The evidence that low tax rates tend to be associated with higher levels of investment could also be construed as evidence that countries with relatively low tax rates (and few fiscal incentives) are more

capable of attracting FDI than countries with generous fiscal incentives but high statutory tax rates. Investor surveys are another approach in analyzing investment location determinants. A cross country survey of foreign investors conducted by the Multilateral Investment Guarantee Agency (MIGA) in 2002 suggests that the availability of grants and incentives are critical location factors only for less than 10% - 20% of foreign investors, while the more fundamental factors determining investment location include political and economic stability, access to quality infrastructure and labor.

III. WITHIN-PHILIPPINES EVIDENCE ON THE ROLE OF FISCAL INCENTIVES IN ATTRACTING/INDUCING DOMESTIC AND FOREIGN INVESTMENT

In the Philippines, two investment promotion agencies (IPAs) are legally empowered to approve the granting of fiscal incentives to investors registered with them: the Philippines' Economic Zone Authority (PEZA) and Board of Investments (BoI). PEZA administers regionally-dispersed special economic zones (SEZs) which provide tax breaks to exporters. The BoI administers incentives primarily to non-exporting firms. BoI prepares the Investments Priorities Plan (IPP): a list of investments every year which will qualify for its incentives. The procedure for obtaining incentives is described in Figure 1:

FIGURE 1



Investors have to register their investment flows with the IP As to be eligible to receive incentives. Each individual investment proposal that falls within the scope of the IPP (or is eligible to locate in a PEZA-administered special economic zone) is subjected to a review process (to determine financial soundness, the extent of positive externalities, etc.). Conditional on meeting eligibility requirements, the relevant IP A then approves the investment (i.e., registers it). Thus, each IP A would have regional data on investment flows registered with them (ex ante committed investment). However, data on observed (ex post) investment flows across regions in the Philippines is only available from real gross fixed capital formation data collated by the National Statistical Coordination Board (NSCB). This study argues that the level of investments registered by IP As within a particular region in the country reflects the (IPA-driven) policy-determined *generosity* of incentives or investment subsidies received by that region. The primary incentive instrument used by IP As for attracting investment is the income tax holiday (ITH). While criticisms of the ITH in terms of targeting and inducing actual investment in theory is well-documented, empirically testing the proposition that 1m does not induce investment has received little attention in the literature.

This study tests the proposition that, controlling for other determinants of regional investment, greater ex ante investment subsidies (incentives) flowing to a region leads to . greater actual regional investment. To test the hypothesis that investments are induced by fiscal incentives, proxies for the level of generosity of incentives granted to regions by government must be constructed. This is done by finding variables that could be correlated to the size of investment subsidies granted and use these as explanatory variables. While tax revenues foregone as a result of incentives (i.e., the size of the investment subsidy) are typically not directly observable, one could assume that the cumulative size of the investment subsidies granted by government increases in proportion to the level of the investments that are subsidized (or incentivized). Thus, the bigger the cumulative value of investments registered with IP As and eligible to receive incentives, the greater is the absolute value of investment subsidies provided by government to that region (the bigger the value of investments registered with IP As, the greater must be

the returns generated by them that are shielded from taxation by income tax holidays). Thus, the level of investment subsidization must be correlated with the cumulative level of committed investments registered with IPAs. So if incentives have any inducing power on actual or observed investments at all, then if actual regional investment is regressed against various potential determinants, lagged data on IPA-registered investments in a region must have positive and significant coefficients. *In other words, controlling for other determinants, the value of IPA-registered investments in a region should be a good predictor of that region's future gross capital formation.* Thus, in what follows, lagged flows of committed investments (registered with IPAs) are used as regressors in regressions which seek to explain patterns of regional investment in the Philippines. I use regression analysis (panel equation estimation methods) to analyze the determinants of regional investment patterns. I regress actual (and proposed) investment flows against the following variables:

Table 1

Variable	Definition (source)
RGFCF	Log of real gross fixed capital formation (NSCB)
RPCGDPGR	Lagged real per capita GDP growth (NSCB)
RPCGDP	Lagged real per capita GDP (NSCB)
ZON	Number of PEZA ecozones (PEZA)
PAY	Log of ratio of length of paved roads to total length of roads in the Philippines (Department of Public Works and Highways annual reports)
MFGGDP	Ratio of manufacturing gross value added to GDP (NSCB)
INF	Inflation rate (NSO)
WAGE	Log of index of compensation in manufacturing (Yearbook of Labor Statistics)
FUNLIT	Log of functional literacy rate in the Philippines (National Statistics Office Functional Literacy in Education and Mass Media Survey (FLEMMS))
TEL 1----	Telephones per 1,000 people (NSCB)
NRDDENS	Log of ratio of length of national roads in region to total length of national roads in the Philippines (DPWH)
RDDENS	Log of ratio of total length of regional roads to total area of region (DPWH)
Generosity of incentives provision (BOI and PEI)	(Lagged) past value of BOI investment approvals (BOI) and (Lagged) past value of PEZA investment approvals (PEZ)

The dependent variable is NSCB gross fixed capital formation by region, which is observed (actual) investment. To account for possible endogeneity of the regressors I use instrumental

variables techniques. The dependent variable was the natural log of real gross domestic capital formation. Candidate regressors were current and lagged values of the variables in the table above. Instruments used included lagged values of manufacturing output to GDP ratio, functional literacy, number of PEZA special economic zones in a region, real wages, real per capita GDP growth, telephone density and extent of paved roads. In other words, instruments reflected effects of agglomeration, education, incentives, wages, market strength and infrastructure. The specification of the model is influenced by the literature on investment location determinants.

Results of two stage least squares estimation on pooled regional data suggests that neither Hal nor PEZA incentives play strong roles in determining the regional pattern of investments in the Philippines. This is true in both fixed and random effects regressions. The variables that really matter are in the baseline results in table 2: real per capita GDP in a region (a proxy the size and strength of a region's market), functional literacy (proxy for the quality and productivity of a region's labor force) and the extent to which towns in a region have access to electricity (proxy for infrastructure). Adding proxies for the extent of regional incentives generosity (BOI and PEZ) either lead to perverse results (BOI has a significantly negative coefficient) or are insignificant. Adding the proxy for number of (privately-owned) PEZA SEZs in a region (ZON) reduces the significance of FUNLIT and ELEC. This result perhaps reflects the possibility that investments in PEZA SEZs reflect regional advantages in terms of access to educated labor and infrastructure.

Adding proxies for agglomeration effects, real wages and number of PEZA economic zones in a region lead to insignificant results or downgrades in the quality of estimates. It certainly seems that the regional investment fundamentals in the Philippines are market, labor and infrastructure. It is also possible to consider stacking the cross section data for each variable on top of one another and using generalized method of moments (GMM) for estimation. But similar results emerge.

Table 2: Selected pooled two stage least squares instrumental variables estimates
(dependent variable: NSCB gross fixed capital formation by region)

Model	1	2	3	4	5	6	7	8	9	10
	Baseline	Baseline								
Variable (expected sign)	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Constant	-2.32	-0.16	-7.403	-4.203	-1.349	0.237	1.72	4.99	8.778	0.187
(P-values)	(0.65)	(0.96)	(0.605)	(0.58)	(0.80)	(0.953)	(0.62)	(0.186)	(0.63)	(0.982)
RPCGDP	1.21	1.205	0.369	1.399	1.170	1.175	2.185	1.537	1.66	1.49
(P-values)	(0.0398)	(0.0024)	(0.817)	(0.0004)	(0.067)	(0.006)	(0.002)	(0.008)	(0.01)	(0.004)
FUN LIT	2.46	2.00	6.705	3.697	2.14	1.797	0.213	0.659	1.089	1.407
(P-values)	(0.0016)	(0.0027)	(0.001)	(0.021)	(0.009)	(0.024)	(0.853)	(0.371)	(0.59)	(0.145)
ELEC	0.768	0.79	-0.101	-0.037	0.87	0.885	-0.02	0.198	-0.377	-0.027
(P-values)	(0.091)	(0.023)	(0.900)	(0.936)	(0.059)	(0.014)	(0.964)	(0.506)	(0.48)	(0.946)
BOI			-0.210	-0.172						
(P-values)			(0.011)	(0.0055)						
PEI					0.022	-0.021				
(P-values)					(0.245)	(0.213)				
ZON							0.0417	0.043		
(P-values)							(0.001)	(0.002)		
MFGGDP									-1.095	-0.858
(P-values)									(0.03)	(0.012)
TEL									0.198	0.16
(P-values)									(0.04)	(0.018)
WAGE									-0.783	0.207
(P-values)									(0.64)	(0.798)
R-Square	0.9566	0.9846	0.903	0.979	0.958	0.981	0.95	0.979	0.967	0.987

Note: except for the variable WAGE, all variables have a positive expected coefficient.

IV. CONCLUSION

This study attempts to statistically estimate the sensitivity of investment flows to fiscal incentives. All other factors held constant, the strength and significance of the investment-inducing effect of a given set of incentives can be gleaned from the size and significance of proxies used for incentives in investment regression equations. Using regional data, the regressions confirm that proxy variables for incentives are not good predictors for regional investment in the Philippines. This confirms that, consistent with international evidence on the power of incentives, the power of incentives to influence patterns of regional investment within the Philippines is also weak. The policy implications are striking - rather than waste resources providing ineffective investment subsidies, each region in the country would be better off if the Philippine government streamlined fiscal incentives, raised a sufficient amount of taxes and then procured the productivity-enhancing public goods (access to good education and infrastructure) that really mattered more for investment and investors. The results also suggest that regions draw investors based on their competitiveness in terms of existing fundamentals. The government also exacerbates already wide regional disparities in development by drawing resources away from potentially regional wealth-dispersing public goods and into private investments that seek the best and safest locations.

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