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# The Effect of Financial Sector Development on FDI led Growth in China

Examining the relationship of financial sector development on FDI led growth in  
provincial China

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Abstract: Over the past several decades developing countries have attracted and relied on Foreign Direct Investment (FDI) to supply their economies with the investment needed to maintain high economic growth and development. In their pursuit of FDI, many developing countries have passed policies and regulations aimed at attracting inward FDI. Because of the high growth rates and high returns on investment in many of these economies they have experience a large increase in FDI inflow over the past few decades. As these economies have grown and investment has increased, the financial services sector in the developing world has grown to service the increased demand. In 2011 the World Bank and IMF's Financial Sector Assessment Program on China found that between 2005 and 2010 total bank assets had grown nearly 19%, while the total assets of non-bank financial institutions had grown 35.1% from 2007 to 2010 (World Bank and IMF Financial Sector Assessment Program, 2011, p.25 & 27). With this massive growth in the financial services sector it is important to understand the effects of financial sector development on FDI's relationship to economic growth in host countries. Keeping this in mind, as policy makers continue to attract FDI it is imperative they know not only its effects on growth but what policies they can enact at a provincial level to maximize positive effects. This study uses both national and provincial level data to assess the effects of financial sector development on FDI's relationship to economic growth. While the scholarly literature on FDI is fairly well established, literature focusing specifically on financial sector development's effect on FDI's and growth is less robust. Many studies such as Carkovic and Levine (2002) find that the effect of FDI interacted with financial sector development on growth to be positive, but not robust. My research utilizes variation in financial sector development between provinces in China to determine the effect financial sector development has on FDI led growth.

## **I. Introduction**

One of the main sources of investment into developing countries in past few decades has been Foreign Direct Investment, attracted by the high return rates developing economies offer. In response to this new found economic growth, host countries financial services sectors have ballooned to service the demand for credit and liquidity. In fact, in a 2011 Financial Sector Assessment sponsored by the IMF and World Bank, they found that total assets for commercial banks in China nearly doubled and commercial banking as a share of GDP grew by 22.6% from 2007 to 2010 (World Bank and IMF Financial Sector Assessment Program, 2011, p.25 & 27). While this growth in the financial sector is certainly impressive it remains unclear whether this growth is simply servicing an increased demand for financial services or if it is having a tangible effect on FDI led economic growth. In this vein, I research what effect financial development has on FDI and economic growth at the provincial level in China.

Recent literature has shown that the independent effect of FDI on economic growth is often ambiguous. Carkovic and Levine (2002) find that after resolving biases in previous studies, the exogenous component of FDI does not exert a robust, independent influence on economic growth. Saini, Law and Ahmad (2009) used a minimum threshold model and also found that FDI does not have an independent positive effect on economic growth, but once a minimum threshold for human capital stock and financial sector development are reached the effect turns positive.

In this analysis I use Chinese provincial level data for 31 provinces from 1999-2007 to investigate what effect financial sector development has on FDI led economic growth at the provincial level. I conduct this test using national and provincial level data, allowing me to focus on the effect of heterogeneities in financial sector development at the provincial level have on FDI led growth.

With few exceptions it has been common practice in recent scholarly literature on FDI led economic growth to focus on country level data. With regards to policy implications for attracting inflows of FDI, this allows us to only examine the policies of the central government. Thus, leaving us blind to heterogeneities in provincial policies to both attract and efficiently utilize FDI. My provincial level data finds a positive and statistically significant effect of financial sector development on FDI led growth, given different levels of financial sector development at the provincial level. This can empower host country leaders at the regional and provincial level to promote policies to attract FDI and better manage their financial sectors. The results found from the provincial level data will allow inform national policy makers to the potential advantages or disadvantages of decentralizing elements of financial sector regulation. To ensure my study is valid I utilize a wide variety of scholarly literature pertaining to financial sector development and FDI led economic growth to obtain the best methodology.

The rest of the paper is as follows. In section II I will review the literature surrounding heterogeneous effects of FDI on economic growth, financial sector development effects on economic growth, and estimation of financial sector development. In section III I will detail my methodology for estimating the effect of financial sector development on provincial growth. I will outline my model, hypothesis, variable specification and data in section III as well. Section IV contains the results of my study and section V will conclude this analysis.

## **II. Literature Review**

Recent scholarly literature on FDI led economic growth has focused principally on examining the specific circumstances that may affect positive growth spillovers from FDI. This analysis of the literature will start by describing the initial debate over the benefits of FDI. I then

present and investigate the current debates over the pathways of FDI's effect on economic growth as well as what I will add to the literature with this study. Since my research will focus on a provincial level study of China using secondary data on financial sector development, I will discuss the literature on financial sector development's relationship to economic growth. I will then move on to review the literature relating to my methodology, which will focus on estimating financial sector development's effect on FDI led growth. I use the best estimator available in recent literature to allow me to compare the data from different Chinese provinces. This review of the literature details why financial sector development and FDI are both important to promoting economic growth, but that the question of how financial sector development may affect FDI led growth at the provincial level remains.

#### ***A. Heterogeneous effects of FDI on economic growth***

Policies aimed at attracting inward FDI to help boost economic growth in China has been an ongoing phenomenon since the 1980's. The Ministry of Commerce of the People's Republic of China reports that total contracted FDI to China increased from 2.7 billion US dollars in 1984 to over 153 billion dollars in 2004. Yet, the recent literature remains divided on how useful inward FDI is in promoting economic growth.

Several studies such as Carkovic and Levine (2002) have argued that independently, FDI alone has little to no effect on economic growth. While Choe (2003) and Mullen and Williams (2005) find a positive effect of FDI on economic growth at the national level. Mencinger (2003) actually found a negative relationship between FDI and economic growth.

The contradictory findings are clarified by Borensztein et al. (1998), who found that in order to benefit from FDI a country must have a minimum threshold of human capital stock and

Alfaro's 2004 paper "*FDI and economic growth: the role of local financial markets.*", which found that FDI only promotes growth under certain economic conditions. Further research by Reichert, Usha and Weinhold (2001) found that FDI by itself has a positive but insignificant effect on economic growth. Further strengthening the argument that a minimum level of human capital stock and financial sector development must be obtained to efficiently absorb FDI and realize its positive effects on growth.

This is in line with general economic theory that human capital and financial sector development have a positive effect on FDI led growth, since much of the economic literature has shown that these two factors are important in promoting growth in general. Specifically, De Gregorio and Lee (1998) show that FDI is an important vehicle for technology transfer when a host country has a minimum threshold stock of human capital. While Niels and Lensink (2003) and Azman-Saini, Law, and Ahmad (2009) show that a minimum threshold level of financial sector development is also needed to obtain a positive relationship between FDI and economic growth.

However, little research has been done on the effects of heterogeneities between provinces and regions with respect to financial sector development and FDI led growth. Sharma, Wang and Wong (2014) have shown that aggregate FDI tends to be regional trade platform oriented indicating that neighboring provinces become competitors for FDI. They also determined that the level of human capital at the provincial level did not have any significant effect on the positive economic spillovers.

This contrasts with an earlier study, Wang and Wong (2009), where the authors detail that a host country must have a human capital threshold of 2.16 average years of secondary schooling for males to obtain a positive relationship between FDI and growth. Bailiu (2000)

utilizing a dynamic panel data methodology, also found that capital inflows such as FDI foster higher economic growth but only for economies where the banking sector has reached a certain level of development. Suggesting that the domestic financial sector plays a central role in ensuring that FDI leads to higher growth rates. With this in mind, it is necessary to briefly discuss what effect financial sector development has on economic growth.

### ***B. Financial Sector Development effects on Economic Growth***

As mentioned earlier there have been a many recent studies focusing on country level financial sector development and growth. Malik (2009), analyzed a 35 developing countries data set from 1970-2003 and found that financial sector development affects per capita GDP primarily through efficient resource allocation. Ljungwall (2007) also found that interacting FDI with indicators measuring the degree of market-oriented financing enhance economic growth. In a time series study done by Wai (1980), the author found a positive effect on growth originating from financial sector mediation. Odedokun (1996), using data from 71 countries over varying periods of time from the 1960s and 1980s, found similar effects, especially in developing countries.

However, prominent detractors including Lucas (1988) downplay financial sector development's importance by arguing that financial sector development comes about as a result of economic growth rather than the other way around.

Counter to this argument Levine (1997) tested relevant studies, and King and Levine (1993) utilized an endogenous growth model simulation, both studies show that the data points to a positive and central role for a well-functioning financial sector in attaining economic development.

The first step in settling the debate surrounding the question of what effect financial sector development has in promoting FDI led growth, is to determine how best to estimate financial sector development.

### ***C. Estimation of Financial Sector Development***

The scholarly literature pertaining to how best to estimate financial sector development has been hotly debated.

In Malik (2009) a major finding of the study was that financial sector development affects per capita GDP mainly through its effects efficient resource allocation, not its effects on capital accumulation. The author uses private credit and commercial-central bank as indicators of financial sector development. Commercial-central bank equals commercial bank assets divided by commercial bank plus central bank assets.

Alfaro et al. (2004) used a linear interaction model, and constructed an interaction term constructed as a product of FDI and financial markets indicators. A limitation to this methodology is that the interaction term imposes a prior restriction that the impact of FDI on growth monotonically increases with financial development.

Many macro level studies such as Lanyi and Saracoglu (1983) use the M2 to GDP ratio method as a measure of financial sector development.

While these estimates work well with country level data this research will focus on within country effects, this measure cannot be easily translated for use in a provincial level study.

Odedokun (1996) argues that using time series data is important in determining the effect of financial sector development on FDI led growth. However, according to Bertrand et al (2004) time series data has a serious issue with serial correlation. With this in mind I will employ panel data set.

Levine (2002), utilizing a dynamic panel data design, uses private credit by financial intermediaries to the private sector as a share of GDP to measure financial sector development. He found it was unstable because his regressions were restricted to have the same number of observations. I correct for this by using a balanced data set to create a stable estimate of financial sector development. I also found the variation in credit across provinces, which I detail in section V, was significant enough to warrant its examination.

Policy makers at all levels seek to comprehend the full effects of FDI on economic growth. As many developing countries craft policies and incentives to attract FDI, the effect that financial sector development has on FDI led growth provides an important insight on how to attract and efficiently utilize foreign capital.

There is a considerable amount of literature that backs the theory that FDI has a positive effect on economic growth in the host country given certain other factors. Similarly the effect of financial sector development has been shown to have a strong positive and causal relationship to economic growth.

Studies on financial sector development as it relates to FDI led growth such as Azman-Saini, Law and Ahmed (2009) have reliably found that to benefit from FDI led growth a country must reach a minimum threshold of financial sector development. What remains to be seen is the effect financial sector development has at a provincial level. This is where my research will add to existing scholarly literature.

### **III. Methodology**

In order to test if financial sector development effects FDI led economic growth I gathered data at the national and provincial level in China for 31 provinces from 1999-2007. Conceptually I believed that financial sector development will lead to a positive and robust effect

on FDI led growth. To test this hypothesis I needed a model that satisfies ceteris paribus conditions. I will first present the model and describe the variables used to test the model. I will conclude by detailing the data sources.

### ***A. Model and Hypothesis***

To test this hypothesis I formulated the following model to measure the interaction between financial sector development and FDI led economic growth. The model's dependent variable is the growth rate of per capita Gross Provincial Product (GPP) in given year "t" for province "i", the independent variable of interest is gross FDI inflows in a given year "t" over GPP. This model controls for variables generally accepted to be important to explaining economic growth, the log of the initial level of the college enrollment, the initial level of GPP per capita and FDI to GPP ratio interacted with the financial sector development term, which is defined as log of loans plus deposits from financial institutions to GPP ratio.

I also include a vector of variables (Z) that have been used in recent literature to explain per capita GPP growth. These include the log of inflation (CPI) and the number of special economic zones found within a province (specific regions that have different rules and regulations regarding FDI and FDI attraction policies). The  $\mu$  term includes our provincial fixed effects and time trend. The model is as follows:

$$\text{Growth}_{it} = \beta_0 + \beta_1 \text{FDI}_{it} + \beta_2 (\text{FDI} * \text{FinDev}) + Z_{it} \mu + \epsilon_{it}$$

The model utilizes ordinary least squares to estimate the regressions. With this model I test the hypothesis that financial sector development has a positive and statistically significant effect on FDI led GPP growth. The formal hypothesis is as follows:

$$H0: \beta_2 \text{FinSecDev} * \text{FDI} \leq \beta_1 \text{FDI} / \text{GDP}$$

$$H1: \beta_2 \text{FinSecDev} * \text{FDI} > \beta_1 \text{FDI} / \text{GDP}$$

The null hypothesis is that financial sector development interacted with FDI does not lead to growth and its coefficient is less than or equal to the coefficient on the FDI term. To reject this I prove that  $\text{FinSecDev} \times \text{FDI}$  has a positive and statistically significant coefficient that is larger than the coefficient on FDI.

### ***B. Variable Specification***

My dependent variable, Growth, is defined as the per capita economic growth rate at the provincial level given year. This is a commonly used measure in the FDI literature.

The independent variables of interest,  $\text{FDIoGDP}$  is gross FDI inflows in a given year “t” in a given province “i”. Defined as gross FDI to GPP ratio. My variable for financial sector development is total loans plus total deposits to GPP ratio,  $\text{FinSecDev}$ . This a commonly used measure of financial sector development in the literature to measure both the depth and accessibility of a financial system. Our main variable of interest is the interaction between  $\text{FDIoGDP}$  and  $\text{FinSecDev}$ ,  $\text{FDIoGDP}_{\text{FinSecDev}}$ .

The vector of variables (Z) that have been used in recent literature to explain per capita GPP growth are as follows: inflation (CPI), the number of special economic zones found within a province (EconZones) and net government spending (government expenditure subtracting taxes) to GPP ratio (Govt\_Size).

I also include variables generally accepted to be important to explaining economic growth (Niels & Lensink. 2003), the log of the initial level of the college enrollment, the log difference of initial GPP per capita and FDI to GPP ratio interacted with the financial sector development term, which is defined as loans plus deposits from financial institutions to GPP ratio.

In the  $\mu$  term I include provincial fixed effects, a dummy variable for provinces on the coast and time trend.

### *C. Data*

This analysis requires several data sources. For data regarding the breakdown of FDI at the provincial level I rely on data sets obtained from the Organization for Economic Co-operation and Development (OECD), the Association of Southeast Asian Nations (ASEAN) as well as the data set used by Sharma, Wang and Wong (2014).

I will also use Sharma, Wang and Wong's (2014) data set to quantify miles of roads and railways. As well as surrounding market potential to account for spillover effects, Economic zones, CPI, and local government consumption ratio to GPP.

To find data measuring inflation, population growth, Gross Provincial Product (GPP), initial GPP and government size I utilize the World Bank Indicators data for 1999-2007 and the Sharma, Wang and Wong's (2014) data set.

To obtain the data for private credit and financial sector health I use the World Bank IDA & IBRD statements of Credits and Grants for China in the years 1999-2007, as well data from the Chinese statistical yearbook for the same time period and Sharma, Wang and Wong's (2014) data set.

For my variables related to human capital, college enrollment, and high school seniors to population ratio I utilize the World Bank Indicators data for 1999-2007, but since this is not taken at the provincial level I also used Sharma, Wang and Wong's (2014) data set.

## **IV Results**

### ***A) Summary Statistics***

The sample for this study comprised of 31 Chinese provinces for years 1999-2007, coded by district in table 1. Tables 2 and 3 present further summary statistics pertaining to the initial values of key variables related to economic growth and our hypothesis.

Table 2 includes initial GPP per capita, initial level of financial sector development, and initial loans by financial institutions to GPP ratio, sorted by district code. The initial year of the study is 1999. The initial GPP per capita ranges from 318 Chinese yuan to over 159,000 yuan per year with an average GPP per capita of 24,841 yuan. Initial loans to GPP ratio ranges between 0.009 and 9.25 with an average loan to GPP ratio of 1.52. The initial level of financial sector development varies between provinces from 0.099 to 49.05 with an average score of 6.79. Over the course of the entire study period financial sector development ranges from 0.025 to 230.2 with an average value of 8.2. It is this variation that will be relevant to our study.

Table 3 provides descriptive statistics on the human capital stock by province. Including, province population (10,000 persons), Initial year college enrollment (persons) and Initial year high school seniors to population ratio. Initial population amounts vary from 2,560,000 to 93,870,000 persons. The average population is 40,070,000. The number of people enrolled in college in our initial year ranges from 4,021 to 329,825 with an average of 131,802. And lastly the initial year high school seniors to population ratio ranges from 4% to 24% with an average of 15%.

### ***B) Base Regressions***

In the first regression I estimate a restricted model of the econometric model using an OLS estimator not including our Z vector of variables specified earlier. The results in table 4

show our variable of interest, the interaction term between FDI and financial sector development, is positive and significant. The financial sector development variable is also positive and significant while the FDI variable is positive but not significant. This motivates further analysis into this relationship.

In the second regression I include the Z vector of variables associates with per capita economic growth. The results, also in table 4, show that our interaction variable between financial sector development and FDI to GPP ratio remains positive and statistically significant. The financial sector development variable and the FDI variable are also positive and significant.

And finally in the third regression in table 4 I include a dummy variable for provincial fixed effects. Again the results show that FDI\*Financial Sector Development is positive and statistically significant. FDI is no longer significant and the financial sector development variable is positive and significant.

I also test for any multi-collinearity between financial sector development and human capital. To do this I use an OLS estimator to regress the FDI to GDP ratio interacted with college enrollment rates on Growth. Table 5 present the results. The coefficient on this interaction term is positive but not significant. I do not find a robust multi-collinearity between our financial sector development variable and our human capital variable.

Next, in table 6, I estimate the effects of the lagged value of financial sector development on the log value of real FDI per capita to test for potential endogeneity bias produced by financial sector development causing increased FDI in the next time period. The results show that the relationship is negative and not significant.

### ***C) Endogeneity Issues***

So far there has been little discussion of any endogeneity problems. In line with economic theory it is plausible, and very likely that both the magnitude of FDI and the development of financial markets increase with higher per capita growth rates. This would lead to the overestimate of the effect of each of the two variables on their interaction on growth.

Theoretically, a good instrument should be correlated with the endogenous variable but not with the error term. In practice good instruments are hard to find. Following previous literature I construct instrumental variables for both FDI and financial sector development. For FDI to GPP ratio I use a lagged value of FDI from Alfaro 2004, the USD exchange rate also from Alfaro 2004 and the land area of a province an instrument used by Wang, Wong, Granato 2013. The results are presented in Table 7.

Table 7 shows the value of our interaction term for the lagged FDI instrument is positive but insignificant. This is in line with our argument that independently FDI has little impact on growth. The test statistic for no over identifying restrictions to confirm the validity of the instruments is shown in table 8, the instrument is valid.

The second column of table 7 shows the USD exchange rate value makes FDI positive and significant. The results continue to support the finding that FDI promotes growth when there is a minimum level of financial sector development (Alfaro 2004). The test statistic for no over identifying restrictions to confirm the validity of the instruments in Table 8.

Finally the third column shows the results for the instrumenting of FDI with area. We see FDI becomes positive but insignificant. Table 8 shows the test statistic for no over identifying restrictions to confirm the validity of the instruments.

## **V. Conclusion**

Inward FDI to China has increased dramatically since the 1980s. Furthermore, many other countries offer special tax incentives and subsidies to attract foreign capital. The economic rationale for attracting foreign capital is that FDI and other capital inflows encourage technology transfers that can accelerate overall economic growth in host countries. Microeconomic studies have shown, though not unanimously, results of a negative correlation between the FDI and economic growth. There have also been many firm level studies on the effect of FDI on growth, many find a negative result. While most others have shown that the ability to absorb and utilize foreign capital is dependent on a critical threshold of human capital and financial sector development. Previous macroeconomic studies however, have not examined the effects of financial sector development on FDI led growth at the intra-country level. Leaving provincial policies makers blind to the potential policies they can pursue to efficiently utilize FDI.

After applying the theory and models of past macroeconomic studies to provinces within China, and confirming my results using several robustness tests, I find that FDI inflows do not exert an independent influence on economic growth. FDI led growth is dependent obtaining a threshold values of financial sector development.

While sound economic policies often spur both FDI and per capita economic growth. The results in this study are inconsistent with the view the FDI exerts a positive impact on growth that is independent of other growth determinants.

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**Table 1 District Codes**

Province	District Code
Anhui	1
Beijing	2
Chongqing	3
Fujian	4
Gansu	5
Guangdong	6
Guangxi	7
Guizhou	8
Hainan	9
Hebei	10
Heilongjiang	11
Henan	12
Henan	12
Hubei	13
Hunan	14
Inner Mongolia	15
Jiangsu	16
Jiangxi	17
Jilin	18
Liaoning	19
Ningxia	20
Qinghai	21
Shaanxi	22
Shandong	23
Shanghai	24
Shanxi	25
Sichuan	26
Tianjin	27
Tibet	28
Xinjiang	29
Yunnan	30
Zhejiang	31

**Table 2 Descriptive Statistics**

## Initial Ratios

District Code	Initial GPP per capita	Initial Financial Sector Development	Initial loan to GPP ratio
1	4663.444	1.895324	0.4490045
2	36349.96	3.425019	0.7786347
3	13566.47	2.375064	1.739557
4	318.4861	49.04943	0.0088839
5	37470.81	0.6454877	3.924816
6	1902.38	32.7991	0.0776366
7	9421.062	1.929466	0.9609475
8	7188.007	1.628315	2.009398
9	47163.17	0.4201169	4.108185
10	445.8127	24.2577	0.0336033
11	3789.472	6.117951	0.2870288
12	2631.61	8.120446	0.1442713
13	17887.86	1.506468	0.7046986
14	3027.156	5.653848	0.3327061
15	9669.543	3.818584	0.5694134
16	9618.723	2.267359	0.393892
17	865.7831	18.05113	0.0639181
18	9465.545	1.942767	0.540867
19	3616.227	6.680243	0.1262414
20	61773.92	0.2033912	4.423744
21	118254.7	0.1229799	8.17119
22	16901.12	2.227791	0.9155223
23	6727.598	5.914131	0.198781
24	23644.87	3.939744	0.2609344
26	39148.27	0.7835197	2.955773
26	1154.312	19.89536	0.0375093
27	41369.95	1.19031	0.9914072
28	159343.2	0.0990639	9.252154
29	13095.74	1.263568	0.6039707
30	18618.8	1.645423	0.9000938
31	51002.57	0.4786111	1.213385

**Table 3 Descriptive Statistics**

District Code	District Population	College enrollment	HSE to Population Ratio
1	6237	133025	0.007276
2	1257	235140	0.0095235
3	3075	96569	0.0095715
4	3316	102589	0.0036918
5	2543	62637	0.0096722
6	7270	220810	0.0112289
7	4713	90286	0.0182616
8	3710	56454	0.0140479
9	762	14569	0.0095096
10	6614	176702	0.0136584
11	3792	157063	0.0120155
12	9387	185486	0.0106972
13	5938	257875	0.014623
14	6532	193553	0.0147475
15	2362	49732	0.0130321
16	7213	329825	0.0151464
17	4231	110873	0.015045
18	2658	139595	0.0083044
19	4171	235819	0.0113737
20	543	13121	0.0186753
21	510	9347	0.0148436
22	3618	179447	0.0207201
23	8883	213679	0.0226705
24	1474	186307	0.0243617
25	3204	94120	0.0183741
26	8550	180256	0.0165041
27	959	90450	0.0188307
28	256	4021	0.0201192
29	1774	54058	0.0234584
30	4192	73902	0.0205714
31	4475	138564	0.0195883

**Table 4: OLS Base Model**

SPECIFICATION	Base Regression	Including Government Size Coastal Dummy & Time Trend	Including District Dummies
VARIABLES			
FDI*Financial Development	.00121254*** (.0001608771)	.00091037*** (.0001690064)	.00145153*** (.0001937059)
FDI	.00005976 (.0006625313)	.00333683*** (.0008228931)	.00143077 (.0009277238)
Financial Development	.00006505*** (9.89920e-06)	.00005295*** (9.36366e-06)	.00005019*** (9.25870e-06)
College Enrollment	-.00107014*** (.000188404)	-.00087337*** (.0001904758)	.0002153 (.0013983586)
Previous Growth Rate	.19468634*** (.0418635598)	.12162434** (.0409854313)	.08432816* (.0409122322)
Special Economic Zones	.00024405** (.0000813262)	-.00014175 (.0001029413)	-.00220822 (.0016601363)
Inflation (CPI)	.00019*** (.0000261148)	.00021034*** (.0000265272)	.00001875 (.0000782376)
Government Size		.00203235*** (.0003040701)	.00161457*** (.0003404021)
Coastal Dummy		.00001514 (.0004528682)	.01214473 (.0087165887)
Time Trend		-.00028653*** (.0000736144)	-.00014092 (.0003725973)
2			-.0157698 (.0101481951)
3			.00034572 (.0011638253)
4			-.0019721 (.0017064985)
5			.00026336 (.0012095111)
6			-.00031418 (.0032150481)
7			-.00978869

	(.0077861111)
8	-.00049933
	(.0011673393)
9	-.0088822
	(.0064807321)
10	-.01187263
	(.0085689971)
11	-.00133659
	(.0015911568)
12	-.00225732
	(.0020312639)
13	-.00195069
	(.0022584268)
14	-9.006e-06
	(.0019820029)
15	.00027196
	(.0011812433)
16	-.00220074
	(.0014178971)
17	.00025349
	(.0014585387)
18	-.00029289
	(.0015474854)
19	-.00707166
	(.0052228586)
21	.00226845
	(.0025580231)
22	.00404336
	(.0029377328)
23	-.00057035
	(.0017591616)
24	-.00652131
	(.003996076)
25	-.00413004
	(.0033598689)
26	-.00016595
	(.0013280534)



**Table 5: Testing for multicollinearity with education**

Dependent Variable is Growth		
SPECIFICATION	(1)	(2)
FDI*Financial Development	.00108007*** (.0001637907)	.0010803*** (.0001639541)
Financial Development	.00004836*** (9.02846e-06)	.00004844*** (9.03797e-06)
FDI	.00282714*** (.0007821013)	.00270608*** (.0007986906)
Previous Growth Rate	.11500006** (.0394336633)	.11546497** (.0394776247)
Government Size	.00204137*** (.0002889703)	.00201202*** (.0002917872)
Economic Zones	-.00015595* (.0000768394)	-.00017039* (.000079196)
Inflation (CPI)	.00006055 (.0000327971)	.000052 (.0000346787)
College Enrollment	-.00112189*** (.0001901252)	-.00124828*** (.0002519371)
FDI*College		5.384e-11 (7.03211e-11)
Constant	.01833876*** (.0032455542)	.02054198*** (.0043400894)
Number of Observations	217	217
R <sup>2</sup>	.59526004	.5944531

Robust Standard Errors in parenthesis

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

Table 6: Test for endogeneity with Financial Sector Development and FDI

Dependent Variable: FDI

Dependent Variable: Growth	(1)
Financial Sector Development	-2.636e-06 (.0000114912)
College Enrollment	-.00005958 (.0002091673)
Previous Growth	.03107405 (.0717731685)
Government Size	.00289867 (.0003219683)
Constant	.01163741 (.002805432)
Number of Observations	223
R-Squared	.29779365

Robust standard errors in parentheses

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

Note: College enrollment Financial Sector Development and Previous Growth are lagged by one period.

**Table 7: FDI Instruments**  
**Dependent Variable: Growth**

SPECIFICATION	Lagged FDI	Exchange Rate	Area
FDI	.00015221 (.0044272558)	.01616435** (.0049728298)	.00563758 (.0057597749)
<b>FDI*Financial Development</b>	<b>.00133071*</b> (.0005988592)	<b>-.00078277</b> (.0006823469)	<b>.00061489</b> (.0007519221)
Financial Development	.00004677*** (.0000126822)	.00007783*** (.0000164191)	.00005707*** (.0000138376)
College	-.00114777*** (.0004212934)	.00023189 (.0004984006)	-.00067647 (.0005236112)
Previous Growth	.12554594** (.0417971966)	.10582832 (.0593194984)	.11973898** (.0410549816)
Economic Zones	-.00015772 (.0001063714)	-.00007747 (.0001502026)	-.00009105 (.0001439142)
Inflation	.00025028*** (.0000607777)	.00004946 (.0000716108)	.00018192* (.0000752552)
Government Size	.00132147 (.0010181954)	.00489573*** (.0011635982)	.00254287 (.0013010695)
Time Trend	-.0002871*** (.0000744579)	-.00028424** (.0001060112)	-.00028652*** (.0000732981)
Coastal Dummy		-.00032271 (.0006500716)	.00137598 (.000829341)
Number of Observations	217	217	217

Robust standard errors in parentheses

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

Note: College enrollment and Previous Growth are lagged by one period.

Note: College and Previous Growth are lagged one period.

**Table 8: Sargan results for FDI Instruments**

Sargan test of overidentifying restrictions

H0: overidentifying restrictions are valid

	Lagged FDI	ExRate	Area
chi2(41)	114.0779	115.032	99.0466
Prob > chi2	0.6077	0.6919	0.7306