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Aid and Foreign Direct Investment in Vietnam

Chengang Wang
University of Bradford

V.N. Balasubramanyam
Lancaster University

Abstract

This short paper explores the complementarity between foreign aid and foreign direct investment (FDI). Recent studies on aid concluded that aid should come to an end or be reduced with a radical modification of the terms and conditions and FDI and trade should replace aid as the engine of development. In this paper, we argue that aid complements FDI and advances the efficacy of FDI in promoting growth and development in the developing countries. Using data from the provinces in Vietnam, the statistical analysis suggests that aid has a positive impact on inflows of FDI and aid can complement FDI in promoting economic growth.

- **JEL Classification:** F21, F35, O19
- **Keywords:** Foreign Direct Inverstment, Aid, Economic Growth, Vietnam

I. Introduction

The long standing debate on the efficacy of foreign aid in developing countries has had a new lease of life recently with the publication of a number of book-length studies (e.g. Moyo, 2010; Tandon, 2008). Most of these studies conclude

*Corresponding address: Chengang Wang; School of Management University of Bradford Bradford, BD7 1DP UK, TEL: +44 (0) 1274 234378, E-mail: c.wang9@bradford.ac.uk / V.N. Balasubramanyam; Department of Economics, Lancaster University, Lancaster LA1 4YX UK, TEL: +44 (0) 1524 594231, E-mail: v.balasubramanyam@lancaster.ac.uk

that aid to developing countries should come to an end or the volume of aid should be reduced with a radical modification of the terms and conditions imposed by the donors on the recipient countries. One of the suggestions made by Moyo in her much publicised book is that foreign direct investment (FDI) and trade should replace aid as instruments and sources of finance for development. There is nothing new in the suggestion that trade should replace aid. "Trade not aid" is a slogan in place for long (Thirlwall, 1976). The suggestion that FDI should replace aid as the main engine of development though novel is naïve. Most students of FDI would note that many of the developing countries are hard put to provide the sort of location advantages including infrastructure facilities, cheap but efficient labour measured in terms of the efficiency wage and exchange rate and price stability sought by profit maximising private investors in search of high private rates of return. One suggestion heard at seminars on FDI, but not written about, is whether or not aid could complement FDI and promote the efficacy of FDI in promoting growth and development in the developing countries.

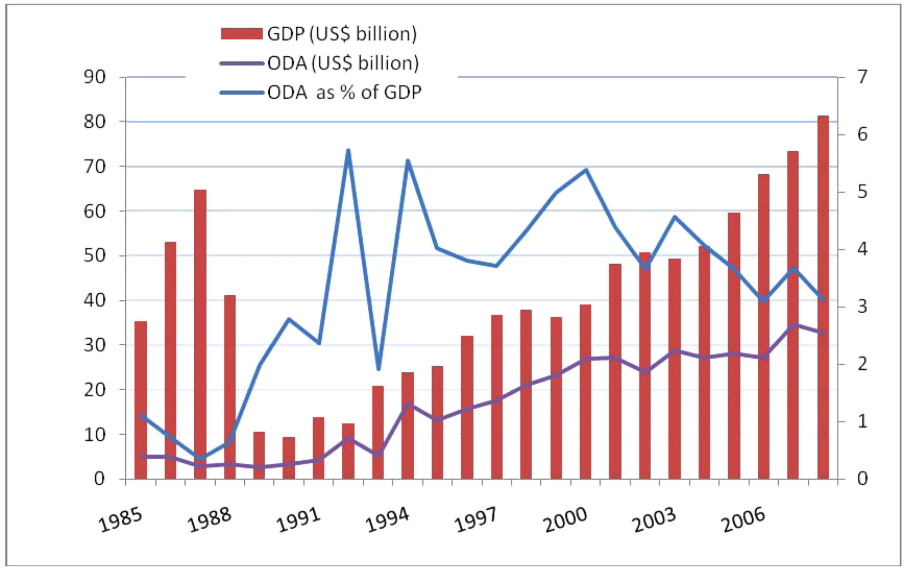
This paper investigates this proposition concerning the complementarity between aid and FDI in the context of the experience of Vietnam. Vietnam appears to have forged a complementarity between aid and FDI and this, in fact, may be a factor in the substantial growth and development it has achieved in recent years. The rest of the paper is organised as follows. Section II reviews the growth and development performance of Vietnam. Sections III and IV record the nature and size of FDI and aid Vietnam has received. Section V presents the estimated results on the complementarity between aid and FDI. Section VI concludes.

II. Growth and Development Record of Vietnam

Vietnam has registered an impressive growth rate, averaging around 8% per annum since 1986 when the *doi moi* reforms were initiated (World Bank, 2011). Per capita income growth rate, which is reported to have been virtually zero for the most of the decade of the eighties, was as high as 6% per annum during the period 1992-2009. Equally impressive is the reduction in poverty: the number of people below the poverty line declined from 75% of the population in 1988, to 58% in 1993 and 37% in 1998 (World Bank, 2003) and further down to 29% in 2002 (World Bank, 2011).

These achievements of Vietnam are attributed to the economic reforms the country initiated in the late eighties including polices designed to bring down the

Figure 1. Aid in Vietnam.

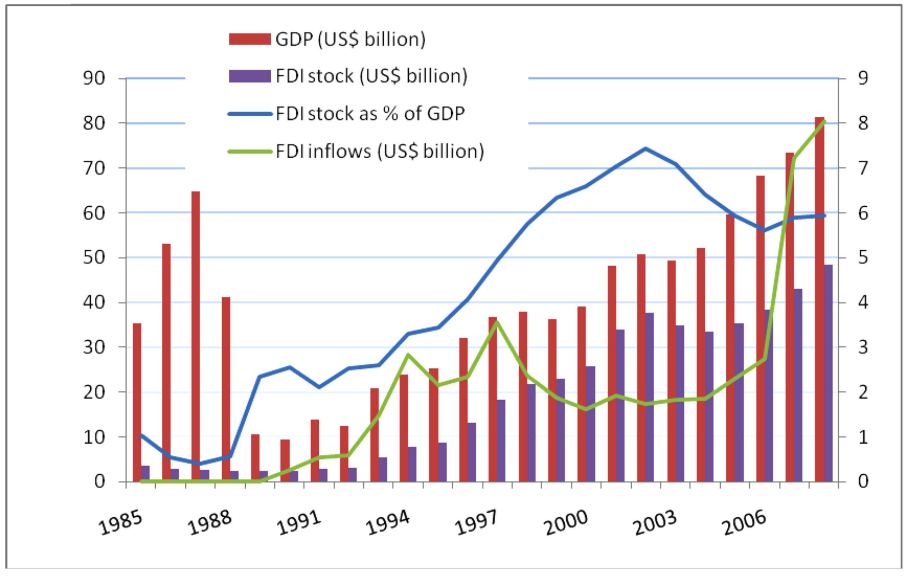


Notes: Figures calculated based on data from World Development Indicator.
ODA = Overseas development aids. GDP and ODA are measured at 2008 constant prices. The first series follow the left side vertical axis and the second and third series follows the right side vertical axis.

rate of inflation from an astounding 160% per annum in 1988 to less than 10% in 1997, trade policy reform, financial deepening and the institution of property rights (Dollar, 2002). These and other policies designed to stabilise the economy also appear to have promoted FDI and the effective utilisation of aid. Vietnam is a recipient of both aid and FDI in sizeable volumes – aid flows to Vietnam increased from a mere US$ 0.39 billion in 1985 to 2.69 billion in 2007 and the ratio of aid to GDP increased from 1.1% in 1985 to 3.7% 2007 (Figure 1). The average annual inflow of FDI increased from around US$ 7 million in 1980s to over US$ 3 billion in 2000s, and the stock of FDI as percentage of GDP increased from 4% in 1987 to as high a figure as close to 71% in 2003 (Figure 2).

A conjunction of polices which are not only appropriate for enhancing growth but are also attractive to foreign investors appears to have placed Vietnam amongst the fast growing group of developing countries in the world. The country appears to have instituted the sort of policies which promote efficient allocation of resources, including foreign resources, and provide an economic environment conducive to the efficient utilisation of FDI and aid (Dollar, 2002). For these

Figure 2. FDI in Vietnam.



Notes: Figures calculated based on data from World Development Indicator and UNCTADSTAT online databases. FDI = Foreign direct investment. GDP and FDI inflows and stock are measured at 2008 constant prices. The first three series follow the left side vertical axis and the forth series, i.e. FDI inflows, follows the right side vertical axis.

reasons, Vietnam is an ideal case study to test several of the received propositions relating to the efficient allocation of resources in the process of development. This brief paper analyses the following issues relating to aid and FDI in Vietnam. Does the volume of FDI Vietnam has attracted conform to the received wisdom on the determinants of FDI? Has aid contributed to the effective utilisation of FDI? Has aid been instrumental in the economic growth that Vietnam has achieved? Has Vietnam managed to capture the synergies inherent in aid and FDI?

III. Size and Pattern of FDI in Vietnam

Vietnam has actively sought to use FDI for its economic development objectives since the *doi moi* reforms initiated in 1986. The stock of FDI increased from less than US$ 3 billion in 1980s to US$ 48 billion by the end of 2008 (Figure 2). Although Vietnam received a relatively small proportion of the total FDI in Southeast Asia which accounted for a large chunk of FDI flows to developing

countries, its growth rate was higher than that of other countries in the region, with the exception of China.

Much of FDI is in the industrial and service sectors of Vietnam, agriculture accounted for only 5.7% of the total stock of FDI in the year 2001 (Table 1). Within the service sector, around 22% was on account of hotels and tourism, and real estate (new cities, offices and apartment buildings) accounted for over 41%. Within the industrial sector, FDI was mostly in natural resource based industries and heavy industry. Light industry and foodstuffs accounted for only 11.6 and 6.2% respectively (Table 1).

The top 10 source countries/regions of FDI are shown in Table 2. The largest investors are the four NICs (Singapore, Taiwan, Hong Kong and Korea) which together account for more than 40% of overall FDI inflows into Vietnam. This overwhelmingly dominant position of Southeast Asian countries as a source of FDI is due to their geographical proximity and similarity of their cultural patterns to that of Vietnam. Sources of FDI in Vietnam, however, appear to be relatively

Table 1. Sectoral Distribution of FDI Stock, 2001.

	No. of projects	% of total projects	FDI (US$ million)	% of total FDI
Industry	1,985	65.2	20,878	55.1
- crude oil	28	0.9	3,176	8.4
- light industry	791	26.0	4,383	11.6
- heavy industry	789	25.9	7,804	20.6
- foodstuff	165	5.4	2,353	6.2
- construction	212	7.0	3,162	8.4
Agriculture	382	12.5	2,145	5.7
- agriculture and forestry	326	10.7	1,971	5.2
- aquatic	56	1.8	174	0.5
Services	679	22.3	14,838	39.2
- transport and telecommunications	95	3.1	2,786	7.4
- hotels and tourism	120	3.9	3,273	8.6
- finance and banking	48	1.6	543	1.4
- culture, health and education	105	3.4	561	1.5
- new cities	3	0.1	2,467	6.5
- offices and apartment buildings	112	3.7	3,694	9.8
- EPZs and Izs, infrastructure	15	0.5	795	2.1
- others	181	5.9	721	1.9
Total	3,046	100	37,861	100

Source: Doanh (2002)

Table 2. Vietnam's Top Ten Sources of FDI Inflows, 1988-2000.

Rank	Country	Number of projects	FDI (US$ million)	% of total cumulative FDI
1	Singapore	254	5,775.8	14.9
2	Taiwan	703	5,190.2	13.4
3	Japan	338	3,576.0	9.2
4	Hong Kong	329	3,363.9	8.7
5	South Korea	312	3,159.3	8.1
6	France	161	2,189.7	5.6
7	British Virgin Island	101	1,800.8	4.6
8	UK	43	1,720.7	4.4
9	Russia	65	1,577.5	4.0
10	US	125	1,345.9	3.4

Source: UNCTAD.

diversified, with no single home country accounting for more than 15% of total inflows. This diversification of sources of FDI insulates Vietnam from fluctuations in inflows of FDI resulting from swings in the economic fortunes of one or two countries.

There are three principal types of FDI in Vietnam: Business Corporate Contract (BCC), Joint Venture (JV) and 100% foreign owned companies (Schaumburg-Müller, 2003). BCC are found mainly in oil and telecommunication sectors, while JVs are encouraged in a wide range of industries including transportation, tourism and others that the Law of Foreign Direct Investment endorses. In the early years of the decade of 2000s, 100% foreign owned companies accounted for 61% of licensed projects and 32.8% of the committed capital while the JVs accounted for only 34.2% of the licensed project and 53% of capital invested in various ventures (Doanh, 2002).

As in the case with many developing countries, the growth path of FDI in Vietnam has not been even. In the early 1990s, inflows of FDI into Vietnam increased significantly. A number of factors explain this steady growth. First is the potential market size of Vietnam with a population of 66 million people by 1990 and 80 million by 2000. Second, like many developing countries, Vietnam is endowed with a substantial pool of relatively cheap labour. The distinguishing feature of the labour force in Vietnam, however, is that it is also an educated labour force and has the reputation for a strong work ethos. Third, the opening up of the country to FDI was propitiously timed. Globally, the shift of FDI from developed

countries into emerging markets and transitional economies of the former socialist bloc where abundant business opportunities were thought to exist occurred during the late 1980s and early 1990s (Schaumburg-Müller, 2003).

This early success of Vietnam in attracting FDI, however, appears to have faded somewhat between 1998 and 2006. This could be attributed to the Asian financial crisis which affected the principal source countries of FDI to Vietnam, i.e. the four NICs and Japan. There was a dramatic decline in terms of committed capital from US$ 3.5 billion in 1997 to US$ 2.3 billion in 1998. However, as argued by Schaumburg-Müller (2003), other possible explanations may include foreign investors' disappointment with the business climate in Vietnam and the high transaction costs due to its policies and regulations. Then come a surge of FDI in 2007 to US$ 7.2 billion and this carried over to 2008. Leung *et al*. (2010) attribute this to Vietnam's accession to the WTO in January 2007 and its sustained policy of opening up of the economy and economic reforms.

IV. Size and Pattern of Aid in Vietnam

During the period 1985 to 2008, overseas development aid (ODA) to Vietnam increased from less than US$ 0.4 billion (1.11% of GDP) to US$ 2.55 billion (3.14% of GDP) (Figure 1) and was allocated to sectors prioritised by the government, including infrastructure, human resource development, rural development, policy and institutional support, natural resources, industrial development, emergency relief, and generally quick disbursement assistance (Table 3). About a third of total aid was allocated to economic management. Social infrastructure attracted more than 27% of total aid. Aid allocated for human resource development (i.e. education) accounted for close to 6% of total aid. According to UNDP (1997), economic growth oriented aid[1] grew consistently from 50% of total aid in 1993 to 85% in 1997, while during the same period, aid for the purpose of poverty reduction[2] and safety nets component[3] declined sharply.

[1]This category includes: economic management, development administration, natural resource, secondary, tertiary and technical education, agriculture, forestry and fisheries, industry and energy, domestic and international trade, transport, communication, culture, crime prevention, urban development, social legislation and disaster preparedness.

[2]This category includes: primary schooling and non-formal education, area development, drinking water and sanitation, and housing.

[3]Aid disbursement for humanitarian aid and emergency relief is included in this category.

Table 3. ODA Commitments by Sector

US$ million

	1985	1988	1991	1994	1997	2000	2003	2006	2007	2008
Social infrastructure & services	7.86	27.22	78.47	194.04	267.23	248.73	522.81	559.54	614.17	793.46
- Education	1.98	-	1	46.96	86.16	85.86	129.17	190.57	138.17	133.96
- Health and population	-	-	-	-	55.98	40.09	69.73	126.91	125.01	135.15
- Water supply and sanitation	-	25.1	64.58	35.55	8.63	62.42	229.69	171.7	177.46	404.57
Economic infrastructure & services	4.3	-	35.41	567.57	572.52	825.76	499.53	872.36	868.99	669.85
- Energy	1.98	-	18.1	324.41	467.21	7.26	199.05	266.57	261.68	126.59
- Transport and Communications	2.32	-	16.63	238.17	97.9	808.78	293.4	512.21	584.52	498.2
Production sectors	16.04	2.09	92.58	56.77	99.34	71.5	144.31	121.05	269.63	80.31
- Agriculture, forestry and fishing	-	-	88.53	37.88	62.84	53.39	107.33	98.15	190.19	41.6
- Industry, mining and construction	16.04	2.09	3.31	16.59	33.71	10.54	24.23	17.68	74.48	22.74
- Trade and tourism	-	-	0.74	2.3	2.79	7.57	12.75	5.22	4.96	15.96
Multisector	0.23	4.19	1.75	21.01	123.91	32.68	151.13	221.03	168.48	146.66
Programme assistance	7.92	2.26	1.11	60.25	28.25	5.99	46.54	43.7	42.85	296.21
- Food Aid	0.95	2.26	1.11	2.42	3.46	5.99	16.88	8.81	3.16	1.26
Action relating to debt	0.7	0.77	0.82	234.17	131.07	29.03	1.94	62.05	0	0
Humanitarian aid	1.56	0.59	3.16	3.1	5.87	8.99	11.61	3.71	8.13	8.68
Total	38.61	37.13	213.43	1144.26	1256.58	1264.96	1432.77	1897.64	1998.21	2025.07

Source: OECD International Development Statistics online database.

Table 4. Source of ODA

US$ million

Year	Total	Multilateral Organisation	DAC	Australia	Denmark	Finland	France	Germany	Japan	Nether-lands	Sweden	UK	US
1985	270.45	94.68	38.61	0.59	-	-	-	0.64	0.2	-	35.76	-	0.7
1986	274.85	98.84	68.44	-	-	-	0.71	0.7	0.18	-	66.1	-	0.72
1987	214	91.75	47.07	0.41	-	-	0.52	0.32	-	-	44.65	-	0.73
1988	249.11	111.42	37.13	-	-	25.1	1.24	0.69	0.37	0.73	8.22	-	0.77
1989	222.98	107.36	65.14	0.48	-	22.16	1.86	-	0.13	0.36	38.89	-	0.79
1990	273.89	133.88	147.22	2.26	1.01	5.14	9.74	-	0.16	0.43	125.89	-	0.81
1991	492.53	172.03	213.43	0.26	0.85	39.31	0.95	-	0.13	7.86	91.88	0	0.82
1992	900.82	161.31	539.91	11.27	17.68	5.85	37.25	35.19	365.82	17	24.11	2.76	1.49
1993	1279.05	911.13	154.7	29.73	2.53	4.18	0.11	39.38	36.08	12.11	0.9	0.84	0.88
1994	2124.06	689.97	1144.26	26.18	26.72	6.91	59.31	126.06	662.49	14.38	82.43	5.68	24.07
1995	2024.28	728.23	1174.41	11.13	5.37	11.84	80.64	152.42	739.98	61.91	31.57	7.33	1
1996	2677.6	1202.38	1406.31	121.61	105.1	23.74	110.49	86.64	756.69	47.64	55.92	8.09	-
1997	2818.07	1340.92	1256.58	42.46	16.44	3.65	86.43	82.43	771.66	31.02	26.59	15.3	131.07
1998	2807.13	1151.79	1165.32	20	25.11	5.55	184	43.53	795.22	13.52	31.2	2.82	0.35
1999	2395.44	593.17	1469.36	30.68	10.65	6	177.11	65.11	1067.99	18.18	32.97	6.02	9.52
2000	2250.53	671.19	1264.96	70.46	53.24	10.42	36.49	40.68	894.39	18.02	17.79	13.35	8.41
2001	3240.51	1477.08	1333.3	39.33	49.25	3.06	122.67	87.79	813.75	41.15	15.62	48.97	24.63
2002	2646.8	1229.56	1101.93	41.98	22.16	4.86	70.55	57.76	666.16	35.23	23.36	48.37	34.16
2003	2683.52	1007.65	1432.77	41.2	24.03	24.28	116.17	105.62	822.82	22.59	51.45	81.82	40.53
2004	3399.2	1433.89	1754.52	35.18	151.53	23.74	218.09	42.58	911.14	42.93	56.7	126.98	39.55
2005	3080.6	1287.05	1617.12	23.82	67.81	34.23	164.45	60.23	841.81	45.44	41.99	151.41	40.32
2006	3193.42	895.33	1897.64	31.48	86.72	41.56	424.08	151.72	839.36	111	2.93	17.94	48.89
2007	4046.26	1564.47	1998.21	30.43	83.51	28.74	417.76	83.98	905.41	71.63	5.67	71.28	71.16
2008	3631.36	1426.89	2025.07	66.25	93.19	30.63	98.87	113.2	1045.11	20.9	12.33	190.23	85.56

Source: OECD International Development Statistics online database.

Japan was the largest donor of aid to Vietnam (Table 4). It accounted for over 56% of total aid flows to Vietnam between 1992-2008. Other major donors include France, Germany, Australia and Denmark. Apart from the DAC countries, Vietnam also receives a large amount of ODA from multilateral organisations[4] such as the World Bank, IMF and UN agencies. The World Bank and the Asian Development Bank were the second and the third largest donors for a number of years during the period of 1990-2008.

Several studies (United Nations Development Programme (UNDP), 2004; World Bank, 1995) suggest that poverty in Vietnam is predominantly a rural phenomenon. If this is so aid should have been disbursed to rural regions such as Northern Upland, Central Highland and North Central Coast. However, it is the two biggest urban authorities which receive a large proportion of aid (20%), hence the frequent complaints by aid donors that a significant share of aid funds is allocated to the relatively better-off regions. This is revealed by the correlation between aid distribution, GDP per capita and poverty ratio (Table 5). The correlation between aid distribution and GDP per capita or poverty ratio is very weak. As the UNDP (2002) report argues Vietnam's poverty reduction may be largely due to its land reform and its impressive growth performance rather than aid.

This may be so. The impressive growth performance may, however, in good measure reflect effective utilisation of aid to promote growth, a prime requisite for reducing poverty. Such effective utilisation may have been achieved by capturing the synergies embedded in aid and FDI. In other words, aid may have been utilised to promote infrastructure, quality of economic management and human capital development. All of this may have attracted FDI to Vietnam and also contributed to its efficacy in promoting growth and reducing poverty. It is worth noting in this context that the Gini-coefficient of consumption per capita in Vietnam increased only marginally from 0.33 in 1993 to 0.35 in 1998 (World Bank 2000).

Table 5. Correlation Matrix of Aid, GDP per capita and poverty measures

	AID	GDPPC	POPPOV
AID	1		
GDPPC	0.05	1	
POPPOV	-0.03	-0.36	1

Notes: GDPPC = GDP per capita, POPPOV = Population below income poverty line (%)

[4]They contributed about one third of total aid in 1990-2001.

V. Econometric Analysis of Aid and FDI in Vietnam

In this section, a simple econometric exercise is conducted to investigate whether foreign aid has had an impact on the volume of FDI that the various provinces in Vietnam have attracted and whether FDI and aid play complementary roles in impacting upon growth. The data used for estimation are for a cross-section of 58 provinces.[5] The data on FDI is the accumulated FDI stock by the end of April 2000, and other data used in the analysis is for a particular year or period between 1995 and 2000. Published data on all of the variables except aid are available. Aid allocation for each of the provinces has to be estimated. The allocation of aid to each of the provinces in the 9 differing regions (include two cities: Ha Noi and HCMinh) is assumed to be based on the respective population size of each of the provinces. In other words, provinces in each of the regions receive an amount of aid proportional to their population. The detailed definition and sources of data are listed in the appendix.

There is a substantial amount of literature on determinants of FDI. Balasubramanyam and Mahambare (2003) discuss the importance of the following locational factors: market-related factors, economic growth related factors, resource endowments, infrastructure facilities, macroeconomic and political stability, a stable and transparent policy framework and a distortion-free FDI and trade regime, and fiscal and monetary incentives. This study focuses on the regional pattern of FDI within a country, therefore we expect the dispersion of FDI across regions to be influenced by market size, market growth, infrastructure facilities, and human capital endowments of the regions (Wei & Balasubramanyam, 2004). The size and growth of market are measured by the absolute level of GDP in the province (GDP) and the GDP growth rate (GDPGR). The number of telephones per one thousand of the population (LTELE) is used as a proxy for Infrastructure facility (INFR). Human capital (HC) is measured either by secondary school enrolment (SECOND) or the ratio of skilled labour to total labour force (SKILL). In addition aid is used as an explanatory variable of inflows of FDI. This is because aid may be instrumental in attracting FDI in so far as aid is utilised to facilitate the effective economic management as well as promotion of infrastructure and human capital formation. The extensive literature on the effects of aid on economic growth has also found that the effects depend on the local economic

[5]FDI data for three provinces, CaoBang, BacCan and KonTum are either recorded as 0 or unavailable.

Table 6. Descriptive Statistics and Correlation Matrix

	Mean	s.d.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. LFDI	3.97	2.30											
2. LGDP	7.16	0.88	0.71										
3. GDPGR	6.86	2.58	0.41	0.21									
4. SECOND	45.16	15.06	0.50	0.35	0.09								
5. SKILL	10.65	6.26	0.56	0.43	0.30	0.42							
6. LAID	4.03	0.74	0.44	***0.56***	-0.17	0.41	0.19						
7. LTELE	2.72	0.63	0.68	***0.61***	0.46	0.25	***0.71***	0.06					
8. POPGR	1.49	1.00	0.17	-0.02	0.51	-0.17	0.25	-0.22	0.38				
9. DOMINV	19.32	13.59	-0.09	-0.24	0.00	-0.08	0.06	-0.21	-0.05	0.16			
10. AIDSH	5.72	4.43	-0.25	-0.38	-0.35	0.01	-0.21	0.47	-0.47	-0.11	0.07		
11. FDISH	15.86	28.34	0.72	0.34	0.46	0.29	0.43	0.13	0.54	0.19	0.00	-0.24	
12. AIDSH*FDISH	0.60	0.94	0.64	0.18	0.30	0.28	0.19	0.32	0.27	0.12	-0.01	0.10	**0.83**

Note: The prefix L denotes that the variable has been logged.

Table 7. Determinants of FDI and its impact on growth in conjunction with aid

Dependent variable	LFDI	LFDI	Dependent variable	GDPGR	GDPGR	GDPGR	GDPGR
	(1)	(2)		(3)	(4)	(5)	(6)
LGDP	0.542	0.612†	POPGR	1.384***	1.444***	1.387***	1.446***
	[0.356]	[0.379]		[0.287]	[0.290]	[0.325]	[0.338]
GDPGR	0.200**	0.216**	DOMINV	-0.006	-0.005	-0.006	-0.007
	[0.082]	[0.086]		[0.019]	[0.019]	[0.015]	[0.015]
SECOND	0.035**		FDISH	0.029***			
	[0.014]			[0.009]			
SKILL		0.051	AIDSH	-0.109*	-0.171***	-0.169***	-0.157***
		[0.046]		[0.058]	[0.058]	[0.041]	[0.037]
LAID	0.647*	0.803**	AIDSH*FDISH		0.759***	0.555*	0.302**
	[0.365]	[0.383]			[0.275]	[0.290]	[0.149]
LTELE	1.458***	1.185**					
	[0.433]	[0.589]					
N	58	58		58	58	58	58
adj. R^2	0.628	0.592		0.452	0.431	0.398	0.377
Diagnostic tests							
Heteroskedasticity	0.14	0.11		1.84	1.91	3.66*	4.23**
Misspecification	0.90	2.17		1.62	1.00	1.55	0.68
VIF	1.80	2.33		1.07	1.03	1.06	1.05

standard errors in brackets when heteroskedasticity test is passed, if not robust standard errors in brackets.
† p = 0.11, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

conditions and policies of the recipient country's economy and aid only generates growth if the recipient government implements "good" macroeconomic policies (Burnside & Dollar, 2000). As a result, aid can be used to capture the overall policy environment in the provinces of Vietnam. These factors have shaped the following model,

$$FDI = f(AID, GDP, GDPGR, INFR, HC) \quad (1)$$

where *FDI* = Foreign Direct Investment, *GDP* = Gross Domestic Product, *GDPGP* = Growth rate of GDP, *INFR* = Infrastructure Facility, *HC* = Human capital.

A summary statistics and the correlation matrix for the variables is shown in Table 6. Estimated equation (1) is presented in Table 7. In columns (1) and (2), HC is measured by *SECOND* and *SKILL*, respectively. Given that the data is cross-section data, the results are tested for heteroscedasticity, misspecification and multicollinearity. Endogeneity between *FDI* and growth rate of *GDP* is also likely. In order to limit possible endogeneity and allow for lagged impact of the independent variables, explanatory variables *GDP*, *INFR* and *HC* are lagged for one year or two and *GDPGR* is an average value for the years 1995-1999.

As shown in columns (1)-(2) of Table 7, both regressions pass all diagnostic tests for heteroscedasticity, misspecification and multicollinearity. All of the specified independent variables influence the volume of *FDI* the provinces receive except the variables *GDP* and *SKILL*. The statistical insignificance of *GDP* and SKILL variables may be because of their relatively high correlation with the infrastructure variable and the high correlation between *GDP* variable with the aid variable (see Table 6). *GDP* growth, Human Capital measured by secondary school enrolment and the infrastructure variable seem to exert a strong influence on *FDI*. There is also a significant relationship between aid and FDI variables. 1% increase in *AID* is likely to increase *FDI* stock by 0.6%-0.8%. It is this relationship between aid and *FDI* which is of interest. It suggests that aid allocation can influence *FDI* receipts of regions. This may be attributed to the fact that in Vietnam aid has been used to enhance the quality of economic management, infrastructure and human capital development.

Whist aid may be instrumental in attracting *FDI*, does *FDI* impact upon growth in conjunction with aid? Aid can promote the efficacy of *FDI* by providing for the necessary cooperant factors for the operations of foreign firms. As the sizeable

literature on the efficacy of FDI suggests it is the presence of trained labour, infrastructure facilities such as transport and communications which promote the efficacy of FDI (Wei & Balasubramanyam, 2004). Ideally an analysis of the complementarity between aid and FDI in promoting growth should be based on case studies of specific sectors which have attracted both aid and FDI in substantial volumes. Such case studies though require detailed data and information. In the absence of such information for Vietnam we utilise available statistical data to determine whether or not there is any discernible relationship between aid and FDI on the one hand and growth on the other.

The data refer to the growth rate achieved by each province in Vietnam (GDPGR) over the period of 1995-1999. An equation of the following form was estimated to identify the impact of aid and FDI on growth rate. This specification is based on a standard Cobb-Douglas production function in which labour and physical capital are inputs and FDI and aid are included to examine whether they contribute to economic growth, directly by increasing the stock of physical capital and indirectly by inducing human capital development and technological upgrading (see Burnside & Dollar, 2000; De Mello, 1999, among others). As data on labour growth is not available, we use population growth as a proxy for labour growth.

$$GDPGR = f(POPGR, DOMINV, FDISH, AIDSH, AIDSH*FDISH) \qquad (2)$$

where *POPGR* and *DOMINV* stand for population growth and domestic investment, respectively. *FDISH* and *AIDSH* denote the percentages of *FDI* and *AID* of *GDP*, respectively. Finally *AIDSH*FDISH* is the interaction term between *FDISH* and *AIDSH*. Table 6 suggests a high correlation between *FDI* and the interaction term between aid and *FDI* (*AIDSH*FDISH*). As aid and *FDI* are positively correlated, we drop the *FDI* variable from the estimated equations.

The results are presented in columns (3)-(6) of Table 7. In columns (3) and (4), *FDISH* is the ratio of real *FDI* stock to *GDP*, while in columns (5) and (6), the *FDI* stock used is the predicted *FDI* from columns (1) and (2), respectively. All regressions pass diagnostic tests for misspecification and multicollinearity, while the first two also pass the heteroscedasticity test, the last two do not pass the test. Therefore the standard errors presented in columns (5) and (6) are robust standard errors.

The results suggest a positive relationship between FDI and growth. This is in

line with a few recent published studies on the impact of FDI on growth in Vietnam (Anwar & Nguyen, 2010; Hoang, Wiboonchutikula, & Tubtimtong, 2010; Vu, 2008). Whilst aid in itself has a negative impact on growth, it does have a positive significant impact on growth in conjunction with FDI. The coefficient of the interaction term is statistically significant at the 1% level and suggests that aid in conjunction with FDI does have an impact on growth of the provinces although on its own it does not seem to positively influence growth.[6]

VI. Conclusions

This brief note explores the possible interaction between FDI and aid on the one hand and growth on the other. The results of the statistical analysis reported in the paper suggest that aid has an impact on inflows of FDI. Provinces of Vietnam that receive relatively high volumes of aid also appear to receive high volumes of FDI. It is likely foreign firms are attracted to the provinces which have used aid monies to promote infrastructure facilities and labour skills. An alternative explanation is that aid donors may have tied aid to specific projects which facilitate the operations of the firms from their countries which invest in Vietnam. It is also possible that both aid allocation and FDI in the provinces are influenced by the population and income levels of the provinces. In other words, relatively rich provinces attract increased volumes of both aid and FDI. The results reported in the note also suggest that aid in conjunction with FDI has a positive impact on the growth rates of the regions.

This finding though tentative has implications for policy at a time when the efficacy of aid in promoting growth and development is under fire. One obvious implication is that aid monies should be invested in public goods such as education, transport and communication facilities all of which are sought by foreign investors. An educated labour force at the level of secondary education if not tertiary level is highly attractive to foreign firms as our statistical results suggest. Also investment in vocational training is likely to promote labour productivity. Public policy should be oriented towards investing aid monies in vocational training and secondary education in locales that provide other sorts of advantages, such as raw materials, to foreign manufacturing firms. Aid monies

[6]Aid is such a variable that theoretically should contribute to economic growth on the one hand, negatively correlated with GDP per capita on the other.

should also be used to provide the sort of communication facilities required for transmitting technology and know-how from the foreign firms to local producers who tie up with foreign firms in formal and informal channels. This sort of facility is especially of value to producers of agricultural products that supply to foreign food producers as in the case of the so called corporate farming arrangements, Aid monies could also be invested in training local personnel who assess investment proposals from foreign firms and also monitor their operations. These sorts of investments could be undertaken by local governments in the aid receiving countries in collaboration with aid donors and if need be with foreign firms. Whist there are several avenues for forging complementarities between FDI and aid, the proposal that aid funds should be channelled through the foreign firms to the developing countries is a step too far.

It should be emphasised that the results reported here are only suggestive of the possible impact of aid and FDI on the growth of the provinces in Vietnam. The methodology of the exercise, the assumptions on which the results rest and the data utilised for the exercise leave a lot to be desired. Detailed data on aid and FDI allocation across regions of the country is not available. Even so, the note suggests that aid could complement FDI and enhance its efficacy.

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Appendix

Variable Definitions and Measurements

All provincial and city data except aid are obtained from National Centre for Social Sciences and Humanities (2001). The aid data for each region in Vietnam are from UNDP (2004). The 58 provinces and cities covered in the dataset are BaRia-VungTau, HaNoi, Tp.HCMinh, DaNang, HaiPhong, BinhDuong, DongNai, ThaiBinh, HaiDuong, KhanhHoa, QuangNinh, NamDinh, VinhLong, HungYen, HaNam, LongAn, VinhPhuc, TienGiang, BacNinh, CaMau, KienGiang, HaTinh, PhuTho, CanTho, HaTay, NgheAn, BenTre, TayNinh, QuangNam, NinhBinh, LamDong, ThaiNguyen, ThanhHoa, BinhDinh, ThuaThien-Hue, TraVinh, SocTrang, AnGiang, BacLieu, DongThap, DacLac, QuangNgai, QuangTri, QuangBinh, BinhThuan, HoaBinh, BinhPhuoc, BacGiang, PhuYen, LangSon, TuyenQuang, NinhThuan, YenBai, LaoCai, SonLa, GiaLai, HaGiang, and LaiChau.

Variable	Measurement
AID	Population weighted average of Official Development Assistance in each province over the period of 1995-2000; ($AID=POP_{province}/POP_{region} * AID_{region}$)
FDI	Foreign Direct Investment Capital Stock in each province by 04 April, 2000
POPPOV	Population below income poverty line (%), 1999
GDPPC	GDP per capita, 1999
GDP	GDP, 1999
GDPGR	Average Annual GDP Growth rate in each province over the period of 1995-1999
SECOND	Net Second School Enrolment in each province, 1999;
SKILL	Skilled Labour Force as percentage of total Labour Force in each province, 1998;
INFR	Logged value of the number of Telephone per 1000 people in each province, 1998;
POP	Total Population in each province, 1999
POPGR	Average Growth Rate of Population in each province between 1989 and 1999
DOMINV	Domestic Investment as percentage of GDP in each province, 1998;
AIDSH	AID as percentage of GDP in each province;
FDISH	FDI stock as percentage of GDP in each province;

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