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The Impact of the Economic Stimulus on Domestic, Private Enterprises

Anh Nguyen Ngoc*
Nhat Nguyen Duc*
Chuc Nguyen Dinh*

* Development and Policies Research Center (DEPOCEN), Vietnam.

THE IMPACT OF THE ECONOMIC STIMULUS ON DOMESTIC, PRIVATE ENTERPRISES[1]

Nguyen Ngoc Anh
Nguyen Duc Nhat
and
Nguyen Dinh Chuc
Development and Policies Research Center (DEPOCEN)

Abstract: In the year 2008 and the first half of 2009, the world witnessed the unfolding and heavy repercussions of the global financial crisis which affected Vietnam, among others, through the reduction of investments inflow, lower global commodity prices and trade. The government of Vietnam has acted quickly with its stimulus package, including a 4% interest rate subsidy for enterprises with the objective of preventing the economy from falling further. While there are some anecdotal evidences about the effectiveness of the stimulus package, there is no systematic evidence of the impact of the stimulus package. This paper makes use of the PCI 2008 enterprise survey data, a unique dataset which is only recently made by available to investigate the impact of the 4% interest rate subsidy component of the stimulus package. We find strong statistical evidence that the 4% interest rate subsidy has positive and important impacts on the enterprises, easing the severe effects of the global crisis.

Keywords: Global financial crisis, fiscal stimulus, interest rate subsidy, Vietnam.

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Corresponding author: Nguyen Ngoc Anh, email: ngocanh@depocen.org

1. Introduction

To date, the contagious impacts of the global financial crisis have been felt in all continents as well as most nations. Being a small open, FDI-reliant and export-dependant economy, Vietnam has not been spared from this external shock which was transmitted to the Vietnam economy in the late of 2008. Monthly export dropped successively in the last months of 2008 and early 2009. Foreign direct investments declined significantly. Consumer sentiment was adversely affected and the stock market index kept falling. The situation deteriorated further in early 2009 when the GDP growth rate in the first quarter was only 3.1% and for the first half 2009 it was only 3.9% as compare with the annual average of 7%. As the situation worsened, like most of the governments in the Asia region and around the world, the government of Vietnam has acted quickly, easing both monetary and fiscal policies. In particular, the government reverses the course of monetary tightening and fiscal austerity policy implemented in 2008 when the economy overheated and put in place a large fiscal stimulus package. At the moment, it seems that the expansionary policy has worked.[2] The GDP growth increased to 7.7% in the fourth quarter of 2009, from the 3.1% level registered in the first quarter, 4.4% and 5.2% in the second and third quarters.

Pursuing such an expansionary policy puts extra-ordinary pressure on the economy and it is unclear how much longer the current extraordinary stance of monetary and fiscal policies could be maintained.[3] Given the fragility of the situation, a premature withdrawal of stimulus could cause recovery to halt; at the same time, the continuation of expansionary macroeconomic policies could also raise inflationary and debt sustainability concerns. Therefore, evidence of the effectiveness (or otherwise) of the stimulus program could not only provide an important input for practical policy decision making but also lessons for future policy design. In this paper, we investigate the impact of the interest rate subsidy component of the stimulus package using a unique micro-level data, the PCI firm survey data. In particular, we investigate if the interest subsidy assists firms in their operation and investment. The paper is organized as in 4 sections. The following section discusses briefly the impact of the global crisis and the responses

[2] See the World Bank (2009) and see http://vibforum.vcci.com.vn/news_detail.asp?news_id=18302
[3] In addition, implementing such expansionary entails some element of uncertainty as trade deficit keeps rising and there are some signs of inflation coming back.

adopted by the government. Section 3 discusses the model, data, and empirical strategy while section 4 presents the estimation results. Section 5 concludes

2. Impacts of the global financial crisis and government response

Being more deeply integrated into the regional and world economy, Vietnam becomes more vulnerable to external shocks and crises.[4] Up to the first half of 2008 Vietnam was relatively unaffected by the financial turmoil. The financial and economic environment worsened in final quarter of 2008 and first quarter of 2009. Real GDP grew only 3.1% y-o-y in the first quarter of 2009 compared to the average of 7.5% of the first quarter of 2008. The industrial production growth was only at 2.9% in the first quarter of 2009.

Table 1: Recent Export and Import performance

	Value (US$ million, 2008)	Growth (in percent)		
		2008	10M-08	10M-09
Total export earnings	62,685	29.1	36.7	-13.8
Crude oil	10,357	22	43.2	-43
Non-oil	52,328	30.6	35.4	-7.6
Total import value	80,714	28.8	42.6	-21.7

Source: World Bank, GSO

Both Vietnam's export and FDI inflows were severely affected. In the fourth quarter of 2008, Vietnam's export fell significantly due to the direct and immediate impacts of the global financial crisis. According to official statistics from GSO, over the first ten months of 2009, Vietnamese exports declined by 13.8 percent compared to 2008.[5] In 2009, there has been a slowdown in the inflows of foreign direct investment resulted from the constraints of disposal capitals and the tightening of the world credit market.[6] In the first 8 months of 2009, Vietnam has managed to attract about US$ 10.4 billion of registered capital much lower than 2008. The actual disbursement from investment projects is over US$ 6.5 billion also lower than 2008.

[4] As pointed out by Nguyen et al (2009) although the country has witnessed strong domestic consumption growth in recent years, Vietnam's economy has continued to be driven by high external trade and increased foreign direct investment (FDI).

[5] This crisis exposed the vulnerability of Vietnam's export dependent growth on the world market. Export-dependent countries like Vietnam suffered disproportionately from a collapse in international trade. The aggregate figure concealed the real situation. This is because although some of Vietnam major export products such as coffee, rice, pepper, rubber, crude oil and coal, report increases in volume in 2009, their decreased prices have led to the speculation that Vietnam may not be able to meet this revised growth rate.

[6] In 2008, there was a large influx of FDI into Vietnam reaching US$ 64 billion of registered capital (tripled the registered FDI capital for 2007) and US$ 11.6 billion of implementation capital (compared with US$ 8 billion in 2007). All along the course of economic reform up to now Vietnam has relied more and more on FDI to sustain its high level of economic growth. The slowdown of FDI inflows in 2009 and the years to come will have serious consequences for Vietnam as the FDI sector plays an important role in Vietnam's export.

The government of Vietnam was quick to notice the impact of the global crisis and responded quite decisively.[7] The government reversed the course of monetary tightening and fiscal austerity policy implemented in 2008. In terms of fiscal policy, the government initially announced its fiscal stimulus package valued at US$ 6 billion which was later revised to be USD 8 billion.[8] The package includes a number of components, such as tax breaks and public investments for infrastructure, social transfer and interest subsidy. Details of the package are presented in Table 2.

Table 2 Vietnam's Fiscal stimulus measures

No.	Policy measures	Amount
1	Interest subsidy	VND 17000 billion
2	State Development investment	VND 90800 billion
3	Tax holiday and exemption	VND 28000 billion
4	Other spending for social security and economic downturn prevention	VND 9800 billion
	Total	VND 145600 billion (equivalent to USD 8 billion)

Source: Report by the Government to the National Assembly (2009)

One of the peculiar features of Vietnam's stimulus package is the interest rate subsidy program which has received both criticism and praise. The program started in April 2009 and has been expected to have had a quick knock-on impact. The interest subsidy, which was made available until the end of year 2009, subsidizes a 4 percent portion of the interest payments imposed on medium to long-term loans for two years. By the end of 2009, the government announced to extend the interest rate subsidy program but lowers the subsidy to 2 percent. It is this interest subsidy component is the focus of our paper, and the results of our study will contribute to the debate on the continuation of the second package.

Together with the global recession bottoming-out, signs of economic recovery for Vietnam could be seen as early as August 2009 with industrial production and GDP

[7] In light of these events, the government has recently revised downwards its GDP growth forecasts for 2009, from 7.5 percent to 6.5 percent. The effectiveness of the fiscal stimulus packages that countries, developed and developing alike, are implementing has been questioned by Foster (2009) http://www.heritage.org/Research/Economy/bg2302.cfm

[8] The stimulus package is supposed to aim at boosting investment and consumption, mitigating the impact of the global financial and economic crisis on the Vietnamese economy and its people, and preventing a general slowdown of economic activity. For example, the stimulus package includes one-off support of VND 200,000 per person for the poor on the last occasion of New Year Holiday; a reduction of 30 per cent of corporate income tax, an extension of nine months for the submission of 2009 tax payables and a temporarily refund of 90 per cent of VAT for exported goods with "justifiable payment documents", personal income tax exemption for the first 6 months of 2009 and 4% interest subsidy being extended to longer-term loans of up to 2 years for investment in agriculture and other productive activities.

growth picked up in the third quarter of the year.[9] Although the economic recovery is in (large) part due to the revival of external demand for Vietnam's export and resumed FDI inflows, it is commonly believed that the policy adopted by the government worked in helping the economy through the recession. According to a report by GSO (2009), together with the recovery in other Asian countries, the prospect of Vietnam's economy was improving and some attributed such recovery to government stimulus policy.[10] While there has been wide spread agreement that the prompt introduction of the stimulus package provided some quick protection for the economy, there remains some debate around whether or not the package was able to target the most effective businesses and sectors and evaluating the impact the government stimulus package is a daunting task in the absence of reliable data.

3. Data, model and estimation results

3.1. Data

In this paper we employ a unique dataset, the firm level survey data collected in 2009[11] by Vietnam Competitiveness Initiative (VNCI). In the context of patchy evidence of the impact of the stimulus package, the VNCI enterprise survey data provides a unique opportunity to examine the impact of the interest subsidy on enterprises at the micro-level. In keeping up with the dynamism of the economy, the PCI 2009 questionnaire incorporated a few more but important questions that allow us to investigate the impact of the interest subsidy program of the government. The questionnaire asked if the enterprises could "*get access to the special interest loan that belongs to the stimulus package*" and if that is "*the special interest loan of 4% of the Government*". Detailed description of variables used in our statistical analysis is presented Table 3.

3.2. Theoretical consideration

Spurred by the introduction of government interest rate subsidies, growth of credit and money supply accelerated in the first half of 2009. The growth of total liquidity (M2) increased to 35.8% in the second quarter 2009 from 20.3% in the fourth quarter of 2008. The growth of liquidity and credit, however, was relatively modest during the first quarter of 2009 due to some lag. As time passes, the economic activities get more and once the

[9] http://www.vneconomy.vn/20090828091054122P0C10/kinh-te-8-thang-buc-tranh-dang-sang.htm
[10] http://vneconomy.vn/20090901102716178P0C5/he-mo-kha-nang-tao-buoc-dem-cho-nen-kinh-te.htm
[11] Further information about VNCI, PCI and related materials can be found at the following website http://www.pcivietnam.org/about_pci.php

determination of the government to boost growth rates became clear, bank lending picked up again. Therefore, it can be argued that the most obvious impact of the stimulus package implemented by the government may be in keeping the credit to flow to the economy and assisting enterprises to clean up their balance sheet by replacing the high interest bearing loans with subsidized loans. This reduced the financial burden of borrowing by easing costs during a period of economic pressure and enabled businesses to maintain production and jobs. Suppose that a firm's production function is given by

$$q = f(l, k; m) \qquad (1)$$

when q is output, l is labour, k is capital, and m is the managerial input (see, e.g., Bhaumik and Estrin, 2003). Cost minimization, which is the dual of profit maximization, yields the labour demand function

$$l = g(w, r, p, q(m)) \qquad (2)$$

when w is the wage rate, r is the rental rate of capital, and p is the price of the final product. Economic theory suggests that $\partial l / \partial p$ and $\partial l / \partial q$ are both positive and $\partial l / \partial r$ is negative. That is, if there is a growth in sales, whether due to an increase in p or because of an increase in q, or reduction in the cost of doing business, r (cost of capital), and the demand for labour is likely to increase. To operationalise the above model for demand, we estimate the following empirical model:

$$Labour = \beta_0 + \beta_1 X + \theta\, Subsidy + \varepsilon \qquad (3)$$

where *Labour* is a measure of demand during the year 2009, X is a vector of firm's characteristics such as capital, regional dummies, sector dummies, owner education, and ε is an error term, and finally subsidy in (3) is an indicator for receiving interest rate subsidy by the government under its stimulus package. The parameter θ if estimated properly will let us know the impact of the interest subsidy under the government stimulus package. However, direct estimation of the equation (1) above would lead to biased impact due to the potential endogeneity of the *Subsidy* variable causing possible correlation between subsidy and the error tem ε. The endogeneity and biased estimation

is caused by the fact that the subsidy program is not implemented by randomization where participants in the program are selected in a random manner. Instead, there are two potential problems (i) specific requirement of the program and (ii) self-selection of individuals into the program - some enterprises who may select themselves into the program. There are a number of approaches to deal with the issue of endogeneity. A common approach in the literature to deal with the endogeneity is the instrumental variable (IV) approach. The basic idea of the IV approach is to find variables that are highly correlated with *Subsidy* but not with the error term, ε, in the labour demand equation (3) above. Usually, a first-stage equation is specified for *Subsidy* as follow:

$$Subsidy = Z\gamma + u \qquad (4)$$

where Z is the vector of instruments. The difficult part of the IV approach is to identify appropriate instruments. Our strategy is to use the fitted value of Subsidy obtained after estimating equation (4) as the instrument in equation (1). As *Subsidy* measured in (4) is a binary variable, using fitted probabilities from the first stage binary response model as an instrument is a good strategy. Wooldridge (2002, pp. 623-625) points out that the standard error and test statistics are asymptotically valid and that even when equation (4) is not correctly specified, the fitted probabilities can still be used as an instrument when Z is partially correlated with *Subsidy*.

The exclusion restriction of the IV approach requires that the instruments affect selection into program but is not correlated with factors affecting the outcomes. In our empirical analysis, we use two variables, namely if the enterprises have land use right certificate (landcert) and if the owner of enterprises belong to business associations (member). Land certificate can be used as collateral for securing loans from banks and would not affect the decision be enterprises to employ, maintain or fire their employees. Secondly, membership of the business association is a proxy for social network that may help firms in getting information about the 4% interest rate subsidy, and get easier access to the loans. However, social network, in our opinion would not affect the decision to employ or fire employees. Therefore, we use these two variables as instruments in our analysis. As usual, we also subject our choice of instruments to statistical tests of endogeneity and over-identification.

3.3 Estimation results and discussion

Our estimation results are presented in Table 4. In panel A, we present the results obtained from the OLS model for references. In panel B, we present the results from the IV approach. The model is estimated by the familiar two-stage least square method. The final panel C, we present the results from the first stage regression. Before we turn out attention to the main results of the IV model, we discuss the estimation results of the first stage equation and IV statistical tests. There are a number of interesting findings in panel C of Table 4. First, consistent with the economic literature, large firms (bigger equity capital and large number of employees) are more less credit rationed and thus more likely to obtained credits and thus subsidy. Secondly, land certificate and membership in business association are important factors for firm to obtain loan and subsidy. Thirdly and very interesting is the finding that exporting firms are more likely to obtain credits and subsidized loan from banks. Finally, it seems that enterprises working mainly in the service and agriculture sectors are more likely to obtain the subsidy loan than firms in manufacturing sector.

With respect to the two-stage least square model, the estimated results indicate that our instruments pass the endogeneity and over-identification tests.[12] The variable of interest is the subsidy variable. Our estimation indicates that on average enterprises that obtained interest rate subsidy increased their employment by approximately 9 workers. The estimated result is statistically significant at a reasonable level. The result obtained from our analysis suggest that in addition to helping firms to access to the necessary credit, the 4% interest rate subsidy component does create employment for social protection purposes. In order to provide more meaningful discussion to the estimated figure, we do some quick back-of-the-envelop calculation. According to some report, by the third quarter of 2009, there were 78,533[13] enterprises that benefited from the 4% interest rate subsidy package of which about 86% are non-state owned enterprises[14]. This may suggest that a maximum of about 67,500 non-state enterprises are covered by the interest rate subsidy scheme. However this number can not suggest an exact fraction of non-state firms and it also cover a number of the households which in

[12] We cannot reject the null hypothesis of exogeneity and identification.
[13] http://vneconomy.vn/20090708121345190P0C10/khong-co-chuyen-cat-giam-goi-kich-cau.htm
[14] According to Government's report to the National Assembly

unidentified. Our estimated parameter suggests that non-state firms who receive the interest rate subiidy create averagely 9 job vacacies. This would translate into serveral hundred thousands new jobs given the number of private firms under the scheme could be identified. In the context of the global crisis which job loss are inevitable due to decline in exports, and the influx of new labour market entry to the order of 1.5 million per year for Vietnam, it is fair to say that the subsidy package has done a good job in terms of social protection. Given USD 1 billion (VND 17 thousand billion) spent by the government on the subsidy component and some hundred thousand new jobs were created. To provide reader with some picture of subsidy impact on employment, in the extreme case that most of the 67,500 recipients are private firms, the number of newly created jobs by the subsidy could reach 600,000. The question of whether the amount is well-spent would deserve another research paper and falls outside the scope of this study. However, we still believe that some efficiency evaluation may be needed.

4. Conclusion

In 2008, as the global financial crisis unfolds with the severe impacts the economy is weathering the global economic crisis quite well. Experience shows that engineering a good stimulus package that is timely, well targeted and fiscally sustainable is not an easy task as shown by the still ongoing debates on the stimulus package. In retrospect, it appears that the government of Vietnam chose an effective mix of stimulus measures. The rapid loosening of monetary policy, together with the first phase of the interest rate subsidy scheme acted as a “mass bail-out” for the frozen banking and credit sector and exemptions and deferrals of tax payments succeeded in preventing a more severe economic downturn. The interest rate subsidy has kept credit flowing to the economy, at a time when banks could have preferred to sit on their liquidity and avoid taking risks. It allowed the refinancing of enterprise debts contracted at very high interest rates, which could have led to numerous defaults in a context of rapid disinflation. And it boosted the profits of commercial banks, at a time when the deterioration in the quality of their portfolios and thin interest rate margins could have made them vulnerable.

In order to gauge the effect of the stimulus package for policy debate, in this paper we used the PCI-2009 enterprise survey data to estimate the impact of the package. Our results indicate that, in addition to keeping the money flowing in the economy, the package created a large number of jobs for the economy. A USD billion was spent to

create about less than 600,000 jobs during 2009. Thus, the policy has positive and important effects in social protection, weathering the vulnerable group from the global financial crisis storm.

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Table 3: Description of variables and summary statistics

Variable	Mean	Std. Dev.	Min	Max
Subsidy (1=receiving interest subsidy loan; other wise 0)	0.33	0.47	0	1
owner_uni (1=owner of enterprise having university degree, 0 otherwise)	0.43	0.49	0	1
Export (1=exporting firm, 0 otherwise)	0.09	0.28	0	1
labover200 (1=number of employee greater than 200, 0 otherwise)	0.13	0.34	0	1
lab50200 (1=number of employee between 50-200, 0 otherwise)	0.14	0.34	0	1
lab10_50 (1=number of employee between 10-50, 0 otherwise)	0.37	0.48	0	1
labunder10 (1=number of employee under 10, 0 otherwise)	0.37	0.48	0	1
cap_09big (1=equity capital greater than VND 5 billion, 0 otherwise)	0.18	0.38	0	1
cap_09medium (1=equity capital between VND 1-5 billion, 0 otherwise)	0.54	0.50	0	1
cap_09small (1=equity capital smaller than VND 1 billion, 0 otherwise)	0.28	0.45	0	1
Mining (1= main business in mining sector, 0 otherwise)	0.03	0.16	0	1
Agri (1= main business in agriculture sector, 0 otherwise)	0.08	0.27	0	1
Service (1= main business in service sector, 0 otherwise)	0.58	0.49	0	1
Manu (1= main business in manufacturing sector, 0 otherwise)	0.40	0.49	0	1
Jstock (1= joint stock company, 0 otherwise)	0.19	0.39	0	1
Limited (1= Limited liability, 0 otherwise)	0.45	0.50	0	1
Sole (1= Sole Proprietorship, 0 otherwise)	0.35	0.48	0	1
Experience (years in existence)	7.03	6.07	1	64
emp_change2 (change in employment)	0.89	38.86	-2462	600
perform09 (business performance 2009)	3.57	0.98	1	5
Number of Observation	8839			

Table 4: Estimation results

	OLS		IV – 2SLS		First stage equation	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
subsidy	**2.91****	**0.99**	**8.99****	**4.30**		
sole	-2.63	1.64	-2.83	1.68	0.05	0.02
limited	-2.04	1.66	-2.14	1.67	0.03	0.01
manu	0.69	0.95	0.51	0.97	0.01	0.01
service	2.03	1.04	1.76	1.01	0.05	0.01
agri	-0.65	1.75	-1.05	1.70	0.05	0.02
cap_09big	2.67	1.82	1.19	2.29	0.16	0.02
cap_09medium	0.60	0.33	-0.43	0.64	0.12	0.01
region2	2.48	1.53	1.95	1.44	0.08	0.02
region3	3.66	1.82	2.75	1.67	0.14	0.02
region4	2.12	1.83	1.62	1.71	0.09	0.02
region5	2.72	1.78	2.49	1.74	0.05	0.02
region6	1.23	2.19	1.50	2.25	-0.03	0.02
region7	1.01	1.75	0.78	1.71	0.04	0.02
export	-7.31	4.08	-8.27	4.37	0.11	0.02
owner_uni	-0.98	0.87	-0.79	0.85	-0.04	0.01
landcert					0.09	0.01
member					0.10	0.01
lab10_50					0.09	0.01
lab50200					0.16	0.02
labover200					0.07	0.02
Constant	-1.01	1.32	-1.59	1.44	0.00	0.02
Number of obs	8839		8825		8825	
F(16, 8822)	4.79					
F(20, 8804)					50.5	
Wald chi2(16)			67.73			
Prob > F	0		0		0	
R-squared	0.0064		0.0013		0.0921	
Adj R-squared					0.0901	
Root MSE	38.771		38.859		0.45002	
Tests of endogeneity: Ho: variables are exogenous						
Robust score chi2(1)	2.6138 (p = 0.1059)					
Robust regression F(1,8807)	2.6074 (p = 0.1064)					
Test of over-identifying restrictions						
Score chi2(4) = 5.12861 (p = 0.2744)						
Note: ***, ** and * denote 1% , 5, and 10% significance level.						