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The Impact of Some Macro-Economic Factors on Vietnam Youth Entrepreneurship and Self-Employment

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Abstract

The main objective of this work is to empirically understand the impact of some macro-economic factors on youth entrepreneurship and self-employment. In comparison with most of the existing literature that mainly considers self-employment in general, this study refers to two groups of young self-employed people: (i) self-employers who work for themselves (not employers), and (ii) business managers/owners (employers), and points out the factors that have quite different impacts on these groups. The balanced panel dataset during the period 2006-2009 that corresponds to a strong process of global economic integration in Vietnam is used. Applying fixed and random effects models, the results imply that self-employment is a temporary option for young people when the risk of unemployment and under-employment is high. In addition, the low labor market competitiveness of young people that is mainly due to limited skills and qualifications is the main reason that makes young people engage in the self-employment sector. There was also evidence that regional development factors have promoted local youth entrepreneurship in Vietnam.

Keywords: Self-employment, youth entrepreneurship, youth business participation, "Push-Pull theories".

1. Introduction

Nowadays, as the labor market competition becomes fierce in Vietnam, especially for young people who are newly joining the labor market with low experience and a weak competitive position, self-employment and entrepreneurship can be considered as a survival solution. However, self-employment and entrepreneurship should not only be considered a temporary solution to youth unemployment, but also an increasing trend in today's society, and should be encouraged. The final objective is to promote youth independent innovation and dynamism, creating an engine of growth for the country's economy.

From the macro perspective, the level of self-employment has been affected by the change in the economic aggregate demand (economic development and recession, economic restructuring, employment growth rate, etc.) and in the labor market (wage changes, labor force growth, the quality of labor force, employment, etc.). The first view shows that the significant increase in the number of self-employed in the period of economic crisis or restructuring is explained as a temporary reaction of the labor market to unemployment and under-employment. This means the "push" factor plays an important role for self-employment (János Kollo and Mária Vincze, 1999). Conversely, the "pull" view is that persons with special qualities will have the motivation to start a business that often derives from self-employment (Lin and Picot, 1999). In this case, self-employment relates to the motivating factors in the macro-economic environment such as the process of industrialization-urbanization, industrial and support services development and small business encouragement... These elements make up self-employment "influence". Therefore, if the "pull" theory is effective, self-employment will not increase with higher unemployment but with the industrialization and urbanization level. If the "push" theory is dominant, self-employment will be proportional to the level of unemployment.

A great number of researches have found empirical evidence to support the "push" hypothesis (e.g., Janos and Maria, 1999; Aronson, 1991; Casson, 1991; Holmes and Schmitz, 1990; Rosen et al., 1983). However, the "pull" hypothesis was also supported in developed countries (e.g., Blanchflower and Oswald, 1998; Acs et al., 1994; Blau, 1987). Recently, mixed results were also found in many studies in developed as well as developing countries (Sindy and Hector, 2006; Carlo et al., 2004; Rampini 2004; Carmona et al., 2010,...).

Vietnam, a developing country in the international economic integration process should take advantage of any momentum, including that of youth entrepreneurship, to develop. So what macro-economic factors would be the key drivers for Vietnamese youth self employment and entrepreneurship? If the "push" factors are the main effects, the higher risk of youth unemployment makes for an increase in youth self-employment. Otherwise, if the "pull" factors are the main drivers, regional development in general, as well as economic development and urbanisation, attract young people to do business.

The rest of this article is organized as follows. Section 2 is a literature review and research hypotheses. The Section 3 briefly describes the methodology used, including mod-

els, variables and data. The Section 4 presents the empirical results and analysis. The Section 5 concludes and points out some implications.

2. Literature review and research hypotheses

Self-employment and its definition have been interpreted differently due to different situations. For example, in Vietnam before 1986 a legal description of the self-employed person did not exist. But now, the expression of "a job creating self-employment for people" appears regularly and is promoted in the employment policy of our country. With the job creating role, self-employment can be defined as *a simplified form of entrepreneurship when a person by combining resources and personal capacity offer a market (consumer) products/ services in order to obtain financial and (or) non-financial benefits and assuming risks of entering into self-employment* (Startienė et al., 2010). Self-employment is a form of work that is distinguished from "employees". Self-employment is a situation in which an individual works for himself/herself (hires or fires employees) instead of working for an employer who pays a salary or a wage. Being self-employed is a different situation to simply being a business owner. A business owner is someone who owns a company but does not need to work in the everyday operation of the company. In contrast, a person who is self-employed owns their own business, of which they are also the primary or sole operator. Being self-employed is also a little different situation than freelancing. A freelancer is someone who performs tasks, usually for multiple employers over the course of a year. Freelancers may work part-time or full-time. Because they are not considered employers, freelancers are allowed to work for other employers and are usually permitted to perform tasks in their own way, so long as the work gets done to the client's specifications. Freelancing is a form of self-employment because the freelancer does not work for just one employer. However, in the case of those people who own only their labor and skills to undertake their work and receive remuneration, they are working for wage only. Only in the case of freelancers who actually invest in the process of resource incorporating (capital, technology and human resources) to fulfill new contracts, are considered to be self-employed.

In Vietnam, "self-employment" in the Household Living Standards Survey and Survey of Labour and Employment includes the following two types[1]:

(i) People who are working to gain profits for themselves. People in this category carry out agro-forestry and fishery production activities on the land they own, manage or have usage rights; or non agro-forestry and fishery production activities in organizations wholly or partly run or owned by them. These people pay all the costs involved and enjoy all profits.

(ii) People who are working for their household but receive no remuneration in terms of salary or wage. People in this category carry out agro-forestry and fishery production activities on the land the household owner or a member owns, manages or has usage rights; or non agro-forestry and fishery production activities run or owned by the household owner or a member.

For the purpose of studying youth entrepreneurship and the job creating role of self-employment, a self-employer who is considered

in this paper needs to have given professional skills and the necessary production instruments, which are mainly used for self- employment activities. In this study only the above first type of self-employment is under consideration.

Some basic criteria that identify self-employed people are: (i) Manage/operate and are responsible for all successes or failures of the business activities; (ii) Have many customers at the same time; (iii) Have full rights in making decisions in running/implementing that activity (how/when and where); (iv) Have full rights in choosing and hiring labor for that work; and (v) Make decisions in using their own money/ property and in investing in that activity.

The theories and the empirical evidence on the relationship between macroeconomic factors as well as the labor market characteristics (such as economic growth, unemployment rate and the level of self-employment) is generally divided into two distinct schools each of which is based on different assumptions about the nature of self-employment that researchers have observed in practice.

The "push" theory hypothesizes that the self-employer does not have special qualities. The choosing of self-employment is only their temporary reaction to the circumstances of 'scare' employment during an economic downturn. Typical authors of this theory include Aronson (1991), Casson (1991), Holmes and Schmitz (1990), and Rosen (1983).

The empirical evidence that supports this hypothesis is abundant, with research coming from many countries. For example, the model of Schuetze (1998) found a positive relationship between the unemployment rate and the self-employment rate of male workers in Canada and America. Comparing self-employment in OECD countries and over time, Acs et al. (1994) concluded that the self-employment rate increased in the same direction as the unemployment rate. According to research in Spain and the United States, Alba - Ramirez (1994) also demonstrated that longer unemployment duration will increase the likelihood of self-employment. The reality in Vietnam, a developing countries showed that an increase in self-employment rate may be associated with the development of informal employment sector was a result of the poor alleviation and employment creation programs. Then we should test for the following hypothesis.

Hypothesis 1: Higher youth unemployment and under-employment will be associated with higher youth self-employment.

Contrary to the "push" theory is the "pull" theory, with the assumption that entrepreneurs have the special qualities, knowledge and skills that promote their self-employment choice and pursuit. So the unemployment rate and the self-employment rate will not be related to each other or may have a negative relationship, which means that the high unemployment rate will reduce the self-employment incentive. It is explained that, firstly, when macroeconomic conditions are not favorable, entrepreneurs do not decide to start a business because of the high failure risk, and/or secondly, the self-employment opportunities associated with the production and exports growth reduces unemployment.

There is empirical evidence to support this hypothesis in the studies of Blau (1987), Acs et al. (1994), and Blanchflower (2004). According to Blau (1987), in the early 1970s the rate

of nonfarm self-employment in America rose, ending the downward trend which had existed for over a century earlier. The empirical analysis indicated that changes in technology, industry structure, minimum wages, taxes, and retirement benefits and social security contributed to this reversal. Acs et al. (1994) found evidence by using the panel data in OECD countries that showed a negative correlation between the unemployment rate and the self-employment rate with the fixed effects and random effects models. In his paper Blanchflower (2000) described measurement of a self-employment rate. The determinants of the self-employment rate are modeled using a panel of 23 OECD countries for the period 1966-1996. For most countries also there was a negative relationship between the self-employment rate and the unemployment rate.

Some of the other studies found evidence simultaneously supporting both "push" and "pull" hypotheses. Carlo et al. (2004) used a sample of 64 developing countries and 19 developed countries during the period from 1960 to 1990 to show that the form of self-employment in developing countries was more diverse than in industrialized countries. In developing countries, self-employment may represent the appearance of new entrepreneurs but also covers for unemployment after the economic downturn. The results generally confirm the inverse correlation between the rate of self-employment and economic development, self-employment tends to decrease with the development process. While self-employment related to an increase in export value represents a type of dynamic self-employment of people who are new entrepreneurs. Evidence from a developing country such as Mexico, from Sindy and Hector (2006), also showed that there was more "push" than "pull" drivers to explain the rise of self-employment in rural areas 10 years after the NAFTA (North American Free Trade Agreement).

Similarly, understanding the impact of economic growth on self-employment, Rampini (2004) proposed a number of reasons that a number of businesses change with the economic cycle. When aggregate demand shocks affect the economy in positive way labor productivity and wealth increases business opportunities. This makes people willing to take risks and become entrepreneurs. In addition, since the expected profit is greater in the downturn, entrepreneurs will take risks to invest. In contrast, when the aggregate demand shock impact is not positive, the reverse process occurs. Wealth, investment and business will decline. Carmona et al. (2010) also explored the relationship between self-employment and some macro economic variables in Spain and America using quarterly data from 1987 to 2004. Although they did not find evidence that self-employment change in the same direction with the economic cycle, they proved tight relationships between special groups of self-employed with the entrepreneur starting in the same direction with the economic cycle. There is also a hypothesis that the self-employment and economic growth relationship is U-shaped, not L-shaped as above. This means at the beginning self-employment reduces as economic growth reduces, and will then increase as economic continues to grow (Martin et al., 2007). However, the researchers did not find evidence to support this hypothesis.

In Vietnam, as others developing countries,

self-employment may represent new enterpreneurs appearance but also cover for unemployment after the economic downturn. Then the second hypothesis is:

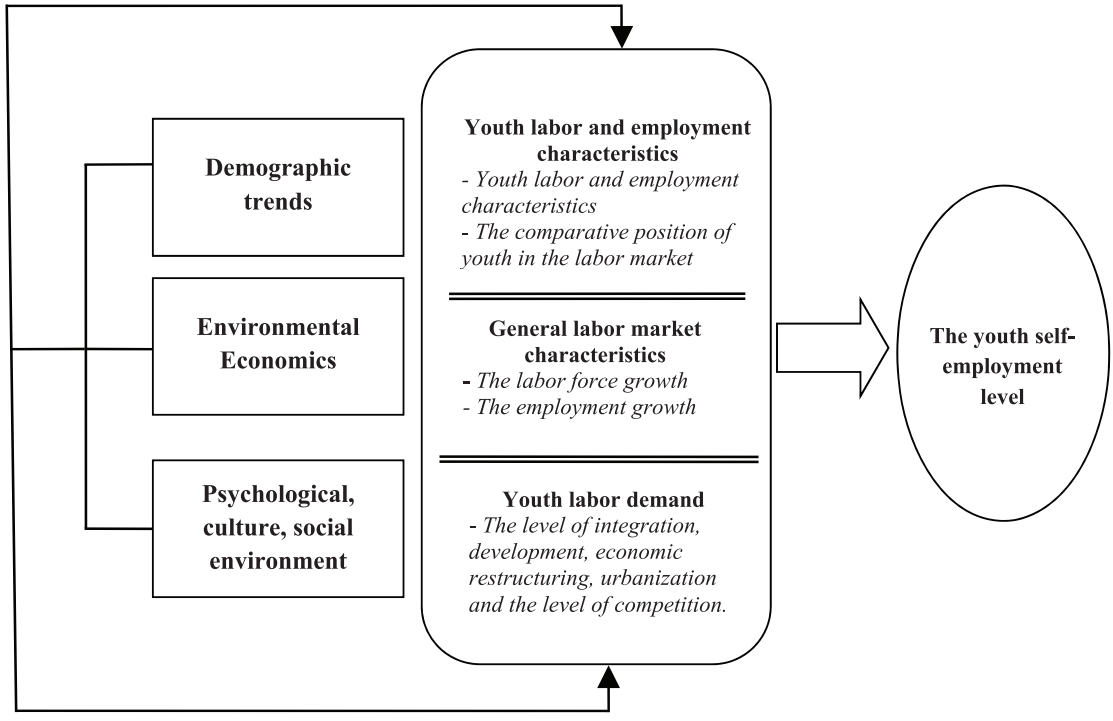
Hypothesis 2: There will be negative impact of province economic growth to youth self-employment and positive impact of province economic growth to youth doing business.

Compared with the general labor force, youth employment is often influenced more gravely by macro-economic changes because the young people are new participators in the labor market, and have little experience and limited qualifications (Niall O'Higgins, 2005). In Vietnam, it is easier for young workers to be unemployed than it is for adult workers. A recent report on the Vietnam labor market (MOLISA, 2009) showed that the rate of youth unemployment increased faster than the rate of adult unemployment over time. Thus, the youth self-employment choice may be affected much from their low compatitive possition in labor market. Therefore we will test the third hypothesis as:

Hypothesis 3: The youth low competitive possition in labor market will have strong impact to youth self-employment and operating business.

Trying to find out the reasons for the increase or decrease in youth self-employment and entrepreneurship, as well as to examine the research hypotheses, an analysis frame is built

Figure 1: The affected factors of the youth self-employment



based on labor economic theory that includes macroeconomic and other impact factors. Macroeconomic techniques in labor economics look at employment outcomes in the labor market that are determined by the interraction between labor supply and demand. Considered are how these interactions are impacted by macro variables such as employment levels, labor market participation rates, Gross Domestic Product and others. Through labor supply and demand in the labor market, other demographic, socio-economic and environmental factors will affect youth self-employment. On the supply side, youth labor and employment characteristics should be addressed. In order to express the low competitive possition of youth in the labor market, there is a need for adding factors that reflect this situation. The demand side that depends on economic growth, the level of economic integration and urbanization should be reflected as well. The theorical model as an analytical framework in Figure 1 summarizes the factors affecting youth self-employment.

To answer the research question that what the macro-economic factor would be the key drivers to youth self-employment and doing business, this study applying the analytical framework to focus on testing the research hypotheses.

3. Methodology

3.1. Econometric model

The level of self-employment in the provinces may depend on the specific conditions of each province, such as the advantages of geographical position, natural resources, tradition of a participating self-employed sector, and the presence of the traditional handicraft villages. These factors are not observable or the data is not sufficient. The estimated regression model using the least squares method (OLS) gives biased results – the test and forecast results cannot generalise for the overall country. In order to remedy this limitation, the regressions with panel data are used.

The models using panel data (Wooldrige, J.M, 2002) in this study are random effect and fixed effect that have been proven to effectively reflect the influence of macro-economic factors as well as specific characteristics of each province to youth self-employment. The reduced models take the following form:

$$Y_{it} = \beta_0 + \beta_1 X_{jit} + .. + \beta_k X_{kit} + c_i + u_{it} \qquad (3.1)$$

Y_{it}: measuring the level of youth self-employment or business ownership in the province i (64 provinces/ cities), year t (2006-2009), through the variables: (i) the rate of self-employment, and (ii) the self-employer who is the production and business manager/controller (employer) by province i and time t.

X_{it}: The explanatory variables of the model include (i) The variables reflect the characteristics of the general labor market; (ii) The variables reflect the characteristics of youth labor supply; (iii) The variables reflect the demand for youth labor or direct effects on the demand for youth labor.

c_i: reflects the characteristics of economic, social, cultural, psychological institutions of each province that may not be observed.

u_{it}: a random disturbance is assumed to satisfy the least squares method assumptions, that is normal, independent and identically distributed with $E(u_{it})=0$ and $var(u_{it})>0$.

3.2. Variables

Dependent variables: the youth self-em-

ployment level of provinces by (i) the youth self-employment rate; (ii) the youth business managing/controlling rate. These variables are measured by the number of youths who are self-employed or businesses that are managed/controlled by youths, divided by the total youth labor force at time *t* and in province *i*. The number of self-employed youths (age 15 to 29) and business that are managed/controlled by youths are determined based on information obtained from the surveys. In Surveys of Labor and Employment 2006-2009, the information about the employment status (question 15 in the 2006-2007 surveys, question 30 in 2008 survey and question 47 in 2009 survey) mentioned three types of self-employment, among others[2]. These self-employed people have the features that have been identified in the definition above. The information lets us classify youth into two groups respectively: (i) self-employed youths who work for themselves, and (ii) businesses that are managed/controlled by youth (labor hiring self-employed and private business owners).

The independent variables of the regression models are built based on the diagram in Figure 1, and consist of three groups:

(i) The factors reflecting the characteristics of the general labor market represented by the variables: the growth rate of the labor force (supply) and the growth rate of employment (demand);

(ii) The factors that reflect the characteristics of youth labor supply include: the untrained youth workforce rate, the youth under-employment rate, the youth non-agricultural employment rate, the youth unemployment rate, the unskilled youth employment rate in the total youth labor force. The factors that reflect the competitive position of youth in the labor market include: the untrained index, the under-employed index, the non-agricultural employment index, the unemployed index, and the unskilled employment index.

(iii) The factors that reflect the demand for youth labor or that directly affects the demand for youth labor include the level of economic integration, development and restructuring, and the level of urbanization and competition. These variables include: provinces in key economic regions, the percentage of FDI in GDP, the GDP growth rate, the GDP/person growth rate, the percentage of non-agricultural employment in the total labor force, the urban population rate, and the PCI index.

The analysis applies only to the variables that have an estimated coefficient in regression models with a statistical significance level of at least $p < 0.1$

Defining LF^{youth}, $LF^{youth}_{unskill}$, U^{youth}, UE^{youth}, $E^{youth}_{non\text{-}agricultural}$, $E^{youth}_{unskill}$ respectively are: the number of young people in the labor force, the untrained youth labor force, youth unemployment, youth under-employment, youth non-agricultural employment, and youth unskilled employment. Similar interpretation can be applied to the general labor force respectively: LF, LF_{unskil}, U, UE, $E_{non\text{-}argricultural}$, $E_{unskill.}$

More detailed comments on the explanatory variables will be presented as follows.

3.2.1. The characteristics of the general labor market

The growth rate of the labor force by year in the province $(LF_{t+1}\text{-}LF_t)/LF_t$ is used to reflect the labor supply on the labor market of the

province, while the growth rate of employment $(E_{t+1}-E_t)/E_t$ is the variable that reflects the demand for labor, in which, the *LF* is the number of people in the labor force in the province, and E is the number of people employed by the province.

In theory, included should be the number of vacation jobs that are available to measure employment availability opportunities for employees, but for this data it is often difficult to get sufficient statistics, especially in developing countries such as Vietnam. According to the findings of Cohen and Solow (1967), the number of newly hired workers correlated with the number of jobs available in vacation employment. So adding the variable of the increase in rate in the number of employed people in the models also helps somewhat better to reflect changes in the number of available jobs. This variable reflects short-term changes in the demand for labor. Similar to unemployment rate, the growth rate of employment measures the employment opportunities for workers, but can be commented on in other aspects.

Edward Kalachek (1966) showed that the employment growth rate in a province will reflect the employment advantage opportunities for youth and women labor groups who are new participators, but not adult male workers in the age bracket of 30-54. Thus, two provinces with the same unemployment rate, but with different in employment growth rates reflect different employment opportunities for youth. This is the reason for adding the employment growth rate variable beside the unemployment rate variable in our research model to reflect the employment opportunities in the labor market for young people.

3.2.2. The characteristics of youth labor

These factors reflect both labor supply and job opportunities in the youth labor market. Group factors can be represented by the following variables:

- The rate of the un-trained youth labor force by province $(LF^{youth}_{unskill}/LF^{youth})$ was the variable chosen to reflect the quality of the youth labor force. The situation of no training is often linked with lower positions on the labor market for youth labor. The result is low employment opportunities also and therefore the young job seeker must accept either unemployment or unskilled employment.

- The rate of youth unemployment by province (U^{youth}/LF^{youth}) is the indicator that reflects the difficulty to find employment in the labor market for youth labor, and thus affects the ability of young people to participate in the labor force and to take up employment options.

- The rate of youth under-employment by province (UE^{youth} / E^{youth}) is an indicator that reflects the level of under-employment (currently have a job but want to do more) of the total youth employment. This variable contributes to reflect the quality of youth employment.

- The rate of youth with non-agricultural employment:

$(E^{youth}_{non\text{-}agricultural} / E^{TN})$ is the indicator that reflects the level of employment of youth in non-agricultural sectors. This sector usually has a higher productivity thus gives higher income and requires more skill.

- The rate of youth with unskilled employment $(E^{youth}_{unskill} / E^{youth})$ is an indicator that reflects the youth who do unskilled jobs that often give low income.

In addition to the above rates, the study also uses variables reflecting the opportunity/risk of youth in the labor market, measuring the difference in opportunity or risk for getting jobs of young labor compared to adult labor in each province, over time. These variables need to be added to the models because the employment opportunities to support labor groups for the young are often different from the main labor group for adults. If the structure of the industry of the province gives more employment opportunities to the youth, we estimate that their level of labor force participation and employment will be higher than the level of the main labor force in this province. These variables are calculated as follows:

- The untrained labor index $(LF^{youth}_{unskill}/LF^{youth})/(LF_{unskill}/LF)$. If this ratio is greater than 1, it represents that the level of untrained youth labor is relative higher than that level of adult labor in the province and to the contrary.

- The unemployment index $(U^{youth}/LF^{youth})/(U/LF)$, if this ratio is greater than 1, it shows that the level of youth unemployment is relatively higher than that level of adult labor in the province and to the contrary.

Similar interpretation can be applied to the next indexes.

- The under-employment index: $(UE^{youth}/E^{youth})/(UE/E)$

- The non-agricultural employment index:

$(E^{youth}_{non\text{-}agricultural}/E^{youth})/(E_{non\text{-}agricultural}/E)$

- The unskilled employment index: $(E^{youth}_{unskill}/E^{youth})/(E_{unskill}/E)$

If the indexes of untrained labor, unemployment, under-employment, and unskilled-employment are higher than 1, and the index of non-agricultural employment is lower than 1 in a province, these situations show that the young labor in this province has many disadvantages compared to others in the labor market.

3.2.3. The level of integration, economic development and urbanization of the provinces

These are factors that affect the size and structure of youth labor demand, and therefore affect the level of their self-employment. Among the observed factors that can directly impact the youth labor demand are the level of economic integration, development, restructuring, urbanization, and the level of competition. These are represented by the following variables: province in key economic region, the proportion of urban population, the GDP growth rate, the GDP/person growth rate, the proportion of FDI in GDP, and the PCI index.

Province with key economic regions

The Key economic region variable (=1 if provinces are in a key economic region) will be used to reflect the situation that the there is a stronger level of economic integration, development and restructuring in key economic region provinces than the level of others.

The percentage of urban population

This variable is used to reflect the level of urbanization in provinces. The higher this proportion, the higher level of urbanization, and vice versa.

$$r_U = \frac{P_U}{P} \times 100(\%) \qquad (3.2)$$

The growth rate of GDP

This variable is used to reflect the level of economic growth of the province/city.

$$r_{GDP} = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \times 100(\%) \qquad (3.3)$$

The proportion of FDI in GDP

The economic sector of foreign investment plays an increasingly important role in the Vietnam economy. FDI provides significant additional funds for the total social economic investment and improves the balance of payments in the last period. This sector contributes to increased production capacity and technological innovation of many economic sectors, and breakthrough product markets, especially to increase the exports of goods, the state budget and create jobs. Therefore, the share of FDI in the total GDP reflects the increasing dynamics and the aggressive environment of the provincial economic structure and development. Similar to the GDP growth rate, the high proportion of FDI in the provincial GDP, and the high level of urbanization and provinces in the key economic zone, reflect the increase in employment opportunities in the wage paid sector. However these factors can also lead to potential opportunities to start businesses and for there to be self-employed workers.

The Provincial Competitiveness Index

The Provincial Competitiveness Index (PCI) was built and first published in 2005-2006 by the Vietnam Competitiveness Improving Project (VNCI) and the Vietnam Chamber of Commerce and Industry (VCCI) to assess and rate the local agencies and government in economic management capacity to grow the businesses that do not take into account the differences in natural conditions and the infrastructure of society among the provinces. PCI is used as an important tool to measure and evaluate the management and economic administration of the 64 provinces and cities in Vietnam by nine fields that have great influence on the development of the private sector of business. These factors include market access, land access, nonformal charges, and dynamic of the provincial leaders, transparency, labor training and legal institutions[3]. Therefore, this index is used to reflect the level of a favorable environment to start business. A higher index reflects a higher level of competition, and is expected to increase the level of youths starting businesses.

3.3. Data

Labor and employment data used in this study comes from the Vietnam Labor force Survey for the period 2006-2010 conducted by the Ministry of Labor, War Invalids and Social Affairs and the General Statistics Office (GSO) with employment information relating to young labor of the ages 15-29, and the total labor force at year *t* and province *i*.

In addition, the data which reflects the level of economic development, the level of the provincial economic structure, economic integration and transformation were collected from various database sources of the General Statistics Office (GDP, GDP per capital), the Ministry of Planning and Investment (FDI value), the Vietnam Chamber of Commerce and Industry-VCCI (PCI index) in the period 2006-2009, for each province. Synthesis many sources of data, the panel province-level data of dependent and independent variables from 64 provinces/cities in the four years 2006-2009 is formed.

After the adjustment of administrative boundaries in 2008, the labor data from the La-

bor force survey in 2009 was collected with a consistent number of provinces from the previous survey years 2006-2008. However, the data on other indicators such as GDP (at constant 1994 prices), PCI, FDI that are not available for the provinces and are not in the administrative list, such as Ha Tay in 2009, are estimated with their values from 2008 to make a balanced panel data of 64 provinces/cities in 4 years.

Finally, the used dataset is balanced panel data with 256 observations with descriptive statistics in Table 1.

Table 1 reports the mean, standard deviation, minimum, and maximum values of variables. Information from this table reflects a higher variation of the rate of youth business managing/controlling among the provinces by time. The mean of the youth business managing/controlling rate is 1.004, while its standard deviation is 1.1655, which is higher than the mean.

Table 1: Descriptive Statistics (N=256)

Description	Minimum	Maximum	Mean	Std. Deviation
Dependent variables				
The rate of youth self-employment (%)	3.908	55.340	23.77214	8.722515
The rate of youth business managing/controlling (%)	0.000	11.580	1.00427	1.165503
Independent variables				
The growth rate of labor force of province (%)	-12.642	16.368	1.25788	4.114553
The growth rate of employment by province (%)	-12.278	16.602	1.59269	4.344104
The growth rate of GDP by province (%)	-3.111	23.213	11.18286	4.468746
The rate of urbanization by province (%)	7.269	89.330	23.35888	16.243224
The ratio of FDI in GDP by province (%)	0.006	84.385	8.07320	12.417339
Provincial Competitiveness Index	36.39	77.20	55.1207	7.95427
The rate of untrained youth workforce (%)	23.326	95.368	73.01407	15.598516
The rate of youth under-employment (%)	0.000	36.724	8.29992	6.124082
The rate of youth non-agricultural employment (%)	3.070	98.640	45.41225	22.245846
The rate of youth unemployment (%)	0.550	12.564	4.08954	2.315611
The rate of youth unskilled employment (%)	12.030	96.322	63.29689	19.779784
Untrained labor index	0.462	1.663	0.97404	0.126552
Under-employment index	0.000	3.508	1.29539	0.587470
non-agricultural employment index	0.514	1.980	1.11512	0.230005
Unemployment index	1.005	3.679	2.11650	0.504248
Unskilled employment index	0.555	1.721	0.93166	0.134436

The difference in the level of youth self-employment generally changed quite a lot through the provinces and over time, the gap between the lowest and the highest rate was nearly 15 times. In 2009, after the economic crisis, youth self-employment increased and the province which has the highest rate of youth self-employment is Tuyen Quang (55.34%), while in the 2007 the province that had the lowest rate of youth self-employment is Hai Duong (3.91 %).

4. Empirical results and discussion

Reduction models are applied to the two dependent variables: (i) the rate of total youth self-employment and (ii) the rate of youth business ownership/management. To decide between the fixed effect model and the random effect model, the research runs the Hausman test where the null hypothesis is that the coefficients estimated by the efficient random effect estimator are the same as ones estimated by the consistent fixed effect estimator. After that, based on the Chi-squared statistic as displayed in Table 2, if the null hypothesis is rejected (Chi-squared =56.37; Prob>chi^2=0.000), the fixed effect model is more appropriate, otherwise the random effect model is chosen (Chi-squared =22.59; Prob>chi^2=0.1631).

The estimated coefficients are reported in Table 2. The estimated coefficients show that the correlation between characteristics of the general labor market factors and the rate of youth self-employment and business ownership is not statistically significant. While the factors reflecting the characteristics of the youth labor force and level of economic integration, development and restructuring also have little impact on the level of youth self-employment, the factors that reflect opportunities or risks for youth in the labor market have the strongest impact.

4.1. The "pull" factors with the provincial economic development integration, urbanization level and youth self-employment

Consistent with the trend of the youth labor force choosing wage paid work, economic growth and the level of youth self-employment have a negative relationship. Economic growth will increase employment opportunities in the wage paid employment sector and the higher level of economic growth will mean a lower level of youth self-employment. Gross Domestic Product (GDP) growth rate per year increases of 1% would reduce the rate of youth self-employment to close to 0.2% with a statistically significant 5%. Beside that, economic growth hardly impacts the level of youth business ownership or management (not statistically significant). This evidence suggests that the increase of youth self-employment in a narrow economic cycle is mainly an increase in self-employment of those who work for themselves rather than the starting of businesses and the hiring of more workers. Therefore, self-employment among the young laborforce is just for addressing the needs of work and looking for income to cover their own lives.

The level of economic development of the province in key economic regions and the province urbanization level increases the rate of youth business ownership/management. Specifically, if the provinces are in key economic areas the rate of youth business ownership/management will increase by 0.6% (that is the highest effect in this model), and if the proportion of the urban population of the province increased by 1%, this rate will increase by

Table 2: Coefficient of fixed and random effects regression models to study some affect of macroeconomic factors on the level of self-employment of young people in Vietnam, 2006-2009

Explain variables/Dependent variables	The rate of youth self-employer (*fixed effects model*)	The rate of youth business manager/owner (*random effects model*)
Characteristics of youth labor force		
The rate of untrained youth labor force	0.151**	0.021***
	(0.0696)	(0.0082)
The rate of under-employed youth	0.280**	0.008
	(0.1293)	(0.0132)
The rate of non-agricultural employed youth	0.007	-0.003
	(0.0857)	(0.0081)
The rate of unemployed youth	-0.943**	-0.028
	(0.4484)	(0.0453)
The rate of unskilled employed youth	-0.051	-0.008
	(0.0606)	(0.0071)
The competitive possition of youth compare to the total workforce on the labor market		
The untrained labor index	-4.705	-0.620
	(5.7517)	(0.7179)
The under-employment index	-4.356***	-0.389***
	(0.9909)	(0.1278)
The non-agricultural employment index	-6.333	0.752
	(5.3306)	(0.5150)
The unemployment index	4.363**	0.546***
	(1.8141)	(0.1762)
The unskilled employment index	9.426	0.860
	(7.6554)	(0.8248)
The characteristics of labor market		
The labor force growth rate	0.403	-0.060
	(0.4455)	(0.0546)
The employment growth rate	-0.420	0.062
	(0.4145)	(0.0514)
The level of integration, economic development and urbanization of the province		
The province in the key economic region	-3.705	0.602***
	(4.2674)	(0.2183)
The rate of urban population	0.202	0.027***
	(0.8058)	(0.0077)
The GDP growth rate	-0.194**	0.006
	(0.0931)	(0.0123)
The ratio FDI/GDP	-0.023	0.001
	(0.0900)	(0.0070)
PCI	0.241*	-0.018
	(0.1388)	(0.0112)
Constant	2.1065	-1.4818
	(25.9647)	(1.6948)
Hausman test	$Chi^2(17)=56.37$	$Chi^2(17)=22.59$
R-squared	0.3989	0.2103
Observations	256	256

Note: Standard errors are in parentheses. (*), (**), and (***) denote statistical significance at least at the 10%, 5% and 1% levels, respectively.

0.03% (statistically significant at 1%).

For the level of provincial competition, the estimated coefficients show that, if the PCI increased by 1 unit, the rate of youth self-employment in the province will increase by more than 0.2% (Statistic significance at 10%).

However, this factor does not clearly affect the level of youth business ownership/management (estimated coefficients in the model are not statistically significant).

4.2. The "push" factor with low quality of youth labor and the youth self-employment

The quality of the youth labor force is expressed through the indicator: the rate of the untrained youth labor force. The positive relationship between the proportions of the untrained youth labor force and youth who are self-employed as well as of the youth business owner/managers (statistically significant at 1% and 5% corresponding) shows a situation that young people who have not been trained are vulnerable in the labor market and tend to engage in the self-employment sector. In addition, the positive relationship between the rate of youth business owner/managers and the rate of the untrained youth labor force also shows that the youth business owners tend to use untrained youth labor.

4.3. The "push" factor with youth unemployment, under-employment and youth self-employment

The estimation coefficient results also show that the higher the rate of youth under-employment, the higher the level of self-employment. However there is not much relationship between the rate of youth under-employment and the rate of youth business ownership/management. The youth under-employment rate increases by 1%, and the rate of youth self-employment rises nearly 0.3% respectively at 5% statistical significance. This indicates that the lack of employment in the labor market makes young people engage in self-employment. This is a disadvantageous situation for youth in the labor market.

There is an interesting discovery that although the high youth unemployment level did not increase the level of youth self-employment, the risk of higher unemployment of the youth laborforce compared to the adult laborforce in the provincial labor market will make the rate of self-employment and business ownership of the youth laborforce increase. If this index increases by 0.1 (the unemployment risk of youth is 10% higher than the unemployment risk of adult labor), it will increase the youth self-employment rate to more than 4.3% and the youth owned business rate up to 0.5% (statistically significant at 5% and 1% respectively). This evidence shows that the low position of youth in the labor market is one of the main reasons for their choosing self-employment.

The negative correlation between the under-employment index and the rate of youth self-employment and business ownership shows that the under-employment risk of youth tends to be higher than that of adult workers, not only in self-employment, but is persistant in all employment sectors.

The sign of the estimated coefficients in the models also specify the self-employment of the young is mainly in the agricultural sector (the negative correlation between the index of non-agricultural employment and the rate of youth self-employment). However, the youth

business owner/manager is often in the non-agricultural employment sector (non-agricultural employment index and the rate of youth business owner/manager have a positive correlation). Although these do not make much statistics in the two regression models, the reason for this situation is that the young self-employed are often untrained and will find it easier to approach the work in the agricultural sector.

5. Conclusion and recommendation

5.1. Conclusion

Focusing on the effects of macroeconomic factors to the youth self-employment, some new conclusions and recommendations are drawn from the research results.

Conclusion 1: Unemployment and under-employment are the causes of increasing in the youth self-employment level reflected by self-employment rate in Vietnam.

Self-employment is an option when the youth unemployment and underemployment are high. Self-employment among the young primarily attract not qualified, untrained labors and in the agricultural sector with low production. In addition, if the youth consider self-employment is a temporary solution to the unemployment, they will continue stay in the low position and disadvantage situation in the labor market. This is the case because it will have fewer opportunities of training, improving employment quality and working environment. Besides, only very few of the youth self-employment can actually become entrepreneurs (youth rate of business owners is much lower than the percentage of youth self-employment in general) because most of them just work for themselves, unable to expand production and hire more labors. Clearly, the self-employment is still regarded as tolerated excess labor during the period of unemployment and underemployment, is not encouraged to drive economic development in the integration period. While the youth unemployment and under-employment do not have impact on youth business doing in these results (the factors' coefficients are not statistical sifnificant in the estimated model). The above results also fully consistent with the previously assumed in the field of self-employment research in developing countries (Carlo Pietrobelli et al., 2004; Sindy and Hector, 2006).

Conclusion 2: The regional and economic development of provinces have quite different impact on two groups of young self-employment: it decreases youth self-employment rate but increases youth business owners/managers rate.

Although the youth business owner/manager group makes up only a very small percentage of self-employment, the level of economic development, integration and urbanization of the province have made this group facilitate growth. Meanwhile the variables reflecting the effects of the levels of economic integration, growth and restructuring in the youth self-employment are not statistically significant or quite small and have negative effects. These results are consistent with the studies on self-employment earlier (Aronson, 1991; Casson, 1991; Holmes et al., 1990; Rampini, 2004). The regional development will reduce the level of self-employment and increases the chances of dynamic self-employment of labor in general and youth labor in particularly, that formed youth group of business doing.

Conclusion 3: Low competitive possition in the labor market is major cause of youth self-employment.

Self-employment sector is attracting young workers who are untrained and have low competitive status in the labor market because this seems to be the only chance for them during difficulty of geting a wage paid work. The results showed that the factors reflect youth low competitive possition in labor market have strongest impacts to both youth self-employment and business managers. This indicates that the addition of variables reflecting weakness competitive position of the marginal labor groups on the labor market such as youth and women in the models of learning about their self-employment is essential.

5.2. Recommendations and contribution

In order to make youth self-employment become the engine of economic growth and development through encouraging the young to start businesses and develop the private sector, on the basis of empirical results, a few suggestions are given as follows:

Youth self-employment in particular and self-employment in general will tend to decrease with the higher level of economic and social development. Self-employment tends to expand during the period of economic decline and formal employment sector shrink. However, the presence and existence of self-employment is inevitable now. In order to make this employment sector able to contribute more to the growth and development of the local and country economy, youth self-employment should not be considered as only a product of unemployment and underemployment in periods of economic decline.

Only a small percentage of young self-employed can be "entrepreneurs" and business owners who can hire additional employees. The low competitive position of youth in the labor market and the high proportion of young untrained workers are the key barriers to the opportunity to become an "entrepreneur". Therefore, beside the promotion trend of urbanization, economic development and growth in the direction of integration, there needs to be uniform policies and programs to support youth in professional training. These programs help to empower youth in the labor market as well as to expand and develop their self-employment and become truly private enterprises.

In short, this article presents several contributions. The study can consider quite adequately factors affecting youth self-employment from both the supply and demand sides of the labor market. These factors include the characteristics of the general labor market, youth labor and employment characteristics, and youth labor demand. In addition, the inclusion of the index explanatory variables in the regression model that help test the impact of the youth labor market competition position on their employment is also a new contribution of the paper. Compared to previous studies that only consider all self-employed as one group, the dividing of youth self-employment into two groups, (i) self-employed who are business managers/controllers (employers), and (ii) self-employers who work for themselves (do not hire employees) helps to discriminate between the different impacts of macro-economic factors of these two groups. Furthermore, the study employs panel data with fixed and random effect models to take into account provincial and time effects. In addition, the data covers the period from 2006 to 2009, an episode of strong integration effects after participating in the World Trade Organization and economic shocks in Vietnam.

Notes:

1. Handbook of Households Living Standards Survey 2008, page 58; Investigation form of Labor and Employment in 2010, p 4, question 15.
2. Employment types in the Surveys of Labor and Employment include: State wage paid employment; Non-state wage paid employment; Self-employment for his/herself; Self-employment with labor hiring; Private enterprise owner; Household labor without remuneration in terms of salary or wage.
3. http://www.pcivietnam.org

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