

# The relationship between entrepreneurship and unemployment in developed and developing countries

*S. GHAVIDEL*

*Department of Economic Azad University, Firouzkoh Branch, Iran*

*G. FARJADI*

*Department of Economic Azad University, Firouzkoh Branch, Iran*

*A. MOHAMMADPOUR*

*MA Student, Azad University, Firouzkoh Branch, Iran*

## *Abstract*

In this paper we investigated the relationship between entrepreneurship rate and unemployment rate in developed and developing countries for a panel of 23 OECD countries and 7 developing countries. We use data over the period 1995-2007. Method in this paper is simultaneous equation model with two-equation. The results indicate that, Schumpeter effect for developed and developing countries is established as a definite (impact of entrepreneurship rate on unemployment rate), but refugee effect (impact of unemployment rate on entrepreneurship rate) is not clearly. The other difference in this article showed the relationship of unemployment rate on entrepreneurship rate (refugee effect) has a square, the first it has increased and then decreased.

*JEL classification: L26, E24, M13, J64*

*Keywords: Entrepreneurship; Unemployment; Developing Countries; OECD*

## **1. Introduction**

The relationship between unemployment and entrepreneurship has received increased attention of researchers and policy makers, in particular as a reaction to the relatively high unemployment levels confronting developed and developing countries in the last decades (Baptista & Van Stel & Thurik, 2006). Entrepreneurship has been suggested as a remedy against high unemployment and stagnant economic growth (European Commission, 2003; Carree & Thurik, 2003; Thurik et al, 2008; Van Stel & Thurik & Verheul & Baljeu, 2007). It is important to investigate the relationship between entrepreneurship and unemployment in developed and developing countries and to see whether this relationship is similar to that in other OECD countries.

It is a complex relationship, where on the one hand entrepreneurship may lead to a decrease in unemployment, and on the other hand unemployment may lead to an increase or decrease in entrepreneurship (Audretsch et al, 2005; verheul & Van Stel & Thurik & Urbano, 2006). It is important to create a better understanding of the relationship between unemployment and entrepreneurship, in particular since the ambiguities within this relationship are frequently disregarded in the policy arena (Thurik, 2004; Baptista & Van Stel & Thurik, 2006; verheul & Van Stel & Thurik & Urbano, 2006).

In this paper we investigate the dynamics relationship between entrepreneurship (business ownership) and unemployment rates for 7 developing and 23 developed countries on the period 1995 - 2007. The structure of the paper is as follows. Section two shows the link between unemployment and entrepreneurship. Section three present methodology and model and finally we will have discussion and conclusion.

## 2. Linking Entrepreneurship and Unemployment

Entrepreneurial opportunities are not just the result of the push effect of (the threat of) unemployment but also of the pull effect of produced by a thriving economy full of opportunities (Parker, 2004; Thurik et al, 2008; Van Stel & Thurik & Verheul & Baljeu, 2007). The relationship between unemployment and entrepreneurship has been shrouded with ambiguity. There are many views on the relationship between unemployment and entrepreneurial activity (Audretsch & Carree & Van Stel & Thurik, 2005; Baptista & Van Stel & Thurik, 2006). The simple theory of income choice, which has been the basis for numerous studies focusing on the decision confronted by individuals to start a firm and become an entrepreneur (Blau, 1987; Evans & Leighton, 1990; Evans & Jovanovic, 1989; Blanchflower & Meyer, 1994) suggests that increased unemployment will lead to an increase in startup activity on the grounds that the opportunity cost of not starting a firm has decreased. This effect has been referred to as the 'refugee' or 'shopkeeper' effect. However, the unemployed people tend to possess lower endowments of human and social capital and entrepreneurial talent required to start and sustain a new firm which may lead to early exit (Thurik, 2007; Lucas, 1978; Jovanovic, 1982; Baptista & Van Stel & Thurik, 2006). High unemployment may also imply lower levels of personal wealth reducing the likelihood of becoming self-employed or the survival in the initial stages of business ownership (Hurst & Lusardi, 2004; Van Stel & Thurik & Verheul & Baljeu, 2007). High levels of unemployment may correlate with low economic growth leading to a low number of entrepreneurial opportunities (Audretsch & Thurik & Verheul & Wennekers, 2002; Baptista & Van Stel & Thurik, 2006). A low rate of entrepreneurship may also be a consequence of the low economic growth levels, which also reflect higher levels of unemployment (Audretsch, 1995; Audretsch & Carree & Thurik, 2001).

While some studies find that greater unemployment serves as a catalyst for startup activity (Reynolds & Miller & Makai, 1995; Reynolds & Storey & Westhead, 1994; Hamilton, 1989; Highfield & Smiley, 1987; Yamawaki, 1990; Evans & Leighton, 1989 & 1990), but much of studies have found that unemployment reduces the amount of entrepreneurial activity (Audretsch & Fritsch, 1994; Audretsch, 1995; Audretsch & Carree & Thurik, 2001).

In addition to unemployment influencing start-up activity, it has been argued that entrepreneurship influences (un)employment. There is also a lot of claiming that start-up activity influences unemployment. The positive effect of entrepreneurship on economic performance has been referred to as the 'Schumpeter' effect (Van Stel & Thurik & Verheul & Baljeu, 2007).

New-firm startups hire employees, resulting in subsequent decreases in unemployment (Picot et al, 1998; Pfeiffer & Reize, 2000a; Audretsch & Carree & Thurik, 2001).

Entrepreneurship may influence economic performance in different ways. Entrepreneurs often play a vital role in the early evolution of industries by way of introducing new products or processes and, in the long term, enhancing productivity through increasing competition (Van Stel & Thurik & Verheul & Baljeu, 2007). New entrants in the market may also create knowledge about what is technically viable and what consumers prefer by introducing variations of existing products and services in the market. The resulting learning process speeds up the discovery of the dominant design for product-market combinations. The learning does not solely apply to the experimenting entrepreneur (Baptista & Van Stel & Thurik, 2006). Knowledge spillovers play an important role in this process (Audretsch & Aldridge & Oettl, 2006; Audretsch, 2007; Van Stel & Thurik & Verheul & Baljeu, 2007). Finally, self-employed individuals tend to work longer hours than wage-employed people and may be more productive as their income is more clearly linked to working effort (Van Stel & Thurik & Verheul & Baljeu, 2007; Carree & Thurik, 2003; Carree & Verheul & Thurik, 2007).

The ambiguities found in the empirical evidence reflect these two conflicting forces. For example, Evans and Leighton (1990) found that unemployment is positively associated with a greater propensity to start a new firm, but Garofoli (1994) and Audretsch and Fritsch (1994) found that unemployment is negatively related to new-firm startups, and Carree (2001) found that no statistically significant relationship exists. Audretsch & Thurik (2000); show that an increase in the number of business owners reduces the level of unemployment. They identify a “Schumpeter” effect in terms of the positive impact on employment resulting from the entry of new firms (Audretsch & Carree & Thurik, 2001).

Thurik et al. (2007) examine the relationship between entrepreneurship and unemployment in Japan. They find that, although Japan’s unemployment rate has been influenced by specific exogenous shocks, the effects of entrepreneurship on unemployment are not different when compared to other OECD countries. They find that entrepreneurship significantly lowers unemployment but that it takes a lag of four yearly data (Van Stel & Thurik & Verheul & Baljeu, 2007).

Van Stel & Baptista & Thurik, (2006), examine the relationship between entrepreneurship and unemployment, as measured by the variation in business ownership rates, and unemployment in Portugal. It concludes that Portugal has been a relative outlier in regard to the effects of entrepreneurship on unemployment when compared with the OECD average. They found that the industrial re-structuring effects brought about by increases in business ownership rates probably do not have a significant impact on the reduction of unemployment.

Thurik (2003), the influence of industrial structure, more specifically of entrepreneurship, is investigated on the level of unemployment in the UK. It will be concluded that the UK is a relative outlier when using a simple model of the relationship between unemployment and the rate of business ownership. The model is calibrated using recent data of some 23 OECD countries. It underestimates the decrease in unemployment in the UK in the period 1982-1990.

Thus, while there are not just theoretical reasons, but also empirical support as well, that while unemployment leads to increased entrepreneurial activity, entrepreneurship leads to reduced unemployment. Unraveling the relationship between entrepreneurship and unemployment is crucial, because policy is frequently on assumptions that do not reflect this ambiguity (Baptista & Thurik & Van Stel, 2006).

### 3. Methodology and Model

The previous sections suggest two testable hypotheses: i) that increases in entrepreneurial activity lead to a decrease in subsequent unemployment; ii) that increases in unemployment lead to an increase in subsequent entrepreneurial activity (Baptista & Thurik & Van Stel, 2006). Environment variables can be accessed through a number of economic indicators (GDP, Inflation, exports, etc).more recently, researchers have also looked toward cultural factors to explain this variation(Uhlaner & Thurik,2003; Remeikiene & Startiene,2009).so, one of the factors explanting of unemployment is inflation, which based in litterateur tradeoff between unemployment and inflation to called Philips curve (see Mankiw; 1994), and GDP growth rate is one of the factors influencing on entrepreneurship rate.

This section shows the relationship model between unemployment and entrepreneurship rate. The fact that relationship between entrepreneurship and unemployment rate is dynamic, so we have to use a system as Vector Autoregressive (VAR) or Simultaneous Equation Model (SEM). for example Thurik et al (2007) estimate a two equation VAR model(Van Stel & Thurik & Verheul & Baljeu,2007). In this paper we use simultaneous equation model (SEM). When we have one or more of the explanatory variables endogenously, we have simultaneous equation model .Because one or more of the explanatory variables is jointly determined whit the dependent variable, typically through an equilibrium mechanism (Wooldridge, 2003). Model reads as follows:

$$U_{it} = \alpha_{11} + \beta_{12}E_{it} + \beta_{13}Inf_{it} + \varepsilon_{1it} \quad (1)$$

$$E_{it} = \alpha_{21} + \beta_{22}U_{it} + \beta_{23}d \log GDP_{it} + \varepsilon_{2it} \quad (2)$$

Where, U is unemployment rate, E is entrepreneurial activity, INF is inflation rate, dlogGDP is growth of GDP, i is a country-index, t is time. The expected sign of the joint impact of the  $\beta_{12}$ - coefficient is negative whereas that of the  $\beta_{22}$ -coefficient is positive.

Entrepreneurial activity rate, E is the number of business owners divided by total labor force. The number of business owners per country is only persons who are self-employed as their main occupation are included in the figures (COMPENDIA). Unemployment rate, U, are taken from IMF. Gross domestic product growth, dlogGDP, and inflation, INF, data are taken from WDI. We estimated two systems that defined above. First is estimated system for 7 developing countries in the period 1995 to 2007 and second for 23 developed countries. Equations (1) and (2) of simultaneous model is estimated by 2SLS method. We present the results for the unemployment equation (eq1) in table1 and entrepreneurship equation (eq2) in table2. The AR variables in equations are modified for autocorrelation.

Table 1 shown in most cases for developed and developing countries the impact of entrepreneurship on unemployment rate is negatives, and significantly (*Schumpeter Effect*), while the unemployment coefficient in the second equation (*Refugee Effect*) in the most cases is not significant and same cases coefficient sign is not true. As already mentioned, Researchers in some cases have found that unemployment reduces the amount of entrepreneurial activity (Audretsch & Fritsch, 1994; Audretsch, 1995; Audretsch & Carree & Thurik, 2001). The refugee effect may not be true, when unemployment rate is very high. Thus the refugee effect is reverse.

For proof of this, we added square of unemployment rate to eq2.the result is shown that

square coefficient of,  $U^2$  in developed and developing country is negative (table3).therefore the impact of unemployment rate on entrepreneurship(*Refugee Effect*) increased first and then decreases. Note that the unemployment rate, U coefficient is matching to literature, which is positive and significant.

#### 4. Discussion and Conclusion

In This article was analyzed for the relationship between unemployment and entrepreneurship rate in 7 developing and 23 OECD countries during the period 1995-2007.Past studies indicated that this relationship as a dynamic. The Means that, increasing entrepreneurship rate reduce unemployment rate, so relationship is negative (Schumpeter effect). On the other hand, unemployment rate increased entrepreneurship rate (refugee effect). In this study using the simultaneous equations as a panel of data was for developing and developed countries is separately. While past studies have only to developed countries and the method used is also different. The result of our study shown, Schumpeter effect is established as a definite, but refugee effect is not clearly. The other difference in this article showed the unemployment rate on entrepreneurship is the first positive and then negative. Therefore, the unemployment rate can estimated, that after it the relationship is negative. Of course this article has not been estimated, and the next research is suggested.

Table1: Estimating of *Schumpeter effect* (eq1) for 23 OECD countries and 7 developing countries.

Depended Variable Explanatory Variables	U					
	OECD Countries				Developing Countries	
	Cross-Section Weights & A R (1)	No Weights & A R (1)	Cross-Section Weights & No " A R (1)	No Weights & No A R (1)	Cross-Section Weights & A R (1)	No Weight & A R (1)
Constant	48.58** (15.03)	12.34*** (2)	5.24 (6.19)	-1.73 (6.50)	93.58** (37.90)	61.73* (35.36)
E	-3.34** (1.14)	-0.55*** (0.14)	0.11 (0.45)	0.62 (0.47)	-3.99** (1.76)	-2.46* (1.61)
INF	-0.15** (0.06)	-0.07*** (0.02)	-0.05 (0.04)	-0.03 (0.05)	0.015 (0.02)	0.001 (0.02)
AR (1)	0.84*** (0.02)	0.83*** (0.02)			0.84** (0.05)	0.75** (0.07)
R <sup>2</sup>	0.84	0.95	0.90	0.74	0.53	0.73
Observation	276	276	299	299	88	88

Note:\*denotes significance at 10%, \*\*denotes significance at 5%, and \*\*\* denotes significance at 1% ( Numbers in parentheses are standard error).

Table2: Estimating of refugee effect (eq2) for 23 OECD countries and 7 developing countries.

Depended Variable Explanatory Variables	E							
	OECD Countries				Developing Countries			
	Cross-Section Weights & AR (1)	No Weight & AR (1)	Cross-Section Weights & No AR (1)	No Weight & No AR (1)	Cross-Section Weight & AR (1)	No Weight & AR (1)	Cross-Section tsWeigh & No AR (1)	No Weight & No AR (1)
Constant	13.1*** (0.24)	13*** (0.37)	11.10** (1.18)	11.00** (3.75)	21.80*** (0.72)	22.21*** (1.23)	28.35** (2.17)	28.10** (2.69)
U	-0.03 (0.03)	0.008 (0.05)	0.318* (0.20)	0.33 (0.59)	-0.09* (0.05)	-0.06 (0.13)	-0.68** (0.25)	-0.63** (0.30)
D Log GDP	0.05***	0.11***	0.11** (0.05)	0.12* (0.07)	0.0003 (0.01)	0.001 (0.02)	-0.09* (0.04)	-0.12 (0.07)
AR (1)	0.79***	0.47** (0.05)			0.87***	0.76** (0.06)		
R <sup>2</sup>	0.99	0.98	0.99	0.97	0.99	0.98	0.98	0.93
Observation	276	276	299	299	89	89	96	96

Note:\*denotes significance at 10%, \*\*denotes significance at 5%, and \*\*\* denotes significance at 1%.

Depended Variable Explanatory Variables	E	
	OECD Countries	Developing Countries
Constant	11.96*** (0.16)	21.28*** (0.75)
U	0.23*** (0.03)	0.29** (0.13)
U <sup>2</sup>	0.006*** (0.001)	-0.016** (0.006)
D Log GDP	0.127*** (0.018)	4.09E-05 (0.032)
R <sup>2</sup>	0.99	0.97
Observation	299	97

Note:\*denotes significance at 10%, \*\*denotes significance at 5%, and \*\*\* denotes significance at 1%.

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