

ENTREPRENEURSHIP, WELFARE PROVISION, AND UNEMPLOYMENT: RELATIONSHIPS BETWEEN UNEMPLOYMENT, WELFARE PROVISION, AND ENTREPRENEURSHIP IN THIRTY-SEVEN NATIONS PARTICIPATING IN THE GLOBAL ENTREPRENEURSHIP MONITOR (GEM) 2002

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I. INTRODUCTION

Small businesses make an important contribution to the success of a country's economy. They are major creators of jobs,¹ they innovate,² and spot and exploit new opportunities.³ Even though many new business start-ups have no explicit growth aspirations, and indeed many cease trading quite soon after start-up, it is still the case that a period of running one's own business provides an opportunity to learn new skills that are valuable to potential employers.⁴ A better understanding of the nature of business start-up by the unemployed, and the forces that drive it, will further the ability of policymakers to create the conditions under which the unemployed can successfully make the transition into business on their own account. This is of great importance given the direct link between business formation by

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1. Stefan Folster, *Do Entrepreneurs Create Jobs?*, 14 SM. BUS. ECON. 137 (2000); Marc Cowling, Mark Taylor & Peter Mitchell, *Job Creators*, 72 THE MANCHESTER SCHOOL 601 (2004).

2. ZOLTÁN ACS & DAVID AUDRETSCH, INNOVATION AND SMALL FIRM GROWTH (1990)

3. Shaker A. Zahra, *New Venture Strategies: Transforming Caterpillars into Butterflies*, in THE LIFE-CYCLE OF ENTREPRENEURIAL VENTURES ch. 3 (Simon Parker ed., 2006).

4. Nigel Meager, Peter Bates & Marc Cowling, *An Evaluation of Business Start-Up Support for Young People*, 186 NAT'L INST. ECON. REV. 59 (2003).

the unemployed and reductions in the level of unemployment.⁵ The great advantage of this study is that we use data for twenty-nine countries across the world, collected as part of the Global Entrepreneurship Monitor (GEM) annual surveys. Thus we have a tremendous diversity in terms of economic systems and labor market conditions. The rest of this paper is organized as follows: in Section II we review the theoretical and empirical literature relating to new business formation by the unemployed. Section III discusses the data and methodology to be used in the empirical part of the paper. In Section IV we present the sample statistics. Section V reports our multivariate analysis, and we conclude in Section VI.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The individual's decision to start a new business as a response to unemployment or lack of outside alternatives in the labor market can be explored within the framework of the microeconomic theory of labor supply. The standard model, which is rooted in the theory of consumer choice, predicts that labor-force participation for an individual is more likely when:

- The more they like the benefits of working (e.g., income, job status) relative to the benefits of leisure.
- The lower the income from non-work sources.
- The lower the fixed costs of working.
- The higher the real wage rate.

In Figure 1, we show a simple graphical exposition of the labor-leisure decision. Thus at the extreme, the welfare system in a country gives individuals the ability to buy different amounts of goods and services without supplying their labor. The amount of non-labor income is represented by the distance BC. Here, an individual can have twenty-four hours' leisure per day and still have a total income of BC.

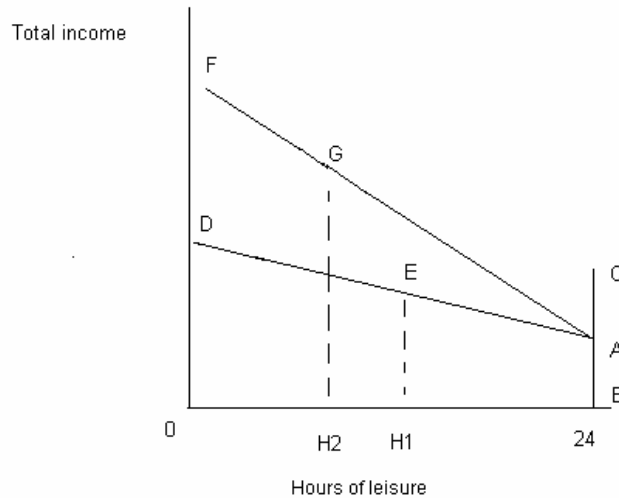
5. Paul Reynolds, David J. Storey & Paul Westhead, *Cross-National Comparison in the Variation in New Firm Formation Rates: An Editorial Review*, 28 REGIONAL STUD. 343 (1994).

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Figure 1
The Work–Leisure Decision



Importantly, the distance BC will vary across countries depending on the relative generosity of welfare systems. However, if an individual decides to work, there may be certain fixed costs to be borne. For example, welfare payments may be cut off as soon as she does any work. These sorts of costs are independent of the number of hours worked and are represented by the vertical distance AC. Thus previously an individual could have an income of C when not working at all, but even with minimal work their income falls to A due to the fixed costs of working. Therefore working just a few hours can actually reduce total income. The budget lines AD and AF then represent the labor income–leisure trade-off. AD shows the trade-off for a low-income earner and AF for a high-income earner. Quite simply, depending on the rate of earnings to be gained from working an extra hour the individual can choose to supply more hours of work to gain more income while sacrificing leisure time.

This is important for us, as necessity entrepreneurs are, by definition, unable to find suitable employment in the waged sector of the economy. Thus potential necessity entrepreneurs with low income earning potential, particularly in countries where welfare payments are high, may have a lower income incentive to start their own business. Further, if the fixed costs of working are high these may also reduce the rate of necessity entrepreneurship.

Hypothesis 1: The more generous the welfare system the lower the rate of necessity entrepreneurship.

The final piece of our theoretical development adds a time dimension to the decision to work or consume leisure, although it also impinges on the welfare payment system. This relates to the pension system when individuals become inactive in the labor market due to old age. In general, the more an individual pays into a pension system, the more he receives as unearned income in retirement. This provides an incentive to supply more hours of work thus increasing non-labor income in old age. Yet, in countries where there is little or no pension provision, individuals may have a greater incentive to work and save more to avoid poverty in old age. Thus we might expect that necessity entrepreneurship rates would be higher in countries where larger proportions of the population have no income provision in old age. The provision of state funded pensions can also be seen as reducing the incentive to work by raising total lifetime income from non-work sources.

Hypothesis 2: The higher the proportion of the adult population with pension provisions, the lower the rate of necessity entrepreneurship.

Having developed a simple theory to explain the key factors in the individual's choice to work or consume leisure, and set this in the context of the decision to start your own business as a necessity entrepreneur, we now move on to consider the empirical literature relating to unemployment and business start-up. Table 1 reports the findings of a number of empirical studies investigating the relationship between unemployment and business start-up.

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Table 1
Determinants of Business Start-Up: Unemployment Effects

Study	Unemployment Rate Effect
Abell et al. ⁶ UK	X (overall), X (entry from waged employment), +ve (entry from unemployment)
Acs et al. ⁷ OECD	+ve
Blanchflower ⁸ OECD	Mixed
Bogenhold & Staber ⁹ OECD	+ve (except Belgium and Sweden)
Cooper et al. ¹⁰ US	X
Cowling & Mitchell ¹¹ UK	-ve (entry from short-run unemployment), +ve (entry from long-run unemployment)
Cowling & Hayward ¹² UK	+ve
Cowling ¹³ UK	+ve in 2 local labor markets, -ve in 1 local labor market
Lin et al. ¹⁴ Canada	-ve
Robson ¹⁵ UK	-ve
Robson ¹⁶ UK	X
Robson ¹⁷ UK	-ve
Taylor ¹⁸ UK	+ve
Van Praag ¹⁹ US	X

6. P. Abell, H. Khalaf & D. Smeaton, *An Exploration of Entry to and Exit from Self-employment* (Centre for Economic Performance, London School of Economics, Discussion Paper No. 224, 1995).

7. Zoltán Acs, David Audretsch & David S. Evans, *Why Does the Self-employment Rate Vary Across Countries and Over Time?* (Centre for Economic Policy Research, London School of Economics, Discussion Paper No.871, 1994).

8. David Blanchflower, *Self-employment in OECD Countries*, 7 LAB. ECON. 471 (special issue, Sept. 2000).

9. Dieter Bögenhold & Udo Staber, *The Decline and Rise of Self-employment*, 5 WORK, EMP. & SOC'Y 223 (1991).

10. Arnold C. Cooper, F. Javier Gimeno-Gascon & Carolyn Y. Woo, *Initial Human and Financial Capital as Predictors of Firm Performance*, 9 J. BUS. VENTURING 371 (1994).

11. Marc Cowling & Peter Mitchell, *The Evolution of UK Self-employment: A Study of Government Policy and the Role of the Macroeconomy*, 65 THE MANCHESTER SCHOOL 427 (1997).

12. MARC COWLING & RACHEL HAYWARD, *OUT OF UNEMPLOYMENT* (Research Centre for Industrial Strategy, University of Birmingham Business School, 2000).

13. Marc Cowling, *Creating Local Opportunity* (Department of Work and Pensions, Research Report 2003), available at <http://www.dwp.gov.uk/asd>.

14. Zhengzi Lin, Garnett Picot & Janice Compton, *The Entry and Exit Dynamics of Self-Employment in Canada*, 15 SM. BUS. ECON. 105 (2000).

15. Martin Robson, *Macroeconomic Factors in the Birth and Death of UK Firms*, 64 THE MANCHESTER SCHOOL 170 (1996).

16. Martin Robson, *The Rise in Self-employment Amongst UK Males*, 10 SM. BUS. ECON. 199 (1998).

17. Martin Robson, *Self-employment in the UK Regions*, 30 APPLIED ECON. 313 (1998).

18. Mark P. Taylor, *Survival of the Fittest? An Analysis of Self-Employment Duration in Britain*, 109 ECON. J. 14 (1999).

19. M. VAN PRAAG, *DETERMINANTS OF SELF-EMPLOYMENT DURATION* (Mimeo: University of Tinbergen, 1994).

Notes: A “-ve” indicates unemployment rate reduced rate of business start-up; a “+ve” indicates unemployment rate increased rate of business start-up; a “X” indicates unemployment rate had a statistically insignificant effect.

The results show some interesting, and contrasting, results particularly between aggregate, economy-wide studies and individual level, local labor market based studies. It is also worth noting that while the Abell et al. study initially found an insignificant effect for the unemployment rate, when they ran separate models for entry from employment and unemployment, divergences in their results appeared.²⁰ Their findings suggest that although entry from waged employment is unrelated to the unemployment rate, a positive relationship exists between entry from unemployment and the unemployment rate. This mirrors the local labor market findings of Cowling and Hayward²¹ and Cowling,²² which analyzed records for in excess of 26,000 individuals, the majority of whom were unemployed at the initial stage of investigation. These results, combined with the generally positive aggregate effects found in nearly all non-U.K. studies, suggest that as the aggregate unemployment rate rises, the probability of securing waged employment may fall even further for the unemployed who typically lack the levels of human capital (both formal and informal) of those in employment. This is given further support from the Cowling and Mitchell study which found that:

Self-employment is a last resort for certain individuals marginalized in the employed sector and facing lengthy spells of unemployment. . . . Initially the short-term unemployed can compete for waged employment and are re-employed, thus tending to lower the proportion of the workforce in self-employment. But as unemployment spells lengthen these individuals become the long-term unemployed. At the same time the likelihood of obtaining waged employment diminishes and self-employment becomes a last resort option for long-term unemployed people.²³

This is close to our definition of the necessity entrepreneur as someone who perceives no suitable employment alternatives as their reason for starting a business. In line with this we propose the following two hypotheses:

20. Abell, Kahalaf & Smeaton, *supra* note 6.

21. Cowling, *supra* note 12.

22. *Id.*

23. Cowling & Mitchell, *supra* note 11, at 427.

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Hypothesis 3: When unemployment rates are high, necessity entrepreneurship rates will be high.

Hypothesis 4: When the youth share of the total stock of unemployed is high, the rate of necessity entrepreneurship will be high as they lack the human capital (education, experience, and job skills) to secure waged employment.

The majority of studies of new business entry focus on the relative rewards that can be gained in alternative labor market states.²⁴ The extent of entry barriers can be added to this as logic suggests that the lower the barriers to market entry are, the more probable it is that potential entrants actually enter. The subject of entry barriers is relatively under-researched in this context, with discussion focusing solely on an individuals' lack of finance or skill. Yet we are concerned with entry barriers in the standard industrial economics sense too as an element of market structure that refers to obstacles in the way of potential newcomers to the market; or those obstacles that operate to discourage entry (e.g., advertising, threats of retaliatory action by incumbent firms, control of essential raw materials, technology, or market outlets, etc). With this in mind we propose one final hypothesis:

Hypothesis 5: Where barriers to market entry by new businesses are high, the rate of necessity entrepreneurship will be lower.

Having generated some testable hypotheses from a survey of the theoretical and empirical literature, we now move on to the empirical part of our paper. The first thing we do is discuss the data to be tested and the methodology.

III. DATA AND METHODOLOGY

Our study comprises data from thirty-seven nations participating in GEM 2002. Those thirty-seven economies comprise 89% of the GDP and 63% of the population of the world. The GEM assessments are based upon four types of data. The most important are the adult

24. Mark P. Taylor, *Earnings, Independence or Unemployment: Why Become Self-employed?*, 58 OXFORD BULL. ECON. & STAT. 253 (1996); Marc Cowling, *Are Entrepreneurs Different Across Countries?*, 7 APPLIED ECON. LETTERS 785 (2000).

population surveys that examine a representative sample of adults in each of the thirty-seven nations. Local survey research firms are used to collect this information from 1,000 to 16,000 adults in each country. Individuals are interviewed about their participation in, and attitudes toward, entrepreneurial activity. From these interviews, data are aggregated to provide aggregate country specific measures of entrepreneurial activity. The key variable as far as this study is concerned is people who are involved in entrepreneurial activity because they have no feasible outside alternatives in the labor market. We refer to these individuals as necessity entrepreneurs. Thus for each country we have a TEA Necessity Rate that measures the proportion of the adult population who are involved in necessity entrepreneurship.

The second source of data is the expert interviews. These comprise personal interviews conducted with between twenty and seventy national experts in each GEM country. The experts provide their personal assessments of the unique aspects of their country's culture and institutional framework in relation to entrepreneurship and entrepreneurial activity. This information is supplemented by a ten page, standardized, questionnaire filled in by these same experts. The final element of the data collection process is standardized cross-national data. This is drawn from harmonized sources such as IMF (International Monetary Fund), ILO (International Labor Organisation), and the like.

The data analysis for this study is conducted on two levels. First, we explore the basic sample statistics relevant to necessity entrepreneurship and unemployment. The key variables used are drawn from our literature review and hypothesis development section. Then we progress to estimating a series of cross-sectional, econometric models to isolate the key relationships between necessity entrepreneurship rates across countries and unemployment factors. In order to capture the dynamic relationship between the two, we use an appropriate lag structure that incorporates lagged explanatory variables on the right hand side of the models. We also incorporate the lag of our dependent variable in order to capture any short-run persistence in necessity entrepreneurship across nations that may exist. The model can be written thus

$$(1) \text{ TEA Necessity}_{it} = f(\text{unemployment variables}_{it-n} + \text{social welfare}_{it} + \text{pension provision}_{it} + \text{market barriers}_{it} + \text{TEA necessity}_{it-n})$$

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where the i 's represent countries and the t 's denote time.

Thus we are seeking to explain the observed cross-country variation in necessity entrepreneurship in 2002 by a vector of unemployment variables, current and lagged, together with the lag of the dependent variable.

We then estimate a series of first difference models that seek to explain the change in necessity entrepreneurship rates across countries with a vector of unemployment level and first difference variables. The first difference model can be written thus

$$(2) \Delta TEA Necessity_{it} = f (\Delta \text{unemployment variables}_{it-n} + \text{unemployment variables}_{it-n} + \text{social welfare}_{it} + \text{pension provision}_{it} + \text{market barriers}_{it} + TEA necessity_{it-n})$$

where the i 's represent countries, the t 's denote time and the Δ represents a first difference.

In both models the variables we use are defined thus:

TEA necessity: % of adult population involved in necessity entrepreneurship

TEA necessity:	% of adult population involved in necessity entrepreneurship
Un rate:	% of labor force unemployed
Youth Un:	% of total stock of unemployed accounted for by people under the age of 25
Social Welfare:	Social security payments as % total GDP weighted by the stock of unemployed
Pension Provision:	% of adult population with pension provision
Low Barriers:	Ease of new market entry by new business (scale 1=very difficult to 5=very easy)

In this section we present the sample statistics for the variables to be incorporated in our multivariate analysis, together with a brief discussion of the cross-country variation in each variable. The data is presented in Table 2 below.

Table 2
Sample Statistics

Variable	mean	s.d	min	max
Tea necessity 02	1.946	2.103	0.09	7.50
Tea necessity 01	2.528	2.046	0.245	7.69
Low barriers	2.818	0.448	2.16	3.71
Un rate 02	7.528	4.697	2.30	23.40
Un rate 01	7.744	5.571	1.40	29.50
Un rate 00	5.810	2.831	1.40	14.10
Youth Un	30.016	8.999	12.80	51.40
Social Welfare	2.767	2.277	0.00	8.00
Pension provision	64.010	24.097	7.90	96.80
Δ TEA necessity (01-02)	-0.256	0.488	-0.93	1.28
Δ Un rate (01-02)	0.083	0.178	-0.32	0.64
Δ Un rate (00-01)	0.083	0.565	-0.16	3.00

Underpinning Table 2, we note that TEA necessity rates in 2002 are highest in Brazil, Argentina, India, and Chile. In these countries the proportion of the adult population involved in necessity entrepreneurship is between 6.5% and 7.5%. This compares to France and many Scandinavian countries where necessity entrepreneurship rates are very low. In France, for example, it is only 0.09% of the adult population. In Norway, Denmark, and Finland the rate varies between 0.33% and 0.43%. Thus there is considerable dispersion in necessity entrepreneurship rates around the mean of 1.95%. For 2001, India has the highest rate of 7.69% compared to a global mean in our sample of 2.53%. Mexico also has a high rate at 7.11%. This contrasts to countries such as Norway and Denmark, again, and the Netherlands who all had very low rates. Once again we observe considerable dispersion around the mean for all countries of 2.53%.

Regarding unemployment rates across countries and over time, we observe substantial variation in both, within and across countries. One notable feature is that the Netherlands has persistent and low unemployment rates between 2000 and 2002. The mean rates for all countries for these three years are 5.8%, 7.7%, and 7.5%. In 2000, Iceland has the lowest rate at 1.4%. This contrasts with 14.1% in Spain, and 10.6% in Italy. For 2001 the Netherlands has the lowest rate at 2.5% and South Africa the highest at 29.5%. In 2002, Iceland has the lowest rate at 2.3% and Croatia the highest at 23.4%. This

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highlights the volatility of unemployment rates within countries over time, but more dramatically across countries.

Youth unemployment, measured here as the proportion of the total stock of unemployed under the age of twenty-five, is of considerable concern to many governments. It has become more important given the general ageing of populations across many countries and the need for an ever decreasing number of workers to provide the tax revenues to finance the state burden of welfare payments to retired workers.²⁵ On this, we note that the country average is around 30% of the unemployed. However, in some countries this is much higher. For example, in Brazil, youths account for 51.4% of total unemployment. In Thailand the comparable figure is 43.4%, and in Israel 43.1%. Yet in Germany this figure is only 12.8% and in France 16.7%.

Next we consider the proportion of the adult population with pension provisions. On average 64% of adults have pension entitlements to secure an income in old age. Yet in India this figure is only 7.9%. In Thailand and China this is 17% and in Mexico 31%. Countries where nearly all the adult population have pension provisions are notably Switzerland at 96.8% and Japan at 92.3%.

Social welfare expenditure by governments reflects the relative generosity of the state in supporting the incomes of those out of work. Here we standardize this form of expenditure to take account of the actual stock of unemployed people. Thus countries with high expenditure and low levels of unemployment will have more generous welfare payment systems. Using this measure, we note that China, India, and South Africa have the least generous welfare systems. Interestingly, Denmark and New Zealand are relatively ungenerous too. This contrasts with the Netherlands and Mexico who both have very generous welfare systems.

Moving on to consider our first difference variables, and focusing on necessity entrepreneurship, we observe that between 2001 and 2002 necessity rates fell, on average, by 26 basis points. Yet in Israel it increased by 128 basis points, in Norway 50 basis points, and the Netherlands 32 basis points. The largest falls were recorded in France, -93 basis points, and Japan, -77 basis points.

25. M. Peters, R. Cressy & D. Storey, *The Economic Impact of Ageing on Entrepreneurship and SMEs* (Forward Studies Unit, European Commission, 1999); Marc Cowling & F. Greene, *Evaluation of the PRIME Third Age Self-employment Pilot Scheme* (PRIME, London, 2002); J. Gruber & D. Wise, *Social Security and retirement: An International Comparison*, 88 AM. ECON. REV. 158 (1998).

For changes in unemployment rates we observe that for both periods measured, 2000–2001 and 2001–2002, unemployment grew by 8 basis points. In the earlier period, the United States recorded the highest growth at 20 basis points. Hungary and Slovenia reported falls of 14 and 16 basis points respectively. Over the period 2001 to 2002 Iceland saw unemployment growth of 64 basis points, Taiwan of 52 points, Croatia of 44 points, and the United States of 29. Over the same period Brazilian rates fell by 32 basis points and Korean rates by 21 points. Having presented the data together with a concurrent discussion, we now move on to the multivariate part of our analysis.

IV. MULTIVARIATE ANALYSIS

Table 3 reports the results of four models that estimate the determinants of the TEA necessity entrepreneurship rate for 2002. Each of the models is well specified and can explain between 85% and 90% of the variation in TEA necessity rates across the GEM nations. The first point of interest is that there is a degree of short-run persistence in necessity entrepreneurship rates. It says that nations with high (low) rates one year are likely to have high (low) rates in the following year. Thus for a nation such as India, with a 2001 necessity rate of 7.69% compared to the GEM average rate of 2.53%, holding all other factors constant, will have a necessity entrepreneurship rate of the order of 2% higher in 2002. This might imply that there are cultural differences across countries, which means that adults in certain countries will always be more likely to consider starting their own business as a response to unemployment.

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Table 3
Regression Models for TEA Necessity 2002

	Dependent variable = TEA Necessity Rate 2002							
	Model 1		Model 2		Model 3		Model 4	
	coefficient	t-stat	coefficient	t-stat	coefficient	t-stat	coefficient	t-stat
Constant	-0.427	-0.673	-1.262	-1.162	-0.884	-0.903	1.207**	2.787
TEA nec 01	0.387***	4.666	0.368***	4.088	0.385***	4.803	0.413***	5.527
Un rate 02	-1.020***	-2.365	-1.349***	-6.599	-1.121***	-5.419	-1.185***	-7.606
Un rate 01	1.040***	5.870	1.383***	6.934	1.574***	8.050	1.178***	7.204
Un rate 00	-	-	-	-	-0.431**	-2.302	-	-
Youth Un	3.6e-2**	2.209	-	-	-	-	-	-
Low Barriers	-	-	0.701*	2.038	0.574*	1.849	-	-
Social Welfare	-	-	-	-	-	-	-0.119*	-2.014
Adj R ²	0.851		0.863		0.892		0.850	
F stat	29.499		32.592		34.143		33.459	
Significance	0.0001		0.0001		0.0001		0.0001	

*** significant at the 0.01 level; ** significant at the 0.05 level; *significant at the 0.1 level

Next we focus on the effects of unemployment, here proxied by the unemployment rate over time. The first point of note is that the coefficients for unemployment rates in 2001 and 2002 are robust to alternative model specifications. What the models do show quite clearly is that people's response to observed unemployment is dependent upon the stage they are at in the business inception process. For example, if unemployment was high in the previous year, this will stimulate people to choose necessity entrepreneurship in the face of declining wage opportunities. Yet if unemployment is high in the current year this will act as a deterrent to people seeking to start their own business. Thus it would appear that demand-side effects, i.e., low demand due to high unemployment, dominate when people are further down the path to starting their own business. At earlier stages, labor market effects appear to dominate, i.e., not seeing any feasible alternatives in the labor market. Interestingly, the coefficients suggest that the strengths of these two effects are equal, but opposite. Finally, in Model 3 we also observe that unemployment rates two years previously (i.e., in 2000) act to reduce necessity rates in 2002. However, the coefficient is much smaller than those for 2001 and 2002 and is only significant at the 5% level.

Youth unemployment, defined here as the share of under 25s out of total unemployment, was found to have a small, but positive, effect in Model 1. This suggests that in countries such as Brazil, Thailand, and Israel with high shares of youth unemployment necessity

entrepreneurship rates will be higher than in countries such as Germany and France with low rates, holding other factors constant. Overall, this suggests that the age composition of the stock of unemployed matters in terms of flows into necessity entrepreneurship.

We also observe, in Model 4, that countries where social welfare payments are more generous have lower necessity entrepreneurship rates. This directly relates to the standard economic model of labor supply, which predicts that individuals with higher incomes from non-work sources will have lower participation rates. It is consistent with the notion that high levels of welfare payments raises the reservation wage (the wage individuals are prepared to work for) of unemployed people thus making it more difficult to earn an income from running your own business that exceeds the welfare payment level.

Finally, we observe that ease of market entry by new businesses raises necessity entrepreneurship rates. The ability of new businesses to gain a foothold in markets appears critical, particularly for those starting from unemployment who are likely to have very scarce resources, both in terms of financial and human capital. If barriers to market entry are high then necessity entrepreneurship rates will be lower. Thus competition policy, which ensures a level playing field, may be critical for the development of new business activity by the unemployed.

Next we turn our attention to estimating first difference models. These are shown in Table 4, which estimates the change in necessity entrepreneurship rates between 2001 and 2002. Here again the models are well specified and can explain between 48% and 65% of the cross-country variation.

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Table 4
Regression Models for Change in TEA Necessity 2001–2002

	Model 1		Model 2	
	coefficient	t-stat	coefficient	t-stat
Constant	-0.000	-0.363	0.400	0.487
TEA nec 01	-0.103**	-2.350	-0.191**	-2.808
Δ Un (00-01)	-5.037***	-4.593	-4.396***	-3.216
Un rate 01	1.128***	4.579	0.995***	3.241
Un rate 00	-1.114***	-4.691	-0.980***	-3.353
Pension provision	-	-	-0.012	-1.707
Youth Un	-	-	0.020*	2.032
Adj R ²	0.482		0.648	
F stat	6.361		6.205	
Significance	0.002		0.005	

*** significant at the 0.01 level; ** significant at the 0.05 level; *significant at the 0.1 level

From Table 4, we observe that both models are statistically significant and explain between 48% and 65% of the observed cross-country variation in growth rates of necessity entrepreneurship. Next we note that countries with high levels of necessity entrepreneurship in previous time periods will have slower growth rates in the current period. This presumably might occur as the stock of potential necessity entrepreneurs is diminishing. We also observe that high growth in the unemployment rate in the previous period also reduces current growth rates of necessity entrepreneurship. This is likely to be a demand-side effect. Yet the actual rate (the level) for the last period acts in a positive way on current growth of necessity entrepreneurship. Taken together, these results suggest that high, but stable or falling, unemployment is the key to higher growth in necessity entrepreneurship rates.

We also find that high levels of youth unemployment act to increase the necessity entrepreneurship growth rate, suggesting that young, unemployed people see little opportunity for waged employment. Finally, we note that pension provision is negatively associated with growth in necessity entrepreneurship, although this effect is not significant at conventional levels (significance 0.11).

Prior to our concluding section we now present a summary table of our initial hypotheses and empirical findings as a means of clarifying exactly what our results show. This is presented in Table 5 below.

Table 5
Hypotheses and Results Summary

Hypothesis	Variable	Predicted sign	Lag structure	Necessity rate models	Growth models
1	Social welfare	-ve		(-ve)	0
2	Pension provision	-ve		0	0
3	Un rate	+ve	t	-ve	0
			t-1	+ve	+ve
			t-2	-ve	-ve
			Δt		0
			$\Delta t-1$		-ve
4	Youth un	+ve		+ve	(+ve)
5	Low barriers	+ve		(+ve)	0

Notes: results in parentheses indicate variable only significant at the 10% level. A zero indicates that variable was insignificant.

From Table 5, we observe that our predictions are supported more in our first models estimating the actual rate of necessity entrepreneurship than in the growth models. From the necessity rate models we generate three correct predictions, one null effect and one, on the unemployment rate effect, inconclusive. By contrast, the growth models generate only one correct prediction, three null effects, and, once again, an inconclusive effect on our unemployment variables. This suggests that it is much easier to explain why certain countries have higher rates of necessity entrepreneurship than why some countries are observing higher growth in this form of entrepreneurial activity.

V. CONCLUSION

We have explored the relationships between necessity entrepreneurship and unemployment in a large number of countries using empirical data collected as part of the GEM project. From the sample statistics we observed that there is tremendous variation in necessity entrepreneurship rates across countries. We also noted that there was a lot of temporal variation within countries. By contrast, unemployment rates exhibit less temporal variation. Yet the youth unemployment share varies dramatically across countries, as does the

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relative generosity of welfare systems, and the share of the adult population with pension provision.

From our multivariate analysis, there appears to be short-run persistence in necessity entrepreneurship rates. Countries with high rates last year will have high rates this year. Unemployment has varying effects. Current high unemployment will reduce necessity entrepreneurship rates. Previous high unemployment will increase next period necessity rates. The key to high growth in necessity entrepreneurship rates appears to be a high, but falling, level of unemployment. Further, the higher the share of total unemployment accounted for by youths (under 25s), the higher the necessity entrepreneurship rate. Ease of entry to the market is also critical in facilitating necessity entrepreneurship. There is some marginal evidence that generous welfare systems reduce flows from unemployment into necessity entrepreneurship.

As to potential explanations for our findings, it appears that in some countries, more than others, there is a culture of the unemployed seeking to create their own employment when waged jobs are scarce. Alternatively, being unemployed is so undesirable that business start-up is the only way of earning a living and creating social legitimacy.

There is also an interesting time dimension to the impact of unemployment on necessity entrepreneurship. If unemployment is high when I am deciding whether to start a venture, then I am more likely to see no viable outside alternatives (i.e., no waged jobs on offer). But when I am actually at the point of starting for real, if unemployment is high I see no demand for my goods or services, so I don't actually start. Even with high levels of unemployment, it appears that if people observe that unemployment has peaked, or is falling, then this fact alone appears to be enough for them to start a new venture. This is likely to be an expectations effect of increased demand for goods and services as people become re-employed.

Youths who are unemployed typically lack education and job skills. Thus job search is futile. The only way of working is by starting their own business. With scarce resources, as the unemployed typically have, ease of market entry is critical, but not in an institutional sense.

So what does this all mean for the developed and developing world? We have seen that social welfare only has a marginal effect on the level of necessity entrepreneurship and pension provision has no effect. This suggests that arguments put forward by Woodruff and De Soto regarding high welfare provision acting as a disincentive for

individuals in terms of their supply of effort do not appear to hold in this context.²⁶ In fact, our evidence is more consistent with Samuelson who argues that non-uniformity of human nature and the role of history, geography, religion, and tradition are crucial in determining levels of entrepreneurial (and capitalist) activity.²⁷

Our evidence on youth unemployment is again out of line with Woodruff and De Soto in the sense that the denial of property rights and problems with accessing local capital and accessing professional networks should prevent localized entrepreneurial activity in developing countries, or at least push it into the informal economy. The fact that institutional barriers to business start-up have either no impact, or at most a marginal one, also goes against the basic tenet of De Soto's work, which often cites examples of institutional barriers in poorer countries as the main block on the ability of people to establish property rights and thus advance popular capitalism.

What our evidence does suggest is that, for the most part, individuals who are pre-disposed toward entrepreneurship will proceed regardless of the institutional barriers they face or the relative generosity of the social welfare system. Of course, the fall-back position will be much tougher should they subsequently fail in business in countries with a relatively un-generous social welfare system. Thus the costs of failure are likely to be much higher in developing countries.

We also note that the general predictions of the labor-leisure model appear less relevant to entrepreneurial activity in the sense that high welfare provision should act as a disincentive to supply labor hours. This is consistent with the utility function of the entrepreneur being skewed to the non-pecuniary returns associated with running one's own business (e.g., independence, flexibility, etc). This is consistent with previous literature.²⁸

To summarize, our evidence suggests that necessity entrepreneurship levels are not particularly related to institutional factors (welfare provision and legislative frameworks). This implies that there should be little difference in observed necessity entrepreneurship rates across the developed and developing world, or at least very little that governments can do to increase entrepreneurship from an institutional perspective. However, as

26. Christopher Woodruff, *Review of de Soto's The Mystery of Capital*, 40 J. ECON. LIT. 1215 (2002) (book review).

27. Robert J. Samuelson, *The Spirit of Capitalism*, 80 FOREIGN AFFAIRS 205 (Jan.-Feb. 2001).

28. See, e.g., Taylor, *supra* note 23.

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developing countries typically have higher rates of unemployment, particularly among the young, we would expect that this would feed through into observably higher rates of necessity entrepreneurship among the marginalized, out-of-work, and presumably very poor segments of the population. For developed countries, our evidence questions whether the focus on the lowering of institutional barriers to promote entrepreneurship will have the desired effect given that cultural aspects appear to play such an important role in defining peoples pre-disposition toward entrepreneurial activity. And, we cannot help but point out the key roles that the level of unemployment, and growth in, play in determining the level and growth rate in necessity entrepreneurship across countries. Equally important is the composition of the stock of unemployed people.

