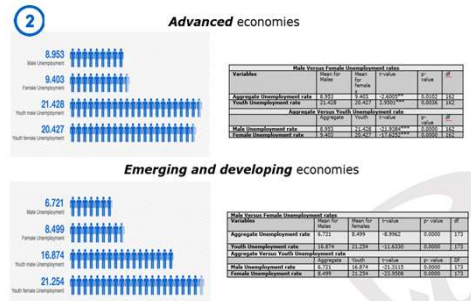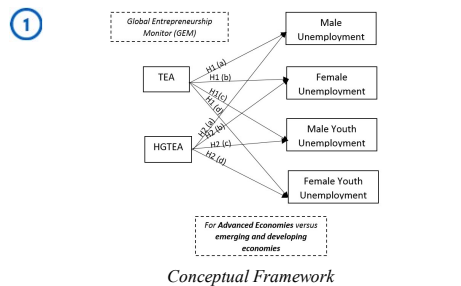# Entrepreneurship and Unemployment: The Social inclusion of Females & Youth

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Introduction

The paper investigates the relationship between entrepreneurship, measured by the Global Entrepreneurship Monitor (GEM) measures, namely: total entrepreneurial activity (TEA) and high job creation TEA (HGTEA) and the disaggregated unemployment rates for the four sub-categories in the economy, namely: males, females, youth males and youth females. The relationship was examined using dynamic panel data model (DPD) with generalized method of moments (GMM) estimators, for the available data for the period 2010-2019. This study was conducted using unbalanced panel data for 19 advanced economies versus 21 emerging and developing economies.

Conceptual Framework

Paired t-tests for differences in unemployment rates among the different groups

Source: Data based on ILO estimates, World bank (2021)

Model specification

$$Ln(UNEMP_{it}) = \alpha_1 Ln(UNEMP_{it-}) + \alpha_2 Ln(TEA_{it}) + \alpha_3 Ln(TEA_{it-1}) + \alpha_4 Ln(TEA_{it-2}) + \alpha_5 Ln(TEA_{it-3}) + + \alpha_6 Ln(HGTEA_{it}) + \alpha_7 Ln(HGTEA_{it-1}) + \alpha_8 Ln(HGTEA_{it-2}) + \alpha_9 Ln(HGTEA_{it-3}) + \alpha_{10} Ln(POPDENSITY) + \eta_i + \lambda_t + \varepsilon_{it}$$
(1)

$$\Delta Ln(UNEMP_{it}) = \alpha_1 Ln(UNEMP_{it-}) + \alpha_2 Ln(TEA_{it}) + \alpha_3 Ln(TEA_{it-1}) + \alpha_4 Ln(TEA_{it-}) + \alpha_5 Ln(TEA_{it-3}) + + \alpha_6 Ln(HGTEA_{it}) + \alpha_7 Ln(HGTEA_{it-1}) + \alpha_8 Ln(HGTEA_{it-}) + \alpha_9 Ln(HGTEA_{it-3}) + \alpha_{10} Ln(POPDENSITY) + \eta_i + \lambda_t + \varepsilon_{it}$$
(2)

For equation 1, $i = 1...N$ and $t = 1...T$ denoting country and time dimensions respectively for the panel data set. $Ln(UNEMP_{it})$ is the logarithmic of the respective subcategory of unemployment rate of country i at the end of year t. The subcategories of unemployment rates this paper uses are: UM which is the male unemployment rate, UF which is the female unemployment rate, UYM which is the male youth unemployment rate, UYF which is the female youth unemployment rate.
Equation 2 is the same as equation 1, the only difference is that it has the change of the logarithmic of the respective subcategory of unemployment rate of country i at the end of year t $\Delta Ln(UNEMP_{it})$ as a dependent variable.

Results

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Variables	Model 1(a) Ln(UM)	Model 2(a) ΔLn(UM)	Model 1(b) Ln(UF)	Model 2(b) ΔLn(UF)
Ln(UM(-1))	0.569*** (0.150)			
Ln(ΔUM(-1))		0.422* (0.246)		
Ln(UF(-1))			0.544*** (0.108)	
Ln(ΔUF(-1))				0.253 (0.209)
Ln(TEA)	-0.049 (0.042)	-0.104** (0.0449)	-0.055 (0.042)	0.0087 (0.0619)
Ln(TEA(-1))	-0.124** (0.053)	-0.142* (0.0808)	-0.0654 (0.040)	-0.0186 (0.0525)
Ln(TEA(-2))	-0.194* (0.102)	-0.251* (0.130)	-0.109** (0.044)	-0.116* (0.060)
Ln(TEA(-3))	-0.081 (0.057)	-0.0579 (0.0613)	-0.051 (0.043)	-0.0489 (0.0464)
Ln(HGTEA)	0.0505*** (0.0156)	0.00297 (0.0289)	0.0599*** (0.028)	0.0181 (0.0435)
Ln(HGTEA(-1))	0.0226 (0.0269)	-0.0301 (0.0369)	0.0273 (0.0260)	-0.0463 (0.0323)
Ln(HGTEA(-2))	0.0235 (0.0366)	-0.025 (0.0456)	0.0253 (0.0353)	-0.0669 (0.0323)
Ln(HGTEA(-3))	0.0060 (0.0303)	-0.030 (0.0330)	-0.0255 (0.0226)	-0.0669* (0.0342)
Ln(POPDENSITY)	3.0305*** (0.903)	2.129*** (0.902)	1.769** (0.820)	1.517 (0.985)
Trend	-0.0529*** (0.0195)	0.00196 (0.00678)	-0.0516*** (0.00934)	-0.014 (0.012)
Wald Test	762.83***	49.86***	742.80***	90.22***
Observations	87	87	87	87
Number of countries	19	19	19	19
Number of instruments	16	16	16	16

Male versus Female Regression Estimations for advanced economies

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Variables	Model 1(c) Ln(UYM)	Model 2(c) ΔLn(UYM)	Model 1(d) Ln(UYF)	Model 2(d) ΔLn(UYF)
Ln(UYM(-1))	0.267* (0.152)			
Ln(ΔUYM(-1))		-0.147 (0.128)		
Ln(UYF(-1))			0.151 (0.185)	
Ln(ΔUYF(-1))				-0.096 (0.184)
Ln(TEA)	0.0264 (0.0479)	0.0160 (0.075)	-0.0399 (0.0672)	0.00932 (0.107)
Ln(TEA(-1))	-0.111** (0.0529)	-0.1228* (0.0739)	-0.0791 (0.0576)	-0.0838 (0.0923)
Ln(TEA(-2))	-0.119 (0.0788)	-0.148 (0.105)	-0.115 (0.109)	-0.175 (0.1722)
Ln(TEA(-3))	-0.0536 (0.0477)	-0.0961* (0.0549)	-0.060 (0.0572)	-0.0910 (0.0656)
Ln(HGTEA)	0.0839*** (0.0290)	0.05755 (0.0350)	0.0966** (0.0461)	0.0681 (0.0528)
Ln(HGTEA(-1))	0.0375 (0.0296)	-0.0232 (0.0364)	0.0706* (0.0404)	-0.0234 (0.0465)
Ln(HGTEA(-2))	0.0471 (0.0404)	0.0000987 (0.0422)	0.0498 (0.05819)	-0.00333 (0.0653)
Ln(HGTEA(-3))	0.0477 (0.0354)	0.0147 (0.0426)	0.0323 (0.0372)	-0.0125 (0.0428)
Ln(POPDENSITY)	2.626*** (0.8297)	2.778*** (0.516)	2.309** (0.967)	2.227 (1.578)
Trend	-0.0714*** (0.0183)	-0.0155* (0.0091)	-0.0829*** (0.01696)	-0.0213** (0.00982)
Wald Test	767.59***	35.62***	558.68***	64.11***
Observations	87	87	87	87
Number of countries	19	19	19	19
Number of instruments	16	16	16	16

Youth Male versus Youth Female Regression Estimations for advanced economies

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Source: based on coefficients for Ln (TEA) and its lags from regression models 1(a), 1(b), 1(c) & 1(d)

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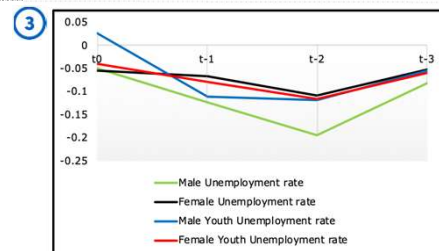
Variables	Ln(UM)	ΔLn(UM)	Ln(UF)	ΔLn(UF)
Ln(UM(-1))	0.274*** (0.0621)			
Ln(ΔUM(-1))		-0.392*** (0.0646)		
Ln(UF(-1))			0.280*** (0.0547)	
Ln(ΔUF(-1))				-0.386*** (0.0476)
Ln(TEA)	0.0316 (0.0432)	-0.00315 (0.0419)	0.0324 (0.0331)	-0.0104 (0.0306)
Ln(TEA(-1))	0.000638 (0.0548)	-0.0129 (0.0438)	-0.0583 (0.0393)	-0.0956** (0.0414)
Ln(TEA(-2))	-0.02000 (0.566)	-0.0515 (0.0515)	-0.0202 (0.049)	-0.0473 (0.0620)
Ln(TEA(-3))	0.0784 (0.0489)	0.1011* (0.0558)	0.0371 (0.0501)	0.0574 (0.0659)
Ln(HGTEA)	-0.00792 (0.0359)	-0.0293 (0.032)	0.0149 (0.0295)	-0.0224 (0.0335)
Ln(HGTEA(-1))	0.00745 (0.03178)	0.00711 (0.0275)	0.0168 (0.0261)	0.0190 (0.03499)
Ln(HGTEA(-2))	-0.0259 (0.0355)	0.01197 (0.0236)	-0.0461 (0.0203)	-0.0209 (0.01797)
Ln(HGTEA(-3))	0.00595 (0.0416)	0.0363 (0.0312)	-0.00572 (0.0312)	0.02295 (0.0319)
Ln(POPDENSITY)	6.728*** (1.282)	3.411*** (0.986)	6.1297*** (1.247)	3.623*** (1.312)
Trend	-0.0657 (0.0192)	-0.0453 (0.01199)	-0.0633 (0.0179)	-0.0432*** (0.0161)
Wald Test	104.36***	447.91***	287.85***	1682.40***
Observations	90	90	90	90
Number of countries	21	21	21	21
Number of instruments	16	16	16	16

Male versus Female Regression Estimations for emerging and developing economies

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Variables	Ln(UYM)	ΔLn(UYM)	Ln(UYF)	ΔLn(UYF)
Ln(UYM(-1))	0.236** (0.0995)			
Ln(ΔUYM(-1))		-0.413*** (0.0719)		
Ln(UYF(-1))			0.248** (0.104)	
Ln(ΔUYF(-1))				-0.449*** (0.0555)
Ln(TEA)	0.0583 (0.0467)	0.0248 (0.0484)	0.0812 (0.0499)	0.0513 (0.0469)
Ln(TEA(-1))	0.0282 (0.0541)	0.0271 (0.0416)	-0.0034 (0.0470)	-0.0136 (0.0432)
Ln(TEA(-2))	-0.02298 (0.0502)	-0.0657 (0.0428)	-0.0333 (0.0527)	-0.0825 (0.0615)
Ln(TEA(-3))	0.0549 (0.0491)	0.0770 (0.0523)	-0.0359 (0.0792)	-0.0270 (0.0924)
Ln(HGTEA)	-0.00155 (0.0399)	-0.0227 (0.0235)	-0.01097 (0.0235)	-0.0481* (0.0285)
Ln(HGTEA(-1))	-0.00595 (0.0359)	-0.00749 (0.0266)	0.0181 (0.0322)	0.0186 (0.0343)
Ln(HGTEA(-2))	-0.0506 (0.0352)	-0.0163 (0.0202)	-0.0461** (0.0225)	-0.0225 (0.0265)
Ln(HGTEA(-3))	0.0208 (0.0461)	0.0551 (0.0464)	0.00141 (0.0327)	0.0195 (0.0372)
Ln(POPDENSITY)	7.386*** (1.442)	4.304*** (1.0499)	6.743*** (1.324)	4.307*** (1.195)
Trend	-0.0704*** (0.0198)	-0.0537*** (0.0119)	-0.0632*** (0.0168)	-0.0487 (0.0161)
Wald Test	78.74***	331.54***	147.54***	475.47***
Observations	90	90	90	90
Number of countries	21	21	21	21
Number of instruments	16	16	16	16

Youth Male versus Youth Female Regression Estimations for emerging and developing economies

Conclusion

The results demonstrated that apart from the youth females, a negative and significant relation was found between TEA and unemployment rate for the remaining three categories for advanced economies. Nonetheless, the results for emerging & developing economies came insignificant. This could indicate support against the "entrepreneurial pull" side of the entrepreneurship/unemployment nexus for emerging and developing countries and could trigger investigation for the "unemployment push" effect instead. The HGTEA played an insignificant role in stimulating unemployment for both advanced and emerging & developing economies, indicating that high job creation intentions did not contribute to their aim but this could be attributed to the short time period examined in our study.

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