

# Taxes, Start-up Costs, and Innovative Entrepreneurship

## Small Business Economics

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**Table A.1.** Sample of individuals and the value of dependent variable by country

Country	Total sample of individuals	Share of innovative entrepreneurs in total sample of individuals (min, max, standard deviation)	Share of entrepreneurs in total sample of individuals	Share of innovative entrepreneurs in total sample of entrepreneurs
Argentina	7,732	(0.15, 0.29, 0.05)	13.63%	22.79%
Australia	7,330	(0.09, 0.14, 0.02)	9.65%	11.74%
Austria	2,253	(0.08, 0.16, 0.04)	7.68%	10.40%
Belgium	12,203	(0.10, 0.19, 0.04)	4.77%	14.67%
Brazil	12,041	(0.02, 0.14, 0.03)	15.42%	4.94%
Canada	1,202	(0.15, 0.18, 0.01)	9.82%	14.41%
Chile	16,817	(0.23, 0.50, 0.10)	15.49%	41.78%
China	10,385	(0.09, 0.21, 0.04)	19.37%	13.82%
Colombia	18,489	(0.17, 0.41, 0.08)	18.21%	23.21%
Croatia	7,213	(0.064, 0.14, 0.02)	9.47%	10.40%
Czech republic	1,829	(0.10, 0.10, 0)	6.56%	10.00%
Denmark	19,317	(0.19, 0.28, 0.03)	5.39%	24.24%
Finland	8,820	(0.09, 0.15, 0.018)	8.56%	12.45%
France	10,877	(0.03, 0.14, 0.03)	3.33%	9.18%
Germany	23,199	(0.07, 0.13, 0.02)	7.61%	10.72%
Greece	9,947	(0.059, 0.25, 0.06)	8.87%	15.93%
Hong Kong	2,661	(0.00, 0.20, 0.08)	8.72%	8.19%
Hungary	11,364	(0.01, 0.09, 0.03)	7.60%	5.27%
Iceland	8,997	(0.11, 0.21, 0.03)	14.93%	15.79%
India	3,562	(0.07, 0.34, 0.12)	13.62%	17.01%
Indonesia	1,432	(0.24, 0.24, 0)	22.97%	26.14%
Ireland	7,951	(0.10, 0.21, 0.04)	9.96%	14.77%
Israel	6,854	(0.17, 0.22, 0.02)	7.57%	20.27%
Italy	10,744	(0.06, 0.33, 0.07)	4.45%	16.74%
Japan	7,939	(0.04, 0.27, 0.07)	5.08%	11.41%
Jordan	3,053	(0.22, 0.39, 0.08)	17.95%	33.94%
Kazakhstan	1,315	(0.03, 0.03, 0)	13.31%	2.86%
Korea	3,751	(0.05, 0.12, 0.03)	12.02%	10.20%
Latvia	8,875	(0.08, 0.22, 0.05)	8.77%	11.70%
Malaysia	4,349	(0.04, 0.11, 0.03)	8.09%	8.16%
Mexico	8,811	(0.1, 0.18, 0.03)	8.52%	13.21%
Netherlands	16,158	(0.12, 0.25, 0.03)	6.14%	19.22%
New Zealand	1,920	(0.08, 0.16, 0.04)	19.38%	13.10%
Norway	9,652	(0.04, 0.16, 0.03)	8.20%	11.30%
Peru	8,958	(0.22, 0.36, 0.05)	34.29%	28.75%
Philippines	1,715	(0.08, 0.08, 0)	24.43%	7.88%

Poland	2,053	(0.10, 0.22, 0.06)	8.43%	11.48%
Portugal	3,175	(0.06, 0.13, 0.03)	8.98%	11.23%
Romania	6,708	(0.02, 0.11, 0.03)	3.44%	8.65%
Russia	7,135	(0.12, 0.23, 0.04)	2.55%	16.71%
Singapore	7,327	(0.14, 0.18, 0.02)	8.75%	15.76%
Slovenia	12,830	(0.15, 0.24, 0.03)	6.72%	16.59%
South Africa	8,981	(0.16, 0.29, 0.04)	8.90%	23.28%
Spain	163,679	(0.11, 0.21, 0.04)	5.96%	17.40%
Sweden	34,579	(0.07, 0.16, 0.04)	3.10%	10.15%
Switzerland	9,292	(0.11, 0.17, 0.02)	6.60%	14.93%
Taiwan	1,766	(0.44, 0.44, 0)	8.83%	45.51%
Thailand	5,881	(0.11, 0.20, 0.03)	16.44%	14.24%
Turkey	6,111	(0.34, 0.41, 0.03)	8.18%	39.08%
UK	95,337	(0.08, 0.17, 0.03)	6.98%	11.60%
United Arab Emirates	4,612	(0.26, 0.45, 0.09)	10.36%	13.56%
United States	17,648	(0.11, 0.17, 0.02)	9.38%	36.40%
Venezuela	2,570	(0.08, 0.15, 0.03)	21.09%	9.41%
<b>Total</b>	<b>689,399</b>			

**Table A.2.** The value of the independent variables by country

Country (time range in sample)	Start-up costs (min, max, standard deviation)	Corporate tax rate (min, max, standard deviation)	Income tax rate (min, max, standard deviation)
Argentina (2004-2011)	(9, 14.7, 1.80)	(35, 35, 0)	(13, 17, 1.66)
Australia (2004-2011)	(0.8, 2.1, 0.48)	(30, 30, 0)	(47, 47, 0)
Austria (2005-2007)	(5.6, 6, 0.2)	(25, 25, 0)	(24, 27, 1.5)
Belgium (2004-2011)	(5.2, 11.3, 2.88)	(34, 34, 0)	(53.7, 53.7, 0)
Brazil (2004-2011)	(6.9, 13.1, 2.05)	(25, 25, 0)	(27, 27, 0)
Canada (2004-2006)	(0.6, 0.9, 0.14)	(36, 41, 2.16)	(29, 29, 0)
Chile (2005-2011)	(8.6, 12.1, 0.99)	(17, 35, 6.21)	(19, 20, 0.35)
China (2005-2010)	(4.9, 15.9, 3.89)	(25, 33, 3.92)	(45, 45, 0)
Colombia (2006-2011)	(13.1, 28, 5.19)	(33, 38, 1.83)	(33, 33, 0)
Croatia (2004-2010)	(8.4, 16.3, 2.40)	(20, 20, 0)	(45, 45, 0)
Czech republic (2006)	(9.5, 9.5, 0)	(24, 24, 0)	(20, 20, 0)
Denmark (2004-2011)	(0, 0, 0)	(25, 30, 2.18)	(31, 31, 0)
Finland (2004-2010)	(0.9, 1.2, 0.10)	(26, 29, 1.36)	(26, 30, 1.25)
France (2004-2011)	(0.9, 1.3, 0.13)	(33.3, 35.4, 0.74)	(45, 53.7, 2.92)
Germany (2004-2011)	(4.7, 5.9, 0.51)	(31, 43, 4.77)	(42, 47.5, 2.48)
Greece (2004-2011)	(20.2, 32.7, 5.43)	(20.00, 35.00, 5.02)	(40.00, 45.00, 2.17)
Hong Kong (2004-2009)	(2, 3.30, 0.54)	(16, 18, 0.94)	(5, 5, 0)
Hungary (2004-2011)	(8, 40.40, 11.59)	(16, 20, 1.58)	(37, 37, 0)
Iceland (2004-2010)	(3.1, 3.1, 0)	(15, 26, 4.84)	(13, 38, 8.56)
India (2006-2008)	(62, 78.40, 7.01)	(34, 34, 0)	(12, 12, 0)
Indonesia (2006)	(101.7, 101.7, 0)	(30, 30, 0)	(2, 2, 0)
Ireland (2004-2010)	(0.30, 10.40, 4.51)	(13, 13, 0)	(41, 41, 0)
Israel (2004-2010)	(4.40, 5.50, 0.50)	(25, 36, 3.93)	(11, 16, 1.90)
Italy (2004-2010)	(17.90, 22.10, 1.47)	(27, 34, 3.11)	(44, 45, 0.35)

Japan (2004-2010)	(7.50, 10.70, 1.57)	(41, 48, 2.80)	(50, 50, 0)
Jordan (2004-2009)	(37.7, 104.1, 33.2)	(25, 35, 5)	(5, 6, 0.5)
Kazakhstan (2007)	(7, 7, 0)	(30, 30, 0)	(17, 17, 0)
Korea (2008-2010)	(14.7, 17.1, 1.09)	(22, 25, 1.41)	(35, 35, 0)
Latvia (2005-2010)	(2.1, 9.3, 2.44)	(15, 15, 0)	(25, 25, 0)
Malaysia (2006-2011)	(15.6, 33.1, 6.81)	(25, 28, 1.3)	(8, 11, 1.3)
Mexico (2005-2011)	(19.3, 29.5, 3.75)	(28, 32, 1.33)	(9, 14, 1.79)
Netherlands (2004-2011)	(5.6, 13.3, 3.54)	(25, 34, 3.71)	(52, 52, 0)
New Zealand (2004-2005)	(0.2, 0.2, 0)	(33, 33, 0)	(21, 21, 0)
Norway (2004-2011)	(1.90, 3.5, 0.56)	(28, 28, 0)	(48, 48, 0)
Peru (2004-2011)	(17.20, 39.40, 7.64)	(30, 30, 0)	(13, 13, 0)
Philippines (2006)	(23.9, 23.9, 0)	(35, 35, 0)	(9, 9, 0)
Poland (2004 and 2011)	(21.2, 21.2, 0.00)	(19, 27, 4)	(40, 40, 0)
Portugal (2004-2010)	(6.40, 12, 2.37)	(27, 33, 2.83)	(42, 42, 0)
Romania (2007-2011)	(2.80, 10.90, 2.91)	(16, 16, 0)	(16, 16, 0)
Russia (2006-2011)	(1.80, 10.90, 2.95)	(20, 24, 2)	(13, 13, 0)
Singapore (2004-2011)	(0.90, 1.00, 0.04)	(17, 22, 1.79)	(21, 21, 0)
Slovenia (2004-2010)	(0.00, 14.80, 5.61)	(20, 25, 1.93)	(26, 30, 1.31)
South Africa (2004-2011)	(5.90, 9.70, 1.53)	(34.50, 37.80, 1.38)	(40, 40, 0)
Spain (2004-2011)	(5.50, 8.20, 0.79)	(30, 35, 2.32)	(43, 45, 0.71)
Sweden (2004-2011)	(0.60, 0.70, 0.04)	(26, 28, 0.94)	(29, 29, 0)
Switzerland (2005-2011)	(2, 8.60, 3.18)	(21, 21, 0)	(40, 40, 0)
Taiwan (2010)	(5.9, 5.9, 0)	(20, 20, 0)	(6, 6, 0)
Thailand (2005-2011)	(7.70, 8.30, 0.22)	(30, 30, 0)	(5, 5, 0)
Turkey (2006-2010)	(14.20, 27.40, 5.29)	(20, 20, 0)	(28, 30, 0.83)
UK (2004-2011)	(0.70, 3.20, 1)	(28, 30, 1)	(40, 50, 4.33)
United Arab Emirates (2006-2009)	(5.50, 15.80, 4.35)	(55, 55, 0)	(1, 1, 0)
United States (2004-2011)	(0.70, 0.80, 0.04)	(35, 35, 0)	(25, 25, 0)
Venezuela (2005-2009)	(25.40, 37.90, 5.59)	(34, 34, 0)	(5, 6, 0.47)

**Table A.3.** Descriptive statistics and correlation matrix (individual level variables)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Innovative entrepreneur	0.18	0.39													
2. High level of education	0.49	0.50	0.05												
3. Entrepreneurial networks	0.37	0.48	0.01	-0.01											
4. Perceived entrepreneurial skills	0.49	0.50	0.01	-0.06	0.18										
5. Prior entrepreneurship experience	0.03	0.18	0.02	-0.02	0.07	0.06									
6. Established business ownership	0.08	0.28	0.02	0.02	0.04	0.04	0.03								
7. Age	43.23	26.63	0.002	0.05	-0.07	-0.02	-0.01	0.02							
8. Male	0.49	0.50	0.001	0.002	0.10	0.11	0.03	0.04	-0.02						
<i>Country level variables</i>															
9. Start-up costs	8.60	11.00	0.08	-0.05	0.03	-0.01	0.05	0.01	-0.05	-0.02					
10. Corporate tax rate (log)	3.29	0.68	-0.05	-0.03	-0.03	-0.01	-0.03	0.02	0.02	-0.04	0.04				
11. Personal income tax rate (log)	3.44	0.57	-0.07	0.02	-0.05	0.03	-0.08	0.01	0.04	0.02	-0.47	0.48			
12. Air transport (log)	17.13	1.45	-0.07	0.04	-0.08	-0.02	-0.03	0.02	0.06	-0.01	-0.29	0.13	0.38		
13. GDP per capita (log)	10.05	3.58	-0.07	0.14	-0.04	0.04	-0.10	0.02	0.08	0.06	-0.65	-0.07	0.49	0.29	
14. GDP growth	2.64	0.83	0.06	-0.05	0.03	-0.04	0.06	-0.01	-0.04	-0.03	0.32	0.11	-0.26	-0.12	-0.50

If the absolute value is larger than 0.026, the correlation is significant at 5% level.

Number of observations = 43,223

**Table A.4.** Descriptive statistics and correlation matrix (country level variables)

	Mean	SD	1	2	3	4	5
1. Share of innovative entrepreneurship	0.16	0.89					
2. Start-up costs	10.97	13.74	0.18				
3. Corporate tax rate (log)	3.28	0.29	0.06	0.10			
4. Personal income tax rate (log)	3.26	0.70	-0.26	-0.32	-0.06		
5. GDP per capita (log)	9.86	0.98	-0.14	-0.60	0.02	0.41	
6. GDP growth	3.06	4.08	0.11	0.25	0.08	-0.26	-0.40

If the absolute value is larger than 0.026, the correlation is significant at 5% level.

Number of observations = 276

**Table A.5.** Robustness checks - inclusion of additional control variables in individual-level regressions

	Paper	Control variables	Coefficients
1	Autio et al. (2013)	Population (million)	Startup costs (0.007**), Corporate tax rate (-0.043*), Income tax rate (-0.052)
2	Stephan and Uhlaner (2010)	GDP (log)	Startup costs (0.006***), Corporate tax rate (-0.042**), Income tax rate (-0.010)
3	Levie and Autio (2011)	GDP per capita squared	Startup costs (0.005*), Corporate tax rate (-0.061), Income tax rate (-0.027)
4	Levie and Autio (2011)	Population growth	Startup costs (0.005**), Corporate tax rate (-0.014), Income tax rate (-0.010)
5	Dheer (2017)	Unemployment rate	Startup costs (0.006**), Corporate tax rate (-0.038), Income tax rate (-0.006)
6	Anokhin and Schulze (2009)	Log of population	Startup costs (0.007**), Corporate tax rate (-0.040*), Income tax rate (-0.044)
7	Dutta and Sobel (2016)	Labor force participation (total)	Startup costs (0.008**), Corporate tax rate (-0.019), Income tax rate (-0.055)
8	Li et al. (in press)	Degree of economic freedom	Startup costs (0.008***), Corporate tax rate (-0.067***), Income tax rate (-0.022)
9	Li et al. (in press)	the presence of foreign-owned enterprises (FDI/GDP)	Startup costs (0.005***), Corporate tax rate (-0.061***), Income tax rate (-0.022)
10	Mrozewski and Kratzer (2017)	general quality of the institutional environment: a country's position in the World Bank doing business ranking	Startup costs (0.006**), Corporate tax rate (-0.058**), Income tax rate (-0.031)
11	Van Stel et al. (2007)	Insolvency costs	Startup costs (0.005**), Corporate tax rate (-0.056**), Income tax rate (-0.041)
12	Thai and Turkina (2014)	Informal entrepreneurial activity	Startup costs (0.003), Corporate tax rate (-0.056***), Income tax rate (-0.017)

**Table A.6.** Robustness checks – multi-level regressions

	Coeff. (standard error)	Coeff. (standard error)	Coeff. (standard error)
<b>Country level variables</b>			
Start-up costs	0.015*** (0.003)		
Corporate tax rate (log)		-0.099*** (0.017)	
Income tax rate (log)			-0.181** (0.085)
GDP per capita (log)	0.178** (0.070)	-0.098 (0.068)	-0.027 (0.072)
GDP growth rate	0.032*** (0.008)	0.026 (0.023)	0.027 (0.18)
<b>Individual level control variables</b>			
High level of education	0.114*** (0.028)	0.151*** (0.054)	0.145*** (0.052)
Entrepreneurial networks	0.076*** (0.028)	0.066* (0.035)	0.062* (0.035)
Perceived entrepreneurial skills	0.195*** (0.040)	0.274*** (0.069)	0.276*** (0.069)
Gender (male=1)	0.004 (0.027)	0.004 (0.043)	0.012 (0.044)
Age	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.002)
Age-square	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Established business ownership	0.268*** (0.051)	0.329*** (0.079)	0.325*** (0.071)
Prior entrepreneurship experience	0.068 (0.043)	0.088* (0.051)	0.089* (0.051)
Industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Constant	-4.432*** (0.699)	-1.176 (0.802)	-1.596** (0.759)
Sample size	45,111	45,111	45,111

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