The Effect of Dividends Taxation on Entrepreneurial Activity

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Abstract

This paper seeks to examine the effect of dividends taxation on entrepreneurship. In January 2013 the corporate tax rate in Sweden was lowered to boost entrepreneurial activity. Through relevant theories and regression analysis of 19 countries over the span of two years this paper argues that this tax cut was misplaced. The results of the analysis show that the dividends tax has a larger and more significant effect on entrepreneurship than the corporate tax.

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1. Introduction

The introduction presents the background for why an analysis of dividends taxation's impact on entrepreneurship is needed. It presents the objective, limitations and gives an overview of the paper.

Background

Every year Aktiespararna, an independent Swedish organization representing the interest of private investor, release an international comparison of the taxes on capital and business. This report has continually shown that Sweden has a comparatively very high burden of taxation on business profits on the individual level. Some countries differentiate between small- and bigger businesses and investors by taxing the dividends at different levels depending on the profits. Countries have over time reduced or eliminated this double taxation in various ways. Sweden has not until 2013 made any efforts to differentiate or reduce the tax burden or double taxation[1]. Coincidently new business creation has been low in Sweden in an international comparison with its peers[2]. On January 1, 2013 Sweden lowered the corporate tax from 26.3 percent to 22 percent. A tax deduction was introduced on December 1, 2013 on investments in start-up companies or new issued shares in small companies[3]. Is this the right way to boost entrepreneurship? Or is there a better alternative? This paper will analyze the relationship between tax on dividends and entrepreneurship.

Objective

This paper will examine how the tax on dividends affects entrepreneurship. This will be done with economic theory and regression analysis.

Overview and Limitations

This paper will examine the affects dividends tax, corporate tax and total tax on earnings on entrepreneurship in 19 countries. To analyze the affect theories on the subject are presented as well as a regression of the relevant taxes' impact on entrepreneurship. All countries examined are OECD countries and most are a part of the European Union. This limitation is to ensure comparable economic conditions. The timescale for the regression presented in this paper is 2010 to 2011. This scope is recent but unfortunately short due to the lack of data for certain variables and countries.

The paper will first present theories relevant to the subject being examined followed by a description of the method used in the regression analysis. The data will then be presented and interoperated. The analysis

[1] Aktiespararna (2012) p. 9
[2] Global Entrepreneurship Monitor
[3] Skatteverket

will connect the theories presented to the results from the regression analysis. In the conclusion a summary of the results and conclusions made in the paper will be presented.

2. Theory

In this chapter theories used in the analysis of the subject will be presented.

The view on dividends taxation has been a subject of discussion between Economists throughout the years. There are a few dominant views among economists on how dividend taxation influences decision making in businesses and among investors. These views have affected the tax rates and policies in different countries.

3.1 The Traditional View, the New View and the New New View

Most countries tax capital at both the corporate level and the individual level. The traditional view argues that this double taxation is present for all forms of investment. Investments become less lucrative when the taxes on either the individual level or corporate level are raised. The traditional view therefore advocates that lowering taxes on dividends leads to more investment[4].

The new view argues that since most corporate investments are made with retained capital there is in most cases no double taxation present. The tax on dividends does not affect the price of equity when financed with retained capital. According to the new view the tax on dividends does not have as much negative effects on company investments as in the traditional view. The implication of this is why the new view often is called the "trapped equity view"[5]. From a policy perspective this can be interpreted as increasing tax revenue without negatively affecting companies' investments; benefitting both investment and the state[6]

The new view and the traditional view both regard that the tax on dividends does reduce the return on new shares issued[6]. The important aspect of the new view and traditional discussion in this paper is its implications in deciding how to tax dividends. A policy in which the new view is considered to best describe the relationship, tax on dividends should be higher due to the lower negative affect on investment.

There is also a theory called the new new view which has been highly influential in Swedish politics. The view is applicable to small open economies like Sweden. In a world capital movement any of the eventual decreases in company investments and private savings caused by the dividends tax would be offset by investments by international investors[7].

[4] Zodorow, George R. (1990) p. 497
[5] Zodorow, George R. (1990) p. 498- 499
[6] Henrekson & Sanandaji (2012) p. 4
[7] Henrekson & Sanandaji (2012) p. 20

3.2 Allocation of Resources

Regardless of which view best describes the relationship between dividends tax and the price of equity, the tax on dividends affects company behavior in other ways. For example the tax on dividends encourages debt financing, by making it more profitable than new share issues[8].

More importantly for this paper is that the tax on dividends distorts the payout ratio; by making it more lucrative to invest the earnings back into the company than paying dividends to its shareholders. An investment back into the company would not be affected by the dividends tax. This means that more capital will be "trapped" within companies instead of invested in outer ventures. The skew that the dividends tax inflicts may lead to a less efficient use of capital[9].

Earlier Research

Both quantitative and qualitative research has been done on the link between taxes on investment and entrepreneurship.

Magnus Henrekson and Tino Sanandaji discuss the policy view of capital gains tax, dividends tax and corporate tax in their report *Kapitalskatter och företagande: Expertrapport till Företagsskattekommittén* (2012). They discuss the theoretical models on the subject and how they affect public policy. The report suggests lowering the tax burden on new businesses but no empirical evidence is provided.

The National Bureau of Economic Research released a broad study in January 2008 looking into the effects of the effective corporate tax rates, on entrepreneurship and investment. The study included 85 countries and the total tax rate a fictional company would pay and how the tax rate impacts aggregated investments, FDI and entrepreneurial activity. The study found that the effective corporate tax rate had a large and significant negative effect on entrepreneurship[9]. This study has been of much help when deciding what variables to include in the regression.

[8] Gerardi, Graetz, Rosen (1990) p. 307
[9] Djankov, Ganser, McLiesh, Ramalho, Shleifer (2008) p. 29

4. Method

In this chapter the method used to analyses the objective of this paper is described. It presents the type of regression, the data used and the variables chosen for the analysis.

4.1 Multiple Least-squares Regression

$$Y_{i,t} = \beta_0 + \beta_1 X_1 + \cdots + \beta_n X_n + \varepsilon_i$$

The number of new companies started in a country does not only depend on the dividends taxes. Many other factors matter. The multiple least-squares regression analyses the impact several variables have on the dependent variable. The dependent variable is in this case the percentage of the population who are either setting up or running a new business. The method includes the following components:

$Y_{i,t}$: The dependent variable. Statistical data for the variable we want to observe.

$X_{i,t}$: The independent variables. Statistical data for variables believed to impact the Y, the dependable variable.

β_0: The constant term, where the regression line crosses the Y-axel.

β_n: The coefficients for the chosen X variables. Describes how much Y changes for every change in X_i, can be positive or negative. The values are affected by the other variables.

4.2 Data

Selection

The focus of the regression analysis in this paper is to get as large a selection of comparable data as possible to determine the impact of dividends tax on entrepreneurship. 20 countries have been chosen based on the amount of appropriate data and resemblance to Sweden. All countries in the regression are OECD countries and a majority of the countries are a part of the European Union.

Certain variables' data were only available for some countries while other data was available for other countries. To perform the regression analysis, data for all chosen countries for the chosen variables are needed. This led to compromises in the data collecting process.

The years chosen for the data in this paper is 2010 and 2011. This is the timespan found with the best data for the countries and chosen variables while still remaining relatively current.

OECD and EU

- Belgium
- Denmark
- Finland
- France
- Germany
- (Greece)
- Ireland
- Netherlands
- Norway
- Portugal
- Slovenia
- Spain
- Sweden
- United Kingdom

OECD

- Australia
- Japan
- Korea (South)
- Switzerland
- Turkey
- United States

Excluded Country

Greece was hit hard by the financial crisis in 2010 and 2011. The data from Greece, while interesting, does not serve a purpose in the analysis and distorted a regression including Greece is presented in the appendix.

Panel data

There are three different types of data generally used for regression analysis time series data, cross-sectional data and pooled data. Time series data is data collected over time with regular intervals. Cross-sectional data is data collected at one point in time. The Data used in this paper is pooled data, specifically panel data. Panel data is a combination of time series data and cross-sectional data[10]. The data from countries for each year is cross-sectional. The data is collected separate years which is time series data.

The data from the chosen variables were compiled in excel. And the regression was made in STATA.

4.3 Variables

Bellow the variables of interest when analyzing new business creation are presented.

Dependent Variable

Total early-stage entrepreneurial activity (The Global Entrepreneurship Monitor): The Global Entrepreneurship Monitor (GEM) compares the entrepreneurial activity and its role national economic

[10] Gujarati, Porter (2010) p.5

growth. Every year they present data for a set of entrepreneurial measurements. The Total early-stage Entrepreneurial measurement is defined by GEM as "(the) percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than 42 months"[8]. A nascent entrepreneur is defined by GEM as "actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages, or any other payments to the owners for more than three months"[11]. This measurement of entrepreneurial activity is used by many research papers as well as the Confederation of Swedish Enterprise[11,12].

Independent variables

The independent variables have been chosen by reviewing similar entrepreneurship studies. As well as considering the factors that affect entrepreneurship.

Gross domestic product (GDP) per capita (The World Bank): The GDP per capita in the examined countries in US Dollars per capita. GDP is "the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products"[13]. The variable's coefficient could be either negative or positive. A lower GDP per capita might indicate possibility for growth and therefore create an incentive for entrepreneurship. A higher GDP per capita might indicate a better functioning society and financial system which might increase the ease of setting up a new business.

GDP growth (The World Bank): The growth of the countries' GDP. The coefficient is predicted to be positive. A growth in the economy should lead to more capital and more entrepreneurial activity. This variable is taken from the same year as the *Total Early-stage Entrepreneurial Activity* so the results could even be an effect of the increase/decrease in entrepreneurial activity.

Foreign direct investments (FDI) per capita (The World Bank and own calculation): FDI is "the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor"[13]. FDI per capita was calculated by dividing the net inflow of FDI by the population with data from The World Bank. The coefficient for FDI per capita is predicted to be positive as an increase of capital flow into the country should result in a more entrepreneurial activity.

Unemployment, percentage of labor force (The World Bank): "Unemployment refers to the share of the labor force that is without work but available for and seeking employment"[9]. Unemployment is

[11] Ekonomifakta.se
[12] Global Enterpreneurship Monitor
[13] The World Bank

unfortunately measured a bit differently in different countries which could give misleading conclusion, in this report. The coefficient for unemployment should be positive as a rise in unemployment should give incentive to employ yourself by starting a new business.

Tax revenue, percentage of GDP (OECD): Tax revenue as a percentage of GDP likely portrays how highly taxed other economic activities in the country are. It also indicates how big the public sector might be. A big public sector would discourage privately owned businesses since the state handles more businesses that would otherwise be handled by the private sector. The coefficient is predicted to be negative due to this.

Year, dummy variable: The data collected for this analysis is from 2010 and 2011. To review if there were any significant differences overall in the data between these years. During 2010 and 2011 there was economic uncertainty in the world economy. It is hard to predict how this has influenced new business creation in this short timeframe.

Independent tax variables

The data for the independent tax variables is from Aktiespararna who have compiled comparable data from 40 countries. When compiling their data they have used "IBFD:s European Tax Handbook, Deloittes International Tax and Business Guides as well as information from the websited of tax authorities in de observed countries"[14].

Corporate Tax (Aktiespararna): Corporate taxes in the countries observed. The corporate tax is the tax on earnings that a company has to pay. The data is compiled by Aktiespararna each year.

Tax on Dividends (Aktiespararna): Tax on dividends in the countries observed. The tax on dividends paid out to shareholders by companies.

Total Tax on Earnings (Aktiespararna): Aktiespararna's compilation of the total tax on earnings for the countries observed. The total tax on earnings includes the dividend tax, corporate tax as well as any tax benefits or other circumstances that may apply in the observed countries. The data from Aktiespararna is based of dividends amounting to 15000 SEK.

The variable total tax on earnings is simply put it a combination of corporate tax and the tax on dividends and including it in a regression with the corporate tax and dividends tax variables would lead to higher variation for the coefficients[15]. Regressions using the total tax on earnings variable will be separate from

[14] Aktiespararna (2012) p. 5
[15] Gujarati, Porter (2010) p.226

the regressions with the corporate and dividends variables. Both versions of the regression are essential for the analysis.

Table: Variables

Variable	Abbreviation	Plus/Minus	Measurement
Total early-stage entrepreneurial activity	TEAYY	Dependent Variable	Percentage of population ages 18- 64
Gross domestic product per capita	GDPC	?	USD
GDP growth	GDPG	+	Percentage growth annually
Foreign direct investments per capita	FDIC	+	USD
Unemployment	UEMP	+	Percentage of total labor force
Tax revenue	TR	-	Percentage of GDP
Year	Dummy2011	?	Dummy (1,0)
Corporate Tax	CT	-	Percent
Tax on dividends	TD	-	Percent
Total Tax on Earnings	TTE	-	Percent

4.3 Finding the Best Regression

The goal of a regression analysis is describe the link between the variables you want to observe and the dependent variable in the most accurate way possible. The regression could suffer from numerous undesired effects that might distort the true relationship.

Best Linear Unbiased Estimator

For the regressions and the OLS-estimator to be the best linear unbiased estimator (BLUE) the Gauss-Markov assumptions must hold true. The following summation of the assumptions is taken from the book *Introduktion till ekonometri* by Joakim Westerlund[16].

1. The dependent variable can be expressed as a linear function of a constant term (b_1) independent variables (x_1, x_2,…,x_n) and residual term (e_i)

2. The expected value of the residual term is 0.

$$E(e_i)=0$$

3. The residual term e_i is homoscedastic. The variance has the same variance for all observations, *i*.

$$\sigma^2=Var(e_i)$$

4. The residual e_i is not autocorrelated. Covariance for e_i and e_j är is zero for all $i \neq j$.

$$Cov(e_i,e_j)=0 \text{ if } i \neq j$$

5. The dependent variables x_n, x=2, 3, ... , n are not random and cannot be explained as a linear combination of others dependent variables, no multicollinearity.

6. The residual term has a normal distribution.

$$e_i \sim N(0, \sigma^2)$$

The regressions will be tested to see that they fulfill these assumptions.

[16] Westerlund, Joakim (2005) p.139- 140

Overspecifying and Underspecifying a Model

Including too many or too few variables in a model can distort the result. Underspecifying the model will lead to omitted variable bias while overspecifying the model will lead irrelevant variable bias. Underspecifying generally leads to bias and inconsistency. Overspecifying gives unbiased and consistent estimates of the coefficients, the error variance is correctly estimated and the standard hypothesis-testing is still valid. The problem is that the variances of the coefficients get larger resulting in a higher p-value[17].

[17] Gujarati, Porter (2010) p.221- 227

5. Results of the Regression Analysis

The results from relevant regressions are presented in this chapter along with explanations on how these results are to be interpreted. Relevant tests for the regressions are made to find the true relationship between the relevant variables and total early-stage entrepreneurial activity.

The results from regression analysis vary depending on the variables included in the regression. To examine dividends taxation's effect on entrepreneurship correctly, several regressions have been conducted. The most relevant are presented in this paper, regressions referred to in this chapter and the analysis are included in the appendix.

Depending on the variables included in the regression, the results differ. Presented below are the regressions of most interest for the analysis.

5.1 Results

Model 1: Corporate and dividends tax, with unemployment

Source	SS	df	MS		
Model	.009254435	8	.001156804	Number of obs =	38
Residual	.006742538	29	.000232501	F(8, 29) =	4.98
Total	.015996974	37	.000432351	Prob > F =	0.0006
				R-squared =	0.5785
				Adj R-squared =	0.4622
				Root MSE =	.01525

TEAYY	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDPC	2.51e-07	1.76e-07	1.43	0.164	-1.09e-07	6.10e-07
GDPG	.2911247	.1377771	2.11	0.043	.0093389	.5729105
FDIC	1.37e-06	1.12e-06	1.22	0.232	-9.25e-07	3.66e-06
UEMP	-.0093199	.074896	-0.12	0.902	-.1624994	.1438596
TR	-.061227	.0392411	-1.56	0.130	-.1414839	.01903
Dummy2011	.0134878	.0049882	2.70	0.011	.0032857	.0236899
CT	-.0792198	.0407096	-1.95	0.061	-.1624802	.0040407
TD	-.1090746	.0301681	-3.62	0.001	-.1707752	-.047374
_cons	.092752	.021207	4.37	0.000	.0493788	.1361252

$$TEAYY = 0.093 + 2.51 * 10^{-7} GDPC + 0.291 * GDPG + 1.37 * 10^{-6} FDIC - 0.009 UEMP - 0.061 TR + .0135 Dummy2011 - 0.079 CT - 0.109 TD$$

The Coefficient of determination (r^2) is 0.5785, which means that 57.85% of the variance in TEAYY can be described by the model.

The constant in this model is 0.093. If all independent variables are zero the value of TEAYY is 0.093. GDPC, GDPG, FDIC and Dummy2011 all have positive coefficients. That is if the variables increase, TEAYY increases. For the binary dummy variable the interpretation is that when it assumes the value 1, i.e. the year 2011, TEAYY increases with 1.35%. UEMP, TR, CT and TD have negative coefficients and the opposite relationship is true.

GDPG, Dummy2011, CT, TD and the constant term are significant at a 10 %. TD is the only variable significant at a 1% level. UEMP has a p-value of 0.902 and seems highly irrelevant in this regression. UEMP showed the highest correlation with other variables when looking at the correlation matrix (Appendix). Including UEMP might have been overspecifying the model. Another explanation might be the difference in how the data is collected in different countries. Excluding it from the regression should not impact the r^2-value significantly while making the model truer.

Model 2: Corporate and dividends tax, without unemployment

Source	SS	df	MS		
Model	.009250835	7	.001321548	Number of obs =	38
Residual	.006746139	30	.000224871	F(7, 30) =	5.88
				Prob > F =	0.0002
Total	.015996974	37	.000432351	R-squared =	0.5783
				Adj R-squared =	0.4799
				Root MSE =	.015

TEAYY	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDPC	2.62e-07	1.48e-07	1.77	0.087	-4.08e-08	5.65e-07
GDPG	.2979323	.1243582	2.40	0.023	.043959	.5519056
FDIC	1.35e-06	1.09e-06	1.24	0.226	-8.80e-07	3.58e-06
TR	-.0611312	.0385844	-1.58	0.124	-.1399311	.0176686
Dummy2011	.0134707	.0049038	2.75	0.010	.0034557	.0234857
CT	-.0787803	.0398851	-1.98	0.058	-.1602366	.0026759
TD	-.1089251	.0296454	-3.67	0.001	-.1694691	-.0483811
_cons	.091174	.0167168	5.45	0.000	.0570338	.1253143

$$TEAYY = 0.091 + 2.62 * 10^{-7}GDPC + 0.298 * GDPG + 1.35 * 10^{-6}FDIC - 0.061TR + .0135Dummy2011 - 0.079CT - 0.109TD$$

The interpretations of the variables remain the same with lower p-values for all variables except for FDIC. GDPC becomes significant at a 10% level and GDPG becomes significant at a 5% level. Dummy2011 and TD are significant at 1% level. The r^2 value remained virtually the same, a drop by 0.02%.

While there might intuitively be a link between unemployment and new business creation. That being unemployed might make you more likely to start your own business. In this regression it seems as though it has no effect, or negative effect, and might distort the other observations in the regression. Modell 2 is more telling for the analysis.

The Gauss-Markov assumptions

The tables and tests are presented in the appendix, under Model 2.

Heteroscedasticity: To test for heteroscedasticity, White's test is used. The null hypothesis being that the model shows signs of heteroscedasticity. According to the test, the null hypothesis can be rejected; the model shows no signs of heteroscedasticity.

Multicollinearity: The strongest correlation between two variables is between TR and TD, -0.4642. It is not surprising that tax revenue as percentage of GDP. After consideration the correlation is not strong enough too excluded it from the model, given the analytical benefits.

Normal distribution: To test if the residuals are normally distributed STATA's skewness test has been used. The value of interest is the adjusted chi-2 value, which takes the relatively small sample size into account. At a 5% significance level the residuals are normally distributed.

Model 3: Corporate and dividends tax, lagged GDPG

Source	SS	df	MS
Model	.008620285	7	.001231469
Residual	.007376689	30	.00024589
Total	.015996974	37	.000432351

Number of obs	38
F(7, 30)	5.01
Prob > F	0.0008
R-squared	0.5389
Adj R-squared	0.4313
Root MSE	.01568

TEAYY	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDPC	1.87e-07	1.51e-07	1.23	0.227	-1.23e-07	4.96e-07
GDPG_LAG	.1826471	.1114722	1.64	0.112	-.0450095	.4103036
FDIC	8.39e-07	1.11e-06	0.76	0.454	-1.42e-06	3.10e-06
Dummy2011	.0010057	.0091243	0.11	0.913	-.0176287	.01964
TR	-.0638944	.0408731	-1.56	0.128	-.1473685	.0195796
CT	-.0806553	.0419158	-1.92	0.064	-.1662588	.0049481
TD	-.0974545	.0304109	-3.20	0.003	-.1595618	-.0353473
_cons	.1107514	.0159885	6.93	0.000	.0780985	.1434042

It makes economic sense that some of the variables might affect entrepreneurship after time has passed. An increase in GDP might not affect entrepreneurial activity until the year after when individuals feel the effects of the growth in the economy. Presented bellow is the results of a regression with the GDPG lagged by one year. The GDP growth is in this regression taken from the previous year, which for 2011 is 2010 and for 2010 is 2009. The results p-values for all variables become higher, the r^2 lower and overall the regression is worse than before. This does not have to mean that GDP growth from the previous year generally is a bad indicator of entrepreurship the following year. 2009 was turbilent year for the world economy. Only two of the 19 observed countries had positive GDP growth in 2009, which is not by any

means the norm. For the timespan in this regression, it seems better to stick with the variables from the same year for GDPG.

Model 4: Total Tax on Earnings

Source	SS	df	MS		
Model	.008864236	6	.001477373	Number of obs	38
Residual	.007132738	31	.000230088	F(6, 31)	6.42
				Prob > F	0.0002
Total	.015996974	37	.000432351	R-squared	0.5541
				Adj R-squared	0.4678
				Root MSE	.01517

TEAYY	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDPC	2.78e-07	1.50e-07	1.85	0.074	-2.90e-08	5.84e-07
GDPG	.26231	.1242395	2.11	0.043	.0089218	.5156981
FDIC	8.77e-07	1.06e-06	0.83	0.413	-1.28e-06	3.03e-06
TR	-.0772615	.0374592	-2.06	0.048	-.1536599	-.000863
Dummy2011	.0132977	.0049605	2.68	0.012	.0031807	.0234146
TTE	-.1224893	.035622	-3.44	0.002	-.1951407	-.0498378
_cons	.1077762	.0150208	7.18	0.000	.0771412	.1384113

$$TEAYY = 0.091 + 2.78 * 10^{-7} GDPC + 0.262 * GDPG + 8.77 * 10^{-7} FDIC - 0.077TR + .0133 Dummy2011 - 0.122 * TTE$$

To draw conclusions from the effect the both the corporate tax and dividends tax has on total entrepreneurial activity this regression with total tax on earnings is included. The results are quite similar to the earlier regression, containing both corporate tax and dividends tax, for all variables. TTE is significant, and all the necessary tests are included in the appendix.

6. Analysis

In the analysis the results from the regressions and the theory is analyzed to answer the papers thesis; presenting the relationship between dividends taxation and entrepreneurship.

In the regression containing total tax on earnings there is a negative relationship between the taxes and total entrepreneurial activity. The TTE variable is the only variable significant at a 1 percent level. The only variable with a higher absolute coefficient value is gross domestic product growth.

The effect of total tax on earnings on entrepreneurship was expected. Having higher taxes on earnings should lead to less investment in entrepreneurship. The large effect and the significance of TTE however were surprising. Even with a relatively small sample size, the effects of the taxes are clear.

The regressions containing corporate tax and dividends tax clearly display a strong negative relationship between dividends tax and entrepreneurship. Gross domestic product growth was the only variable with a bigger effect on total entrepreneurial activity. The tax on dividends was more significant than GDPG in every regression made and any other variable. With these robust results we can analyze what this means for the theories on the subject and possible policy implications

Observing the results from the regression it is clear that there is a difference between the effects of the corporate tax and the dividends tax on total entrepreneurial activity. Corporate tax is not significant at a 5 percent level and the coefficient is smaller, in absolute terms, than for the tax on dividends. There seems to be a clear difference in the effect of the taxes if they are paid at the corporate or individual level.

The difference might be just be that new businesses in countries with lower dividends tax might have an easier time attracting investments. In that case a tax deduction on investments in new businesses or new issued stocks is an effective way to boost entrepreneurship.

Another explanation of this difference is in the incentives a higher dividends tax creates. Paying out dividends would lead to paying taxes so established companies have the incentive to "hoard" their earnings. The higher the dividends tax is, the larger the incentive. Executives of larger firms can motivate investments with lower rate of return because of the higher tax. Lowering the taxes would lead to an outflow of capital from these larger low-growth firms into new investments with higher growth potential.

This freer flow of capital is not affected by lowering the corporate tax. The opposite might be true since earnings inside the company will be taxed even less.

Even if most investments in companies are with retained capital and high dividends tax can be offset by foreign investment. The effect of the taxation seems to befall other parts of the economy, in this case entrepreneurial activity.

Conclusion

The purpose of this paper was to investigate how the tax on dividends affects entrepreneurship. Based on the panel data from 19 countries, the regressions show a clear link between tax on dividends tax and entrepreneurial activity. The results also conclude that the tax on dividends affects entrepreneurship more than the corporate tax.

The tax deduction on investments in small and start-up companies and lowering the corporate tax rates might not have been the most efficient way to boost entrepreneurial activity. This paper finds lowering the overall tax on dividends to be a more effective measure.

The link between "hoarding" of capital by low-growth firms due to high dividends taxation should be made. How good tax deduction on investments to entrepreneurship is dependent on how strong this link is.

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Online Sources:

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Ekonomifakta (2014-01-22) http://www.ekonomifakta.se/

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Aktiespararna (own data)

OECD (http://stats.oecd.org/)

Global Entreprenuership Monitor (http://www.gemconsortium.org/Data)

Appendix

Regression containing Greece:

Source	SS	df	MS		
Model	.008277568	7	.00118251	Number of obs =	40
Residual	.008055532	32	.000251735	F(7, 32) =	4.70
				Prob > F =	0.0010
Total	.0163331	39	.000418797	R-squared =	0.5068
				Adj R-squared =	0.3989
				Root MSE =	.01587

TEAYY	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDPC	1.67e-07	1.51e-07	1.11	0.275	-1.40e-07	4.74e-07
GDPG	.0943766	.0890531	1.06	0.297	-.0870186	.2757718
FDIC	6.76e-07	1.11e-06	0.61	0.547	-1.59e-06	2.94e-06
TR	-.0832501	.0395922	-2.10	0.043	-.1638968	-.0026033
Dummy2011	.0147921	.0050563	2.93	0.006	.0044928	.0250913
CT	-.0725241	.0420664	-1.72	0.094	-.1582106	.0131624
TD	-.0879755	.0299897	-2.93	0.006	-.1490625	-.0268885
_cons	.1055519	.0160774	6.57	0.000	.0728033	.1383005

Model 1: Corporate and dividends tax, with unemployment

Correlation matrix:

Variable	GDPC	GDPG	FDIC	TR	UEMP	Dum~2011	CT	TD	Constant
GDPC	1.0000								
GDPG	0.3725	1.0000							
FDIC	-0.2478	0.1846	1.0000						
TR	-0.0880	0.2212	0.1867	1.0000					
UEMP	0.5136	0.3971	-0.1445	0.0196	1.0000				
Dummy2011	-0.1113	-0.0032	0.0202	-0.0108	-0.0275	1.0000			
CT	-0.1448	-0.0261	0.0155	-0.1789	0.0867	0.0414	1.0000		
TD	-0.1435	-0.1696	-0.2870	-0.4629	0.0398	0.0271	0.3985	1.0000	
Constant	-0.3927	-0.5439	-0.0650	-0.5014	-0.5980	-0.0889	-0.4486	0.0139	1.0000

Model 2: Corporate and dividends tax, without unemployment

Correlation matrix:

Variable	Dummy2011	GDPC	FDIC	GDPG	TR	CT	TD	Constant
Dummy2011	1.0000							
GDPC	-0.1133	1.0000						
FDIC	0.0165	-0.2045	1.0000					
GDPG	0.0084	0.2140	0.2665	1.0000				
TR	-0.0103	-0.1144	0.1916	0.2326	1.0000			
CT	0.0439	-0.2215	0.0284	-0.0662	-0.1813	1.0000		
TD	0.0283	-0.1912	-0.2845	-0.2022	-0.4642	0.3969	1.0000	
Constant	-0.1315	-0.1244	-0.1909	-0.4167	-0.6111	-0.4968	0.0471	1.0000

Test for heteroscedasticity:

Source	chi2	df	p
Heteroskedasticity	30.41	34	0.6443
Skewness	10.12	7	0.1817
Kurtosis	0.87	1	0.3497
Total	41.41	42	0.4969

Test for normal distribution:

Skewness/Kurtosis tests for Normality

				joint	
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
myResiduals	38	0.1295	0.0483	5.83	0.0543

Model 4: Total Tax on Earnings

Correlation matrix:

Variable	GDPC	GDPG	FDIC	TR	Dummy2011	TTE	Constant
GDPC	1.0000						
GDPG	0.2131	1.0000					
FDIC	-0.2034	0.2389	1.0000				
TR	-0.1115	0.1965	0.1250	1.0000			
Dummy2011	-0.1137	0.0078	0.0126	-0.0148	1.0000		
TTE	-0.2573	-0.1303	-0.1581	-0.3851	0.0458	1.0000	
Constant	-0.1350	-0.4063	-0.0488	-0.5474	-0.1439	-0.3678	1.0000

Test for heteroscedasticity:

Source	chi2	df	p
Heteroskedasticity	25.05	26	0.5160
Skewness	8.41	6	0.2096
Kurtosis	0.95	1	0.3286
Total	34.42	33	0.3998

Test for normal distribution:

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
ResidualsTTE	38	0.0189	0.0125	9.75	0.0076

Country	TD	CT	TTE
Australia	0%	30%	30%
Australia	0%	30%	30%
Belgium	25%	34%	51%
Belgium	25%	34%	51%
Denmark	28%	25%	46%
Denmark	28%	25%	46%
Finland	20%	26%	41%
Finland	20%	26%	41%
France	0%	34%	34%
France	0%	34%	34%
Germany	1%	30%	31%
Germany	1%	30%	31%
Greece	10%	24%	32%
Greece	21%	24%	40%
Ireland	20%	13%	30%
Ireland	20%	13%	30%
Japan	10%	42%	48%
Japan	10%	42%	48%
Korea, Rep.	15%	24%	35%
Korea, Rep.	15%	22%	34%
Netherlands	0%	26%	26%
Netherlands	0%	25%	25%
Norway	13%	28%	37%
Norway	21%	28%	43%
Portugal	17%	25%	38%
Portugal	18%	25%	38%
Slovenia	20%	20%	36%
Slovenia	20%	20%	36%
Spain	2%	30%	31%
Spain	2%	30%	31%
Sweden	30%	26%	48%
Sweden	30%	26%	48%
Switzerland	22%	21%	38%
Switzerland	19%	21%	36%
Turkey	0%	20%	20%
Turkey	0%	20%	20%
United Kingdom	0%	28%	28%
United Kingdom	0%	26%	26%
United States	0%	40%	40%
United States	0%	39%	39%