Impact of Income Tax Rate on Stock Return

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November 2014

Abstract

In this research, the impact of Income Tax Rate on Stock Return has been studied using 6 years of quarterly penal data (from 2007-09-30 to 2013-09-30) of 12 companies listed in the Oil and Gas Sector of (Country). The sample size was 288. Capital Gain and Dividend Yield has been used as variables of Stock Return and hence the impact of Income Tax Rate on Capital Gain and Dividend Yield has been tested using a penal regression model. Two models have been formed to test the impact of Income Tax rates on Capital Gain and Dividend Yield. Based on F-statistics, model 2 was not significantly fitted on the data and hence it was not included in further analysis.

The model 1 was significantly fitted on the data and hence was used for further analysis. Based on Hausman Test the fixed effect penal regression was found to be the appropriate method and hence was applied for analysing the impact of Income Tax Rate on Dividend Yield. The results indicated that Income Tax Rate does not have a significant impact on Dividend Yield.

Moreover, between Income Tax Rate was found to have a significant inverse but weak relationship with Dividend Yield, while no relationship was found between Income Tax Rate and Capital Gain. Therefore it was concluded that Corporate Income Tax Rate has insignificant impact on Dividend Yield and hence Stock Return. This suggests that a change in Income Tax Rate could not result in a change in Dividend Yield and hence Stock returns will not be affected by it.

Contents

1. Introduction

1.1 Overview

Taxation is the most important ingredient for a government of a country as a source of income. Now there must be a valid question to be asked that why the government needs any income. To run a country huge expenses are incurred, which are to be paid through the income generated by the taxes. Another reply to that question is that taxes are charged in order to facilitate the common people who are needy. So In short by charging taxes government utilizes this revenue for majorly two purposes; (1) To pay the government expenses and (2) To provide the basic necessities to the citizens of the country. (Brigham, & Houston, 2003)

There are two major types of taxes, direct and indirect. Indirect taxes are imposed directly on commodities, as a result, the prices of these commodities increases because the seller charges these taxes from the end user which are consumers. While direct taxes are imposed in the form of income tax, property tax, withholding tax etc (Ehrhardt and Brigham, 2013). It is also a reality that direct taxes are more complex and difficult to collect because these taxes completely rely on documentation that means if there is no documentation then no tax to be charged. But on the other hand, a tax which are known as indirect taxes are easier to collect as they are included in the price paid by the consumer and also because the seller is bound to deduct and pay these indirect taxes at the point of sale. (Brigham, & Houston, 2003)

1.2 Problem Statement

To study the impact of the income tax rate on stock return, using dividend yield and capital gain as variables of stock return.

1.3 Background, Objectives and Significance of the study

In this particular research, the tax which is only focused on and dealt with is income tax, which is one of the types of direct tax. Income tax is the tax imposed on the taxable income. The net income and the taxable income are two different things. Net income is the income generated by a person from numerous sources. And the taxable income is the income left over to be taxed by subtracting the incomes exempted by the Federal Board of Revenue (FBR) in Pakistan. Income tax is deducted on the rates prescribed by the FBR in different categories, Companies, Partnership (AOP), Salaried individuals and Non-salaried individuals.

The income tax rate is commonly progressive that's why it is being called a progressive income tax. The progressive income tax rate is the idea, according to which an entity is taxed more which has more taxable income. Any political party in any political situation can only recommend a tax policy that is progressive when the income of citizens is less than the average income (Roemer, 1999). So the entities with lesser taxable incomes are taxed less through the slab provided every year by FBR in Pakistan. Likewise, the entities with more income are taxed more through increasing rates with respect to increasing taxable income.

Now as this research is focused on income tax and stock return so some description of stock return is as under. (Chetty, & Saez, 2005) Stock return is the return or gains received from stocks or from shares in other words. Stock return basically is the gain the entity receives through capital gain on stock and through dividends (Lang & Shackelford, 2000). Dividends are the financial benefit or bonus received on holding the shares or for investing in the shares of the particular company for generally one year and more. Dividends are declared to stockholders by the company as a percentage of its net income.

Capital gain is the financial benefit received through the price change of the stock at the time of purchase and sale. In other words, capital gain on share is the difference between the stock price at the time of purchase and the stock price at the time of sale. The above two financial benefits which are capital gain and dividends are added in order to have a total gain on stock which is also known as a stock return. In other words, there are two components of stock return; capital

gain and dividend, and hence in this research capital gain and dividend yield were taken as two indicators of stock return. (Baker, 2009)

As in this research, the effect of the income tax rate on stock return (capital gain and dividend yield) has been studied, so the basic proposition behind the said research is that when the income tax rate increases the stock return decreases. It is because, it is obvious that whenever taxes increases, income after tax decreases so there is an inverse relationship between income tax rate and stock return. According to Parry (1999) already imposed taxes have raised the costs of policies that are evaluated. That's why our assumption on that ground is that there is an insignificant relationship between income tax rate and stock return (capital gain and dividend yield). The objective of this study is to confirm that the income tax rate has no significant relationship with the stock return.

1.4 Outline of the Study

In the study, the Oil & Gas companies of (Country) has been taken. The results of this study would enable us to know the behaviour of stock return (capital gain and dividend yield) in response to an increase or decrease in the corporate income tax rate. The study is divided into the following five components; introduction, literature review, methodology, analysis and conclusion. Following are the companies included in the Oil & Gas sector of Pakistan.

Table 1.1

Oil & Gas Companies (Pakistan)

No. of Companies	**Name of Companies**	**Symbols**
12	Shell Pakistan Limited	SHEL
	Pakistan State Oil	PSO
	Pakistan Refinery Limited	PRL
	Pakistan Petroleum Limited	PPL
	Pakistan Oilfields Limited	POL
	Oil and Gas Development Company	OGDC
	National Refinery Limited	NRL

	Mari Petroleum Company Limited	MARI
	Byco Petroleum (Formerly Bosicor)	BYCO
	Burshane LPG	BPL
	Attock Refinery Limited	ATRL
	Attock Petroleum Limited	APL

1.5 Definitions

Following operational definitions explains the used variables.

1.5.1 Income tax rate. The income tax rate is defined in terms of tax rate which is levied on the taxable income of listed companies. (Brigham, & Houston, 2003)

1.5.2 Capital gain. Capital gain is defined in terms of an increase in the value (price) of a share than its purchasing price. (Brigham, & Houston, 2003)

1.5.3 Dividend yield. The dividend yield is expressed in terms of the ratio of dividend per share to the share price. (Brigham, & Houston, 2003)

2. Literature Review

In this research various previous researches have been studied thoroughly to identify the empirical evidence related to the impact of the income tax rate on stock returns and to have an actual picture of the overall characteristics of taxes, factors affecting the taxes and other pros and cones related to corporate taxation (Ivkovic, Poterba, & Weisbenner, 2005; Chetty & Saez, 2005; Hanlon, Myers & Shevlin, 2003; Harris, Hubbard & Kemsley, 2001; Kalay & Michaely, 2000; Lang & Shackelford, 2000). It's very important that a clear image of all the factors related to taxes should be made visible. Therefore for achieving the desired purpose different research papers have been reviewed to have a multidimensional understanding of the research topic and the variables.

Desquilbet and Guyomard (2002) conducted a study on the taxes imposed on subsidies in vertically related markets. The research paper emphasizes the factors that, how the income increases by decreasing the cost of taxes on finishes and bulk commodities. In this research partial equilibrium technique has been used and the data studied is of Europeans Union countries. The basic assumption made in the paper is optimal price intervention in any two countries which are vertically related to two goods with redistribution constraints towards bulk goods manufacturers and processors. On analyzing the proposition on behalf of the studied data it has been found that the proposition was correct and the assumption was accepted.

Chakravarty and Moyes (2003), has conducted a study on social deficiency, individual welfare and tax on income. The study was based on the progressive tax assumption that a higher rate of tax is applied to higher-income earners and a lower rate of tax is applied to lower-income earners to ensure well being of the society. Secondly, data has been used in the analysis analyzing the data it has been found that the basic assumption was true.

Roemer (1999) studied the behaviour of a progressive taxation regime. With the word progressive taxation, it was understood that high-income citizens are taxed more than others. In this research, the Nash equilibrium technique has been used in order to analyze the data between the variables which are income and tax policy. In this research more voters were found to be

earning income less than the average income due to which to achieve equilibrium in the society progressive tax policies has been proposed.

Moreover, Pasour (1975) had investigated a completely new dimension. In his research paper, the property tax changes levied on farm real estate had been studied. The research was based on the assumption that property tax changes cause the value of farm real estate to increase. In this research paper, the regression technique has been used in order to analyze data. Three categories of independent variables have been used namely; urban influence, farm size and agricultural productivity. In this study, the impact of the aforementioned variables on average values per acre of property (buildings and farmland) has been measured. The data has been collected from the 1969 agricultural census. Upon analyzing the data the basic hypothesis or the null hypothesis was found valid which means that property tax changes cause the value of the farm real estate to increase.

Parry, (1999) conducted a study to identify the impact of distortionary taxation on agricultural policies. The main objective of this research was to evaluate how; cash transfers to farmers, acreage controls and subsidies, production quotas and subsidies get affected by distortionary taxation. The basic assumption which has been tested was that the policy instruments costs are increased by 100% and more in response to an increase in the pre-existing taxes. It was found that an increase in the pre-existing agricultural taxes due to policy change caused private interment to be discouraged more than consumption. As a result of which in the capital market the efficiency costs of taxes are worsened more than they are exacerbated in the labour market.

Dalagmagas and Kotsios (2008) had also conducted a study to identify the impact of the income tax rate on the working status of employees. Moreover, using the general equilibrium model the impact of the increased hourly income tax rate on the number of hours worked by the employees and self-employed individuals have also been evaluated. For this research, the data was collected and analyzed from Spain, Portugal, Italy, and France. The GMM estimation technique has been used to analyze the data. In this research, the number of hours worked by self-employed individuals was found to be negatively impacted by the marginal increase in the hourly income tax rate. It indicated that labour supply has an upward slope under influence of the marginal

increase in the income tax rate. In addition, in countries where withholding tax is applied, the working status of employees was found to be insignificantly impacted by the adjustment made in the income tax policies. It has also been concluded that the number of hours worked by employees was found to be positively impacted by the marginal increase in the hourly income tax rate in the countries where withholding tax policies are not used. (Dalagmagas & Kotsios, 2008)

Hodder, McAnally & Weaver, (2003) has studied the factors on behalf of which the banks prefer to the conversion into S-corporation from C-corporation. In this paper logistic regression technique has been used in order to analyze the data. The sample size of data is 6,622 private banks from which 1272 banks converted to S-corporation. There were six different variables that had been used to draw the conclusion. The research concluded that there are two factors on the basis of which banks make conversion decisions to S-corporation, namely; (1) tax costs associated with the conversion, (2) tax benefits after conversion.

Parikh and Lovatt, (1998) have conducted a study to find the factors which determines the return of the stock market and to predict the actual capital gain based on UK stock market behaviour. The autoregressive-distributed lag model, Fama's approach and ARCH model has been used. It was found ARCH model was more precise in making predictions than the other models.

Hasan (2008) has conducted a study to find the association between inflation and stock returns in the UK. In his study, the author has used vector error correction models of regression to study the relationship between the variables. He had tested Fisher’s hypothesis. It was found that stock returns and inflation have a significant positive relationship. It means that common stocks are a good hedge against inflation. While the results of co-integration and unit root tests indicated that price levels, interest rates, and share prices have a long-term and consistent relationship with each other. Therefore, price levels, interest rates, and share prices have been found as the determinants of stock return in the long run. Moreover, the Fisher effect was found to be robust across the used model. (Hasan, 2008)

2.1 Hypotheses

The following hypotheses were developed based on the literature review.

H1: Income Tax Rate has a significant impact on Dividend Yield.

H2: Income Tax Rate has a significant impact on Capital Gain.

3. Research Methods

3.1 Method of Data Collection

The data collection method of this study was based on secondary research. The data has been collected from the Karachi Stock Exchange and the quarterly financial reports of 12 Oil & Gas companies in Pakistan. The quarterly financial reports have been accessed by visiting the official websites of the respective companies. In this study, 6 years of quarterly penal data (from 2007-09-30 to 2013-09-30) of 12 Oil & Gas companies of Pakistan has been collected.

3.2 Sampling Technique

The sampling technique is based on the Oil & Gas companies of Pakistan. There were 12 Oil & Gas companies in Pakistan.

3.3 Sample Size

The sample size was 6 x 4 x 12 = 288, based on 6 years of quarterly penal data of 12 companies included in the Oil & Gas Industry of Pakistan.

3.4 Research Models Developed

Model equation 1

$$DIVIDEND\_YIELD_{it} = \alpha + \beta_1 \, INCOME\_TAX\_RATE_{it} + €_{it}$$

Model equation 2

$$CAPITAL\_GAIN_{it} = \alpha + \beta_1 \, INCOME\_TAX\_RATE_{it} + €_{it}$$

Where;

α	= Constant
β	= Coefficient of independent variable
€	= Error term

t	= Denotes time in years
i	= Denotes companies
Income Tax Rate	= Income tax paid / Profit before tax x 100
Capital Gain	= Current stock price - Previous stock price / Previous stock price
Dividend Yield	= Dividend per share / Price per share

In the models, Capital Gain and Dividend Yield has been used as measures of Stock Return.

3.5 Statistical Technique

As in this research penal data has been collected therefore the impact of the income tax rate on capital gain and the dividend yield was tested by using the Penal Regression method. Moreover, Hausman Test has been applied to decide between Fixed and Random Effect Penal Regression. However, in the previous studies, time-series data and autoregressive-distributed lag model has been used (Parikh & Lovatt, 1998). But in this study, it was appropriate to use penal regression as penal data has been used. The significance of variables was tested based on P-value at 5% sig. level. Moreover, the correlation was also used to determine the relationship between the variables. (Field, 2009).

4. Results

4.1 Findings and Interpretation of the Results

4.1.1 Descriptive statistics. The output of the descriptive statistics provided in table 4.1 depicts that there were 288 observations and no missing values. It also shows the minimum, maximum, mean, and standard deviation of all the variables are provided in the output. The average income tax rate was around 23%, while the maximum tax rate was around 37%. Moreover, the average capital gain was around 0.03%, while the maximum capital gain was around 0.91%. Furthermore, the average dividend yield was around 0.09%, while the maximum dividend yield was 200%.

Figure 4.1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Income_Tax_Rate	288	.00	37.44	22.9881	13.23354
Capital_Gain	288	-.58	.91	.0254	.21748
Dividend_Yield	288	.00	2.00	.0871	.32592
Valid N (listwise)	288				

4.1.2 Correlations. The relationship of income tax rate with capital gain and the dividend yield is highlighted in the correlation output table given below. The results suggest that the income tax rate has a negative significant weak relationship with the dividend yield (based on 0.005 sig. value) but the positive insignificant weak relationship with capital gain (based on 0.505 sig. value). This means that the income tax rate has an inverse relationship with dividend yield and no relationship with a capital gain.

Figure 4.2

Correlations

		Income_Tax_Rate	Capital_Gain	Dividend_Yield
Income_Tax_Rate	Pearson Correlation	1	.039	-.165**
	Sig. (2-tailed)		.505	.005
	N	288	288	288
Capital_Gain	Pearson Correlation	.039	1	.009
	Sig. (2-tailed)	.505		.882
	N	288	288	288
Dividend_Yield	Pearson Correlation	-.165**	.009	1
	Sig. (2-tailed)	.005	.882	
	N	288	288	288

**. Correlation is significant at the 0.01 level (2-tailed).

4.1.3 Penal Regression. The F-statistics (sig. value) has been used to check the fitness of the two models on the employed data to identify if the models are acceptable for running regression analysis or not. The sig. value of F-statistics of Model Equation 1 was (0.0000) less than (0.05) which is evident of the fitness of the model on the data set and hence Model Equation 1 was qualified for further analysis. However, the value of F-statistics of Model Equation 2 was found to be more than (0.05) therefore it did not qualify the fitness test and hence was rejected for further analysis.

Moreover, the adjusted R-Square value was used to check how much variation in the dependent variable (DIVIDEND YIELD) is explained by the independent variable (INCOME TAX RATE) in the Model Equation 1. The adjusted R-square value of Model Equation 1 was 0.40615 as indicated in the table below. It means that around 40% of the variation in DIVIDEND YIELD was due to INCOME TAX RATE. This suggests that approximately 60% variation in DIVIDEND YIELD is due to variables other than INCOME TAX RATE, which are not included in this research.

Figure 4.3

Model Summary & ANOVA[b]

Model	Adjusted R Square	R Square	F	Sig.
	0.40615	0.43305	16.099	0.000 [a]

a. Predictors: (Constant), INCOME_TAX_RATE

b. Dependent Variable: DIVIDEND_YIELD

Figure 4.4

Model Summary & ANOVA[b]

Model	Adjusted R Square	R Square	F	Sig.
2	-0.02759	0.01895	0.4071	0.966 [a]

a. Predictors: (Constant), INCOME_TAX_RATE

b. Dependent Variable: CAPITAL_GAIN

After accepting Model Equation 1, the next step was to run balanced penal regression on the data set, but before doing that it was necessary to identify which of the two balanced penal regression methods; the fixed effect model or random effect model is the preferred method for the data set. So, Hausman Test was performed on the data to identify which of the two methods is more suitable for statistically testing the model. In Hausman Test the sig. value in the Random Effect test was found to be (0.0864) greater than (0.05), while the sig. value in the Fixed Effect test was found to be (0.0000) less than (0.05) as indicated in the following table. Therefore the hypothesis that the fixed effect model is a preferred model is accepted and hence fixed effect panel regression model was used for running panel regression on data for testing the model.

Table 4.5

Hausman Test

Test Cross-section Random Effects			**Test Cross-section Fixed Effects**		
Test Summary	Chi-Sq. Statistic	Prob.	Test Summary	Chi-Sq. Statistic	Prob.
Cross-section			Cross-section		

Random	2.9410	0.0864	Fixed	155.4708	0.0000

Therefore subsequently the impact of INCOME_TAX_RATE on DIVIDEND_YIELD has been tested using fixed-effect penal regression as indicated in the following table. The significance of the independent variable (INCOME_TAX_RATE) was evaluated based on sig. value (Prob.) at a 5% significance level. The value of t-statistics can also be used as an alternate to sig. value to measure the significance of the independent variable in the model. The direction and strength of the impact of the independent variable is measured by the coefficient value. Moreover, the chance of mistakes in estimating results using another data set is measured based on the Standard Error value.

Table 4.6

Panel Regression (Cross-section fixed effects)

	Fixed Effect Model			
Independent Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob. (Sig.)**
INCOME_TAX_RATE	0.000978	0.001455	0.671783	0.5023
C	0.064660	0.036583	1.767512	0.0783
Dependent Variable: DIVIDEND_YIELD				
Periods included: 24				
Cross-sections included: 13				
Total panel (unbalanced) observations: 288				

The results of fixed effect penal regression indicate that INCOME_TAX_RATE was an insignificant variable as its sig. value (0.5023) was greater than (0.05) and t-statistics value was (0.6717) less than (1.5). So this indicates that INCOME_TAX_RATE does not have a significant impact on DIVIDEND_YIELD. Therefore the hypothesis “H1” that, “Income Tax Rate has a significant impact on Dividend Yield” is rejected.

4.2 Hypotheses Assessment Summary

H1: The Income Tax Rate was found to be an insignificant variable having sig. value (0.5023) greater than (0.05). Therefore the hypothesis (H1) of this study was rejected. The results support the findings of Hasan (2008).

Table 4.7

Hypothesis Assessment Summary Table

Hypotheses	**t-Statistics**	**Sig.**	**Empirical conclusion**
H1: Income Tax Rate has a significant impact on Dividend Yield.	0.671783	0.5023	Reject

This indicates that Income Tax Rate does not have a significant impact on Dividend Yield. This means that if the Corporate Income Tax Rate would increase then it would not cause the Dividend Yield of their respective stock to change significantly.

5. Discussions, Conclusion, Policy Implications and Future Research

5.1 Discussions

The findings of this study highlight that the Income Tax Rate has an insignificant impact on Dividend Yield. This means that the change in income tax rate does not affect Dividend Yield and hence also have no effect on Stock Returns. In this way, the findings of this study support the findings of Hasan (2008).

5.2 Conclusion

In this study, two models have been used to test the impact of Income Tax rates on Stock returns. In the first model Dividend Yield has been taken as a variable of Stock Return while in the second model Capital Gain has been taken as a variable of Stock Return. After running the initial analysis the first model was found to be significantly fitted on the data on the basis of F-statistics, while the second model was found to be insignificantly fitted on the data. Therefore model 1 was accepted and model 2 was rejected for running a fixed effect penal regression model on it. The penal regression results of model 1 indicated that Income Tax Rate has no significant impact on Dividend Yield. It means that the change in Income Tax Rate does not significantly affect the Dividend Yield and hence Stock Return. Moreover, due to the insignificance of model 2, the impact of Income Tax Rate on Capital Gain could not be evaluated.

5.3 Policy Implications

This study provides useful insight into the behaviour of Stock Return (Dividend Yield) in response to Corporate Income Tax Rate fluctuation. On the basis of this research, it is recommended that Stock Return (Dividend Yield) do not change significantly in response to the significant change in the Corporate Income Tax Rate. Therefore fluctuation in Corporate Income Tax Rate cannot be used to predict increase or decrease in Stock Return (Dividend Yield).

5.4 Future Research

In this study, two models have been developed, but one of those two models was not significantly fitted on the data and hence the impact of Income Tax Rate on Capital Gain could not be tested. Therefore in future research, it is recommended to take different data set so that both the models could be tested and the impact of Income Tax Rate on Capital Gain could be determined. It could also be achieved by using a larger sample size than the one used in this study. Moreover, the model summary indicated that around 40% of the variation in Dividend Yield was due to Income Tax Rate. This means that there are variables other than Income Tax Rate which accounts for around 60% variation in Dividend Yield which has not been studied in this study. Therefore in future research, the other variables could be included to test their impact on Stock Return (Dividend Yield).

References

Baker, H. K, (2009). *Dividends and Dividend Policy*, John Wiley & Sons.

Brigham, E. F., & Houston, J. F. (2003). *Fundamentals of Financial Management,* South-Western College Pub; 10 edition.

Chakravarty, S. R., & Moyes, P. (2003). Individual Welfare, Social Deprivation and Income Taxation. *Economic Theory, 21*(4), pp. 843-869.

Chetty, R., & Saez, E. (2005). Dividend Taxes and Corporate Behavior: Evidence from the 2003 Dividend Tax Cut. *Quarterly Journal of Economics*, *120*(3), 791-803.

Dalamagas, B., & Kotsios, S. (2008). Personal income tax: incentive or disincentive to work effort?. *Sciences Politiques, 59*(4), 777-811.

Desquilbet, M., & Guyomard, H. (2002). Taxes and Subsidies in Vertically Related Markets. *American Journal of Agricultural Economics, 84*(4), 1033-1041.

Ehrhardt, M., & Brigham, E. (2013). *Corporate Finance: A Focused Approach*. Cengage Learning.

Field, A. (2009). *Discovering Statistics Using SPSS*. SAGE Publications Ltd.

Hanlon, M, Myers, J. N., & Shevlin, T. (2003). Dividend Taxes and Firm Valuation: A Re-Examination. *Journal of Accounting and Economics, 35*(2), 53-59.

Harris, T. S., Hubbard, R. G. & Kemsley, D. (2001). The Share Price Effects of Dividend Taxes and Tax Imputation Credits. *Journal of Public Economics, 79*(3), 96-108.

Hasan, M. (2008). Stock returns, inflation and interest rates in the United Kingdom. *The European Journal of Finance, 14*(8), 687-699.

Hodder, L., McAnally, M., & Weaver, C. (2003). The Influence of Tax and Nontax Factors on Banks' Choice of organizational Form. *The Accounting Review*. I(1), 297-325.

Ivkovic, Z., Poterba, J., & Weisbenner, S. (2005). Tax-Motivated Trading by Individual Investors. *American Economic Review*, *95*(5), 30-39.

Kalay, A., & Michaely, R. (2000). Dividends and Taxes: A Re-Examination. *Financial Management*, *29*(2), 55-75.

Lang, M. H., & Shackelford. D. A. (2000). Capitalization of Capital Gains Taxes: Evidence from

Stock Price Reactions to the 1997 Rate Reduction. *Journal of Public Economics, 76*(1), 69-85.

Parikh, A., & Lovatt, D. (1998). Modelling real capital gains in the UK stock market. *Applied Economics Letters, 5*(6), 337-342.

Parry, I. W. (1999). Agricultural Policies in the Presence of Distorting Taxes. *American Journal of Agricultural Economics, 81*(1). 212-230.

Pasour, E. C. (1975). The Capitalization of Real Property Taxes Levied on Farm Real Estate. *American Journal of Agricultural Economics, 57*(4), 539-548.

Roemer, J. E. (1999). The Democratic Political Economy of Progressive Income Taxation. *Econometrica, 67*(1), 1-19.