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DOES THE BURDEN OF CORPORATE INCOME TAX BORNE BY LABOUR THROUGH REDUCED WAGE RATES OR LABOUR HOURS, RESULTING IN A LOWER COST OF LABOUR TO THE FIRM?

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ABSTRACT

Shareholders ability to shift the burden of the tax to the consumer or labour depends largely on the mobility of capital. If the investor can move from the corporate sector into the non corporate sector, the laws of supply and demand will cause some of the burden of the corporate income tax to be borne by others. The aim of this paper is to find out whether the burden of the corporate income tax may be borne by labour through reduced wage rates or labour hours, resulting in a lower cost of labour to the firm,using ten (10) years financial data from ten firms listed on the Ghana Stock Exchange. The result provides evidence that part of the tax burden is shifted backwards to labour. Both the actual and adjusted data used in the model confirmed the alternate hypothesis. The result also demonstrated that a 1% increment in the corporate tax would result in 11% fall in the burden of the tax on labour.

Keywords: Shifting, Corporate income tax, labour, Ghana, Tax burden, Short-run.

INTRODUCTION

Corporate income tax is paid out of corporate returns which otherwise would have accrued to shareholders. According to Wilma (1998), the tax is designed with the tax base being primarily the accounting profits of the corporation. The returns to shareholders in the form of dividends and capital gains are not deductible for tax purposes and are thus included in the base of the tax. These returns, which are taxed again at the shareholder level, are therefore reduced by the corporate income tax (Wilma, 1998). However, there is the need for corporations to pay their fair share of the corporate tax. In order to establish the degree of fairness of the corporate income tax, it must first be understood by the groups that bear the actual incidence of the tax. It is theoretically emphasized

that the burden of the tax falls on corporate shareholders through reduced returns on their investment. Pechman (1985) argued that if this is indeed the case, then taxation of profits would add progressivity to the tax law because corporate stockholders' tend to have more incomes than other taxpayers. Once progressive tax systems are generally agreed to be distributionally equitable, then corporate income tax might thus be seen as contributing to distributional equity, if it is indeed borne by shareholders. Other writers argue that the corporate income tax is shifted forward to consumers through higher prices or backward to labour through reduction in amounts paid to workers. If the tax burden falls on consumers or labour, it would have a regressive impact on the overall distribution of the tax burden and such might be perceived as inequitable. In an examination of a tax system or an individual tax, the burden of taxes place on taxpayers will either be: proportional- that is the amount of tax to be paid increases directly in line with rising income; progressive- that means the tax increases faster than the rate at which income rises and finally, regressive- that is the tax increases slower than the rate at which income rises (Pechman and Okner, 1974; Citizens for Tax Justice, 1985; Wallace *et al.*, 1991).

The Concept of Shifting to Labour

Backward shifting of the corporate tax burden to labour depends on factor mobility Gravelle (2011). Manufacturing firms require both capital and labour to operate. Both factors of production must be obtained from the competitive markets. Just as the price of consumer goods is partially determined by the forces of demand and supply, prices of production factors follow similar theories. As long as equity capital remains more mobile than labour, partial shifting of the tax to labour will be possible. Returns offered to equity capital and labour are the prices that are used as a sweetener to attract the production factors into use for the firm. Returns to the parties come from the limited supply of the firm's net revenues. If capital is more mobile than labour, the firm's managers would need to keep the return to capital as high as possible. Physical capital such as machinery and buildings is not very mobile, but equity capitals in corporations are extremely mobile. Thus, following the imposition or increase in the corporate income tax, management will be inclined to reducing the share of net revenues going to labour in order to maintain the return to equity. The shifting of the tax burden to labour, as the case of consumers, can be accomplished in the short run. Managers anticipating capital flight can make pricing and revenue allocation decisions to pre-empt capital flight (Wilma, 1998). He further argued that an inflationary economy with prices and revenues climbing "naturally" over time would make shifting the burden to consumers and/or labour even easier.

Harberger (1959) first analyzed the distribution of the corporate income tax for the years 1953 to 1955 and discovered that the bulk of the tax was paid by firms other than agriculture, real estate, and miscellaneous repair service. Harberger (1962)built on this knowledge to create a two-sector model of the economy that could be used to analyze the effects of the corporate tax. He assumed a

closed static economy with perfect competition and perfect mobility of production factors thus capital and labour; two different goods are produced thus corporate and non-corporate goods. The elasticity of wages and prices are sufficient to create full employment of capital and labour. Harberger observed that a full mobility of production factors will cause investors in the taxed sector to move into the non-taxed sector, thus leading to a fall in the return on capital in both sectors. The owners of corporate capital will move their investment from the taxed sector to the non-taxed sector because of the reduced return. The increased supply of capital in the non-corporate sector will lead to lower returns since the movement created by the tax would not necessarily increase demand. This movement will cause at least some of the tax burden to fall on all capital owners, both in the corporate and non-corporate sectors. The artificially increased price of the corporate good due to the higher cost of capital in that sector will cause a distortion in the relative prices of the two goods and, depending on the ability of consumers to substitute one good for another, may cause some of the burden of the tax to fall on consumers.

If the corporate sector is more labour-intensive than the non-corporate sector, labour will bear some of the burden of the tax (Wilma, 1998). This result will occur because the increased price of the corporate good will reduce demand for corporate output and force labour in the corporate sector to move into the non-corporate sector. The capital-labour ratio would then be reduced in both sectors, which will cause the marginal productivity of labour to turn down resulting in lower wage rates. Harberger's model assumes full employment. This analysis was later extended by Miyagiwa (1988) to include sector-specific unemployment rates. Wages are more rigid in the corporate sector due to higher levels of unionism and thus unemployment would be expected to be more prevalent in such sector. The original Harberger model with two sectors and two goods was modified to include a competitively determined wage rate in the non-corporate sector and a corporate wage rate set exogenously higher than the non-corporate wage rate. This caused unemployment in the corporate sector because labour tends to migrate into the higher paying sector. The model indicated that the introduction of sector specific unemployment into the equation resulted in ambiguity with the relative incidence of the corporate income tax between capital and labour. Harberger determined that the burden of the tax would fall more heavily on capital if the corporate sector is more capital intensive. Miyagiwa (1988) found out that the corporate sector could be capital-intensive, but labour-abundant because of the higher wage rate. Even if the corporate sector is labour abundant, conditions prevalent could cause capital to bear more of the tax burden, but sometimes it may be unlikely to occur due to the elasticity of substitution in demands.

METHODOLOGY

Model Specification

The burden of the corporate income tax may be borne by labour through reduced wage rates or labour hours, resulting in a lower cost of labour to the firm. The model is as follows:

LAB = *f* (TAX, CAP, CPU, UR)

$LABt = \beta_0 + \beta_1 TAX_t + \beta_2 CAP_t + \beta_3 CPU_t + \beta_4 UR_t + e_t$ ---------- (3.3)

Where:

LABt = the total labour force using the year 2000 as a constant rate t;

TAXt = the effective tax rate for year t and is measured as the actual tax paid divided by the proposed tax for year t

CAPt = fixed Assets for year t divided by Total Assets for year t;

CPUt = the capacity utilization, represent the contribution of the manufacturing sector as a % of GDP.

URt = the unemployment rate for year t; and e_t = error term for year t.

The labour variable is used to control for the effect of firms' growth or expansion. The alternate hypothesis is $\mathbf{H_1}$: the coefficient of the corporate tax variable in the labour model is less than zero, thus $\beta_1 < 0$.

RET_t= [Stock $Price_t$-Stock $Price_{t-1}$ + (Dividend/No. of Shares)/SP_{t-1}

TAX_t = Income Tax/EBIT **GROSS PROFIT% = (**Sales – Cost of Goods Sold)/Sales

LABOUR = National data **CAP =** Fixed Asset/Total Asset

Capacity Utilization = National data **UE_t** =$EBIT_t$/No. of Shares for year t – $EBIT_{t-1}$/No. of Shares $_{t-1}$ **CPI =** Consumer Price Index **UR_t =** Unemployment Rate for year t

Data Analytic Technique

Ballentine (1980) carried out a study on the incidence of corporate tax using cumulative data for the manufacturing sector and run the analysis with ordinary least squares regression. Ballentine (1980) found that the use of the aggregated data affected the findings of the study. To avoid similar problems, this study used ten (10) years financial data from ten firms listed on the Ghana Stock Exchange. Microsoft Excel and Statistical Package for Social Sciences (SPSS) software were used for the analysis.

FINDINGS

The coefficient of the corporate income tax in the Labour model indicates the right direction (-14.935) thus ($\beta_1 < 0$) in the average regression and statistically insignificant at the 10% confidence level. A negative coefficient here suggests that an increase in the corporate tax rate would result in a decrease in the proportionate cost of labour. This would be the expected result for this model if the corporate tax is shifted to labour (backwards shifting). The evidence provided in the labour model above, indicates that an increase in corporate income tax by 1% would result in 14.9% reduction in the cost of labour. Hassett and Aparna (2006) estimated the elasticities of wages and found out that the wage coefficient dropped indicating that capital owners shift a proportion of the corporate tax backwards to labour. As emphasized earlier on in this study, most manufacturing firms are labour intensive due to the abundant supply of labour in Ghana, this enable firms to shift the greater portion of the corporate income tax to labour in the form of lower wages. Comparatively, it can be confirmed from both the consumer and labour models that labour bears a greater proportion of the corporate income tax than in the case of the consumer. This result is so because consumers can easily move from the corporate sector to the non-corporate sector that is assuming that both sectors produce similar goods (Gravelle, 2010) unlike labour because of the limited nature of employment in Ghana.

The CAP variable (proxy for technological advancement) is negative (-64.136) and statistically significant at five percent confidence level. The negative coefficient here indicates that an increase in technology would lead to a decrease in the cost of labour that corporations expend. This makes a lot sense in that new technologies improves efficiency and reduces waste thereby reducing the cost of doing business. The coefficient of the unemployment rate (UR_t) is positive (1.863) and significant at one percent. A positive coefficient here implies that an increase in unemployment would lead to an increase in the cost of labour for corporations. This makes logical meaning in the sense that an increase in the cost of labour would compel employers to lay off some labour. Hence an increase in the cost of labour would lead a proportionate increase in unemployment. The repercussion effect of high rates of unemployment would also make employers more powerful and would enable them to ship more of the corporate tax to labour.

The TAX variable in the labour model continues to show the expected directional relationship thus ($\beta_1 < 0$). The negative relationship between the corporate tax rate and labour has decreased slightly from -14.935 to -14.828 but still significant at ten percent confidence level. There is a continuous evidence that corporations reduce the cost of labour vi-a-vi an increase in the corporate tax rate. For instance Alison (2009) found out in a study that the corporate income tax is significantly and negatively correlated with wages and concludes that a 1 percentage point increase in the corporate income tax rate would decrease wages by between .14 and .36 percent. His results translated into a

wage elasticity of -0.0094 to -.024 and it implies that quite a large proportion of the tax burden is borne by labour. The result continues to show a positive relationship between the cost of labour (LAB) and the unemployment rate (UR) implying that as long as labour cost continues to increase in relation to the corporate tax, unemployment continue to increase proportionately. The other determining variables such as CAP and CPU did change marginally in relation to the slight 1% upwards adjustment in the corporate tax rate. The CAP continues to be negatively correlated with the cost of labour. The coefficient increased from -64.136 to -64.146 approximately 0.01 increase. The increment in the technology variable indicates that corporations will continue to reduce the cost of labour further to its minimal with a given level of technology at their disposal.

CONCLUSION

The result of the labour model provides evidence that part of the tax burden is shifted backwards to labour. Both the actual and adjusted data used in the labour model confirmed the alternative hypothesis, thus the hypothesis that 'The coefficient of the tax variable is less than zero'. The actual or raw tax showed a coefficient of -14.935 whilst the adjusted model showed a tax coefficient of -14.828 all attesting to the degree of shifting. Both tests indicate that the coefficients were significant at 10%. The result also demonstrated that a 1% increment in the corporate tax would result in 11% fall in the burden of the tax on labour. The results demonstrated some degree of shifting in the tax burden but the magnitude of the shift still leaves the question of who really bears the tax incidence unabated and at such more work must be done to answer this question. Irrespective of the problems encountered in the data, this study provides a step towards answering the question of who bears the burden of corporate income tax.

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APPENDIX:

Table-1. Summary Statistics for the Labour Model

Variables	Coefficient	Std. Error	T-Values	P-Values
Constant	19.970	20.812	0.960	0.381
TAX	-14.935	6.778	-2.203	0.079*
UR	1.863	0.167	11.149	0.000***
CPU	9.771	2.596	3.763	0.013**
CAP	-64.136	18.560	-3.456	0.018**
Where: TAX = Corporate Tax		UR = Unemployment Rate		
CPU = Capacity Utilization of firm		CAP = A Proxy for Technological Advancement		
F-Test = 140.242 R-Square = 0.991		Adjusted R-Square = 0.984		
Durbin Watson (D-Statistics) = 2.405				

Dependent Variable: Labour (LAB)

****,**,** means significant at one percent, five percent and ten percent respectively*

Table-2. Summary Statistics for the Adjusted Labour Model

Variables	Coefficient	Std. Error	T-Values	P-Values
Constant	20.032	20.752	0.965	0.379
TAX_1	-14.828	6.700	-2.213	0.078*
UR	1.862	0.167	11.149	0.000***
CPU	9.768	2.588	3.774	0.013**
CAP	-64.146	18.517	-3.464	0.018**

Where: T_1 = Adjusted Tax UR = Unemployment Rat

CPU = Capacity Utilization of firm CAP = A Proxy for Technological Advancement

R-Square = 0.991 Adjusted R-Square = 0.984 Durbin Watson D-Statistics = 2.408

F-Test = 140.854

Dependent variable: Labour (LAB)