Taxation and Private Investment in Ghana: An Empirical Study

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Abstract

This study investigated the effect of corporate income tax rate reforms on private investment in Ghana. Ghana has experienced several tax reforms resulting in a lot of corporate income tax rate changes. All these changes have been made in an attempt to find the most appropriate tax rates that not only result in the maximum revenue to the government but also serve as an incentive for the continuous existence of the corporate world. A model was specified with private investment as the dependent variable and six independent variables including corporate income tax rate. The Ordinary Least Square (OLS) multiple regression technique was used for the estimation. The empirical results revealed that the level of corporate income tax rate in Ghana adversely affected the level of private investment during both pre-tax reform and post-tax reform period. However, the parameter estimate is not statistically significant during the reform period. This implies that the tax reform policy has modestly promoted the level of private investment in Ghana during 1985-2010 as compared to the pre-reform period. The study therefore recommends that efforts be made by the government to further reduce corporate tax rates to boost private investment in the country.

Keywords: Taxation, private investment, corporate income tax, tax reform

1.0 INTRODUCTION

Governments all over the world including the government of Ghana are day in day out confronted with poverty alleviation, security, education, health and the general welfare of the citizenry. These call for the provision of social infrastructure and implementation of development projects among other things to improve the standard of living of the people. In view of these social commitments, governments need to generate enough revenue to meet their expenditures.

Although governments raise revenues from several other sources such as licenses, fees, and fines, taxation remains the largest contributor of government revenue even when the other sources are put together. This supports the assertion made by Otieku (1992) and cited by Azah (2005, p.1) as "Taxation has become one of the key sources of domestic revenue. It is the major fiscal tool not only in mobilizing the much needed public revenue but also for directing investment flow and other desirable socio-economic behaviour". According to Addo (2008) tax revenue in Ghana increased consistently between 2003 and 2006 from 58% to 60%. Governments and for that matter countries all over the world depend on tax revenue to fund their economies. "Nearly all Sub-Saharan African countries rely on income tax on wages, corporate profit, international trade and excise taxes for a substantial share of their revenues"

(Terkper, 1996) cited in (Norgah, 1998, p.4). Addo (2008, p.1) citing the office of the Deputy Prime Minister (July, 2004) mentioned that "the UK government budget for 2004-2005 stated that 26% of its revenue expenditure of £79.4 billion shall be raised through council tax alone". It follows that for any government to be able to raise the expected revenue to meet its expenditure, will to a large extent depend on its tax policies.

Unfortunately, the fact that taxation does not offer any direct benefit to the tax payer in return, coupled with the belief of a high rate of illiteracy in West Africa especially in Ghana, taxpayers do not understand the concept of taxation. They therefore find it very difficult to pay their taxes. This phenomenon was identified by Ansah, cited by Addo (2008, p.1) who stated that "I have come to the conclusion that taxpaying is such an unpleasant thing that anyone who loves paying tax or even pays without complaining ought to have his or her head examined". Hence, tax payers resort to all sorts of illegal methods to either reduce the amount of tax or to dodge tax altogether. They include falsifying records to over or under invoice goods, increasing allowable deductions and some simply failing to maintain proper records. All these result in the low level of tax revenue mobilization governments continue to experience over the years. According to Kwamena Duffour, in the 2011 budget statement presented to the Parliament of Ghana on the 17th November, 2010 (p.15) "These challenges include the rather low level of domestic revenue mobilization that often results in shortfalls in expected revenue".

In addition to providing social amenities, governments also have to provide enough jobs to cater for the employment needs of its citizens. But government alone cannot meet the employment demands of the people. There is therefore the heavy reliance on the private investors to create jobs to help the government absorb the unemployed. It is often said that the private sector is the engine of growth of the economy. However, governments must create the right economic environment for the private sector to thrive. This they do through the use of fiscal or economic policies of which taxation policy is one.

Corporate income taxes reduce the amounts of incomes available to the private firms for reinvestment to expand the economy. Higher taxes are a disincentive to private investment since they erode whatever profits that are made by the firm and hence scare away the private investor. According to Norgah, (1998, pp 1-2) "An economy of deficits is not attractive to foreign investors and taxation is one of the means of ensuring the avoidance of deficits. However, higher taxes tend to drive out or scare off investors. This is the problem for any nation that wishes to attract foreign investors."

Writing under the caption, "Taxes could discourage investment" in the Financial Times issue of Monday, November 21, 2011, the mining body in reacting to an increase in the corporate tax rate on mining companies from 25 to 35 percent and a windfall tax of 10 percent on mining profits as introduced in the 2012 budget, warned that it could discourage investment. According to Financial Times (2011, November 21 p.36), Toni Aubynn, head of the Ghana chamber of mines stated that, "this stance will likely discourage investment and the expansion of current projects"

So, much as the nation wants to raise the maximum tax revenue from corporate income, it is faced with a problem of ensuring that tax levels do not serve as a disincentive to private investment. The question to ask therefore is "What is the right level of corporate tax rate that will generate the optimum level of tax revenue and at the same time does not erode the investor's profits to the extent that they are thrown out of business. After all, profit is the main aim of every private investor. The extent to which

private investment responds to the levels and changes in tax rates (elasticity of private investment to tax rates) is therefore the issue under consideration.

In an attempt to balance the effect of tax on the investor, the tax system provides a lot of tax incentives including tax holidays, investment tax credits, capital allowances, lower taxes and tax rebates. These incentives go a long way to lessen the tax burden when taken advantage of by the investor. It is important to mention that countries must be concerned about the trade-offs between the higher tax revenue from corporate incomes and the tax incentives.

Apart from the usual factors of government attitude to private investment, calibre of public administration, political climate, foreign exchange convertibility and open trade policy, it is believed that a favourable tax system acts as an incentive to private investment. It has therefore been an area of concern to the government of Ghana over the years.

Ghana has experienced several tax reforms since 1985 resulting in a lot of corporate income tax rate changes. All these changes have been made in an attempt to find the most appropriate tax rates that not only result in the maximum revenue to the government but also serve as an incentive for the continuous existence of the corporate world. It is doubtful whether the Ghanaian tax system has been successful so far in finding this all important level of tax rate. This is evidenced by the private businesses blaming their hardships on the amount of tax they are assessed to pay. A lot of business houses have been barred by the erstwhile Internal Revenue Service for being tax debtors. In an attempt to make up for the loss of income to tax, some businesses resort to tax evasion. Some operate several accounts, under declare incomes, do not issue VAT invoice, over and under invoice, failing to file tax returns and failing to keep proper records.

The 7th February, 2011 issue of the Daily Graphic reported an investigation conducted by the ace investigative journalist Anas Aremuyaw Anas. Eleven officers of the Customs Division of the Ghana Revenue Authority were caught on tape assisting tax payers to evade tax at the Tema harbour. Also, Radio Ghana on 10th April, 2011 carried a news item on an investigation conducted by a joint Police and Vat Service team. It was reported that Shiantii a Chineese Restaurant, was not issuing VAT invoice. The report continued that, only twenty out of two hundred hotels visited issued VAT invoice. Some collected VAT but under declared the results. Some operated several accounts and declared only one to VAT officials for audit.

The researchers wonder why in the wake of the various tax reforms, the necessary impact seems not being made as to the right tax rate that harmonizes the tax system. This study therefore seeks to empirically examine the effect of the prevailing corporate tax rates on the level of private investment in Ghana during the tax reform period 1985 to 2010.

Hypothesis
The following hypothesis is stated by the researchers in line with the stated objectives:
Corporate tax rates do not adversely affect private investment in Ghana.

The paper is structured into five sections. Section one is devoted to introduction which covers an overview of the background of the study.

Section two covers the literature review. This involves all previous works in the related area of study. It consists of definition of terms and constructs, theoretical review, and empirical evidence.

Section three is on methodology, where an econometric model of private investment is specified, as well as data sources and analytical techniques stated. Section four consists of analysis of data, presentation and discussion of results.
Section five is on conclusions comprising summary, policy implications and limitations of the study.

2.0 LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Income Taxation Defined

Before the definition of income tax, it is important to understand what taxation is. Taxation has to do with a system of levying the private sector by the government to enable it (government) finance its expenditures which is to the benefit of the general public. A key characteristic of a tax is that the taxpayer does not receive any direct benefit for the payment of the tax. Several attempts have been made to provide definition to taxation by different writers. Basically, they all point to the key elements that have been captured already. Some of the definitions include, "the levying of compulsory contributions by public authorities having tax jurisdiction, to defray the cost of their activities. No specific reward is gained by the taxpayer" (Abdallah, 2008-p 4). Taxation can also be said to be the primary method used by countries to finance their activities.

2.1.2 Income Tax Defined

Income tax has been defined by the following authors as cited by Addo (2008 p 12): Macnagthen (1901) "Income tax, if I may be pardoned for saying so, is a tax on income". According to Beattie (1968), it is "a tax on income or on that which is deemed to be income by virtue of income tax Act". Dua (2005), also cited in Addo (2008) defined income tax as: "demand by central or local government for compulsory payment of money by citizens of a country other than as payment for some specific service or as a penalty for some specific offence". In analyzing the definitions, it is clear that Dua's definition of income tax attempted to distinguish between income and other sources of tax revenue. Since there are different bases of taxation, Income taxation is basically a system of taxation where the tax is levied on the income of an individual, a business or an organization. From the above, an income tax paid by corporate entities is known as corporate income tax.

2.3.5 Investment

From the theory of investment, it is the change in capital stock during a period. The investment flow in a period can be calculated as the difference between the capital stock at the end of the period and the capital stock at the beginning of the period. Thus, the investment flow at time period t can be defined as: $I_t = K_t - K_{t-1}$
 Where, K_t is the stock of capital at the end of period t and K_{t-1} is the stock of capital at the end of period t-1 (and thus at the beginning of period).
(http://www.newschool.edu/nssr/het/essays/capital/invest.htm)-Retrieved 25/8/2011.

For the purpose of this study, investment is any expenditure that is aimed at increasing the value of a business. Thus private investment is aimed at increasing value of a business and is not made by the government.

2.2 Theoretical Literature Review

2.2.1 The Theory of Optimal Income Taxation
Under principles of taxation, where it is impossible for taxes to be collected in lump-sums, it is imperative to determine an optimum level of tax rates to apply. This leads to application of the theories of optimal taxation. The development of this theory began with the analysis of optimal commodity taxation by Ramsey (1927). However, the subject of Optimal Income Taxation (OIT) theory was introduced by Mirrlees (1971) as cited by the African Economic Research Consortium (AERC), (1998).

In his paper, "An Exploration in the Theory of Optimal Income Taxation", Mirrlees (1971) explores an optimal income tax rate structure. Calculus of variations and optimal control theory were used as mathematical tools to derive an optimal tax schedule. Mirrlees formulates his model by introducing a utility function $u(x,y)$, where x is consumption and y is percentage of the day spent in work. Then the cumulative skill distribution is introduced in the population to be $F(n)$. The model maximizes a social welfare function subject to the conservation of wealth in the society. It was found that optimal marginal tax rates should decline at the tail of the skill distribution. The two key areas of the (OIT) include:
  i.   The inelasticity of demand or supply of the tax base; and
  ii. The sources of inequality must be targeted with taxation where distribution is concerned.
According to AERC (1998 p3),

> "The general principles of optimal taxation can be summarized as follows:
>   1. tax revenue is raised most efficiently by taxing goods or factors with inelastic demand or supply (this abstracts from distributional questions where inelasticity refers to compensated demands and supplies); and (2) taxation concerned with distribution and with externalities or market failures should as much as possible go to the root of the problem. Thus for distribution, one should look for the sources of inequality (for example, land endowments or earned incomes) and should concentrate taxation there. In the case of externalities, one should attempt to tax or to subsidize directly the good or activity that produces the externality (Stern, 1988a)."

In analyzing the theory, one could come out with the realization that it distinguishes between two key factors that go to the root of the theory. These are:
  i.   efficiency of tax collection for optimum revenue; and
  ii. seeking the welfare of the tax payer under the principle of equity even in the wake of inefficiencies of raising revenue from the tax.

It emphasizes the need for efficiency in tax collection but also establishes the cases in which the need arises to sacrifice efficiency for the social welfare of the people. Trade taxes and taxes on intermediate goods that introduce inefficiencies into production, for example, will be undesirable unless they provide additional leverage over the distribution of welfare, which they will not, provided that production is competitive and consumers can be taxed on their consumption (AERC, 1998). In cases where equity and

efficiency must be balanced, as in the design of direct and indirect taxes on consumers, the tax rates will depend on the exact form of the social welfare function (Newbery, 1988).

2.2.2 The Core-Periphery Theory

The Core-Periphery (CP) Theory was introduced by Paul Krugman in a 1991 paper. The basic structure of the Core-Periphery model is based on the notion that as one region or state expands in economic prosperity; it must engulf regions nearby to ensure ongoing economic and political success. The area of high growth or former high growth becomes known as the core, and the neighboring area is the periphery. The concept of taxation recognizes that tax payers comprise the rich and the poor. It is based on this principle that a unit has been created for the large tax payers within the tax system in Ghana.

The model is criticized on the grounds that uneven development is not the inevitable consequence of development, but of the particular mode of production used to bring about that development. In applying the CP theory strictly, large taxpayers should be able to make huge investments. This must affect the small taxpayers positively to bring them along in the process of development by way of increased investment. However, it does not hold that way. Factors such as the impact of tax on the finances of the company, the methods of production and access to credit continue to have significant impact on the ability of the company to invest.

2.2.3 Modernization Theory

This is a theory which holds that all societies progress through similar stages of development. It follows that today's underdeveloped areas are thus in a similar situation to that of today's developed areas at some time in the past, and therefore the task in helping the underdeveloped areas out of poverty is to accelerate them along this supposed common path of development, by various means such as investment, technology transfers, and closer integration into the world market. However, this view is rejected by the Dependency Theory with regard to the level to the level of integration of the under developed areas. The theory also while emphasizing the means of investment and technology transfers, is silent about the big responsibility that is placed on governments to finance such developments. It is therefore imperative that a very effective system of taxation be put in place for the modernization theory to work.

2.2.4 Dependency Theory

Dependency Theory (DT) was presented by Singer in a paper published in 1949. It became popular around 1970 as a reaction to modernization theory. It is predicated on the notion that resources flow from a "periphery" of poor and underdeveloped states to a "core" of wealthy states, enriching the latter at the expense of the former. It is a central contention of dependency theory that poor states are impoverished and rich ones enriched by the way poor states are integrated into the "world system."

Dependency theory states that the poverty of the countries in the periphery is not because they are not integrated into the world system, or not 'fully' integrated as is often argued by free market economists, but because of how they are integrated into the system.

On the contrary, the concept of taxation is based on the notion of the rich contributing more to the upkeep of the society.

2.2.5 The Theory of Investment

"Strictly speaking, investment is the change in capital stock during a period. Consequently, unlike capital, investment is a flow term and not a stock term. This means that capital is measured at a point in time, while investment can only be measured over a period of time" (Haavelmo, 1960: p.3).

The investment flow in a period is the difference between the capital stock at the end of the period and the capital stock at the beginning of the period. It is calculated as:

$I_t = K_t - K_{t-1}$

Where:

I_t is Investment at time t

K_t is the stock of capital at the end of period t and

K_{t-1} is the stock of capital at the end of period t-1 (and thus at the beginning of period t).

There are two schools of thought on the perspectives of investment: the "***Hayekian***" and "***Keynesian***" perspectives (Haavelmo, 1960).

The Hayekian *Theory of Investment*

Hayek (1941) considers investment as the adjustment to equilibrium and thus the optimal amount of investment is effectively a decision on the optimal speed of adjustment. A firm may decide it needs a factory (the "capital stock" decision), but its decision on how fast to build it, how much to spend each month building it, is effectively, the "investment" decision which is a separate consideration. The Hayekians believe that the capital decision influences the investment decision. That is if a firm has GH¢10 million of capital and decides that it needs GH¢15 million of capital, it requires investment of GH¢5 million. But if this adjustment can be done "instantly", then there will not be any actual investment decision. The capital stock can just be changed as a matter of course. The principal decision here is the capital decision.

However, if for some reason, instant adjustment is not possible, then the investment decision comes in. Determining how to distribute the GH¢5 million adjustment is what lies at the heart of the Hayekian approach to investment theory.

The Keynesian *Theory of Investment*

The ***Keynesian*** approach introduced by Keynes (1936) argues that investment is simply *what capitalists "do"*. Its emphasis is on the "behavioural" take on the investment decision and not the "adjustment" nature of it. Keynesians although, accept the definition of investment as a change in capital stock underplay the capital stock decision. They believe that the main decision is the investment decision. The capital stock just "follows" from the investment patterns rather than being an important thing that needs to be "optimally" decided upon beforehand. Thus, when businesses make investment decisions, they do not have an "optimal capital stock" in the back of their mind. They are more concerned as to what is the optimal amount of investment for some particular period. For Keynesians, then, optimal investment is not about "optimal adjustment" but rather about "optimal behaviour".

2.3 Empirical Literature Review

The area of taxation and its effect on investment has been widely investigated. Empirical results have generally proved that lower level of tax rates positively affect investment, economic growth, and entrepreneurship among others. Barro and Sala-i-Martin, (2004) as cited in Reynolds (2008) suggested that evidence have shown that the following countries among the world's twenty fastest-growing economies - Taiwan, Singapore, South Korea, Hong Kong, Botswana, Thailand, Ireland, Malaysia,

Portugal, Mauritius, and Indonesia - either had low marginal tax rates to begin with or cut their highest marginal tax rates in half between 1979 and 2002.

Karabegovic, Amelia, Veldhuis, Clemens, and Godin, (2004), also found that high marginal tax rates reduce people's willingness to work up to their potential, to take entrepreneurial risks, and to create and expand a new business: "The evidence from economic research indicates that high and increasing marginal taxes have serious negative consequences on economic growth, labour supply, and capital formation" Reynolds (2008 p.15).

Vergara (2004) in his paper on several structural reforms including major income tax reform embarked upon by Chile in the eighties seems to support the assertion that taxation has an adverse effect on investment. It was reported that the corporate income tax was reduced from 50% to 10% from the beginning to the second half of the 1980's, and even to 0% in 1989. In 1990, it was raised to 15% and finally within the study period to 17%. As a result of the lower tax rates, from the mid-eighties to the late 1990's, the GDP growth averaged 7.6% between 1985 and 1997 while unemployment and inflation dropped in a scenario of overall macroeconomic stability. Private investment also showed an impressive performance, climbing from 12% of GDP in 1984-86 to 22.5% of GDP in 1995-97.

The writer sought to address the issue of the relationship between the corporate income tax reform and the performance of private investment. His macroeconomic evidence for the period 1975-2003 in Chile indicates that the tax reform results in an increase in private investment of three percent of GDP. Information on 87 publicly held companies is used to construct a panel for the period 1980-2002. "The microeconomic evidence confirms that investment was positively affected by the tax reform. Either with the statutory tax rate or with taxes actually paid by firms, we found that lower taxes induced a higher private investment ratio" (Vergara, 2004- p.17).

Romer and Romer (2007) investigated the impact of changes in the level of taxation on economic activity. The paper used the narrative record - presidential speeches, executive-branch documents, and Congressional reports - to identify the size, timing, and principal motivation for all major postwar tax policy actions. Their findings revealed a powerful negative effect of tax increases on investment. They also found out that legislated tax increases designed to reduce a persistent budget deficit appear to have much smaller output costs than other tax increases.

Tatom (2007) also investigated the importance of tax policy for investment in Morocco and whether there are opportunities to accelerate economic growth through tax reform. Morocco has extremely high taxes, especially the individual income tax, social insurance or payroll taxes and the value added tax. The individual income tax is the highest in the region and the highest marginal rate begins at a relatively low level of income. The corporate tax rate is among the highest in the region as well. He agreed that higher corporate tax rates tend to raise the cost of capital to firms and reduce investment. It is important to have a mix of tax rate reductions to achieve economic development since corporate tax rate cuts offer the most visible incentives to attract new business ventures from domestic and foreign investors.

Gwartney, James and Lawson (2006) estimate that a 10 percent cut in the top marginal tax rate will boost long-term growth by 0.3 percentage points. Although it is not a massive increase, it makes a huge difference over time in the level of per capita income (Tatom, 2007).

An Organisation for Economic Co-Operation and Development (OECD) (2007) study had as one of the objectives to review empirical studies of the effects of taxation on Foreign Direct Investment (FDI) flows, aimed at better understanding factors affecting variations in estimates of the sensitivity of FDI to taxation. A review of various economic models used by policy makers to analyze possible tax effects on FDI decisions revealed that frameworks based on the standard neo-classical investment theory, parameter-based marginal and average effective tax rates derived from the neo-classical investment model are analysed to determine the percentage change to these tax burden measures resulting from a single or package of corporate tax policy adjustments. When combined with empirical estimates of the sensitivity of FDI to these effective tax rates, the framework lends itself to estimating the long-run effects of corporate tax reform on FDI. The results generally predict increased (decreased) inbound FDI following a decrease (increase) in the host country corporate tax burden (if not offset by adjustments to home country foreign tax credits).

A study was conducted by Djankov, Ganser, McLiesh, Ramalho, and Shleifer, (2010) to estimeate the relationaship between corporate taxation and private investment with a sample comprising 85 countries included 27 high income, 19 upper-middle income, 21 lower-middle income, and 18 low income countries. In addition to 22 rich OECD countries, 10 are in East Asia, 17 are in Eastern Europe, 13 in Latin America, 6 in the Middle East, 14 in Africa, and 3 in South Asia. The findings of the study revealed a consistent and large adverse effect of corporate taxation on both investment and entrepreneurship. A 10 percent increase in the effective corporate tax rate reduces the investment to GDP ratio by about 2 percent.

Panagiota (2009) in his study about the effects of Tax Incentives on Investment found out that results generally depend on the type of tax reform under consideration. Different incentives have different impacts on investment. During the 1990s, the most innovative reform was the corporate income tax rate cut.

It is quite clear from the foregoing that the effect of corporate tax rate on private investment is mixed. The debate is still rife and hence the importance of this study.

Tax Reforms in Ghana

By "tax reform" we mean a movement away from some given status quo (AERC, 1998- p.4). Tax reform is therefore a change in the tax system of a country. Although the most important changes in this area include the lowering of tariff rates and achieving horizontal and vertical equity through a wider spread of the burden as well as an improvement in the structure of the tax administration for efficiency in tax collection, the area of interest is the lowering of tax rates.

The elements of tax reform are the variables that are affected by a reform in the tax system of a country. They include, changes made to the rates of tax, introduction of new forms of taxes, changes made to the methods of assessment, the changes made to the structure of taxation, and the extensive reorganization of the institutions that administer taxes in the country. According to Terkper (1994 p.1), "the three factors primarily cited for the increases in revenue are: the expansion in the bases of taxation as a result of liberalizing the economy; the changes made to the structure of taxation; and the extensive reorganization of the institutions that administer taxes in the country".

Restructuring Ghana's Revenue Administration-1985

It was observed prior to the restructuring that the ministry was playing the role of both the supervision and monitoring of fiscal functions and the physical control involving the routine operations of revenue institutions. Hence there was the need for an administrative reform to separate the revenue institutions from the civil service and granting them operational autonomy (Terkper, 1994).

"Two practical steps were taken in Ghana in 1985 to strengthen revenue administration in the country. These were the establishment of the National Revenue Secretariat (NRS) and the creation of the two major revenue organizations, the Customs, Excise and Preventive Service (CEPS) and the Internal Revenue Service (IRS), as autonomous institutions outside the civil service" (Terkper 1994 p4).

In 1985, two laws, the Internal Revenue Service Law (PNDC Law 143) and the Customs, Excise and Preventive Law (PNDC Law 144), were enacted to grant full operational and partial financial autonomy to these institutions.

The National Revenue Secretariat (NRS)

Between 1985 and 1991, the National Revenue Secretariat had complete responsibility for supervising the activities of the revenue institutions and recommending revenue policy directly to the government with virtual autonomy from the Ministry of Finance. The operations of IRS and CEPS were placed directly under the supervision of the NRS.
Within this period of full autonomy, the NRS was placed under a minister of state, who had sole responsibility for revenue policy and the tax reforms that were launched around 1985. This did not allow for harmonization of promulgation and subsequent implementation of fiscal policy in general.

In 1991, the NRS was relocated under the Ministry of Finance and Economic Planning (MFEP). However, the benefits of autonomy seemed to have convinced the government to retain some measure of independence for the secretariat under the MFEP. The NRS was headed by the Director of Revenue, who reported to one of two deputy ministers in the Ministry of Finance. By this arrangement, the NRS was operating between the MFEP and the two revenue institutions-IRS and CEPS.

Value Added Tax (VAT)

Abdallah (2008) stated that in March 1995, a third revenue service was established with the passing of the Value Added Tax Law, (Act 486) to consolidate domestic tax administration in the country as part of the Tax Reform Programme that began in 1993. It was however repealed in June 1995 by the government following a general public outcry including demonstrations against a study increase in prices of goods blamed on the introduction of VAT. It was reintroduced in 1998 with the passage of the Value Added Tax Service Act, (Act 546) and the Value Added Tax Regulations, 1998 (LI 1646).

The Revenue Agencies Governing Board Act

The Revenue Agencies Governing Board was established and regulated by the Revenue Agencies Governing Board Act, 1998 (Act 558) to supervise and coordinate the operations of the three revenue agencies (Abdallah, 2008).

Internal Revenue Service Act, (Act 592)

In 2000, Act 592, the Internal Revenue Service Act was passed as the third consolidated edition of the income tax law. It became operational on first January 2001 covering direct
taxes including Business, Employment, and Investment; Gift; and capital Gains.

Taxpayer Identification Number

In 2002, the Taxpayer Identification Number was introduced to enhance information interchange and risk profiling.

Large Taxpayer Unit (LTU)

The Large Taxpayer Unit (LTU) was set up in 2004 to operate on functional lines as a pilot programme for the future integration of tax administration in Ghana as well as to serve the needs of large taxpayers as a one stop shop operation.

Ghana Revenue Authority Act 2009, Act 791

In December 2009, the three tax revenue agencies, the Customs, Excise and Preventive Service (CEPS), the Internal Revenue Service (IRS), the Value Added Tax Service (VATS) and the Revenue Agencies Governing Board Secretariat were merged in accordance with Ghana Revenue Authority Act 2009, Act 791. The Ghana Revenue Authority (GRA) thus replaces the revenue agencies in the administration of taxes and customs duties in the country. The rights, assets and liabilities which accrued in respect of the properties vested in the three revenue agencies and the Revenue Agencies (Governing) Board have been transferred to the GRA per Act 791. The GRA has three main divisions –Domestic Tax Revenue Division, Customs Division and Support Services Division (GRA, 2010).

From the Internal Revenue ACT integrated into the Ghana Revenue ACT (ACT 791 of 2009), corporate institutions pay a lot of different taxes in the country. These include capital gains tax, company income tax, withholding tax, gift tax, stamp duty and others.

Domestic Tax Revenue Division

The Domestic Tax Revenue Division is charged with domestic tax administration. As a division of the Ghana Revenue Authority, it is very strategic in the achievement of national goals. It is headed by a Commissioner who is responsible for the day to day running of the division and subject to the direction of the Commissioner General and the Ghana Revenue Authority Board on matters of policy (GRA, 2010).

Customs Division

The Customs Division is responsible for collection of Import Duty, Import VAT, Export Duty, Petroleum Tax, Import Excise and other taxes. At present, the Domestic Tax Revenue Division (VAT) collects Excise Duty on behalf of Customs except Excise Duty on Petroleum products. Customs also ensure the protection of the revenue by preventing smuggling. This is done by physically patrolling the borders and other strategic points, examination of goods, and search of premises, as well as documents relating to the goods. As a frontline institution at the country's borders, Customs also plays a key role in surmounting external aggression and maintains the territorial integrity of Ghana. Customs is part of the country's security network (GRA, 2010).
In addition to these functions, Customs performs agency duties on behalf of other government organisations and ministries by seeing to the enforcement of laws on import and export restrictions and prohibitions (GRA, 2010).

Support Services Division

The Support Services Division is headed by a Commissioner who reports directly to the Commissioner General. Under the current transitional arrangements, the three erstwhile revenue institutions are operating in quasi-autonomous status. Each institution still has Deputy Commissioners for all the support services functions, thus Human Resource (HR), Finance, Research, Planning & Monitoring and Information Technology (IT)). However, they all report to the Commissioner Support Services Division. These are temporary and transitional arrangements. Under full integration, all of these would be merged into one with a Deputy Commissioner heading each of them and still reporting to the Commissioner instead of three or four different heads, which is the current situation (GRA, 2010).

The three-winged structure designed to ensure maximum efficiency in the Authority's core business of revenue mobilization merges the management support services of finance, administration, research of the erstwhile agencies under one Support Services Division, leaving the Customs Division and the Domestic Tax Revenue Division unencumbered by peripheral functions to focus entirely on revenue collection with Support Services Division supporting them with the required management services (GRA, 2010).

3.0 METHODOLOGY

3.1 Specification of the Model

To investigate the effect of taxation on private investment in Ghana, a multiple regression statistical model was specified with private investment (PI) as the dependent variable. The private investment model specified is a variant of the neoclassical model of private investment with an adaptation to the Ghanaian economy. It is also in line with the neoclassical model specified by Vergara (2004) on taxation and private investment in Chile.

Based on the literature and the pre and post tax reform period (1970-2010), covered by the study, six main independent variables were chosen. They are Corporate Income Tax Rate (CITR), Inflation Rate (IR), Lending Rate (LR), Government Investment (GI), Exchange Rate Depreciation (ERD) and Private Sector Income (PSY). Thus the model specified has its general form as follows:

$$PI = f(CITR, IR, LR, GI, ERD, PSY)\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Assuming that there is a linear relationship between private investment and the independent variables, the explicit model then becomes:

$$PI_t = X_0 + X_1 CITR_t + X_2 IR_t + X_3 LR_t + X_4 GI_t + X_5 ERD_t X_6 PSY_t + X_7 DMCITR_t + e_{t\dots\dots\dots}(2)$$

Where: PI = Private Investment

CITR= Corporate Income Tax Rate

IR   = Inflation Rate

LR   = Lending Rate

GI   = Government Investment

ERD= Exchange Rate Depreciation

PSY = Private Sector Income

DMCITR = Dummy Corporate Income Tax Rate, it takes the value of zero in the pre-tax reform era and a value of one in the tax reform era.

e   = Error Term

t   = Time Variable
Xi = Parameters to be estimated(Multiple regression co-efficients)

3.2 Justification of the Independent Variables
3.2.1 Corporate Income Tax Rate (CITR)
Taxation is a major source of revenue for the government. This notwithstanding, Corporate income tax is a "Double Edged Sword". If it is not handled well, it can serve as a disincentive to investment instead of helping generate the much needed revenue for economic development. This is because, as taxes become so high that investors cannot pay, they fold up. Government therefore ends up losing the little it can raise from them.

Paradoxically, higher tax revenue ensures enough revenue and avoids budget deficits which in themselves either attract investors or ward them off (Norgah, 1998). Also, corporate income taxes have a direct negative effect on the profits of the investor. It reduces the disposable income and hence contributes to determining how much profit must be ploughed back into the business if any. It is therefore imperative to determine an optimum level of corporate income tax rate that maximizes tax revenue and ensures maximum private investment. The effect of corporate income tax on private investment can either be positive or negative.

3.2.2 Inflation Rate (IR)
Another macroeconomic variable which affects private investment is inflation rate. An era in which prices rise persistently is referred to as an inflationary era. A high inflation rate leads to price instability in an economy. However, it is the productive sector that has the potential of stimulating economic growth and expanding the economy. The value of money becomes so unreliable that producers and consumers begin to hedge in real assets. Scarce resources then begin to be diverted from the productive system. This leads to a widespread fall in the demand for economic goods and services which is a disincentive to investment. Therefore under high level of inflation, economic growth and private investment are negatively affected.

3.2.3 Lending Rate (LR)
The lending rate is the rate at which the commercial banks lend to their customers. It is also known as the lending interest rate. This rate is the price of money or capital and like all prices it is determined by the forces of demand and supply of money. In other words, it is the price that a borrower pays to be able to use someone's money, capital or resources now rather than at a point in time in the future. It can also be referred to as the cost of capital to the investor who borrows from the surplus spending units to enable him finance his investments. An increase in lending rate negatively affects private sector investment since investors can borrow less all things being equal. A fall in the lending rate on the other hand, all other things remaining the same puts investors in a better position to borrow more. This has a positive effect on private sector investment because there is excess liquidity at a lower cost.

3.2.4 Government Investment (GI)
It is expected that for an economy to grow, government creates the conducive economic atmosphere for the private sector to thrive. This it does, by providing the right legal framework including investor friendly tax laws as well as spending in areas the private sector may find not profitable and also beyond their financial capacities. These areas include the energy sector, road infrastructure, manpower training. These create the right economically viable environment that attracts the needed private sector investment.

It is said that "it is not the business of government to do business". The reason is that this action kills the private sector since the government with the greater ability to raise more capital would be competing with a private sector with a less access to capital. Also, in Ghana, "what belongs to the state belongs to nobody". It is not for nothing that the 1990s saw the divestiture implementation programme privatizing most of the wholly owned Ghanaian companies. An increase in public sector investment has a negative effect on private sector investment and vice versa, all other things being equal.

3.2.5 Exchange Rate Depreciation (ERD)

Exchange rate is the rate at which a country's currency can be exchanged for another. The Cedi has suffered a lot of depreciation over the years in terms of exchange rate. Investment is affected by the rate of exchange in two ways. It is either a foreign direct investment where a surplus foreign spending unit brings into Ghana the excess funds and investments. In this case, a depreciation of the exchange rate renders the cedi weaker in relation to the foreign currency. The investor is then in the position to have more of the Ghanaian currency from the conversion.

On the other hand, the domestic private investor who depends on imports for his operations is also faced with the price at which to convert his money for the currency of the imports. A depreciation of the exchange rate renders the imports more costly since he has less from the conversion. Thus a positive or a negative effect on private investment is expected.

3.2.6 Private Sector Income (PSY)

The level of private sector income or output affects the level of private investment. This is in line with the flexible accelerator theory of investment, where income or output is an important determinant of private investment. As the income level of the private sector increases, the private investors will be able to do more investment and vice versa.

Error Correction Model Approach

At this point we transform equation (2) into an into *an Error-correction model*. The transformation to an Error-correction model is to enable us capture the speed of adjustment coefficient of short-run disequilibrium from the long-run equilibrium, and also to appropriately address nonstationarity of some or all the variables. Thus we have as follows:

$$\Delta PI_t = Z_0 + Z_1 \Delta CITR_t + Z_2 \Delta IR_t + Z_3 \Delta LR_t + Z_4 \Delta GI_t + Z_5 \Delta ERD_t$$
$$+ Z_6 \Delta PSY_t + Z_7 DMCIRT + Z_8 [PI_{t-1} - (X_0 + X_1 CITR_t + X_2 IR_t \qquad (3)$$
$$+ X_3 LR_t + X_4 GI_t + X_5 ERD_t + X_6 PSY_t + X_7 DMCITR)_{t-1}] + u_t$$

$$\Delta PI_t = Z_0 + Z_1 \Delta CITR_t + Z_2 \Delta IR_t + Z_3 \Delta LR_t + Z_4 \Delta GI_t + Z_5 \Delta ERD_t$$
$$+ Z_6 \Delta PSY_t + Z_7 DMCIRT + Z_8 (PI_{t-1} - X_0 - X_1 CITR_t - X_2 IR_t \qquad (4)$$
$$+ X_3 LR_t - X_4 GI_t - X_5 ERD_t - X_6 PSY_t - X_7 DMCITR)_{t-1}) + u_t$$

$$\Delta PI_t = Z_0 + Z_1 \Delta CITR_t + Z_2 \Delta IR_t + Z_3 \Delta LR_t + Z_4 \Delta GI_t + Z_5 \Delta ERD_t$$
$$+ Z_6 \Delta PSY_t + Z_7 DMCIRT + Z_8 ECM_{t-1} + u_t \qquad (5)$$

Where *ECM(-1)* is the lagged error correction term (lagged residual) and captures the speed of adjustment coefficient. The speed of adjustment coefficient gives the proportion of the disequilibrium between the short-run and long-run values of private inward remittances that is eliminated in one period.

The expected signs are:

$Z_1 >/< 0, Z_2 >/< 0, Z_3 >/< 0, Z_4 >/< 0, Z_5 >/< 0, Z_6 > 0, Z_7 >/< 0, Z_8 < 0$

Equation (2) is the long-run or static model, while equation (5) is the short-run or dynamic model. Both equations were estimated.

Time Series Properties

Stationarity Test

The Augmented Dickey-Fuller (1979) technique was employed in checking the stationarity status of the variables.

Cointegration Test

Similarly, for cointegration status of the variables, a residual-based approach to testing for cointegration by using Augmented Dickey Fuller test as recommended by Engle and Granger (1987) was employed. The Johansen (1988) Maximum Likelihood (ML) approach to testing for cointegration could not be used owing to the inadequate number of observations.

Estimation Techniques

The Ordinary Least Squares (OLS) technique was used in estimating both short-run and long run models. Apart from its simplicity, it gives reliable estimates. The estimation software was Microfit Version 4.0.

3.4   Evaluation Techniques

Statistical techniques were used to evaluate the estimated specified model. The Adjusted coefficient of determination (R-bar squared) was used to test the best fit line. The R-bar squared also measures the explanatory power of the specified model. That is, the percentage in variation of dependent variable explained by the independent variables.

The t-ratio was used to determine the significance of the stated variables. The F-Statistic was also used to test our stated hypothesis of the joint significance of the independent macroeconomic variables.

3.5   Sources of Data

The secondary data used are time series data on all the variable from 1970 to 2010. They were obtained from the following sources:

- Bank of Ghana Quarterly Economic Bulletin (various issues)
- The State of the Ghanaian Economy, published by ISSER (various issues)
- Quarterly Digest of Statistics published by the statistical Service of Ghana

- The Erstwhile Internal Revenue Service (Ghana Revenue Authority).

The above sources are the main sources where reliable data are gathered for any research project on Ghana.

4.0 EMPIRICAL ANALYSIS
4.1 Stationarity Test Results

The Augmented Dickey-Fuller (1979) test results are shown in Tables 1 and 2 as follows:

Table 1 Unit Root Test for the Variables at the Levels.

Variables	Lag Length	Test Statistic	ADF 95% Critical Value	Order of Integration	Status
PI	2	-1.8463	-3.5313	I(1)	Non-stationary
CITR	3	-2.1515	-3.5348	I(I)	Non-stationary
IR	2	-2.1515	-3.5313	I(1)	Non-stationary
LR	2	-2.9719	-3.5313	I(1)	Non-stationary
GI	4	-2.2547	-3.5386	I(1)	Non-stationary
ERD	2	-2.5077	-3.5313	I(1)	Non-stationary
PSY	1	-0.63848	-3.5279	I(1)	Non-stationary

Table 2 Unit Root Test at First Differences

Variables	Lag Length	Test Statistic	ADF 95% Critical Value	Order of Integration	Status
ΔPI	1	-5.8442	-3.5313	I(0)	Stationary
ΔCITR	2	-5.4178	-3.5348	I(0)	Stationary
ΔIR	1	-6.1460	-3.5313	I(0)	Stationary
ΔLR	1	-6.2056	-3.5313	I(0)	Stationary
ΔGI	1	-5.9359	-3.5313	I(0)	Stationary
ΔERD	1	-6.0740	-3.5313	I(0)	Stationary
ΔPSY	1	-4.6848	-3.5313	I(0)	Stationary

The results above indicate that all the variables are non-stationary at the levels. They have unit roots of I(1), and so had to be differenced once to achieve stationarity

Cointegration Test Results.
The long-run Cointegration results based on the residual- based approach are shown in Table 3.

4.1 Regression Results
The regression results of the private investment function are reported in Table 3 below:

Table 3 Cointegration Regression Results of Private Investment Function at the Levels (1970 to 2010)

Regressor	Coefficient	Standard Error	T-ratio	Probability
CONSTANT	262.4173	2393.3	0.10965	0.913
CITR	-161.6155	63.4167	-2.5485	0.016*
IR	-0.94814	0.47972	-1.9764	0.057**
LR	-0.85542	0.45478	-1.8810	0.069**
GI	0.66957	0.20337	3.2924	0.002*
ERD	-0.21038	0.20369	-1.0328	0.309
PSY	0.13351	0.058644	2.2766	0.029*
DMCITR	-5.0494	18.6538	-0.27069	0.788

Summary Statistics

Test	Statistic
R-Bar-Squared	0.9524
F-statistic	F(7,32) =71.3056 (0.000)*
Cointegration Statistic	ADF (1) = -4.2784(-3.5313)

*Significant at 99% level of confidence
 **Significant at 95% level of confidence

4.2 Discussion of Cointergration Regression Results

4.2.1 Explanatory Power of the Model

        The estimated results show R-bar Squared of 0.9524. This signifies that 95 percent of the variations in private investment (PI) are explained by the independent variables. This high percentage shows a good fit of the model specified.

        The F-statistic is 71.3056 and is significant at 100% confidence level. This means that all the independent variables in the model have jointly contributed to the variation in private sector investment. This also represents a good performance of the model. The variables are also cointegrated meaning there is a long-run equilibrium relationship among the variables. This is supported by cointegration statistic of ADF(1) = -4.2784 with a critical value of -3.5313.

4.2.2 Corporate Income Tax Rate (CITR)

        With regard to the significance of the independent variables, the results of the multiple regression analysis show that Corporate Income Tax Rate which has a t-ratio of negative 2.5485 is significant at 99 percent confidence level. This means that the corporate income tax rate adopted in Ghana from 1970 to 1984 impacted negatively on private sector investment in the country.   This is consistent with economic theory, because higher corporate taxes serve as a disincentive to efforts since much of the profits are wiped off by taxes. It is also consistent with the findings of Vegara 2004), Tatom (2007), Romer and Romer (2007) and Djankov et. al. (2010).

The DMCITR captures the Corporate Tax Rates for 1985 to 2010 on private investment when the tax reforms took place. The results revealed that the parameter estimate of corporate income tax rates from 1985 to 2010 had a t-ratio of negative -5.0494. The negative sign means that Corporate Income Tax Rates had negative effect on private investment within the tax reform. However, its estimate is not statistically significant (Probability of 0.788) as compared to a highly significant t-ratio of negative 2.5485 during the pre-tax reform period 1970 – 1984.

The pre-tax reform period CITR had a coefficient of negative 161.6155. This indicates that a 1% increase in CITR could lead to 161.6155% reduction in private sector investment. Comparing this to the post tax reform period results reveals that, although there is still a negative effect, it reduces to negative 5.0494. This means that within the tax reform period of 1985 – 2010, a 1% increase in CITR could result in a reduction of private sector investment by 5.0494%.

4.2.3 *Inflation Rate (IR)*
Inflation Rate (IR) is statistically significant from the results. Its t-ratio is negative 1.9764, and it is significant at 95 percent confidence level.
The negative sign is an indication that an increase in the rate of inflation creates a lot of macroeconomic uncertainty and causes funds to be diverted into inflation hedges. This leads to a reduction in the amount of funds invested into business activities by the private sector and vice versa. This is also consistent with economic theory, since no country can grow with a higher inflation rate. A coefficient of negative 0.94814 indicates that a 1% increase in inflation rate would lead to a 0.94814% decrease in private sector investment in Ghana.

4.2.4 *Lending Rate (LR)*
In macroeconomic theory, a high lending rate increases the cost of capital and hence reduces the disposable income of the investor. As a result, private investment will be reduced. From the results, the t-ratio of Lending Rate (LR) is negative 1.8810. This is significant at 95 percent confidence level. The negative sign means that an increase in lending rate negatively impacts on private investment and vice versa. This is consistent with economic theory. Lending rate had a coefficient of negative 0.85542 indicating that a 1% increase in lending rate during the post tax reform period led to 0.85554% reduction in private sector investment in Ghana.

4.2.5 *Government Investment (GI)*
From the regression analysis, government investment (GI) had a t-ratio of positive 3.2924 and it is significant at 99 percent confidence level. The positive sign is an indication that the more the Government Investment, the more the Private Sector Investment expands and vice versa. This is consistent with the government creating the enabling environment for private sector investment to thrive. To explain this, the period under review saw a lot of wholly owned Ghanaian companies privatized under the divestiture implementation programme. Government effort was then concentration on the provision of the necessary infrastructure to lay the foundation for the private sector to grow the economy. A look at the GI coefficient from the results indicates that a 1% increase in government expenditure on infrastructure would lead to 0.66957% increase in private sector investment in Ghana. This indicates a complementarity between government investment and private investment in Ghana.

4.2.6 Exchange Rate Depreciation (ERD)

The regression analysis showed that exchange Rate Depreciation had a t-ratio of negative 1.0328. The negative sign indicates that an increase in exchange rate depreciation resulted in a reduction in private sector investment and vice versa. This supports the situation where the private sector investor depended largely on raw material imports for his operations. However, its estimate is not statistically significant.

The coefficient of ERD is negative 0.21038. This means that a 1% increase in exchange rate depreciation led to a 0.210382% reduction in private sector investment in Ghana during the post tax reform period.

4.2.7 Private Sector Income (PSY)

Private Sector Income is statistically significant. The results show private sector income having a t-ratio of positive 2.2766, and it is significant at 99 percent confidence level. The positive sign is indicative of the fact that when private sector income increased, it resulted in an increase in the disposable income of the investor. Hence an increase in private sector investment and vice versa. This is consistent with macroeconomic theory that an increase in income leads to an increase in investment all other things remaining unchanged.

The results also showed that a 1% increase in PSY increased private sector investment in Ghana by 0.13351% during the period.

4.3 The Short-run Results

The short-run (dynamic) parsimonious results of the Error Correction Model are contained in Table 4.

Table 4 The Short-run Private Investment Function Regression Parsimonious Results (1970 to 2010)

Regressor	Coefficients	Standard Error	T-ratio	Probability Value
CONS	6.4899	5.5747	1.1642	0.254
ΔCITR	-145.3139	74.8664	-1.9410	0.062**
ΔIR(-1)	-0.12169	0.11529	-1. 0555	0.300
ΔLR	0.10810	0.11644	0.92835	0.361
ΔGI	0.37859	0.14898	2.54221	0.017*
ΔERD	-0.55843	0.18101	-0.30852	0.760
ΔPSY	0.14770	0.049027	3.0126	0.005**
ΔMCTR	-0.71345	7.3591	-0.096948	0.923
ECM(-1)	-1.51127	0.18638	-2.74311	0.010*

*Significant at 99% level of confidence
**Significant at 95% level of confidence

Summary Statistics

Test	Statistic
R-Bar-Squared	0.6824
F-statistic	F (8, 29) = 3.6945. (0.004)
D-W statistic	1.6952

Diagnostic Tests

Test Statistic	LM Version	F Version
A: Serial Correlation	CHSQ (1) = 1.227 (0.289)	F (1, 28) = 0.858243(0.364)
B: Functional Form	CHSQ (1) =0.28484 (0.594)	F (1, 28) = 0.21147 (0.649)
C: Normality	CHSQ (2) = 4.2261 (0.121)	Not applicable
D: Heteroscedascity	CHSQ (1) = 0.46252 (0.496)	F (1,36) = 0.44368 (0.510)

4.3.1 Discussion of the Short-run Results.

From Table 4 it can be seen that all the evaluation techniques are satisfactory, with an R- bar Squared 0.6824, which is quite high and indicates a good fit. The F-ratio of 3.6949 is highly significant with a probability ratio of 0.004. The significance of the F- ratio again indicates that all the independent variables are jointly significant in determining the variation in private investment (PI).

The D-W statistic of 1.6952 fairly indicates that successive error terms are not correlated (absence of autocorrelation). We see from Table 4 that all the diagnostic tests: Serial correlation, Functional form, Normality and Heteroscedasticty have performed well. These lend credence to the validity and reliability of the parameter estimates.

Like the long-run results, the short run results also indicate the same negative sign of corporate income tax rates on the level of private investment in Ghana during the pre-reform period. The t-ratio (-1.9410) of ΔCITR with a probable ratio of 0.062 is significant at 95% level of Confidence. Again the dummy of corporate tax rate (DMCTR) bears a negative value of 1.51127 but is not significant. This lends support to the long-run conclusion that the prevailing tax rates during the tax reform period have modestly promoted the level of private investment during the period 1985-2010., even though there are still problems with the prevailing tax rates. We therefore fail to accept our stated hypothesis that corporate tax rates do not adversely affect private investment in Ghana.Other significant variables are change in government investment (GI) and change in private sector income (ΔPSY), all supporting analysis made with the long-run results.

The inflation rate continues to be negatively signal but is not significant. This time round changes in the level of lending rate (LR) and exchange rate depreciation (ERD) assume positive values but their parameter estimates are not significant.

The lagged error correct term: ECM (-1) is statistically significant at 99% confidence level and appropriately negatively signed. Its t-ratio is -2.74311 with a parameter estimate of -1.51127. The significance of the legged error term implies that any short-run disequilibrium of private investment adjusts towards the long-run equilibrium.

5.0 CONCLUSIONS

5.1 Summary

This study was aimed at investigating the effect of corporate income taxation on private investment in Ghana from 1970-2010. As part of the introduction and background information, the study sought to find out the main elements of corporate income tax reforms. An elaborate review of related literature was done regarding theoretical and empirical perspectives.

Elements of tax reforms in Ghana include, changes made to the rates of tax, introduction of new forms of taxes, changes made to the methods of assessment, the changes made to the structure of taxation, and the extensive reorganization of the institutions that administer taxes in the country.

Based on the literature, the researchers specified a theoretical private investment model in line with the neoclassical theory of private investment as well as the Vergara (2004) model on taxation and private investment in Chile. The Augmented Dickey-Fuller (1979) test revealed that all the variables are non-stationary (trended) with a unit root of I(1). Both the long-run and short-run versions of the model were estimated using the Ordinary Least Squares Regression technique involving a two- step Engel and Granger error- correction approach.

Both the long-run and short-run results revealed that corporate tax rates in Ghana have impacted negatively on private investment during the pre and post tax reform periods. This is consistent with the findings of Vegara 2004), Tatom (2007), Romer and Romer (2007) and Djankov et. al. (2010). However, the magnitude of the negative impact has reduced modestly during the tax reform period. Hence one can say that the reforms have modestly promoted private investment during the tax reform period 1985-2010, even though there are still problems with the prevailing corporate tax rates. We therefore fail to accept our stated hypothesis that corporate tax rates do not adversely affect private investment in Ghana. Other significant positive variables are government investment (GI) and private sector income (PSY).

The positive significant government investment indicates a complementarity of government investment and private investment in Ghana, while the significant positive effect of the private sector incomes indicates that the acceleration theory of investment is also valid with respect to Ghana.

5.2 Policy Implications

The main policy implication of the study is that the government of Ghana must continue with the tax reform policy in Ghana to achieve the needed tax efficiency with respect to the structure of tax rates and administration in the country. This will go a long way to reduce the adverse effects of the prevailing tax rates or private investment.

Similarly, government must continue to invest in critical infrastructure such as roads and bridges to facilitate private sector investment in the country.

Furthermore, the government must continue to embark upon providing sound macroeconomic policies to speed up growth of the economy to create more jobs and raise income levels for the people. The high income levels lead to demand for good and services that enhance private investment in the flexible acceleration fashion.

Finally, the government must continue to work realistically on the inflation rate, the high lending rates and the deterioration of the exchange rate for improved private sector investment in the country.

5.3 Limitations of the Study
The study is limited by the following:

The private sector is made up of both private foreign direct investment and domestic private investment. The study did not distinguish between the two. They were both considered as private investment. The results may have been different if they were separated.
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Private investors pay a lot more different taxes including capital gains tax, gift tax, withholding tax and VAT which could affect their investments. The results may have been different if all the other taxes were considered.

5.4 Further Studies
Further study is encouraged into the effect of taxation on private foreign direct investment and private domestic investment separately.

Also, the use of primary data in the analysis of the effect of taxation on private investment is worthwhile.

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