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The Role of Accounting in Introducing Environmental Tax and Evaluating its Impact on Investment Attraction

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Abstract: *This study aims at proposing a framework for introducing environmental tax in Egypt through which the role of accounting in imposing such tax is shown. Moreover, it investigates the impact of environmental tax on investment attraction theoretically. To achieve these aims, a framework has been proposed to introduce environmental tax in the Egyptian context, and a review of literature regarding the association between the environmental tax and investment attraction was conducted. The results show that accounting can play a vital role in introducing environmental tax through the proposed framework, and there is a significant effect of imposing environmental tax on investment attraction, but the effect is not absolute positive or negative and that effect is based on three factors.*

Keywords: Accounting, Environmental tax, Investment attraction.

1. Introduction

Environmental taxes have appeared since the early 1970s as an environmental policy tool (Kern et al., 2001). Environmental tax is defined according to Regulation (EU) No 691/2011 and Eurostat (2013) as follows: "A tax whose tax base is a physical unit (or a proxy of a physical unit) of something that has a proven, specific negative impact on the environment, and which is identified in ESA 95 as a tax".

There are two main purposes of environmental tax (Morris, 1994), first, to earn revenue needed to offset any damages from past pollution as well as act as measures for lessening future pollution. Second purpose is to alter behavior. As a social science, accounting should have a role in introducing environmental tax (which is considered as an important instrument in reducing environmental pollution on society). Moreover, the imposing of environmental tax as a tool to protect the environment and reduce pollution may have an impact on investment attraction (either positive or negative), which will be explained later in the next sections of this paper. The remainder of this paper will be divided into four sections: the literature review, followed by the role of accounting in introducing environmental tax, and then the impact of environmental tax on investment attraction, and finally the conclusion.

2. Literature Review

This section shows the research gap concerning the role of accounting in introducing environmental tax and evaluating its impact on investment attraction. The researcher addresses the literature regarding environmental tax as:

Fullerton and Metcalf (1997) showed that the double-dividend hypothesis cannot be generalized, as environmental taxes can enhance the environment.

However, the environmental taxes may increase (decrease) the tax system's burden. Additionally, the results indicated that there are three types of policies (i.e., easier to enforce, enact or administer) which: first, increase revenue, second, lose the revenue, and finally, have not impact on the revenue. Furthermore, the environmental tax has several merits as compliance, political viability or administration.

Bailey (2002) pointed out that economic instruments have no impact on the British and German businesses' waste management. The environmental tax can reduce the pollution for only price inelastic products.

Additionally, Aasness and Larsen (2003) focused on the transportation means and the results indicated that the higher (lower) the tax rates on high (low) pollution luxury (necessary) transportation means, the higher the environment quality and the lower the inequality. Nevertheless, the higher the tax rates on the high pollution necessities, the higher the environment quality and the higher the inequality.

Bluffstone (2003) illustrated that developing countries and countries in transition are facing challenge in applying the environmental taxes despite their disadvantages; it protects the environment and increase the economic efficiency.

Moreover, Sterner and Köhlin (2003) found that the level of the environmental tax in Europe is slightly higher compared with US and thus due to the following: first, a greater of both tax's reliance and tax's acceptance, second, reducing the usage of fossil energy, and finally, increasing in the public sector.

Aliyu (2005) indicated that the environmental policy can explain the reason behind the outflow of dirty foreign direct investments, since there is a high level of investor's sensitivity regarding any type of tax. There is a positive correlation between the foreign direct investments and CO_2 emissions.

Bello et al. (2007) illustrated that the level of income and the level of education are positively associated with attitudes regarding the problem of the environment. Additionally, the lack of applying the environmental laws can lead to sustained pollution in the environment.

Fullerton et al. (2008) argued that revenues of the environmental tax are not changed the economic constraints significantly. In addition, the achievement of the cost effective can be the primary justification of the environmental tax.

Zhao (2011) showed that there is a negative association between carbon tax and the level of international competitiveness for industries that depends heavily on energy and especially, the industries that do not rely on resources because varies industries, for which carbon tax imposed, have some levels of exemptions and subsidies.

Morley (2012) found that the environmental tax is negatively associated with pollution. Furthermore, the environmental tax has no impact on energy consumption.

Krass et al. (2013) illustrated a non-monotonic association between the increase in environmental tax and the application of the green technology. Accordingly, an increase in such tax can increase the firm's motivation toward the application of green technology until certain point then the latter starts to decrease.

Abdullah and Morley (2014) suggested that the economic growth can increase the environmental taxes' revenue in the long run. However, this causality is in the opposite direction in the short run. Moreover, there is no impact of the environmental taxes on the economy. Therefore, the transition countries can apply such tax, in order to enhance the standards of the environment.

Finally, Filipović and Golušin (2015) proposed a new approach to measure the impact of the environmental tax, which is based on the efficiency and introducing a social component. This newly proposed approach helps in reducing the role of the gross domestic product (GDP).

From the previous discussion of literature, the researcher concludes that:

- First, there is an agreement regarding the importance of environmental tax in reducing pollution.
- Second, few studies have investigated the relationship between environmental tax and investment attraction. Therefore, there is a chance to do more research. So that a theoretical analysis can take place and benefit from such analysis when introducing environmental tax in the Egyptian context.
- Third, environment has been given a great importance from different perspectives (such as economically, etc..), including multiple tools through which the goal of environment protection can be matched, among those tools can be imposing an environmental tax. However, the researcher believe that accounting as a social science has not played its important and vital role to ease the applying of environmental tax and introducing such new tax in an Egyptian context.
- What has been discussed above highlights the importance of this study in identifying the role of accounting in applying environmental tax through a proposed framework to introduce environmental tax, and exploring the impact of such tax on investment attraction.

3. The Role of Accounting in Introducing Environmental Tax

This section shows the proposed framework which introduces the environmental tax in Egypt. This proposed framework reveals the role of accounting in introducing this tax.

This framework can determine the environmental tax required to be paid by the firm through the following: first, determining the estimated environmental costs that the company should bear through cooperation among a group of specialized expert technicians, accountants and related parties, at the beginning of the fiscal year. Second, this amount has to be compared with the actual environmental costs which were borne by the firm (taking into consideration the changes in prices and the ability of negotiation in determining the purchase price). Third, the difference between the expected environmental costs and the actual environmental costs should be Calculated (i.e., the environmental costs not borne by the entity to protect the environment or environmental taxable base). Finally, determining the environmental tax required to be paid that is measured through multiplying the environmental taxable base by the environmental taxable rate. The environmental tax rate that is suggested equal to fixed rate (i.e., 100% of environmental taxable base) plus variable rate (i.e., progressive rate based on firm's revenue) as shown in table 3.1.

Table: 3.1 The proposed environmental tax framework.

The required environmental costs that should be borne by the firm.	******
Less:	
The actual environmental costs which were borne by the firm.	
The environmental taxable base (the costs that the firm doesn't bear).	(****)
×(100% + progressive rate)	***
	**
The environmental tax required to be paid.	*****

The role of accounting, in this framework, is to determine the environmental taxable base imposed on the firm, through measuring and disclosing the environmental costs that is required to reach the taxable base (as suggested by the researcher).

4. The Impact of Environmental Tax on Investment Attraction

Aliyu (2005) found that the environmental policy, the environmental tax is used as a measure of the environmental stringency, can explain the reason behind the outflow of dirty foreign direct investments (FDI). Since, there is a high level of investor's sensitivity regarding any type of tax. Additionally, Mihci et al. (2005) showed that the environmental stringency represents one of the main factors that affects the FDI outflow.

Furthermore, Mukhopadhyay (2008) indicated that the non-compliance with the environmental regulations (i.e., low costs as result of non-complying with such regulations) leads to changing Thailand to be a highly polluted area. And thus, the comparative advantages have been distorted. And therefore, the OECD countries shift their industries to Thailand.

Accordingly, Pollution heaven hypothesis (PHH) suggests that the environmental regulations in the developed countries is tough compared with the developing countries, Therefore, the developing countries will be highly polluted countries, in addition, the comparative advantages have been distorted (Mukhopadhyay, 2008). However, it does not stop at just focusing on the developed countries and the movement of pollution from developed to developing countries.

It can be concluded that the environmental policies used to eliminate environmental pollution may have a negative impact on foreign investments attraction. On the other hand, the negative impact of environmental policies (including environmental tax) on foreign investments attraction is not absolute; it depends on some factors.

Mahapatra (1984) showed the reaction of the investors toward the compliance with expenditure of protecting the environment from pollution. Therefore, there are two scenarios which are ethical investor and rational economic investor. Thus, the researcher used the same scenarios but with the application on the FDI as follow:

- The ethical investor:

He is concerned with balancing between profitability and social values related to protecting the environment. Therefore, he would prefer investments in countries that take into consideration the environmental issues and which imposed rules to protect their environment even if the expected investment returns are less than other countries, facing the same risks, which don't impose environmental rules.

- The rational economic investor:

He is concerned with maximizing profits regardless of the environmental issues that could arise. Therefore, he will take into consideration the negative impact of the costs of the environmental responsibility on the investment return.

Additionally, Xing and Kolstad (2002) showed that the environmental regulations' laxity represent an important factor for the highly polluting industries. Whereas, it is not important factor for the less polluting industries. Dean et al. (2005) indicated that the industries with low and medium pollution are attracted to the districts with a high stringency of the environmental regulations in china. Accordingly, it is important to distinguish between heavy polluting industries and less polluting industries, in studying the direct impacts of pollution elimination policies on foreign investments.

Moreover, countries that impose policies that encourage environment protection improve environmental performance of organizations and then achieve long-term returns, which encourage investment inflow (which takes into account these returns), in contrast to other investments, which does not take into account these returns.

The researcher agrees with the prior view which indicates that the environmental tax has an impact on the investment attraction[1]. However, there is no absolute positive or negative impact between the environmental tax and the investment attraction. Additionally, this impact depends on the following factors: first, the type of investors whether the investor is ethical investor (i.e., compromising between achieving profits and considering the environment aspect) or rational economic investor (i.e., aims at achieving profits only without taking into consideration the environmental aspect). The second factor is the type of investment whether these investments are low or high pollution. The third factor is investor's vesion (i.e., long term or a short term vesion in achieving profits). And these can be discussed in the next part.

<u>First: Type of Investors</u>

The type of investors includes ethical investor or rational economic investor. The imposing of environmental tax doesn't have a negative impact on the ethical investor's decision. While, imposing such tax may have a positive impact on his investment decision. Since, this environmental tax aims at protecting the environment from the pollution. However, the rational economic investor may not make investment in the country that imposes such tax as it can reduce their profit. Accordingly, the investment decision of the rational economic investor may be negatively affected by the country that imposes the environmental tax.

<u>Second: Type of Investments</u>

There are two types of investments low pollution and high pollution. The investment decision of the low-pollution

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[1] There are other factors that affect the investment decision but the researcher focus only on the environmental tax.

projects may not negatively affected by imposing the environmental tax. Nevertheless, the investment decision may be positively affected by such tax. Contrarily, the investment decision of the high-pollution projects may be negatively affected by imposing the environmental tax.

Third: Investor's Vesion

There are long term and short term vesion in achieving profits. The investors that have a long term vesion (i.e., knowing the long term benefits as a result of bearing the environmental costs as obtaining ISO 14001) are not negatively affected by imposing environmental tax on their investment decision and may be positively affected. However, the investors that have a short term vesion may be negatively affected by imposing environmental tax on their investment decision.

5. Conclusion

The research showed the role of accounting in applying the environmental tax through the proposed framework for introducing the environmental tax in the Egyptian context. Additionally, it has been proved theoretically that there is no absolute positive or negative impact between the environmental tax and investment attraction. Hence, the impact of such association depends on the following factors according to this research: first, the type of investors (i.e., ethical and rational economic investors). The second factor is the type of investments (i.e., low and high pollution). The third and last factor is the investor's vesion in achieving profits (i.e., long term or a short term vesion).

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