

# Enhancing the Role of Fiscal Policy in Achieving the Sustainable Development Goals (SDGs): Insights from Behavioral Economics with a Special Reference to Egypt

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## Abstract

Fiscal policy has a crucial role to play in enhancing the delivery of the 2030 sustainable development agenda and its various economic, social, and environmental goals. Domestic resource mobilization; income redistribution and poverty alleviation; and environment protection are three key areas of fiscal interventions that come at the core of sustainable development. The evidence, however, indicates that this role of fiscal policy is almost inactive in many developing countries, where capacity of domestic resource mobilization is relatively weak, income gaps are relatively large, and environmental challenges represent a real threat. In this context, the current study investigates the potential role that behavioral economics can provide to facilitate the economic, social and environmental functions of the fiscal policy with an aim to speed up the achievement of the Sustainable Development Goals (SDGs). The analysis shows that the importance of behavioral-based fiscal interventions should not be ignored, especially in those countries where the traditional fiscal interventions proved to be insufficient and/or inefficient, as in the case of Egypt.

**Keywords:** fiscal policy; sustainable development; SDGs; behavioral economics; bounded rationality; social preferences; inconsistent preferences; Egypt.

**Jel Classification:** D91; H20; H23; H26; H30; H50; H55; Q01

## 1. Introduction

Behavioral economics, according to which human behavior is subject to various forms of biasness that should be considered to improve the explanatory and predictive power of economic models, has recently gained a widespread attention by both researchers and policymakers.

Fiscal policy is one of the main public policy areas where behavioral economics proved to be useful. Several researches and studies, both theoretical and empirical, highlight that behavioral-based fiscal interventions are effective in achieving the intended results, especially in the three areas related to the efficient mobilization of public revenues and control of tax evasion; income distribution and poverty alleviation; and environment protection. Enhancing the role of fiscal policy in these three broad areas is a necessary condition to achieve the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) as released by the United Nations in 2015. As such,

behavioral economics offers a set of tools and insights that, if applied appropriately, would enable the governments to meet their commitment towards achieving the 2030 Agenda and to speed up the implementation of its social, economic and environmental objectives.

Egypt is one of the countries that have shown firm commitment towards achieving the sustainable development. This has been manifested in the adoption of a new Constitution in 2014 that is aligned with the philosophy and principles of sustainable development; the endorsement of the UN's 2030 Agenda for Sustainable Development; and the formulation of the national "Sustainable Development Strategy (SDS): Egypt Vision 2030" that was released in 2016. Furthermore, the Government of Egypt has embarked on an ambitious economic reform program, in November 2016, aimed at ensuring the macroeconomic stability that is necessary for creating the enabling environment for sustainable development. The implemented reforms included various monetary and fiscal measures, among which was phasing out of the energy subsidies.

In light of this context, the objectives of the current paper are twofold. Firstly, to investigate the potential role that "behavioral economics" can play to improve the effectiveness of the fiscal policy in achieving the SDGs. Secondly, to analyze the stance of Egypt's fiscal policy from the SDGs' lens and explore the key areas where insights from behavioral economics could be useful. The paper follows a qualitative analysis approach that is based on reviewing the relevant literature and country experiences along with analyzing the relevant fiscal data of the Egyptian economy. This paper presents a comprehensive view on the linkages between behavioral economics, fiscal policy, and the SDGs, an issue that is not sufficiently tackled by the existing research. This comes in three sections in addition to the introduction and the conclusion. Section 2 presents an overview on behavioral economics and its main assumptions on human behavior. Section 3 introduces an analysis of the linkages between fiscal policy, the SDGs and behavioral economics, throughout two sub-sections. While the first sub-section develops a conceptual framework of the linkages between fiscal policy and the SDGs, the second one reviews the main findings of the existing literature on how behavioral insights would be utilized to design effective fiscal policies. Section 3 analyzes the current stance of Egypt's fiscal policy from the SDGs' lens and sheds light on the key policy areas where the application of behavioral economics could be of a true benefit.

## **2. Behavioral Economics: Definition and Main Assumptions about Human Behavior**

The recent years have witnessed a noticeable increase in the policy makers' interest in using insights from behavioral economics in the design of public policies. This interest has been sparked by the accumulated research arguing for the relatively high effectiveness of government interventions which are based on behavioral models. The release of Sunstein and Thaler's book on "Nudge Policies" in 2008 was one of the main factors that significantly contributed to this trend, by shedding light on the importance of the "context" in which choices are presented in affecting individuals' behavior and decisions.<sup>1</sup>

The human behavior is much more complicated than what the neoclassical models suggest. A large part of accumulated research on psychology indicates that when making choices or taking decisions, humans often suffer from various forms of cognitive bias, which make their choices deviate from what is expected by the neoclassical economic models. These findings represent the essence of behavioral economics, which is concerned with incorporating psychological and behavioral dimensions

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<sup>1</sup>Public policies that are based on this kind of interventions are much more attractive compared to policies based on traditional interventions as taxation and/or the provision of subsidies and financial incentives. The reason is that nudge-based policies are relatively less costly in implementation, and they do not interfere with the range of options available to the individual or limit his/her personal freedom in the decision-making process. In addition, those policies do not affect the economic incentives faced by the individuals who act rationally or distort their behavior, as they only focus on individuals with biased behavior (French and Oreopoulos, 2017; Bernheim and Taubinsky, 2018; Benartzi *et al.*, 2017; Leicester *et al.*, 2012; Galizzi, 2017).

in economics, in a way that allows for better understanding and prediction of human economic behavior (Camerer, 1999; Solek, 2014).

In the neoclassical economic theory, humans are assumed to be selfish units who try to maximize their own utility, given that they have full rationality and consistent preferences. In contrast, behavioral economists argue that the neoclassical assumptions are unrealistic and fail to be sufficiently precise in explaining how individuals think, formulate preferences, and make choices (Riedl, 2009; Acheson and Lynch, 2017). Hence, behavioral economics introduces a different set of assumptions on the human behavior, centered around bounded rationality; importance of social preferences; and inconsistent and context-dependent preferences (Congdon *et al.*, 2009; Leicester *et al.*, 2012; Galizzi, 2017; Solek, 2014; Carlsson and Johansson-Stenman, 2012).

## 2.1. Bounded Rationality

Neoclassical economic models are based on the assumption that individuals are fully and perfectly rational in the sense that they are able to utilize all available information, calculate the costs and benefits associated with the different decisions, and accordingly, make choices that are most aligned with their own preferences and that maximize their welfare (Galizzi, 2017; Acheson and Lynch, 2017).

In contrary, models of behavioral economics assume that the human behavior is characterized by bounded rationality, a concept that is usually associated with the economist Herbert Simon. According to this concept, individuals are often unable to take the optimal decisions that maximize their well-being. This can result from either the difficulty of obtaining sufficient information necessary to make those decisions and the high costs associated to it, or the insufficient cognitive capacity needed to deal with this information. Therefore, individuals in many complex decision-making situations tend to use “*heuristics*” or “*rule of thumb*”. Furthermore, they constrain themselves to a limited set of potential choices ignoring many other ones, among which may be those that maximize their well-being (Acheson and Lynch, 2017; Congdon *et al.*, 2009; Leicester *et al.*, 2012; Jung and Jeong, 2011; McCaffery and Slemord, 2004).

## 2.2. Social Preferences

Self-interest fulfillment, as narrowly defined, is not the only motivation that drives individuals’ choices and actions. Indeed, when taking a decision, individuals are caring not only about the outcomes that they achieve but also about what the others obtain. In particular, the tendency to reciprocity; justice and cooperation with others; and adherence to social norms, are among the important behavioral habits of individuals that affect their preferences, choices and decisions (Leicester *et al.*, 2012; Solek, 2014; Congdon *et al.*, 2009).

In many cases, individuals do not decide on certain actions before they make sure that the others would behave in the same manner (Riedl, 2009). Furthermore, individuals are not necessarily free riders, rather, they have tendency for voluntary cooperation with others and are concerned with the social values like justice, impartiality, and integrity (Solek, 2014).

Other factors like self-image, social status, and social norms may also influence an individual’s behavior. Individuals may be encouraged to take actions that would make them perceive themselves as responsible citizens who are respected by the others in the society<sup>2</sup> (Carlsson and Johansson-Stenman, 2012). They would also be willing to behave in a way that maintains, or even improves, their social status among others (Carlsson and Johansson-Stenman, 2012; Solek, 2014; Ng, 2006).

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<sup>2</sup> For example, according to a survey conducted in one of the studies on the motivations of individuals in Norway to separate waste for recycling, about 73 percent of respondents indicated that one of the most important reasons was their desire to see themselves as responsible citizens (Carlsson and Johansson-Stenman, 2012).

### 2.3. Inconsistent and Context-Dependent Preferences

In contrary to the neoclassical economic models where individuals are assumed to perfectly know their preferences and be able to express those preferences in a clear and consistent manner (Galizzi, 2017; Solek, 2014), models of behavioral economics presuppose that individual preferences are inconsistent and highly dependent on time and context (Solek, 2014; Diamond, 2008). This can be explained by several factors among which are the individual's lack of experience and complexity of the decision-making situation (Carlsson and Johansson-Stenman, 2012).

#### **Salience, Framing and Presentation Effects**

This concept entails that the “presentation” of the available information, options and alternatives matters for individuals' decisions. For instance, the context in which the decision-making process takes place may give a signal or a reference to choosing a particular alternative. In addition, some particular aspects of the selection problem may be much more salient or framed than the others, which ultimately affect choices that individuals make (Leicester *et al.*, 2012; Riedl, 2009). The high tendency of individuals to choose the “default” option in many situations is a prominent relevant example.

#### **Loss Aversion and Reference Dependence**

The concept of “*loss aversion*” behavior means that when making their decisions, people tend to prefer avoiding losses than making profits or gains of the same value. Two main concepts are closely linked to this behavior. The first is the “*status quo bias*”, according to which individuals are usually biased to the current situation avoiding changes and the potential losses associated to them. The second is the “*endowment effect*”, where individuals tend to give a higher value to the things they own compared to those not in their possession (Acheson and Lynch, 2017; Congdon *et al.*, 2009; Leicester *et al.*, 2012; Solek, 2014; McCaffery and Slemord, 2004).

According to the “*reference dependence*” concept, when individuals evaluate the impact of a particular decision on their well-being, they do not only consider the possible outcomes associated to that decision, but also compare those outcomes with reference points and criteria. These reference points can be related to past experiences or future expectations (Congdon *et al.*, 2009; Leicester *et al.*, 2012; Acheson and Lynch, 2017).

#### **Time Inconsistent Preferences**

Models of behavioral economics assume that how individuals evaluate the future changes over time. People may put plans but then find it hard to commit to them. The relevant concept “*present bias*” implies that individuals are inconsistently impatient, as they tend to prefer prompt gains if they will be achieved soon, but will also be happy to postpone those gains that would be achieved after a while. Another behavioral relevant concept is the “*projection bias*”, according to which individuals take future-related decisions based on their current preferences, expecting that those preferences will remain unchanged. In addition, “*internality*” represents one of the main forms of time inconsistency of individuals' preferences. It refers to the case in which individuals fail to consider the full impact (benefits and costs) associated to any of their decisions on their current and future well-being (Leicester *et al.*, 2012; Acheson and Lynch, 2017). As a result, individuals tend to prefer taking those decisions that have immediate benefits in the short term even if they entail high costs in the future (i.e. smoking and consumption of unhealthy food) and vice versa. “*Procrastination*” and “*lack of self-control*” are closely linked to this kind of behavior (Solek, 2014; McCaffery and Slemord, 2004; Bhargava and Loewenstein, 2015; Bernheim and Taubinsky, 2018; Leicester *et al.*, 2012).

## **3. Fiscal Policy, SDGs and behavioral Economics: What are the Linkages**

Fiscal policy has a pivotal role to play in enhancing the delivery of the various goals and targets of sustainable development. This role, however, is almost inactive or ineffective in many developing

countries, which could threaten their ability to successfully deliver the SDGs. As such, utilizing lessons and insights from behavioral economics could be useful to support the role of fiscal policy in achieving the SDGs.

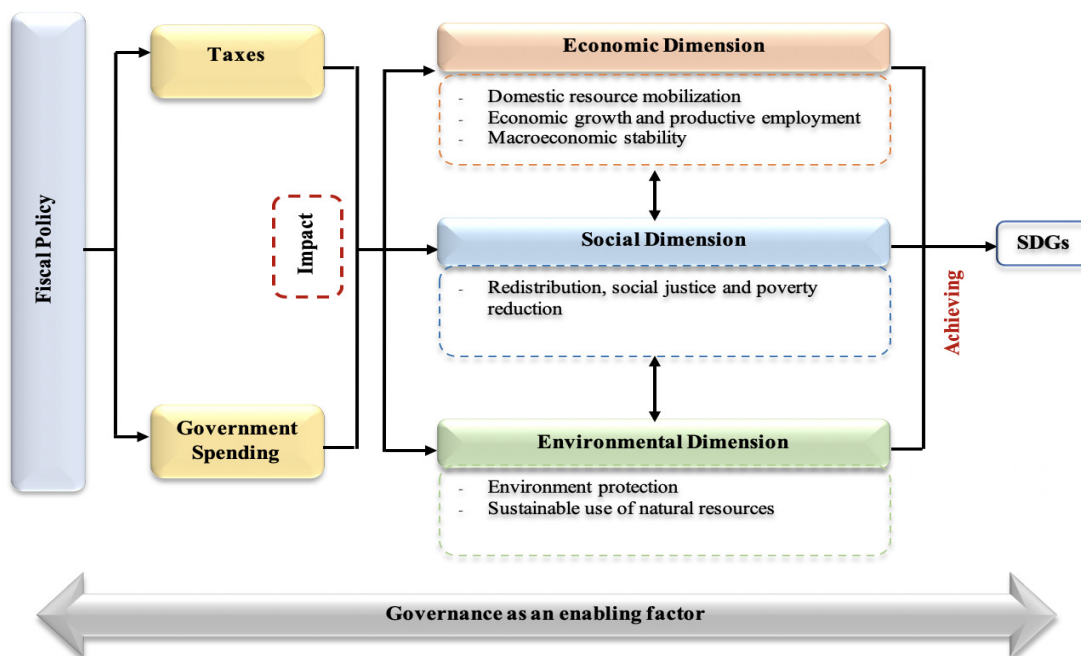
In this section, we introduce a conceptual framework for analyzing the role of fiscal policy in enhancing the implementation of the SDGs focusing on three key areas. These areas are domestic resource mobilization; redistribution and poverty alleviation; and environment protection. Then, we discuss some insights provided by behavioral economics to improve the effectiveness of fiscal policy in those selected areas.

### 3.1. A Conceptual Framework of the Role of Fiscal Policy in Achieving the SDGs

The 2030 Agenda for Sustainable Development, launched in 2015, comprises of 17 goals and 169 targets that act in an integrated and indivisible way that balances the economic, social and environmental dimensions of sustainable development, with an ultimate aim of eradicating poverty and protecting the rights of all.

As depicted in figure 1, fiscal policy has an integral role to play in facilitating the achievement of the economic, social and environmental goals of sustainable development. The mobilization of domestic public resources, including through raising taxes and other non-tax revenues efficiently, is necessary to secure the sufficient funds needed to implement the various SDGs. Furthermore, fiscal policy has a key role to play with regard to promoting economic growth and productive employment as well as ensuring macroeconomic stabilization. This role is very important to satisfy not only the economic, but also the social and environmental goals of sustainable development. In addition, the redistributive role of fiscal policy that aims at reducing social inequality within countries cannot be ignored and it comes at the heart of the sustainable development agenda. Finally, taxes and subsidies are among the main fiscal measures that can help in promoting the environment protection and ensuring the sustainable use of natural resources, which represent cornerstones of sustainable development.

**Figure 1:** A Conceptual Framework of the Role of Fiscal Policy in Achieving the SDGs



Source: The figure is made by the author.

Undoubtedly, fiscal policy could not be able to achieve its intended roles in enhancing the implementation of the SDGs if sound governance systems and quality budgetary institutions are absent. Indeed, proper governance systems as well as effective and responsive budget institutions provide the enabling and favorable environment for the delivery of the SDGs through enhancing accountability and transparency, controlling corruption, ensuring the rule of law, and promoting the government effectiveness.

In the following sub-sections, we introduce further discussion on the three key areas where fiscal policy has a significant role to play in enhancing the successful implementation of the SDGs, namely: public domestic resource mobilization; redistribution and poverty reduction; and environment protection and sustainable use of natural resources. In those three areas of fiscal policy, in particular, applications of behavioral-based models have been prominent as will be discussed in section 3.2.

### **3.1.1. Efficient Mobilization of Domestic Public Resources**

Finance is a key means in the implementation of the 2030 sustainable development agenda and its various goals and targets. As the preliminary estimates show, total investment needed for the achievement of the SDGs ranges between USD 5 trillion and USD 7 trillion per year (UNEP, 2016). Gaspar *et al.* (2019) provide an estimate of the additional spending needed in the areas of human, social and physical investments, for meaningful progress on the SDGs in 2030, relative to the spending levels that exist in 2019. Based on a costing methodology applied to 155 countries, the authors' main finding was that the delivery of the SDGs requires an additional spending in 2030 of around USD 0.5 trillion for low-income developing countries and USD 2.1 trillion for emerging market economies.

In a report entitled "Closing the SDG Budget Gap", Sachs *et al.* (2018) show that budget outlays needed to achieve the SDGs in Low Income Developing Countries (LIDC) significantly outstrip their current and potential domestic revenues. Hence, the authors suggest strengthening domestic resource mobilization (DRM) as well as increasing both official development assistance (ODA) and private development assistance (PDA) as key ways to close the SDGs budget gap.

Among the different development finance options that are available to governments (i.e. domestic, external, public, private), DRM has a particular importance especially for developing countries. Indeed, DRM is widely perceived as a way to fill the gap between the ambitious needs of the SDGs and the national development plans from one hand and the available development finance from the other hand (Long and Miller, 2017). ACBF (2015) defines DRM as "generating savings and taxes from domestic resources —and allocating them to economically and socially productive activities— rather than using external sources of financing, such as foreign direct investment (FDI), loans, grants, and remittances" (p. 9).

Yet, the relative share of domestic public revenues (public revenues excluding grants) in GDP is relatively low in the least developed countries compared to the case in the high-income countries (16 percent versus 25 percent based on the World Bank statistics during 2010-2017 in average). Furthermore, while the tax-to-GDP ratio averaged around 10 percent in the least developed countries, it accounted for almost 20 percent in the EU countries and 15 percent in both the OECD and high-income countries, during the time-period 2010-2017. This can be explained by narrow tax bases, relatively weak tax administration systems, and widespread of tax evasion and tax avoidance. In addition, governments in many developing countries, including the oil-exporting Arab countries, highly depend on non-tax sources of public revenues (i.e. from natural resources) which tend to be unstable and vulnerable to internal and external shocks.

Accordingly, target (17.1) of SDG 17 "Partnerships for Goals" stresses on the importance of strengthening the DRM in developing countries to improve domestic capacity for tax and other revenue collection. In addition, the mobilization of domestic public resources, through enhancing revenue administration, improving efficiency and effectiveness of tax systems, and reducing tax avoidance, topped the list of action areas in the document that emerged from the Third International Conference on Financing for Development, held in Addis Ababa in July, 2015 (Long and Miller, 2017; and UNEP, 2016).

While decreasing marginal tax rates, increasing audit rates and imposing higher fines on tax evaders are among the common measures that proved to be effective in controlling tax evasion (Hyman, 2010), behavioral economics introduces further insights to guide tax reforms that target higher tax compliance as will be discussed in sub-section 3.2.2.

Although raising and mobilizing domestic public resources represent one of the main objectives of the tax policy, doing that efficiently is not an easy task. Taxes result in distortions through affecting the relative prices of economic choices and the incentives faced by economic agents regarding saving, consumption, investment, and labor (Acheson and Lynch, 2017). For example, labor income taxes may affect the individual's decision regarding the number of hours worked and the acquisition of education and on-job training, with an ultimate impact on the employment and productivity levels. Similarly, capital income taxes would provide disincentives for saving and investment with adverse consequences for economic growth (Gupta *et al.*, 2002).

The role of tax policy in the implementation of the SDGs has been tackled in several studies. For instance, the International Chamber of Commerce (ICC, 2018) addresses how effective tax policy can support the UN SDGs through facilitating economic growth. Furthermore, Long and Miller (2017) discuss the reasons for the renewed interest in DRM in developing countries and the potential risks associated with trying to squeeze too much taxation out of the poorest economies. They argue that while linking the delivery of the SDGs to strengthening of DRM is a good idea in principle, following this intuition blindly might lead to adverse consequences on private investment, productive employment and consequently on economic growth.

As such, minimizing the tax distortions or incentive effects that result from changing the relative prices of economic choices (i.e. deadweight loss or excess burden) is necessary to avoid the adverse impact of taxes on employment, private investment and economic growth (i.e. SDG 8). Minimizing the distortive effect of taxation is also necessary to ensure that the collection target of taxes is met. In this regard, behavioral economics introduces useful insights on how to raise revenues efficiently as will be discussed in sub-section 3.2.1.

In some other cases, mainly related to environment protection and sustainable use of natural resources, taxes could be used as “*corrective*” rather than “*distortive*” measures, through changing the behavior towards the socially optimum outcome. This will be discussed further in sub-section 3.1.3.

### **3.1.2. Redistribution and Poverty Alleviation**

Alleviating poverty, correcting social imbalances and improving the distributional equity of income, are amongst the key areas where fiscal policy has a powerful role to play using various fiscal measures including taxes, social transfers and subsidies, as well as public spending on pro-poor social services. Recent successes and challenges in reducing poverty and inequality, through various redistributive fiscal policy measures, are well documented in Latin American countries, including Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay (ESCWA, 2017).

However, more efforts are still needed to promote the role of fiscal policy in this regard especially in developing countries. The World Bank statistics of 2018 indicate that around 45 percent of total population in low-income countries lives on less than USD 1.90 a day (using 2011 international prices). This ratio rises to around 72 percent when the poverty line increases to USD 3.2 a day. Furthermore, the statistics show that around two-thirds of total urban population in low-income countries lives in slums.

Three out of the 17 SDGs are directly linked to the distributional function of fiscal policy, namely SDG 1 “*no poverty*”, SDG 2 “*zero hunger*”, and SDG 10 “*reduced inequality*”. Indeed, SDG 10 aims to increase income growth of the poor and low-income groups; promote the social, economic and political inclusion of all; and adopt proper fiscal, wage and social protection policies that achieve greater equality. In addition, fiscal policy has the potential of narrowing gender gaps and achieving gender equality (SDG 5) through the adoption of gender-responsive budgeting.

Furthermore, the role of fiscal policy in enhancing the delivery of the other economic and environmental goals of the 2030 Agenda is expected to reflect positively on the well-being of the poor and the most vulnerable populations. For instance, the key role of fiscal policy in mobilizing domestic resources; promoting economic growth, job creation and employment; and enhancing macro-economic stability, should contribute to achieving better social outcomes.

While the role of fiscal policy in reducing poverty and inequality is pivotal, caution is needed to avoid the potential disincentives and adverse effects on employment and economic growth caused by the pro-poor fiscal measures. For instance, generous and high benefit levels of social security programs to eligible social segments (i.e. unemployment benefits and social transfers and pensions to the poor and disabled) may reinforce poverty of recipients through discouraging them from seriously seeking for employment or engagement in productive activities (Gupta *et al.*, 2002).

Behavioral economics introduces useful insights that can help in improving the effectiveness of the tax and social benefit policies in achieving the social objectives of sustainable development. This will be discussed in sub-section 3.2.3.

### **3.1.3. Environment Protection and Sustainable use of Natural Resources**

Fiscal policy has a crucial role to play with regard to the environmental dimension of sustainable development, mainly through affecting the consumption and production patterns in a way that ensures the sustainable use of natural resources and promotes environment protection.

While taxes and subsidies are commonly used as distributive measures of fiscal policy, they also can (and should) be used as corrective measures with an aim to internalize the externalities associated with the various production and consumption activities, leading to the socially optimum and most efficient allocation and use of resources.

From the one hand, the government can impose corrective taxes on the harmful and environmentally polluting activities, as well as on the irrational use of natural resources, by both firms and individuals. In this case, taxes act as a way to internalize the negative externalities by ensuring that prices fully reflect the social costs associated to the production or consumption of certain goods and services. The environmental taxes (i.e. carbon tax, pollution or waste charges, taxes on plastic bags use..., etc.) represent popular examples of corrective tax measures that serve environmental objectives.

Furthermore, since prices charged for petroleum products do not reflect the social costs of air pollution and congestion associated with motor vehicle use, taxes on (or relatively low subsidies for) fossil-fuel and petroleum products are expected to reduce their wasteful and irrational consumption, and consequently, protect the environment. Well-designed tax and royalty systems are also important to prevent over-exploitation of State's natural resources (Gupta *et al.*, 2002).

From the other hand, governments can provide corrective subsidies (or tax benefits) to promote sustainable resource use and environment-friendly patterns of production and consumption, including through subsidizing the private spending on R&D and innovation in areas of renewable and sustainable energy.

IISD (1994) highlights green budget reforms and leading practices in taxation and subsidy, extracted from 23 case studies in North America and Western Europe, that aim to harness the environmentally sound economic behavior in the areas of energy and automotive, agriculture, air and water pollution, and waste management.

Unfortunately, in most developing countries, corrective taxes are almost absent. In addition, several forms of subsidies in those countries not only fail to achieve their intended distributional objectives, but also are of a distortive nature as they are associated with negative environmental externalities.

Energy (fuel and electricity) subsidies in developing countries represent the most popular example of subsidies that may contribute to the wasteful use of natural resources, especially in absence of proper targeting mechanisms. In addition to the fact that they are regressive in nature as their benefits mainly flow to rich firms and consumers, energy subsidies impose significant cost on the



environment in the form of increased air pollution and noise and congestion associated with the increased use of motor vehicles (ESCWA, 2017; Gupta *et al.*, 2002; UNEP, 2016).

As such, fiscal reforms based on imposing corrective taxes, introducing corrective subsidies, and eliminating or rationalizing the existing distortive and inefficient subsidies in developing countries could serve not only environmental, but also various social and economic goals of sustainable development, as explained below.

Firstly, such measures have the benefit of increasing the government revenues and financial savings which could be used to support the delivery of various SDGs (ESCWA, 2017; Gupta *et al.*, 2002; UNEP, 2016). If revenues mobilized from environmental taxes and elimination of the inefficient subsidies are used to reduce harmful taxes on labour or capital accumulation, this should have a positive impact on employment and economic growth (SDG 8). For instance, Andersen and Ekins (2009) show that environmental tax reform (mainly through introducing carbon-energy taxes) can contribute to a growth in employment by up to 0.5 percent in Denmark and Sweden, and by around 0.2 percent in Germany.

Alternatively, domestic revenues mobilized by environmental-based fiscal reforms can be used for increasing pro-poor government spending, like health care and education, supporting SDG 3 and SDG 4 (ESCWA, 2017; Gupta *et al.*, 2002; UNEP, 2016). They can also be used for better targeted social support schemes that benefit the vulnerable groups and low-income households, which eventually help in reducing inequality (SDG 10). In addition, the financial savings from reforming pricing policies of the water and energy sectors can be used for investment in the infrastructure of these sectors to improve availability and quality of water and energy services, and enhance the efficient use of such resources (SDG 6 & SDG 7) (UNEP, 2016).

Secondly, revised price signals associated with corrective fiscal measures would provide incentives to stimulate private investment in the development and adoption of renewable energy and speeding up the shift to green technologies (ESCWA, 2017; Gupta *et al.*, 2002; UNEP, 2016), supporting SDG 7 (clean energy) and SDG 9 (industry, innovation, and infrastructure). For example, a tax on nitrogen oxide (NO<sub>x</sub>) emissions from energy generation, in Sweden, has provided a strong incentive for firms to reduce NO<sub>x</sub> emissions per unit of energy produced and stimulated innovation and investment in combustion and pollution abatement technologies (OECD, 2013).

Thirdly, price revisions associated with corrective fiscal measures help in shifting the producer and consumer behavior towards environmentally friendly activities, which has beneficial impact on SDG 12 (responsible consumption and production) and SDG 11 (sustainable cities and communities). For example, vehicle registration taxes designed to promote low-carbon vehicles in Ireland, the Netherlands, Norway and Spain can increase the production of fuel-efficient cars (UNEP, 2016).

According to Coady *et al.* (2015), government spending on fossil fuel subsidies range from USD 500 billion to over USD 5 trillion when air pollution, traffic congestion and accidents are taken into account. Hence, reforming these subsidies is expected to significantly raise government revenues and reduce deaths related to air pollution.

Eventually, corrective fiscal reforms, that aim to promote environment protection, should support the delivery of SDG 13 (climate action), SDG 14 (life below water), and SDG 15 (life on land). As we will show in sub-section 3.2.4, insights from behavioral economics can be utilized to design effective fiscal reforms that aim to serve environmental purposes.

### **3.2. Insights from Behavioral Economics to Support the Design of Fiscal Policy**

The following subsections shed light on how using insights from behavioral economics can facilitate the role of fiscal policy in delivering the SDGs. The analysis is based on a review of the relevant literature and country experiences and is presented according to four main areas that relate to the economic, social, and environmental dimensions of sustainable development. These areas are: raising revenues efficiently, improving tax compliance, reducing income inequality, and protecting the environment.

### 3.2.1. Raising Revenues Efficiently

Mobilizing public domestic resources is necessary to finance the SDGs. The critical issue, however, is how to perform that function efficiently, with the least possible distortions on incentives.

In principle, the size of tax distortions depends largely on individuals' response to different taxes. That is, the greater the response, the higher the distortive impact of taxes on behavior and economic efficiency, and the lower the collected tax revenues (Leicester *et al.*, 2012). Based on the various forms of human behavior biasness, behavioral economics introduces insights that can be useful in shaping the tax policy to achieve its goal of raising revenues efficiently, as follows:

#### Bounded Rationality

Due to bounded rationality, individuals may not be able to use all information available to them when taking a complicated decision. When it comes to taxation, this implies that individuals may confuse between “*marginal*” and “*average*” tax rates. In particular, an individual may find it hard to identify the marginal tax rate to which he/she is subject to due to, for example, complicated schedules of progressive income tax or existence of multiple amendments to the tax law. Accordingly, individuals may take their decisions regarding labor supply based on “*average*” rather than “*marginal*” tax rates. Since average tax rates tend to be lower than marginal tax rates under a progressive tax structure, the distorting impact (excess burden) of income tax on individuals' incentives to work, and hence on the economic activity, would be less compared to what is expected by the neoclassic theory (Acheson and Lynch, 2017; Congdon *et al.*, 2009; Leicester *et al.*, 2012).

As such, bounded rationality implies that some complexity in the design of the tax rate structure can be useful for the economic efficiency by eliminating the tax distortive impact on incentives. However, caution is needed as complexity increases the tax compliance costs incurred by taxpayers (resulting in reduced tax collections) and the tax administration costs incurred by the government (Acheson and Lynch, 2017).

#### Inconsistent and Context-Dependent Preferences

Studies show that how a given tax is framed, displayed, or presented matters for its impact on the economic decisions by individuals. Less salient taxes (taxes that are presented in a way that does not draw attention to them) have less excess burden and hence are considered more efficient in raising revenues than salient taxes. This is because the probability that individuals will change their behavior in response to taxes will be less in case of less salient taxes. Put it differently, the less salient the tax is for individuals, the higher the potential of increasing its rate, and hence the greater the revenue collected from it, without harming efficiency considerations (Acheson and Lynch, 2017). For that reason, raising the rates of indirect taxes like sales and value added tax (VAT) is easier politically than raising rates of more explicit or direct taxes as income taxes. Related to this point is the choice between the different ways of presenting sales tax (showing the tax value explicitly along with the basic price of the commodity on price tags or presenting pre-tax prices only) (Congdon *et al.*, 2009).

Studies indicate that electronic methods of tax and fees collection are less salient and hence are associated with increased revenues and greater efficiency compared to the traditional and direct cash-based collection methods (Acheson and Lynch, 2017; Leicester *et al.*, 2012). The reason is that individuals are less sensitive to price changes when payment is made electronically rather than as clear cash payment (Congdon *et al.*, 2009).

### 3.2.2. Improving Tax Compliance

According to the traditional economic models, tax evasion increases with higher tax rates, lower punishment on evaders, and lower tax audit rates (Hyman, 2010). Behavioral economics provides further insights for the design of appropriate and affordable interventions to eliminate tax evasion and improve tax compliance, as follows:

### **Bounded Rationality**

Based on the bounded rationality assumption of human behavior, simplifying the design of tax systems is a recommended measure as complexity may increase the tax compliance cost (i.e. time and effort incurred by taxpayers to comply with the tax law) and thus give way to tax evasion behavior. In spite of that, Leicester *et al.* (2012) show that in some cases, complicated tax systems can be easier for tax authorities to detect errors in tax records.

### **Social Preferences and Moral Considerations**

Social preferences and moral considerations are crucial for the tax evasion decision. Firstly, tax compliance can be stimulated by relying on the influence of factors like social status and self-image of individuals; social norms and how societies perceive the tax evasion behavior (James and Edwards, 2007; Leicester *et al.*, 2012). In this context, laboratory and field experiments in the United Kingdom and Canada demonstrated the effectiveness of sending text messages or emails to late taxpayers, reminding them to submit their tax declaration forms using motivational phrases that urge tax compliance as a social responsibility. Providing information to those taxpayers, about the number of individuals who have submitted valid declarations in the area of their residence, proved to be effective in promoting tax compliance as well (Weber *et al.*, 2014; French and Oreopoulos, 2017). Other behavioral-based interventions also include announcing the names of tax evaders to the public; sending letters to taxpayers warning them from possibility of auditing and reviewing the validity of their tax declarations; and asking the taxpayer before filling in the tax declaration form to confirm by signature the correctness of the data he/she provides. The last intervention aims to remind taxpayers with the ethical concepts needed to act as honest and law-abiding citizens (Weber *et al.*, 2014).

Secondly, considerations of justice and reciprocity have a crucial impact on tax compliance. For example, tax compliance may decrease if individuals consider that tax payments are unfair given the poor quality of goods and services provided by the government, or if the relationship between taxpayers and the tax authority is not based on trust and principles of fairness. Hence, the government can improve tax compliance by attracting citizens' attention and focus to the benefits of government spending. Moreover, individuals may be tempted to evade taxation if they get information about other people's similar behavior. Thus, the expansion of tax reconciliation with evaders may have a negative impact on the tax compliance of the others (Weber *et al.*, 2014; James and Edwards, 2007; Leicester *et al.*, 2012).

### **Inconsistent Preferences**

Research on behavioral economics suggests that tax compliance can be improved by using interventions that are based on the *inconsistent preferences* assumption of human behavior. Relating to the "*presentation and framing effects*", tax compliance can be stimulated by making simple adjustments in the presentation of the tax declaration form. For instance, an experiment by Canada Revenue Authority showed that some simple interventions in this regard are effective. These interventions include changing the location of the area designated for signature in the tax declaration form from the lowest to the top; enlarging the font and simplifying the wording; and highlighting phrases that warn of the invalid data. In addition, requesting the taxpayer to write his/her name next to the signature proved to be effective as well. The reason is that individuals tend to be honest and disclose the truth after they are motivated to think about honesty and integrity (French and Oreopoulos, 2017).

Regarding the "*ambiguity and loss aversion*" assumption of human behavior, it is possible to stimulate tax compliance by hiding all details and information related to tax audit processes and procedures and the probability of their occurrence, in order to push individuals towards more commitment (Weber *et al.*, 2014). If individuals overestimate the probability of being detected, it may be useful for the government to shed light on some public figures who have been caught in incidents of

tax evasion in order to influence individuals' expectations about the probability of detection, and thus stimulate their tax compliance (Leicester *et al.*, 2012).

### 3.2.3. Enhancing Income Redistribution and Social Justice

Behavioral economics introduces insights that can be useful in shaping policies of taxes, subsidies and social transfers to achieve their distributional and poverty reduction-related goals, as follows:

#### **Bounded Rationality**

Under the bounded rationality assumption of human behavior, governments may consider introducing some complexity into the screening systems, submission conditions, and eligibility criteria for applying to the social transfer programs (for example, through complicated forms, documents, and interviews requirements). This would contribute to limiting the social benefit claims by non-eligible individuals and thus improving the targeting of the system. However, excessive complexity should be avoided as it may prevent some eligible individuals, or make it hard for them, to participate in these programs (Leicester *et al.*, 2012).

#### **Social Preferences**

People's acceptance of the idea of social justice and their interest in comparing their status and the results they achieve with that of the others, make them more receptive to applying progressive taxation. In other words, individuals are willing to sacrifice a portion of their monetary gains in exchange for distributional equity, since achieving social justice increases their own well-being. Hence, optimal tax rates under behavioral economic models can be more progressive than those that are based on traditional economic models (Leicester *et al.*, 2012; Ackert *et al.*, 2006).

#### **Inconsistent Preferences**

The "*presentation and framing*" of different taxes and social transfer programs have a significant effect on their distributive impact. For instance, expanding the taxes that the poor are more attentive to (or which are less visible to the rich) have distributional effects in favor of the poor, who will be more responsive to these taxes, by reducing their spending and paying lower taxes as percentage of their incomes, than the rich (Leicester *et al.* 2012).

As for the social benefits programs, studies show that the way how social security and social assistance programs are framed and presented by the government (for example, by providing clear information about the benefits granted by these programs) affects the take-up rates of these programs by eligible individuals (Chareyron *et al.*, 2017). Moreover, the government can influence the spending patterns of individuals or households receiving transfer payments and social benefits by controlling the "*labeling*" given to these payments. For example, the Kooreman (2000) study showed that individuals tend to spend the child pension or child benefits on child-relevant items. Another study by Beatty *et al.* (2011) finds that around 41 percent of the unconditional transfer "*Winter Fuel Payment*", provided by the UK Government, is spent on energy-related items. Also, studies show that the form of the social support program (cash vs. in-kind) affects the spending levels by the recipients (Leicester *et al.* 2012).

In addition, "*time inconsistency*" of individual preferences should be considered in the design of the social benefit programs. For instance, given the "*present bias*" assumption, many individuals who receive unemployment benefits tend to make limited efforts in the job search process. This is due to the fact that the cost associated with the job search is immediate (i.e. filling out application forms, attending interviews, searching for vacant jobs), while the expected gains (the possibility of obtaining high wages compared to the unemployment benefit) are faraway. Hence, the government should limit these disincentives by behavioral-based measures. Examples of these measures include: setting time restrictions on the period during which an individual is entitled to receive the benefit; setting conditions to ensure that the individual is seriously looking for work; and deducting part of the unemployment benefit from individuals who failed to seriously search for a job (Leicester *et al.*, 2012).

Furthermore, the way how transfer payments are disbursed in terms of the volume of payments and the frequency of disbursements affect the behavior of recipients. In particular, social benefits that are disbursed to citizens in the form of large but less frequent batches may help them plan but lead to “*self-control*” problems (Leicester *et al.* 2012). For example, some studies applied to the consumption patterns of individuals who obtain social security benefits from the government in the UK and the USA indicate that individuals tend to increase their consumption levels significantly once they receive the benefit compared to the rest of the periods (Stephens, 2006; Mastrobuoni and Weinberg, 2009).

### **3.2.4. Promoting Environment Protection**

Behavioral economics provides useful insights for the design of the corrective fiscal measures that aim at promoting environment protection and enhancing the effective use of natural resources, as follows:

#### **Bounded Rationality**

In spite of the fact that tax simplicity is generally recommended to stimulate tax compliance, some behavioral-based research suggests that increasing the complexity of corrective taxes might be useful in discouraging individuals (with bounded rationality) from undertaking the harmful taxable activities in the first place, by making compliance costs of such taxes high (James and Edwards, 2007).

#### **Social Preferences**

Individuals’ intrinsic interests in social values (like justice, cooperation with others, and adherence to social norms) motivate them to act in a manner that respects others by considering the social benefits and costs associated to their decisions. Hence, activities that cause negative externalities can be eliminated while those that produce positive ones can be expanded. If this would be the case, the individual decisions would be much more consistent with the socially optimum choices and, consequently, the need to use corrective taxes and subsidies to promote environment protection will be reduced (Leicester *et al.*, 2012).

#### **Inconsistent Preferences**

The different forms of inconsistent and context-dependent preferences of individuals have several implications for the design of the corrective fiscal measures. Firstly, and relating to the “*presentation and framing effects*” assumption, the design of corrective taxes should consider the importance of keeping such taxes salient and prominent to affected economic agents, otherwise they will lose their effectiveness in achieving the desired goal of changing behavior (Lester *et al.*, 2012).

Secondly, the “*loss aversion*” assumption of individual preferences implies that taxes may be much more effective than subsidies as corrective fiscal measures that aim at internalizing externalities through influencing human behavior. The reason is that individuals are expected to be more sensitive to taxes (which represent losses) than to subsidies (which represent gains) (Leicester *et al.*, 2012; Acheson and Lynch, 2017). For instance, imposing corrective taxes on the production or consumption of harmful plastic bags is expected to be more effective than subsidizing paper bags in promoting the environment-friendly behavior (Acheson and Lynch, 2017).

Thirdly, the “*reference-dependence*” assumption of individual preferences indicates that individuals may become, over time, accustomed to the corrective taxes and consider them as part of the reference points based on which their decisions are evaluated. As such, those taxes may become less effective as a corrective measure unless the tax rate is changed regularly (Leicester *et al.*, 2012; Acheson and Lynch, 2017). By the same manner, the provision of corrective subsidies to encourage some particular activities may lead individuals to expect the provision of similar incentives as a prerequisite for changing their behavior in other areas (Leicester *et al.*, 2012).

#### **4. Egypt's Fiscal Policy from the Lens of SDGs and the Potential Role of Behavioral Economics**

Egypt has adopted an approach towards achieving sustainable development that is characterized by a high level of ambition and firm commitment. In January 2014, the government has adopted a new Constitution that ensures the economic, social and political rights of all citizens, while guaranteeing that no one is left behind (MoIC, 2016). Furthermore, the Government has endorsed the 2030 global Agenda (issued in September 2015) and the regional African Union's Agenda 2063 for sustainable development (United Nations Development Group, 2016). In early 2016, Egypt has launched its national "Sustainable Development Strategy (SDS): Egypt Vision 2030" which acts as a national framework for development plans at all levels. The SDS entails 10 pillars that span over the economic, social and environmental dimensions of sustainable development, engaging all stakeholders in achieving and monitoring the implementation of its objectives and targets (MoIC, 2016; MoPMAR, 2018).

At another front, in response to the deteriorated performance of the Egyptian economy that accompanied the political and security instability following the uprising of 2011, the Government has embarked on an ambitious economic reform program, in November 2016. The program was supported by a three-year Extended Fund Facility (EFF) from the International Monetary Fund worth USD12 billion. It aimed at addressing the key imbalances in the economy and ensuring the macroeconomic stability that is necessary for creating the enabling environment for sustainable development (MoPMAR, 2018). The implemented reforms included various monetary and fiscal measures. Among these measures were liberalizing the exchange rate regime; improving the investment environment (including through the adoption of the new investment law No. 72 of 2017); introducing the value added tax that replaced the general sales tax; phasing-out direct price subsidies for energy; expanding the size and scope of the social protection programs; and reforming the food subsidy system.

The implementation of the above-mentioned reform measures has been positively reflected on a wide range of macroeconomic indicators. For instance, based on the final accounts of Egypt's State budget, the overall fiscal deficit-to-GDP ratio declined from around 12.5 percent in fiscal year (FY) 2015/16 to almost 9.7 percent in FY 2017/18. This ratio is expected to decrease further to reach almost 8.4 percent and 7.2 percent, according to the estimates of the approved budget and draft budget of FYs 2018/19 and 2019/20, respectively. Other macroeconomic variables that witnessed improvements due to the implementation of the reform measures include real GDP growth, external sector and international reserves, and unemployment.

In light of this context, the following sub-sections briefly review the role of Egypt's fiscal policy from the lens of sustainable development. We focus mainly on the three areas of mobilizing public domestic resources; reducing poverty and inequality; and protecting the environment, highlighting the key areas where insights from behavioral economics could be usefully utilized.

##### **4.1. Domestic Resource Mobilization**

According to MoIC (2016), resource mobilization is considered as one of the main factors that pose a major challenge to accelerating the SDG implementation in Egypt. In particular, Egypt's SDS estimate for the needed investments over the period 2015-2030 is around EGP 7500 billion (Ashour and Ibrahim, 2018). While financing for development requires mobilization and scaling-up of resources from all possible sources (public, private, domestic and international), a large part of the SDG-related investment in Egypt needs to be financed from the domestic (public) resources (MoIC, 2016). From the one hand, the ODA inflows to Egypt have dropped to USD 3.4 billion in 2017 up from around USD 7 billion in 2016 and USD 4.7 billion in 2015 (MoPMAR, 2018). Egypt is also under-performing, relative to its peer countries, in most of indicators related to external sources of finance, including exports-to-GDP ratio and foreign direct investment (FDI) inflows. From the other hand, Egypt is severely under-performing, relative to its peer countries, with respect to the gross savings-to-GDP

ratio; which has more than halved from around 13 percent in 2000 to less than 6 percent in 2015 (Amin-Salem *et al.*, 2018).

As such, there is a tough burden on the Egyptian government to mobilize its resources from taxes and non-tax revenues. According to Ashour and Ibrahim (2018), around one third of the total value of the SDG-related investment in Egypt (approximately EGP 2500 billion in total or EGP 166 billion per annum) needs to be financed through public domestic resources. Indeed, raising revenues through taxes is one of the main issues that are discussed under the economic development pillar of Egypt's SDS.

The data, however, indicates that the government's revenue mobilization capacity in Egypt is relatively modest. For instance, as presented in table 1, the two ratios of "total government revenues excluding grants to GDP" and "taxes to GDP" averaged around 20.9 percent and 12.9 percent, respectively, during the period 2011-2015. These ratios were much higher in Egypt's peer countries like Jordan, Tunisia, Morocco and South Africa. Accordingly, greater efforts need to be exerted by the government to strengthen its domestic resource mobilization with an aim to secure the financial resources necessary for the SDG implementation. This could require, among others, widening and diversifying the tax base, improving effectiveness of the tax administration system, and streamlining the management of the government revenues received from natural resources such as gas, petroleum and mining (Ashour and Ibrahim, 2018).

**Table 1:** Government Revenues and Tax Revenues as Percentage of GDP in Egypt and Selected Countries

| Country                                  | Government revenues (excluding grants) as % of GDP | Tax revenues as % of GDP | Period average   |
|--|--|--------------------------|------------------|
| Egypt                                    | 20.9   | 12.9                     | 2011-2015        |
| Tunisia                                  | 30.2   | 20.6                     | 2008-2012        |
| Morocco                                  | 26   | 21.8                     | 2013-2017        |
| Jordan                                   | 22.4   | 15.2                     | 2013-2017        |
| South Africa                             | 30.9   | 26.8                     | 2013-2017        |
| <b>Middle Income Countries (Average)</b> | <b>19.7</b>  | <b>12</b>                | <b>2013-2017</b> |

Source: The table is prepared by the author based on the World Bank Database <https://data.worldbank.org/indicator>

It is noteworthy that the government of Egypt has recently taken several steps to expand the tax base such as introducing the VAT system, implementing the property tax, passing the capital gains tax law (although this was temporarily suspended in May 2015), and modernizing the customs tax administration (Amin-Salem *et al.*, 2018). These efforts have been partially reflected in the increase in the relative share of taxes in total government revenues from 71.7 percent to 78.2 percent and the increase in the tax-to-GDP ratio from 13 percent to 14 percent, between FY 2015/16 and FY 2018/19, respectively.

A closer look at the structure of Egypt's tax revenues, as presented in table 2, reveals that there has been a considerable shift from direct taxes (i.e. taxes on incomes, profits and capital gains; property tax) towards indirect taxes (taxes on goods and services; international trade tax). The adoption of the VAT Law No. 67 of 2016 in replacement of the General Sales Tax Law No. 11 of 1991 has significantly contributed to this shift. According to the new Law, the general price of tax has increased from 10 percent to 13 percent in FY 2016/17 and to 14 percent in FY 2017/18. In addition, in contrary to the practice under the General Sales Tax system, where the majority of services were exempted from the tax, the VAT has expanded the tax base through ensuring that all goods and services (both local and imported) are subject to the tax. The new system, however, has maintained the exemption principle for the basic goods and services that mostly affect the poor and low-income groups.

While this tax structure seems to serve the economic efficiency objectives (indirect taxes are less distortive than direct taxes) it raises concerns from the social equity point of view. The point is that while the indirect tax has a flat tax rate structure, it tends to be regressive in practice. The higher an

individual's income, the lower the percentage of his/her income that is consumed, and hence the lower the percentage of income that is paid as tax.

Within the "personal income tax" group, the data indicates that the majority (around 70 percent during the time period 20015/16-2019/20, in average) is contributed by the "payroll tax" while the remaining share is paid by the owners of free professions, commercial and industrial activities. This suggests that the largest share of the personal income tax burden in Egypt is incurred by that segment of population where most of the poor and low-income individuals belong to (i.e. employees). One of the factors that can explain this situation is the relatively high share of the economic activity that is carried out through the informal sector. Furthermore, a wide-range of taxpayers in Egypt, who own non-commercial professions or obtain profits from industrial and commercial activities, tend to understate their true incomes and profits, taking the advantage of the loopholes of the current tax administration system. Tax evasion behavior, however, cannot be practiced by the employees as their payroll tax is withheld automatically at source.

**Table 2:** Tax Structure in Egypt: Relative Shares

| Tax Group/ Year                             | 2015/16<br>(Actual) | 2016/17<br>(Actual) | 2017/18<br>(Actual) | 2018/19<br>(Preliminary<br>Actual) | 2019/20<br>(Draft<br>Budget) | Period<br>Average |
|---|---------------------|---------------------|---------------------|------------------------------------|------------------------------|-------------------|
| Taxes on incomes, profits and capital gains | 41.1%               | 36.1%               | 32.9%               | 34.0%                              | 34.0%                        | 35.6%             |
| Property tax                                | 7.9%                | 7.9%                | 8.2%                | 8.0%                               | 8.1%                         | 8.0%              |
| Taxes on goods and services (VAT)           | 39.9%               | 45.2%               | 46.8%               | 47.6%                              | 48.5%                        | 45.6%             |
| International trade tax                     | 8.0%                | 7.4%                | 6.0%                | 5.7%                               | 6.0%                         | 6.6%              |
| Other Taxes                                 | 3.1%                | 3.4%                | 6.1%                | 4.7%                               | 3.4%                         | 4.1%              |
| <b>Total tax revenues<br/>(EGP Million)</b> | <b>352,315</b>      | <b>462,006</b>      | <b>629,303</b>      | <b>736,121</b>                     | <b>856,616</b>               | <b>607,272</b>    |

Source: The table is prepared by the author based on the actual and estimated figures of Egypt's State Budget, MoF ([www.mof.gov.eg](http://www.mof.gov.eg)).

Given the limited domestic resource capacity of Egypt, the government needs to exert excess efforts to raise its revenues from both tax and non-tax sources while limiting tax evasion behavior. This, however, needs to be done efficiently, with the least distortions possible for the economic incentives. As such, utilizing insights from behavioral economics could be useful to the Egyptian Government in the following areas:

For raising the revenues efficiently, the government may consider expanding the electronic tax collection as an alternative to cash collection. In addition, within the scope of the VAT, the increases in tax rates (if any) should be directed to those goods and services on which taxes are less salient to individuals (i.e. taxes on tobacco, alcohol, soft drinks, perfumes and cosmetics). Including the average tax rates (at the minimum and maximum of each income bracket) in the income tax law along with the marginal rates as well as allowing tax rates to differ by source of income (salaries, non-commercial professions, commercial and industrial activity, .., etc.) may also be considered to reduce the tax-related distortions.

With regard to improving tax compliance, the government can benefit from the experiences of the other countries in modifying the presentation style of the tax declaration form and choosing proper phrases that motivate taxpayers to provide valid data. It is also useful to consider the importance of the social preferences and ethical factors in enhancing tax compliance as a social responsibility by influencing (through education and media) how the society perceives the tax evasion behavior; limiting reconciliations with the evaders; and above all improving the trust between the taxpayer and the tax authority. Furthermore, hiding the timing and procedural details of the tax inspections and audits and the probability of their occurrence could be useful as well.



## 4.2. Income Redistribution and Poverty Reduction

Eradicating poverty and ensuring social justice are among the key policy areas that the Egyptian Government has been directing large efforts to. Egypt's 2014 Constitution, in many of its articles, affirms the State's commitment to achieve social justice and social solidarity that ensures a decent life for all (Art. 8); eliminate poverty and unemployment (Art. 27); and provide social security services for the most vulnerable segments of populations (Art. 17) (Egypt's Constitution, 2014). In addition, the fifth pillar of the SDS is allocated to address various social justice issues through two main strategic goals. Firstly, to achieve equality in economic, social and political rights and opportunities and enhance access to basic needs including health, education, and social protection. Secondly, to ensure equity in income distribution and secure protection and support to the most vulnerable and marginalized groups. Furthermore, one of the strategic goals of the economic development pillar of the SDS is to achieve both inclusive economic growth and economic empowerment to reduce poverty rates (MoPMAR, 2016).

From the fiscal perspective, "social protection" comes as the second most important functional sector in Egypt's State Budget. During the time-period 2012/13-2014/15, this sector accounted for almost 29.6 percent of total public expenditure, in average, compared with 11.9 percent for education and 4.6 percent for health. Public spending on this sector, however, has been characterized by inefficiencies and poor targeting associated with the dominance of fuel subsidies. As such, public spending on social protection has failed to translate into positive results in terms of reducing poverty and inequality. Indeed, between 2012 and 2017, the poverty headcount rate in Egypt based on the international poverty line of USD 1.9 a day (PPP) has increased from 1.3 percent to almost 3.2 percent, and that of the national poverty has increased from 26.3 percent to 32.5 percent. Furthermore, while the value of Gini index decreased between 2010 and 2012 from 30.2 to 28.3, it rose again approaching 31.5 in 2017<sup>3</sup>. These figures make the SDS 2030 targets (achieving zero percent poverty ratio at the extreme international poverty line of USD 1.25 PPP a day and 15 percent poverty ratio at the national poverty line) a real challenge.

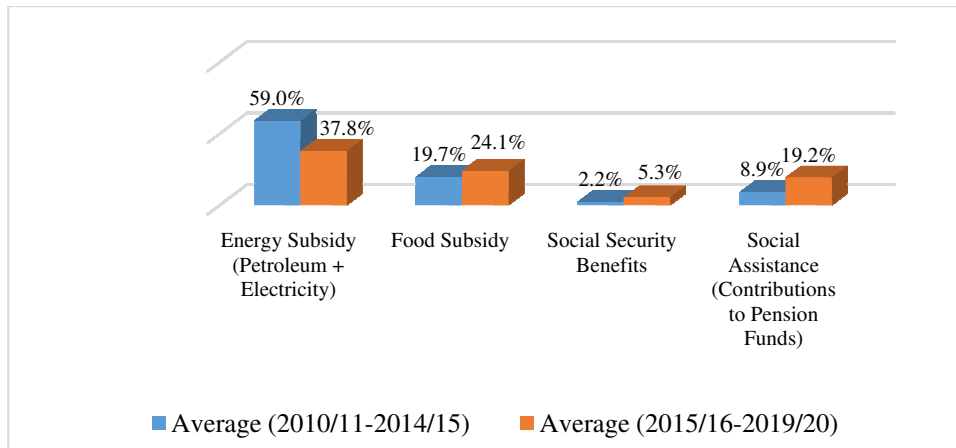
This deteriorated situation can be attributed to the effect of several domestic and external shocks, one of which was the political and economic instability that followed the uprisings of 2011 and 2013 (MoIC, 2016). In response to this situation, the Government of Egypt has launched serious reform measures, in 2016, to improve both efficiency and targeting of its spending on social protection. The reforms were mainly based on adopting a new approach to social protection spending according to which financial resources have been shifted from direct price subsidies (namely energy subsidies) towards direct and better-targeted cash transfer programs (i.e. Takaful and Karama)<sup>4</sup> to eligible citizens, along with reforming the existing food subsidy system and increasing the social security pensions.

The implemented fiscal reform measures have been reflected in the structure of the fourth expenditure chapter of the State budget "*subsidies, grants and social benefits*", as shown in figure 2. Furthermore, the reform measures have pushed the relative share of energy subsidies in total public expenditure down from 21.9 percent in 2012/2013 to 3.6 percent in the draft budget of FY 2019/2020, allowing for larger shares to be allocated to Education (8.4 percent), health (4.6 percent), and food subsidies (5.7 percent). This shift in the budget structure is expected to contribute to the Government efforts in mitigating social inequalities and eradicating poverty.

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<sup>3</sup>These figures are based on the World Bank Database published at: <https://data.worldbank.org/indicator>

<sup>4</sup>Takaful "*Solidarity*" is a monthly cash transfer program that targets poor households with children, conditional on child's school attendance, medical check-ups for mothers and children under 6, and attendance in nutrition classes. Karama "*Dignity*", on the other hand, is a monthly unconditional cash transfer to the most vulnerable segments of population, namely the elderly (those over 65 years old), people with disabilities, and orphaned children (MoIC, 2016; MoPMAR, 2018).

**Figure 2:** Relative Shares of Selective Social Spending Items in the Total Spending of Chapter 4

Source: The figure is prepared by the author based on the final accounts of the State Budget of FYs from 2010/11 to 2017/18; the preliminary final account of FY 2018/19, and the draft budget of FY 2019/20, MoF ([www.mof.gov.eg](http://www.mof.gov.eg)).

Utilizing insights from behavioral economics can support the government's efforts in enhancing the distributional impact of its tax and subsidy policies. For instance, the government may consider expanding those taxes to which the poor are more attentive compared to the rich. Hiding the tax rates from commodity price tags and expanding taxes on certain goods like tobacco, soft drinks, and electrical appliances, can serve distributional objectives. Regarding subsidies and social transfer programs, the government may consider introducing some complexity to the conditionality and eligibility criteria of these programs for better targeting. Choosing proper "labels" for the social transfer programs and presenting sufficient information on them to the public are also useful to increase the take-up rate and direct the household spending to targeted areas (i.e. on a child, housing, or education). The government may also consider introducing conditions to reduce the employment disincentives that can be created by the social benefit programs. The optimal way to disburse these benefits in terms of the frequency of disbursements (i.e. weekly, monthly, quarterly, annually) should also be considered due to its impact on the spending patterns of the recipients.

### 4.3. Environment Protection and Sustainable use of Natural Resources

Egypt suffers from various environmental challenges that need to be addressed if sustainable development is to be successfully achieved. These challenges range from water scarcity to environmental pollution, including the deterioration in air quality and its adverse consequences on climate change. The high rates of population growth along with the unsustainable patterns of production and consumption are expected to place greater pressures on the use and management of natural resources. The rise in sea levels, water scarcity, and increased intensity of extreme weather shocks are among the major phenomena that are expected to arise in future (MoIC, 2016; MoPMAR, 2018).

Egypt has carried out considerable efforts to combat the environmental challenges. At the international level, Egypt ratified and adopted the United Nations Framework Convention on Climate Change (UNFCCC) in 1994; the Kyoto Protocol in 2005; and the Paris agreement known as Conference of Parties (COP21) in 2017. At the regional level, Egypt led the African continent in climate change negotiations at COP21 as well as the African Renewable Energy Initiative (AREI) and the African Adaptation Initiative (AAI) in 2015 (MoPMAR, 2018; MoIC, 2016).

At the national level, Egypt's efforts to fight climate change were institutionalized through the establishment of the Egyptian Environmental Affairs Agency (EEAA) in 1982, and later the State's Ministry for Environmental Affairs in 1997. Egypt has also created units to deal with the issue of climate change within the different ministries and a sustainable development unit was established at the

Ministry of Environment to foster implementation of the SDGs. Egypt also prepared in 2011 the National Strategy for Adaptation to Climate Change and Risk Reduction. In addition, Egypt prepared two main studies, in 2013 and 2015, on climate change risk management and opportunities to reduce greenhouse gases. In 2015, Egypt established the National Council on Climate Change. Indeed, the Government has actively engaged in several initiatives and projects that aim at expanding the generation and use of renewable energy; improving energy efficiency mainly in the transportation and electricity sectors; and enhancing efficiency of waste management (MoPMAR, 2018; MoIC, 2016). Recently, the Government has introduced bold reforms to phase out the energy subsidies, which would serve both social and environmental objectives of sustainable development as presented in the previous section.

It is noteworthy that the principles of environment protection and sustainable use of natural resources are clearly articulated in Egypt's 2014 constitution (Article 46). In addition, two pillars of the SDS, namely the second pillar on energy and the ninth pillar on environment, are allocated to address the environmental aspects of sustainable development. Furthermore, the current Investment Law No. 72 of 2017 provides an investment incentive (a deduction from net taxable profits) for projects that rely on or produce renewable energy.

Yet, the role of fiscal policy in satisfying the environmental goals of sustainable development still needs to be strengthened. Government spending on environment protection averaged around 0.2 percent of total government spending during the period 2015/16-2019/20. Furthermore, apart from the investment incentives that are guaranteed by the Investment Law for the projects which use or produce renewable energy, environmental-based fiscal measures, in the form of corrective taxes and subsidies, are almost absent in Egypt. Whenever the government decides to introduce such measures, it should consider the "loss-aversion" behavior of individuals. As such, tax-based corrective fiscal measures are expected to be more effective than those which are based on provision of subsidies or incentives, in terms of internalizing the environmental externalities. In addition, those corrective taxes, if applied, should be as salient as possible to play their intended role in correcting the behavior.

## 5. Conclusion

This article investigates how utilizing insights from behavioral economics could be beneficial for enhancing the role of fiscal policy in achieving the SDGs. The paper introduces a conceptual framework for the role of fiscal policy in achieving the SDGs, focusing on the three key areas of: domestic resource mobilization; income redistribution and poverty alleviation; and environment protection and sustainable use of natural resources. In addition, the paper reviews the relevant literature on how behavioral economics could be useful for the design of effective fiscal policies that are able to serve the economic, social and environmental objectives of sustainable development. The review presented by this paper confirms that considering the various forms of human behavior biasness (i.e. bounded rationality, social preferences, and inconsistent and context-dependent preferences) would definitely enhance governments' potentials to speed up the implementation of the SDGs.

As for the case of Egypt, the analysis shows that the Government needs to consider utilizing insights from behavioral economics to formulate better and more effective public policies, including pro-sustainable development fiscal policy. The Government may take advantage of the lessons offered by the country experiences (including the UK, Australia, France, Canada, and Singapore) relating to the establishment of a "behavioral insights unit" to support public policy formulation. Further empirical and experimental research is needed to identify the effective behavioral-based fiscal interventions in the Egyptian context and to examine the feasibility and cost-effectiveness of these interventions.

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