

## TAXATION AND ECONOMIC GROWTH: EFFECTS IN VARIOUS WAYS OF HEALTH ECONOMY

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**Abstract.** This paper reviews how taxation policy affects long-term economic growth. Firstly, taxes are considered play an integral role in different economic instruments, like controlling and regulating with purpose of influencing the pattern of consumption, production and distribution, and yet taxes may some bad effects on economy growth in various ways. The aim of this paper is to add the debate and examine some affects with providing clear and conclusive evidences.

The paper reveals that neither the theoretical literature nor the empirical literature provides conclusive evidence of the nature of these effects. In general, the theoretical and empirical literature gives different results due to various factors such as the selection of countries' samples, the development level of countries, the period of time, the control variables included, and the methodology used. Therefore, in order to obtain more reliable results, the most advanced methods should be used in future researches.<sup>1</sup>

**Keywords:** Taxation; Economic Growth; Regulation; Conclusive evidences, Empirical literature.

### I. Introduction

The development of each state and its stability depend on a strong economy, which is why economic long-term plans and investments play an important role in improving the future prospects of the country and the lifestyle of the population. And at the same time, in the current globalization situation, a clear manifestation of the fact that comprehensive long-term healthy economic plans are very important for the future of the countries. It is worth noting that one of the important factors that negatively affects economic growth is the tax system, which is unstable and incompatible, which means that in the coming years a

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<sup>1</sup> Taxation and Economic Growth: Theoretical and Empirical Literature Review - Alqadi M, et al., J Glob Econ 2019, 7:4

sharp rise in tax rates can witness a significant impact on this not only in economically developed countries, but also in low-income countries

In this context, the policy maker's primary concern is the factors which are responsible for determining tax revenue collection which leads to economic growth and development in any economy. The inconclusiveness of result between Tax policy and growth is mainly due to the inadequate tax measures. The construction of adequate variables is the primary obstacle for estimating the impact of the taxation on economic growth. Most of the studies used marginal tax rate as a tax measure however the average marginal tax rate is considered as most accurate tax measure (Easterly and Rebelo; 1993). Therefore, the stability of the state is closely linked to a healthy economy and a correct tax policy. In this paper, we investigate the effect of the level and structure of taxes on the long run rate of economic growth.

We find that, while there is no doubt that tax policy can influence economic choices, it is by no means obvious, on an ex ante basis, that tax rate cuts will ultimately lead to a larger economy. While the rate cuts would raise the after-tax return to working, saving, and investing, they would also raise the after-tax income people receive from their current level of activities, which lessens their need to work, save, and invest. The first effect normally raises economic activity (through so-called substitution effects), while the second effect normally reduces it (through so-called income effects). In addition, if they are not financed by spending cuts, tax cuts will lead to an increase in federal borrowing, which in turn, will further reduce long-term growth. The historical evidence and simulation analysis is consistent with the idea that tax cuts that are not financed by immediate spending cuts will have little positive impact on growth. On the other hand, tax rate cuts financed by immediate cuts in unproductive spending will raise output.<sup>2</sup>

As a result of the increase in tax rates, it also transfers its interpretation to production and prices. **Such effects on production are analyzed below:**

**Effects on the ability to work, save and invest:**

The increase in tax rates can cause many problems in various ways, particularly in work and saving. In particular, higher taxes can lead to a decrease in taxpayers' incomes and, as a result, their ability to purchase the products they need for their daily need may decrease marginally. However, this happens in the case of poor persons.

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<sup>2</sup> Effects of Income Tax Changes on Economic Growth

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Taxation on rich persons has the least effect on the efficiency and ability to work. Not all taxes, however, have adverse effects on the ability to work. There are some harmful goods, such as cigarettes, whose consumption has to be reduced to increase ability to work. That is why high rate of taxes are often imposed on such harmful goods to curb their consumption. But all taxes adversely affect ability to save. Since rich people save more than the poor, progressive rate of taxation reduces savings potentiality. This means low level of investment. Lower rate of investment has a dampening effect on economic growth of a country. But if taxes are expected to continue in future, it will reduce the willingness to work and save of the taxpayers.<sup>3</sup>

In addition, high tax rates create many problems for the investment coming from many foreign investors, for example, a high tax burden causes a decrease in investment potential, and as a result, the amount of investment coming to the state begins to decrease. In fact, one of the most important factors that ensure the economic growth of the country is investment, because foreign currency and production are created through the investment that comes to the country. This means that long-term investments will increase labor force creation and employment indicators in the country.

## II. Framework

### *A. Reductions in income tax rates<sup>4</sup>*

Reductions in income tax rates affect the behavior of individuals and businesses through both income and substitution effects. The positive effects of tax rate cuts on the size of the economy arise because lower tax rates raise the after-tax reward to working, saving, and investing. These higher after-tax rewards induce more work effort, saving, and investment through substitution effects. This is typically the “intended” effect of tax cuts on the size of the economy. Another positive effect of pure rate cuts is that they reduce the value of existing tax distortions and induce an efficiency-improving shift in the composition of economic activity (even holding the level of economic activity constant) away from currently tax-favored sectors, such as health and housing. But pure rate cuts may also provide positive income (or wealth) effects, which reduce the need to work, save, and invest. An across-the-board cut in income tax rates, for example, incorporates all of these effects.

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<sup>3</sup> <https://www.economicdiscussion.net/government/taxation/economic-effects-of-taxation-top-6-effects/17454>

<sup>4</sup> Gravelle (2014) provides extensive discussion of the channels through which tax changes affect economic growth, revenues, and other factors.

It raises the marginal return to work—increasing labor supply through the substitution effect. It reduces the value of existing tax subsidies and thus would likely alter the composition of economic activity. It also raises a household's after-tax income at every level of labor supply, which in turn, reduces labor supply through the income effect. The net effect on labor supply is ambiguous. Similar effects also apply to the impact of tax rate cuts on saving and other activities. The initial tax rate will affect the impact of a tax cut of a given size. For example, if the initial tax rate—on wages, say—is 90 percent, a 10 percentage point reduction in taxes doubles the after-tax wage from 10 percent to 20 percent of the pre-tax wage. If the initial tax rate is 20 percent, however, the same 10 percentage point reduction in taxes only raises the after-tax wage by one eighth, from 80 percent to 90 percent of the pre-tax wage. Although income effects would be the same in the two cases, the substitution effect on labor supply and saving would be larger when tax rates are higher, so that the net gain in labor supply from a tax cut would be larger (or the net loss would be smaller in absolute value) when tax rates are high. In addition, because the economic cost of the tax rises with the square of the tax rate, the efficiency gains from reducing tax rates are larger when tax rates are higher to begin with.

#### *B. Empirical strategy*<sup>5</sup>

To estimate the effect of tax reform on economic growth, we postulate a model specification that includes a number of well-known standard determinants of economic growth - as identified in the economic growth literature - that could affect here the effect of tax reform on economic growth - along with the tax reform indicator, which we describe below. The standard determinants of economic growth considered include: the gross fixed capital formation as a share of GDP (which measures the level of domestic investment), denoted "GFCF"; the human capital accumulation (proxied by the average education level), denoted "EDU"; the inflation rate, denoted "INFL"; the financial development depth, denoted "FINDEV"; the institutional quality, denoted "POLITY2" and the total population size, denoted "POP".

The model postulated is as follows: <sup>6</sup>

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<sup>5</sup> Tax Reform and Economic Growth in Developing Countries: The Trade Openness and Public Revenue Channels

<sup>6</sup> Gnangnon, S.K. (2019). Tax Reform and Trade Openness in Developing Countries. *Journal of Economic Integration*, 34(3), 498-519.

$$G_{it} = \alpha_0 + \alpha_1 G_{it-1} + \alpha_2 D_{it} + \alpha_3 D_{it}^2 + \alpha_4 D_{it}^3 + \alpha_5 D_{it}^4 + \alpha_6 D_{it}^5 + \alpha_7 D_{it}^6 + \alpha_8 D_{it}^7 + \mu_i + \delta_t + \epsilon_{it} \quad (1)$$

The subscripts *i* and *t* indicate respectively the country and the time-period. To estimate model (1), we use an unbalanced panel dataset containing 92 developing countries over the period 1980-2015, selected on the basis of data availability. In particular, we consider as developing countries those not classified as High-Income Countries by the World Bank. We have also followed the practice in the empirical literature to dampen the effect of business cycles on variables by using non-overlapping sub-periods of 5-year average data. The sub-periods include 1980-1984; 1985-1989; 1990-1994; 1995-1999; 2000-2004; 2005-2009 and 2010-2015.  $\alpha_0$  to  $\alpha_8$  are parameters to be estimated.  $\mu_i$  are countries' time invariant fixed effects;  $\delta_t$  are time dummies capturing shocks that affect together all countries' economic growth patterns.  $\epsilon_{it}$  is a well-behaving error term. The dependent variable "GROWTH" is the real economic growth rate (constant 2010 US\$ prices). The one-period lag of the dependent variable has been introduced in model (1) as a righthand side regressor in order to capture the state-dependence path of economic growth as well as to control for possible omitted variables in the model specification. The key variable of interest in the analysis is the tax reform indicator. Following Gnanon (2019), Gnanon and Brun (2019a, 2019b), our indicator of tax reform reflects the convergence of the tax structure of a given developing country towards the developed countries' tax structure. It has been computed using the semi-metric Bray-Curtis dissimilarity index (Bray & Curtis, 1957) as follows:

$$D_{it} = \frac{|DIRTAX_{it} - DIRTAX_{ave}| + |INDIRTAX_{it} - INDIRTAX_{ave}| + |TRTAX_{it} - TRTAX_{ave}|}{(DIRTAX_{it} + DIRTAX_{ave}) + (INDIRTAX_{it} + INDIRTAX_{ave}) + (TRTAX_{it} + TRTAX_{ave})} \quad (2)$$

(2), where *dit* represents the dissimilarity index between a given developing country's tax structure (for a given year) and the tax structure of developed countries. DIRTAX, INDIRTAX, and TRTAX stand respectively for the direct tax revenue ratio, the indirect tax revenue ratio, and the trade tax revenue ratio for a given developing country in a year *t*. For developed countries, DIRTAX<sub>ave</sub>, INDIRTAX<sub>ave</sub>, and TRTAX<sub>ave</sub> are respectively the average (over all developed countries, in a given year) of the direct tax revenue ratio; the indirect tax revenue ratio; and the trade tax revenue ratio. For each of these tax revenue

<sup>7</sup> Gnanon, S.K. (2019). Tax Reform and Trade Openness in Developing Countries. *Journal of Economic Integration*, 34(3), 498-519.

variables, we have excluded the natural resource revenue components<sup>8</sup> (for further details, see Gnanon, 2019, Gnanon and Brun, 2019a, 2019b). The indicator of tax reform for a given developing country in a given year, is defined as  $TIR_{it} = (1 - \tau_{it}) \times 100$ . Its values range between 0 and 100, with a rise in these values reflecting greater tax structure convergence, i.e., greater extent of tax reform. Inversely, lower values of this index reflect a lower extent of tax reform, that is, a divergence between the tax structure of developing countries and the tax structure of developed countries. Note that as we are testing the effect of tax reform on economic growth through trade openness and public revenue, these two variables have not been included in the baseline model<sup>9</sup>(1). Appendix 1 describes all other variables used in the analysis, and Appendix 2 reports descriptive statistics on these variables, and Appendix 3 lists countries used in the analysis.

### C. Historical Trends<sup>10</sup>

U.S. historical data show huge shifts in taxes with virtually no observable shift in growth rates. From 1870 to 1912, the U. S. had no income tax, and tax revenues were just 3 percent of GDP. From 1913 to 1946, the economy experienced an especially volatile period, including two World Wars and the Great Depression, along with the introduction of the income and payroll taxes and expansion of estate and corporate taxes. By 1947, the economy had entered a new period with permanently higher taxes and government spending. From 1947 to 2000, the highest marginal income tax rate averaged 66 percent, and federal revenues averaged about 18 percent of GDP (Gale and Potter 2002). In addition, estate and corporate taxes were imposed at high marginal rates and state-level taxes rose significantly over earlier levels. The vast differences between taxes before 1913 and after World War II can therefore provide at least a first-order sense of the importance tax policy on growth. However, the growth rate of real GDP per capita was identical – 2.2 percent – in the 1870-1912 period and between 1947 and 1999 (Gale and Potter 2002). More formally, Stokey and Rebelo (1995) look at the significant increase in income tax rates during World War II and its effect on the growth rate of per capita

<sup>8</sup> Gnanon, S.K., and Brun, J-F. (2019a). Trade openness, tax reform and tax revenue in developing countries.

The World Economy, <https://onlinelibrary.wiley.com/doi/full/10.1111/twec.12858>

<sup>9</sup> Gnanon, S.K., and Brun, J-F. (2019b). Tax Reform and Public Revenue Instability in Developing Countries: Does the Volatility of Development Aid Matter? Journal of International Development

<sup>10</sup> Effects of Income Tax Changes on Economic Growth William G. Gale, The Brookings Institution and Tax Policy Center Andrew A. Samwick, Dartmouth College and National Bureau of Economic Research 4/16

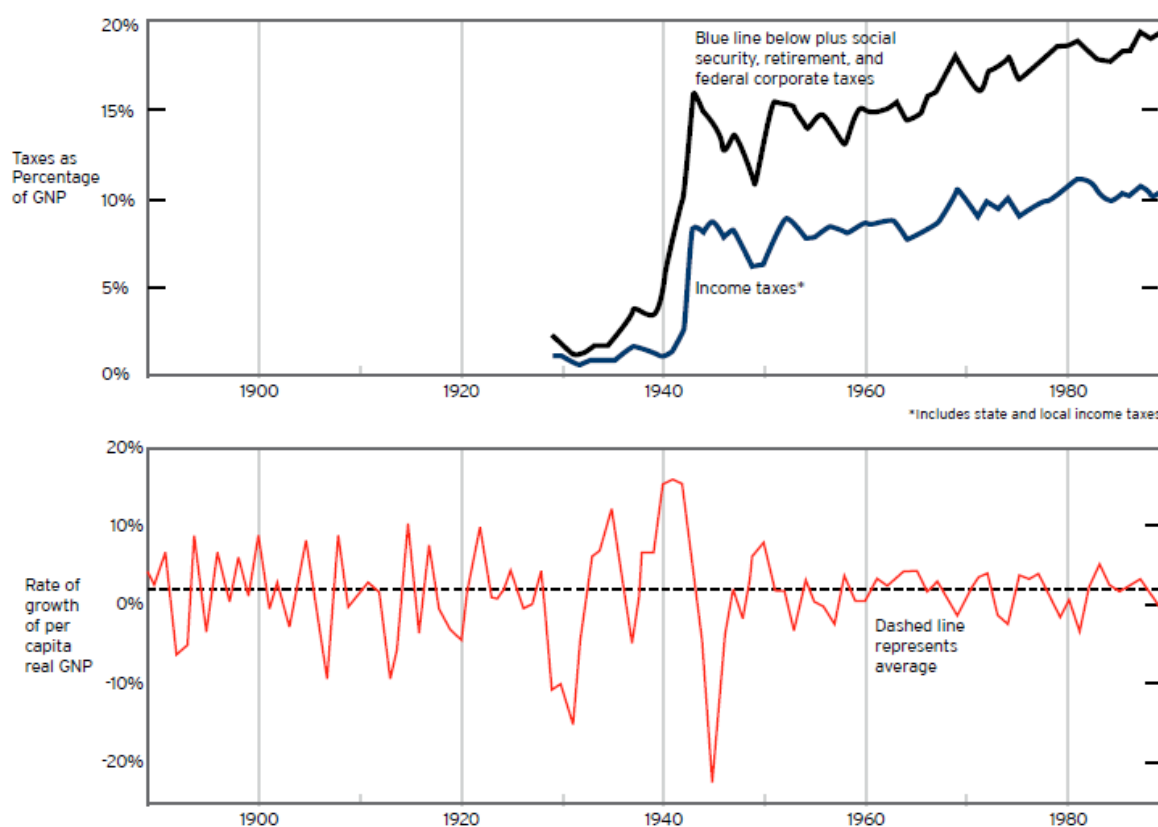
real Gross National Product (GNP). Figure 1 (next page) shows the basic trends they highlight – namely, a massive increase in income tax and overall tax revenues during

World War II that has persisted and since proven to be more or less permanent. There is, as shown in Figure 1, no corresponding break in the growth rate of per capita real GNP before or after World War II (though it is less volatile). A variety of statistical tests confirm formally what Figure 1 shows; namely, the finding that the increase

in tax revenue around World War II had no discernible impact on the long-term per-capita GNP growth rate. The pre- and post-World War II comparisons noted above focus on the growth rate, as opposed to one-time changes in the size of the economy that put the economy on a new growth path even without altering the annual long-term growth rate. GDP growth did spike downward immediately after the war, but that was related to a massive demilitarization effort. Overall, the economy grew massively during World War II (for reasons other than taxes, of course) and then maintained its former growth rate in the relatively-high-tax post-WWII period.

Fig. 1

Taxes as a Share of GNP and Growth of Real GNP per Capita, 1889-1989



Hungerford (2012) plots the annual real per-capita GDP growth rate against the top marginal income tax rate and the top capital gains tax rate from 1945 to 2010 (see Figure 2 next page), a period that spanned wide variation in the

top rate. The fitted values suggest that higher tax rates are not associated with higher or lower real per-capita GDP growth rates to any significant degree. In multivariate regression analysis, neither the top income tax rate nor the top capital gains tax rate has a statistically significant association with the real GDP growth rate. An obvious caveat to this result is that the share of households facing the top rate is generally quite small. However, historically, the highest several marginal tax rates were moved together, so that changes in the top rate per se proxy for changes in a broader set of higher tax rates that do affect many taxpayers. A second caveat is a potential concern about the power of a fairly short time series of annual data to distinguish alternative hypotheses. There are two final concerns regarding the historical record of tax changes and economic growth. First, historical reforms do not represent “pure” textbook tax reform efforts, since they all took place in the real world, subject to the compromises that the political process impose. However, future tax reforms will also be affected by political factors, so the history of reform efforts is relevant. Second, many factors affect economic growth rates. Nonetheless, if taxes were as crucial to growth as is sometimes claimed, the large and permanent historical increases in tax burdens and marginal tax rates that occurred by the 1940s and the historic reduction in marginal tax rates that has occurred since then might be expected to affect the aggregate statistics reflecting the growth rate of the economy.

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