

Impacts of government tax cuts in a closed economy

Jiaqi Long

Lancaster university, Lancaster, UK

j.long3@lancaster.ac.uk

Abstract. Closed economies have been identified as having no real cases of conformity in modern times, mainly because with technological and cultural advances no country can be self-sufficient in obtaining development without trading with other countries, this paper attempts to address the impact of local macroeconomic variables on government tax cuts in a closed economy setting. We find moderate evidence to support this argument. In addition, using Keynesian model theory, four variables in the macroeconomy are examined. Evidence is found to support the qualitative changes produced by these four variables. In addition, the correspondence of a specific set of variable factors is examined. Although it is almost impossible to derive specific effects of these variables when open economies are considered as a whole, considerable commonality is found at the theoretical level. These results have implications for investors as well as governments, as they show that when taxes are reduced, there are simultaneous positive as well as negative effects for the economy, and governments can analyze the data to arrive at a tax value that is most favorable for the country's development.

Keywords: Macroeconomic component; Government Cut Taxes; Closed Economy.

1. Introduction

Due to specific factors such as wars, the world economy is in a significant recession and in order to cope with this, governments have adopted economic policies such as tax cuts, but this has also brought about some negative factors, inflation has two driving factors, one is demand-driven inflation and the other is cost-driven inflation. Demand-pull inflation is the Keynesian theory used in this paper, which states that aggregate demand exceeds aggregate supply, resulting in a general and sustained increase in the price level, i.e. "too much money for too few goods". Cost-push inflation, also known as 'cost inflation' or 'supply inflation', is a generalised and sustained increase in the price level caused by higher supply-side costs in the absence of excess demand. Cost push is the initial driver of price inflation, and expansionary government policies to maintain employment and output targets are necessary to keep price levels up, and cost push inflation is primarily a monetary phenomenon. According to the studies conducted, the tax cuts led to a large number of companies using the excess funds for the following purposes: buying back shares, paying dividends, giving bonuses to employees, increasing benefits, increasing wages, returning bank loans, etc. The tax cut had little stimulating effect on investment as shareholders and management of large and small firms were more concerned in detail with the financial structure of the business and labour welfare. Tax cuts help to bring the economy out of recession, and in the current situation of growing inflation, tax cuts are a positive decision for the people to fight inflation and for the economy to come out of the downturn. Inflation doesn't just change the nominal price of goods alone; the biggest damage it does to the economy is the redistribution it causes. Those on fixed incomes receive the negative effects of this policy. With soaring prices, people's wages do not go up and, relatively speaking, their real incomes are reduced. Although people are unable to increase their wages any time soon, the government is able to make concessions, pay less tax and people's incomes are boosted, to some extent, offsetting the wage grabbing by inflation. Tax cuts for businesses reduce production costs, and with more money available, businesses can properly raise wages for their workers, increasing their purchasing power. Many studies have shown that there is a relationship between macroeconomic variables and taxes. In addition, studies on multifactor models often include taxes as an explanatory factor for changes in macroeconomic variables. This paper does so by considering the relationship in the context of closed economies. Interest in macroeconomics has grown considerably as economic knowledge

has become widespread. Fully closed economies have characteristics that distinguish them from other economies. It implies that a country as a whole is self-sufficient and does not have trade relations with other countries. In addition, closed economies seem to be more predictable in terms of achievable analysis than open economies and exhibit a stronger mean, i.e., a higher degree of autocorrelation. There is evidence that government taxes are inextricably linked to macroeconomics.

This paper is innovative in that it incorporates the modern context of a recession and uses the Keynesian model to explain the impact of government tax cuts, or expansionary fiscal policy, which is more appropriate than using the mainstream neoclassical model assumptions, which are actually less in line with the contemporary current situation, and using the Keynesian model, which was created in the context of a depression, to better match the underlying reality.

In this paper, we examine two questions. First, the paper investigates the extent to which some key macroeconomic variables can respond to government tax cuts. The paper first investigates a specific set of economic models and finds that tax cuts are significantly associated for the aggregate demand curve as well as for overall prices. Second, the extent to which these variables change together under open and closed economies, respectively, is examined. For this purpose, the aggregate supply and aggregate demand curves from the Keynesian model theory are used. The results show a significant commonality. The paper is organized as follows. Section 2 discusses the impact of macroeconomic factors in both contexts. Section 3 discusses the changes in these variables under the Keynesian model. Section 4 analyzes the shortcomings and Section 5 concludes the paper.

2. Literature Review

2.1 Cut Tax

The macroeconomic effects of government tax cuts are both positive and negative, and economists have not identified a clear theoretical model to assess the macroeconomic impact of changes in government taxes. Barro & Redlick(2011) emphasizes that, on a household basis, changes in marginal income tax rates are negative for high-income spouses and positive for low-income spouses, due to the fact that low-income spouses are typically less dependent on the labor market[2]. HEINEMANN et al.(2010) discusses the forms of competition that lead to tax policy, but this is in an overall environment that is by default an open economy, where capital flows and profit flows are competing as standard[5]. Thus, tax policy decisions in one country trigger reactions in other countries. An important policy issue is how high the tax rate can be and how broad the tax base needs to be, depending critically on how the taxpayer community responds to tax changes. Waseem (2020) finds that in the short run, government tax cuts increase the national purchase rate because as a direct result of citizens paying less taxes, they hold more liquidity, which increases their desire to buy, i.e., increases aggregate national demand[9]. Empirical evidence suggests that tax policy has a negative impact on aggregate capital formation and according to this literature, governments reduce the effective corporate tax burden in order to promote investment and thus encourage growth and employment(Maffini, 2013)[6].

2.2 Closed economy

Dąbrowski et al.(2020) discuss that the macroeconomic analysis of any country that advocates disregarding currency exchange rates is singular, that is, the loss of trade under a closed economy implies fewer variables to consider. But using a closed economy model allows us to calculate the specific impact of government tax cuts on the macroeconomy, there are no cases that can draw accurate analytical conclusions about the impact on the economy under an open economy [3]. Rudolph(2009) argues that people may sacrifice their principles to support the proposed tax cuts, which implies that they expect some kind of sacrifice in return. The most likely inducement is the prospect of economic gains for themselves or for the country as a whole[9]. The rise in aggregate domestic consumption in the context of higher aggregate economic demand leads people to temporarily ignore the fact that even if the tax cut leads to a change in government spending, the

quantity and quality of social welfare will be much worse than before. In a closed economy, the monetary authority should respond positively to inflation and the fiscal authority should respond to public debt. The main concern of the monetary authorities should be inflationary stability rather than the real economy. The rigidity of the labour market provides a further argument for fiscal radicalism. All this means that, under the optimisation rule, the ultimate change in fiscal policy instruments depends on two objectives: reducing public debt and stimulating the economy, applying in particular to all-time labour taxes and medium- and long-term capital taxes (Philippopoulos et al., 2015) [7].

2.3 Macroeconomic component

Macroeconomic variables are mainly real economic activity, money supply, inflation, long-term and short-term interest rates, and foreign exchange rates. Ratanapakorn & Sharma (2007) found no fully closed economic examples to analyze in the recent past. But going back a few decades, perhaps we can take the case of North Korea as a closed economy [8]. Government tax cuts may exacerbate income imbalances. This is because high-income people need to pay far less in taxes than low-income people because they already pay a larger amount of taxes. As inequality increases, the share of consumption relative to disposable income does not become as small as expected. Barba & Pivetti, (2008) argue that all else being equal, the rise in the household savings rate outweighs the increase in the consumer credit channel because the increase in long-run aggregate income is concentrated in the upper part of the income distribution. Increase in the overall price level due to tax cuts [1]. De Loecker et al. (2020) analyzes whether the increase in markups is solely due to an increase in indirect costs. Firms do not just charge higher prices to compensate for higher overhead costs, they also make higher profits [4]. As economic activity is reallocated toward higher-margin firms, the decline in the labor share of the economy as a whole is driven primarily by large, higher-margin firms with lower labor shares. Market forces act as a common cause to determine the expansion of firm size and the reduction of labor share.

3. Method

This paper will analyze impacts on the basis of the assumptions of the Keynesian model, which has its complex and deep economic roots. It is a direct product of the Great Depression of the 1930s. Faced with the unprecedented serious crisis and unemployment, the ruling class no longer appreciated the traditional economics that denied the possibility of crisis and unemployment, but hoped for the emergence of a new economics that recognized crisis and unemployment, and Keynesian economics was precisely in such a new economics that met the wishes of the ruling class and the ruling group, and it was the inevitable product of state monopoly capitalism. Before Keynesian economics arose and spread, the dominant economics was some traditional economics. Keynes also grew up under the inculcation of neoclassical economics. Keynesian economics criticized the employment theory within neoclassical economics and formed an independent set of objective economic analysis theory. 1. IS-LM general equilibrium model

In the commodity market, investment I is a function of interest rate r , and I decreases with r . Savings S is a function of income Y , S is an increasing function of Y . Combining $I=I(r)$ and $S=S(Y)$ gives another relationship between income and interest rate, forming the IS curve. $i(r)=S(Y)$ In the money market, the nominal money supply is M and the money demand is $L=L(r,Y)$.

The intersection of the IS-LM curves determines the equilibrium combination of income and interest that changes with the movement of either or both curves. Shifts in the IS curve result from changes in demand, especially investment demand. The effect of simultaneous shifts in the IS and LM curves on market equilibrium. When the LM curve is constant, the IS curve shifts to the right, income increases, and interest rates rise. when the IS curve is constant, the LM curve shifts to the right, income increases, and interest rates fall. If the IS and LM curves move to the right at the same time, as long as they are properly matched, the result is that income increases and interest rates remain unchanged.

3.1 Aggregate Demand Curve

$$I(r) = S(Y) \quad (1)$$

$$\frac{M}{P} = L(r, Y) \quad (2)$$

$$Y = F(P) \quad (3)$$

In equation(1), I is the investment while s is savings. In equation(2), M is the real money, P is price and L is the labour demand. In equation(3), Y is income and P is price. The equilibrium condition of the commodity market is: $I(r)=S(Y)$, and the equilibrium condition of the money market is: $M/P=L(r,Y)$, out of the relationship between aggregate demand Y and price P : $Y=F(P)$ The formula is the formula of the aggregate demand curve of Keynesian model. The aggregate demand curve AD shows that under the condition of simultaneous equilibrium in the commodity and money markets, the price level moves in the opposite direction of total income (or total output).

3.2 Aggregate supply curve

The aggregate supply curve AS is a horizontal line that represents the relationship between price and output before full employment is reached, and a vertical line that describes the relationship between price and output after full employment is reached.

4. Basic analysis

Tax cuts will lead to an increase in aggregate demand, which will lead to an increase in output and an increase in the price level. However, investment will not increase because money wages are rigid and do not adjust to changes in the price level. This means that a tax cut will lead to a decrease in real wages. Since the money wage rate is equal to the real wage rate divided by prices and is rigid, an increase in the price level implies a decrease in the real wage. Therefore, a tax cut will lead to an increase in output because it will put more money into the hands of consumers, leading to an increase in aggregate demand. This will lead to higher prices because firms will respond to the increase in demand by raising prices. If money wages are rigid, then this will lead to an increase in unemployment because firms will not be able to increase wages to match the increase in prices.

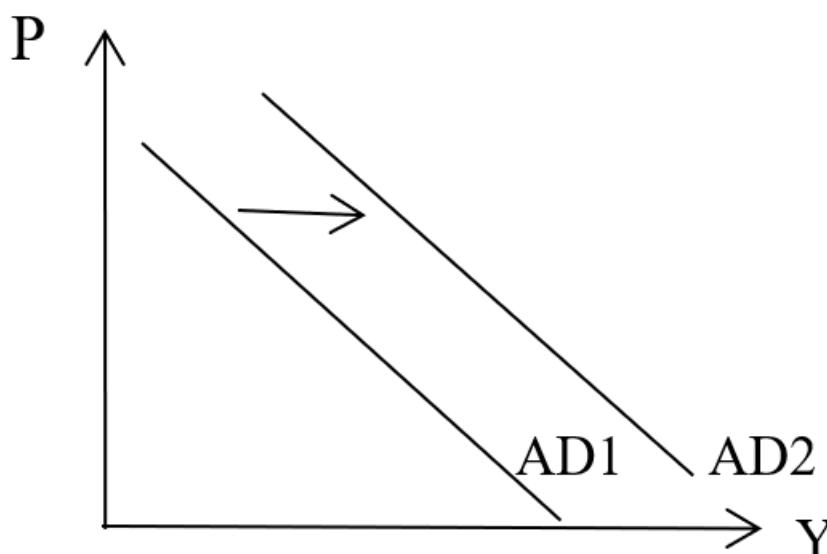


Figure 1 aggregate demand curve

Under the Keynesian model, the overall economic framework is $Y=C+I+G$, since the government tax cut gives people more liquidity, people's desire to consume rises, and increased consumption means increased overall output.

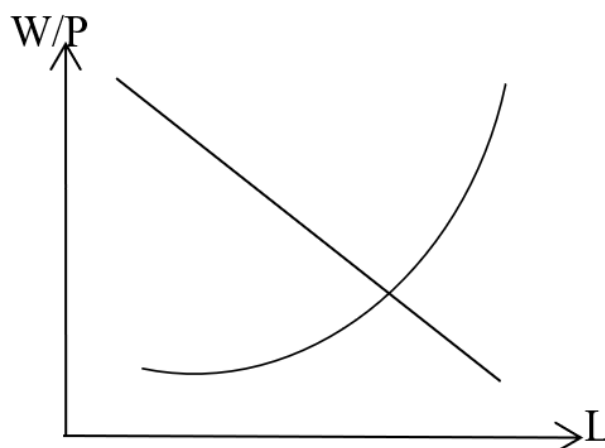


Figure 2 real price curve

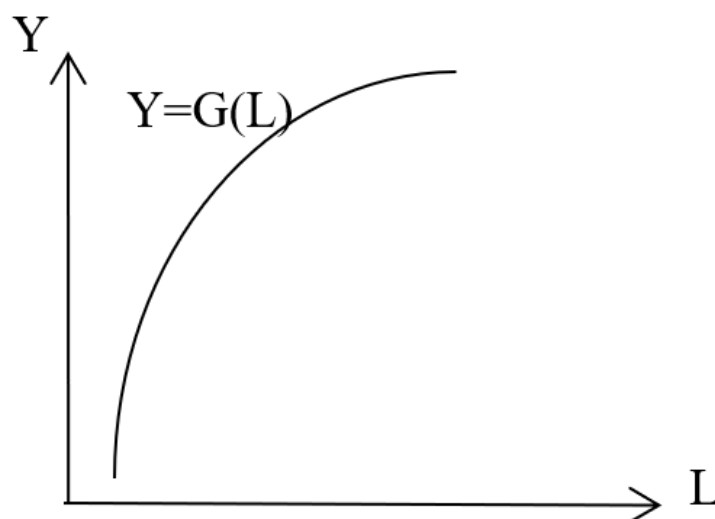


Figure 3 income curve

Assume that total output is only related to the L , since real wage equal to money wage over price, with the increase of price, real wage falls.

5. Limitations and Future Outlook

Most of the conclusions of the analysis in this paper are drawn under the assumption of closed economies, but since there are no actual cases of closed economy countries in recent societies for us to analyze, even though I have also analyzed that there is some consistency in the changes of these variables under two economies, this may still lead to some conclusions that are different from reality, and in the future, if there are real closed economy countries, I will conduct this part of the analysis to make this more in line with reality.

In addition, the model relies on previous literature studies as well as almost purely theoretical analysis without a lot of data support, but in the future I will introduce more complex model data to support my conclusions.

6. Conclusion

A number of studies have found a relationship between macroeconomic variables and taxation. This paper extends this literature by considering the relationship in the context of closed economy

markets. This paper utilizes a Keynesian economic model, which includes aggregate supply and aggregate demand curves as well as IS-LM curves, and therefore analyzes the changes in some of the main macroeconomic variables. The factors analyzed in this paper are represented by a set of macroeconomic variables. The variables used are commodity prices, real activity and investment. Some evidence shows that the association of these variables with tax cuts is significant and that the Keynesian model has a stronger explanatory power when more variables are taken into account, thus being able to explain changes in returns in closed and open economies.

The paper then examines the change in response to tax reduction generated by this set of variables. The principal components are extracted and the returns of each economy are analyzed with respect to each variable. The results show that the variables for closed economies do have more stable changes.

References

- [1] Barba, A., & Pivetti, M. (2008, August 5). Shibboleth Authentication Request. Retrieved September 19, 2022, from login.ezproxy.lancs.ac.uk website: <https://academic-oup-com.ezproxy.lancs.ac.uk/cje/article/33/1/113/1700026>
- [2] Barro, R. J., & Redlick, C. J. (2011, February 1). Macroeconomic Effects From Government Purchases and Taxes.
- [3] Dąbrowski, M. A., Papież, M., & Śmiech, S. (2020). Classifying de facto exchange rate regimes of financially open and closed economies: A statistical approach. *The Journal of International Trade & Economic Development*, 29(7), 821–849. <https://doi.org/10.1080/09638199.2020.1748692>
- [4] De Loecker, J., Eeckhout, J., & Unger, G. (2020, January 23). Shibboleth Authentication Request. Retrieved September 19, 2022, from login.ezproxy.lancs.ac.uk website: <https://academic-oup-com.ezproxy.lancs.ac.uk/qje/article/135/2/561/5714769>
- [5] HEINEMANN, F., OVERESCH, M., & RINCKE, J. (2010). RATE-CUTTING TAX REFORMS AND CORPORATE TAX COMPETITION IN EUROPE. *Economics & Politics*, 22(3), 498–518. <https://doi.org/10.1111/j.1468-0343.2010.00375.x>
- [6] Maffini, G. (2013). Corporate tax policy under the Labour government, 1997-2010. *Oxford Review of Economic Policy*, 29(1), 142–164. <https://doi.org/10.1093/oxrep/grt010>
- [7] Philippopoulos, A., Varthalitis, P., & Vassilatos, V. (2015). Optimal fiscal and monetary policy action in a closed economy. *Economic Modelling*, 48, 175–188. <https://doi.org/10.1016/j.econmod.2014.10.045>
- [8] Ratanapakorn, O., & Sharma, S. C. (2007). Dynamic analysis between the US stock returns and the macroeconomic variables. *Applied Financial Economics*, 17(5), 369–377. <https://doi.org/10.1080/09603100600638944>
- [9] Rudolph, T. J. (2009). Political Trust, Ideology, and Public Support for Tax Cuts. *Public Opinion Quarterly*, 73(1), 144–158. <https://doi.org/10.1093/poq/nfp012>
- [10] Waseem, M. (2020, July). Shibboleth Authentication Request. Retrieved September 19, 2022, from login.ezproxy.lancs.ac.uk website: <https://direct-mit-edu.ezproxy.lancs.ac.uk/rest/article/102/3/426/96777/Does-Cutting-the-Tax-Rate-to-Zero-Induce-Behavior>