Non-Keynesian Fiscal Policy effects

Name: Bart Paulusma

Student number: 283276

Emailadress: BartPaulusma@planet.nl or 283276bp@eur.nl

Master Programme: International Economics

Thesis: Master

TABLE OF CONTENTS

5   Overall Conclusion

6   Methodology

7   Results

8   Conclusion

1: Introduction

The first and widely accepted Theories contemplating the consequences regarding to Fiscal Policy were developed by David Ricardo and John Maynard Keynes. On the one hand, David Ricardo's Theory, known as Ricardian Equivalence, debates Fiscal Policy will never affect the economy along with private consumption since Government expenditures are considered to be constant over time. So, any imbalances observed with respect to public spending and taxes are cancelled out in the future which basically means that economic agents do not respond to fluctuations regarding to Fiscal Policy. On the other hand, John Maynard Keynes and his disciples argued that Fiscal Policy and National income are positively correlated due to its effects on disposable income which in turn affects private consumption affirmatively. If, for example, taxes increase, disposable income (Y-T) will go down which forces current private consumption to dilute. However, some other Theorists claim incompatible effects with respect to Fiscal Policy which are mainly based on real life experiences. Moreover, these Theorists suggest economic agents to model expectations concerning future Fiscal Policy which will inflict current private consumption to respond negatively relative to Fiscal Policy. If, for instance, current public spending plummets, economic agents do anticipate a Federal tax reduction in the future which will cause current private consumption to soar. Furthermore, this phenomena refers to the forward-looking aspect among economic agents. Nevertheless, whether this aspect could be applied highly depends on certain circumstances regarding to Fiscal Policy.

Giavazzi and Pagano (1995) defined three particular cases in which Fiscal Policy appears to inflict ''Non-Keynesian'' outcomes. Moreover, Ireland (1987-1989) and Denmark (1983-1986) experienced significant benefits due to Fiscal contraction whereas Sweden (1990-1994) suffered large losses as a result of Fiscal expansion. First of all, I would like to mention that private consumption with respect to all three countries appear to act conflicting which was not expected by the Government. Giavazzi and Pagano (1990,1995) attempted to clarify this phenomena. Moreover, they mentioned in one of their papers the ''expectations'' view which is also known in Europe as the "German view''. They argued that Fiscal contraction reveals positive expectations about future Fiscal Policy which will be answered properly by current private consumption whereas Fiscal expansion evokes negative expectations concerning future Fiscal Policy which will harm current private consumption. Nevertheless,

Fiscal Policy has to match several criterions whether "Non-Keynesian" results are likely to occur. Furthermore, a signal referring to favorable changes with respect to future Fiscal Policy has to be credible. Whether credibility could be realized highly depends on persistency which is affected by the initial level of debt and an adequate magnitude regarding to Fiscal Policy. Clearly, the Government has somehow to shift their Fiscal Policy in a manner that economic agents will perceive adjustments to be everlasting. Otherwise, economic agents will not respond if they do simply not believe Fiscal Policy modifications to be persistent. In spite of this, the Government is able to foster persistency easily. Firstly, as was described by Alesina and Perotti (1995), different components regarding Fiscal Policy possess contrasting characteristics. For instance, Government employment and transfers seem to feature permanence whereas maintenance of public infrastructure gives the impression of being transitory. Secondly, also the initial level of debt could contribute because, the higher the level of debt, the more economic agents will believe the Government to modify Fiscal Policy permanently. Moreover, current private consumption will also be boosted due to the interest rate which will drop down. Finally, the magnitude could be beneficial to persistency. Namely, economic agents will be more convinced when Fiscal Policy suffers major modifications instead of small alterations.

The main goal of my Thesis is to explore whether "Non-Keynesian" Fiscal Policy effects do emerge. In order to do so, I firstly elaborate three Theories reflecting distinctive outcomes concerning Fiscal Policy which is considered to be the theoretical part of my Thesis. Namely, the "Keynesian" revolution, Ricardian Equivalence and "Non-Keynesian" Fiscal Policy effects. The empirical section illustrates five economically developed countries which were investigated on yearly basis. Moreover, the correlation between private consumption and several Fiscal Policy components was analyzed whereupon the results were submitted to the theories which were introduced in the first segment of my Thesis.

The results I retrieved were mingled in a sense that each theory mentioned in my thesis is applicable to any of the countries. If I, on the one hand, consider Government expenditure, three countries (USA, UK and France) seem to possess the forward-looking aspect whereas the Netherlands (Keynesian) and Germany (Ricardian Equivalence) appear to act differently. Especially, the forward-looking aspect divulges some interesting characteristics regarding to people of a particular country because, the forward-looking aspect implies that people tend

to smooth consumption over their life time. If I, on the other hand, evaluate taxes, all but one country (UK) seem to pursue Ricardian Equivalence which indicates taxes to be transitory over time. So, tax modifications seem not to be a solid instrument whenever the Government wishes to affect the national economy.

My Thesis is structured as follows. The first (theoretical) part of my thesis consists of the first four sections. The first section discusses the ''Keynesian'' revolution, while the second and third section cover Ricardian Equivalence and ''Non-Keynesian'' Fiscal Policy effects respectively. Section four concludes the theoretical part in which the former sections are summarized. The second (empirical) part comprises sections five and six. Section five clarifies the methods I used in order to obtain results whereas section six displays my results. My thesis ends up with the conclusion in which my results are specified and interpreted.

2. Keynesian Revolution

2.1 Introduction

Many different theories about the Budget Balance have been written. Early theories about Fiscal Policy were developed by John Maynard Keynes, known as the 'Keynesian Revolution'. Keynes focuses on the demand side of the economy which has its impact in the goods market and the money market. Sticky prices are assumed in an economy where output is demand determined. An equilibrium model was constructed which displays correlations between the level of output (Y) and several exogenous variables which also affect the 'Keynesian' interest rate in the short term. The 'Keynesian' interest rate reflects equilibrium in the money market. Hicks converted this model into an IS-LM analysis. The diagram shows us how output and the 'Keynesian' interest rate will respond as a result of modifications in exogenous variables in the short run.

Exogenous variables, for instance, include Government expenditures (G) and Lump-Sum Taxes (T). These exogenous variables are controlled by the Government in order to use them as a Fiscal Policy instrument. As described in Burda & Wyplosz (2001) Fiscal Policy manipulates government expenditures or taxes in an attempt to affect the volume of national spending which naturally affects national income (Y).

Burda & Wyplosz (2001) argue that Fiscal Policy has got different outcomes. Output will respond differently considering different economic environments. In order to explain effects on output as a result of Fiscal Policy I will use the IS-LM framework as benchmark.

In the first section the IS-LM framework will briefly be explained. The basics of the model along with some assumptions will be clarified. In the second section I explore the consequences of modifications in Government expenditures and Taxes analyzing a closed-economy. The third section analyses a certain European country which is considered to be a small open-economy. A small open-economy allows for exports and imports entering the country. Also free capital mobility is considered a key issue in a small open economy. The Mundell-Fleming model which is an extension of the IS-LM model will help me to clarify whether Fiscal Policy is effective under the assumption of free capital mobility. In the last section I will summarize the economic consequences of Fiscal Policy.

2.2 The IS-LM framework

2.2A The IS-curve

First of all, I need to mention some assumptions in order to explain the IS-curve.

1: Private consumption is positively related to disposable income. Disposable income stands for the difference between National income (Y) and lump-sum Taxes (T). The higher disposable income, the higher private consumption consumed by individuals.

2: Investment is negatively related to the nominal 'Keynesian' interest rate. When the nominal interest rate increases, investment will decline as a result of higher opportunity costs.

3: Fiscal expansion allows for either augmented Government expenditures or a reduction in Lump-Sum taxes (T). Fiscal contraction considers either cuts in Government expenditure or Lump-Sum increases.

4: For simplicity I consider a closed economy model in order to clarify the IS-LM framework.

The IS-curve embodies the goods market of an economy. When supply and demand for output match, the goods market is in equilibrium. The goods market consists of consumption- and investment goods demanded by individuals, the Government and firms. This is known as the aggregate demand of the economy. The supply side is realized by firms who produce the demand for goods.
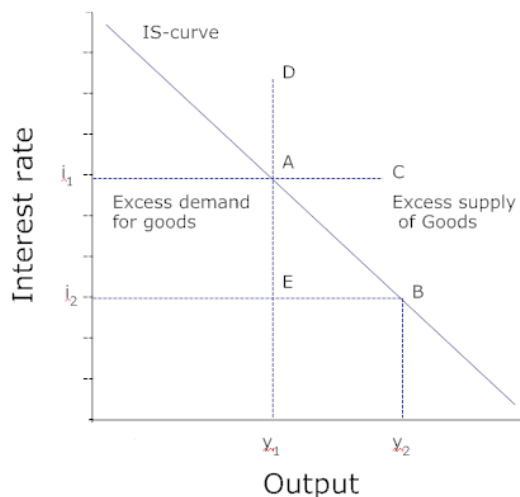

Figure 1: **The IS-curve**

As can be seen in the graph the IS-curve depicts every possible equilibrium for several values of the nominal interest rate and output. The level of output is negatively related with the nominal interest rate, which can be explained as follows:'' Investment becomes more attractive when the nominal interest rate declines. Consequently, demand for investment goods will rise. So, the IS-curve is negatively sloped. Market disequilibrium occurs at all points which are off the IS-curve. Points D and C comprise excess supply of goods. Point D represents a positive modification in the nominal interest rate holding output constant. A higher nominal interest rate implies reduction in demand for investment goods. In order to restore equilibrium, supply must adapt. Otherwise, supply exceeds demand as is the case in point D. Point C suggests a higher level of income holding nominal interest rates constant. A higher income indicates extensive demand, but demand increases disproportionally with income. John J. Seater (1993) mentioned the permanent income/life cycle hypothesis which assumes consumption smoothing by individuals over time. For instance, if a positive fluctuation in income occurs, individuals will save a certain amount of income in order to settle for negative income fluctuations which may occur in the future. So, individuals smooth their consumption over time in order to consume the same number of goods their entire life-time period. The economy incurs an excess supply of goods in point C. The equilibrium is restored when supply of goods is restricted. Point E displays a situation where supply is exceeded by demand, holding the nominal interest rate constant. The difference between B and E represents excess demand for goods. Point E depicts the supply of goods while Point B elaborates the demand for goods. Equilibrium will be restored either when supply is expanded or the nominal interest rate is soared.

2.2B The LM-curve

The LM-curve represents a combination of nominal interest rates (i) and output (Y) when the money market is in equilibrium. In order to explain the LM-curve I will firstly describe the money market.
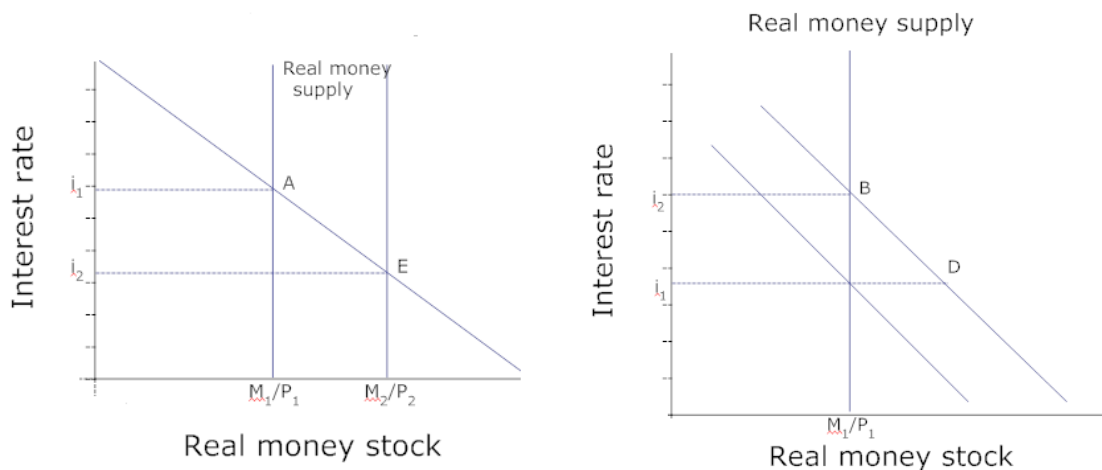
Figure 2: **The money market**

The graphs display equilibrium in the money market when demand for- and supply of money intersect. The real money supply (denoted as M/P) is exogenously given and does not correspond to the level of the nominal interest rate. The corresponding nominal interest rate, which acts as the price of money, either soars or plummets if a modification in either supply of- or demand for money occurs. In addition, the nominal money supply (M) is controlled by the Central Bank. Exogenous nominal money supply (M) enables the Central Bank to manipulate the nominal interest rate. For instance, augmentation of the nominal money supply (M) (M/P goes up) inflicts a fall in the nominal interest rate (point E). Demand for money is negatively related to the nominal interest rate which means, the lower the price (nominal interest rate) of money the higher the demand for money. An upward shift in the demand for money curve implies extended demand for money at every nominal interest rate. If the nominal interest rate does not alter demand for money will exceed the supply of money. Excess demand for money is illustrated in point D. At Point D, the money market

observes disequilibrium. In order to restore equilibrium in the money market the nominal interest rate must go up. This is illustrated in point B.

Consider the following graph:
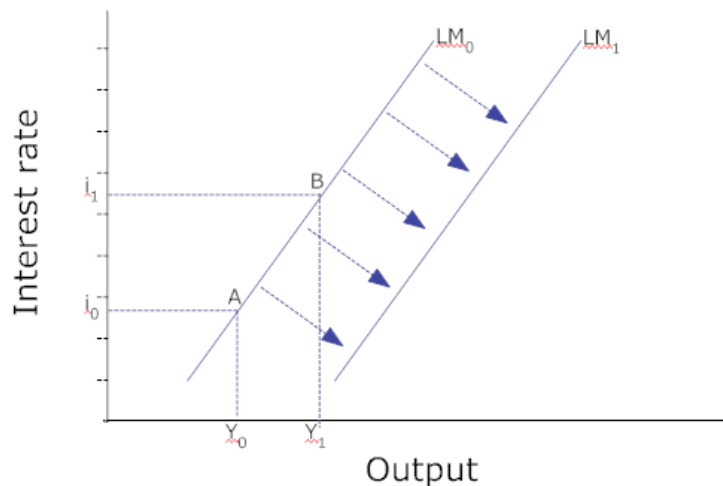
The graph above exhibits a positive relation between output and the nominal interest rate. The level of the nominal interest rate (i) corresponds to money market equilibrium. This can be explained as follows:'' If income (Y) goes up, more money is demanded in order to finance additional purchases inflicting an upward shift in the demand for money curve which reflects an increase in the nominal interest rate''. Basically, the demand for money is positively related to the level of economic activity (Y). In addition, demand for money is endogenously reflected in this diagram. Any changes in the demand for money result in higher interest rates which is incorporated in the LM-curve. The real supply of money (M/P) is exogenously given which means a modification in the real money supply (M/P) causes a shift of the LM-curve rather than along the LM-curve. If, for instance, the Central Bank is increasing the level of money supply (M), this will cause lower nominal interest rates and higher demand for money. So, the Real money stock accumulates. An increase in real supply of- and demand for money implies higher demand for goods which will be supplied by firms. As a result, the LM-curve shifts rightwards considering a lower nominal interest rate (i) and extended national income (Y). Basically, at any given level of output, the interest rate will exhibit lower values.
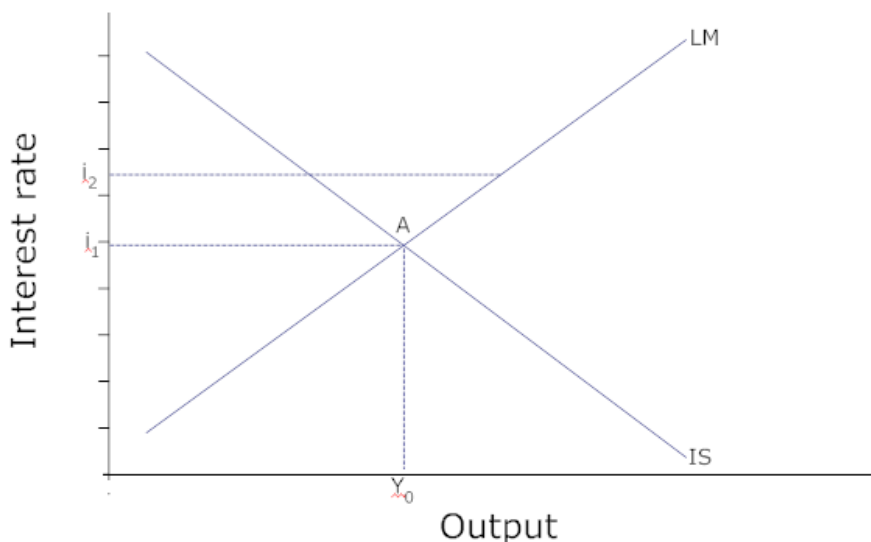
Figure 4: **Equilibrium in the economy**.

The graph above displays equilibrium (point A) in both the goods- and money market. This intersection is known as the general equilibrium. The level of output represents the total demand for goods, supplied by firms, which imposes the same level of money demand in order to manage transactions for the purchase of goods. The corresponding nominal interest rate is determined by the intersection of both markets. Only one equilibrium is possible in this diagram. Consider, for instance, the higher nominal interest rate (i_2). At this level the demand for money exceeds the demand for goods. In order to restore equilibrium, money demand must decline which results in a decrease in the nominal interest rate. The lower the nominal interest rate becomes, the higher output will be. This process will continue until the nominal interest rate approaches equilibrium level.

2.3 Fiscal Policy in the IS-LM framework.

In order to explain Fiscal Policy consequences in the short run I need to mention two additional 'Keynesian' assumptions.

1: Prices are sticky in the short run. For instance, prices of goods and wages do not modify. So, the exogenous real money supply (M/P) cannot alter. As a result the LM-curve is not allowed to shift in the short run when Fiscal Policy is to be considered. Adjustments in the economy appear in quantities of goods demanded and supplied. Output naturally adjusts to these adjustments. In conclusion, prices do not adjust in order to correct for changes in aggregate demand.

2: Output is demand determined. Basically, if any demand modification occurs suppliers will naturally adjust. The price level is taken as given.

I investigate two instruments which enable the Government to manipulate National Income (Y). Firstly, I will discuss the effects of a change in Government expenditure (G). Secondly, I will cover economic consequences imposed by changes in Lump-Sum Taxes (T).

Consider the following graph:
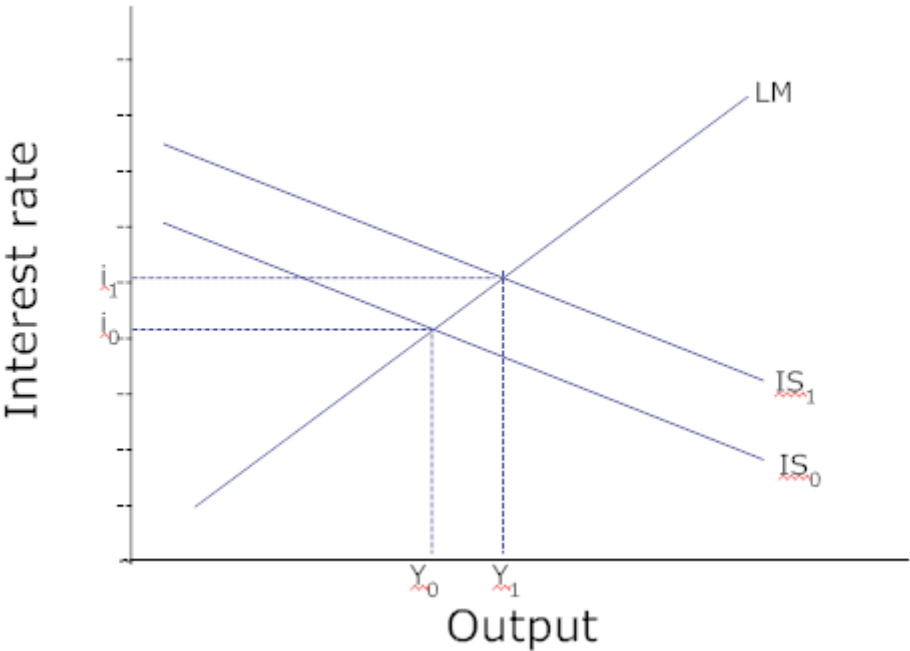
Figure 5: **Increasing Government expenditure**.

This graph depicts the result of an increase in Government expenditure (G goes up). The IS-curve shifts up inducing a higher nominal interest rate corresponding with an increased level of National Income (Y). This can be explained as follows:'' Because of an increase in

Government expenditure (G), extra goods are required. In order to gratify additional demand, firms must intensify production level which creates a higher level of income (Y). Demand for money amplifies due to additional transactions in order to finance extra purchases of goods. Given that real money supply remains unchanged, the nominal interest rate must rise in order to restore equilibrium in the money market.

Reduction in Government expenditure can be argued the same way. The IS-curve shifts downwards inflicting lower levels of national income (Y) and the nominal interest rates (i). Diminishing government expenditure discourages aggregate demand which have got negative consequences for national income (Y). To get right equilibrium in the goods market, firms must adjust the supply of goods. Reducing the level of economic activity (Y) causes a decline in the demand for money. To sum up, the nominal interest rate must adjust in order to restore equilibrium in the money market.

The next graph shows the outcome of increased Lump-Sum Taxes (T).
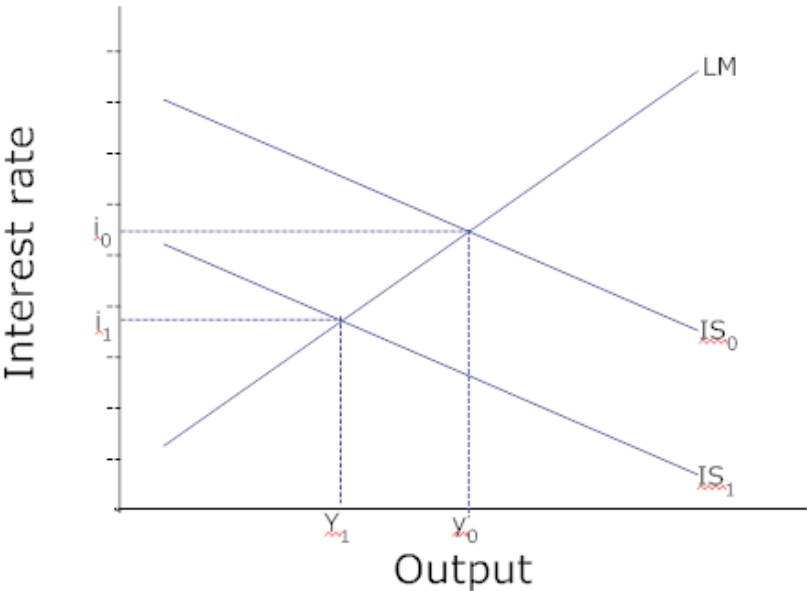
Figure 6: **Increasing Lump-Sum taxes.**

As can be seen in the graph, increasing Lump-Sum Taxes (T) has negative impact on national income (Y) and the nominal interest rate. The result can be interpreted as follows:'' An increase in Lump-Sum Taxes (T) affects disposable income (Y-T) negatively. So, consumption

will fall which discourages aggregate demand. In order to re-establish equilibrium in the goods market supply of goods must adjust which causes a diminution in national Income (Y). Demand for money diminishes due to a reduction in transactions. To put right equilibrium in the money market, the nominal interest rate must decline. The opposite occurs to decreasing Lump-Sum Taxes (T).

2.4: Fiscal policy considering an open economy.

In this section I examine two particular cases. The first case explores the consequences of Fiscal Policy in an economy facing nominal fixed exchange rates and free capital mobility with trading partners. The nominal exchange rate (S) reflects the value of home currency expressed in the value of a particular foreign currency. Most of the time the dollar is used in order to express the value of home currency.

Consider the following formula:

S = home currency/foreign currency = Euro/$ = Euro/1

The nominal exchange rate reflects how many Euros an individual is able to buy for one dollar. If the nominal exchange rate appreciates, an individual is forced to offer more Euros for one dollar, so the Euro depreciates. In conclusion, an appreciation of the nominal exchange rate (S) reflects a depreciation of the Euro. The nominal exchange rate (S) is driven by demand for- and supply of home/foreign currency. If, for instance, demand for home currency soars, the value of the home currency will rise, inflicting a depreciation of the nominal exchange rate (S).

Free capital mobility argues that home- and foreign nominal interest rates (i) level because capital can flow freely from country to country without suffering any transactions costs or other capital restrictions imposed by the government. For instance, an investor can make excess profits if the domestic nominal interest exceeds the value of the foreign nominal interest rate, investors could borrow money where interest rates are low and lend money where interest rates are relatively high. So, capital inflows will be realized thus creating negative pressure on the domestic nominal interest rate, because money becomes less scarce. In conclusion, nominal interest rates between countries should be equalized.

When the nominal exchange rate is considered to be fixed, the LM-curve is assumed to be endogenous which means Central Banks only alter the nominal money supply (M) in order to restore the exchange rate to its original level. Basically, the LM-curve only responds due to a particular adjustment in the goods market. I shall clarify all mentioned above in the next graph.
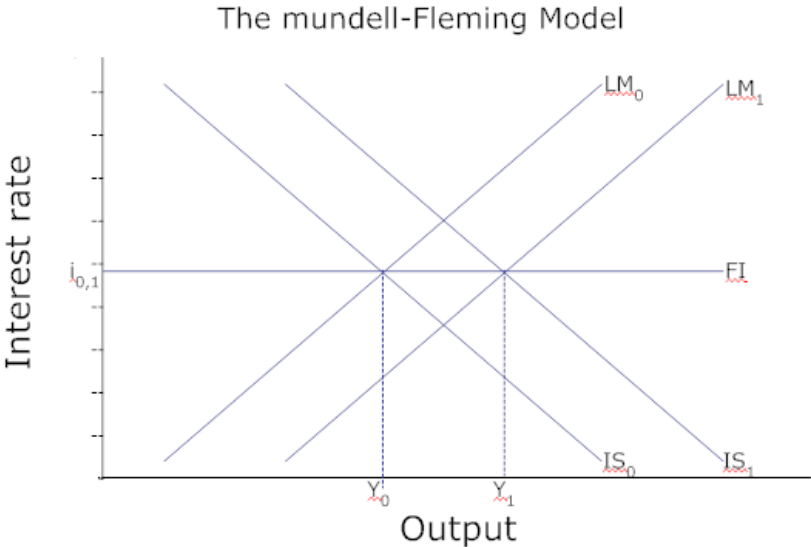
Figure 7: **Fiscal Policy in an open economy submitted to fixed exchange rates**

The graph displays the outcome of Fiscal expansion in a European country. The horizontal line is known as the Financial Integration line (FI) which represents free capital mobility. Firstly, as is the same as in the closed-economy, increasing Government expenditures (G) causes an upward shift of the IS-curve. Consequently, the nominal interest rate (i) and output (Y) increases. Because of the increased level of the nominal interest rate (i), capital inflows are generated. As a result, the nominal exchange rate (S) depreciates (Euro appreciates) due to extended demand for domestic currency. However, the nominal exchange rate (S) is not allowed to rise. To correct the nominal exchange rate (S) proportionately, the Central Bank must intervene in order to nullify the rise in the nominal interest rate (i) inflicted by increased Government Expenditures (G). To achieve this goal, the Central Bank must augment real money supply (M/P).
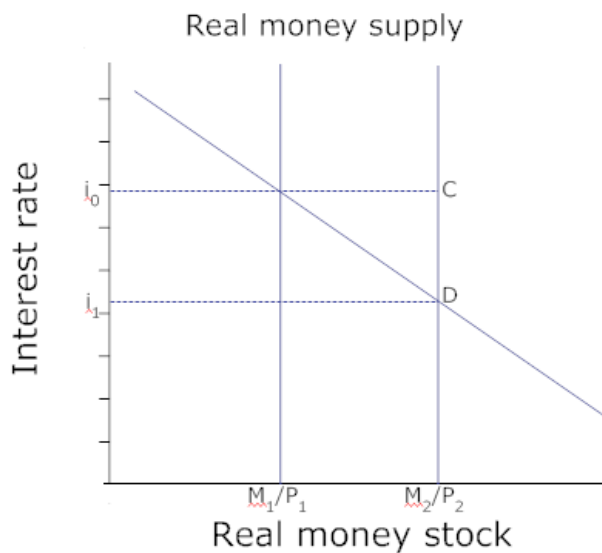
Figure 8: **M/P ↑**

The graph above displays augmented real money supply (M/P). Increasing the real money supply (M/P) causes disequilibrium (point C) in the money market. In order to correct for excess supply of money the nominal interest rate has to fall. This result amplifies demand for money and the real money stock in the economy (point D) which has consequences for the level of output (Y). Increasing the real money stock causes additional demand for goods in the goods market which results in more goods supplied by firms. In conclusion, income (Y) will rise.

The following graph displays the new equilibrium:
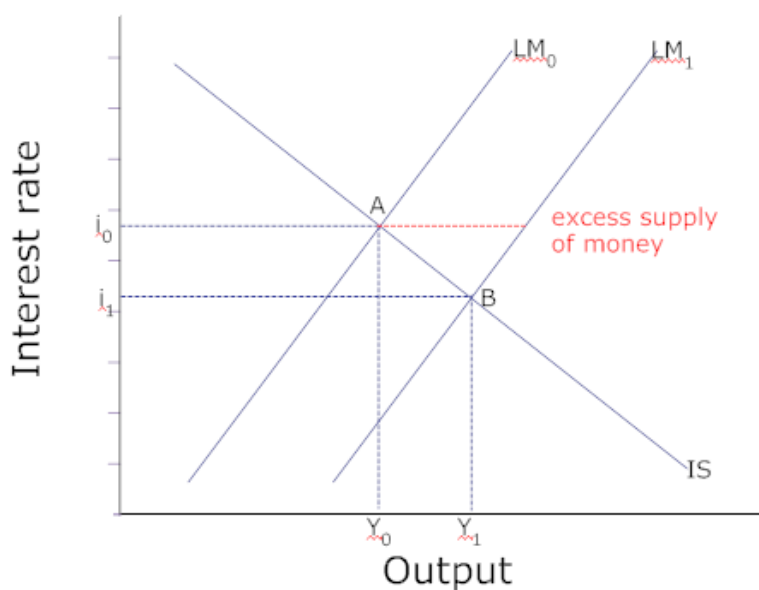
Figure 9: **New equilibrium after increasing the nominal money supply (M).**

As can be seen in the graph the former LM-curve depicts excess supply of money. The new LM-curve reflects lower levels of nominal interest rates representing the new equilibrium in the money market. So, the new equilibrium shows a lower nominal interest rate (i) corresponding with a higher level of income (Y).

In order to accumulate the real money supply (M/P), the Central Bank must raise the nominal money supply (M). Nominal money supply (M) is the only instrument controlled by the Central Bank. Raising nominal money supply (M) can be fulfilled by selling domestic currency on international financial markets. In return, the Central Bank obtains foreign currency. As a result, the LM-curve shifts to the right until it passes through the intersection of the IS-curve and the Financial Integration line, as is shown in figure 7.

All mentioned above, includes an example of Fiscal expansion. Fiscal contraction can be regarded in the same way. Decreasing Government expenditures cause a downward shift of the IS-curve, imposing negative pressure on national income (Y) and the nominal interest rate (i) which generate capital outflows. As a result, the nominal exchange rate appreciates due to excess supply of domestic currency. In order to maintain the nominal exchange rate (S) fixed, the Central Bank must intervene by reducing the nominal money supply (M). Consequently, the LM-curve shifts upwardly until it passes through the intersection of the IS-curve and the Financial Integration line.

As can be seen in the next graph, Fiscal Policy is positively correlated with national income (Y) holding the nominal interest rate (i) constant. To conclude, Fiscal Policy is effective under Fixed exchange rates. So, the Government is able to manipulate national income (Y) in the short run.
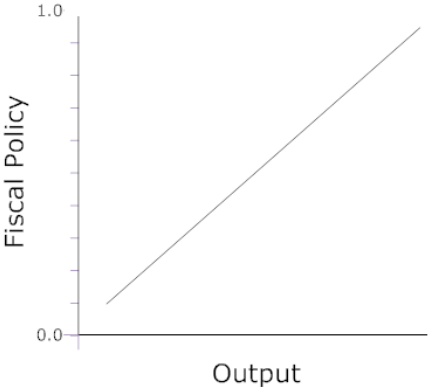
Figure 10: **Relation between Fiscal Policy and Output**

The second case investigates the consequences of Fiscal Policy in an economy observing nominal <u>flexible</u> exchange rates and free capital mobility with trading partners. In this context, the LM-curve is exogenous which suggests that the Central Bank controls the nominal money supply (M) because the Central Bank does not intervene in the money market just to maintain the exchange rate anymore. Deviations between domestic- and foreign nominal interest rates are offset by proportionate modifications in the nominal exchange rate. If, for instance, capital inflows are generated because of a higher domestic nominal interest rate, the exchange rate will depreciate (Euro appreciates) in order to nullify excess profits which can be acquired by interest deviations.

Consider an increase in Government expenditures (G). As can be seen in graph below, the IS-curve shifts upward. The new equilibrium provides an expansion in national income (Y) and the domestic nominal interest rate (i). However, this result cannot be the final outcome because, in this equilibrium the domestic nominal interest rate (i) exceeds the foreign nominal interest rate generating capital inflows.
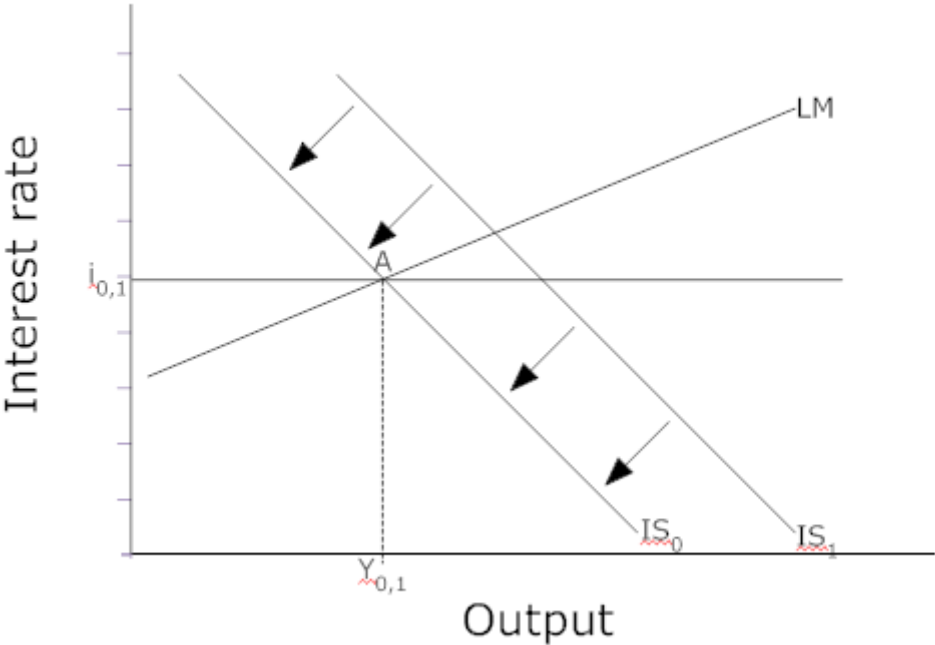
Figure 11: **Effectiveness of Fiscal Policy considering flexible exchange rates.**

The darts in the graph above display the final equilibrium which occurs due to free capital mobility. Because of free capital mobility, the nominal exchange rate depreciates, which

implies increased domestic prices for foreign countries. Domestic goods have become more expensive for foreign countries which affect the level of exports negatively. This will deteriorate the primary current account (the difference between exports and imports). As a result, the IS-curve shifts back to its former position.

In addition, the latter case which does not sustain wealth effects inflicted by fiscal adjustments, only holds if the assumptions which were made, perfectly fit in the real world. Otherwise, if this appears not to be the case, wealth effects will be realized.

Consider the following graph:
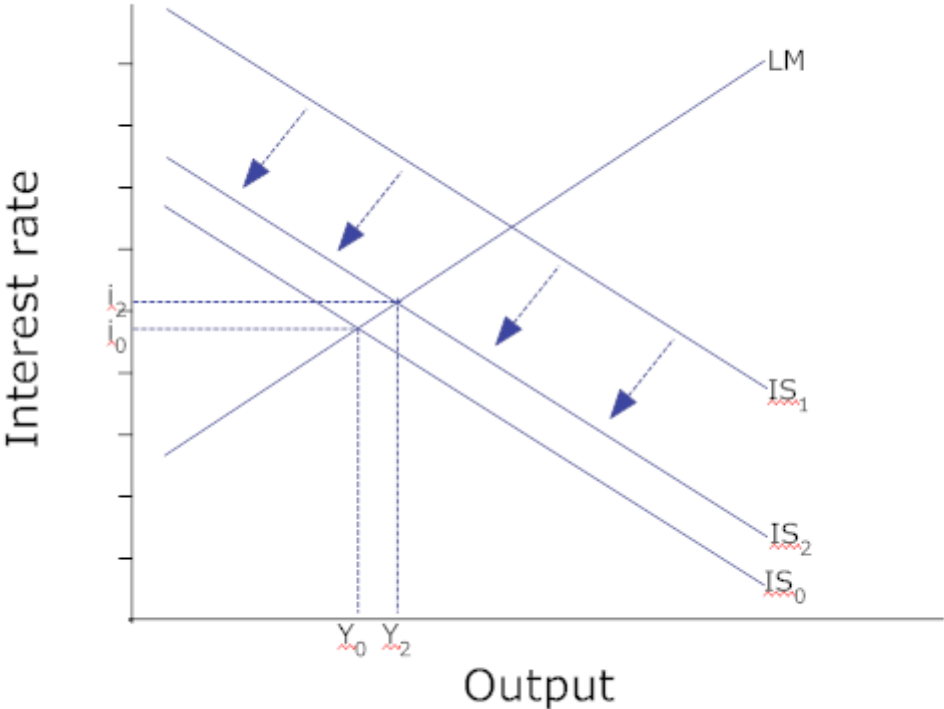
Figure 12: **Effectiveness of fiscal policy regarding flexible exchange rates considering imperfect assumptions.**

If, for instance, perfect capital mobility is subverted by transaction costs, interest rates do not equalize, because capital inflows will cease when the difference between both interest rates (foreign and domestic) match transactions costs. At this point, the nominal exchange rate will end depreciating. So, the final outcome incurs extended national income (Y) and an interest rate which is soared.

Fiscal contraction could be explained similarly. The IS-curve shifts downward, inflicting contraction in national income (Y) and the domestic nominal interest rate (i). As a result, capital outflows occurs which imposes an appreciation in the nominal exchange rate. Competiveness on the international goods market improves, which affects the primary current account positively. So, the IS-curve rightly shifts right back to its original point.

In conclusion, the domestic nominal interest rate (i) and national income (Y) do not alter if Fiscal Policy is implemented. Basically, if flexible exchange rates are observed, the Government is unable to manipulate national income (Y) and the domestic nominal interest rate, because modifications in Government expenditures are offset by exchange rate fluctuations. In this case, the difference in domestic- and foreign nominal interest rates (i) is corrected by the nominal exchange rate (S). However, the change in the nominal exchange rate (S) affects the primary current account proportionately. So, the IS-curve shifts back to its original position, leaving interest rates (i) unaffected and free capital mobility holds.

2.5: Conclusion

In this chapter I examined the economic consequences of Fiscal Policy in the IS-LM framework. In my analysis I investigated two different types of economic environments. Firstly, I studied Fiscal Policy considering a closed economy. Secondly, I explored economic consequences of Fiscal Policy suggesting an open economy. It seems that distinction between these economic environments lead to different outcomes concerning national income (Y) and the nominal interest rate (i).

Economic consequences of Fiscal Policy regarding a closed economy are rather obvious in the IS-LM framework. Government expansion is positively correlated with disposable income (Y-T) whereas Government contraction is negatively correlated with disposable income (Y-T). If, for instance, Government expenditures rise (fall), national income (Y) will increase (decrease) and disposable income (Y-T) will adjust proportionately. Assuming that disposable income has got positive effects on private consumption, it can be concluded that Government expansion has got positive wealth effects on private consumption whereas Government contraction has got negative wealth effects on private consumption.

Economic consequences of Fiscal Policy considering an open economy are more complicated. Nominal exchange rates and Free capital mobility could either deepen- or nullify economic effects of Fiscal Policy comparing to the closed economy. The effects of Fiscal Policy become stronger when nominal exchange rates remain constant. So, Fiscal expansion/contraction has got positive/negative wealth effects on private consumption considering fixed nominal exchange rates. The economic outcome of Fiscal Policy regarding flexible nominal exchange rates remains unchanged. Fiscal expansions/contractions do not have any wealth effect on private consumption.

In conclusion, John Maynard Keynes argues that, except for one case which only holds if assumptions be perfect, Fiscal expansion/contraction has got positive/negative wealth effects regarding private consumption. His' Theory suggests the Government could intervene in the economic life cycle in order to flatten economic peaks or recessions. If, for instance, a recession occurs the Government could boost the economy by either raising expenditures or lowering Lump-Sum Taxes. During strong economic expansion the Government could slow down the economy by either reducing expenditures or raising Lump-Sum Taxes.

3. Ricardian Equivalence

3.1: Introduction

As described by John J. Seater (1993), traditional theories, like Keynes' Theory, suggest that increasing Government debt stimulates the economy in the short run. However, Ricardian Equivalence implies that increasing Government debt does not have any macroeconomic consequences in the short run. Basically, the current level of economic activity remains.

Consider the next example:

Government→ Lump-Sum Taxes ↓→ Issuing debt ↑→ To finance government expenditures, the Government has to borrow → in order to repay future- interest and redemption, future Lump-Sum Taxes ↑

Individual→ buys the debt by issuing bonds→ expects to receive a stream of interest payment plus repayment of principal in the future (John J. Seater, 1993)→ which equals future Lump-Sum Taxes.

Ricardian equivalence suggests there is a finite number of consumption available in an economy. Total consumption can be divided into two categories, namely, public consumption versus private consumption which are negatively correlated. Basically, if public consumption increases permanently, private consumption will fall and vice versa. Transitory changes in Public consumption are considered to be ineffective regarding private consumption. Individuals simply ignore transitory modifications in public consumption because of tax smoothing. Firstly, it appears to be costly to modify tax rates imposed on individuals. Secondly, transitory changes in government expenditure could be either below or above average. So, there is no need to modify tax rates with transitory expenditures because, transitory changes below- and above average will compensate each other. Therefore, there is no reason to expect additional taxes in the future. So, private consumption will not be altered.

This theory also assumes that all individuals act as one rational economic agent which complies with the permanent income/life cycle hypothesis. As was already discussed in the first chapter, this hypothesis reflects consumption smoothing of individuals over their entire

lifetime which is based on assumptions regarding rational individual behavior. However, individuals act differently in the real world. Due to irrationality of individuals, uncertainty among future incomes or liquidity constraints Ricardian equivalence cannot hold exactly. Besides, uncertainty about future private incomes causes individuals not to smooth consumption over time. Nevertheless, Ricardian Equivalence can be seen as a good approximation of reality.

3.2: Private consumption versus Lump-Sum Taxes

Ricardian equivalence suggests that consumers stipulate future taxes based on government expenditures. Tax reductions issuing debt is considered to be irrelevant. If the government issues tax reductions but government expenditures do not alter, private consumption will remain. Basically, Ricardian equivalence argues that issuing debt due to a decrease of Lump-Sum Taxes does not have any consequences for private consumption in the short run.

Consider the following formulas:

$$Y_1 + \frac{Y_2}{1+r} - T_1 - \frac{T_2}{1+r} = C_1 + \frac{C_2}{1+r}$$

Lifetime budget constraint regarding an individual

$$T_1 + \frac{T_2}{1+r} = G_1 + \frac{G_2}{1+r}$$

Budget constraint considering the Government.

If both interest rates (r) match I will be able to substitute the Government's budget constraint into the Individuals' budget constraint.

$$Y_1 + \frac{Y_2}{1+r} - G_1 + \frac{G_2}{1+r} = C_1 + \frac{C_2}{1+r}$$

In this framework, the level of Private consumption does not correspond with Lump-Sum Tax modifications. This can be explained as follows:'' Ricardian equivalence considers Government expenditure as given which means, the average level of Government

expenditure remains, even in the distant future''. Basically, Government expenditure does not alter. If, for instance, the Government reduces Lump-Sum Taxes in the current period, debt will be issued. To maintain the same level of Government expenditure in the future, Lump-Sum taxes have to rise in future periods in order to redeem Governmental debt. John J. Seater (1993) argues that every inflow (induced by lower Lump-Sum taxes) is matched by an equal outflow (raising Lump-Sum taxes in the future) which means that the life time budget constraint for an individual does not change due to the Government's refinancing scheme. In conclusion, private consumption does not alter due to Lump-Sum Tax distortions. To smooth private consumption over the individual's lifetime, private saving is required in periods featured by reduced Lump-Sum Taxes in order to remain consumption in periods featured by high Lump-Sum tax levels. To conclude, as in John J. Seater (1993), the individual saves more when current taxes are low and dissaves more when they are high.

3.3: Main Shortcomings of Ricardian Equivalence

3.31 Permanent Income/life cycle hypothesis (PILCH).

Ricardian equivalence builds upon PILCH:'' A theory which argues that consumption is smoothed over an individual's entire lifetime''. However, this theory appears to be not completely reliable. PILCH is based on an assumption which suggests that individuals act rationally. As described by John J. Seater, a fundamental principle of PILCH which argues that individuals are forward-looking and respond today to events they expect to happen in the future. If individuals do not respond to anticipated future events, like additional future taxes indicated by outstanding debt, Ricardian equivalence will not hold. For example, the government issues debt by tax reduction. In response, each individual should save additional money in order to maintain the same level of consumption in the future. If individuals do not do so, consumption should increase now and decline in the future in which case Ricardian equivalence is undermined.

3.32 Liquidity constraints.

Liquidity constraints arise when individuals do not have access to credit markets. Basically, liquidity constraint individuals are not able to borrow or save money. Consequently, if a tax

reduction occurs, liquidity constraint individuals will spend additional wealth rather than saving it. To conclude, due to a tax reduction private consumption will rise. If Lump-Sum Taxes rise in the future in order to redeem governmental debt, private consumption will fall.

3.4 Other negative side effects of Ricardian Equivalence

3.41 Differential borrowing rates.

Also other forms of liquidity constraints like differential borrowing rates between the Government and individuals will lead to failure of Ricardian equivalence. Interest rate differentials could exist because the risk of default concerning individuals would be greater. Moreover, future incomes of individuals are more uncertain which would make it optimal to impose a higher interest rate on private loans. In addition, governmental debt is going to be repaid due to, <u>certain</u>, future incomes issued by Lump-Sum Taxes. Therefore, the Government is able to issue loans against a lower interest rate which has positive effects on private consumption.

Suppose:

Governmental interest rate (r_g) = 5%   Lump-Sum Taxes ↓ with €10

Individual interest rate   (r_i) = 10%

In the future, the individual is going to receive $10 \times 1,10 = 11$. The government has to pay back the loan plus interest. $10 \times 1,05 = 10,5$ which is levied on individuals. The real effect turns out to be $11 - 10,5 = 0,5$. As a result, private consumption rises, proportionately smoothed over the individual's entire lifetime period. However, all mentioned above suggests that every individual is holding the same share of Government Bonds. Unfortunately, this cannot be a realistic assumption. Some individuals choose to hold a particular share of Government Bonds, other individuals, for some reason, do not. This could lead to negative real wealth effects considering individuals who do not posses Government Bonds. If, for instance, an individual does not have any Government Bonds at all, he will experience a net loss of $10,5 - 10 = 0,5$. In conclusion, Interest rate differentials impose failure of Ricardian Equivalence.

3.42 Marginal tax rate.

Ricardian equivalence assumes Lump-Sum taxes rather than marginal tax rates. Lump-Sum taxes are defined as taxes which are independently determined of national income (Y). Clearly, the particular level of earnings is not concerned by the government. Everyone has to transfer the same amount of money to the government. Marginal tax rates depend on the level of income. If, for instance, an individual is going to earn more money, the individual has to pay an additional sum of money in order to settle his tax obligations. National income and thereby capital inflows induced by taxes could respond negatively on marginal tax rate modifications. Firstly, implementing modifications in marginal tax rates involve costs. Secondly, the willingness to work corresponds negatively with the marginal tax rate.

Consider the next graph:
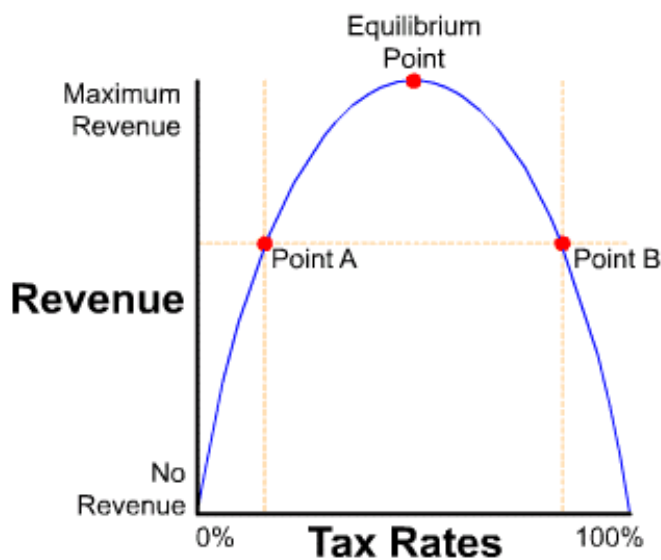
Figure 13: **Laffer-curve**

This diagram represents a laffer-curve which reflects a relation between marginal tax rates and revenues. As can be seen in the graph, revenues will increase (exponentially decrease) until the marginal tax rate exceeds a certain value. After equilibrium point, revenues will decline. This can be explained as follows:'' The higher the marginal tax rate, the smaller the incentive to work will be, concerning an individual. So, higher marginal tax rates could affect national income negatively and thereby tax revenues.

As in John J. Seater (1993), debt issued by the government will be accompanied by a reduction in marginal tax rates. The same marginal tax rates will have to rise when debt matures. This could have negative consequences for national income. Individuals will work less which will be harmful to tax revenues. So, the tax reduction implemented cannot be completely offset by an increase in marginal tax rates. Therefore, Ricardian equivalence fails. However, reducing marginal tax rates could induce an extra positive effect on private wealth. Moreover, lower marginal tax rates could alter individual behavior in a positive direction. The willingness of work improves inducing a higher national income and thereby tax revenues. In conclusion, Ricardian equivalence will not hold only if the aggregate effect on national income becomes negative.

3.43 Interest rate versus Growth rate differential.

As in John J. Seater (1993), future interest payment and even redemption could be (partly) offset by the growth rate of the economy. Governmental debt increases equally with the interest rate issued on government bonds whereas governmental revenues expand due to the growth rate of the economy. In addition, in order to amplify governmental revenues, marginal tax rates rather than Lump-Sum taxes have to be considered. Therefore, if the growth rate of the economy exceeds the interest rate of debt, (debt obligations are surpassed by revenues) the government does not have to issue additional taxes in the future. To conclude, private wealth shall respond positively. As a result, Ricardian equivalence will not hold. However, also a negative wealth effect should be taken into consideration. If the economy grows at the growth rate of the economy, additional output obtained by individuals will partly float to the government due to marginal tax rates inflicting a loss of private wealth. This negative wealth effect will be balanced in the future due to additional taxes who fail to come.

3.44 Altruism and finite horizons

Ricardian equivalence assumes infinite horizons among individuals which implies that individuals do live forever. This assumption turns out to be unrealistic. Ricardian Equivalence

does not hold when individuals have got finite horizons. Consider, for instance, a Lump-Sum Tax reduction applied to the current generation. So, the Government is issuing debt. In order to redeem the debt, additional Lump-Sum Taxes must be collected. This tax burden could be (partly) levied on future generations. Therefore, disposable income regarding current generations is going to rise which results in higher levels of private consumption smoothed out over their entire lifetime period. In conclusion, altering the timing of collecting Lump-Sum Taxes could have wealth effects considering current generations. However, Robert Barro (1974) showed that Ricardian Equivalence could hold if altruism is to be considered. Altruism denotes the willingness of parents to bequeath private wealth gained by the tax reduction in order to allow their children to pay the future taxes implied by the current debt issue (John J. Seater, 1993). If parents are willing to do so, Ricardian Equivalence will hold.

3.5 Ricardian equivalence:" true model or good approximation"?

Basically, all these shortcomings mentioned above could lead to failure of Ricardian equivalence. However, empirical tests concerning the effects on private consumption considering debt issued by the government do not reject Ricardian equivalence. Moreover, the results reported in the literature allows for elasticities of private consumption which means that private consumption could be affected by (random) explanatory variables. Nevertheless, these elasticities of private consumption cannot deny Ricardian equivalence as a good approximation of the real world.

4. Non-Keynesian fiscal policy effects.

4.1 Introduction.

In the first chapter I discussed 'Keynesian' fiscal policy effects on private consumption, which stated that private consumption is positively driven by disposable income which can be affected by changes in Fiscal policy. Fiscal expansion leads to increasing disposable income, whereas fiscal contraction coincides with diminutions in disposable income in the short run. Basically, the government is able to intervene in the economy. If, for instance, the government wishes to boost the economy, government expenditures will have to rise. Furthermore, if the government prefers to slow down the economy, increasing tax revenues could be used as an appropriate Fiscal policy instrument.

However, in the nineties other empirical results with respect to fiscal policy came forward. These empirical results suggest opposite reactions regarding private consumption in the short term. For example, fiscal contraction indicates positive fluctuations considering private consumption whereas fiscal expansion will cause private consumption to dilute.

Several theories and explanations were evolved upon these controversial results. Francesco Giavazzi and Marco Pagano (1990) started to consider the indirect effects of fiscal policy. They argued that fiscal policy actions do not only have direct effects (Keynesian effects) on the current level of private consumption, but also indirect effects via expectations which act as a signal about the future course of fiscal policy. This Theory is the so-called 'expectations' Theory which suggest that individuals' expectations, ''concerning fiscal policy'' regarding the future, will be essential in order to obtain controversial results.

Basically, if the government wishes fiscal contraction to be expansionary, individuals have somehow to believe that fiscal consolidation increases disposable income in the future. Individuals will anticipate by raising current private consumption. In order to achieve this goal, the government must comply with a few conditions which contain:'' persistency, magnitude, the composition of the fiscal adjustment, the initial level of debt and credibility effects''. These conditions were investigated and considered to be the only conditions which could have positively affected expansionary effects of fiscal contraction so far.

4.2 The "German" view.

As described by Francesco Giavazzi and Marco Pagano (1990) the "expectations" view is also known as the "German" view because, the expansionary effects of fiscal contractions was particularly supported by German economists. Furthermore, the "German" view argues that modifications in government expenditures or taxes could be seen as signals of changes in future Fiscal policy. For instance, if government expenditures decrease, individuals will expect lower taxes in the future which will soar current private consumption. Basically, individuals will adjust expectations about future disposable income which is positively correlated with current private consumption. So, if future taxes decline, future disposable income will amplify which is anticipated by individuals. Therefore, "if PILCH is to be considered" current private consumption has to rise. To conclude, individuals anticipate to altered expectations about future fiscal policy by adjusting current private consumption.

The positive indirect effect on current private consumption due to changes in expectations about future fiscal policy is (partly) offset by a negative direct effect which is inflicted by the government. The direct effect could contain a fall in government spending or increased tax obligations imposed by the government. Moreover, it depends on the credibility of the indirect effect whether which effect prevails. If, for instance, individuals do not believe taxes will decrease in the future, the direct (Keynesian) effect will exceed the indirect effect. In conclusion, if the indirect effect does not appear to be credible, the aggregate effect will be of Keynesian nature.

4.3 Credibility of the indirect effect.

In order to verify conditions which support the indirect effect, I will use fiscal contraction implemented by the Government as starting point.

4.31 Persistency

In order to explain 'persistency' I consider government spending as a starting point. If individuals assume a cut in government spending to be transitory, there will not be any indirect effect on private consumption. Clearly, if individuals do not perceive persistency, they believe government spending will be restored in the future. Therefore, future tax

obligations are not expected to decline. So, future disposable income does not seem to alter. To conclude, there will not be any indirect effect on current private consumption.

If a reduction in government spending is considered to be permanent, individuals will start to believe future disposable income is about to rise which has a positive effect on current private consumption. In conclusion, positive modifications in current private consumption is more likely to appear if a cut in government spending indicates persistency, because individuals are going to believe tax obligations will fall in the future. So, if the government is able to make individuals believe reduction in government spending to be persistent, changes in future fiscal policy will be more credible.

4.32 Magnitude

Francesco Giavazzi and Marco Pagano (1990) argued that only severe fiscal contractions could have expansionary effects. This can be explained as follows:'' only if fiscal contractions are sufficiently large, individuals will foresee lower future tax obligations''. Basically, individuals simply do not believe in changes in future fiscal policy if fiscal contractions appear to be sufficiently small. In the latter case, fiscal contractions would only have (Keynesian) direct effects on the economy. To sum up, arguing that fiscal contractions will display expansionary effects becomes credible only if fiscal contractions are sufficiently large.

4.33 Composition

As described by Alberto Alesina and Roberto Perotti (1996) the composition of fiscal contractions have got different impacts on the economy. Not only the government has to choose between spending cuts and increasing tax revenues, but also between different fiscal variables like public investment, transfers, public employment etc. In order to clarify the significance of composition, I will firstly explain differences between spending cuts and increasing tax revenues. Secondly, I will discuss consequences of different fiscal variables chosen by the government.

Expansionary effects of fiscal contractions appear to be more credible when fiscal contractions are based on government spending cuts. Consider the negative correlation between private- and public consumption which was argued by Roberto Perotti (1996). He suggests that current private consumption amplifies due to decreasing future tax obligations inflicted by a drop in current public consumption. Basically, this only appears to be credible if individuals have mutual expectations about future fiscal policy which is likely to occur. On the other hand, increasing tax obligations turns out to be less credible, because public consumption remains. If, for instance, public debt is dampened by tax revenues, individuals will expect the government to continue the same level of public consumption. So, individuals do not anticipate changes in future fiscal policy in order to maintain public consumption without issuing new public debt. However, it might be possible that individuals expect the future tax burden to weaken. Alberto Alesina and Roberto Perotti (1996) argued that current tax increases can have expansionary effects if it generates the expectations of less dramatic disruptive tax increases in the future, but this is less likely to occur.

In order to explain consequences of different fiscal variables I will use government spending as starting point. Firstly, fiscal variables seem to have deviating levels considering credibility which is realized by persistency. As was described by Alberto Alesina and Roberto Perotti (1996) different types may be more or less permanent by their nature. For instance, reduction in public investment does not seem to be long lasting, because maintenance of public infrastructure cannot be postponed forever. Basically, public investment is characterized by transitory nature. Nevertheless, other types of fiscal variables, like transfers, decreasing government wage bills and cuts in government employment appears to be recognized as long lasting. Clearly, implementing these types is very costly. Besides, governments which are willing to tackle more delicate components of government spending, may signal that they are really ''serious'' about the fiscal adjustments which will create ''political'' credibility effects (Alesina, Perotti (1996)).

Furthermore, alterations in transfers, the government wage bill and government employment affect the supply side of the economy. Perotti (1996) argued that cuts in transfers could reduce employees' reservation wage which means that (unemployed) employees are willing to accept lower wages in order to work. Furthermore, cuts in the government wage bill and government employment will cause the private labor supply curve

to shift to the right. So, unit labor costs will fall which has positive consequences for the profitability of companies, because competiveness improves. Therefore, national income will increase which is positively correlated with current private consumption.
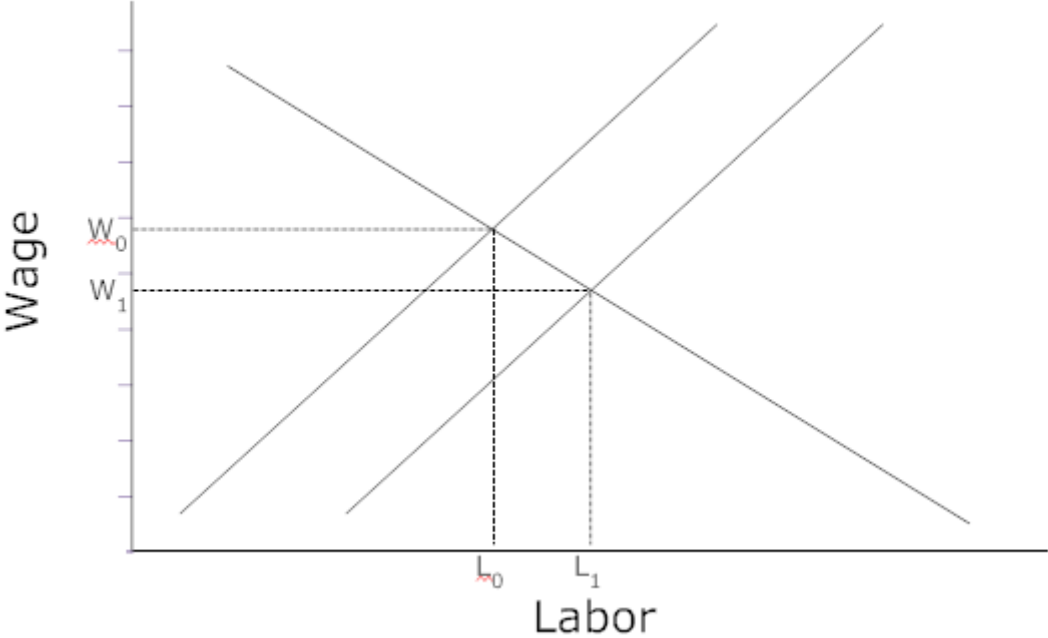
Figure 14: **Equilibrium representing the labor market**

4.34 The initial level of debt

Perotti (1999) argued that several fiscal contractions (followed by expansionary effects) occurred at the presence of high levels of government debt. In his research he finds strong evidence that expenditure shocks have Keynesian effects at low levels of debt and non-Keynesian effects in the opposite circumstances (Perotti (1999). So, expectations about future fiscal policy modifications are (again) crucial in order to obtain such outcomes. If the government is confronted with high levels of debt, individuals will expect future tax obligations to fall when the budget balance will have been stabilized. In addition, the government could either increase tax revenues or decrease government spending in order to balance the budget. If the government is confronted with low levels of debt, individuals will simply not believe future tax obligations to fall. This is because alterations in either tax obligations or government spending do not serve any purpose. Basically, individuals do not understand any changes in current fiscal policy. As a result, they do not expect any

conversions in future fiscal policy. In the latter case, fiscal contractions only have Keynesian effects featured by either to deteriorate disposable income induced by amplified tax obligations or national income to fall due to worsened demand for goods. In conclusion, if the 'expectations' view is realized, the indirect effect will prevail direct effects of fiscal contractions. However, the opposite occurs if the 'expectations' view is not able to hold.

4.35 The credibility effect

Alesina and Perotti (1996) argued that (especially in high debt countries) lowering government debt may have important credibility effects which is acquired by a reduction in the risk premium of government bonds. Reducing the risk premium on government bonds causes the interest rate to go down. If, for instance, the government is confronted with high levels of debt, bond owners will require a higher interest rate, because the profitability of default becomes larger.

Consider the next formula:

$$C_t = Y_d = Y_1 + \frac{Y_2}{1+R}$$

The formula above represents the present discounted value of consumption in a two period framework, whereas C_t = total consumption over individuals' entire lifetime period. Moreover, consumption must be financed by permanent income (Y_d) which is acquired in two periods. The second period must be discounted by the interest rate in order to compute the present discounted value of consumption. Basically, 1 + R represents opportunity costs of money. So, individuals will inflict costs if they do not obtain that amount of money in the current period.

As can be seen from the formula, if debt $\downarrow$ →default risk$\downarrow$ → R$\downarrow$→ W (wealth) $\uparrow$→ Y_d $\uparrow$ → C$\uparrow$. To conclude, consumption will rise due to a fall in the interest rate.

4.36 Credit constraints

So far, I considered each individual to be credit unconstrained which means that every individual has access to credit markets which implies that each individual could either save or borrow money without any restrictions. However, this appears not to be true in the real

world. Basically, credit constrained individuals could only consume their disposable income in each period (Perotti (1999)). In addition, credit constrained individuals are unable to respond to changes in future fiscal policy.

Consider for instance a country where every individual is credit constrained. Only direct effects appear if the government modifies current fiscal policy. Indirect effects which come forward due to expectations about future fiscal policy require full access to credit markets. If individuals do not have full access, they are unable to anticipate future fiscal policy. In conclusion, whether a fiscal contraction has Keynesian or expansionary effects depends partly on the total number of credit constrained individuals a particular country is confronted with.

4.4 Conclusion

The 'expectations' view which is also known as the 'German' view only holds if individuals believe future fiscal policy is about to change which could only be realized if a current fiscal adjustment appears to be persistent. If a change in current fiscal policy is considered to be transitory, individuals will not have any reason to expect future tax obligations to alter. Furthermore, the credibility effects mentioned above support the indirect effect of fiscal adjustment, because they suggests changes in fiscal policy to be persistent.

Moreover, this indirect effect inflicts deviations in expectations about future disposable income which affects current private consumption. Basically, expected modifications in future disposable income will be converted into current private consumption. Furthermore, individuals will either save- or borrow money in order to anticipate adjustments in future disposable income. However, the effectiveness of the indirect effect depends strongly on the level of credit constrained individuals a particular country is confronted with.

5: Overall Conclusion

In the previous chapters, I examined consequences of fiscal policy on private consumption contemplating three different theories which all display different outcomes considering the correlation regarding fiscal policy and private consumption. Moreover, the theories I discussed do not only rely on different assumptions based on perceptions how individuals act in the real world, but also point to irrationality of individuals. In addition, the theory which is covered in chapter three is supported by empirical evidence. Furthermore, particular circumstances a country is confronted with stipulate which assumptions fit reality best. Basically, which theory prevails depends on assumptions which conform with the real world.

The 'Keynesian' theory argues that fiscal policy is positively correlated with private consumption. Basically, fiscal expansion indicates expansionary effects, whereas fiscal contraction displays contractionary effects. For example, fiscal expansion implies an increase in national income (Y) which is positively related with disposable income (Y-T) which in turn is beneficial to private consumption. In addition, opposite results occur if I consider fiscal contraction. On the one hand, Keynesian effects of fiscal policy seem to be credible and logical. On the other hand, a critical element was overlooked while constructing the 'Keynesian' theory. Clearly, John Maynard Keynes does not consider individuals to be forward-looking which means that individuals only deliberate current disposable income as an indicator of private wealth. So, only alterations in current disposable income modify private consumption in the short term.

Ricardian equivalence denies any correlation between private consumption and public debt. Assuming that long-term government expenditures can be taken as given, any modifications in the tax burden and government spending will be considered by individuals as transitory. Therefore, because of its transitory nature, fiscal policy cannot have any effect on private consumption. In conclusion, despite changes in fiscal policy, private consumption remains. Unfortunately, Ricardian equivalence has to suffer several shortcomings, but could be seen as a good approximation of the real world.

Non-Keynesian effects of fiscal policy is based on empirical evidence which argues that fiscal policy could influence private consumption reversely, if the indirect effect, which is realized

by the 'expectations' view, of fiscal policy prevails. If, for instance, individuals expect any alterations in future fiscal policy as a result of fiscal contraction, individuals will anticipate higher future disposable income which inflict an expansion in current private consumption. However, the 'expectations' view only prevails if fiscal contractions are considered to be permanent. Otherwise, individuals do not believe any changes in future fiscal policy is likely to occur which means that expectations considering future disposable income remains. In this context, non-Keynesian fiscal policy effects enables individuals to be forward-looking which is an important aspect of rationality of individuals. To conclude, non-Keynesian fiscal policy effects allows for rationality which could lead to different outcomes concerning fiscal policy effects on current private consumption comparing with the 'Keynesian' theory in the short term.

However, the presence of credit constrained people in an economy could have severe consequences for the theories mentioned above. Basically, this could be in favor of the 'Keynesian' theory because, credit constrained people cannot anticipate future fiscal policy which is an important criterion for individuals to be forward-looking. Consequently, individuals can only respond to changes in current disposable income which is inflicted by alterations in current fiscal policy. Basically, if a particular country is submitted to more credit constrained individuals, the 'expectations' view will become less likely to hold which is harmful to non-Keynesian fiscal policy effects. In addition, absence of the forward-looking aspect also affects Ricardian equivalence negatively.

The main difference considering the 'Keynesian' Theory and Ricardian equivalence is the forward-looking aspect. So, the 'Keynesian' theory argues that only current disposable income act as an indicator of private wealth which means that individuals do not contemplate any consequences about current fiscal policy changes in the future, whereas Ricardian equivalence suggest individuals to foresee future fiscal policy which will inflict private consumption untouched.

The main difference between Ricardian equivalence and non-Keynesian fiscal policy effects can be attributed to the nature of fiscal policy. Clearly, Ricardian equivalence considers all fiscal policy changes to be transitory, whereas non-Keynesian fiscal policy effects assumes

fiscal policy to be persistent in particular cases which will result in altered levels of current private consumption in the short term

To sum up, bounded rationality and credit constrained individuals are beneficial for the 'Keynesian' Theory, whereas it turns out to be damaging for non-Keynesian fiscal policy effects and Ricardian equivalence. In addition, when the 'Keynesian' Theory was constructed, it did not take into account credit constrained individuals. However, it works out positively on John Maynard Keynes' Theory. Furthermore, whether changes in fiscal policy are transitory or considered to be persistent (indicated by individuals) has major consequences for the overall effect on private consumption regarding non-Keynesian fiscal policy effects and Ricardian equivalence in the short term.

6 : Methodology

6.1 Data

In order to test for these theories I extracted data from the Organization for Economic Co-operation and Development (OECD). The OECD provide datasets for several countries involving variables about Fiscal Policy events which are all freely acquirable. The United States of America, The United Kingdom, Germany, France and The Netherlands were chosen because, these countries do fit my particular interest and meet some criteria I will elaborate. First of all, the five countries which were selected are considered to be (politically and economically) stable and developed. Secondly, availability of datasets was initiated in order to obtain appropriate results which approximate the real world. Thirdly, because of my personal interest I also considerate the Netherlands which is, for the record, a country that matches all criteria mentioned above.

6.2 Data range

In order to execute my analysis I applied data which comprise 30 years. Furthermore, because of a lack of data on quarterly- and daily base I was constrained to use only annual data which incorporates 30 observations with respect to the period between 1980 until 2009. Unfortunately, some variables do not fulfill the data criteria which means that in particular cases years were excluded from the sample. So, some results are restricted by less observations entering the analysis. However, each sample does have sufficient observations to draw any conclusions which are considered to be credible.

6.3 Data analysis

To analyze the data I generated multiple regressions in order to detect some evidence for any of the theories which I elaborated in the first fragment of my thesis. In order to do so, I applied Ordinary Least Squares, a method which attempt to reveal a straight line which fit the data best. Therefore, I implemented five multiple regressions which were done for all five countries separately. These five regressions are displayed below:

$$1 : \frac{C_t}{Y_t} = \propto + \beta \, \frac{TAX_t}{Y_t} + \delta \, \frac{EXP_t}{Y_t} + \varepsilon_t$$

$$2 : \frac{C_t}{Y_t} = \propto + \beta \frac{TAX_t}{Y_t} + \delta \frac{EXP_t}{Y_t} + \gamma \frac{DEBT_t}{Y_t} + \varepsilon_t$$

$$3 : \frac{C_t}{Y_t} = \propto + \beta \frac{TAX_t}{Y_t} + \delta \frac{GovC_t}{Y_t} + \varepsilon_t$$

$$4 : \frac{C_t}{Y_t} = \propto + \beta \frac{TAX_t}{Y_t} + \delta \frac{GovC_t}{Y_t} + \gamma \frac{DEBT_t}{Y_t} + \varepsilon_t$$

$$5 : \frac{C_t}{Y_t} = \propto + \beta \frac{Tran_t}{Y_t} + \delta \frac{Contr_t}{Y_t} + \gamma \frac{PE_t}{Y_t} + \vartheta \frac{SocBen_t}{Y_t} + \varepsilon_t,$$

where $\frac{C_t}{Y_t}$ represents households private consumption as percentage of GDP, $\frac{TAX_t}{Y_t}$ denotes

total tax revenues collected by the Federal Government as percentage of GDP, $\frac{EXP_t}{Y_t}$ refers to

total Government expenditure as percentage of GDP, $\frac{GovC_t}{Y_t}$ stands for the total amount of

Government consumption as percentage of GDP, $\frac{DEBT_t}{Y_t}$ indicates the debt ratio of the

Federal Government, $\frac{Tran_t}{Y_t}$ signifies the total amount of transfers as percentage of GDP

extended by the Federal Government, $\frac{Contr_t}{Y_t}$ implies contributions as percentage of GDP

extended by the Federal Government, $\frac{PE_t}{Y_t}$ represents real public employment and $\frac{SocBen_t}{Y_t}$

stands for the total sum of social benefits as percentage of GDP extended by the Federal

Government. Moreover, in order to correct for prices which are incorporated in the nominal

variables I had to convert them into ratio's. If I do so, price movements will be neglected

which prevent biased results. Unfortunately, data concerning the debt ratio could not be

retrieved regarding to France and the United Kingdom. So, I had to perform an additional

regression which excludes the debt ratio. Furthermore, due to its substantial part, I chose to

distinguish between Government final consumption and the other subcategories. So, I

regressed government final Consumption separately which is expressed in the third- and

fourth formula whereas total Government expenditures are replaced by Government final

consumption. In addition, the cyclical effects regarding Government final consumption are

less obvious compared with other subcategories. If, for instance, unemployment during a

economic crisis soars, the Government will respond immediately by transferring additional

fund. Conversely, the Government will be reluctant to expand Government Final consumption if an economic crisis emerges.

6.4 Autocorrelation and Heteroskedasticity

The method I use, in order to perform the required regressions, assumes absence of correlation between the error terms ($E(\varepsilon_i, \varepsilon_j)=0$). The presence of any correlation between the error terms indicate a relationship between the response variables (Y) and its lagged value (Y_{t-1}) in the previous period which could lead to biased estimations of the dependent variable (Y).

Heteroskedasticity, another phenomena Ordinary Least Squares does not allow for, suggests that error terms posses deviating variances which means that data points display different locations around the straight line. Basically, this could cause estimates of the variance of the coefficients to be biased.

In order to correct for both difficulties I implemented a Newey-West estimator which is a standard option in e-views. To clarify, the Newey-West estimator is an addition on regression analysis which provide me results which are considered to be more reliable and unbiased.

6.5 Endogenous Variables

The results I obtain from the regression analysis could be biased due to explanatory variables which appear to be endogenous. Endogenously assumes explanatory variables (X) to be correlated with the error term (ε) which means that the explanatory variables are affected by other variables which are not incorporated in the model. This can be interpret as follows:

Z → X → Y

Basically, another variable is affecting Y indirectly through its effect on X. Furthermore, no causal relationship between variables Z and Y can be explored. The Z variable could be any variable, even the response variable (Y).

To sum up, endogenously assumes that the explanatory variable (X) is influenced by other variables. Unfortunately, Ordinary Least Squares does not take into account endogenously of

explanatory variables. Basically, Ordinary Least Squares assumes explanatory variables (X) to display exogenously which means that explanatory variables (X) cannot be affected by other variables.

To examine whether endogenously appears in the regression I have to perform an extra test. Moreover, to complete this test instrumental variables (Z) must be incorporated. Furthermore, an instrumental variable (Z) distinguishes itself not to be endogenous. In addition, an instrumental variable (Z) is set to be completely independent of the response variable (Y), but is meant to be correlated with the explanatory variable (X). In my analysis, I exercised lagged variables of each explanatory variable as an instrument (Z) because, these variables do not have any correlation with real current consumption. The purpose of testing for endogenously is to explore whether explanatory variables appears to be countercyclical which means that, for instance, Government expenditures could alter because of modifications in current consumption level inflicted by changes in the economic environment. If the explanatory variables turns out to be endogenous, they will be affected by the instrumental variable (Z). The test is executed in e-views which consists of two stages. In the first stage, the explanatory variable (X) which is considered to be endogenous are regressed on the instrumental variable (Z) in the model. In the second stage, the original regression is performed. However, the new value of the explanatory variable (X), obtained in the first stage, is implemented in the regression. If the explanatory variables appear to be endogenous, any significant results acquired in the basic regression will vanish.

7 : Results

This chapter will display results I acquired from executing a regression analysis using data which was applicable for my research. In order to clarify the results I will discuss each country separately. Furthermore, any significant result acquired will be verified and allocated to a specific theory which were amplified in the first (theoretical) part of my thesis. According to the next sequence, I will elaborate results concerning The Netherlands, The United States of America, France, The United Kingdom and Germany.

Inscription:
HHFCE	=	Household Final Consumption
TEOGG	=	Total Expenditures
TTRFG	=	Total Taxes
TCGDGDP	=	Public Debt
GGFCE	=	Government Consumption
RPE	=	Real Public Employment
SB	=	Social Benefits
SC	=	Social Contributions
ST	=	Social Transfers

Netherlands

Dependent Variable: HHFCE   Table 1

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	0.164854	0.064695	2.548165	0.0176
TTRFG	-0.150838	0.150101	-1.004911	0.3250
TCGDGDP	-0.034645	0.030334	-1.142122	0.2647
C	46.77439	3.303718	14.15811	0.0000

Dependent Variable: HHFCE   Table 2

Instrument list: C TEOGG(-1) TTRFG(-1) TCGDGDP(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	0.172254	0.043045	4.001693	0.0006
TTRFG	-0.460560	0.261945	-1.758234	0.0920
TCGDGDP	0.005730	0.028481	0.201196	0.8423
C	51.58272	4.950892	10.41887	0.0000

The first table displays results which are corrected for serial correlation and heteroskedasticity. The variable TEOGG appears to be significant which is consistent with John Maynard Keynes' Theories about Fiscal Policy. These findings are intensified by table two. This table shows the results after testing for endogenously. As can be seen in table two, the variable TEOGG remains significant which particularly means that the variable TEOGG will not be affected by the response variable (HHFCE).

Dependent Variable: HHFCE

Table 3

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-0.372897	0.459070	-0.812287	0.4246
TTRFG	0.160378	0.186832	0.858409	0.3992
TCGDGDP	-0.041525	0.039269	-1.057471	0.3008
C	57.24040	8.625943	6.635842	0.0000

Dependent Variable: HHFCE

Table 4

Instrument list: C GGFCE(-1) TTRFG(-1) TCGDGDP(-1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-0.278331	0.528650	-0.526494	0.6036
TTRFG	0.203225	0.323006	0.629168	0.5354
TCGDGDP	-0.049338	0.034528	-1.428910	0.1665
C	54.31981	8.699780	6.243814	0.0000

Both tables three and four are duplicates of table 1 and 2 except for the variable GGFCE. As can be seen in both tables none of them display any significant results. Which basically means that Dutch people are not sensitive for any modifications in consumption inflicted by the Government.

Dependent Variable: HHFCE

Table 5

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	2.059021	0.200144	10.28772	0.0000
SB	-0.661930	0.076638	-8.637082	0.0000
SC	0.049734	0.158439	0.313900	0.7608
ST	-1.271520	0.111571	-11.39650	0.0000
C	54.84597	3.915670	14.00679	0.0000

		Coefficient	Std. Error	t-Statistic	Prob.

Dependent Variable: HHFCE

Instrument list: C RPE(-1) SB(-1) SC(-1) ST(-1)

Table 6

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	4.867009	9.204973	0.528737	0.6113
SB	-1.620307	3.612706	-0.448502	0.6657
SC	1.819831	6.579512	0.276591	0.7891
ST	-0.572286	2.482310	-0.230546	0.8235
C	5.391214	170.5510	0.031611	0.9756

Tables five and six depicts the other subcategories with respect to Government expenditures. It appears that, after testing for endogenously, all significant results obtained in table five disappear. These results are consistent with the previous result reflected in tables three and four. To conclude, Dutch people seem to respond in a Keynesian way whereas they only concern total expenditures of the Federal Government. Furthermore, Dutch people do care about modifications in any of the subcategories, but these results are cyclical. So, any significant result regarding to subcategories will not be detected.

The United States of America

Dependent Variable: HHFCE

Table 7

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	-0.439119	0.746099	-0.588554	0.5614
TTRFG	-0.405550	0.895614	-0.452818	0.6546
TCGDGDP	0.128351	0.108570	1.182192	0.2483
C	83.11121	34.68702	2.396032	0.0244

Dependent Variable: HHFCE

Table 8

Instrument list: C TEOGG(-1) TTRFG(-1) TCGDGDP(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	-1.138354	1.189320	-0.957147	0.3480
TTRFG	-0.461015	1.316560	-0.350166	0.7293
TCGDGDP	0.136335	0.126302	1.079437	0.2911
C	109.0354	54.72471	1.992434	0.0578

If I consider tables seven and eight, any significant result cannot be detected. So far, Ricardian Equivalence appears to be the only Theory which holds in The United States of America.

Dependent Variable: HHFCE

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	-3.366204	0.310786	-10.83128	0.0000
SB	0.617996	0.103313	5.981801	0.0000
SC	2.255390	0.481227	4.686746	0.0001
ST	7.347456	0.954796	7.695319	0.0000
C	34.59234	5.314163	6.509461	0.0000

Dependent Variable: HHFCE

Instrument list: C RPE(-1) SB(-1) SC(-1) ST(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	-3.278713	0.447485	-7.326973	0.0000
SB	0.652495	0.173543	3.759842	0.0011
SC	2.182087	0.680385	3.207136	0.0041
ST	6.860066	1.487710	4.611157	0.0001
C	36.85376	5.096687	7.230925	0.0000

However, If I consider subcategories regarding total Government expenditures, some different significant results do appear. HHFCE seem to correlate negatively with RPE which implies results considered to be not Keynesian. All the other subcategories display positive coefficients which coincide with the Keynesian Theory. Because of the direct effects on disposable income. To conclude, only if I divide Government spending into multiple subcategories significant results are obtained.

Dependent Variable: HHFCE

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-1.938493	0.188796	-10.26766	0.0000
TTRFG	-1.418470	0.276098	-5.137569	0.0000
TCGDGDP	-0.006523	0.052466	-0.124337	0.9020
C	115.4230	5.318769	21.70107	0.0000

Dependent Variable: HHFCE

<div style="text-align:right">

Table 12

</div>

Instrument list: C GGFCE(-1) TTRFG(-1) TCGDGDP(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-2.274131	0.426702	-5.329559	0.0000
TTRFG	-1.622925	0.565707	-2.868846	0.0085
TCGDGDP	-0.061056	0.051649	-1.182125	0.2487
C	125.3824	13.41352	9.347463	0.0000

Tables 11 and 12 appear to be consistent compared to the previous results depicted in tables nine and 10. So, if I consider Government consumption instead of total expenditures, significant results are submitted to the overall conclusion. Moreover, if the Government cuts final consumption, Anti-Keynesian results appear to be the case (negative correlation). In addition, if I consider taxes Keynesian results come forward. To sum up, in the United States of America, taxes suffer direct effects- whether Government Consumption experiences indirect effects of Fiscal Policy. Other subcategories do tend to respond differently with respect to Fiscal Policy. Moreover, American people do care about changes in any of the subcategories considered in my analysis rather than contemplating the aggregate effect of total expenditures set by the General Government. To conclude, I would like to make a final note regarding some opposing results in tables eight and 12. These tables depict some conspicuous results regarding taxes imposed by the General Government. Moreover, if I put taxes in a regression along with total expenditures of the General government any significant result cannot be observed whereas significant result regarding taxes do appear if I replace total expenditures of the General Government for Government consumption.

France

<div style="text-align:right">

Table 13

</div>

Dependent Variable: HHFCE

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	-0.058506	0.108727	-0.538104	0.5951
TTRFG	0.237939	0.227022	1.048089	0.3042
C	55.55013	9.099163	6.104972	0.0000

Dependent Variable: HHFCE

Instrument list: C TEOGG(-1) TTRFG(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	-0.338013	0.145923	-2.316369	0.0290
TTRFG	0.011021	0.194001	0.056809	0.9551
C	74.37744	10.47602	7.099779	0.0000

As can be seen from both tables, any significance occurs after testing for endogenously. Total expenditures of the General Government support an indirect effect which embodies Anti-Keynesian Theories. In addition, as mentioned in the methodology, the tax ratio is not included, because data restrictions did not allow me to do so.

Dependent Variable: HHFCE

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	-0.518647	0.236721	-2.190961	0.0562
SB	-0.051015	0.459471	-0.111030	0.9140
SC	0.451777	0.106716	4.233469	0.0022
ST	0.796717	0.225656	3.530672	0.0064
C	43.55298	2.806140	15.52060	0.0000

The table displayed above shows results regarding subcategories. As can be seen from the table, social contributions and social transfers do meet Keynesian assumptions. Both variables imply a positive relationship regarding the response variable (HHFCE). The other results appear not to be significant. So, any conclusion cannot be drawn out of these data.

Dependent Variable: HHFCE

Instrument list: C RPE(-1) SB (-1) SC(-1) ST(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	-0.165678	2.096983	-0.079008	0.9390
SB	-2.887379	8.739879	-0.330368	0.7496
SC	1.466960	2.896673	0.506429	0.6262
ST	1.998080	3.932431	0.508103	0.6251
C	52.46444	31.53701	1.663583	0.1348

However, if I test for endogenously, all significant results obtained in the previous table vanish. This results sustain the cyclical effect of Fiscal Policy.

Dependent Variable: HHFCE

Table 17

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-0.045509	0.262582	-0.173314	0.8637
TTRFG	0.277300	0.225702	1.228608	0.2302
C	52.82813	9.600451	5.502672	0.0000

Dependent Variable: HHFCE

Table 18

Instrument list: C GGFCE(-1) TTRFG(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-0.615346	0.413875	-1.486793	0.1496
TTRFG	0.146480	0.186918	0.783658	0.4406
C	68.45111	12.12613	5.644928	0.0000

Tables 17 & 18 represents results regarding another subcategory which denotes Government consumption. Nevertheless, the tax ratio is not included. As can be deducted from the table, both variables do not posses any form of significance. To conclude, taxes and subcategories which are considered to be instruments of Fiscal Policy, do not influence economic behavior of French citizens. However, French people seem to respond Anti-Keynesian if the General Government modifies total expenditures. So, French people do only respond with respect to the aggregate effect of total expenditures inflicted by the General Government.

United Kingdom

Table 19

Dependent Variable: HHFCE

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	-0.401408	0.174298	-2.302995	0.0295
TTRFG	0.741602	0.424433	1.747279	0.0924
C	60.68012	15.46338	3.924118	0.0006

The 19th table displays a significant negative correlation between total expenditures and HHFCE which corresponds with an Anti-Keynesian effect. Taxes of the General Government do not reveal any relationship with HHFCE.

Dependent Variable: HHFCE

Table 20

Instrument list: C TEOGG(-1) TTRFG(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	-0.437902	0.154875	-2.827460	0.0091
TTRFG	1.128039	0.529072	2.132109	0.0430
C	52.08844	18.44256	2.824361	0.0092

However, after testing for endogenity, also taxes appear to be a factor which influences the level of HHFCE significantly which is depicted in the 20th table. The relationship between taxes and the response variable is strictly positive which indicates English people to act Anti-Keynesian. To conclude, English people do tend to act Anti-Keynesian regardless the variable I submit.

Dependent Variable: HHFCE

Table 21

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	-2.433454	0.559873	-4.346437	0.0007
SB	0.339109	0.202116	1.677793	0.1156
SC	-0.254742	0.505490	-0.503950	0.6221
ST	1.076924	0.282020	3.818611	0.0019
C	65.63621	4.165552	15.75691	0.0000

.

Dependent Variable: HHFCE

Table 22

Instrument list: C RPE(-1) SB(-1) SC(-1) ST(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	-1.929040	1.057032	-1.824958	0.0911
SB	-0.034902	0.416154	-0.083868	0.9344
SC	-2.507289	2.974359	-0.842968	0.4145
ST	1.730186	1.572980	1.099941	0.2913
C	76.91758	10.31686	7.455522	0.0000

Both tables displayed above consider subcategories with respect to Fiscal Policy. As can be seen in the second table, any significant observations acquired in the first table will disappear which obviously refers to the cyclical effect these results are subjected to.

Table 23

Dependent Variable: HHFCE

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-0.812110	0.390513	-2.079600	0.0476
TTRFG	0.825456	0.373161	2.212063	0.0360
C	57.59157	14.36248	4.009863	0.0005

Dependent Variable: HHFCE

Table 24

Instrument list: C GGFCE(-1) TTRFG(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	-0.735416	0.328587	-2.238115	0.0344
TTRFG	1.426946	0.526630	2.709578	0.0120
C	40.13378	17.84938	2.248469	0.0336

As can be seen from the table, GGFCE is considered to be the only subcategory which appears to affect private consumption (negatively). To conclude, the English people do not distinguish between total- and consumption expenditure. The same Anti-Keynesian result appears in the data analysis. Taxes maintain her property of being Anti-Keynesian. The overall results deviate from previous observations regarding former countries in a sense that private consumption also be affected indirectly by the level of taxes.

Germany

Dependent Variable: HHFCE

Table 25

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	0.141974	0.110460	1.285300	0.2195
TTRFG	-0.786831	0.502979	-1.564341	0.1401
TCGDGDP	0.030400	0.032344	0.939870	0.3632
C	59.34012	8.028323	7.391347	0.0000

Dependent Variable: HHFCE

Table 26

Instrument list: C TEOGG(-1) TTRFG(-1) TCGDGDP(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
TEOGG	0.427617	1.592613	0.268500	0.7925
TTRFG	-0.295356	2.640400	-0.111860	0.9126
TCGDGDP	0.095148	0.378460	0.251408	0.8054
C	38.26019	116.1227	0.329481	0.7470

Both tables agreed on Ricardian Equivalence. This particular conclusion can be made because of absence of any significant observation. Basically, private consumption does not suffer any modifications if any of the independent variables alter. In conclusion, strong evidence for Ricardian Equivalence to hold in Germany is provided within these tables.

Dependent Variable: HHFCE

Table 27

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	1.814835	0.331635	5.472386	0.0001
TTRFG	-0.374558	0.208052	-1.800307	0.0934
TCGDGDP	0.107995	0.017569	6.146971	0.0000
C	24.48311	6.179792	3.961802	0.0014

Dependent Variable: HHFCE

Table 28

Instrument list: C GGFCE(-1) TTRFG(-1) TCGDGDP(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
GGFCE	4.071481	2.428632	1.676450	0.1175
TTRFG	0.463550	1.425794	0.325117	0.7503
TCGDGDP	0.269320	0.177668	1.515858	0.1535
C	-32.97082	66.50241	-0.495784	0.6283

If I consider the main subcategory which refers to Government final consumption, the results are consistent regarding table 26. Any significant features obtained in table 27 are offset after testing for endogenously. So, final consumption will not have any effect regarding private consumption. In conclusion, the results acquired in table 28 turn out to be Ricardian. Issuing debt, tax modifications and alterations with respect to Government consumption do not seem to affect private consumption. Fortunately, any evidence for Ricardian Equivalence concerning Germany, is fortified if I compare 25th- and 26th table with 27th and 28th table.

The 29th and 30th table reflects the other subcategories applied to Germany.

Dependent Variable: HHFCE

Table 29

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	0.995388	0.280393	3.549970	0.0036
SB	1.474107	0.296716	4.968072	0.0003
SC	-1.087144	0.409495	-2.654838	0.0198
ST	-1.668703	0.721066	-2.314218	0.0377
C	61.58853	5.314898	11.58791	0.0000

As can be seen in table 29, all variables display significant results. RPE and social benefits support Keynesian Theories whereas social contributions and social transfers support Anti-Keynesian Theories.

Dependent Variable: HHFCE

Table 30

Instrument list: C RPE(-1) SB(-1) SC(-1) ST(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
RPE	2.797950	3.317694	0.843342	0.4155
SB	3.691434	3.984382	0.926476	0.3725
SC	-2.235979	2.944862	-0.759282	0.4623
ST	-15.01103	24.49671	-0.612778	0.5515
C	174.1444	206.7753	0.842191	0.4162

However, if correct the results for endogenously, all significant results disappear which basically means that the independent variables also be affected by the level of private consumption. These outcomes reflect strong evidence for subcategories being cyclical.

8 : Conclusion

In my thesis, five countries were selected and investigated. Moreover, these countries were submitted to different tests whereas the main goal of these tests involves to examine how each of these countries are affected by Fiscal Policy in the short term. Regarding the first part of my thesis, I expounded three different theories in order to identify possible consequences of Fiscal Policy. In the second part, I explored behavior concerning these countries by evaluating several variables along with the shock they generate whereas some conspicuous results were retrieved. Furthermore, the analyzed countries seem all to respond differently regarding Fiscal Policy effects. Fortunately, all my results could be applied to one of the theories mentioned. In the next fragment of my conclusion I attempt to elaborate my results by economic reasoning. Moreover, I will discuss each country under consideration separately and, in addition, any similarities and differences detected between these countries will be emphasized.

The Dutch people seem to respond in a ''Keynesian'' way. If the Dutch Government enlarges total expenditures, the economy will flourish due to its (positive) effect on disposable income. To sum up, if a specific country responds in a ''Keynesian'' way, co-movement between disposable income and total expenditures will be observed. However, the subcategories seem not to depict significant result which could be explained by the pro-cyclical effect. Basically, the economy is assisted by the Dutch Government whenever required. So, if the economy grows/declines, the Dutch Government dampens/stimulates the economy by spending less/more referring to the subcategories. To conclude, total expenditures appear to counter the overall state of the economy. However, if total expenditures in general soar/plummet, disposable income will also increase/decrease reflecting the Keynesian' Theory. In addition, I would like to make a final remark concerning taxes. Any modifications referring taxes appear not to affect the Dutch economy which is in line with Ricardian Equivalence. Basically, if total expenditures do not alter, total tax modifications will be offset in the future in order to finance Government expenditures which will remain identical in the future. So, Dutch people anticipate a future tax burden by, for instance, depositing current tax benefits in order to compensate the future tax burden.

The United States of America appear to respond differently with respect to the subcategories which evaporates any significance regarding total expenditures of the General Government. On the one hand, public employment along with Government final consumption cause an indirect effect concerning the economy. First of all, Government final consumption is set to be a head of expenditure implying an higher future tax burden in order to compensate this kind of Government expenditures. Secondly, if the Government cuts expenditures referring public employment, the economy could be stimulated true the supply channel as was described by Alberto Alesina and Silvia Ardagna (1998). Moreover, if civil servants are discharged by the Government, supply of labor will soar which shall inflict wage reduction. To sum up, a (private) supply shock is realized. The indirect effect accentuates the forward-looking aspect which argues that people expect a (positive) modification concerning the future tax burden, if the Government induces more expenses. On the other hand, the USA seem to react in a "Keynesian" way if I consider the other subcategories indicating that these subcategories have got a direct effect regarding disposable income.

French citizens tend to respond indirectly. If, total Government expenditures increase, an augmented future tax burden will be anticipated by French citizens. Furthermore, French people shall adjust their level of consumption in a negative way which induces a bigger amount of money to be deposited in order to match the future tax burden. However, any modifications considering subcategories are supposed to be temporarily due to pro-cyclical effects which emerge if the French Government attempts to intervene the current state regarding the national economy. In addition, French people appear to respond passively in relation to Taxes. So, French citizens will expect future corrections concerning the tax burden. In conclusion, the French population seem to be forward-looking.

The United Kingdom retort indirectly with respect to total expenditures and final consumption inflicted by the British Government. Implying that the future tax burden will soar when the British Government transfers additional fund to the both variables mentioned above. Furthermore, the other subcategories seem not to affect the economy due to the pro-cyclical effect indicating excess expenditures will be incurred by the Government if the overall state of the economy appears to be deplorable. A rather conspicuous result shows up when I evaluate Taxes which depicts anti-Keynesian features. Basically, if the Government increases the current tax burden, economic agents will anticipate a lower future tax burden

which results the economy to expand. Unfortunately, an economic reason to elucidate this phenomena is not that obvious since extending the current tax burden only indicates to finance rather great Government expenditures. Basically, a substantial part regarding private consumption is converted into public consumption. So, there is no reason why rational economic agent should expect a lower future tax burden. To conclude, this phenomena requires further investigation.

Germany does seem to respond passively regarding all variables investigated since none of them appear to be significant. To sum up, Germany appears to be the only country which sustains Ricardian Equivalence. Basically, German people believe Government expenditures to be constant over time. So, any fluctuations regarding expenditures and taxes imposed by the German Government are considered to be temporarily. To conclude, German people will anticipate any modifications regarding taxes by adjusting private consumption. In addition, excess Public consumption will correct itself eventually in the future which is also anticipated since German people appear not to react to alterations. Basically, if the Government commence to increase spending, the additional fund retrieved in the private sector will be stored away instead of consuming in order to compensate the next period where public spending is reduced. So, these two periods offset each other which fosters smoothing regarding to private consumption. In conclusion, both outcomes will be in favor of the forward-looking aspect.

Government expenditures

To sum up, five countries which were investigated display varying results. However, some similarities regarding the five countries could be observed. The cyclical effect, for instance, is detected in all countries except The United States of America whereas the forward-looking aspect could be applied to The United States of America, France and The United Kingdom. Moreover, Keynes' Theory which is widely accepted only appears in The Netherlands and some segments considering The United States of America.

The cyclical effect is noticed in relation to subcategories. If the cyclical effect is perceived, any absence concerning a significant effect will be realized. One possible explanation concerning this phenomena could be related to temporality. If citizens with respect to any particular country do expect Government expenditures to soar/plummet after an economic

crisis/boom, Government expenditures will be classified temporarily. Hence, citizens will not counter any modification regarding Government expenditures. Basically, if the national economy recovers, the Government will cease transferring money. Likewise, if the national economy shrinks the Government has to activate public resources in order to bear up against the people. For instance, the Government conveys money to employees who have become unemployed in order to maintain social standards. To conclude, the Government smoothes consumption in order to master instability with respect to private consumption.

The forward-looking aspect can hardly be clarified. On the whole, it is difficult to argue why particular countries do tend to be forward-looking whereas other countries do not. Basically, people, regarding the countries which were investigated, tend to value future consumption differently. In addition, in the theoretical part it was mentioned that people wish to smooth private consumption over time whereas this could only be realized when people are considered to be forward-looking. Moreover, if people do not smooth consumption, fluctuations considering private consumption over time will be observed which is consistent with Keynes'' Theory. So, the main question is:'' Why do some countries smooth their (private) consumption whereas other countries do not''? In spite of this, one possible explanation concerning this striking feature could be provided. Namely, expectations about the future will (partly) explicate the forward-looking aspect. Nevertheless, the main question:'' how do people constitute expectations about the future'', remains. Unfortunately, this thesis does not provide me a proper answer. So, further research concerning this subject is required.

Governmental taxes

If Taxes are considered all countries seem to posses the forward-looking aspect. Furthermore, all countries except for the United Kingdom agree on Ricardian Equivalence. So, people regarding these countries do expect modifications with respect to current tax burden to be offset by the future tax burden. Therefore, people will not adjust current private consumption. Moreover, people will save/borrow the additional benefits/burden of tax alterations in order to maintain their current private consumption level. Conversely, the United Kingdom appear to deviate with respect to the other countries. Moreover, actual increases regarding tax benefits/burden will be answered by means of current private

consumption which actually plummets/soars. Basically, if current taxes go down/up, people will expect the future tax burden to go up/down which is responded by negative/positive modifications concerning current private consumption. All in all, this phenomena is somehow strange. In the literature, I mentioned total consumption which is actually the sum of private- and public consumption. Consequently, a rise concerning current taxes, will cause a shift which will harm private consumption. In conclusion, there is lack of reason why rational economic agents do foresee modifications regarding the future tax burden which is primarily based on current taxes.

Shortcomings and suggestions for further research

During my research, conflicting outcomes were retrieved. Besides, these results provide me some interesting notions about how people react to the whim of the Government. Unfortunately, this research does not fulfill the question why people ''concerning the investigated countries'' act in the way they do. Moreover, why do people respond differently to alterations with respect to macro-economic variables. So, the main question is:'' Is there either economic reasoning or is it just irrationality among people which clarifies economic behavior''. In my opinion, further research regarding to this subject is needed in order to ascertain economic behavior.

Regrettably, my research suffered lack of data which could have affected the final results. Basically, the results could have been more reliable if I had incorporated more observations. However, it is commonly argued that reliability decreases exponentially along with the total number of observations which will reduce consequences. Nevertheless, extra data could not be extracted from the OECD. For instance, numbers concerning taxes do appear only on yearly basis. So, I included every observation which was at my disposal.