Kiel Policy Brief

The Effects of Government Spending in a Growing Economy

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1. Introduction

In response to the global recession caused by the financial crisis of 2007–2008, many governments resorted to fiscal policy once monetary policy was constrained by the zero lower bound of the short-term interest rate. The intervention has prompted academic and policy debates on the effectiveness of fiscal policy, in particular government spending, in bringing strong recovery from the recession.

Naturally, the effectiveness of fiscal policy depends on the state of the economy and the stance of monetary policy, as recent studies have shown in various contexts, in particular, the determinants of the size of the government spending multiplier—the ratio of the change in government spending to the change in national output. In general the multiplier need not be the same in all periods following the increase in government spending. It could be that the impact multiplier is small but the medium-term multipliers are large, or vice versa. For instance, in a recent survey Hall (2009) reports that the multiplier estimates after two years are on average larger than impact multipliers.

The policy brief discusses the policy implications of changes in the potential growth rate in view of the debate on the size of the government spending multiplier. The discussion draws from the author's own recent work on the subject (for details, see Tesfaselassie, 2011).

2. Key Determinants of the Government Spending Multiplier

Recent research has emphasized the role of three factors in determining the size of the government spending multiplier. The first factor is sluggish or slow adjustment of prices and/or wages. The second is related to the stance of monetary policy, in the sense of whether the central bank accommodates inflationary pressures or monetary policy is constrained as a result of the short-term nominal interest rate hitting the zero lower bound, as has happened during the current financial and economic crisis. The third factor is the speed of potential growth of the economy. After briefly discussing results on based on the first two factors, the paper presents detailed discussion on the role of potential growth based on the author's own recent work.

2.1 Slow adjustment of prices and wages

It is widely documented that in the short-run firms and workers face slow adjustment of prices and wages, respectively (see, e.g., empirical studies undertaken within the Wage Dynamics Network of the European Central Bank, ECB, 2009). The so-called new Keynesian models, which emphasize the role of sluggish prices and wages behavior by the private sector, imply a larger multiplier than frictionless business cycle models (where the multiplier is typically less than one) due to slow adjustment of prices or wages in response to government spending (Woodford, 2010).

2.2 Accommodative monetary policy

While sluggish prices and/or wages allow for larger multipliers than is the case in their absence, the size of the multiplier depends crucially on the response of monetary policy to inflationary pressures that accompany the higher aggregate demand. In this case, a multiplier much larger than one is even possible if monetary policy is constrained by the zero lower bound for the nominal interest rates (Christiano, Eichenbaum and Rebelo, 2010) monetary policy is very accommodative to fiscal policy (Woodford, 2010).

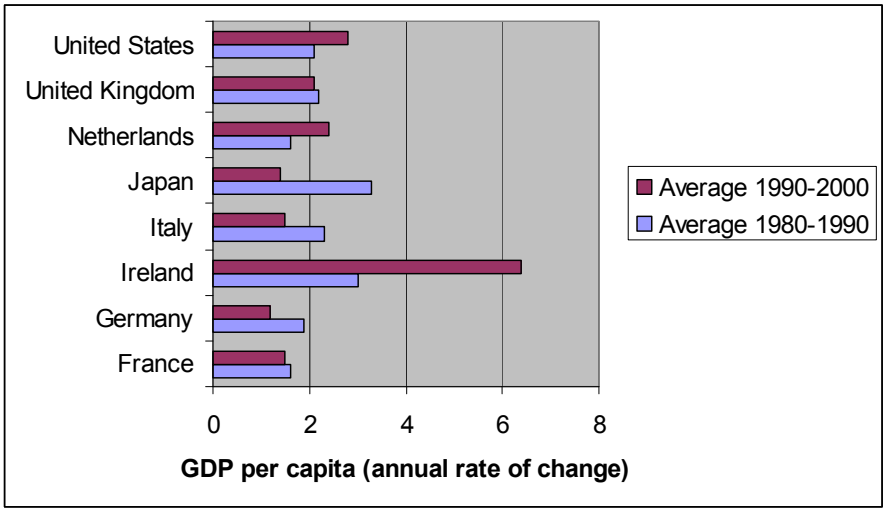
2.3 The speed of potential growth

Few studies consider the role of potential (trend) growth for short-run policy analysis. Tesfaselassie (2011) studies how the effect of government spending depends on the potential growth rate of the economy. The issue of trend growth is important for two reasons. First, in the wake of the current crisis, concerns were raised about the long-term effect of the financial crisis, for example that the severity of the crisis could have lowered the potential growth of the affected economies. For instance, in its 2009 Economic Outlook, the OECD said:

> "A major uncertainty and a particular focus here is the magnitude of any adverse effects that the crisis may have on the level or growth rate of supply-side potential. Substantial and long-lasting effects would reduce growth in living standards, and could put additional long-term pressure on already strained public finances to the extent revenue growth is lower and not counter-balanced by reduced spending. Different paths for potential output will also have implications for monetary policy…" (OECD, 2009, p. 231).

If such concerns are legitimate then discussions of the effectiveness of macroeconomic policies in general and fiscal policy in particular, should take into account the role of lower potential growth. Second, for one reason or another potential growth differs across time and across countries. For instance, within the industrial countries the per capita growth rate of gross domestic product (GDP) was 3.7 in the 1950s, 4.2 in the1960s, 3.0 in the 1970s and only 2.1 in the 1980s (Siebert, 1992). Looking at the more recent data, Figure 1 compares average per capita GDP growth for selected advanced economies over 1980–1990 and 1990–2000. For instance, Japan enjoyed an average growth rate of more than 3 percent during the 1980–1990 period, while the growth rate slowed down to less than 1 percent in the following decade. On the other hand, at more than 6 percent, Ireland's growth rate during 1990–2000 period was more than double its level during the preceding decade.

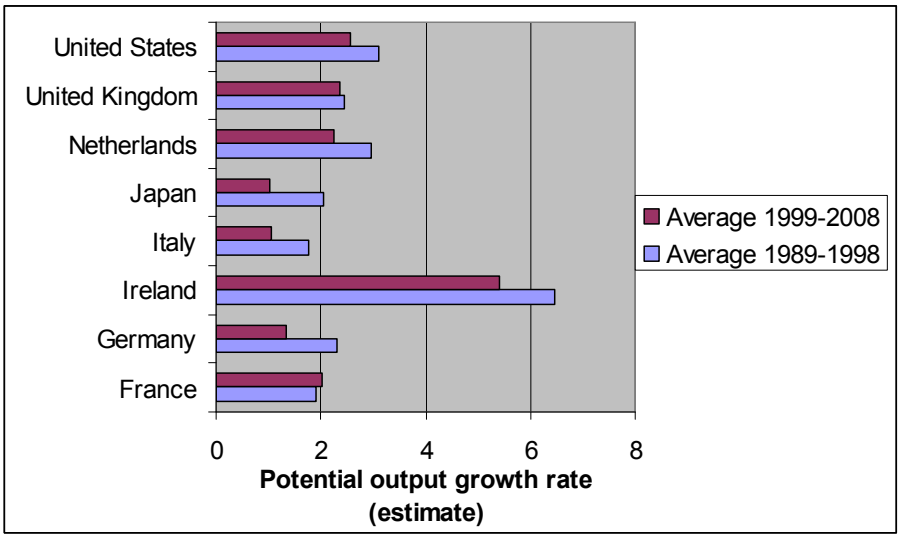
Figure 1: Trend growth for selected countries



Source: OECD, 2003

Figure 2 shows the corresponding potential output growth rate for these countries, based on estimates from production functions, over 1989–1998 and 1999–2008. Therefore, looking beyond the current crisis, one can also draw policy implications of changes in the speed of potential growth.

Figure 2: Trend growth for selected countries



Source: OECD, 2010

The framework that Tesfaselassie (2011) uses to think about the effects of government spending is quite standard in macroeconomic research. First, it features sluggish changes in prices and wages that are observed in the micro data. Second, monetary policy plays a stabilizing role using the short-term interest rate as an instrument. Moreover, discretionary government spending increases overall demand for goods and services and the spending is financed by lump sum taxes. Higher government spending leads naturally to higher output, and consequently higher employment, but also to higher inflation.

The main question of interest is the role of potential growth (which arises from growth in labor productivity) in determining the effect of government spending on the economy. To be specific, does a slower potential growth rate make government spending less or more inflationary, and less or more expansionary in terms of economic activity, such as output and consumption? The answer to the second question has direct implication for the size of the government spending multiplier.

In order to study the role of trend growth, the effect of government spending is analyzed under two scenarios: (i) the economy is growing at 2 percent per annum, which is roughly the average rate for industrialized countries over the past two decades, and (ii) the economy is not growing at all (zero trend growth rate). Given an initial condition of the economy, lower potential growth is associated with lower wage growth and lower consumption growth, which is in line with the well-known growth facts (Solow, 1956).

Figure 3 below, which is adapted from Figure 1 of Tesfaselassie (2011), shows how a temporary but persistent increase in government spending feeds into key macroeconomic variables such as output, consumption, interest rates, wage inflation and price inflation.[1] After an initial increase, government spending is phased out overtime. In each quarter government spending is 90 percent of what it was in the previous quarter, which is roughly in line with actual policy.

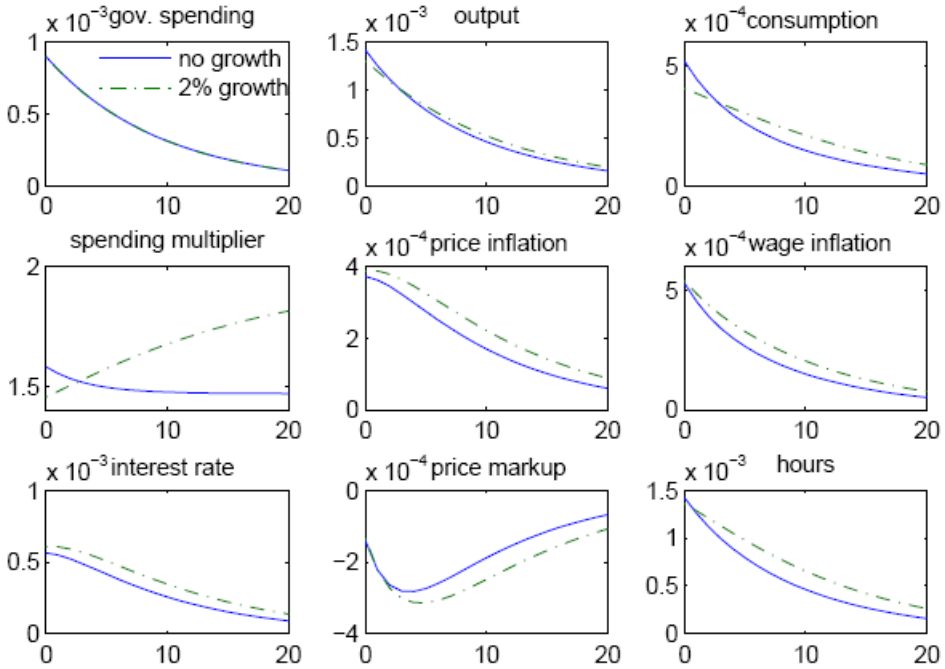
Regardless of whether potential growth rate is zero or 2 percent, the higher government spending expands output, employment (in total hours worked) and household consumption. At the same time, it increases both price inflation and wage inflation. However, it lowers the markup of prices over unit labor cost (in this case the average wage in the economy), as is also reflected by the fact that the effect on wage inflation is larger than the effect on price inflation. The central bank increases the nominal interest rate in reaction to higher inflation.

Next we compare the two scenarios concerning potential growth of the economy. As can be seen in Figure 3, an increase in government spending is less inflationary in the no-growth scenario. Since the interest rate controlled by the central bank moves with price inflation, interest rate rises by a smaller amount in the no-growth scenario. However, the effect of government spending on output and consumption in the two scenarios depends on the time horizon. Initially, output and consumption (and thus the impact multiplier) are larger in the no-growth case than in the case with 2 percent growth. But in the no-growth case, both variables exhibit less persistence implying that the effects of increased government spending die out

[1] All real variables except hours worked are detrended by productivity growth so that after an initial disturbance the detrended variables return to their levels in the long-run.

sooner than they would in the case with 2 percent growth. Consequently, the medium-run multipliers are smaller than they would be in the case of 2 percent growth.

Figure 3: Dynamic effects of an increase in government spending (all variables, except spending multiplier, are in percentage deviations from their steady state).



The intuition behind the results shown in Figure 3 lies in how the Phillips curve, a key equation that relates changes in inflation to changes in the output gap and expected inflation, is affected by trend growth. In this regards there are two effects of trend growth. On the one hand, the lower is trend growth the flatter is the Phillips curve, so that that an increase in government spending is less inflationary and more expansionary on impact. On the other, the lower is trend growth the more persistent is inflation and, by implication, the less persistent is the output gap.

One notable feature of Figure 3 is that in the 2 percent growth scenario the medium-run multipliers are larger than the impact multiplier. The impact multiplier is 1.45 while the multipliers after two years and four years are, respectively, 1.62 and 1.75. This result is consistent (at least qualitatively) with a host of recent empirical findings on the government spending multiplier (see, e.g., Hall, 2009).

3. Concluding Remarks

While this policy brief has focused on the role of potential growth in determining the size of the government spending multiplier, the message is more general, in that assessments of the effectiveness of policy interventions should take into account changes in the potential growth rate of the economy.

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