

Military Keynesianism: An Assessment

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Abstract

The recent recession has seen something of resurgence in the debate over military Keynesianism. Recent commentators who should no better have claimed that it would make sense to stimulate the US economy through increases in military spending, as though this has not been a commonly contested view over the last 40 years. A large literature has debated the economic effects of military spending and while it has reached no consensus, there is also little support for any belief that military spending is a good way of stimulating the economy. This paper makes a contribution to the debate by assessing the theoretical perspectives and the empirical approaches used. It then undertakes an analysis of the US using a number of approaches and the results suggest that the simple Military Keynesian arguments still lack empirical support.

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Introduction

With the recent recession and there has been something of a resurgence of military Keynesianism, the belief that military expenditure represents a useful if the only form of state spending to use to stimulate the economy. In a Wall Street Journal article in 2008 Martin Feldstein suggested that any Department of Defense budget cuts were misguided. He suggested that the US government recognised the need for increasing government spending to offset the decline in consumer demand in the economy and argued that a rise in military spending would be the best way to provide this stimulus. While showing a complete ignorance of, or disregard for, the research that has been undertaken on the economic effects of military spending, this view does seem to have other supporters/proponents, particularly in the US. It is understandable that commentators might look to the post Second World War period and the stimulus to unprecedented growth rates provided by state spending, including massive military spending as the Cold War developed. Yet, today's world and economy are rather different, with the Cold War having altered the relation between the military and the economy drastically and the post Cold War changing it even further. These changes are argued to have made the military sector a burden on the economy, necessary for security but no longer of value in stimulating economic growth. Certainly, reviews of the empirical literature have tended to find a predominance of results showing negative or insignificant effects of military spending (Dunne and Uye, 2010), but many of these do not use specifically Keynesian models and vary in the length of time series and coverage.

Given this renewed interest in Military Keynesianism, this paper takes the opportunity to revisit the issues involved. It considers briefly what the real arguments are in the debate over the economic functions of military spending and where they come from then provides a review of the empirical evidence and then provides an econometric analysis for the US. The next section briefly surveys the theoretical basis for Keynesian analyses of the impact of military spending on the economy. This is followed by a section in which the adequacy of the Keynesian narratives in explaining the patterns of military spending over time relative to strategic explanations are evaluated. The following section provides an econometric analysis of the Keynesian arguments, using cointegrating VAR models, using a long data set from 1929-2009. The final section then provides some conclusions.

Military expenditure and the economy

As a starting point it is useful to consider where military Keynesian ideas come from. A basic Keynesian perspective would see military spending as simply one component of government spending, with effective demand/multiplier effects. In this way military spending can be good for an economy, getting it out of recession and helping plan expansions in effective demand. This can be on the basis of an IS-LM updated to account for changes in monetary theory and recently used by Atesoglu (2004), Pieroni et al (2008) and Smith and Tuttle. This type of study tends to have output determined by military spending, civil spending and interest rates and to find a positive impact of military spending for the US, though the second paper is more nuanced and the last study actually finds a negative effect. In addition, Keynesian

models that introduce an aggregate production function have tended to find negative effects of military spending (Dunne and Uye, 2009) and using large structural models has also tended to show the existence of a 'peace dividend' as the benefit of reducing military spending and reallocating it has been termed (Gleditsch et al, 1996). It is also generally accepted, however, that war would have a negative impact upon the economy (Dunne, 1990).

A strand of Keynesian analysis has combined an effective demand macro perspective with a form of institutional analysis to provide a more complex understanding of the processes at work and the role of military power and conflict¹. The institutionalist perspective is predicated on existence of MIC (Eisenhower), where internal pressures for increases in military spending and forces are independent of threat. They create inefficiencies in the economy and so can have negative economic effects, particularly as the nature of defence production changed during the cold war and became very different from civil). This can also have other externality effects through influences on the civil sector and crowding out (Dunne and Skons, 2011). This approach clearly argues for the damaging effects of military spending on the economy.²

A related perspective was developed from Marxist theory, with the most lasting contribution being by Rosa Luxemburg who introduced a theory of underconsumption, where military expenditure provides a way to invest the surplus without increasing production capacities. This theory was later taken up by Baran and Sweezy (1966) in a manner that emphasised the monopoly nature of the post war system. This approach saw military spending as important in preventing realisation crises, through absorption of surplus without raising wages or capital. Other government expenditure could not do this³. Baran and Sweezy were more circumspect than later proponents of the effective demand/underconsumption Pivetti (1992) and Cypher (1987), who suggest that military spending conscious instrument of economic policy and military spending has a stimulating effect on economy⁴.

Thus when one looks into the way military spending is dealt with by Keynesians, there is no simple narrative, no clear military Keynesian theoretical perspective. The simple belief in the value of military spending in providing the best stimulus for economic growth, is neither simple nor uncontested among Keynesians.

² The military sector create inefficiencies in the economy, particularly as the nature of defence production changed during the cold war and became very different from civil. This can also have other externality effects through influences on the civil sector and crowding out (Melman, 1970; Dunne, 1995). Melman (1974) underlines the harmful effects of militarism on the American economy such as the loss of competitiveness, the development of the bureaucracy, the fall in productive investment and limited spillover effects from the military to the civil sector. Similarly, Dumas (1986) presents the military production as an economically non-contributory activity, which channels valuable productive resources and their outputs.

³ Using the 'surplus' approach to Marxist analysis, which identifies value with observed quantities, so for example profit in price terms is seen as the money representation of surplus value (Baran and Sweezy, 1966; Coloumb and Dunne, 2008)

⁴ Smith & Dunne (1994) provide a critique of Pivetti.

Military Keynesianism Evaluated

Historically, the effect of major wars means that military expenditures have shown much larger variations than any other category of government finance. In the US the share of National Defence Expenditures in GDP was less than two per cent of GDP during the inter-war period; then rose with the war, peaking at around 50% of GDP in 1943 and 1944 and falling sharply with the end of World War II, to around seven per cent, before rising again to almost 15 per cent in 1953, with the Korean War. Subsequently the share trended downwards, jumping upwards in the late 1960s with the Vietnam War, peaking at 10 per cent in 1967, before continuing its downward trend till 1979, falling to 5.7 per cent. With the Soviet invasion of Afghanistan, the election of President Reagan and worsening relations with the Soviet Union; the share again rose, peaking in 1986 at 7.8 per cent. As the Cold War thawed and then ended, the share fell; reaching a low of 3.8 per cent in 2000. The Global War on Terror, after 2001, increased the share to just over 5 per cent in 2008. By US post-war historical standards, this is still quite low (Dunne and Smith, 2011).

<Insert figure 1 around here>

This discussion of strategic factors affecting the US seems a reasonable explanation of the pattern of military burden in Figure 1, but clearly excludes any economic rationale. An alternative perspective tends to start from the high unemployment of the inter-war period, interpreted as an inability of capitalism to generate enough effective demand, consumption or investment, to maintain full employment. Many forecast that World War II would be followed by a slump similar to that following World War I. This did not happen; the period from the end of World War II until the crises of the 1970s was one of low unemployment that, in retrospect, was labelled a golden age of capitalism (Glyn, 2006). As discussed above, some economists, such as Baran and Sweezy (1966), argued that military expenditure was the source of the extra effective demand that stopped capitalism sinking into depression; since the US and UK devoted a much higher share of output to the military than their previous peacetime norms. They suggested that military expenditure was used to offset the tendency to stagnation and unemployment and adjusted to stabilise the economy and thus was a blessing for capitalism, rather than a burden

Empirically, there are a variety of problems with this argument. It is not clear that the Marxist or Keynesian theories outlined above actually predicts such under-consumption tendencies. The strategic explanations, rooted in war and the communist threat, seem a better explanation of military expenditures than economic justifications. As we have seen it is relatively straightforward to tell a strategic story to explain the share of military expenditure in the US and very difficult to tell an economic story. Although World War II, the Korean Wars and the peak of the Vietnam wars were periods of relatively full employment in the US, the strong downward trend in the share of military expenditure is not marked by any corresponding upward trend in unemployment. The communist threat may have been exaggerated but it was certainly perceived as real. While economic factors were certainly important at a micro level (weapons projects and base locations) they seem less so at a macro level. Military expenditure would be a very bad fiscal regulator because of the lags before it comes into effect: it takes too long to plan and implement to be an effective stabiliser (Smith and Dunne, 1994). Many countries with low military expenditure, in particular

Germany and Japan, showed lower unemployment and faster growth than the US and UK, though it could be argued that they benefited from the spillovers from UK and US military Keynesianism. There are other explanations for the golden age and why it came to an end in the 1970s. When the Cold War ended, the UK and US cut their military expenditures substantially and rather than sinking into unemployment both grew rapidly; benefiting from the peace dividend. The cuts in military expenditure reduced government deficits, which allowed lower interest rates boosting investment in the technology boom of the 1990s. Thus, it does seem difficult to accept a simple Keynesian or underconsumption explanation.

Econometric Analyses

Moving beyond institutional and historical analyses of Military Keynesianism there is a subset of the military spending economic growth literature that focuses specifically upon the econometric analysis of the Keynesian arguments. We can distinguish three approaches.

Firstly, Granger causality methods have allowed the complexity of any underlying theoretical arguments to be ignored, by simply considering bivariate relations between military spending and growth, or with some ad hoc theoretical specification. Earlier studies used simple bivariate OLS analysis. At their simplest these studies were simply testing if growth could be explained by its own lagged values just as well as it could by its own lagged values plus the present lagged values of military spending i.e. if the coefficients on the military spending terms were jointly significantly different from zero. If so it was considered that there was ‘Granger causality’ from military spending to growth. A similar test could be conducted with military spending as the dependent variable. Developments of this form of analysis saw attempts to deal with possible long run relations within the data, through cointegration analysis, which itself was superceded by the use of the vector autoregression (VAR) framework model following Dunne and Vougas (1999).

More formally this analysis uses the result that if a set of variables are integrated of order one, I(1), that is they are stationary, I(0), after being differenced once (as seems common for economic variables) and there exist linear combinations of them which are themselves, stationary then they are said to cointegrate. If there is cointegration, there must be Granger causality in at least one direction ie some feedback which stops the I(1) variables diverging. In dealing with I(1) data, it is convenient to rewrite the VAR in vector error correction model, VECM, form

$$\Delta Y_t = a_o d_t + \Pi Y_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-i} + u_t \quad (1)$$

And for the bivariate case –output y and military burden m - case

$$\begin{aligned} \Delta y_t &= a_{10}^1 + a_{10}^2 t + \pi_{11} y_{t-1} + \pi_{12} m_{t-1} + \gamma_{11} \Delta y_{t-1} + \gamma_{12} \Delta m_{t-1} + u_{1t} \\ \Delta m_t &= a_{20} + a_{20}^2 t + \pi_{21} y_{t-1} + \pi_{22} m_{t-1} + \gamma_{21} \Delta y_{t-1} + \gamma_{22} \Delta m_{t-1} + u_{2t} \end{aligned} \quad (2)$$

This is estimated using the Johansen method in Microfit 5.0, which given the lag length of the VAR determines the number of cointegrating vectors, provides estimates of this long run relation and provides estimates of the individual error correction equations. Tests for Granger causality can then be made⁵.

Applying this approach to US data for 1950-2009, gave the following cointegrating relation normalised on y , the log of GDP, with m military burden and t a trend⁶:

$$y_t = -0.431 m_t + 0.038 t + z_t$$

$$(0.093) \quad (0.002)$$

The short run error correction equations, where z is the error correction term $y_t + 0.431 m_t - 0.038 t$ were:

$$\Delta y_t = -0.107 z_{t-1} + 0.110 \Delta y_{t-1} - 0.015 \Delta m_{t-1} + v_{1t}$$

$$(0.030) \quad (0.125) \quad (0.029)$$

$$SER = 0.022, R^2 = 0.193$$

$$\Delta m_t = -0.486 z_{t-1} + 1.339 \Delta y_{t-1} + 0.322 \Delta m_{t-1} + v_{2t}$$

$$(0.106) \quad (0.440) \quad (0.101)$$

$$SER = 0.078, R^2 = 0.438$$

so both the adjustment coefficients have the expected sign and are significant; both the lagged changes in GDP and military expenditure have significant effects on military expenditure, but neither of the lagged changes have significant effects on GDP. As Dunne and Smith (2010) argue, while it is common just to report the results of this test, knowing that there is Granger causality is of little interest in itself without knowing the sign. While there is a long run negative relation, measuring the sign of the effect is not straightforward in this framework⁷. So while valuable, these techniques are difficult to use and have clear limitations.

Indeed, to determine how Granger causality relates to economic causality requires an identified structural model, and different, observationally equivalent, just identifying assumptions may give very different causal pictures. This suggests it would be better to focus on the development and estimation of structural models rather than less theoretical statistical approaches (Dunne and Smith, 2010). The next two approaches do just that, but differ in the manner in which they specify the 'Keynesian' theoretical arguments.

The second approach, considers underlying structural models based on the Keynesian IS-LM and combinations of Keynesian and neoclassical theory. Recent examples of

⁵ Recent examples of analyses using these techniques are Karagianni and Pempetzoglu (2009), Ozsoy (2008), Kollias et al (2007).

⁶ both the Johansen trace and eigenvalue tests at the 5% level suggest one cointegrating relation

⁷ For instance, m_t may be GC for y_t , with coefficients on the first and second lags of m significantly different from zero, but of opposite sign and roughly equal size, implying a short-run effect but no long-run effect.

these include the Keynesian model in Atesoglu (2002) Pieroni et al. (2008), Smith and Tuttle 2008 and Atesoglu (2009). The models are relatively well known and so will not be outlined here, but they do provide a commonly used reduced form specification that includes the logs of real GDP military spending, non military spending as well as the real interest rate, the LR tests suggested a second order VAR. Using unrestricted intercepts and restricted trends the LR tests and model selection criteria actually suggested three cointegrating vectors for the log form, but we chose one as we expect this from the underlying theoretical model.

$$y_t = 0.173 m_t + 0.418 c_t - 0.002 r_t + 0.018 t$$

(0.06) (0.24) (0.01) (0.01)

With short run growth equation:

$$\Delta y_t = 0.449 + 0.993 \Delta y_{t-1} + 0.059 \Delta m_{t-1} + 0.053 \Delta c_{t-1} + 0.010 \Delta r_{t-1} - 0.012 z_{t-1}$$

(3.7) (0.8) (3.4) (1.7) (3.0) (3.5)

R-Squared = 0.48
S.E. of Regression = 0 .035

With all variables in logs and r the real rate of interest and c non military spending. These results are relatively consistent with those of the papers cited with a positive effect of military spending in the long run, a similar magnitude to Pieroni et al (2008) but much smaller than Atesoglu (2002).

There is an issue in interpreting this model as an increase in military spending does not necessarily imply an increase in military burden. Military burden, the share of military spending in GDP is probably the variable that best represents the Keynesian argument as it implies that more resources are allocated to the military sector, while increases in military spending even in constant terms may simply reflect an increase growth in the economy that allows more money to be spent on the military. This implies possible problems of causality and identification, as observing an increase in military spending could results from an increase in output, rather than a government using military spending to boost output, it may be a demand rather than a growth equation that is being estimated. This problem may well explain there being more than one cointegrating vector suggested for the model.

A third approach estimates Keynesian models that might be considered closer in spirit to the effective demand type arguments, including the aggregate production function eg Dunne and Nikolaidou (2005). In this specification output is a function of military burden, as well as taking non-military spending and investment as shares of GDP. Given $\log(M_t/Y_t) = (\log(M_t) - \log(Y_t) = (m_t - y_t))$ and that the other shares can be written in this way, we can write the model as below giving long run estimates:

$$y_t = -0.125(m_t - y_t) + 0.271(c_t - y_t) + 0.048(i_t - y_t) - 0.029 u_t + 0.030t$$

(0.05) (0.05) (0.09) (0.03) (0.001)

With short run growth equation results:

$$\begin{aligned} \Delta y_t = & 1.106 - 0.049 \Delta y_{t-1} - 0.068 \Delta(m_{t-1} - y_{t-1}) - 0.018 \Delta(c_{t-1} - y_{t-1}) + 0.153 \Delta(i_{t-1} - y_{t-1}) \\ & (6.1) \quad (0.3) \quad (2.3) \quad (0.6) \quad (2.7) \\ & - 0.091 u_{t-1} - 0.099 z_{t-1} \\ & (5.2) \quad (5.9) \end{aligned}$$

R-Squared = 0.55

S.E. of Regression = 0.017

Which give the negative effect of military burden on output consistently found by these studies. Clearly, the implications of an increase in military burden are that military spending increases more than output, meaning that the military sector becomes relatively more important. This would seem to have a closer affinity with a Keynesian effective demand type argument as it would always reflect a change in priorities and policy and would reflect the role of a MIC.

Conclusions

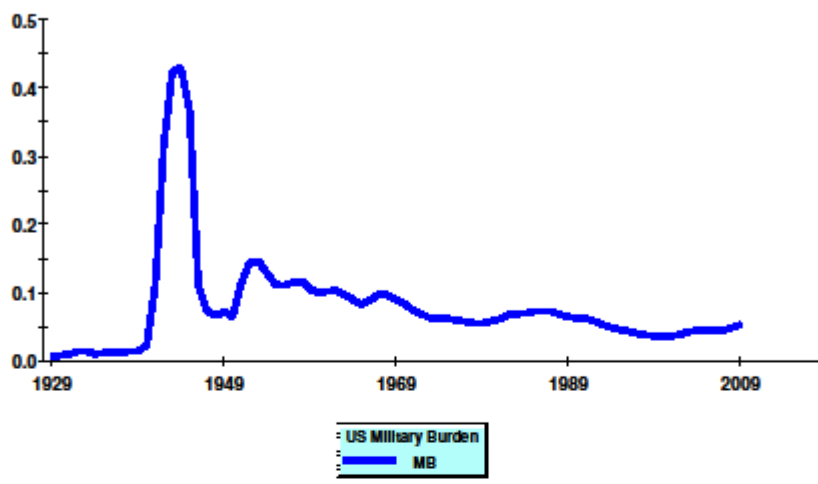
With the recent recession and there has been a recent resurgence of military Keynesian attitudes from those who seem oblivious of the literature that already exists on the subject. Aside from the simple Keynesian perspective a number more complex theoretical perspectives emerged, from Keynesian and Marxist schools of thought, with no clear theoretical consensus of the impact of militarism and military spending on growth, but considerable debate using a range of empirical analyses. This paper has reviewed the theoretical perspectives and the empirical analyses, using US data 1929-2009. It is clear that there is in fact no clear Keynesian militarist theory, beyond a simple treatment of military spending as one component of government spending and that this is contested by Keynesian economists.

Considering the pattern of military spending in the US economy, a strategic narrative seems rather more compelling than an economic one, suggesting military spending responded to strategic changes rather than played an important economic role and casting some doubt on the military Keynesian premise. Reviewing the econometric methods and models that have been used with a Keynesian framework also brought out some differences.

Granger causality tests have been an important tool in the empirical analysis of the economic effects of military spending, but following Dunne and Smith (2011) there use has come under scrutiny. Test results are seen to be sensitive to the number of variables in the VAR, lag lengths, treatment of deterministic elements, the sample or observation window used, the treatment of integration and cointegration and the significance level used and statistical measures may not be informative about these choices. Since the parameters are not structural they may not be stable over different time periods or different countries, as was the case with the empirical results here. It is important to recognise that Granger causality tests are uninformative about the direction of the predicted effects and Granger causality measures incremental

predictability not economic causality. To determine how Granger causality relates to economic causality requires an identified structural model, and different, observationally equivalent, just identifying assumptions may give very different causal pictures. Moving to consider the structural Keynesian models that have been used to motivate cointegrating VAR analyses the paper identifies two types. The first, uses the level of military spending in the VAR, the second the military burden. The two approaches give different results and it is argued that they reflect the two rather different theoretical perspectives within the Keynesian framework.

Overall, this paper provides some interesting empirical results that continue to bring into question the simple Military Keynesian arguments that suggest military spending should be used to stimulate the economy. It suggests the more complex theoretical perspectives do have value, particularly Marxist perspective where the contradictory role is recognised and shows the importance of developing more structural models rather than using less theoretical statistical approaches. The main obstacle to developing more structural models is providing measures of the political and strategic determinants of military expenditures, such as the threat (Dunne et al, 2009).



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