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ABSTRACT

China's economy experienced a significant slowdown in 2015, and its medium-term outlook has been revised downwards and remains so. While the official Chinese position on the downturn is that their economy is entering a phase of "new normal" – that is, a shift from export-driven manufacturing to services and domestic consumption – key uncertainties remain, including domestic debt. If China continues to falter, the Communist Party of China would almost certainly take drastic steps to prop up the domestic economy. One such step could be the adoption of military Keynesianism: an economic strategy in which military spending acts as a public stimulus to economic growth. This paper examines military Keynesianism as an option for China, by looking at the economics, politics, and history of the strategy and contextualising it in the current Chinese scenario. The strategic consequences of such an economic pathway are probed, and ways to detect observable signatures of Chinese military Keynesianism are identified.

1. INTRODUCTION

The recent economic turmoil being experienced by China has been in the making for some time, following a fairly predictable script of "growth transition" from an export-driven economy (leveraging a cheap currency and labour base) to a middle-income country whose economy will, going forward, rely more heavily on domestic consumption. This pattern is easily

discernible in these statistics: China's trade-to-GDP ratio kept increasing from 1980 to a maximum of 64.8 percent in 2006, and has been decreasing since.[1] While rising per capita income has, to some extent, compensated for such decline, it has not been high enough to sustain the output growth rate the world has come to expect of China. The recent corrections in the Chinese equities markets are a reflection of this fact. At the same time, Chinese domestic consumption is not that small as to let GDP growth dip below a certain threshold (all other factors being constant). As long as China continues to resist full capital account convertibility, and maintains a studied leash on the exchange rate of the Chinese Yuan (CNY), its exports would continue to play a significant, albeit diminished role in its economy.

This is not to say that the recent crisis will not have tangible political impact there. The Communist Party of China's (CPC) legitimacy derives, since the canonisation of the socialist Deng Xiaoping Theory, on very high growth rates and the socioeconomic accruements that CPC members enjoy. President Xi Jinping personifies Deng in more than one way in his commitments to an open Chinese economy as well as personal consolidation over CPC and People's Liberation Army (PLA) institutions. That said, if the Chinese economy was to falter in unexpected ways it is likely that President Xi will have to relinquish some of his powers. The main unknown is the extent to which China's state-owned enterprises, solvent only on paper, are mired in domestic debt.

While there is no possibility of a radical restructuring of the CPC in the short run, if China kept faltering on the economic front (above and beyond the "normal corrections"), the so-called "nativists" in the CPC and/or PLA – under the influence of Marxist theoretician Deng Liquin – are likely to play a more pronounced role in Chinese political economy in the long term. The nativists have long argued that reforms and "China's restoration of capitalism, and that its "opening-up" policy was destroying socialism".[2] There is also a possibility that regional leaders and mayors of leading cities may pose a direct challenge to President Xi's grip on power. The case of Bo Xilai, former mayor of Chongqing, is a useful reminder. From the international community's perspective, however, the nativists are likely to pose a much bigger challenge should there be any restructuring of the existing order.

China may choose to course-correct its economy by increasing military spending and hardware production. After all, since the American example during the Great Depression of the 1920s, it is known that military spending can have significant expenditure multiplier effects, an idea known in political economy (and sometimes derisively, following the cue set by Marxist economist Joan Robinson) as "military Keynesianism". China certainly has, in any event, a large currency reserve that could be deployed to buy hardware to complement domestic production. If China chooses to go this route, it significantly complicates India's strategic environment. Chinese military Keynesianism, a continued US pivot to Asia following the 2016 elections there, and a concomitant rise of CPC nativists, may well be the perfect geopolitical storm.

The link between economic growth and military expenditure is more complicated than what meets the eye. While GDP growth can imply, to a large extent and in a straightforward way, an increase in military spending, the causality does not run the other way in any obvious manner. In other words, the pathways by which defence expenditure acts as cause of output growth – as a macroeconomic multiplier – are not always obvious, as testified by the bloated literature on the subject. The converse, which goes by the name of "peace dividends" – that *reduction* in military spending translates to output growth – also does not seem to hold water in any obvious way.

This paper reviews historical experience which would guide Chinese thinking should it opt for military Keynesianism, and outlines its strategic consequences. At the outset, this paper notes that a Chinese growth strategy *solely* based on increases in defence expenditure is unlikely. Chinese domestic consumption will remain the bedrock for its growth and CPC planners realise this. They will continue to promote fiscal policies that support domestic consumption and monetary policies such as competitive devaluation of the CNY which, to the extent possible, promote exports. However, even a modest tilt towards the use of military spending as an economic multiplier presents serious strategic challenges for India and other stakeholders in the Asia Pacific. A caveat is called for at the outset: A simple positive linear causal relationship between output growth (the

dependent variable) and military expenditure (the independent variable) is absent; while China may opt for military Keynesianism, the latter might not be unqualifiedly sound economics.

The next section reviews the Keynesian theory of multipliers and presents a theoretical summary of econometric models used to determine the effects of defence spending on output growth. Section 3 then studies the contemporary political economy of the PLA; the link between threat, expenditure, and economic growth; and emphasises, by way of a definition, productive military spending and its link with total factor productivity growth. Section 4 describes the historical experience with military Keynesianism in the US and, much more briefly, in Japan and Israel. It is also briefly noted why Soviet defence spending, in spite of its volume, did not have any discernible effect on the Soviet economy. Section 5 describes the current state of PLA expenditure and identifies sectors which could be leveraged for economy-wide growth, and Section 6 outlines the strategic consequences of Chinese military Keynesianism and its observable signatures. The paper closes with a broader geopolitical perspective on Chinese defence spending, security, and the contemporary strategic order.

2. THE ECONOMICS OF MILITARY KEYNESIANISM

The Keynesian multiplier

As an economy slows, aggregate demand is less than what would be needed to utilise the full productive capacity of an economy. This in turn raises unemployment, causing private consumption and expenditure to fall. This diminished private expenditure is also insufficient to raise the economy to meet the needed level of aggregate demand to bring the economy back to its full productive capacity. This is where government spending in goods and services can have positive effects in forestalling recessive conditions.

Keynesian economics, as defined in contemporary textbooks, is a formal description due to Hicks and Hansen (and later extended by Mundell and Fleming) of Keynes' theory relating investment-saving (the “IS” side) to liquidity preference and money supply (“the LM” side). This theory

incorporates the case of a fixed price level in the short run leading to shifts in national income. When "the" Keynesian multiplier is used in the succeeding sections, what is meant is a more constrained version of Keynes's theory: one dealing with comparative statics equilibrium where the price level is fixed (a notion plausible only in the short run).

The basic "philosophical" premise of Keynesianism, in any case, is that government spending has a multiplier effect.[3] Simply put, if the government spends 1 rupee in expenditure, the effect of that expenditure on the economy would be more than 1 rupee. To make this notion more precise, some elementary economic notions need to be introduced. *The marginal propensity to consume* (MPC), denoted by c, is the change in an individual's consumption when her disposable income (income minus taxes) increases by 1 unit. More technically, MPC is defined to be

$$c = \frac{dC}{dY}$$

where $C(Y)$ is the consumption curve and Y is (disposable) income. Now, assume that the government spends E rupees on expenditure. This would translate to wages, which consumers would either spend (consumer expenditure) or save (consumer savings which would translate to investment). Thus, at the first round, the initial government expenditure can be written as

$$E = Ec + E(1–c) = \text{consumer expenditure + consumer savings.}$$

The effect of the consumer expenditure after the first round can, in turn, be written as

$$Ec = Ec \cdot c + Ec(1–c) = Ec^2 + Ec(1 – c).$$

Similarly, the effect of the consumer expenditure after the second round can be written as

$$Ec^2 = Ec^2 \cdot c + Ec^2(1–c) = Ec^3 + Ec^2(1 – c).$$

Continuing this process *ad infinitum* over an infinite time period, we see that the expenditure effect of E is

$$E + Ec + Ec^2 + Ec^3 + \cdots = E(1 + c + c^2 + c^3 + \cdots) = E \sum_{n=0}^{\infty} c^n = E \frac{1}{1-c}$$

The last equality in the above equation holds because MPC can be shown to be less than 1, and upon summing the geometric series based on this fact. The *Keynesian expenditure multiplier* is

$$q = \frac{1}{1 - c.}$$

In this paper's description, $q > 1$ always since $0 \leq c < 1$. In a full expression of the multiplier, one includes taxation rates and effects of imports (in case the economy is open). This more general expression reads as follows.[4] Let N be the national income satisfying the national income accounting identity

$$N = C + I + \bar{G} + \bar{X} - M$$

where C is aggregate consumption, I is net private domestic investment, $\bar{G}$ is the level of government expenditure (exogenous variable), $\bar{X}$ is volume of autonomous exports and M is the volume of imports. Denoting by α the autonomous component of I the general expression of the multiplier is

$$\tilde{q} = \frac{dN}{d\alpha} = \frac{1}{1 - c(1 - MRT) - MPI + MPM}$$

where MTR is the marginal tax rate, MPI is the marginal propensity to invest, and MPM the marginal propensity to import. This expression shows that, in general, the multiplier will be lower in an open economy than in a closed one, all other variables held constant.

It can be shown that multipliers there can be negative or at least between 0 and 1.[5] Empirically, multiplier effects in an economy are determined through structural vector auto regression (VAR) models which include taxation rate.[6] Such models consider recursive systems of equations about GDP, government spending, and taxation rates under shocks with non-zero correlations. The multipliers calculated in the VAR models are more general than the comparative statics case described in the previous paragraphs.

Wang and Wen used structural VAR models to estimate multipliers in the Chinese economy in a rigorous quantitative study using aggregate time series data as well as panel data at the provincial level. They reported that the multiplier is larger than 3. In more detail: Wang and Wen estimated that the long-run multiplier is 4.86 (on output), 3.41 (on consumption), and 3.15

(on investment). These points to the fact that "macroeconomic effects of government spending in China has been remarkably striking, both in terms of fostering long-run economic growth and in driving short-run business cycles".[7]

The Keynesian multiplier effect holds not only for defence but for any government spending. Even government expenditure on fighting space aliens – to use a recent hyperbole of American economist Paul Krugman – will likely have the same effects as more "realistic" expenditures. However, military spending has a distinguished place among all government expenditure which goes beyond multiplier effects. It is precisely this variant of Keynesianism that merits the adage of "military" to it.

The most common arguments in favour of military Keynesianism are the following. One, defence expenditure in technology is often of dual use – technologies that were developed for the military have found civilian applications. Two, potential military use of any section of an economy means that governments are more likely to fund those sectors through active fiscal policy interventions. These interventions will, in turn, have spillover effects. Third, defence expenditure has often directly contributed to groundbreaking innovations. Finally, national security spending guarantees property rights and trade.[8]

Econometric models

Empirical studies on the effects of military spending on economic growth in less developed countries were first done by economist Emile Benoit, who highlighted the positive effects of the same.[9] However, Benoit's statistical methodology has since been brought to question, and rightly so.[10] When it comes to modelling these effects, there is a simple growth equation which takes military expenditure as the independent variable and output growth (measured by either GDP or GDP per capita) as the dependent variables; these models are controlled for 'environmental' factors such as 'socio-economic variables' like educational levels and employment rates or 'strategic variables' such as number of wars or other conflicts the country in question has been in over a period of time. Alternatively, for a set of

countries, the regressions are run Barro-type (panel data), as is customary for cross-country economic dynamics studies.

Dimitraki and Liu, meanwhile, examined Chinese military expenditure and GDP growth data in the 1950-2011 time period and estimated a growth equation which had (one-period lagged) non-defence expenditure, average years of schooling, investment, and inter-state disputes as controls. They found that military spending had an overall positive influence on economic growth in this period.[11] This builds on an earlier work of Masih et. al. who found a positive unidirectional causal link that flowed from military expenditure to output growth in China.

Caveat Emptor: It should be added that results from *cross-country* regressions on military Keynesianism are – as with other kinds of government expenditure – far from being established. It seems that the link between output growth and military expenditure is far from being a simple linear one in general.

3. THE POLITICAL ECONOMY OF CHINA'S MILITARY SPENDING

The political economy of the PLA

With China's reorientation towards economic growth – and under the conditions of market socialism – under the leadership of Deng Xiaoping, the PLA started to assume a diminished role. As Peter Mattis writes: "From 1980 to 1989, Deng sacrificed the PLA on the altar of his reform policies by reducing its funding (averaging a 3.2% decrease annually), converting its defence-industrial base for civilian use, and encouraging the PLA to use the market to fund itself from its economic support activities".[12] However, Deng's position on the PLA's role in China's economy is more complicated than a simple subordination.

Indeed the Deng Xiaoping Thought – contemporary China's guiding light – holds that the Chinese economy and military must be tightly coupled. A senior Colonel at the PLA Peng Guangqian put forth Deng's view of this

relationship in a Chinese strategy journal: "On the relationship between national defence development and economic development, he stressed that defence development must be subordinated to and *serve the needs of national economic development*" [emphasis added].[13] While explicit Chinese statements on military Keynesianism in the open source is hard to come by, Liff and Erickson quotes two Chinese authors – Huang Ruixin and Zhang Xibin – who have advocated it in the *Jeifang jumbao* publication in 2008.[14]

The PLA since its conception has been – in the words of Mao – "the Party's gun," a trend that continues till date despite the push since the 1990s towards the twin goals of 'regularisation' and 'professionalisation'. Around the time of Jiang Zemin, the PLA High Command and the party leadership reached an implicit bargain that as long as Zemin continued to support PLA budgetary and professional goals, the military leadership would continue to support the Party.[15] Since Zemin, China's defence budgets have been steadily rising. The Party, in turn, derives its legitimacy from sustained economic growth.[16] This points to a tight relationship between China's economic growth, the legitimacy of the CPC, and the position of the PLA and, on top of the stated objectives of Comprehensive National Power, gives the first indications about doctrine and compulsions that make military Keynesianism feasible.

The final piece of this feasibility puzzle lies with Xi's dramatic consolidation of power, unprecedented since the time of Deng. He is currently the Secretary General of the CPC, the State President, as well as the Chairman of the Party and State Central Military Commissions.[17] Xi also heads two new Leading Small Groups (LSGs) (traditionally the unofficial guiding organs of the Chinese state): "Central Deepening Reform on National Defense and Military Leading Small Group," and "Comprehensively Deepening Reform Leading Small Group". It seems that the only thing that is common to these two LSGs – the former dedicated to reforms in the military and the latter to party-state reforms – is their Chairman Xi.[18]

Xi's consolidation of state power is not limited to the military. Traditionally, the Chinese prime minister has been in charge of the economy but the current Premier Li Keqiang is widely seen as the weakest in decades

and not in command of the overall direction of the Chinese economy. For example, Li was quoted as saying that "China did not want to devalue the yuan, four months before the latest devaluation in September 2015".[19] Xi's crowded portfolio also includes leading the Central Leading Group on Financial and Economic Affairs, making him in charge – either *de facto or de jure* – of all institutions around China's economy and its military. A dramatic economic decision with wide-ranking strategic implications such as using military expenditure to jumpstart China's economy would involve extensive concentration of power in one hand. Xi certainly has been able to achieve that.[20]

Threats, expenditure and growth

As noted in a previous section, the relationship between military expenditure and output growth is far from linear and proportional. In general, Barro (cross-country) regressions point to low impact of any government expenditure on economic growth. However, these regression results could be due to other independent (or "control") variables being neglected. Aizenman and Glick identify one such set of variables particularly pertinent in the current discussion: external threats. Their central result is that military expenditure in the presence of such threats tends to have a significant positive impact on GDP growth.[21]

Aizenman and Glick carried estimated growth equations from a cross-section of countries between 1989 and 1998. They found that increased military expenditure (measured as a ratio of nominal military expenditure to nominal GDP) in the presence of external threats (measured by the number of wars a country has fought and the number of its conflict adversaries during the 1970-1998 period) leads to an increase in real (i.e., deflated) growth. They also found that corruption and rent-seeking tends to diminish this relationship. These results are obviously important in the Chinese context. First, according to the classification system used by Aizenman and Glick, China is classified as a country with high external threat levels[22,23] so such a relationship is, statistically speaking, more likely to hold there than in low external threat countries. Parenthetically, a remark

may be made that they also classify the United States as a country that faces high external threats (measured in the same way). Second, the recent anti-corruption drives in China would only seek to strengthen the positive relationship between output growth and military expenditure, according to the results of Aizenman and Glick. Finally, they conjecture that "it is primarily in middle income countries that military expenditures may deliver strong growth effects due to externalities operating via the education system".[24]

Productive vs. unproductive military spending

Since the pioneering work of American economist Robert Solow, it is now known that it is total factor productivity (TFP) that drives long-run economic growth, and not just increases in capital and labour inputs. The Solow – Swan neoclassical model of economic growth – as this theory is known – has received extensive empirical support across a wide cross-section of countries.[25] Further, TFP is widely interpreted in terms of technological change or innovation.

But what causes TFP to increase? The Solow – Swan neoclassical model was vastly expanded by another economist, Paul Romer, who pointed out the technological change can be driven endogenously, through productive investments in innovation and R&D. Romer's endogenous growth theory makes a radical suggestion that to sustain long-run economic growth, infrastructure investments might not be enough; to increase TFP (and therefore, through the Solow – Swan model, economic growth), one must also invest in endogenous drivers of technological progress.

Assuming that increasing military expenditure does indeed stimulate economic growth, the question would be how such growth can be sustained. Endogenous growth theory would suggest that military expenditure be concentrated along R&D and to innovate capabilities. This brings the discussion to the distinction between "productive" and "unproductive" military spending. Productive military spending is expenditure that drives innovation and capacity-building in new technologies, while unproductive

military spending is mostly in maintaining existing strengths or in importing hardware. An increase in unproductive military spending will also have a multiplier effect on output growth; such growth, however, will not be sustainable in the long run.[26] Should China opt for military Keynesianism it will surely keep this distinction in mind as PLA pushes itself towards its 2020 Development Goals of "mechanisation" and "informatisation" and the 2025 "Made in China" indigenous innovation goals.

There is no consensus in existing economics literature on the role of military R&D in increasing TFP growth and, therefore, output growth. A 1993 model of Arrow and Li shows that the positive external effects of military R&D on output are not pronounced. However, in a critique of the Arrow – Li model, Herrera and Gentilucci point out that "the absence of intra-industry civilian externalities minimizes the productivity gains of resources transfer from military R&D to civilian R&D by capturing only the gains which are privately appropriable".[27] There are many other examples of such divisions within current literature, which recalls a point noted in the introduction: China opting for military Keynesianism may not be unqualifiedly sound economics, after all.

A putative preference towards productive military spending, however, have immediate strategic consequences, something that is covered in a later section of this paper. A first remark here is that the recent PLA decision to cut troops by 300,000 and the publicly stated reorientation towards the People's Liberation Army-Navy (PLA-N) and People's Liberation Army-Air Force (PLA-AF) is consistent with a putative move towards productive military spending.

4. HISTORICAL EXPERIENCE

United States

Undoubtedly the most successful application of Keynesian ideas to economic practice was in the United States during the Great Depression. Rampant unemployment meant that private consumption and savings

alone was, initially, not enough to bring the economy to its full productive capacity. By massively increasing public spending, the US government sought to bring its economy back to full productive capacity: spending on public works created the necessary multiplier effects which positively affected private consumption expenditure. The Second World War saw the United States massively leveraging military spending for domestic economic growth – military Keynesianism, in other words.

The American experience with military Keynesianism during the Second World War is worth recounting. One commentator on that period notes: "FDR's call for the production of 50,000 airplanes a year in 1940 had seemed fantastic, but by 1944, the American aircraft industry built almost double that number".[28] The US government built many war plants that were then leased to private industry on favourable terms, which guaranteed profits to the point that it increased by an astonishing 70 percent despite significant wartime taxation.[29] This boom in production translated to much higher pays for many more jobs, and average weekly wages doubled between 1939 and 1944.[30] This in turn fed into the agricultural sector, which in the 1920s had been characterised by surpluses.

The strategic and economic interests of the US during the war period was managed by the Office of War Mobilization, created in the spring of 1943 as the nodal agency that aligned the American economy to the cause of an Allied military victory. The problem of inflation in face of this significant increase in purchasing power was commanded through the sale of government bonds and with "taxes to fight the Axis" through the newly created Office of Price Administration.[31]

The American success with military Keynesianism was to influence the country's strategic establishment for much of the Cold War. In 1950, President Harry S. Truman's National Security Council under the guidance of Paul Nitze, the US Department of State's Director of Policy Planning, produced an extremely influential memorandum – referred till date simply as NSC-68 – which was to serve as a blueprint for hardened Cold Warriors. In the words of Cold War historian Gregg Herken: "The first ten pages of the fifty page top-secret document presented Soviet-American rivalry in almost Manichaean terms".[32] What is exceedingly notable in this document –

declassified during Henry Kissinger's term as US National Security Advisor – is its strong advocacy of military Keynesianism. NSC-68 notes: "One of the most significant lessons of our WWII experience was that the American economy, when it operates at a level approaching full efficiency, *can provide enormous resources for purposes other than civilian consumption while simultaneously providing a high standard of living"* [emphasis added].[33]

Under President Ronald Reagan, the United States Cold Warriors continued to promote military Keynesianism as a dual economic-strategic policy. Paul Krugman in 2012 summed up Reagonomics in a succinct sentence: "Reagan was a Keynesian".[34] Krugman, in the same piece commenting on President Barack Obama's federal spending stimulus, noted that Reagan's military spending was one of the reasons why he was much more successful in presiding over a strong economic recovery.[35] In fact, in 2008 at the zenith of the Global Financial Crisis, Martin Feldstein, Chairman of Reagan's Council of Economic Advisers, advocated a return to military Keynesianism in an op-ed for the *Wall Street Journal*.[36] What is notable about Feldstein's article is the precise manner in which he outlined how stimulus spending in the military can combat the problem of temporary excess capacity while, simultaneously, serving the longer-term strategic interests of the United States.

Japan

The US was not the only country to have successfully experimented with military Keynesianism as a growth strategy. While Japanese recovery after the Second World War was largely facilitated by the Dodge Plan in the long run (in terms of facilitating the policy framework around an export-driven economy), the Korean War helped bolster Japan's economy in the short run. Baldev Raj Nayar notes: "What helped the Japanese economic recovery at this juncture was intervention by geopolitical fate in the form of the Korean War in 1950, at which point the US turned Japan into a regional arsenal for its fighting forces in Korea. The American procurement policy of massive reliance on Japan for equipment and supplies was truly the equivalent for Japan of the Marshall Plan. It provided Japan an economic windfall of

immense proportions, with US military procurement amounting to about 70 per cent of Japan's exports in the period from 1950 to 1952".[37]

Israel

In the 1970s and '80s, the Israeli economy depended quite heavily on the defence industry. In fact, in 1986, the Israeli defence sector accounted for 50 percent of all industrial investments there; three out of the top five Israeli companies in the 1980s were in the defence sector.[38] The security context there in the form of the arms race between Arab states and Israel following the Yom Kippur War of 1973 played a large role; so did the political economy factors there, which were in turn influenced by electoral cycles and domestic politics.[39] While no estimates of the multiplier effects of defence expenditure in Israel are available in the literature, the subsequent growth of the Israeli economy – and the significant improvement in per capita income there – indeed points to the role of defence stimulus. In 1990, Israel's Gross National Income per capita (in PPP dollars) was US$ 13,120; by 2014, this had risen to US$ 32,830.[40] While surely this is not due to defence spending alone, the securitisation of the Israeli economy in the '70s and '80s does point to a large role of the defence sector in improving standards of living in Israel.

The Soviet non-example

Any strategy of economic growth driven by military expenditure must at the outset take the example of the erstwhile Soviet Union as a cautionary tale. In the 1950s Soviet Union recorded impressive growth rates,[41] and a large part of the Soviet budget was defence-directed. However, the subsequent disintegration of the Union pointed to, among other things, the unsustainability of the Soviet model. Krugman has argued that this was principally due to a lack of TFP growth in the Soviet economy.[42] From the Keynesian perspective: The multiplier

$$q = \frac{1}{1-c} = \frac{1}{s}$$

where $s = 1 - c$ is the *marginal propensity to save*. In the Soviet economy, s was quite high (due to a structural propensity to save as opposed to consume) which means that q was quite low. This is why public expenditure – including the significant defence spending – did not have the needed stimulus effect. A Chinese military Keynesian strategy must – like any Keynesian stimulus – facilitate individual consumption in the economy.

If China's military Keynesianism has to be successful, this crucial lacuna has to be addressed, as has been argued in a previous section, to avoid a repeat of the Soviet experience. But the Chinese– assuming that they focus on productive military spending which leads to TFP growth – will reassure themselves that theirs, circa 2015, and the Soviet economic foundations were quite different in nature.

It also needs to be noted that while the Chinese "trigger" for military Keynesianism might be along the lines of what NSC-68 argued, the consequences for the same will be different from what the US faced during the Second World War. In other words, the evolutionary trajectories for both experiences will be different. For one, Asia Pacific is claimed by a host of regional powers, as well as the US which is increasingly asserting itself as a Pacific power. The arms race that will follow China's nudge to a military Keynesian strategy will destabilise the entire region. (Some of the regional security consequences of this strategy are described in the concluding section.)

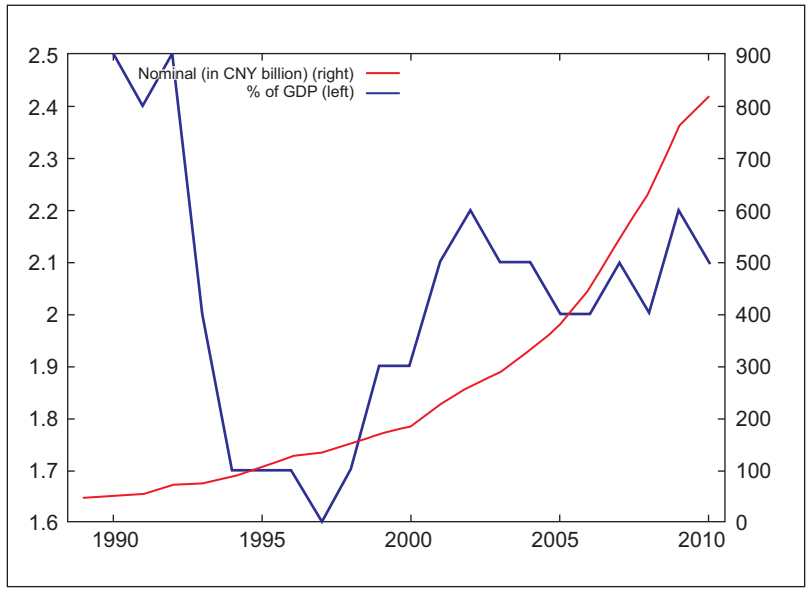
5. CHINA'S DEFENCE SPENDING AND BUDGET

Overview

In order to hypothesise China's adoption of military Keynesianism, it is important to lay down the country's military spending pattern and defence outlay composition. This is by no means an easy task, as China rarely publishes details about their military budget and when it does, so suggest many analysts, such publicly declared budget under-reflects defence-spending, especially when it comes to military R&D.

The most authoritative estimates – culled from a variety of open-source documents – come from the Stockholm International Peace Research Institute (SIPRI). They estimate that in 2014, China's military budget grew by 9.7 percent. They also note that between 2009-2014, it grew by an overall 48 percent, which is less than the growth in the pre-Global Financial Crisis period 2004-2008 when China's military expenditure doubled in real (i.e. inflation-adjusted) terms.[43] SIPRI's annual estimates are plotted in Figure 1.

Figure 1: China's military expenditure: SIPRI estimate, 1989-2010[44]



The 2015 budget announcement had China's military expenditure being increased by 10.1 percent to CNY 886.9 billion (US$ 141.45 billion)[45] down from an increase of 12.2 percent in the budget. This builds on two decades-old, double-digit increases in China's defence budget, and comes in the backdrop of an overall slowdown of China's economy which has led analysts to comment that China's "defense budget is no longer tied to its economic performance".[46]

It is useful to examine what relationship exists, if any, between China's defence expenditure and the growth of its economy (see Table 1).

Table 1: PRC defence expenditure and GDP growth rate, 1990-2010[47]

Year	Defence expenditure as % of GDP	GDP growth rate (%)	Defence expenditure in nominal terms (b. CNY)
1990	2.50	3.93	49.00
1991	2.40	9.27	53.30
1992	2.50	14.28	68.90
1993	2.00	13.94	73.20
1994	1.70	13.08	86.90
1995	1.70	10.99	105.00
1996	1.70	9.92	125.00
1997	1.60	9.23	133.00
1998	1.70	7.85	150.00
1999	1.90	7.62	170.00
2000	1.90	8.43	184.00
2001	2.10	8.30	227.00
2002	2.20	9.09	262.00
2003	2.10	10.02	288.00
2004	2.10	10.08	331.00
2005	2.00	11.35	379.00
2006	2.00	12.69	452.00
2007	2.10	14.19	546.00
2008	2.00	9.62	638.00
2009	2.20	9.23	764.00
2010	2.10	10.63	820.00

A calculation of the decadal correlation coefficients gives the following:

Time period	Correlation between defence expenditure as % of GDP and GDP growth rate	Correlation between defence expenditure in nominal terms and GDP growth rate
1990 -1999	-0.11	-0.19
2000-2010	-0.07	0.30

These numbers reveal that the correlation between defence expenditure and output growth has become stronger in the 2000-2010 period than in the 1990-1999 time frame. Further, when one looks at the correlation

between output growth and defence expenditure nominal volumes, the correlation has increased from -0.19 to +0.30. This already indicates that Chinese military expenditure and GDP growth rate started moving in a parallel manner since 2000. It needs to be added that this could be due to causality flowing from GDP growth to defence expenditure increases and not the other way around; therefore this in itself does not present evidence of China having already adopted a military Keynesian strategy.

Composition

There are no official announcements on the composition of China's defence outlay, and the only data available are from the US government, and that too quite dated. Between 1967-1983, US DoD officials estimated (in 1986), "roughly 50 percent of defense expenditure were for weapons, equipment and new facilities; 35 percent for operating costs; and 15 percent for research, development, and testing and evaluation. By services, these costs broke down to 25 percent for the ground forces, 15 percent for the Navy; 15 percent for strategic air defenses; 5 percent for ballistic missile forces; 5 percent for tactical air forces; and about 35 percent for command, logistics, personnel, intelligence, medical care, administration, research, development, testing and evaluation and other support".[48]

By 1997, the composition of China's defence expenditure was 35.89 percent for personnel expenses, 32.66 percent for maintenance, and 31.45 percent for equipment procurement.[49] Analysts note, through China's national defence white papers, that personnel, training and maintenance, and equipment roughly have the same share of 33 percent in China's military budget currently. It is almost impossible to place Chinese military R&D into this budget. As analysts note, "defence-related R&D funding may come from several parts of the government (e.g. the State Administration for Science, Technology and Industry for National Defense and the Ministry of Science and Technology) or defence firms".[50] This is a key methodological issue when it comes to estimating any Chinese turn towards military Keynesianism through productive defence spending. However, a simple rule of thumb – should China make this turn – would be to verify a positive skew

towards equipment procurement in the budget. Such a skew will reflect increases in prices and volume of hardware which, in turn, will absorb R&D costs. Further, if all-source information also indicates a positive skew towards the PLA-N, this would be – for reasons outlined in a later section – another verification of China's tilt towards Keynes.

Issues

There are various issues when it comes to analyses of China's military budgets. The first one – while technical at first sight – is quite important: it pertains to the difference between nominal and real expenditure. Most analyses on the growth of China's military budget is in nominal terms, i.e., in terms of current prices. Accounting for inflation, vast discrepancies surface between the nominal numbers and the real numbers (see Table 2).

Table 2: PRC defence spending-related comparative statistics 1980-2011[51]

	1980-89 (annual average)	**1990-99** (annual average)	**2000-09** (annual average)	**2010-11** (annual average)
Defence budget growth rate				
Nominal	1.60%	15.70%	16.50%	10.40%
Real (base year 1980)	-3.20%	7.80%	12.50%	3.10%
Aggregate public expenditure				
Nominal	8.60%	16.80%	19.30%	19.50%
Real (base year 1980)	3.50%	8.80%	15.10%	11.60%
GDP growth	9.80%	10.00%	10.30%	9.80%

Recall from the discussion of the Keynesian multiplier in a previous section that its full expression has a marginal taxation rate term. All other factors held constant, a high taxation rate will bring inflation down by removing money from circulation. It would also, however, make the multiplier more ineffective from the consumption side. For China to adopt

military Keynesianism (like any other form of Keynesianism), inflation has to be kept more or less constant, currently targeted at 3.5 percent. With this in mind, if inflation rate is kept constant, a signature of Chinese military Keynesianism would be a significant real increase in military expenditure and not just in nominal terms – as the data in Table 2 show, these two can often be quite divergent. For example, in the 1980-1989 period, the nominal increase in defence expenditure was 1.6 percent though in real terms, it decreased to -3.2 percent.

The other issue is the growth in defence expenditure versus aggregate public expenditure, both at central and local levels. As Table 2 shows, even in nominal terms defence expenditure growth is consistently less than aggregate public expenditure growth. If defence expenditure growth increases more than public expenditure growth, that would mark a clear adoption of military Keynesianism.

6. CHINESE MILITARY KEYNESIANISM: IMPLICATIONS AND DETECTION

Implications

As noted earlier in the paper, should China opt for military Keynesianism – broadly understood in the sense of stimulus spending on the military to generate multiplier effects, as well as the use of military expenditure as a way to achieve sustained TFP growth – it will most likely opt for productive spending at a large scale. The first objective was defined in an earlier section; the second simply means that China would seek to engage in expenditure increase that fully addresses the overcapacity in the economy as well as massive increases in public employment. Taken together, these two objectives would mean a very specific increase in spending in certain sections of the military economy, an issue to be discussed next.

First, there is a need to examine what productive spending entails in the context of China's current policies. Essentially, it is facilitated by (1) “indigenous innovation”, and (2) leverage of dual-use sectors and expanding linkages between the military-industrial complex and civilian high-

technology sectors. Both are sanctioned strategies, "embodied in the principle of locating military potential in civilian capabilities, enunciated at the 16th Party Congress in 2003".[52] This, in turn, forms a crucial part of Chinese civil-military integration (CMI).

Productive spending, economically, means expenditure to increase TFP growth. China's indigenous innovation strategy include technology transfer, foreign R&D investment, and training of Chinese personnel overseas to (1) identify, (2) digest, (3) absorb, and (4) reinvent technological capabilities in civil and military domains.[53] The 2006 National Medium to Long-term Plan (MLP) for the Development of Science and Technology (2005-2020) has a budget of US$ 75 billion and includes 16 National Megaprojects – 13 of them unclassified, in diverse areas such as semiconductors and oil and gas exploration.[54] Three of the projects are classified; they are suspected to be the Shenguang laser for inertial fusion systems, a second generation SAT-NAV project, and development of a hypersonic flight vehicle system.[55] Above all, the PRC government views the indigenous innovation strategy as serving PLA modernisation goals as well as securing and sustaining overall economic growth. This, in turn, means that civil-industrial and military-industrial linkages become highly important.

The leverage of dual-use technologies has long been a cornerstone of PLA modernisation. Historically, it was introduced at scale in the 1986 National High Technology Program ("863"), and "featured a concurrent development of dual-use technologies applicable in both civilian and military domains".[56] The Chinese State Council in October 2010 announced the decision to focus on seven strategic industries which included energy saving, next-generation IT, high-technology equipment, new energy technologies, new materials and new energy vehicles with a target investment of US$ 1.5 trillion; this focus will most definitely spill into military development and into the PLA 2020 Modernization Plan.[57]

This paper has argued that China could leverage productive military spending – in the sense of being focused government expenditure on military or dual-use innovation and not merely an increased spending on capital and labour inputs to the PLA. However, for this to have suitable

expenditure multiplier effects, it also has to involve a large number of personnel and be capital-intensive. Together with these constraints as well as taking China's medium- to long-term strategic objectives, it is clear that should China opt for military Keynesianism, it will most likely focus extensively on the PLA-N.

To belabour this fairly obvious point–in terms of economics, a substantial increase in naval modernisation would involve introducing or upgrading hardware that is technologically sophisticated, as well as labour- and capital-intensive in terms of manufacture and refurbishment. Labour overcapacity – in case of a serious Chinese economic crisis – can also be potentially destabilising for the Chinese social order, the maintenance of which has been a key objective of the CPC. It then behooves that a Chinese military Keynesian strategy would be one that is labour-intensive as well as contributing to TFP growth. PLA-N fits this bill better than PLA-AF.

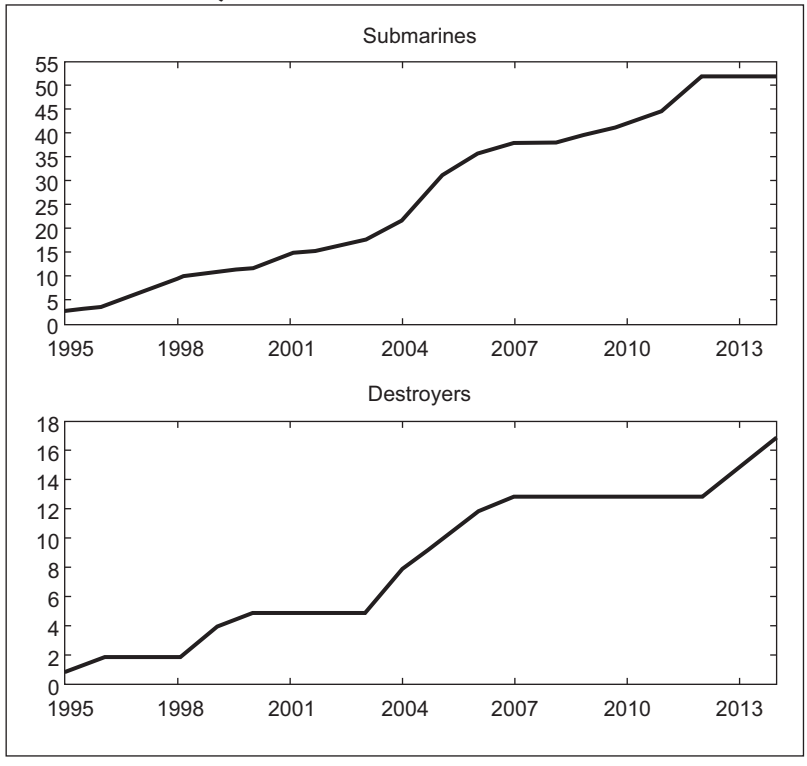
PLA-N also has proven indigenous capability in developing several platforms (described below); it would be easier to do "more of the same", if the purpose is to increase military spending productively for economic purposes alone. In terms of China's strategic objectives, a much larger PLA-N can be used for force projection in the "Far Seas," as well as China's immediate strategic objectives in the "Near Seas" viz-a-vis Taiwan, the East and South China Seas. For the former, a direct strategic consequence of Chinese military Keynesianism could be the expansion of the *Jin*-class SSBN fleet. These submarines represents "China's first credible, sea-based nuclear deterrent" with an estimated range of 3,996 nautical miles (or about 7,000 km).[58] China will also most likely produce, under these conditions, multiple indigenous aircraft carriers. Already, press reports from October 2015 indicate that "China is building its first indigenous aircraft carrier, the Type 001A," to be commissioned by 2019.[59] Were Xi to adopt Keynes, there will most likely be a significant increase in the number of destroyers and frigates. Another possibility would be China dramatically increasing the construction of Very Large Floating Structures (VLFS). VLFS are similar to Mobile Offshore Bases conceived by US military planners at some point, and China is suspected to be building at least one of them.[60]

Detection

If China was to adopt a military Keynesian economic strategy, how might that be detectable from observable data? Put differently, how might the hypothesis of Chinese military Keynesianism be tested? The following answer is proposed.

The cumulative number of Chinese submarines commissioned has been growing at 86.67 percent CAGR between 1995 and 2014. Similarly, the number of destroyers commissioned in the same time period has been growing at 85 percent CAGR between 1995 and 2014. (See Figure 2 for a time series plot of the cumulative numbers of submarines and destroyers commissioned.) The bulk of these commissions are domestically produced.

Figure 2: Cumulative total of submarines and destroyers commissioned by the PLA-N between 1995 and 2014[61]



Presumably, these growth rates – and other known construction and commissioning plans – reflect and absorb perceptions of threats and

opportunities on the part of Chinese strategists. Ceteris paribus, if these growth rates were to positively change significantly in the medium-term horizon, we would have evidence of China's military Keynesianism.[62] Given that China's military budget is often dark – in the sense of contributing about a third of the world's secret military spending according to a recent Transparency International report[63] a mere estimation of the growth equation is not enough for a confirmation. Put differently, a positive relationship between per capita output growth (dependent variable) and military expenditure (independent variable) – with appropriate controls – is a *necessary* but *insufficient* condition for the establishment of a military Keynesian strategy. The criterion suggested here provides sufficiency.

Beyond such quantitative detection techniques, there is also some secondary evidence that would be easy to pick up from public information. This would involve public statements around the need for innovation in science and technology from the Chinese leadership, extolling nationalist virtues in the official press, and finally, significant changes in the composition of the 'lit' (i.e., publicly declared) budgets. On the latter: a first indication will be that the growth in defence spending will outstrip that of aggregate public spending, something that has not been happening in China. (See the previous section for an analysis of the current composition for reference and statistics of aggregate public spending growth.)

Finally, it goes without saying that VLFS, for example, are not easy to hide from satellite surveillance. This might be, at the end of the day, the simplest confirmation. This is an opinion that is concurred by other analysts of China's military; Liff and Erickson, for example, note: "Because of the complexity and difficulty of developing and effectively operationalising power-projection capabilities that can support high-intensity military operations reliably in practice, such inductive monitoring of concrete indicators in hardware is likely to offer a more effective means of forecasting China's future military posture than greater access to specific data on military spending".[64]

7. CONCLUSION

This paper was dedicated to the exploration of the option of military Keynesianism as an economic strategy for China should its economy continue to falter for reasons beyond the "known unknowns". The economics of such a strategy has been examined – including the contemporary political economy of defence expenditure in China – and the global historical backdrop of military Keynesianism has been set. By looking at China's defence outlay (insofar as that is possible from secondary, English-language open sources) and the likely strategic implications of Chinese military Keynesianism, some testable conjectures have also been made. The concluding paragraphs will take a long view of any Chinese tilt towards leveraging defence spending for long-run output growth.

A Chinese military Keynesian strategy – primarily in the form of a dramatic upgrade of the capabilities of the PLA-N – would be of serious consequence to all stakeholders in the Asia-Pacific region, least of all to the US which seeks to rebalance to the region, and India which seeks to protect the Indian Ocean Region (IOR). First of all, it is rather unlikely that the US will allow the Chinese navy to project power beyond the threshold it has currently set. Any visible sign of a drastic increase in hardware procurement and commissions will most likely be met with fierce resistance. This would inevitably lead, if unchecked, to what Graham Allison calls the Thucydides Trap (where China, as a rising power, will almost inevitably clash with US hegemony). Should China keep military Keynesianism as an option, it will carefully weigh it against the strategic costs of the same. Again, the final exercise of this option will depend on the exhaustion of all other economic strategies, and would be contingent on a massive financial and economic crisis there, to the point of challenging CPC legitimacy in the eyes of the Chinese people.

India and China are caught in a classic security dilemma when it comes to the IOR, analysed in detail by foreign-policy expert, C Raja Mohan where he notes that Beijing's "Malacca Dilemma" now extends to a "Hormuz Dilemma," which both Beijing and New Delhi share.[65] Both India and China seek to protect its energy security and sea lines of communication. While this

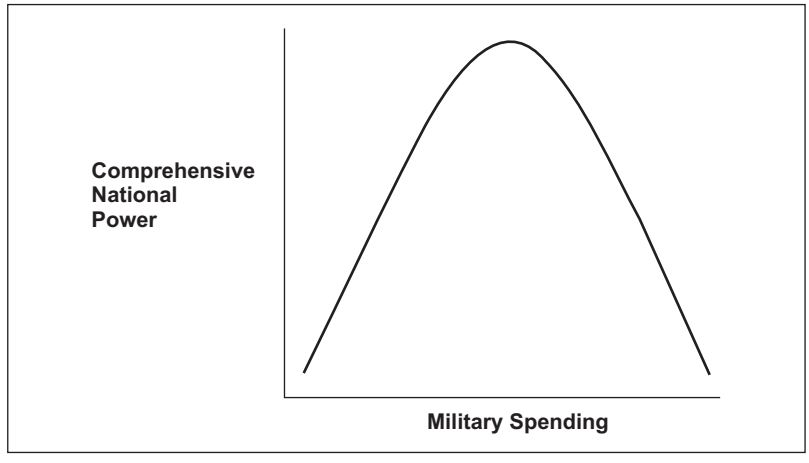
is most definitely not a zero-sum game between the two countries, a resurgent PLA-N will cause India to think of dramatically expanding its own naval capabilities. A Chinese strategy of military Keynesianism will have the potential to spark a naval arms race in the region. A Chinese military Keynesian strategy could lead to a wider arms race in the Asia Pacific, as regional powers seek to counter it through stronger air power as well as through asymmetric means; this would be especially true for smaller powers in the region. This is the crux of the dangers with military Keynesianism.

China is currently in the midst of a geoeconomic Great Game with its One Belt, One Road (OBOR) project which seeks to link vast swaths of Asia – and eventually Europe – with China. It has also sought, reactively, to promote its own trade arrangement through South-East Asia through the RCEP arrangement. The success or failure of both are intimately tied to the strength of the Chinese economy. Military Keynesianism might bolster it through the pathways that have been described in this paper. More explicitly: the "strategic multiplier" of military Keynesianism will most likely also help China to aggressively claim the Maritime Silk Route. This set of linkages – between the domestic economy and OBOR, and OBOR to the strength and force-projection capabilities of the PLA – will also be a significant part of China's calculations if and when it seeks to leverage military spending as a fiscal multiplier. OBOR is widely viewed as a Chinese strategy to use its excess productive capacity – military Keynesianism also seeks to do the same and, as such, both might be complementary. On the other hand, Chinese military Keynesianism might challenge the "peaceful rise" narrative of China and thereby jeopardise OBOR.

While this paper has argued that PLA-N will be the most likely candidate for a Chinese military Keynesian strategy, it is conceivable that PLA-AF could also be used, especially if the Sino-Russian compact holds and the Chinese manage to indigenise Russian technology, for example through reverse-engineering the Su-35 fighters that Russia has recently agreed to sell to China. The consequences for a PLA-AF-based Chinese military Keynesian strategy would be somewhat different for the regional security environment, but equally destabilising. (The detection techniques that have been described in a previous section will also hold in a PLA-AF-based pathway.)

The economic historian Paul Kennedy, in his classic work on the rise and fall of great modern powers, pointed out the fine link between national power and military spending. Kennedy's argument can be summed up in a graph (see Figure 3).

Figure 3: Kennedy's theory on the link between comprehensive national power and military spending



As states seek to expand their national power, they will most definitely increase military spending. But after a point, increases in military spending becomes counterproductive – "If, however, too large a portion of the state's resources is diverted from wealth creation and allocated instead to military purposes, then that is likely to lead to a weakening of national power over the longer term".[66] While China is still at the left hand side of the graph in Figure 3, at some point in the future, should it seek to dramatically increase its military spending – for military Keynesian multipliers or other reasons – it too will confront Kennedy's observation. Ultimately, it is precisely this paradoxical relationship between military expenditure and national power in the long run that will occupy Xi should he (or his successors) choose to adopt Keynes. ORF

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23. China's border war with Vietnam in 1979 killed 26,000 Chinese soldiers. See Paul Kennedy, *The Rise and Fall of Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Random House, 1987), 448.

24. Aizenman and Glick, "Military Expenditure, Threats, and Growth," 16. The logic of this argument is the following: Countries seeking to promote their military capabilities are likely to invest in human capital extensively by, for example, subsidizing education.

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