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***Nanshin: Budget- Maximising Behavior, The Imperial  
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# ***Nanshin: Budget- Maximising Behavior, The Imperial Japanese Navy And The Origins Of The Pacific War***

**Brian Dollery, Zane Spindler and Craig Parsons \*\***

## **Abstract**

Historians have established that inter-service rivalry over budget allocations between the Imperial Japanese Navy and the Imperial Army played a crucial role in the genesis of World War Two in the Pacific. The adoption of a nanshin ('southward advance') strategy by the Navy may be explained as an attempt to maximize its budget leading directly to the fateful attack on Pearl Harbor in 1941. To date, this argument has been presented in the form of historical narrative without any explanatory theoretical framework. The present paper seeks to place inter-service budgetary rivalry within the context of public choice theory in an attempt to enhance understanding of this historical perspective.

**Key Words:** Budget Maximization; Japanese Imperial Navy; Nanshin; Public Choice

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## 1. INTRODUCTION

The origins of World War 2 in the Pacific are complex, multi-faceted and still not well understood by scholars. Indeed, Dockrill (1994, p.3) has observed recently that 'historians could not even agree on when the war started or what it should be called'. The analysis of the causes of the Pacific War began in earnest with the judicial hearings of the International Military Tribunal for the Far East, more commonly known as the Tokyo Trial, over the period 1946 to 1948, and continues to the present time. Early efforts at explaining the origins of the conflict were severely hampered by the classification of a good deal of the official Japanese and Allied documentation, including crucial material gathered through the Magic code-breaking system (Department of Defense, 1978). Contemporary work remains handicapped by translation difficulties and significant errors in the transcription of much of the decoded Magic documentation (Komatsu, 1999).

With some exceptions (Moriyama, 1990), historians have produced a voluminous narrative literature largely devoid of theoretical frameworks as organizing and explanatory tools. This literature presently has two main streams. On the one hand, a number of scholars have argued that the outbreak of the Pacific War was not simply an inevitable consequence of the expansion of the 'China Incident', but rather the result of complex power relations between America, Great Britain, Italy, Japan and the Third Reich in a global context, including the war in Europe (Hatano, 1991). On the other hand, another (mostly Japanese) school of thought has contended that the pre-war decision-making institutional structure in Japan played a significant role in the events leading up to

the attack on Pearl Harbor on 7 December 1941. In particular, ‘the increasing influence of the military’s power resulted in a lack of national control, rather than the establishment of a totalitarian control system, because the military’s power itself had eventually fallen apart into various divisions’ (Komatsu, 1999, p. 359). This paper falls squarely within the latter camp.

The significance of venomous inter-service rivalry between the Imperial Japanese Navy and the Imperial Japanese Army over the size of their annual budgetary allocations from the central government has been recognized as a key causal factor in the Pacific War by a number of historians (see, especially, Barnhart (1987), Frei (1991) and Schencking (1998; 1999)). Moreover, this appears to have been explicitly acknowledged by Imperial Navy officers at the time. For example, in 1934 when asked whether the Navy contemplated war with the United States Navy, Admiral Suetugu Nobumasa replied: ‘Certainly, even this is acceptable if it will get us a budget’ (Barnhart, 1987, p. 39). Similarly, shortly after a key ministerial conference on 19 January 1939, Navy Captain Takagi Sokichi assured delegates that they should not erroneously presume that ‘the Navy, although prepared to use Britain and the United States as pretexts for a budget, actually did not want to confront them’ (Asada, 1973, p. 246).

The implications of inter-service rivalry are perhaps at their most stark in the context of the competing strategies developed by the Imperial Navy and the Imperial Army prior to the Pacific War. *Nanshu hokushin* (defense in the south and advance in the north) became the official doctrine of the Army, known as *hokushin-ron* (school of thought for northward advance). Similarly, *hokushu*

*nanshin* (defense in the north and advance in the south), termed *nanshin-ron* (school of thought for southward advance) became the standard naval strategy (Frei, 1991, p.66). In essence, through its *nanshin-ron* policy, the Navy hoped to seize the resource-rich British Burma, Malaya and Singapore, the Dutch East Indies, French Indochina and the American Philippines, thereby easing the drastic shortages of essential materials in Japan contingent upon the American economic boycott. It understood that this meant war with both the British Empire and the United States. However, it was hoped that this conflict would be short lived. The adoption of a *nanshu hokushin* strategy meant that the Navy could lay legitimate claim to the vast budgetary resources required to build a modern 'blue-water' fleet of sufficient strength to defeat the Royal Navy and US Fleet.

By contrast, the Army sought a 'holding strategy' in the Pacific, with conquest limited to the Netherlands East Indies (and possibly British Malaya), thus averting war with America, providing the necessary access to strategic resources, and allowing for a *nanshu hokushin* campaign aimed at the defeat of China and an eventual attack on the Soviet Union. This would ensure that the preponderance of budgetary funds would flow to the Army since the Navy would not need a larger fleet. Needless to add, the Imperial Navy hotly contested this plan 'because the Anglo-Dutch naval presence was only token, the Navy saw no role for itself in any advance limited to those countries' possessions' and thus 'the fleet would not be positioned to demand the materials allocations for the completion of current building plans, much less the initiation of new ones' (Barnhart, 1987, p. 163).

Budgetary competition between the Imperial Army and the Imperial Navy was further complicated by the existence of other public bureaucracies and important interest groups in Japanese industry. Notwithstanding the steadily increasing plethora of regulation, 'Japan's economy was by no means government controlled' (Barnhart, 1987, p. 172), despite the existence of a national Planning Board. Industrial cartels represented by 'control associations' created under the aegis of the 1930 Major Industries Control Law exerted significant influence on public decision making. However, the fact that the armed services could appoint their own ministerial representatives to the Imperial Cabinet and jeopardize the survival of a government by threatening to withdraw their respective ministers gave them far more political power than their counterparts in other public bureaucracies (Akira, 1987). Moreover, since steel production was overwhelmingly nationalized, the critical annual question of steel quotas was usually resolved in favor of the armed services to the cost of private industry. Accordingly, competition for scarce resources from civilian public bureaucracies and organized industry weakened during the 1930s, particularly after the escalation of armed conflict following the China Incident in 1937. This is reflected in dwindling budgets and falling steel allocations (Barnhart, 1987).

Despite the discovery of the importance of budgetary rivalry in Japan as a critical factor in precipitating and shaping the Pacific War, economists and other social scientists have ignored this dimension of the Second World War. This is unfortunate since some of the theoretical approaches developed by economists appear eminently suited to an analysis of budget-maximizing behavior, not least

the literature derived from the seminal work of Niskanen (1971).<sup>1</sup> Moreover, an examination of budgetary rivalry between the two Japanese armed services is of interest to public choice economists in its own right. Analyses of budget-maximizing behavior typically focus on the allocative inefficiencies deriving from this conduct and the social costs they impose on the country in question (Mueller, 1989). However, in the context of the Pacific War, these costs were not only incalculably higher for Japan, but were also catastrophic for many other countries.

The paper itself is divided into four main parts. Section 2 provides a brief synoptic review of the historical importance of inter-service budgetary rivalry in Japan's fatal decision to attack the United States and Great Britain. Section 3 presents a theoretical perspective by first introducing Niskanen's bureaucratic theory and then developing alternative unique extensions, which could serve as a basis for assessment and analysis of Imperial Army and Navy behavior. Section 4 then applies our theoretical perspective to the historical evidence of Japan's government and bureaucratic behavior and the consequent Pacific War. The paper ends with some brief concluding remarks in section 5.

## **2. HISTORICAL BACKGROUND**

Although Japanese seafarers and settlers had a long history of engagement in the south-west Pacific, modern interest in this region was ignited through the publicity generated by naval training cruises through the area that began in 1875

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<sup>1</sup> Specifically, see Migue & Belanger (1974), Niskanen (1975, 1994), Orzechowski (1977), and Jackson (1982) for variations on the budget-maximizing theme.

(Frei, 1991). In particular, the populist geographical writings of Hattori Toru, Suganuma Teifu and Shiga Shigetaka seem to have aroused a tremendous interest in an almost mystical *nan'yo*, or South Seas, abundant in majestic islands and unlimited natural resources. In the popular imagination 'it was a warm tropical paradise, a territory in which to gain personal achievements and fulfill a sense of adventure' and to nascent expansionists the *nan'yo* represented 'the one area untouched by Western imperialists and thus the optimal place for the new nation of Japan to acquire territories' (Schencking, 1999, p. 769). Shrewd Japanese naval propagandists were to turn this popular current to their advantage.

The Imperial Japanese Navy was established as a separate and independent force in 1872 with the founding of its own service ministry. However, with the creation of an Army General Staff in 1878, and no naval equivalent, the Navy 'began to slip into a subordinate role, a position it occupied until the beginning of the 1890s' (Evans and Peattie, 1997, p. 8). An analogous Naval General Staff was only founded in 1893. Nevertheless, the pivotal role played by the Imperial Navy in the Sino-Japanese War (1894-5) and the Russo-Japanese War (1904-5), where it destroyed both enemy fleets in decisive battles, brought home to politicians and the public alike the importance of the Navy for the defense of the home islands and the development of a Japanese empire. Moreover, 'war proved immensely profitable for the navy' (Schencking, 1998, p.312): whereas in 1890 the total naval budget represented only 64% of the



Army's expenditure, by 1905 this had leapt to 127% of the Army's outlays (Ono, 1922, pp. 18-24 and pp. 41-46).

The 1907 Imperial Defense Conference represented another significant milestone in the Navy's rivalry with the Army. Although this conference sought to remedy bitter inter-service antagonism and develop a unified imperial defense strategy, it generated the ironical outcome that each service could define its own potential opponents. Inter-service rivalry thus emerged as the major beneficiary. It also served to formalize the earlier rather inchoate and nebulous positions of the two services. From henceforth *nanshu hokushin*, also known as *hokushin-ron*, became the official doctrine of the Army. Similarly, *hokushu nanshin*, sometimes termed *nanshin-ron* became the standard naval strategy. It is also evident that *nanshin-ron* had become 'a bureaucratic tool through which the navy hoped to gain a larger share of military appropriations' (Schencking, 1998, p. 317).

The budgetary impetus afforded the Navy by the 1907 Conference was comparatively short lived. Longstanding suspicions about corruption in naval armament acquisitions exploded in the so-called 'Siemens Navy scandal', with damaging revelations of bribery, theft and blackmail involving naval officers (Evans, 1978). This led directly to the fall of the pro-Navy Yamamoto Cabinet and the rescinding of the record naval budgetary allocation intended for the 1914 fiscal year. It was thus most fortuitous for naval leaders that the First World War intervened.

Under the 1902 Anglo-Japanese Alliance, Japan declared war on Germany. Even before the onset of hostilities the Imperial Navy had already benefited when the Diet approved an extraordinary allocation to build ten destroyers for use against the German East Asiatic Squadron. Despite explicit orders from Navy Minister Yashiro Rokuro against aggressive conduct towards German interests in the Pacific, in favour of the acquisition of German territories in China, opportunistic naval commanders succeeded in capturing German Micronesia north of the equator by October 1914. Separate garrisons were rapidly consolidated under a unified and Navy-controlled Provisional South Seas Defence Force that enabled the Imperial Navy to garner further public funds to administer the new possessions. But the most important outcome for the Navy from World War I lay in the fact that it could now provide concrete justification for the need for a large and powerful 'blue-water' fleet. Moreover, operational plans were revised to make Micronesian islands an integral 'component of its strategy to defeat its chief hypothetical enemy, the US Navy' (Schencking, 1998, p. 326). *Nanshin* had thus become the cornerstone of the Navy's budgetary struggle with its Army adversaries for public funds. Indeed, so successful had been the Imperial Navy strategy during the war that by 1921 it had a budget almost twice the size of the Army.

In the aftermath of World War I, all three great naval powers, Great Britain, Japan and the United States, faced ambitious, and potentially ruinous, naval construction programs. The Washington Treaty (1921-22) sought to thwart an arms race and set tonnage and other limitations on its eight signatory states, with

a 6 to 10 ratio of capital ships between Japan and the two Anglo-Saxon powers. The immediate effect of this much-hated Treaty for the Imperial Navy was the immediate cancellation of its grandiose plans for expansion to an eight-battleship fleet. Instead it had to be satisfied with six capital ships and then focussed instead on the development of smaller vessels, marine aviation and submarines. It is possible that the great Tokyo earthquake and fire of 1923 and the severe economic depression later in the same decade might have spiked the expansionary plans of the Navy even in the absence of the treaty.

The 1930 disarmament treaty signed in London had an even more dramatic effect on the fortunes of the Navy. This agreement dealt with lighter auxiliary naval vessels, a matter not covered in the Washington Treaty, and set the ratio at 6.975 for Japan and 10 for the other two great naval powers. A divisive and emotional debate ensued in Japan between the 'treaty faction', which supported the treaty, and the 'fleet faction', that opposed the London agreement. Incensed by the perceived 'internationalism' of the government, extremists assassinated Prime Minister Hamaguchi thereby launching an ongoing (and often violent) campaign by military hardliners against civilian and service moderates (Akira, 1987).

The ascendancy of the 'fleet faction' from the mid-1930's meant that a *nanshin* policy now dominated the naval agenda. The successful conquest of Manchuria by the Imperial Army in 1932, and the attendant public acclaim it enjoyed, provided a spur to advocates of *nanshin-ron* in the Navy. Moreover, abandonment of cooperation with the Anglo-American naval powers and the

subsequent uncertainties surrounding a reliable source of fuel oil for the Imperial Navy added further urgency to the need for a 'southward advance' towards the oil-rich Dutch East Indies. Similarly, the outbreak of the China War in the summer of 1937, which soon spread from north to central China, not only plunged Japan into full-scale hostilities, but also meant 'the navy was loathe to let the army monopolize the government funds and public support generated by the conflict' (Peattie, 1996, p. 217). As a first step towards the realisation of its *nanshin* plans, the Imperial Navy thus autonomously seized a number of islands off the coast of China, including Hainan, which had strategic potential in any move southwards. In sum, 'by 1939, therefore, the "southward advance" and the expansion of the Japanese fleet (and the resources needed for that expansion) had attained an almost symbiotic relationship in the minds of the navy's aggressive middle echelon' (Peattie, 1996, p. 219).

Fundamental differences still existed between the Army and the Navy on the nature of any *nanshin* strategy. In line with its *hokushin-ron* doctrine, the Imperial Army envisaged that any military operations towards the south would be directed against the Dutch East Indies, or in the worst-case scenario, against British and Dutch territories. Given the paucity of Anglo-Dutch naval forces in the Pacific from 1940, it believed that this would enable Japan to secure access to oil and other vital resources without recourse to war with the United States and its powerful Pacific Fleet. The Army would thus be assured of sufficient budgetary allocations to be able to pursue its ongoing campaign to defeat China and then tackle the Soviet threat north of Manchuria. But this conception of Imperial

strategy held little promise for the Navy. If Japan could conquer the Netherlands East Indies without the intervention of the British Empire and the American Fleet, then the navy would become an under-funded observer of great land battles in continental Asia without legitimate claims on national budgetary allocations. Accordingly, after simulated staff exercises involving an attack on the Dutch East Indies, the Naval General Staff concluded that since the United States was already providing substantial military assistance to Britain in its war with Germany, it would probably intervene alongside Britain in the Pacific. The 'indivisibility' of Britain and the United States thus became a cornerstone of any 'southward advance' on the part of naval strategists and formed the basis of the decision to launch pre-emptive attacks on the American Philippines and Pearl Harbor.

These differences were finally settled by compromise. The Navy agreed to support the Army's plans for the war in China and Tripartite Pact with Germany and Italy that would minimize the threat of Soviet intervention in Manchuria. The price it exacted was Army support for its *nanshin* strategy and an immediate and drastic increase in its budget. The German invasion of the Soviet Union heightened concerns in the Navy that the Imperial Army might use this as a pretext for invading Russia. Rapid American military rearmament and the imposition of further US economic boycotts complicated naval calculations. Barnhart (1987, p. 214) has described the Navy's dilemma as follows: 'The longer the [southward] advance could be delayed, the more warships could be constructed for the imperial fleet and the more steel could be requisitioned to

build those warships', but 'too much delay, however, would be disastrous, because it would give the Americans time to accomplish their own colossal naval expansion program'. Moreover, in the light of its successful budgetary claims, it could hardly argue that it would not be successful against Anglo-American naval power in the Pacific. One way of resolving this dilemma was to embark on a surprise attack upon the US Pacific Fleet in Hawaii and thereby even up the odds in the subsequent naval war. The scene was thus set for the fateful attack on Pearl Harbor and the resulting conflagration in the Pacific.

### **3. A THEORETICAL PERSPECTIVE**

The public choice approach to the budgetary conflict between the Imperial Army and the Imperial Navy involves modelling each as an optimising entity. The innovator for this form of bureaucratic analysis was Niskanen (1971). While Niskanen's work has been both extended and criticized,<sup>2</sup> his initial modelling offers an interesting starting point for understanding how bureaucratic budget maximization might drive the competition and cooperation between the Japanese Army and Navy, and ultimately affect the nature of the Pacific War. Niskanen also provided both a formal mathematical analysis (with arithmetic examples in his original book) and a graphical analysis, which opened bureaucratic analysis to the interest and understanding of economists, who previously had largely ignored this field of study.

Here we will apply only the less formal, graphical analysis, which draws on Niskanen's (1971) methodology to explore his insights on competing bureaus as well as others' (Congleton 1980; Faith 1980) insights on cooperating bureaus. Niskanen defined bureaus as non-profit organizations providing an output (**Q**) to a sponsor in return for a periodic grant or budget (**B**). Bureaucrats are defined as employees who cannot directly appropriate any bureaucratic surplus (an excess of budget **B** over cost **C**), although their perquisites of office (salary, power, prestige, etc.) are generally a monotonic function of budget size, giving them an inherent interest in, and an identification with, budget size. Those bureaucrats, who positively value such perquisites, will have an obvious incentive to maximize

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<sup>2</sup> Migue & Belanger (1974), Niskanen (1975, 1994), Orzechowski (1977) provided well cited critical extensions, Clark (1997), Duncombe, *et.al.* (1997), Fedeli (1999), and Wyckoff (1990) provide insightful modelling of bureaucratic micro decision-making, while Wintrobe (1998) also models the macro aspects of bureaucracies in authoritarian regimes.

budget size rather than budget surplus (Indeed, standard government budgeting procedures, which involve the loss of an unspent budget at the fiscal year's end, tend to discourage budget surplus maximization).

Curiously, in building his formal model, Niskanen makes a rather peculiar assumption from the standpoint of many bureaucratic observers, though not necessarily economists, in that he assumes a “hard” budget constraint.<sup>3</sup> That is, the bureau's total budget must at least cover its total costs ( $B > \text{or} = C$ ). Further, Niskanen assumes that both the budget ( $B$ ) obtainable from the sponsor and the cost ( $C$ ) of bureaucratic production are direct, but different, functions of output ( $Q$ ); i.e.,  $B = B(Q)$  and  $C = C(Q)$ . In what follows, it will be convenient to display these functions in a manner familiar to economists and others who know about demand and supply analysis; namely, in their average or per-unit form. That is, we will graph per unit curves derived by dividing the functions for total budget and total cost by quantity ( $B/Q = B(Q)/Q$ ;  $C/Q = C(Q)/Q$ ).

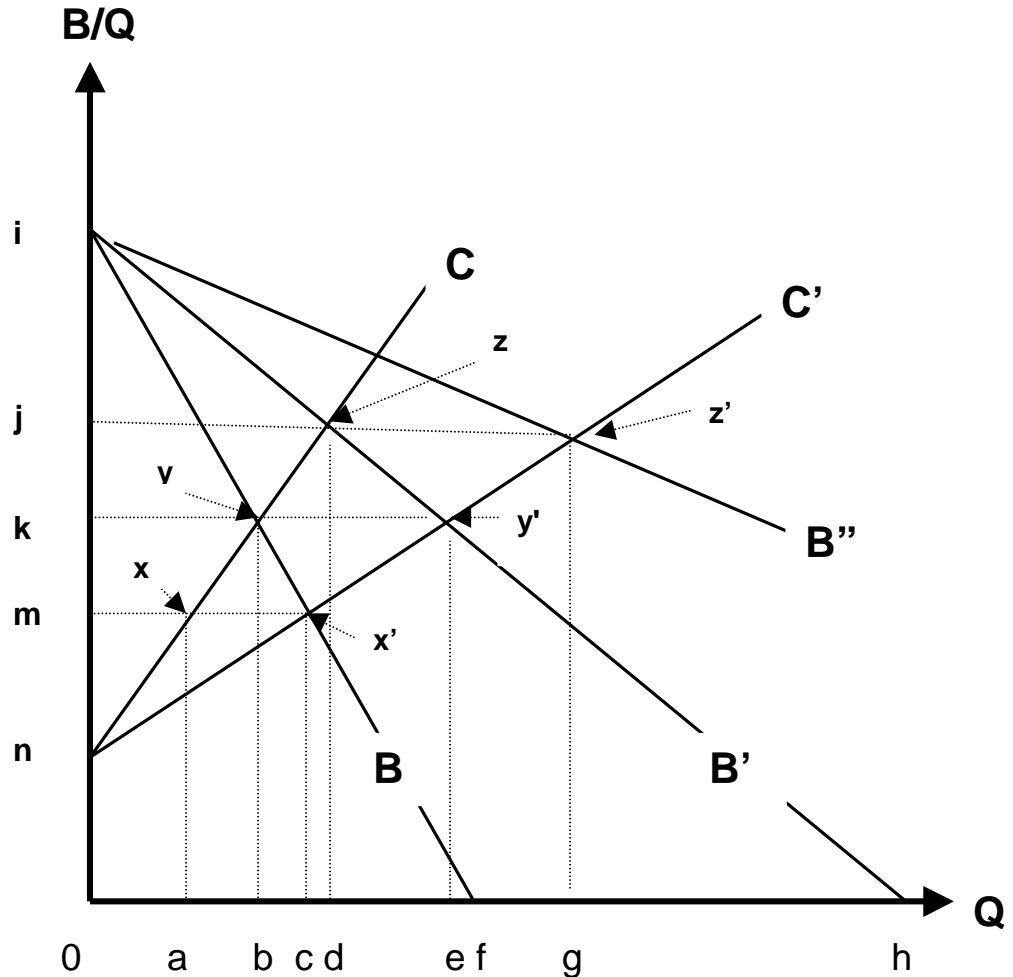
Now refer to **Figure 1** where various outcomes of budget maximization can be displayed. First, a sponsor who values the output of a bureau enough to provide that bureau with a budget for that output would be willing to pay a different per unit “price” for different levels of bureau output. This is shown by curve  $B$ , which is the sponsor's *marginal budget curve*, the bureaucratic analogue of a product demand curve. Given the objective of budget maximization (rather than surplus maximization), a bureau would supply output along its average cost curve  $C$  (rather than along its marginal cost curve), the bureaucratic

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<sup>3</sup> That is there is no possibility of a “soft budget constraint” made famous by Janos Kornai's observations and analysis of Soviet style budgeting)



analogue of a product supply curve. The way this curve is drawn in **Figure 1**, at every per-unit budget-price, a budget-maximizing bureau would supply twice the output that a profit or surplus maximizing firm or bureau would supply.



**Figure 1: Comparative Bureau Budget Maximization**

In contrast, a profit-maximizing firm's (or surplus-maximizing bureau's) supply curve would be given by its marginal (not average) cost curve (For graphing simplicity, the relevant marginal cost curve is not drawn in **Figure 1**, but, if drawn, would bisect the distance between the vertical axis and the average

cost curve **C**). This unique modelling of bureaucratic overproduction, and, hence, allocative inefficiency, was Niskanen's key insight and analytical contribution which launched an extensive literature on the economics and political economy of bureaucracy. Even the severest critics of Niskanen's modelling, concede that their counter-modelling suggests bureaus will tend to be technically inefficient even if and when they are allocationally efficient (since any surplus maximized must be wasted by turning it into an excess budgetary cost). That is, the literature consensus is that whether bureaucrats are utility maximisers, surplus maximisers or budget maximisers, they tend to overcharge and/or overproduce. It is that feature that makes the political economy of bureaucracy relevant for understanding the process of bureau rivalry, expansion, and, possibly, collapse.

Having sketched these basics of budget-maximizing bureau analysis, we can now explore the outcome under various circumstances of the bureaucratic setting, such as whether a bureaucratic situation is one of monopoly, competing duopoly, or cooperative duopoly and whether the sponsor's review process results in bureaus being "budget-takers" or "budget-makers".<sup>4</sup> This 3 x 2 elementary classification scheme might yield six distinct cases, except that the case of a budget-making, competing duopoly is analytically contradictory; to be jointly budget-making, requires cooperation, not competition, at least not competition *vis-à-vis* the sponsor. Thus, there are only five distinct cases to analyse here: 1) Budget-taking monopoly, 2) budget-making monopoly, 3) budget-taking, competing duopoly, 4) budget-taking, cooperative duopoly and 5)

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<sup>4</sup> The terms budget-taking and budget-making are directly analogous to the terms price-taking and price-making which some economists use to designate the absence or presence, respectively, of the power to determine all of the terms of exchange in the private market place.

budget-making, cooperating duopoly. Consideration of these five cases is worthwhile as a basis for a comparison of bureaucratic forms that is novel to this paper.

**1) Budget-taking monopoly bureau:** In this case, the sponsor sets the per-unit budget. That might occur if sponsor officials cannot directly appropriate any surplus arising from socially optimal bureaucratic production, but only indirectly benefit from their constituents generally enjoying some “consumer surplus” from government provision, and if sponsor officials have some alternative source of information about bureaucratic production costs. In these circumstances, it may be likely that sponsor officials have an incentive to get the best “deal” for their constituents. That would involve not only closely monitoring the bureau to insure supply at minimum cost, but also choosing an output level that leaves their constituents with some “consumer surplus” from government provision. Given a per-unit budget allocation, a bureau will offer an output determined by its average cost curve **C**. The sponsor and bureau coordinate their budget and supply offers at the point **y** in **Figure 1** where curves **B** and **C** intersect. Output is at **Ob** and average budget is at **Ok**; Total budget equals total cost as shown by area **Obyk**, which measures both. While budget-maximizing bureau output is twice as high (and the total budget is higher) as would occur with a profit-maximizing firm or a surplus-maximizing bureau, this case still represents one of the more efficient extremes of the bureaucratic form and provides a benchmark for what follows.

**2) Budget-making monopoly bureau:** This case represents the prototypical Niskanen bureau, which is able to control the supply of information about its

production costs, and/or which has a sponsor whose officials (and/or their special-interest constituents) benefit indirectly (directly) from the level of bureaucratic output (rather than from the surplus generated by bureaucratic production), such that the bureau can make an “all or none” offer to the sponsor (a total budget for a total output), thereby extracting all sponsor and/or constituent surplus. Now the bureau can regard the sponsor’s average budget curve (**B**) as showing the maximum amount that the sponsor will pay for any level of output when it is offered on an “all or none” or “take it or leave it” basis. The budget making, budget-maximizing bureau maximizes its budget where its minimum average cost curve **C** intersects its maximum average budget curve **B** at point **z** in **Figure 1**. Output is at **Od** and average budget is at **Oj**; Total budget and total cost are equal and both measured by area **Obzj**. As shown, this bureau, as in Case 1, is “technically efficient” because it is producing at minimum cost,<sup>5</sup> but it is more “allocatively inefficient” because it is producing too much output – again, approximately double the amount produced by a private firm facing similar demand and cost conditions. Sponsor (or constituent) surplus is captured and expended on bureaucratic expansion far beyond social optimality.

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<sup>5</sup> The case illustrated is called “budget constrained” by Niskanen because the bureau’s binding constraint is actually the **B = C** condition. The case not illustrated here is the one Niskanen called “demand constrained” which occurs if **C** intersects **B** at a point beyond where the marginal budget curve **B** intersects the horizontal axis (point **f**). That is the point where the sponsor’s budget outlay, and, hence, the bureau’s budget, is maximized and beyond which a bureau would expend costs while losing budget. At point **f** total budget exceeds minimum total cost (**B > C**). Such a demand-constrained bureau would have a “surplus” – or “fat” as Niskanen calls it – which it can use to pursue bureaucrats’ own objectives unrelated to the output desired by the sponsor or by the sponsor’s constituents. Its reported “costs” would equal its budget but would be higher than the minimum cost necessary to produce the promised output. Hence, a demand-constrained bureau would be both technically and allocatively inefficient. We do not need to explore this case here as a way to expose the nature of Imperial inter-service rivalry. Indeed, it might be argued that such rivalry might constrain each service to a “budget constrained”, rather than a “demand constrained” outcome.

The main net beneficiaries of bureaucratic supply may be the bureaucrats, themselves, and whatever other of the bureau's factor suppliers who may be compensated in excess of their minimum supply price. That is, there may only be a factor surplus.<sup>6</sup>

**3) Budget-taking, competing duopoly bureaus:** Actual competitive bureaucratic supply may involve any number of bureaus offering identical bureaucratic products. However, here we assume, for simplicity of exposition and for development of an appropriate theoretical analogue, that there are only two bureaus with identical costs of production **C**, which, when summed, yield curve **C'**. Competition would likely reveal to the sponsor the true cost of bureaucratic supply, so as in **Case 1**), the sponsor could choose to purchase from either bureau on a per unit basis. Thus, the intersection of sponsor's marginal budget curve **B** with the bureaus' joint supply curve **C'** at point **x'** would give the equilibrium total output **Od**, equally divided between each bureau as **Oa** and **ac**,<sup>7</sup> and total budget (equals total cost) area **Ocx'm**, equally divided between each bureau as **Oaxm** and **Oacm**, respectively. Again, both bureaus are technically efficient individually and jointly, but allocatively inefficient jointly, although less so than in the previous case of the budget-making monopoly bureau because both total output and total budget are lower in this case.<sup>8</sup>

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<sup>6</sup> In majoritarian governments, a high-demand constituency may prevail over a low-demand constituency to remain a net positive beneficiary while the latter becomes a net negative "beneficiary" (or sufferer) from bureaucratic production (Niskanen 1971, Chapter 14).

<sup>7</sup> If the bureaus do not have identical cost functions, the lower (higher) cost bureau would produce a larger (smaller) proportion of the total output.

<sup>8</sup> Niskanen (1971, p.161) concluded for his constant cost example that competition would not solve the problem of bureaucratic oversupply, although it might improve technical efficiency in the demand-constrained case. In our increasing cost example, there is a slight improvement in

**4) Budget-taking, cooperative duopoly bureaus:** Instead of competing directly by supplying identical bureaucratic “products” that are essentially perfect substitutes, bureaus may compete indirectly for budget allocations by tacitly or explicitly supplying bureaucratic products that are imperfect substitutes or even complements to the sponsor and/or the sponsor’s constituents. If there is only tacit or implicit cooperation where bureaus spontaneously develop their individual product niches, the sponsor may still have independent sources of information that allow budget allocation along the sponsor’s marginal, rather than average, budget curve. However, with imperfect substitutes or complements, the sponsor’s marginal budget curve for both bureaucratic “products” would shift out. We can show that in **Figure 1** by assuming that both bureaus produce complementary products that are equally valued by the sponsor. Now each bureau’s output is valued the same along the same marginal budget curve **B**. When we combine these marginal budget curves by adding them horizontally to get the sponsor’s total demand, **B’** is now the relevant curve whose intersection with the bureaus’ joint supply curve at point **y’** determines the equilibrium output **Oe**, average budget “price” **Ok**, and total budget (= total cost) **Oey’k**. The two bureaus’ individual outputs and budget shares are **Ob** and **be**, and **Obyk** and **bey’y**, respectively. The efficiency of this outcome is similar in nature if not extent to that of Case1); these bureaus are technically efficient but allocatively inefficient relative to profit maximizing private duopolies without price-discriminating power.

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allocative efficiency from reduced oversupply. Niskanen did not consider the subsequent cases of cooperative bureaus; their graphing is unique to this paper.

**5) Budget-making, cooperating duopoly.** Finally, consider two bureaus that not only consciously offer complementary bureaucratic “products”, but also (perhaps with the sponsor’s tacit or explicit approval) collude to extract jointly the maximum possible budget subject only to the total budget equals total cost constraint. Again, this strategy involves an equilibrium position determined by the intersection of the bureaus’ joint supply function  $C'$  with the sponsor’s average budget curve for the bureaus’ joint, complementary, outputs, shown in **Figure 1** as  $B''$ , at point  $z'$ . The two bureaus’ individual outputs and budget shares are  $Od$  and  $dg$ , and  $Odzj$  and  $dgz'z$ , respectively. Total output  $Og$ , Average budget  $Oj$ , and total budget (= total cost)  $Ogz'j$  are all higher than when bureaus are unable to pursue an “all or none” budget-maximization strategy with their sponsor. The budget-constrained outcome here is again technically efficient but allocatively inefficient (and to a much greater extent than previous cases) relative to the social optimum and relative to profit maximizing private duopolies with price-discriminating power.<sup>9</sup> Again, as in Case 2, only the bureaucrats, other factor suppliers, and, possibly, high-demand constituents<sup>10</sup> are net beneficiaries.

#### **4. The Perspective Applied**

The theoretical perspective developed above can be used to analyse the inter-service rivalry over budget allocations between the Imperial Japanese Navy and the Imperial Army. Either the Navy or the Army might have offered the typical “product” of any military organization, which, when arrayed on a continuum, could be conceived as stretching from zero (no defense) through defense to conquest

<sup>9</sup> See Fedeli (1999) for a more complex analysis of competing cooperating bureaucracies.

<sup>10</sup> See footnote 6.

of varying levels, where the measurement metric might be area of territory defended (conquered). In the case of an island nation like Japan, and given the nature of army and navy production technicalities being either land or water based, it is clear that it would not be natural for either of these bureaus to offer identical products. That is, there is a natural product stratification determined by both demand-side and supply-side realities.<sup>11</sup>

Thus, while there might be a rivalry, even intense, venomous, and deadly rivalry, over budget allocations, the Imperial Army and Navy would not likely be characterized as “competing bureaus” as defined and analyzed above. Rather, they would more naturally be “cooperating bureaus” in terms of their products being imperfect substitutes or direct complements. (Indeed, as observed in Section 2, there was an Imperial Army and Imperial Navy compromise over mutually supporting both *Nanshin* and *Hokushin*.) That symbiosis would also make it likely for their bureaucrats to realize jointly the greater potential for budget maximization in not only designing their products to maximize complementarities, but also to collude to extract the maximum budget allocation from the Japanese government.<sup>12</sup> Indeed, with their own ministerial representatives within the Imperial Cabinet, it would be possible for the Navy

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<sup>11</sup> After some point, defending an island requires a navy as well as army; conquest of other landmasses also requires both services. However, given the relative cost advantage of sea versus land (rail and road) transport during the 30's and of conquering/defending geographical areas with lesser land densities, it is conceivable that *nanshin* would have been seen to dominate *hokushin* on the basis of standard benefit/cost criteria (given static assumptions about a US response). We will leave this speculation about relative costs of alternative production technologies for other investigators.

<sup>12</sup> Budget-maximizing bureaus can further expand what is available by interacting directly with their sponsor's constituents to increase the latter's demand for specific bureaucratic services as well as for an overall increase in the size of the government's budget. Military bureaus can pursue such budget expansion by forming allegiances with their suppliers (“The Military-Industrial Complex” lobby) and their customers (Patriots, nationalists, and imperialists).

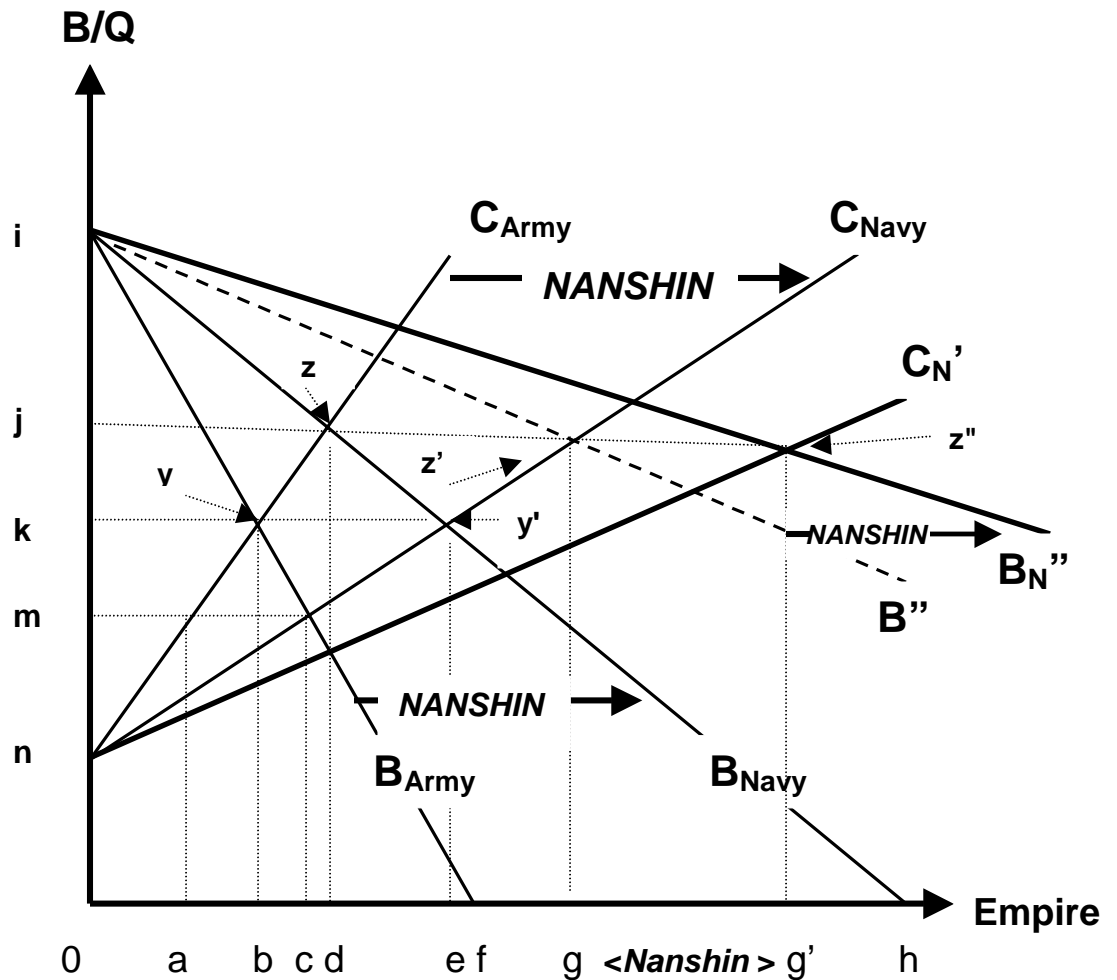


and/or Army to collude directly with their “sponsor”, from which, for practical purposes, they may have become indistinguishable as their bureaucratic growth, and the Pacific War, progressed. For each bureau, it is as simple as  $x$ ,  $y$ , &  $z$ . That is, as simple as designing bureau products and cooperating to move individually (and totally) from outcomes like those at point  $x$  ( $x'$ ) to outcomes at point  $z$  ( $z'$ ) in **Figure 1**.

Of course, the analysis demonstrated with **Figure 1** presumes equal sized bureaus whereas, in reality, relative size would still be a variable determined by inter-service competition over the explicit nature of each service’s products. Thus, while the Imperial Navy would complement the role of the Imperial Army in its campaign on the Asian mainland (*hokushin*), it would gain in relative size by developing a plan and competency in pursuing a Pacific campaign (*nanshin*) where the Imperial Army would necessarily play a more subsidiary role. In terms of **Figure 1**, this can be interpreted as attempting to change the ratio of  $Od/dg$ . The Imperial Army had an incentive to cooperate to some extent in the Imperial Navy’s “product development” (*nanshin*) if the size of the budget available to both services was expanded thereby. In terms of **Figure 1**, cooperation would be forthcoming it was expected that  $B''$  would shift out so that  $0g$  would increase, as a result.

These ideas can be shown in **Figure 2**, where the Navy’s “product innovation”, *nanshin*, shifts out the Navy’s demand and cost curves, both absolutely and relative to the Army’s budget and cost curves, which are now

relabeled respectively,  $B_{Navy}$ ,  $C_{Navy}$ ,  $B_{Army}$ , and  $C_{Army}$ .<sup>13</sup> Now  $B_{Navy}$  and  $B_{Army}$  sum to  $B_N''$  and  $C_{Navy}$  and  $C_{Army}$  sum to  $C_n'$ , while the new equilibrium point shifts to  $z''$ , with a higher “output” (a larger empire conquered and defended)  $g'$ , a larger total budget for the armed services  $0g'z''j$ , and a larger (absolutely and relatively) Navy budget  $0gz'j$ .<sup>14</sup>

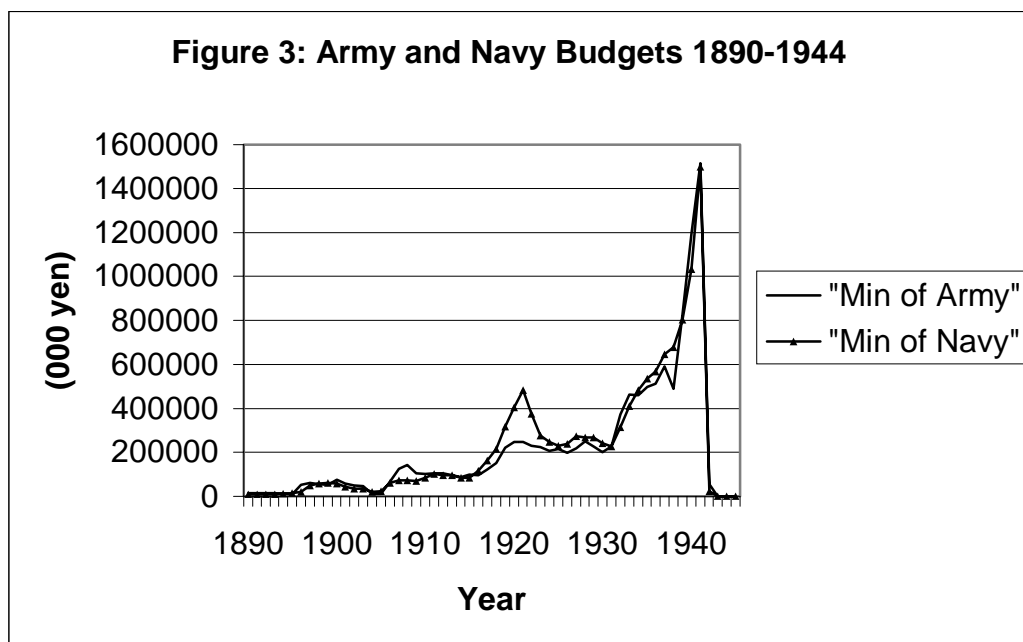


**Figure 2: The Expected *Nanshin* Effect**

<sup>13</sup> For graphical simplicity and ease of comparison, we assume that  $B_{Navy}$  and  $C_{Navy}$  have simply shifted to be identical with the former  $B'$  and  $C'$ , respectively.

<sup>14</sup> The Army's budget could have been larger (smaller) as well if the Navy's cost curve had shifted out by less (more) than its budget curve. Since *hokushin* was also pursued, as agreed between the Navy and Army, the Army's budget actually increased as well (not shown in **Figure 2**), though not to the same extent as the Navy's budget given that *nanshin* was more effectively pursued than *hokushin*.

The joint effects of "cooperative competition" between *Nanshu hokushin* and *hokushu nanshin* ideologies can be illustrated by arranging available data (given in the Appendix) to show in **Figure 3** the rapid growth of both the Imperial Navy's and the Imperial Army's budgets throughout the mid-1930s to early 1940s.



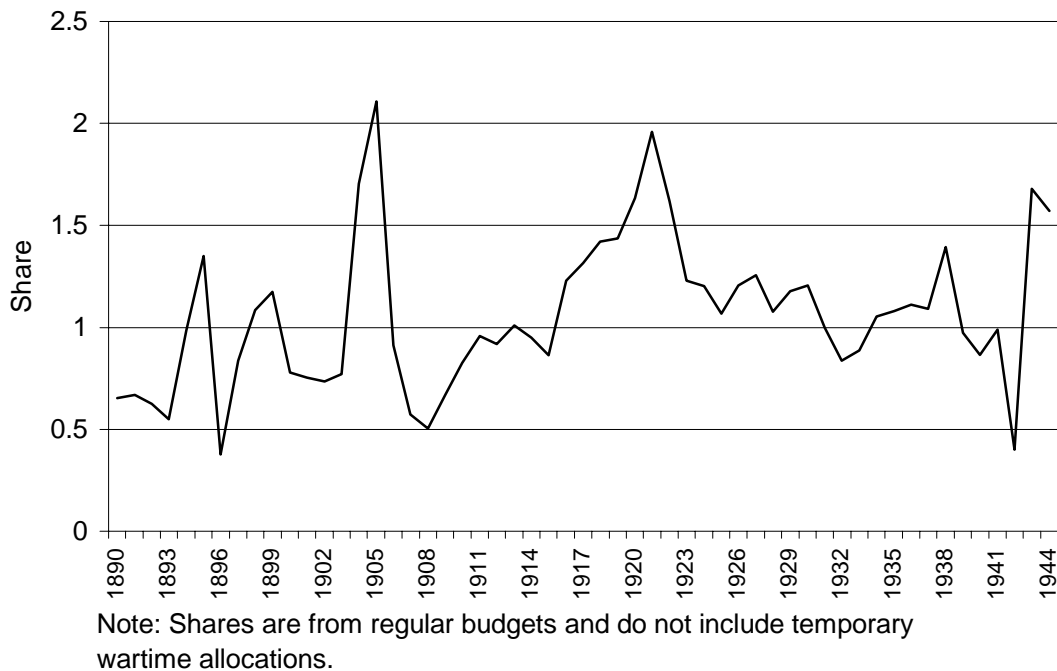
We might note from the "Military as a % of Overall Budget" column in the Appendix data, that these strategies enabled both military bureaucracies to out compete other government bureaucracies for a share of the total budget. Meanwhile, the government was out competing the private sector for its share of the total economy.<sup>15</sup> Imperial wars obviously well serve the interests of those factor owners employed in the projection of Imperial force -- up to the point where

<sup>15</sup> Unfortunately, we do not have complete data for GNE after 1940, but the government's share of the economy was increasing up to those war dates, so it may be a safe supposition that trend would continue until final defeat.

that force is met by a superior counterforce and/or otherwise absolutely diminishing returns; then collapse ensues.

The relative effects of "rivalrous competition" between *Nanshu hokushin* and *hokushu nanshin* ideologies can be illustrated by arranging the data in **Figure 3** to show the Imperial Navy's budget relative to the Imperial Army's budget as presented in **Figure 4**.

**Figure 3. Navy Budget as Share of Army Budget**  
(Source: *Okurasho-shi*, Vol. 2, Ministry of Finance)



Here we can see that the Navy's budget share, while growing relative to other non-military bureaucracies and the economy, was falling relative to the Army for a few years before the Pearl Harbor attack at the end of 1941, continuing into the 1942 budget year. However, note that these figures do not include temporary wartime allocations, which may have reverse the Navy's share

much sooner, indeed, even to finance the Pearl Harbor attack. Only in the 1943 budget year, with the oncoming U.S. response to Pearl Harbor, was the *nanshin* strategy successful in earning the Navy a larger relative share. This budgetary success continued into 1944 before being ended by Japan's surrender in 1945.

In the short run, Navy bureaucrats may have considered *nanshin* a very effective bureaucratic strategy. Within this strategy, the attack on Pearl Harbor was a tactical move to reverse the prior relative dominance of *hokushin*, and to enhance and extend *nanshin's* short run effect. Had the United States' own military bureaucracies not responded in a similar budget maximizing fashion, Pearl Harbor (and *nanshin*) might also have been a successful long run tactic (and strategy). Whether *nanshin* would have had long run viability without the Pearl Harbor tactic is, no doubt, endlessly arguable. However, from a public choice perspective, Pearl Harbor may have provided a key ingredient for special interest budget competition by the U.S. military, in general, and the US Navy, in particular – namely, a coalescing, general interest ideology for Pacific expansion and domination.

In summary, with the resulting Pacific War, the share of both Imperial armed services expanded not only in total, but also as a share of the total government budget and of the Japanese economy. Thus, *nanshin* would have been a very successful bureaucratic strategy (though not necessarily the most successful national strategy) -- if only it had been sustainable. Unfortunately for the long run viability of both Japanese bureaucracies, another nation's military bureaucracies were pursuing similar strategies in a world wide bureaucratic

competition (arguably) provoked by Japan's inter-service rivalry within its unique institutional environment.

## **5. CONCLUDING REMARKS**

This paper does not contend that inter-service budgetary rivalry between the Imperial Japanese Navy and the Imperial Army represented the only, or even the most important, cause of World War Two in the Pacific. Many factors undoubtedly played a contributory role (Akira, 1987). Nevertheless, Michael Barnhart (1987) and many other historians have demonstrated that there is substantial evidence to support the proposition that budget-maximizing behaviour on the part of the Army and Navy not only helped precipitate the onset of the Pacific War, but also decisively shaped its course. For instance, if the Navy had not adopted a *nanshin* strategic philosophy as its chief means of contesting the Army's claims to budget allocations, then in counter-factual terms it is conceivable that the pre-war oil and resource crisis could have been resolved through the conquest of the Dutch East Indies alone. This would not have necessitated an attack on Pearl Harbor and thus may not have involved conflict with the United States. The nature and outcome of World War Two could therefore have been very different.

Given the significance of budgetary competition between the two branches of the Japanese armed forces, and that previously this competition has been examined predominantly by scholars using historical narrative, it seems that the analytical apparatus of public choice theory, specifically bureaucratic theory, can provide

additional explanatory power in understanding this dimension of the origins of the Pacific War.

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**APPENDIX: TABLE 1: Various Budgets, Allocations, and Overall of Japan (1890-1944)**

| Fiscal Year | Army(A) | Navy(N) | A+N     | Temporary Military Allocations (T) | General Overall Budget(G) | Other Transfers (O)* | N as % of A | Military as % of Overall Budget** | GNE***    | General Budget as % of GNE |
|-------------|---------|---------|---------|------------------------------------|---------------------------|----------------------|-------------|-----------------------------------|-----------|----------------------------|
| 1890        | 15,533  | 10,159  | 25,692  | 0                                  | 82,125                    | 0                    | 152.90      | 31.3                              | 1,056,000 | 7.78                       |
| 1891        | 14,180  | 9,502   | 23,682  | 0                                  | 83,556                    | 0                    | 149.23      | 28.3                              | 1,139,000 | 7.34                       |
| 1892        | 14,635  | 9,133   | 23,768  | 0                                  | 76,735                    | 0                    | 160.24      | 31                                | 1,125,000 | 6.82                       |
| 1893        | 14,721  | 8,101   | 22,822  | 0                                  | 84,582                    | 0                    | 181.72      | 27                                | 1,197,000 | 7.07                       |
| 1894        | 10,409  | 10,253  | 20,662  | 107,170                            | 185,299                   | 0                    | 101.52      | 69                                | 1,338,000 | 13.85                      |
| 1895        | 10,016  | 13,520  | 23,537  | 93,305                             | 178,622                   | 0                    | 74.08       | 65.4                              | 1,552,000 | 11.51                      |
| 1896        | 53,243  | 20,006  | 73,248  | 0                                  | 168,857                   | 0                    | 266.14      | 43.4                              | 1,666,000 | 10.14                      |
| 1897        | 60,148  | 50,395  | 110,543 | 0                                  | 223,679                   | 0                    | 119.35      | 49.4                              | 1,957,000 | 11.43                      |
| 1898        | 53,898  | 58,530  | 112,428 | 0                                  | 219,758                   | 0                    | 92.09       | 51.2                              | 2,194,000 | 10.02                      |
| 1899        | 52,551  | 61,662  | 114,213 | 0                                  | 254,166                   | 0                    | 85.22       | 44.9                              | 2,314,000 | 10.98                      |
| 1900        | 74,838  | 58,275  | 133,113 | 0                                  | 292,750                   | 0                    | 128.42      | 45.5                              | 2,414,000 | 12.13                      |
| 1901        | 58,382  | 43,979  | 102,361 | 0                                  | 266,857                   | 0                    | 132.75      | 38.4                              | 2,484,000 | 10.74                      |
| 1902        | 49,442  | 36,326  | 85,768  | 0                                  | 289,227                   | 0                    | 136.11      | 29.7                              | 2,537,000 | 11.40                      |
| 1903        | 46,885  | 36,118  | 83,002  | 66,373                             | 315,969                   | 0                    | 129.81      | 47.3                              | 2,696,000 | 11.72                      |
| 1904        | 12,088  | 20,613  | 32,701  | 608,593                            | 822,218                   | 63,430               | 58.64       | 78                                | 3,028,000 | 27.15                      |
| 1905        | 11,109  | 23,412  | 34,521  | 586,196                            | 887,937                   | 119,000              | 47.45       | 69.9                              | 3,084,000 | 28.79                      |
| 1906        | 67,870  | 61,877  | 129,746 | 247,311                            | 711,587                   | 0                    | 109.69      | 53                                | 3,302,000 | 21.55                      |
| 1907        | 126,044 | 72,272  | 198,316 | 0                                  | 602,401                   | 0                    | 174.40      | 32.9                              | 3,743,000 | 16.09                      |
| 1908        | 141,805 | 71,578  | 213,384 | 0                                  | 636,361                   | 0                    | 198.11      | 33.5                              | 3,766,000 | 16.90                      |
| 1909        | 106,166 | 71,046  | 177,212 | 0                                  | 532,894                   | 0                    | 149.43      | 33.3                              | 3,780,000 | 14.10                      |
| 1910        | 101,324 | 83,841  | 185,164 | 0                                  | 569,154                   | 0                    | 120.85      | 32.5                              | 3,925,000 | 14.50                      |
| 1911        | 105,000 | 100,464 | 205,464 | 0                                  | 585,374                   | 0                    | 104.52      | 35.1                              | 4,463,000 | 13.12                      |
| 1912        | 104,125 | 95,485  | 199,611 | 0                                  | 593,596                   | 0                    | 109.05      | 33.6                              | 4,774,000 | 12.43                      |
| 1913        | 95,440  | 96,446  | 191,886 | 0                                  | 573,634                   | 0                    | 98.96       | 33.5                              | 5,013,000 | 11.44                      |

|      |           |           |           |            |            |           |        |      |            |       |
|------|-----------|-----------|-----------|------------|------------|-----------|--------|------|------------|-------|
| 1914 | 87,700    | 83,260    | 170,960   | 45,936     | 617,994    | 76,363    | 105.33 | 35.1 | 4,738,000  | 13.04 |
| 1915 | 97,791    | 84,377    | 182,168   | 30,527     | 595,450    | 18,348    | 115.90 | 35.7 | 4,991,000  | 11.93 |
| 1916 | 94,813    | 116,625   | 211,438   | 23,697     | 598,525    | 15,967    | 81.30  | 39.3 | 6,148,000  | 9.74  |
| 1917 | 123,437   | 162,435   | 285,872   | 34,800     | 731,007    | 38,817    | 75.99  | 43.9 | 8,592,000  | 8.51  |
| 1918 | 152,082   | 215,903   | 367,985   | 125,771    | 1,027,382  | 115,424   | 70.44  | 48.1 | 11,839,000 | 8.68  |
| 1919 | 220,268   | 316,419   | 536,687   | 149,030    | 1,319,358  | 0         | 69.61  | 51.8 | 15,453,000 | 8.54  |
| 1920 | 246,557   | 403,202   | 649,759   | 219,877    | 1,549,167  | 30,687    | 61.15  | 56.1 | 15,896,000 | 9.75  |
| 1921 | 246,979   | 483,590   | 730,568   | 108,747    | 1,598,603  | 0         | 51.07  | 52.5 | 14,886,000 | 10.74 |
| 1922 | 230,909   | 373,892   | 604,801   | 85,494     | 1,515,183  | 0         | 61.76  | 45.6 | 15,573,000 | 9.73  |
| 1923 | 223,927   | 275,144   | 499,071   | 28,462     | 1,549,513  | 0         | 81.39  | 34   | 14,924,000 | 10.38 |
| 1924 | 206,735   | 248,458   | 455,193   | 29,490     | 1,644,514  | 10,000    | 83.21  | 29.5 | 15,576,000 | 10.56 |
| 1925 | 214,805   | 229,003   | 443,808   | 1,831      | 1,526,819  | 0         | 93.80  | 29.2 | 16,265,000 | 9.39  |
| 1926 | 196,941   | 237,308   | 434,249   | 0          | 1,578,826  | 0         | 82.99  | 27.5 | 15,975,000 | 9.88  |
| 1927 | 218,104   | 273,536   | 491,640   | 0          | 1,765,723  | 0         | 79.74  | 27.8 | 16,293,000 | 10.84 |
| 1928 | 249,106   | 268,131   | 517,238   | 0          | 1,814,855  | 0         | 92.90  | 28.5 | 16,506,000 | 11.00 |
| 1929 | 227,255   | 267,665   | 494,920   | 0          | 1,736,317  | 0         | 84.90  | 28.5 | 16,286,000 | 10.66 |
| 1930 | 200,824   | 242,035   | 442,859   | 0          | 1,557,864  | 0         | 82.97  | 28.4 | 14,671,000 | 10.62 |
| 1931 | 227,488   | 227,129   | 454,617   | 0          | 1,476,875  | 0         | 100.16 | 30.8 | 13,309,000 | 11.10 |
| 1932 | 373,575   | 312,809   | 686,385   | 0          | 1,950,141  | 0         | 119.43 | 35.2 | 13,660,000 | 14.28 |
| 1933 | 462,645   | 409,975   | 872,620   | 0          | 2,254,662  | 0         | 112.85 | 38.7 | 15,347,000 | 14.69 |
| 1934 | 458,529   | 483,353   | 941,882   | 0          | 2,163,004  | 0         | 94.86  | 43.5 | 16,966,000 | 12.75 |
| 1935 | 496,559   | 536,378   | 1,032,937 | 0          | 2,206,478  | 0         | 92.58  | 46.8 | 18,298,000 | 12.06 |
| 1936 | 510,719   | 567,451   | 1,078,170 | 0          | 2,282,176  | 0         | 90.00  | 47.2 | 19,324,000 | 11.81 |
| 1937 | 591,475   | 645,365   | 1,236,840 | 2,034,298  | 4,742,320  | 1,136     | 91.65  | 69   | 22,823,000 | 20.78 |
| 1938 | 487,500   | 679,246   | 1,166,746 | 4,795,395  | 7,766,259  | 317,165   | 71.77  | 76.8 | 26,394,000 | 29.42 |
| 1939 | 825,076   | 803,535   | 1,628,610 | 4,844,296  | 8,802,943  | 535,187   | 102.68 | 73.5 | 31,230,000 | 28.19 |
| 1940 | 1,192,470 | 1,033,712 | 2,226,182 | 5,722,542  | 10,982,755 | 600,000   | 115.36 | 72.4 | 36,851,000 | 29.80 |
| 1941 | 1,515,250 | 1,497,375 | 3,012,625 | 9,487,023  | 16,542,832 | 1,078,083 | 101.19 | 75.6 | n/a        | n/a   |
| 1942 | 56,454    | 22,617    | 79,071    | 18,753,150 | 24,406,382 | 2,623,244 | 249.61 | 77.2 | n/a        | n/a   |
| 1943 | 678       | 1,139     | 1,816     | 29,818,452 | 38,001,015 | 4,369,250 | 59.53  | 78.5 | n/a        | n/a   |
| 1944 | 728       | 1,145     | 1,874     | 73,493,554 | 86,159,861 | 7,205,642 | 63.58  | 85.3 | n/a        | n/a   |

Source: Okurasho (Ministry of Finance), "Okurasho-shi, Volume 2" for all series except GNE estimates.

\* Transfers from General to other (non-military) Temporary accounts

\*\*  $(A+N)$  divided by  $(G-O+T)$  and then converted into a percentage as is done in the original source.

\*\*\* Gross National Expenditure estimates by Ohkawa, Takamatsu, Yamamoto in "Historical Statistics of Japan," Vol. 3, Japan Statistical Association.

Other notes: units are in 1000s yen. General Military budget should be the sum of "Army" and "Navy" but sometimes differs due to rounding.