

BEYOND GUNS AND BUTTER: Finnish Central Government Spending Patterns in the Twentieth Century

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This paper explains the long-run demand for central government spending in Finland by analyzing quantitative and qualitative changes in the spending behavior, examining possible links between variables in a VAR-framework, and performing multivariate analysis of the demand factors. The results showed that a disproportionate amount of the variation was explained by a lack of military versus social spending tradeoff effect. Even though certain other variables were found to be relevant in explaining this demand, this lack of a tradeoff increased the Finnish spending levels substantially during the twentieth century welfare state expansion.

Finland has developed from a relatively poor agricultural polity in the beginning of the twentieth century into a highly-developed and versatile economy, with an extensive welfare state, in the beginning of the twenty-first century. How has Finland managed this dramatic shift from warfare (at least relatively speaking) to welfare state? Despite the fact that Finland is a small, rather peripheral Nordic country, there are significant insights to be learned from the Finnish story. Interestingly enough, as Peter Lindert has argued, the Nordic countries have found a way to combine extensive welfare states and high economic growth in the twentieth century. He lists several keys to this so-called Free Lunch Puzzle: 1) pro-growth tax policies, mainly targeting harmful consumption; 2) welfare policies

minimizing young adults' incentives to avoid work and training; 3) government subsidies for early retirement that have negligible impacts on GDP; 4) the rather small negative growth impacts of unemployment programs; 5) the fact that social transfers often raise GDP per capita.¹ Is this the "Finnish Model" as well?

The goal of this paper is to focus on the analysis of Finnish central government spending in the long run. Thus, the authors of this article want to veer away from the usual macroeconomic focus on taxes and revenue creation. While it seems apparent that Finland indeed developed its welfare state in tandem with high rates of growth in the twentieth century, the authors primarily want to investigate how the long-run demand elements in Finnish central government spending can be explained. Also, is the growth in Finnish central government spending primarily a story of welfare state expansion? Moreover, what impact did institutional factors play in its spending behavior? The authors aim to investigate these issues by outlining certain quantitative and qualitative changes, analyzing possible linkages between the variables, as well as engaging in multivariate analysis of the demand factors.

In general, Finland offers us a glimpse of quick transformation, both economically and politically, from "warfare" to welfare state. Niall Ferguson argues that warfare states, namely those that existed before the twentieth century, had fairly low spending-to-GDP ratios, with most of the central government budget allocated for military purposes. The transformation toward a welfare state was driven by the increasing cost of conflicts, along with the demands of twentieth century total war, the spread of democracy, and growing bureaucratization of government services.² Thus, while social transfers were relatively small for most states before the twentieth century, they have come to dominate domestic finances among modern economies, and Finland was no exception in this regard.³

Theories of Central Government Spending Behavior

The study of government spending has been a popular topic among social scientists, especially in the last two hundred years. Many theories on the topic emerged at a time when government spending increases coincided with sharp increases in aggregate income during the latter half of the nineteenth century. Most nineteenth century classical economists, for example, advocated minimal state involvement, whereas due to challenges by Marxists, institutionalists, and the so-called German school of economics, the redistribution of wealth became one of the common functions of governments.⁴ Thus the parameters of the debate were set: The defenders of tax-funded social programs have come to praise such programs as high-return investments that benefit the society as a whole, whereas the opponents have focused on the incentive-gap created by these measures.⁵

William Berry and David Lowery divide the explanations over the size of the public sector into two categories: the excessive government and responsive government views. The former sees the government institutions as fundamental to understanding the growth of the public sector, and the demand for expansion is perceived as originating from within the government organizations themselves, for example bureaucratic entities.⁶ Mancur Olson has argued that the pressure from groups outside the government with embedded special interests in fact drives this excessive growth process.⁷ The responsive government view considers governments as reacting more passively to external demands, and the

pressure on decision-making is assumed to indicate public preferences with the state acting as a thermostat of sorts. If the level or type of policy provision differs from what the public prefers in a democracy, the public then pressures for a corresponding change in policy until the change is made.⁸

Another way of categorizing the explanations of government spending size or growth, and the rise of the welfare state, is to look at what they imply in terms of the continuity of the growth process. According to Peter Lindert, these competing theories can be divided into five categories, those that: 1) imply a continuous rise of the government spending share; 2) suggest an end to the rise; 3) propose an eventual reversal; 4) include more conditional predictions; 5) create history-dependent models. The first of these includes such well-known explanatory frameworks as the Wagner's Law and Baumol's Disease,⁹ which essentially argues that government spending has a consistent income elasticity above one.

Some scholars have advocated another, broader hypothesis for the analysis of long-term growth patterns of government expenditures, known as the Peacock-Wiseman displacement hypothesis. These authors divided the explanatory forces on government spending into two groups: 1) permanent influences on government expenditures, such as income, population growth, prices, level of employment, and the "political nature of the society concerned" 2) displacement effects and the concentration process. Thus wars and other large economic shocks may be the driving forces behind changes in government spending patterns. They contended that governments are forced to respond to the challenges posed by such shocks, namely the obligations arising from debt commitments, war pensions, and other similar issues. At the same time, increased wartime taxation would induce a change in the public's tolerance for taxation.¹⁰

These developments can bring about a permanent change or merely a temporary shock in the government spending levels. As Karen Rasler and William Thompson have maintained, it may be that only global wars (or other global economic shocks) have this effect on government spending. They discovered support for this finding especially in connection with the Napoleonic wars and the two world wars.¹¹ The model advocated here is somewhat similar to this framework, although our approach includes numerous variables ignored by Peacock and Wiseman. The authors of this article argue that while the political system and income are important, one should look at public debt constraints as well as other institutional constraints affecting a country's spending behavior, including the laws that affect the budget's composition. External influences, not just shocks, such as threats and spillover effects from other countries, should also be investigated. Here the authors utilize this framework to examine Finnish central government spending behavior from 1920 — following independence in 1917 and a bitter Civil War in 1918 — to 1991, when the collapse of the Soviet Union and a severe recession changed the parameters again.

Arrival of the Western-style Welfare State

Finland provides an interesting analytical magnifying glass to evaluate the dramatic changes that occurred in most central governments' fiscal roles during the twentieth century. For Finland, the change from agrarian to service society with rapid industrialization has been combined with significant relative and absolute growth in government spending. This spending role has, however, changed substantially from the

early 1920s to the 1990s. In particular, the scale and scope of social spending has changed significantly, from the early efforts to keep social expenditures to a minimum, to a welfare state with a broad social safety net and increased government role.

The emergence of Western welfare states in the post-war period took place in increments. For example, between 1937 and 1960 public expenditures as a percentage of GDP increased at a relatively slow pace, which often relates to increases in Cold War-induced defense spending. The average public expenditure to GDP percentage was circa 23 percent in 1937 compared to circa 28 percent in 1960.¹² However, the period between 1960 and 1980 could be described as the golden age of public sector intervention. Criticism of this era of Keynesian policies emerged during the 1970s' economic crises, only to grow in the 1980s and 1990s with the arrival of more conservative governments, especially in the UK and the US. If we look at the development of general government expenditures as a percentage of GDP in the latter half of the twentieth century, on average this share increased from circa 43 percent in 1980 to circa 46 percent in 1996.¹³ Therefore, no real reversal effect has taken place. As Lindert has pointed out, "since 1980, out of the twenty-one leading OECD countries, only three have cut the portion of GDP spent on public health care; only two have cut the share spent on public pensions, only four have cut the share spent on welfare, and only three have cut the share spent on unemployment."¹⁴

It was not until the interwar years that the real beginnings of the welfare state emerged in the Nordic countries. This process was somewhat slower in Finland, delayed by the Civil War of 1918 and its aftermath. The majority of the population before World War II still lived an agrarian life. Social spending as a percentage of GDP was still very low in 1920s, around 1 percent. The central government tried to avoid any expensive fiscal commitments to social welfare, largely abiding by the principle of *laissez faire*. From the welfare state point of view, the Poor Relief Act of 1922 reveals a start for the institutional changes that ushered in a welfare society. It was, however, only partly able to ease the serious social divisions in the society. Moreover, private companies and other relief organizations still accounted for the bulk of the welfare system in the 1920s and the 1930s. In the 1930s, the Great Depression revealed the built-in deficiencies of the Finnish social policies. As a result, social security expanded after the depression. The National Pension Act was approved in 1937, providing limited social security for all persons over eighteen years. A maternity clinic was also obligatory for every municipality from 1944 onwards, and a General Child Allowance, introduced in 1948.¹⁵

It took World War II, during which the government largely controlled the economy, to push forward an acceptance of a stronger government role. In fact, the 1940s and the 1950s were a time of extending the measures already created in the 1930s, a process that was similar to that of Sweden and the other Nordic countries.¹⁶ Finland, in fact, followed the Nordic (mainly Swedish) policy examples very closely, especially since the left-wing parties had gained significant momentum after the war. Also, the rapid economic growth and the structural changes in the economy in the 1950s and 1960s made this expansion possible.

In Finland, public expenditures,—which, during 1948-1960 incorporated government-led health care, social security, and various bureaucratic initiatives — grew at an average of 4.4 percent annually and even faster afterwards. The Finnish welfare state, however, really accelerated in the 1960s. The Disability Pension Act was issued in 1962 as

well as the Old Age Pension Act. In 1964, a Health Insurance Act was passed. In addition, the 1960s was period of very rapid economic growth both in the Nordic and the Western countries.¹⁷ These measures were followed by others, especially in education and health care in the 1970s, which increased the social spending role of the municipalities and the local governments. Overall, education and health care expenditures grew quickly, yet the share of current transfers and subsidies increased even faster in the post-war period.¹⁸

What factors have driven this welfare state creation and expansion, both in Finland and abroad? The factors that have affected the demand for social expenditures have remained surprisingly similar for over a century among Western states. As Lindert has observed, the demand factors differed only slightly from one period to another. The introduction of democratic institutions was the most important factor up until World War II, after which many Western nations became more mature democracies. In the post-war period, the aging population and the success of social programs became decisive elements in spending behavior. Often these patterns have been controlled by changes in the domestic political markets, namely the political voice in a particular polity.¹⁹

Table 1. Social Transfers (=Social Spending Minus Education Subsidies) as a Percentage of GDP, 1880-1990

Year	USA	UK	Finland	Sweden	Belgium
1880	0.29	0.86	0.66	0.72	0.17
1890	0.45	0.83	0.76	0.85	0.22
1900	0.55	1.00	0.78	0.85	0.26
1910	0.56	1.38	0.90	1.03	0.43
1920	0.70	1.39	0.85	1.14	0.52
1930	0.56	2.24	2.97	2.59	0.56
1960	7.26	10.21	8.81	10.83	13.14
1970	10.38	13.20	13.56	16.76	19.26
1980	11.43	16.94	18.32	29.78	22.45
1990	11.68	18.05	24.66	32.18	23.11

Source: Peter H. Lindert, *Growing Public. Social Spending and Economic Growth since the Eighteenth Century*, vol. 1 (Cambridge: Cambridge University Press, 2004), 12-13.

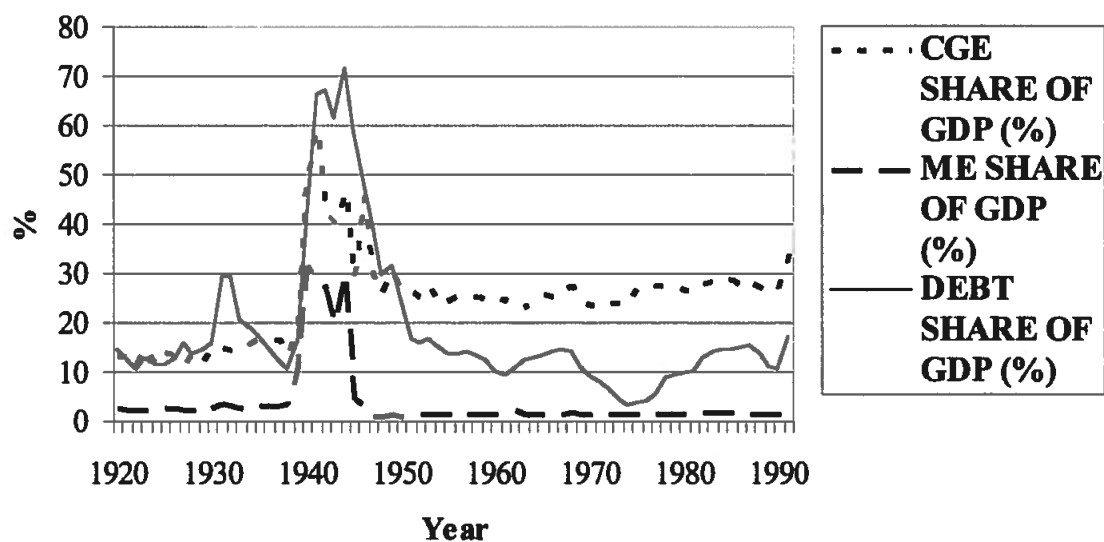
Whereas the growth of social spending among Western states was very fast from the 1950s onwards, Finland was somewhat of a latecomer in this respect. For example, in the 1950s, Finnish social spending as a percentage of GDP was only around a third of the Swedish share. But in 1970, the countries were almost at the same level. As seen in Table 1, in terms of social transfers, as a percentage of GDP, Finland still lagged behind the UK and Sweden until the early 1920s.²⁰ In the interwar period, however, this gap decreased rapidly, due to new social security measures and new investments in education.²¹ This pattern mirrored that of other Western nations, in which the social transfer share grew even faster than in Finland in the period 1930-1960. After the golden era of the welfare state in the 1960s, Finland became permanently one of the high-spending states in terms of social transfers. Of the five states compared in Table 1, only Sweden had a higher relative share before a severe recession hit the Nordic countries in the early 1990s.

What about military spending pressures? The Cold War period featured a prolonged arms race and small countries had to maneuver between the two power blocs. For

example, Finland maintained at least an appearance of neutrality while having to acknowledge the Soviets' security needs, whereas Sweden's neutrality was framed by high military spending and more advantageous geographic position. Nonetheless, the "warfare" state has remained an element, albeit a dwindling piece, of their spending basket up until the end of the twentieth century. Public spending on defense (as a percentage of GDP) decreased, on the average, from 3.4 percent in 1960 to 2.0 percent in 1995.²²

As seen in Figure 1, the Finnish central government spending share has increased in the twentieth century, most notably during and after World War II, although this growth trend has not been very precipitous. By comparison, military spending had a much more substantial budgetary role in the 1920s and 1930s, whereas in the post-World War II period, due to the limitations of the peace treaty with the Soviet Union, military spending remained quite low, even by international standards. Central government debt increased dramatically during most of the interwar period, only to plummet in the late 1930s. The war period again raised this share steeply, yet the Finnish post-war governments were able to cut indebtedness fast in the following decades, in fact almost eliminating this debt by the 1970s.²³ Since then, Finland has again had a growth trend, including a steep rise in the 1990s.²⁴

Figure 1. Finnish Central Government Spending (=CGE), Military Spending (=ME), and Central Government Debt (=DEBT) (as Percentages of GDP), 1920-1991



Sources: Riitta Hjerppe, *Finland's Historical National Accounts 1860-1994: Calculation Methods and Statistical Tables*, Suomen historian julkaisuja 24 (Jyväskylä: Jyväskylän yliopisto, 1996); Hjerppe "Jos ei voi;" B.R. Mitchell, *International Historical Statistics: Europe 1750-1993* (Basingstoke: Macmillan Academic and Professional, 1998); Martti V. Terä and Vilho Tervasmäki, *Puolustushallinnon perustamis- ja rakentamisvuodet 1918-1939. Puolustusministeriön historia I*, Sotatieteen Laitoksen Julkaisuja XIII (Helsinki: Sotatieteen laitos, 1973); Vilho Tervasmäki, *Puolustushallinto sodan ja rauhan aikana. Puolustusministeriön historia II*, Sotatieteen Laitoksen Julkaisuja XVII (Hämeenlinna: Sotatieteen laitos, 1978); Tilastokeskus, *Suomen Tilastollinen Vuosikirja* (Helsinki: Tilastokeskus, 1979-1992).

Quantitative Perspectives on Finnish Central Government Spending

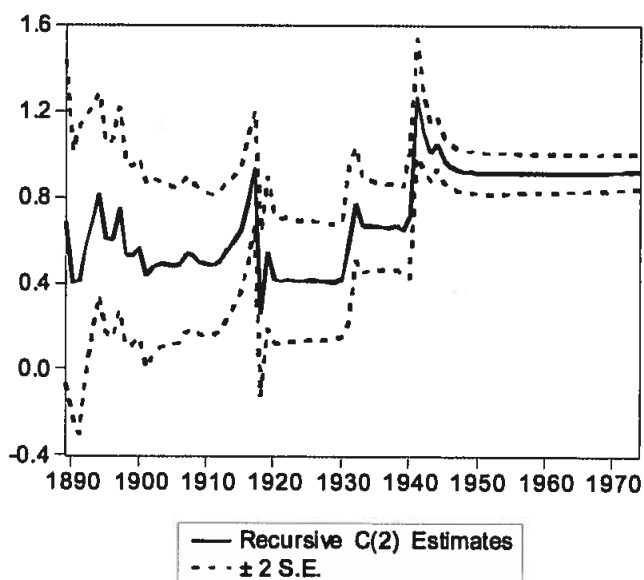
To analyze the reasons for these spending changes, first one needs to look at the structural qualities of the most relevant time series and analyze their development over time. Second, it is necessary to assess the possible statistical interaction between the

various relevant variables in this period. In particular, the authors utilize Granger non-causality tests and VAR-analysis. Third, multiple regression analysis may reveal determinants of Finnish central government expenditures. In addition, the relevance of the “guns versus butter” tradeoff phenomenon is discussed.

As for the data and their reliability, Finnish public sector data are based on extensive archival and literary sources, and the historical national accounts are well established; thus the figures for the public sector activities in Finland can be used for reliable long-run analysis. In addition, the analysis in this section utilizes various international databanks and publications in order to bring together the required data.

In order to make some preliminary judgments of the development patterns of the various government spending variables, one should first explore the structural characteristics of the relevant time series. For instance, we can take the development of the Finnish central government debt in 1880-1991 as an example of how the emergence of the welfare state in the twentieth century affected the budgetary choice sets over different time periods. In fact, this is a superficial way of testing the previously mentioned Peacock-Wiseman displacement model, at least as far as indebtedness was concerned. As seen in Figure 2, clear changes can be observed in the development of Finnish central government debt as a percentage of GDP due to the World Wars and the Great Depression. Thus, the results offer preliminary support for the displacement model, at least in terms of the central government indebtedness.²⁵ Nonetheless, one can distinguish three distinct periods in the figure: 1880-1918, 1919-1944, and 1945-1991. Additionally, the depression years seem to have been a separate episode during the interwar period. Finnish central government debt levels were quite stable in the post-World War II period, up until the beginning of the 1990s, as Riitta Hjerpe and others have shown.²⁶

Figure 2. Structural Changes in Finnish Central Government Debt, 1880-1991

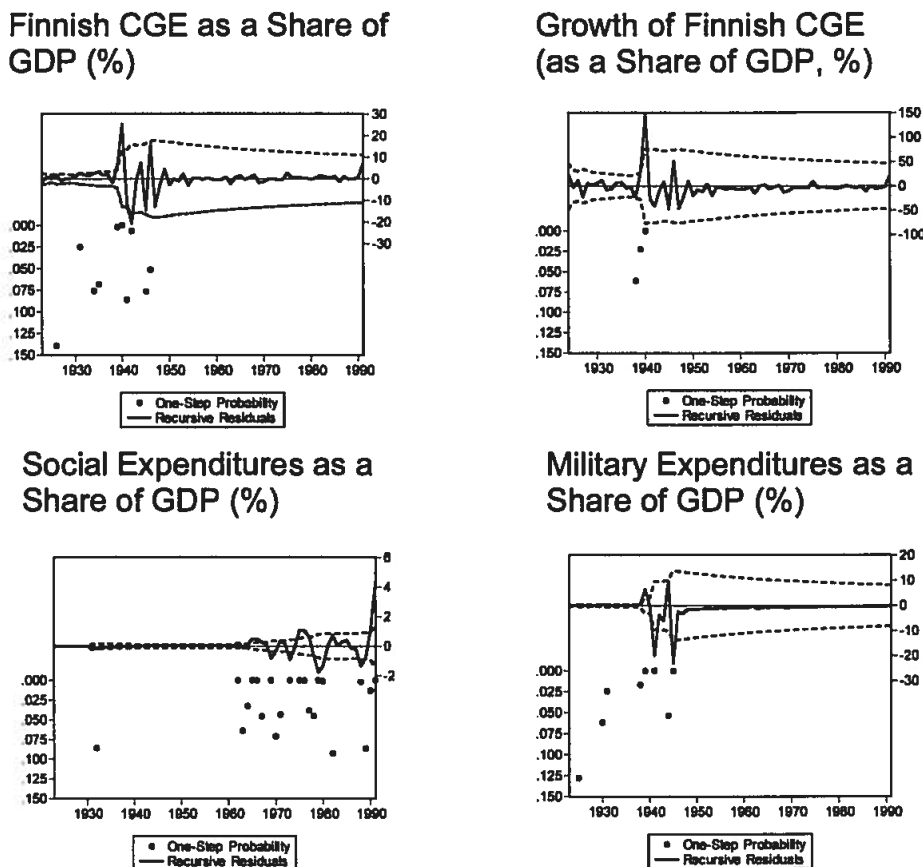


Sources: See previous figures for details. Note: recursive regression coefficients (i.e. the regression): Finnish central government debt as a percentage of GDP = α *constant + β *Finnish central government debt as percentage of GDP_{t-1} + ϵ is estimated repeatedly with an ever increasing sample (n + 1).

The possibility of structural breaks in time series can obviously be investigated in

many ways. Here the authors use the Chow forecast tests, which estimate two models: one using the full set of data and the other using a long sub-period. If a difference emerges between the models, it may be plausibly attributed to structural changes. As seen in Figure 3, the structural cohesion of the various central government spending variables varied greatly during the period in question.

Figure 3. Structural Development of Finnish Central Government Spending (Share and Growth, %), Social Expenditures (%), and Military Expenditures (%) as Percentage of GDP, 1920-1991



Sources: See previous figures.

In general, it is possible to assert quite comfortably that World War II provided a sizable shock for Finnish government finances. However, the different central government variables seemed devoid of structural changes in the post-World War II period. Also, it seems that the interwar and the post-war periods structurally differed from one another. Furthermore, military spending, which was a more important part of the Finnish budget in the interwar period, seemed to be quite volatile up until World War II, whereas social expenditures exhibited structural changes in the period of greatest welfare state building, namely in the 1960s and 1970s.

Next the authors analyzed the broad patterns of “causality” between two groups of variables: VAR 1) Level of democracy (DEMOC, equal to Polity IID democracy values minus the autocracy values); level of economic development (INCOME, equal to real GDP per capita); and central government spending (as a percentage of GDP, abbreviated

0

CGE); VAR 2) CGE; MESE, the constructed military versus social spending tradeoff variable [=ME-SE tradeoff measured as: $(ME_t + SE_t) / (ME_{t-1} + SE_{t-1})$, equal to 1 if a perfect tradeoff occurs]; and DEBT, central government debt (as a percentage of GDP).

Granger non-causality is a tool used often by economists and political scientists to assess the possibility of interaction between a government spending variable and a set of other variables (such as democracy, income, debt, etc.). There have been numerous studies that utilize the concept of Granger non-causality, in order to assess the links between various sets of variables. Granger non-causality tests explore a possible link between variable 1 to the past values of itself and variable 2.²⁷ Here the authors performed these tests in a VAR (Vector Autoregression) framework. To avoid the potential problems of autocorrelation and nonstationarity, the logarithmic forms of these variables were used. The assumption of stationarity, based on various unit root tests, held for most of the variables in this period. Additionally, no co-integration relations were discovered using the Johansen test; thus the causality tests were pursued using the differenced variables. Finally, the lag lengths of the VARs were determined by the Akaike Information Criteria (AIC). The results are compiled in Table 2.²⁸

As seen in VAR 1, it seems that Finnish central government spending was influenced by both income and democracy, whereas VAR 2 indicated that the three variables (central government spending, central government debt, and military versus social spending tradeoff) were all linked to one another. In terms of impulse response functions in both VARs, shocks to the other two variables usually had a negative (initial) impact on central government spending. However, these negative impacts persisted longer in VAR 2.

Table 2. Granger Non-Causality Tests Results

VAR 1	VAR 2
INCOME → CGE	CGE ↔ MESE
DEMOC ↔ CGE	DEBT ↔ CGE
INCOME → DEMOC	MESE → DEBT

Sources: See previous figures and tables. Detailed results available from the authors by request. All relationships were examined at a lag time of eight years (indicated by AIC). All results were statistically relevant, at a 90 percent level of confidence or higher.

Income, democracy, the military versus social spending tradeoff, and central government debt all had sizable impacts on Finnish CGE. The military versus social spending tradeoff variable in VAR 2 explained over half of the variance in CGE. At a lag time of eight years, in VAR 1, income explained 44.1 percent, lagged CGE 29.2 percent, and democracy 26.7 percent of the variance in CGE. At the same lag, in VAR 2, MESE explained 51.2 percent, lagged CGE 44.1 percent, and DEBT 4.7 percent.

Next, the authors examined quantitatively the impact of income, central government debt, the possibility of a tradeoff between military and social expenditures, democracy, population characteristics, external security environment, elections, and parliamentary competition on the demand for CGE. In addition, the authors analyzed the impact of the main institutional changes by using proxies and dummy variables.

The model the authors used consisted of the following demand variables for the Finnish central government expenditures (CGE):

$$CGE=f(\text{INCOME, DEBT, MESE, DEMOCRACY, THREATS, AGING OF POPULATION, POPULATION, ELECTIONS, PARLIAMENTARY COMPETITION, DUMMIES}) \quad (1)$$

here, INCOME was represented by real GDP per capita, with a hypothesized positive coefficient; DEBT represented the lagged level of central government debt as a percentage of GDP, with an expected positive coefficient, possibly acting as an eventual constraint on spending (at higher lags); MESE represented the military versus social spending tradeoff variable (as defined earlier), with an expected positive coefficient (the bigger the value of this variable, the less of a tradeoff, thus imposing growth pressure on budgets); DEMOC was the same as before, and a positive coefficient could be expected; THREAT was proxied by a composite world military spending figure (again positive coefficient, via military spending, expected, details on the data available upon request); AGINGPOP was obtained from Peter Lindert,²⁹ again with an expected positive coefficient; POPULATION was the population growth rate, as a percentage change, with the same impact as for the aging variable; ELECTIONS were represented by two different dummy variables, one referring to parliamentary election years (PARLELECT) and another to presidential elections (PRESELECT) as 1 (otherwise zero), with election years hypothesized as limiting spending and taxation desires; PARLCOMP was represented by the so-called “index of parliamentary fractionalization,”³⁰ hypothesized as having a negative impact on central government spending due to increased competition for votes in the political arena (an effect already discovered for military expenditures in the interwar period in Eloranta, “The Demand,” and theoretically developed by Michelle Garfinkel);³¹ legislative changes (various welfare state provisions) were proxied by a dummy variable (INSTCHANGES, set as 1 during a year when an institutional change, such as a change in welfare legislation, took place; finally, various dummies were introduced to proxy three separate periods (1920-1938 = DUMMY1; 1939-1945 = DUMMY2; 1946-1991 = DUMMY3) and used as controls. All variables were transformed into logarithmic form unless otherwise noted.

The model (see Table 3) achieved relatively good fits with at least half or more of the variation explained (more so in the reduced form, specification 3). Also, the earlier findings about the pivotal role played by the military versus social spending tradeoff, or in fact the lack of it raising central government spending levels, were confirmed. It was statistically significant in all three specifications, with a relatively large positive coefficient.

In terms of the other variables, democracy seemed to decrease CGE, possibly because of an incomplete tradeoff effect. However, this needs to be investigated further. PARLCOMP, unexpectedly, incurred a positive coefficient in specifications 1 and 2. It could be that the negative impact from political competition to reduce taxes during and before an election year is limited only to military spending, and again the tradeoff dynamic could have played a role. Presidential elections were also found to be weakly significant, having a small negative impact. Institutional changes were not found to have played a significant role, at least directly. However, the earlier qualitative review does suggest they were crucial steps in raising the demand for social expenditures. Finally, World War II imposed, as expected, growth pressures on Finnish central government spending.

Table 3. Determinants of Finnish Central Government Spending (Dependent Variable, as a Percentage of GDP), 1920-1991 (OLS)

<i>Independent Variable</i>	<i>Specification 1 (Full)</i>	<i>Specification 2 (with Control Dummy)</i>	<i>Specification 3 (Reduced Form)</i>
CONSTANT	-17.00**	-32.36***	-0.01**
INCOME	-0.28	0.07	-
DEBT	0.08*	0.05	-
MESE	0.61***	0.66***	0.52***
DEMOC	-0.14**	-0.24***	-
THREAT	-0.00	-0.01	-
AGINGPOP	4.70	3.37	-
POPULATION	-0.02	0.03	-
PARLELECT	-0.02	-0.04	-
PRESELECT	0.08	0.07	-0.04***
PARLCOMP	1.91**	3.65***	-
INSTCHANGES	-0.03	-0.04	-
DUMMY1	-	-	-
DUMMY2	-	0.25***	0.12***
DUMMY3	-	-	-
MA-TERM (2)	-	-	-0.38***
AR-TERM (1)	-	-	-0.95***
N	69	69	70
Adj. R-squared	0.45	0.50	0.70
S.E.	0.14	0.13	0.10
DW	2.36	2.43	1.94
F-statistic	6.08	6.60	32.53

* = null hypothesis of no correlation rejected at 10 percent level; ** = null rejected at 5 percent level; *** = null rejected at 1 percent level.

Sources: See previous tables and figures.

One has to remain a bit cautious, however, when interpreting these results. Some of the caveats include possible problems with endogeneity and the subcategories of central government spending, such as military spending, or institutional changes. For instance, have firms had an impact on the demand for particular types of spending in the Finnish case? In general, firms are usually interested in both limiting taxes and maximizing their share of public sector contracts. A preliminary way of gauging the importance of coalitions of firms is to assess the demand characteristics of military spending via various proxies. Here the authors opted to test the following political bargaining equation for Finnish military spending in 1954-1985:

$$ME = \beta_1 GDP + \beta_2 SHIP + \beta_3 MET + \beta_4 IND + \beta_5 ME_{t-1} + \beta_6 D1 + \beta_7 D1 \cdot SHIP \dots + \beta_8 D2 + \beta_9 GOV + \varepsilon_t \quad (2)$$

in which ME stands for real military expenditures; GDP is the real GDP; SHIP equals the real value added of ships and shipyards; MET equals the real value added of metal industries; IND stands for the real industrial value added of all industries; ME_{t-1} represents lagged real military expenditures; D1 is an intercept dummy (0 before 1975 and onwards 1); $D1 \cdot SHIP$ is a slope dummy (D1 multiplied by the time trend of SHIP); D2

is a dummy variable representing the influence of the domestic Defense Committees (0 for other years except 1 for 1970-1972, 1975-1977, and 1979-1982, thus allowing one year after the completion to account for the impact); GOV equals real central government spending. All of the variables, except the dummies, were utilized in logarithmic format. The regression was estimated by OLS, both with and without an intercept.³²

The results of the regression indicated that the only variables, based on the t-tests (the null hypothesis rejected at least at 10 percent level of significance), that had an impact (both overwhelmingly rejected the null at 0 percent level of significance) on the demand for ME were IND and GOV, in the following manner:

$$ME(\log) = -0.85 \text{ INDUSTRY}(\log) + 1.82 \text{ GOV}(\log) \quad \bar{R}^2 = 0.93 \quad DW = 1.98$$

$$(0.0167) \qquad (0.034) \qquad F = 387.61 \quad p = 0.00$$

Wherein the 95 percent confidence interval for β_4 (IND) was $-0.88 < \beta_4 < -0.82$, and respectively for β_8 (GOV) $1.75 < \beta_8 < 1.89$, both indicating that the coefficient signs and the sizes were fairly robust.³³ Thus, a 1 percent decrease in industrial value added would result in a 0.85 percent increase in military spending, and vice versa. Correspondingly, a 1 percent increase in central government spending had a positive 1.82 percent impact on military spending. These two phenomena, with a high coefficient of determination, suggest that: 1) Finnish military spending increased in times of poor industrial performance, due perhaps to lobbying activities of the industries as a whole (instead of a single industrial branch such as shipbuilding) and reliance on government contracts during recessions; 2) Finnish military spending has been highly sensitive to the institutionalization of post-war Finnish welfare state development, and the budget bargaining in the political markets in general. Similar results were found for the interwar period.³⁴

What about the military versus social spending tradeoff variable? Why should it be so instrumental in explaining Finnish central government spending? As argued here, the growth of central government spending resulted, in addition to other explanatory forces, from the interaction dynamic (or more likely, the “stickiness” of this process) between military spending and social expenditures. The “guns versus butter” hypothesis in the context of central government budgets implies either that these two expenditure categories have no impact on the overall budget (i.e., there is an equal size tradeoff response between them) or that this interaction somehow drives central government growth tendencies. Often a reduction in military spending is said to incur a peace dividend in the form of increased, more productive economic activity. On the other hand, it seems that overall, domestic and economic incentives involved in military acquisitions, as well as institutional constraints in changing conscription laws, tended to sustain military spending or at least limited its decline even under public pressure. Moreover, there seems to be little historical evidence of an automatic budgetary tradeoff between these two types of spending. For example, a military retrenchment may mean a smaller overall budget rather than more welfare programs, even if the preferences for defense spending are negatively related to preferences for social spending for the individual taxpayers and vice versa. Thus, it seems more plausible that the influences shaping the demand for these two types of central government spending are interrelated, yet molded

by different factors.

In general, Finland offers us a glimpse of a quick transformation, both economically and politically, from “warfare” to welfare state. Here the goal has been to focus specifically on the analysis of Finnish central government spending, qualitatively and quantitatively, and ignore the usual focus on the macroeconomic effects of taxation. The authors were especially interested in the impacts of wars, democratic institutions, spending tradeoffs, and other demand influences.

In terms of welfare policies, Finland was a latecomer in the twentieth century, since its welfare state and economic expansion did not begin in earnest until after World War II. This was complemented by a rapid structural change of the economy. Thus, the earliest welfare reforms were specifically aimed at rectifying the impacts of this structural transformation. The Finnish welfare state creation gathered speed in the 1950s and 1960s, a pivotal period in this process. In the 1970s, this process was complemented by new measures extending the role of the state in education and health care. The 1980s and 1990s were a time of retardation in the growth of the welfare state, especially given the severity of the depression in the 1990s. In general, Finland has followed international trends in this respect, although Sweden has maintained higher social spending levels than Finland in the last two decades.

The initial quantitative findings showed that Finnish central government finances seemed to have differed in structure before, during, and after World War II. Moreover, by utilizing a VAR framework, the authors discovered that income, democracy, the military versus social spending tradeoff, and central government debt all seemed to be influential factors in explaining Finnish central government expenditures. They also showed that a disproportionate amount of variation was explained by (the lack of) a tradeoff effect. This result was later confirmed by multiple regression analysis. Even though certain other variables were relevant in explaining the demand for central government spending, the lack of a tradeoff between the two main spending categories increased the spending levels substantially. Why? As some of the current literature implies, direct tradeoffs between budgetary categories are rare given the complexities of budgetary processes and electoral pressures. The results here, however, are still somewhat tentative. Further comparative research is needed to understand the impacts of various democratic institutions.

NOTES

1. Peter H. Lindert, *Growing Public. Social Spending and Economic Growth since the Eighteenth Century*, vol. 1 (Cambridge: Cambridge University Press, 2004), 227-28.
2. Niall Ferguson, *The Cash Nexus: Money and Power in the Modern World, 1700-2000* (New York: Basic Books, 2001).
3. Nicholas Barr, “Economic Theory and the Welfare State: A Survey and Interpretation,” *Journal of Economic Literature* XXX (June 1992): 742. Thus, social spending will focus on four types of uses of government funds: 1) welfare and unemployment compensation; 2) pension subsidies, 3) health subsidies; 4) housing subsidies. Of these, the last is the least progressive and the first the most. See Peter H. Lindert, “The Rise of Social

- Spending, 1880-1930," *Explorations in Economic History* 31, no. 1 (January 1994): 2-3.
- 4 Vito Tanzi and Ludger Schuknecht, *Public Spending in the 20th Century. A Global Perspective* (New York: Cambridge University Press, 2000), 3-5.
 5. Lindert, *Growing Public*, 1-2.
 6. William D. Berry and David Lowery, "Explaining the Size of the Public Sector: Responsive and Excessive Government Interpretations," *The Journal of Politics* 49, no. 2 (May 1987): 401. See also David Lowery and William D. Berry, "The Growth of Government in the United States: An Empirical Assessment of Competing Explanations," *American Journal of Political Science* 27, no. 4 (November 1983).
 7. See especially Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge: Harvard University Press, 1965). On application to military spending analysis, see Jari Eloranta, "The Demand for External Security by Domestic Choices: Military Spending as an Impure Public Good among Eleven European States, 1920-1938," (Ph.D. diss., European University Institute, 2002).
 8. Berry and Lowery, "Explaining the Size," 402; Christopher Wlezien, "The Public as Thermostat: Dynamics of Preferences for Spending," *American Journal of Political Science* 39, no. 4 (November 1995): 982. See also Lindert, *Growing Public*.
 9. Others include William Niskanen's theory of bureaucratic growth (see William A. Niskanen, *Bureaucracy and Representative Government* (Chicago: Aldine, 1971)), Mancur Olson's institutional arteriosclerosis hypothesis (see especially Mancur Olson, *The Rise and Decline of Nations. Economic Growth, Stagflation, and Social Rigidities*. (New Haven: Yale University Press, 1982); on applications, see for example Virginia Gray and David Lowery, "Interest Group Politics and Economic Growth in the U.S. States," *The American Political Science Review* 82, no. 1 (March 1988)), Wilensky's Law (based on surpluses of economic development being invested for social purposes), and the Peacock-Wiseman displacement hypothesis. See Caroly Webber and Aaron Wildavsky, *A History of Taxation and Expenditure in the Western World* (New York: Simon and Schuster, 1986), 569-580.
 10. Alan T. Peacock and Jack Wiseman, *The Growth of Public Expenditures in the United Kingdom* (Princeton: Princeton University Press, 1961), 21-31; Lindert, "The Rise;" Peter H. Lindert, "What Limits Social Spending?," *Explorations in Economic History* 33, no. 1 (January 1996); Webber and Wildavsky, *A History*.
 11. Karen A. Rasler and William R. Thompson, *War and State Making. The Shaping of the Global Powers: Studies in International Conflict*, vol. 2 (Boston: Unwin Hyman, 1989), 106-109, 121; Karen Rasler and William R. Thompson, "Technological Innovation, Capability Positional Shifts, and Systemic War," *Journal of Conflict Resolution* 35, no. 3 (October 1991).
 12. Tanzi and Schuknecht, *Public Spending*, 15.
 13. *Ibid.*, 6-7.
 14. Lindert, *Growing Public*, 197.
 15. Kyösti Urponen, K. "Huoltoyhteiskunnasta hyvinvointivaltioon," *Armeliaisuus, yhteisöapu, sosiaaliturva: Suomalaisen sosiaalisen turvan historia. Sosiaaliturvan kirjallisuus, sosiaalipolitiikka, sosiaaliturva* 1, ed. J. Jaakkola, P. Pulma, M. Satka and K. Urponen (Helsinki: Sosiaaliturvan keskusliitto, 1994).

16. Matti Alestalo and Hannu Uusitalo, "Finland," *Growth to Limits. The Western European Welfare States since World War II*, ed. Peter Flora (Berlin: W. de Gruyter, 1986); Stein Kuhnle, "Norway," *Growth to Limits. The Western European Welfare States since World War II*, ed. Peter Flora (Berlin: W. de Gruyter, 1986); Magnus Mörner, "The 'Swedish Model': Historical Perspectives," *Scandinavian Journal of History* 14, no. 3 (1989), Mauricio Rojas, "The 'Swedish Model' in Historical Perspective," *Scandinavian Economic History Review* XXXIX, no. 2 (1991). On broader discussion, see especially Peter Flora, "Introduction," *Growth to Limits. The Western European Welfare States since World War II*, ed. Peter Flora (Berlin: W. de Gruyter, 1986).
17. Alestalo and Uusitalo, "Finland."
18. Riitta Hjerppe, *The Finnish Economy 1860 - 1985. Growth and Structural Change*. (Helsinki: Bank of Finland, 1989), 130-131.
19. See especially Lindert, *Growing Public*.
20. Social transfers comprise social expenditures minus government subsidies for education.
21. See especially Hjerppe, *The Finnish Economy*, 129.
22. Tanzi and Schuknecht, *Public Spending*, 28.
23. See e.g. *Ibid.*, 64-66.
24. Riitta Hjerppe, "Jos ei voi ottaa, täytyy lainata - Suomen valtion velka sotien välisenä aikana," *Kansantaloudellinen aikakauskirja* 93 (1997).
25. Hilikka Taimio's research, however, casts some doubt on this assertion. Hilikka Taimio, *Valtion menojen ja valtion julkisten palvelujen kasvu Suomessa 1900-luvun alkupuoliskolla: Suomen Pankin Tutkimusosasto, Monistettuja Tutkimuksia*, ed. Suomen Pankki, vol. 17 (Helsinki: Suomen Pankki, 1986).
26. Hjerppe, "Jos ei voi."
27. See e.g. Lata Chatterjee and Syed Abu Hasnath, "Public Construction Expenditures in the United States: Are There Structural Breaks in the 1921-1987 Period?," *Economic Geography* 67, no. 1 (January 1991); Claude Diebolt and Magali Jaoul, "A Causal Analysis of Education, Defense Spending and Economic Growth in Japan: 1868-1940," *Working Paper, Lameta/CNRS*, no. 4 (2004); Eloranta, "The Demand;" Damodar N. Gujarati, *Basic Econometrics* (Singapore: McGraw-Hill Inc., 1995).
28. The results of the tests on the stationarity of the series can be obtained from the authors by request. See also Richard Harris, *Using Cointegration Analysis in Econometric Modelling* (London: Prentice Hall/Harvester Wheatsheaf, 1993).
29. Peter H. Lindert, "Voice and Growth: Was Churchill Right?," *Journal of Economic History* 63, no. 2 (June 2003).
30. $F = 1 - \sum_{i=1}^n (t_i)^2$, where t_i is the proportion of members associated with the i th party in the lower house of the legislature. Thus, the higher the F , the more fragmented the political field is.
31. Michelle R. Garfinkel, "Domestic Politics and International Conflict," *The American Economic Review* 84, no. 5 (December 1994).
32. As variables were already transformed to real terms, the usual price variable in the demand equation was omitted. Here it is also to be noted that other years were tried

for the dummy variables, without any significant impact on the results. Moreover, threat and spillovers were found to be unnecessary in determining the Finnish ME. The GOV variable was also additionally deflated by the Finnish GDP deflator, yet this did not have a significant impact on the results. For sources and deflators, see Jari Eloranta, "Small State in a Changing Institutional Environment: The Impact of Interest Groups and Constraints on Finnish Military Expenditures and Shipbuilding, 1918-1985," *Business and Society. Entrepreneurs, Politics and Networks in Historical Perspective*, ed. Anne-Marie Kuijlaars, Kim Prudon, and Joop Visser (Rotterdam: Centre of Business History, 2000).

33. Additional regression statistics are available from the authors by request. Two types of tests were performed on both the entire equation and on just the two variables, IND and GOV: 1) Breusch-Godfrey serial correlation LM test, using lags from one to five years; and 2) White's test on heteroskedasticity. Both equation (1) and the reduced form exhibited no serial correlation or heteroskedasticity. Moreover, the reduced form passed the t-tests on both of the exogenous variables also with the intercept, yet the F-value was significantly higher without the constant. Results of this regression were, however, practically the same, both with and without a constant.
34. Eloranta, "The Demand." Cf. Olli-Pekka Jalonen and Unto Vesa, "Something Old, Something New, Something Borrowed, Something Blue: Finland's Defence Policy in a Changing Security Environment," *Cooperation and Conflict* 27, no. 4 (December 1992).
35. See for example Steve Chan, "Grasping the Peace Dividend: Some Propositions on the Conversion of Swords into Plowshares," *Mershon International Studies Review* 39, no. 1 (April 1995); Mark Harrison, "The Economics of World War II: An Overview," *The Economics of World War II. Six Great Powers in International Comparisons*, ed. Mark Harrison (Cambridge, UK: Cambridge University Press, 1998); Alex Mintz, "Guns Versus Butter: A Disaggregated Analysis," *The American Political Science Review* 83, no. 4 (December 1989); Alex Mintz and Chi Huang, "Guns Versus Butter: The Indirect Link," *American Journal of Political Science* 35, no. 1 (August 1991); Michael D. Ward, David R. Davis, and Corey L. Lofdahl, "A Century of Tradeoffs: Defense and Growth in Japan and the United States," *International Studies Quarterly* 39, no. 1 (March 1995).