

Financing the German Economy during the Second World War

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The study deals with financing state expenditures and war economy of the *Third Reich* during the Second World War. Based on macroeconomic analysis of economic development in relation to the concept of total war, the changes in the German economy allowing Nazis' war efforts to continue are analyzed. The effect of replacing private interests with government goals manifested in volume and structure of household consumption and firms' investments, distorted industrial production and labour market, etc. The study points out changes in the development of financial (and partially nonfinancial) coverage of abnormally growing budgetary expenditures of central government after 1939. Special attention is paid to the analysis of financing war expenditures in Germany, including revenue from occupied territories and the role of the financial system. Especially, for more intensive debt financing was underway since the non-debt ways were not sufficient enough from 1943. An important finding, *inter alia*, is that growing government debt was for the most part covered from domestic sources, such as retracting savings from the financial system and excessive money creation. Within domestic economy the German government preferred "hidden" sources of funding over public issues of state bonds. On average, about a half of government outlays during the war were covered by non-debt resources – taxes, customs, or payments of occupational costs.

[Germany; Second World War; war economy; state budget; revenues; expenditures]

Introduction

In¹ order to understand the onset of German National Socialists to power, their maintaining leadership of the state, and ultimately the

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beginning and development of the Second World War, it is crucial to understand the functioning and development of the German economy. The political history of the *Third Reich*² is very closely related to its economic development. Economic life significantly determined political events (and vice versa). For the National Socialists successful elections in 1932 were the result of a disappointed German population from prolonged economic depression and its half-hearted solutions. Subsequent hold to political power was dependent on the extent to which the Nazis were able to satisfy the public call for good economic results and jobs. Especially in the early years, their government stood and fell on whether they would be able to reduce extreme unemployment and boost the economy. It is logical that later economic growth in the 1930s was coupled with growth in government popularity. The German government sought to create an impression (somewhat justified) that the economy grew very rapidly, pointing to autarky and preparing for war. Outwardly, the illusion was presented that the German “economic miracle” cannot be matched by other nations.

Considering the preparations for the Second World War, Adolf Hitler as well as the leadership of the *Wehrmacht* learned their lessons from the First World War. They knew that Germany should have been able to wage total war using mostly its own resources and must be able to withstand a naval blockade. Efforts toward autarky intensified when massive armaments began, which stemmed in continuous (but unilaterally oriented) economic growth. One can say that even before the outbreak of the war, about a quarter of manufactured products came from the “arms race”. Despite actual output lagging behind megalomaniac plans, in summer 1939 the German military power was the biggest in Europe. Unleashing the final war for resources (*Raubkrieg*) was inevitable. Germany had nothing to lose, and could win everything.³

² In this study, the terms Germany, the *Third Reich*, German Reich (*Deutsches Reich*) are interchangeable. Territorially, it is an area of the German Empire before 1938, the annexation of Austria and the Sudetenland, the formation of the Protectorate of Bohemia and Moravia and expansion on occupied territories during the Second World War. The term Great German Reich (*Großdeutsches Reich*) refers to the territory of the German Reich, Austria, western Poland, the Sudetenland, the Protectorate of Bohemia and Moravia (as based on the ideas of Adolf Hitler in 1933) between June 1943 and May of 1945.

³ An excerpt from Hitler’s speech before his generals a few days before the Second

Real Economy Development

The solution to the Nazis' proclaimed competition for resources and living space (*Lebensraum*) as well as internal economic and political tensions became the invasion of Poland in September 1939. The mobilization of economic resources for waging war can be traced to essentially two stages. The first period included the so-called "Blitzkrieg" tactics in 1936–1941, when it was not necessary to mobilize the whole economy or more specifically it did not manage to mobilize it. The second period of total war (*Totalkrieg*) tactics was in 1942–1945, in which all factors of production were supposed to participate in the war effort.⁴ The strategy of total war had deep roots in the First World

World War began. „Bei uns ist das Fassen von Entschlüssen leicht. Wir haben nichts zu verlieren, nur zu gewinnen. Unsere wirtschaftliche Lage ist infolge unserer Einschränkungen so, daß wir nur noch wenige Jahre durchhalten können.“ A. HITLER, Ansprache vor den Oberbefehlshabern auf dem Obersalzberg, 22. 8. 1939. Dokumente zum Nationalsozialismus. <http://www.ns-archiv.de/krieg/1939/22-08-1939.php> [2016–10–20].

⁴ The question of the extent to which Germany was economically and militarily prepared for the Second World War has been a subject of academic debate. The older hypothesis is the statement that the level of preparations for war were not so high and did not cause greater pressure on household consumption and the economy in general. The German economy was characterized as "peace in time of war" from 1939 to 1941. Among the reasons most often featured assumptions were short, quickly settled conflicts (such as the German victory over France in 1940, hence "Blitzkrieg", which was definitely over in 1942), an effort not to transfer the costs of the war to households (the Nazis learned from the First World war, it was also populism on their side), chaos in management (economy was driven by many organizations which orders were sometimes conflicting). The older approach was based mainly on the testimony and a book by Albert Speer's statistician and colleague, Rolf Wagenführ *German Industry at War* published in 1954 and the reports of United States Strategic Bombing Survey publishing *The Effects of Strategic Bombing on the Germany Economy* in 1945. Cf. N. KALDOR, *The German War Economy*, in: *Review of Economic Studies*, 13, 1, 1946, pp. 33–52; A. MILWARD, *German Economy at War*, London 1965; UNITED STATES STRATEGIC BOMBING SURVEY. *The Effects of Strategic Bombing on the German Economy*. October 31, 1945. <https://babel.hathitrust.org/cgi/pt?id=mdp.39015048839750;view=1up;seq=5> [2016–09–15]. Proponents of a more recent approach argue that it is necessary to take into account the preparations for war even before 1939, and thus the comparison of indicators from the period of the early years of the war with indicators just before the war is confusing (comparative base was set up too high) and it can lead to misinterpretation of development. Thus, one cannot say that the Nazis sought to minimize the cost of the war for the economy. The situation was exactly the opposite in the long term. Leadership strategies of the *Third Reich* since 1936 included full mobilization in preparation for a long, full-scale war, but due to poor planning, structural constraints in the industries it did not materialize in first war years. Cf. R. OVERY, *Hitler's War and the German Economy*:

War, when the German Empire was economically and militarily inadequately prepared for the provoked conflict. A similar mistake was to be avoided. Mild mobilization for the Second World War began *de facto* in 1933, when the National Socialists came into power. Economic sectors, labour market, pricing and wages, monetary and fiscal policy, foreign trade etc. were areas targeted and directed by central government policy toward achieving the final goal, i. e. 100 % readiness for another world war. A four-year plan played a major role in this effort. It envisaged the beginning of the war, not before the first half of the 1940s. When Germans invaded Poland in September 1939, it was clear that the German economy (like the military) was not quite ready.

At the beginning of the 1940s it was not required to use entirely new instruments for economic management. Many of them had already been introduced and were operating under the second four-year plan. The German economy had been driven much more based on regulation through hard physical indicators rather than on regulating the flow of money, the “control by *Reichsmark*”. The crowding-out effect worked in the real economy (in terms of consumption, investment, foreign trade), but also in the monetary economy much earlier than 1939. Increased arms production through higher government spending on final consumption became the main driver of economic growth. Gross national product increased at an average rate of around 6 % per year from 1939 to 1944 (see Table 1 below).⁵ In nominal terms, it was almost 10 %. In mid-1944 the economy was on the top of its production capacities and the economic cycle, in the second half underwent a very negative period, which continued in to 1945 and after the war.

A Reinterpretation, in: *The Economic History Review*, 35, 2 (May, 1982), pp. 272–291; R.-D. MÜLLER, The Mobilization of the German Economy for Hitler’s War Aims, in: B. KROENER – R.-D. MÜLLER – H. UMBREIT, *Germany and the Second World War. Vol. V, Organization and Mobilization of the German Sphere of Power, Part I, Wartime Administration, Economy, and Manpower Resources 1939–1941*, Oxford 2000, pp. 426–430.

⁵ An alternative indicator of national income also grew very quickly from 1940–1943. Its overall growth in this period corresponded to about 20 %. In absolute terms it amounted to nearly 140 billion Reichsmark (RM) in 1943, with a slight decrease in 1944. Cf. W. BOELCKE, *Kriegsfinanzierung im internationalen Vergleich*, in: F. FORSTMEIER – H.-E. VOLKMANN (hrsg.), *Kriegswirtschaft und Rüstung 1939–1945*, Düsseldorf 1975, pp. 14–72, p. 56; K. HARDACH, *The Political Economy of Germany in the Twentieth Century*, Los Angeles – London 1980, p. 82.

Table 1. Macroeconomic Indicators 1939–1945⁶

	1939	1940	1941	1942	1943	1944
Gross national product	100.0	100.0	101.6	105.4	124.0	–
Household consumption (1939=100, s. c. r. 1939)	100.0	93.0	87.3	80.3	85.9	74.6
Gross private investments (1939=100, s. c. r. 1939)	100.0	71.4	50.0	42.9	42.9	–
Government expenditures (1939=100, s. c. r. 1939)	100.0	137.8	171.1	206.7	260.0	–
Industrial production index (1939=100)	100.0	96.9	99.2	100.0	112.9	110.6
Real wages (weekly, 1939=100)	100.0	99.0	104.4	102.8	103.6	–
Nominal wages (weekly, 1939=100)	100.0	103.0	109.8	110.4	112.3	–
Cost of living index (1939=100)	100.0	104.0	106.0	109.0	110.0	113.0

Therefore, the total product in 1945 was about one fifth lower than in 1939, i. e. roughly at about its level in the mid-1930s.⁷

Reducing the consumption of the population was always carefully considered and proclaimed as a necessary sacrifice for victory in war. Still, shrinking consumption provoked a wave of indignation among the population and indirect shrinking occurred before the year 1939.⁸ Household consumption retreated to a growing importance of government consumption. The share of households' final consumption expenditures in national income in 1938 was 59 %, although in 1928 was 71 %.⁹ Reduction of the share continued even during the war, from 61 % of the national product in 1939 to 33 % in 1943. This decline in importance matched a roughly 4 % decline in consumer spending every year during the war, so that it was about one quarter less in 1944 than it was in 1939.¹⁰ During the war, there were not only administrative

⁶ The industrial production index was related to the territory comparable to today's Germany. Production of capital goods was calculated as the sum of basic industries, arms industry, construction, and other capital goods industries. The cost of living index was calculated based on the average consumption of five-member working-class family in 1934. Source: author's own calculations based on data from B. KLEIN, *Germany's Economic Preparations for War*, in: *Harvard Economic Studies*, Is. 109, p. 257; ABELSHAUSER, pp. 125, 154.

⁷ Cf. W. ABELSHAUSER, *Germany: Guns, Butter, and Economic Miracles*, in: M. HARRISON (ed.), *The Economics of World War II: Six Great Powers in International Comparison*, Cambridge 2000, pp. 122–176, p. 124.

⁸ R. OVERY, *War and Economy in the Third Reich*, Oxford 1994, p. 261.

⁹ *Ibidem*, pp. 263–264.

¹⁰ Boelcke asserts that private consumption diminished by a half comparing 1944 to

limits on household consumption, but also reduction in purchasing power and the effect of “voluntary” and forced savings. Influence of military preparations on household consumption was significant, and consumption was limited more radically than in the United Kingdom or United States. Regulators preferred prioritized domestic products (potatoes to wheat flour), abundantly available foods to less available (fish to other kinds of meat) or cheaper foods to more expensive (jam to fats). Typical German foods at home even before the war included cabbage, rye bread, potatoes, or margarine.¹¹

Up to half of manufactured consumer goods was made available to the military. Not only was there a lack of consumer goods, there was also a decrease of its quality, since cheaper raw materials and production methods were used. Developments at the fronts were reflected in the earliest seasonal shortages of food, clothing, coal, and other articles of daily consumption in winter 1941. And more often, it was a permanent situation. For example, meat rations were halved in June 1943, then rations of fat by a quarter in March 1944.¹² During the last phase of the war all food rations were reduced to a subsistence level.¹³ The black market failed to provide the expected saturation of household consumption in the first years of the war covering its mere 2 %. At the end of the war it was only about one tenth.¹⁴ Such a low share could signal either relatively “rich” rations, which is highly unlikely, or high levels of repression by the state. Based on data from Table 1, it is possible to conclude that German households may not have significantly reduced their consumption. However, it should be borne in mind that there was an influence of the aforementioned high comparative base. Household consumption was reduced by various restrictions, includ-

1939. Cf. BOELCKE, pp. 50–51.

¹¹ In the average British household, they ate fish, white bread, sugar, and eggs. ABELSHAUSER, p. 148. Similar comparisons of consumption rationalization in German and British households also were shown in H. W. SINGER, *The Sources of Finance War in the German War Economy*, in: *The Review of Economic Studies*, 10, 2, (Summer, 1943), pp. 106–114, pp. 109–111.

¹² HARDACH, p. 82. Annual consumption of meat during Nazi rule never exceeded the level of 1929. ABELSHAUSER, p. 148.

¹³ More on the development of household consumption and its regulation in R. OVERY, “Blitzkriegswirtschaft”? Finanzpolitik, Lebensstandard und Arbeitseinsatz in Deutschland 1939–1942, in: *Vierteljahrshefte für Zeitgeschichte*, 36, 3, 1988, pp. 379–435, pp. 395–407.

¹⁴ W. BOELCKE, *Die deutsche Wirtschaft 1930–1945*, Düsseldorf 1983, p. 344.

ing rationing, already in 1939. The same applies to any international comparison.¹⁵

From the second half of the 1930s, the labour market constituted one of major problems for the German economy. There was a permanent labour shortage, and thus pressures to increase the wages. The reasons for labour market regulations were basically twofold – preference of selected industries (armaments) and maintenance of low wages. Even before the outbreak of the war, strict regulation was applied basically to keep nominal wages at the level of the Great Depression. Real wages after deduction of taxes and levies were artificially below their level of the late 1920s. The regulation was further reinforced in 1936, when the German economy began to suffer from this labour shortage. Therefore, in the early years of the war, there was no huge increase in already high regulation of the labour force. Many organizations and control tools such as the placement of labourers and wage freezes had been in operation. On the other hand, due to the shortage of labour in armaments during the war, industries closed “less useful” factories and there was forced labour of over 1 million soldiers as in the winter and spring of 1941/1942.¹⁶ It is therefore not surprising that two-thirds of the workforce were accumulated in the armament industries even before the year 1941. Women were repeat-

¹⁵ Hardach states that in the period 1940/1941, the German household consumption was at 98.5 %, while the British at 84 % of their levels of 1938 and argues that this is evidence of better development in Germany. HARDACH, p. 80. This assessment is not accurate and cannot be accepted because the comparative base in Germany was lower than in Great Britain. German households had to consume more than British. According to a (possibly biased) *Deutsche Arbeitsfront* survey conducted at the beginning of the war, around 58 % of German households had to reduce their consumption. For 42 % of households, rations met their actual consumption or even in the case of low-income families were higher than their actual consumption. MÜLLER, p. 469. Similarly misleading is an analysis of indicators of living standards. In 1939, gross domestic product per capita was about a half higher than in 1929. Compared to 1945 and 1939 (which also corresponded to the second half of the 1930s), there was about a one-fifth decline. When analyzing this indicator it should be seen not only unbalanced growth pattern of gross domestic product (in the direction of favouring non-consumable industry and regulation of private consumption and private investment companies), as well as a gradual population decline, which caused a seemingly higher standard of living.

¹⁶ Cf. D. EICHHOLZ, *Geschichte der Deutschen Kriegswirtschaft 1939–1945, Bd. II/T. 1 1941–1943*, München 2003, p. 194.

edly called upon to work.¹⁷ In this respect, Germany was not different from the Allies, particularly the United States.

Mobilization of the workforce intensified again in early 1942 in connection with Hitler's command to intensify armaments production (*Führerbefehl "Rüstung 1942"*). The new labour force was lured by high wages in the armaments industries (therefore they were not subjected to wage restrictions) where it was immediately absorbed. From this year onwards, on the one hand, the proportion of men in the labour force kept declining (in absolute numbers from 16.9 mil. to 13.5 mil.),¹⁸ and conversely, but not adequately, a percentage of women kept increasing (14.4 mil. to 14.9 mil.). In 1944, this development resulted in the predominance of women in the labour force. Despite rigorous labour mobilization, there was a decline in labour from 39.1 mil. in 1939 to 31.3 mil. in 1942 and to 28.4 mil. in 1945. For this reason, since the outbreak of the war there was also increasing number of foreign workers, including forced labourers (from 0.3 mil. in 1939 to 7.5 mil. in 1945). They eventually accounted for a fifth of the workforce.¹⁹ Initially, they were used in agriculture, later, like a large part

¹⁷ Activation of women, however, had its limits. In 1939, one-third of married women already worked and within the group of 15–60 year old women it was more than half. Women thus accounted for more than a third of the workforce, which was more than in Great Britain or the United States at the end of the war. In 1943 it was nearly half. Thus, the comparative base was high, indicating that the subsequent mobilizations could not be as successful as in the Allied countries. A large proportion of women initially worked in agriculture, but not in industry. In Great Britain, it was exactly the opposite: agriculture employed only a fraction of women. Cf. A. TOOZE, *The Wages of Destruction: The Making and Breaking of the Nazi Economy*, London 2006, p. 358; R. OVERY, Mobilization for Total War in Germany 1939–1941, in: *The English Historical Review*, 103, 408 (Jul., 1988), pp. 613–639, p. 628; EICHHOLZ, pp. 210–211. Work mobilization of women can be regarded as a controversy, as in the Nazi ideology, women were perceived as mothers, wives, and homemakers, rather than labourers. Therefore, the employment of women remained "halfway" done. It ran into resistance not only in German society, but the government itself. Some women did not want a job, because as wives of soldiers and government officials had secured sufficient incomes. Some role in deciding of the women whether to apply for a job played a significant disincentive wage inequality in comparison with men. More on the importance of women on the German labour market see OVERY, "Blitzkriegswirtschaft"?, pp. 425–432.

¹⁸ By May 1944 9.1 mil. men were drafted into the German Army, of which 3.3 mil. were killed. HARDACH, p. 81.

¹⁹ Cf. R. WAGENFÜHR, *Die deutsche Industrie im Kriege 1939–1945*, Berlin 1963, p. 139; ABELSHAUSER, p. 158; N. KALDOR, *The German War Economy*, Norbury 1946, p.

of the remaining workforce were moved to war production. Foreign labour was cheap, since wages were lower than for German workers, and productivity was often above average. Foreign workers were not subject to social legislation. The largest employers included companies such as Siemens, Reichswerke Hermann Göring, Volkswagen, and BMW. In the last years of the war, an important major role in fulfilling the military procurement was played by factories conducted by SS exploiting prisoners from concentration camps.²⁰ At the end of the war, about a third of workers were employed in industry, especially in the production of capital goods. Meanwhile, the share of production of consumer goods in employment fell from 33 % to 21 %.²¹ The same was true for the proportion of total net industrial production.²²

Evolution of the average wage is very difficult to assess. From a macroeconomic perspective, the real weekly wages in 1944 increased by just under 2 % comparing 1944 to 1939.²³ Before 1943 the wage increase was logically higher. Weekly wages in nominal terms were roughly 12 % higher in 1944 compared to 1939. It should be noted again that there was an unbalanced growth in different sectors and it can be speculated that workers in the arms industries “enjoyed” higher wages than workers in sectors consumer goods and agriculture. It is logical that rising wages did not respond adequately with consumption since the rationing system effectively prevented it. The Germans were able to “look forward” to future higher consumption until after the war. It is estimated that after 1943 there was a decline in real wages per hour due to the extension of working hours and a weakening currency. In order to achieve additional production an increased number of hours was introduced during the work week from 48 to 60 and in some branches up to 72.

Similarly, it is difficult to generalize and analyse developments in labour productivity. It is possible to say that after 1943 there was prob-

28; F. BLAICH, *Wirtschaft und Rüstung im „Dritten Reich“*, Düsseldorf 1987, pp. 35–41; EICHHOLZ, pp. 237–238. A more detailed description of the working conditions of forced laborers is provided for example in TOOZE, pp. 362–366.

²⁰ For more information see for example M. ALLEN, *The Business of Genocide: The SS, Slave Labor, and the Concentration Camps*, Chapel Hill – London 2002.

²¹ H.-J. BRAUN, *The German Economy in the Twentieth Century*, London 1990, p. 125.

²² ABELSHAUSER, p. 153. More on the topic of labour usage in OVERY, “Blitzkriegswirtschaft”?, pp. 412–424.

²³ BRAUN, p. 125.

ably a decline in the pace of growth due to long working hours, inadequate nutrition of workers, and devastating airstrikes conducted by the Allies. In the primary sector and heavy industry labour productivity decreased starting in 1942. Labour productivity grew slightly in industries producing consumer goods and significantly increased in the arms industry. The lion's share was provided through Speer's rationalization efforts, mass production, and reducing production quality. It should be noted that in the last years of the war, there were regular transfers of skilled labour to the front. First, from less strategic industries, and later from armaments industries as well. However, higher labour productivity was hindered not only because of the attitude of many private companies not having any greater interest in efficiency, but ultimately because of wasting raw materials and the workforce itself.

The National Socialist government placed great emphasis on production in agriculture, where the goal was, *inter alia*, ensuring food self-sufficiency. Despite increasing agricultural production, it was impossible to achieve this goal before the war. Germany imported foodstuffs every year. In mid-1940 Germany already faced a food crisis. Agricultural yields fell not only in Germany but also in major food suppliers, Yugoslavia and Hungary. Likewise, domestic supplies for a rainy day dwindled. During the war, crop and livestock production declined, which incidentally also reflected in the rations for the population. Meat consumption fell by almost one-half. The main factors of the problems in this sector was the lack of manpower going to war or to armaments industry, declining use of agricultural machinery, chemical products (fertilizers), or farm animals, which manifested more with advancing conflict.²⁴ Despite the work of forced labourers from Poland and other occupied territories, the outflow of labour force in armament and other industries was not always adequately compensated.²⁵

Private investments in the second half of the 1930s were far below the level of 1929. The main reason for the sharp decline in gross investments of companies from 1939–1944 by about 60 % was just one-way investments made virtually exclusively under the auspices of the state.

²⁴ D. EICHHOLZ, *Geschichte der Deutschen Kriegswirtschaft 1939–1945*, Bd. II/T. 2 1941–1943, München 2003, pp. 597, 603–608.

²⁵ *Ibidem*, p. 611.

Around 60 % of all investments were made at the behest of the state, especially in the chemical industry (where, among others, synthetic substitutes for gasoline and rubber were manufactured), iron ore mining, and steel production. One-tenth of the investment was channelled into building aircraft and warships.²⁶ Rationalization in raw materials, workforce, or financial capital under normal conditions applied to private companies, unless they were part of war production.²⁷ Otherwise they had difficult access to credit, raw materials, labour, and so on. An overwhelming portion of investments was directed only to the arms industry and associated production as mining and quarrying, etc. This deepening dichotomy was mirrored in the distorted structure of the economy and development of the index of industrial production. Due to this, the production of capital goods just before the war was about 35 % higher compared to 1928, while consumer goods were higher by only 7 %.²⁸ Declining or stagnant production of consumer goods was replaced by the expanding sectors of heavy industry. A critical “excess” of arms production over the peaceful production occurred in 1942, when total industrial production after three years equalized the level of 1939.²⁹

Relations between the government (state) and large industrial enterprises were narrow.³⁰ Especially, in strategically important industries. It should be emphasized that in the Nazi economy, private ownership of the factors of production was maintained, i. e. at least as long as their owner listened to orders from above. One can say that in the late 1930s, most important industrialists decided (more or less actively to promote) the objectives of the government, especially with regard to new business and investment opportunities both at home and in

²⁶ OVERY, *War and Economy*, pp. 262–263.

²⁷ On the topic of rationalization see EICHHOLZ, *Geschichte*, Bd. II/T. 2 1941–1943, pp. 293–327.

²⁸ OVERY, *War and Economy*, pp. 263–264.

²⁹ Abelshäuser argues that, in aggregate terms, production of consumer industries decreased 14 % from 1944 to 1939, while production of non-consumable goods grew by 20 %. ABELSHAUSER, p. 125. The latter figure, however, seems unreasonably low because of the large structural changes and rapid economic growth based on the arms (i. e. mostly non-consumable) production. Cf. EICHHOLZ, *Geschichte*, Bd. II/T. 2 1941–1943, pp. 384–389.

³⁰ More on the debate on the status of enterprises in the Nazi economy in N. FREI – T. SCHNETZKY, *Unternehmen im Nazionalismus: Zur Historisierung einer Forschungskonjunktur*, Göttingen 2010.

the occupied territories. Their interests were in many ways similar and it is possible to say that it was a mutually beneficial alliance. During the Second World War, the distinction between private industries and government policy blurred as private entrepreneurs were becoming senior officials in various trade commissions, associations, state economic advisers, etc. The interconnection occurred in the area of research and investment, in which state-established institutions were financed from private sources. Conversely, the research of private firms was covered by public funds. One of the best examples of cooperation was the aerospace industry, a crucial part of the German war production. Companies in the aviation industry were already financially supported by the state during the 1930s and in time of war, rationalization of production resources and other restrictions did not apply to them. This of course meant more resource wasting, such as with aluminium.³¹ However, this sector showed remarkable achievements. For example, by introducing flow forms of production, BMW factory in Augsburg or company Messerschmitt achieved savings in the manufacturing process accompanied by a rapid decrease in labour intensity and an increase in productivity.³² It is necessary to note that especially the later experiments with the rationalization of production in order to increase productivity were not always perceived positively by private enterprises. Industrialists did not respond to the increased needs of the German rearmament flexibly and quickly enough. For example, in 1942 many key companies did not even introduce a second shift. Therefore, a significant role in fulfilling government contracts was played by state-owned, mammoth companies like Reichswerke Hermann Göring and labour and concentration camps under the command of SS.

Reversely to other gross national product components, government expenditures grew. The logical consequence of the war plans was a

³¹ A very well-known example is an allocation of about 7 tons of aluminum regardless of an aircraft type, while a standard fighter aircraft weighed about 2 tons. OVERY, *Mobilization*, pp. 613–639.

³² Cf. R. OVERY, *The Air War, 1939–1945*, London 1980, pp. 187–190; R. OVERY, German Air Strength 1933 to 1939: A Note, in: *The Historical Journal*, 27, 2 (Jun., 1984), pp. 465–471; R. OVERY, The German Pre-War Aircraft Production Plans: November 1936–April 1939, in: *The English Historical Review*, 90, 357 (Oct., 1975), pp. 778–797; R. OVERY, Hitler and Air Strategy, in: *Journal of Contemporary History*, 15, 3 (Jul., 1980), pp. 405–421.

gradual increase in the share of government spending in gross national product. While in 1940 the proportion was about 35 %, in 1943 it was already 64 %, rising further in subsequent years. Consumption expenditures of government grew at the fastest pace in the early years of the war, at more than 35 % year on year. In the following years, the growth rate depreciated, down to 17 % of annual change in 1943. On average for the period from 1939 to 1943, the National Socialist government spent about a quarter more than the previous year.

In the first three years of the war, the majority of arms production was realized in width (*Breitenrüstung*), i. e. with an emphasis on quantity expansion of the existing arsenal using already-employed factors of production. A part of arms production was in depth with a focus on broadening the industrial base, quality, intensive research, and development of new weapons (*Tiefenrüstung*). Unfortunately, armament in depth meant unwanted diversion of precious resources limiting current production. Building a strong army, navy, and air force entailed huge costs, and a large part of the production was carried out in a hurry. Technological development was somewhat problematic, since there were production bottlenecks and an ongoing lack of human capital. In 1943 at the latest, it was already clear that the qualitative aspect must be largely abandoned in the interest of mass production, although it did not mean that new technologies would not be worked on completely.

Increasing of the pace of arms production occurred in several stages. The first came after the acquisition of Poland when Hitler's interests focused on the attack on France. But the situation was complicated, the German preparedness for the planned attack was not satisfactory, according to the leadership of the *Wehrmacht*. That is why Germany (as well as the Allies) used the winter months of 1939/1940 for further armament. War production increased twice between January and July 1940 at the cost of mobilization of all resources. For such a short time it was the fastest increase in production during the war. Lack of resources was one of the reasons to initiate an attack on France. It was also important to win quickly, as foreign currencies were in short supply. After a surprisingly quick conquest of France by June 1940, Germany soon attacked the United Kingdom, but without a more concrete plan of how to win the Battle of Britain. Therefore, Germany never controlled the strategically important English Channel at sea or

in the air. To build an army capable of occupying the British Isles was outside German economic capacities. In 1941, the German economy again depressingly showed a lack of basic resources such as oil or coal. Initially rapid advancement through the Soviet territory in pursuit of eastern mineral wealth could provide only a small consolation.

Battle of the Atlantic and the planning of the attack on the Soviet Union in June 1941 raised another urgent need to further increase arms production.³³ The key person in this field, Fritz Todt was obliged to fulfill the leader's command (*Führerbefehl "Rüstung 1942"*) and decided to build a more sophisticated management system consisting of the provisions of the committees and subcommittees (*Ausschüssen, Ringe*) at different stages of production and headed by the private entrepreneurs themselves.³⁴ The "*Blitzkrieg*" phase was definitely over, causing inevitable changes in the economy.³⁵

After Todt's sudden death, the main coordinator of the arms industries and the most important person in economic planning became Albert Speer.³⁶ Consistently implemented tactics of total war led to profound changes especially in the area of rationalization and intensification of production. Production was moved into more produc-

³³ OVERY, *Mobilization*, p. 624. For the development of armaments program "*Göringprogramm*" see EICHHOLZ, *Geschichte*, Bd. II/T. 1 1941–1943, pp. 11–40.

³⁴ M. SCHNEIDER, *Rüstung, „Arisierung“*, Expansion, in: D. SÜß – W. SÜß (hrsg.), *Das „Dritte Reich“: Eine Einführung*, München 2008, pp. 185–204, p. 190.

³⁵ A thorough analysis of this process is provided for an example in A. MILWARD, *The End of Blitzkrieg*, in: *The Economic History Review*, New Series, 16, 3 (1964), pp. 499–518.

³⁶ Until 1941, the German economy was controlled by four mutually independent institutions – the Ministry of Economy (*Reichswirtschaftsministerium*), Office for War Economy and Armaments (*Wehrwirtschafts- und Rüstungsamt*), the Office of the Four Year Plan (*Plan Vierjahres Amt*), and the Ministry of Armaments and Munitions (*Reichsministerium für Bewaffnung und Munition*). The latter institution was established in 1940 by Hitler because of dissatisfaction with the economic results of the war economy so far. It reported directly to Hitler. Although Göring's Office for the Four Year Plan lost its primary goals in 1940, since a four-year plan ended, for the period of its existence it gained a strong position in the German system and the economy, and could not be canceled. All four institutions competed with each other for power and often issued contradictory orders. Besides, there existed others organizations (*Reichsstellen*) and special military authorities (*Waffenämter*), intervening into economic planning. Management unified in August 1943, when Albert Speer took over all responsibilities and became Reich Minister for Armaments and War Production (*Reichsminister für Rüstung und Kriegsproduktion*).

tive plants with increased capacity. Mass production was introduced, planning and management improved as well as transport infrastructure.³⁷ There was an attempt at stopping constructions without military significance, but the state government rejected this plan. For the most part it was not a transfer of resources from consumption industries to war production yet, even though it sporadically occurred. Todt and Speer's changes proved decisive for the further conduct of the war and the functioning of the war economy for a bit longer. At the time called *Rüstungswunder*, armaments production increased by half in the summer of 1942. Comparing the years of 1944 and 1942, the growth was impressive 300 %.³⁸ Unfortunately, the labour market repeatedly represented a problematic area. After 1943, there was a shortage of labour, which was partially offset by increased hiring of younger working Germans, *Gastarbeiter* from abroad, and forced labourers (*Zwangsarbeiter*) from different parts of the *Third Reich* and occupied territories. Despite partial economic successes at the end of 1942, Germany lost its positions in Africa, the Eastern Front, and very soon in the Battle of the Atlantic.

Declaration of war against the United States in December 1941 accelerated the inevitable. This decision also meant the definitive end of the *Third Reich* a few years later. From 1943, economic and military superiority of the Soviet Union, underestimated by Germans, manifested in Europe as well as superiority of the United States in the world.³⁹ Fighting the Allies meant the fragmentation of German forces needed to defeat the Soviet Union. Unfortunately, in mid-1943

³⁷ New methods of management and manufacturing proved to be very important. Although Germany belonged to the industrialized countries, some procedures like flow production and mass production were more advanced in the United States or Great Britain. Towards the end of 1943, however, forces in this area were the same. K.-H. LUDWIG, *Strukturmerkmale nationalsozialistischer Aufrüstung bis 1935*, in: F. FORSTMEIER – H.-E. VOLKMANN (hrsg.), *Wirtschaft und Rüstung am Vorabend des Zweiten Weltkriegs*, Düsseldorf 1975, pp. 39–64. Cf. EICHHOLZ, *Geschichte*, Bd. II/T. 1 1941–1943, pp. 55–74.

³⁸ Cf. EICHHOLZ, *Geschichte*, Bd. II/T. 2 1941–1943, pp. 327–346, or more closely in D. EICHHOLZ, *Geschichte der Deutschen Kriegswirtschaft 1939–1945*, Bd. III/T. 1 1943–1945, München 2003, pp. 79–85. International comparison of war production shows that the difference in economic performance comparing the Allies over the Axis countries during the war widened. The same was true for the armed forces.

³⁹ Noticeable excess in economic potential of the Allies over the Axis countries occurred in 1943.

Germany lost its closest ally and supplier of raw materials – Italy. Germany stood against considerable military and material superiority of enemy countries. There was need for a further increase production, but the German armaments suffered constant changes in production and the products themselves. The reaction of the leader's "command to the concentration" (*Konzentrationserlass*)⁴⁰ from August 1943. Any modifications of products were forbidden and only projects that could bring the desired results within the next six months continued.

The German war economy withstood pressures up to autumn 1944. Under the influence of Allied air raids aimed at strategically important industrial enterprises (for example, Krupp Gusstahlfabrik factory in Essen), power plants, coal mines, transport hubs began to crumble. Factories such as Opel and BMW had to be closed. Transfer of production concentrated underground was not (and could not) be effective. With retreat before the Allied troops on the east and west, *Third Reich* was losing needed additional production capacities. Bombing the Ruhr, Rhine-Westphalia, occupation of Silesian coal basin by the Soviets led to a substantial reduction of natural resources stocks for several weeks. Because of the loss of oil fields in the occupied territories and effective bombing of plants of chemical and aircraft industries supplies of gasoline drastically reduced and military was paralysed. Defense against strategically focused Allied air raids during the last months of the war was minimal (for example air raid on Dresden in February 1945 was devastating).⁴¹

In March 1945, Hitler decided for another tactics "scorched earth" (*Zerstörung*). With "command Nero" (*Nero-Befehl*) he ordered to destroy important military, industrial, transportation and communication objects, and keep them from falling into the hands of the Allies.⁴² Speer disagreed with this decision and ordered only a temporary paralysis of production capacities. The final balance of the war

⁴⁰ Bundesarchiv Berlin-Lichterfelde, Bestand NS-6 Partei-Kanzlei der NSDAP, Bd. 342, Erlass des Führers über die Konzentration der Kriegswirtschaft vom 2. September 1943.

⁴¹ More on the emergency regime of war production in D. EICHHOLZ, *Geschichte der Deutschen Kriegswirtschaft 1939–1945, Bd. III/T. 2 1943–1945*, München 2003, pp. 613–632.

⁴² A. HITLER, Befehl des Führers Adolf Hitler betreffend Zerstörungsmaßnahmen im Reichsgebiet vom 19. März 1945. documentArchiv.de [Hrsg.]. <http://www.documentarchiv.de/ns/1945/nero-befehl.html> [2016–12–15].

was devastating for Germany anyway – 8 mil. Germans dead, production capacities at the three quarters of 1937 levels and industrial capacity at only one-third.⁴³ Neither a rapid military technological progress, which could initially be at a higher level than in the allied countries, nor total mobilization of sources and the subsequent propaganda promises a “miracle weapon” V1 and V2 could secure the victory.

Fiscal Policy

Fiscal policy was perceived by *Third Reich's* leaders as highly important for success of the war. The mere transition to the war-type economy brought about large fiscal pressures, which escalated during the war. The Nazis learned their lesson from the First World War, when the tax changed for the first time as late as in 1916. Therefore, in the early years of the war the tax system promptly changed. Still, they were cautious about radical interventions into the tax system and causing resentment among the population. The burden of direct and indirect taxation was not staggering compared to other warring countries. Nonetheless, the already presented assumption about relatively high comparison base holds true in this case. The tax burden was relatively high (compared with the 1920s) at the time before the Second World War outbreak. This could explain relatively fewer interventions and the fact that the *Reich's* leadership wanted to avoid an excessive and demotivating tax burden.⁴⁴

According to the introduction of the wartime economy order (*Kriegswirtschaftsverordnung*) in September 1939, all income tax increased by half. Newly, earnings higher than 2,400 RM were subjected to a tax. War surcharge (*Kriegszuschlag*) on the original tax was capped at a maximum of 15 % of income, while the upper limit of the actual tax rate could be up to 65 %. Taxation of individual income was highly progressive. Earnings between 1,500 and 3,000 RM a year were taxed with 20 % income tax rate (*Einkommenssteuer, Lohnsteuer*) in the early years of the war, income between 3,000–5,000 RM by 55 %.⁴⁵ In the

⁴³ F.-W. HENNING, *Das industrialisierte Deutschland 1914 bis 1972*, Paderborn 1974, p. 184.

⁴⁴ OVERY, “Blitzkriegswirtschaft”?, p. 392.

⁴⁵ Deutsches Reichsgesetzblatt. Kriegswirtschaftsverordnung vom 4. September 1939. Reichsgesetzblatt, Jahrgang 1939, Teil 1, pp. 1609–1614. Österreichische Nationalbib-

same order, corporate income tax (*Körperschaftsteuer*) was increased by 66 %.⁴⁶ The tax burden was further enhanced in 1941, affecting especially high-income households, and business through additional income tax increase. In mid-1941, the average corporate income tax was 40–50 %, and in January 1942, about 55 %. However, business was concerned with other measures limiting profits and dividends paid. In June 1941, changes in tax on dividend payments were introduced (*Dividendabgabeverordnung*). Restrictions in this area were in effect since the 1930s. Dividends in excess of 6 % of the stock price were almost prohibitively taxed, while a value above 6 % had to be used to buy government bonds.⁴⁷ Revenues from this tax amounted only to tens of millions RM. In March 1942, a tax on excessive profit made during the war was issued (*Gewinnabführungsverordnung*). Profit in excess of 150 % of the profit level of 1938 was supposed to be taxed in the range of 25–30 %. In 1943, the tax was again increased. However, a company that accepted prices set by the state (for example *Festpreisen*) within a state contract qualified for a reduction of the tax. Therefore, this measure brought a total of nearly 3 bln. RM of additional state revenue.⁴⁸

Further, a special tax on rent (*Hauszinssteuer*) was re-imposed with a 10-year prepayment.⁴⁹ Thus, paying this tax the homeowners “subscribed” their tax liability over the next ten years. At least another 4.5 bln. RM was obtained in the Reich’s budget. Excise taxes changed as well, with a war surcharge on beer and alcoholic beverages introduced, tobacco in September 1939, and taxes later on the use of transportation and visits to cinemas and theatres.⁵⁰ State revenues coming

liothek, ALEX Historische Rechts- und Gesetztexte Online. <http://alex.onb.ac.at/cgi-content/alex?aid=dra&datum=1939&page=1840&size=45> [2016–10–15].

⁴⁶ Cf. W. BOELCKE, *Die Kosten von Hitlers Krieg: Kriegsfinanzierung und finanzielles Kriegserbe in Deutschland 1933–1948*, Paderborn 1985, p. 99.

⁴⁷ EICHHOLZ, *Geschichte*, Bd. III/T. 2 1943–1945, pp. 697–699. Cf. O. NATHAN, The Banking System in the Nazi Military and War Economy, in: O. NATHAN (eds), *The Nazi War Finance and Banking*, New York 1944, pp. 5–26.

⁴⁸ EICHHOLZ, *Geschichte*, Bd. III/T. 2 1943–1945, pp. 699–701.

⁴⁹ This tax existed already during the Weimar Republic period, in order to finance public buildings. Cf. G. ALY, *Hitlers Volksstaat: Raub, Rassenkrieg und nationaler Sozialismus*, Frankfurt 2005, pp. 79–81; K. FÜHRER, *Führer, Mieter, Hausbesitzer, Staat und Wohnungsmarkt: Wohnungsmangel und Wohnungszwangswirtschaft in Deutschland, 1914–1960*, Stuttgart 1995, pp. 228–230.

⁵⁰ OVERY, “Blitzkriegswirtschaft”?, p. 390.

Table 2. Tax Revenues of State Budget 1939–1943 (bln. RM)⁵¹

	1939	1940	1941	1942	1943
Individual income and corporate taxes	12.23	14.79	19.19	21.81	21.95
Value added tax	3.73	3.93	4.18	4.16	4.18
Other excise taxes	4.43	5.58	6.19	6.20	5.94
Duties	1.70	1.41	1.12	0.83	0.64
Other taxes	1.49	1.51	1.66	1.71	1.66
Total	23.57	27.22	32.31	34.71	34.38
Year on year change (%)	33.1	15.5	18.7	7.4	-1.0

from this extra taxation amounted to a few billions of RM. Individual states were forced to hand over contributions to the central budget.

The largest increase in tax collection occurred during the first years of the war until 1941 (see Table 2). Increase in individual taxes brought the state additional 1.5 bln. RM. for the fiscal year of 1941/1942 and other 2 bln. RM for the year of 1942/1943.⁵² Corporate tax collection also increased from 2.4 bln. RM in 1939 to 5.1 bln. RM in 1942.⁵³ In the following years, it managed to collect taxes with decreasing success, possibly due to the fact that state leadership was reluctant to raise taxes further. Between 1944 and 1945, there was a continued decline in total tax revenues with respect to economic development. In total, from the beginning and to the end of the war about 276 bln. RM of budgetary revenue was acquired, 185 bln. RM stemming from taxes and duties.⁵⁴ According to available data and based on the presented analysis, one can conclude that the tax quota did not fundamentally change. In 1939 it amounted to 18.1 %, in 1941 21.3 %, and two years later it basically reached its level of 1939 (18.7 %). Later, the tax quota very probably further diminished.

Financing the war economy induced an abnormal pressure on central government spending. It rose three times from 49.5 bln. RM to 145.1 bln. RM between 1939 and 1943 (see Table 3). Though, in relative

⁵¹ There may be some differences in totals due to rounding. Source: OVERY, "Blitzkriegswirtschaft"?, p. 391, author's own calculations from the same source and own layout.

⁵² ALY, p. 78.

⁵³ OVERY, "Blitzkriegswirtschaft"?, p. 391.

⁵⁴ BOELCKE, p. 101.

Table 3. Expenditures of Government Budget 1939–1944 (bln. RM)⁵⁵

	1939	1940	1941	1942	1943	1944
Total budget expenditures	59.5	84.0	107.4	132.9	150.6	171.3
Year on year change (%)	51.0	41.2	27.9	23.7	13.3	13.7
Total Reich budget expenditures	49.5	75.4	98.9	124.9	145.1	–
Year on year change	69.5	52.3	31.2	26.3	16.2	–
– war expenditures of central government	32.3	58.1	75.6	96.9	117.9	128.4
– other expenditures of central government	17.2	17.3	23.3	28.0	26.2	–
Expenditures of local governments and municipalities	10.0	8.6	8.5	8.0	6.5	–
Interest on the national debt payments	1.9	2.8	4.2	5.9	6.6	–
Other transfer payments	10.9	14.0	21.0	25.0	24.0	–

terms, the rate of central government spending decreased throughout the war from almost 70 % in 1939 to 16 % in 1945 of year-on-year change. Most government expenditures were obviously intended for military purposes. In the first year of the war the share of military spending amounted to about 65 %, indicating 35 % of civilian spending. In 1943, war spending corresponded to 82 % of central government expenditure in 1944 over 95 %.⁵⁶ The highest rate of growth in military spending by the central government occurred in 1939 and 1940, when military spending grew by 80 % year on year each year.⁵⁷ In the following years, the pace of spending growth fell to 30 %, 28 %, and finally 22 % in 1943. In this indicator, Germany surpassed countries like the United States and the Soviet Union during most of the Second World War.⁵⁸ German Finance Minister von Krosigk estimated

⁵⁵ Budget year began on April 1st and ended on March 31st. Individual items in the table are not additive. Expenditures of Austria, Sudetenland, and occupied territories are not included. Alternative, but relatively similar data about total budgetary expenditures are provided in BOELCKE, p. 256. There may be some differences in totals due to rounding. Source: KLEIN, p. 258, EICHHOLZ, *Geschichte, Bd. III/T. 2 1943–1945*, p. 683, author's own calculations based on data from the same sources, author's own layout.

⁵⁶ Author's own calculations based on data from KLEIN, p. 257. Cf. BOELCKE, p. 56. Basic analysis of armament expenditures is provided in EICHHOLZ, *Geschichte, Bd. III/T. 2 1943–1945*, pp. 684–689.

⁵⁷ Cf. OVERY, "Blitzkriegswirtschaft"?, p. 388.

⁵⁸ The structure of the armaments expenditures is shown in a secret *Reich's* budget in

the total cost of the war to 683 bln. RM, Wehrmacht itself counted for about 400 bln. RM.⁵⁹

Expenditures of the central government grew much faster than its revenues, which repeatedly caused problems with debt financing. Resources were sought not only in savings and restructuring of the expenditure side, where less needed investments and consumption expenditures as well as expenditures of states and cities were spared, but also on the revenue side. As soon as in March 1939, a new financial plan (*Neuer Finanz Plan*) focused just on finding budget “savings” and additional revenues to the *Reich’s* treasury. Businessmen trading with the *Reich* then had to accept that up to 40 % of the payments for their goods and services was in the form of interest-free tax bills (*Steuer-gutscheine*). These were vouchers could have been used for payments of tax obligations to the state in the future and also provided tax advantages. This debt instrument solved several problems at once – the government received a very favourable loan, reduced its cash expenditures, and did not have to issue that many government bonds. After half a year of the regulation validity, private firms “lent” government almost 5 bln. RM.⁶⁰ However, higher state income certainly still could not cover its much greater budget spending. Unfortunately for private business this meant a significant reduction of their cash resources and possibly capital investments.

Together with the revenues from the occupied areas, roughly half the expenditures (amounting to an estimated 500–650 billion. RM) were financed by non-debt instruments – tax income and occupation payments.⁶¹ Given the circumstances regarding the indebtedness of future generations during the “explosion of costs”, this can be consid-

1939. It amounted almost 21 bln. RM for Wehrmacht, of which 10 bln. RM was intended to increase armaments. Navy (*Kriegsmarine*) obtained 2.7 bln. RM and Air Force (*Luftwaffe*) 7 bln. RM. Army (*Heer*) had to settle for approximately 10.5 bln. RM, less than in 1938. In fact, war expenditures were about 10 bln. RM higher than set in this plan. TOOZE, p. 229.

⁵⁹ W. FISCHER, *Deutsche Wirtschaftspolitik 1918–1945*, Opladen 1968, p. 87.

⁶⁰ TOOZE, p. 300.

⁶¹ Tooze argues that in 1942 and 1943, 54 % and 44 % respectively, of expenditures was covered by incomes. Cf. TOOZE, p. 643. Boelcke calculated that during the war it was about 45 % (presumably, this number probably includes payments from occupied territories), about 55 % of expenditures was paid by debt. BOELCKE, p. 101.

ered as a surprisingly good result. This share, however, was likely to diminish over time as tax revenues were falling and Germany was losing the conquered territories towards the end of the war. Up to a third of total government expenditures were covered by taxes or similar income. A fifth of spending was financed by long-term and medium-term loans to the banking system and other institutions responsible for providing them mandatorily to the state.⁶² A third of the expenditure was taken care of by loans from the *Reichsbank* in exchange for treasury bills and other short-term state obligations. About an eighth was saturated by payments of wartime contributions and occupation costs in the gained territories.⁶³ These payments must be augmented with other forms of financial exploitation, for example clearing debt, convenient adjustment of exchange rates, and slave labour by the local population. All of that provided additional funding or savings. For the National Socialist government it was important to cover budget expenditures *de facto* solely with domestic resources, only a fraction of annual expenditures was necessary to fund with “external” sources, therefore either by not paying in foreign trade, or more frequently by received payments of occupation costs.

The National-Socialist government created a somewhat forced by circumstances (but advantageous for them) alliance with the banking system and chose a hidden indirect financing of its expenditures. Unlike during the First World War, public issuance of war bonds was not customary. The main debt securities consisted of long-term bonds to Reich loans (with 20–27 year maturity), interest-bearing and non-interest-bearing treasury bills (*verzinslichen, unverzinslichen Schatzanweisungen*), and non-interest-bearing short-term bills of exchange (*Reichsschatzwechsel*). Short-term bonds had maturities of less than one year. The latter bills played an increasingly important role from 1942 onward. Logically, there was a desire to make the debt service cheaper during the war, and interest rates on bonds gradually decreased, from an average of 3.9 % in 1939 to 3.5 % in 1942.⁶⁴ One can expect that

⁶² In Great Britain, 43–39 % of expenditures were covered by debt with decreasing tendency during the first years of war. Cf. SINGER, p. 107.

⁶³ OVERY, “Blitzkriegswirtschaft?”, p. 394.

⁶⁴ BRAUN, pp. 115–116. Eichholz argues that average interest rate for state bonds were lowered from 4.5 % in 1939, over 4 % in 1940 to 3.5 % in 1941. EICHHOLZ, *Geschichte, Bd. III/T. 2 1943–1945*, p. 707.

interest rates on government bonds were further reduced in the last years of the war. The various players in the financial system, first voluntarily and then involuntarily became holders of government debt. Although, private individuals – holders of deposits, clients of insurance companies and others – had no plan of being investors in war bonds.

Cooperation with the financial system on a voluntary basis was not seamless. Even before the outbreak of war, in October 1938, a tranche of government bonds worth 1.5 bln. RM plus 350 mil. RM for urgent expenses of the Ministry of Finance was issued. German investors, euphoric after the occupation of the Sudetenland, bought everything. However, the mood of the market subsequently changed and another long-term loan a month later, again worth 1.5 bln. RM, remained one-third unplaced.⁶⁵ It seemed the market was saturated with government bonds. So the *Reichsbank* began negotiations with banks on a short-term bridge loan because the budget was missing about 2 bln. RM. Inflationary printing of money in larger single volume was not yet on the agenda. However, the whole idea was dropped, as the disclosure of this emergency solution could result in a loss of prestige in the domestic market and abroad. Finally, it was decided that reserve portfolio bills would be sold on the market and a loan would be provided by the *Reichspost* and *Reichsbahn*. The rest, about 300 to 400 mil. RM, was covered by inflationary printing of banknotes.⁶⁶ Thus, short-term state budget deficit totalled about 6 bln. RM in 1938 (expenditures not covered by income or long-term loans) and was funded by a short-term loan from the *Reichsbank*. Based on this experience, another long-term lending was efficiently blocked and virtually unthinkable, as its failure could ultimately mean lower prices of government bonds (and of those already sold) or open the issue of repayment of the entire debt. Both could be possibly devastating. Concurrently, the current situation meant permanent restrictions on payments of the state, as there was no income for them. It was necessary to find another solution. It consisted of debt restructuring and the already mentioned hidden issue of short-term liabilities.⁶⁷

⁶⁵ TOOZE, p. 294.

⁶⁶ *Ibidem*, p. 297.

⁶⁷ Cf. BLAICH, p. 42.

Table 4. Public Debt 1939–1945 (as on December 31st each year)⁶⁸

	1939	1940	1941	1942	1943	1944	1945 March 31 st	1945 April 21 st
Long-term debt (bln. RM)	26.96	43.04	64.23	87.62	110.3	131.8	138.4	141.3
Short-term debt (bln. RM)	14.13	32.79	60.63	95.97	143.2	216.3	229.7	246.6
Total (bln. RM)	41.1	75.84	124.87	183.59	253.5	348.1	368.1	387.9
Change (%)	13.9	84.5	64.6	47.0	38.1	37.3	5.7	5.4

Debt financing of slightly more than a half of the annual central government expenditures, on average, rapidly raised government (public) debt. Of course, the largest share of the increase in public debt was debt of the central government. Table 4 shows the public debt created almost exclusively during the Second World War. Debt increased most significantly in 1940 when it almost doubled. This corresponded to a very rapid increase in expenditures in this period without an adequate response in income change. In subsequent years, the pace of debt accumulation decreased, but still there were astronomical changes. The total debt of the Reich itself expanded twelve times and swelled from 31 bln. RM in 1939 to 377 bn. RM in the spring of 1945.⁶⁹ If this number at the end of the war was augmented by semiprivate *Mefo* bonds or tax bills (*Steuerergutscheine*), debt from clearing transactions (for example, with Italy, Norway, and Denmark) and other items constituting *de facto* unpaid debts of the *Reich*, it was an amount close to 450 bln. RM.⁷⁰

Based on data from the same table it is possible to picture the structure of public debt. As already indicated, over time, short-term debt expanded at the expense of the long-term. For example, during the first eight months of 1939, even before the outbreak of war, the short-term debt increased by 80 % and this trend continued. The share of

⁶⁸ Debts of *Reichspost*, *Reichsbahn*, *Autobahn* construction as well as tax certificates issued before 1940 and *Mefo* bonds issued before 1938 were not included in the public debt. Long-term debt had maturities longer than one year and fixed interest rate. It included long-term and intermediate-term loans of the *Reich*, state treasury bills (partially issued abroad as well). Short-term debt had maturities of less than one year and was continuously rolled. There may be some differences in totals due to rounding. Source: BOELCKE, p. 102, author's own calculations based on data from the same source, author's own layout.

⁶⁹ HARDACH, p. 85.

⁷⁰ BOELCKE, p. 102.

long-term debt vs. short-term debt was 66 : 34 in 1939, 48 : 52 in 1942, and 38 : 62 in late 1944, so there was a clear tendency to decline.⁷¹ The indisputable advantage of this change was mainly guaranteed income by the *Reichsbank* and the financial sector. Nonetheless, it raises a question of long-term solvency. Even this development illustrated the fact that with the ongoing conflict, public spending was getting out of control hand in hand with monetary expansion, which must have been causing fundamental macroeconomic imbalances.

It cannot be disputed that monetary expansion was one of the important channels for acquiring additional funds for the war. Due to the direct financing of government deficits, i. e. discounting state bonds, each year, the amount of money in circulation grew vertiginously. Already at the beginning of the war, the volume of currency in circulation doubled compared to the level of 1937. The amount of money in circulation over the next few years increased about seven times. The amount of banknotes in circulation expanded from 8.7 bln. RM in mid-1939 to 50.1 bln. RM in 1945. During the last months of the war, it was around 70 bln RM.⁷² Merely in the period from January to the end of April 1945, *Reichsbank* issued about 40 % of extra currency. There was a sharp double-digit increase in each year of the war. At the end of 1944, over 102 bln. RM value of outstanding non-interest bearing treasury bills (*Schatzanweisungen*) and over 98 bln. RM value of bills of exchange (*Reichswechseln*) were present in the economy. Nearly 62 bln. RM were in the vaults of the *Reichsbank*. In March 1945 it was more than 70 bln. RM of short-term bonds.⁷³ These bonds constituted a vast part of obligations of the state toward the central bank.

One can say that monetary situation worsened dramatically in mid-1944, when the inflationary printing of money went out of control. Hidden inflation, which showed especially on the black market, went hand in hand with excessive amount of *Reichsmarks* in the economy. Nonetheless, until the last year of the war there was no overly rapid growth in prices. Price and wage regulations affecting the official market were relatively effective until 1944. The cost of living index between 1939 and 1944 increased by approximately 12 %. Most food

⁷¹ Cf. *ibidem*, p. 103.

⁷² ABELSHAUSER, p. 154. Blaich argues that it was an increase from 12.8 bln. RM to 26.7 bln RM from December 31st 1939 to June 30th 1943. BLAICH, p. 42.

⁷³ EICHHOLZ, *Geschichte*, Bd. III/T. 2 1943–1945, p. 710.

prices rose about 10 % and clothing 40 %, while housing prices stagnated or even declined.⁷⁴

The shortage economy in the form of forced savings manifested significantly in the banking system. Thanks to massive propaganda in the media instructing to save, virtually every family had a deposit book opened at some of savings banks by late 1930s. While some banks, such as *Dresdner Bank* and *Deutsche Bank*, took care of more exclusive clients, ordinary Germans deposited their savings largely in savings banks (*Sparkassen*). Though, before the beginning of the Second World War, many savings banks were subject to massive withdrawals of cash, as German households were trying to frontload. But it was only a short-term fluctuation. Conversely, since the beginning of 1940, there was reported an abnormal increase in deposits. Subsequent consumption rationalization and empty shops led to more than 1 bln. RM of deposits flowing into the banking system every month until 1941.⁷⁵ Towards the end of 1944, savings of German households amounted to about 124 bln. RM, two-thirds of which were deposited in savings banks.⁷⁶ Additional money was also channelled into insurance or purchases of securities.

Under condition of dampened private investment, these deposits were fully available to purchase government bonds. Opportunities to invest in private securities were successfully limited. For the banks and private investors there was *de facto* no other option than to invest this way (apart from arms production). In 1940, mainly savings banks provided 8 bln. RM to the state, the following year nearly 13 bln. RM. Towards the end of 1944, two-thirds of the savings were stored in securities, 95 % of which were state bonds.⁷⁷ It was another source of private money ideally and originally designated for private investments, yet it was directed to the government. It is no surprise that the internal debt of the Reich at the end of 1944 was mostly held by savings banks (with a share of 30.3 %), credit banks (18.2 %), and public and companies (16.6 %), the *Reichsbank* and *Golddiskontbank* (15.9 %). Shares of less than 10 % were held by insurance companies, postal savings banks, and credit unions.⁷⁸

⁷⁴ ABELSHAUSER, p. 154. Cf. OVERY, "Blitzkriegswirtschaft"?, p. 394.

⁷⁵ TOOZE, p. 354.

⁷⁶ BOELCKE, p. 104. Cf. EICHHOLZ, *Geschichte*, Bd. III/T. 2 1943–1945, p. 716.

⁷⁷ EICHHOLZ, *Geschichte*, Bd. III/T. 2 1943–1945, p. 718.

The clearing system provided another financial pillow for German budget in the form of unpaid imports. Within the clearing trade system Germany more often omitted paying its obligations, particularly towards the end of the war. Clearing debt multiplied each year, from 1.8 bln. RM in December 1940 to 31.5 bln. RM in September 1944 in absolute numbers.⁷⁹ Territorial expansion changed the balance of trade development, while clearing deficits were initially reported with the countries of southeast Europe, during the war they occurred with the newly occupied territories of the West, having a great economic potential. France was the largest German creditor, with total clearing debt of about 8.5 bln. RM. Netherlands claimed about 6 bln. RM loss from trade, Belgium and Luxembourg 5 bln. RM, Poland 4.7 bln. RM.⁸⁰ Even this development indicates that wartime production was partly funded at the expense of German business partners, and more importantly occupied countries.

As already indicated, an important moment in the development of the German war economy was the exploitation of the occupied territories. Germany began a limited application of the concept of *Großraumwirtschaft*, i. e. targeted economic exploitation and subordination to the principles of a strict policy of colonization. The occupied territories were forced to pay "occupation costs" in the form of year to year increasing levies. From an economic point of view, France, the third largest economy in Europe, proved to be the most profitable bounty. Not only for its industrial capabilities that helped the German war economy, but also from a financial standpoint – occupied France paid up to 40 % of the total 84 bln. RM⁸¹ occupation costs from all areas. Finance of the occupied territories was plundered not only by the seizure of the state and golden treasures, foreign exchange reserves,

⁷⁸ BOELCKE, p. 104.

⁷⁹ Ibidem, p. 111.

⁸⁰ Ibidem. Cf. EICHHOLZ, *Geschichte*, Bd. II/T. 2 1941–1943, p. 510.

⁸¹ Braun estimates that it could be up to 85 bln. RM. At the beginning of its occupation, France paid 20 mil. RM daily. BRAUN, p. 116. Thanks to the occupation of France, Germans received goods worth over 150 bln. Francs (nearly 8 bln. RM at the then official rates). One third of this profit consisted of military equipment of the French army, and a third came from transport vehicles made available for *Reichsbahn*. A large part of the last third was covered by supplies of raw materials (copper, zinc, nickel, petroleum, gasoline). Most of these stocks helped Germany for several months. A. MILWARD, *The New Order and the French Economy*, Aldershot 1993, p. 81.

etc., but by determining unilaterally disadvantageous conditions in foreign trade towards the *Third Reich* (such as defaults in debt in clearing system, the undervaluation of the domestic currency, a one-sided focus on commodities needed for the German economy etc.).⁸² Key industrial enterprises were under the direct or indirect leadership of the National Socialist Party and were fully integrated into the German war machine. German companies looked for investment opportunities and their capital penetrated economies in the occupied territories. Among the biggest investors were mammoth companies like IG Farben, Reichswerke Hermann Göring, and others.⁸³ Not all companies, however, “fell into the hands” of the Germans. Dutch multinational companies such as Shell, Unilever, and Philips transferred their ownership overseas. The business and personal property of local population was confiscated for various reasons. Locals were also forced labourers abducted to the territory of the *Reich*. In the occupied territories a more severe rationing systems was introduced, determining rations which were much lower than for Germans. An integral part of the occupation were political repression, police terror, and application of anti-Jewish measures.⁸⁴

Another form of exploitation was the issuance of special currency circulating outside the Third Reich. The state currency – the *Reichsmark* – was used for usual payments within the Reich. However, war spending of *Wehrmacht* in cash in the occupied territories was financed by special local “bills” *Reichskreditkassenscheine* (emitted by credit institutions called *Reichskreditkassen*). These vouchers were converted to local currency by local central banks in obviously overvalued rates, and their face value was deducted from the payment of occupation costs. In friendly countries, such as Hungary or Romania, *Wehrmacht*

⁸² More on economic exploitation of occupied territories in EICHHOLZ, *Geschichte*, Bd. II/T. 2 1941–1943, pp. 490–512.

⁸³ OVERY, *War and Economy*, pp. 315–342.

⁸⁴ On the occupation policies, concepts see for example J. SCHNERNER – E. WHITE (eds.), *Paying for Hitler's War: The Consequences of Nazi Economy Hegemony for Europe*, Publications of the German Historical Institute, Cambridge 2016; H. KLEMMANN – S. KUDRYASHOV, *Occupied Economies: An Economic History of Nazi-occupied Europe, 1939–1945*, London – New York 2013; M. BOLDORF – T. OKAZAKI, *Economies under Occupation: The Hegemony of Nazi Germany and Imperial Japan in World War II*, London – New York 2015.

soldiers used their own “notes” *Wehrmachtsbeihilfegeld* exchanged for a fixed, clearing exchange rates for the domestic currency.⁸⁵

Conclusion

The German government used a wide range of financial and non-financial instruments in order to secure coverage of its excessive war production and spending. Outside the government sector, there was a rationalization of household consumption, and private companies’ investments provided additional financial and material resources to finance the war. In the public sector the aim was to achieve savings on the expenditure side and focus mainly on the management of the war, which also corresponded to the structure of expenditures. Savings in expenditures were accomplished thanks to the non-payment of foreign trade debts as well. On the revenue side, it was necessary to expand, which was secured temporarily by an increase in the tax burden on people and businesses. Sources of revenues became gradually exhausted towards the end of the war. Another source of (non-debt) revenues were occupying territories, which were plundered both financially and materially. The German government increasingly used short-term debt to finance its expenditures by issuing short-term bonds at the expense of long-term borrowing. An important role in debt financing was played by the financial system, where billions of *Reichsmarks* were channelled from banks, savings banks, and other entities to the budget of the *Reich*. *Reichsbank* was forced to directly and indirectly finance the growing government debt. Central bank discounted issued government securities, but also over-issued currency. Majority of government (public) debt was covered internally.

⁸⁵ More in the issue of currencies outside the *Reich* in EICHHOLZ, *Geschichte, Bd. III/T. 2 1943–1945*, pp. 724–726.