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Gerald D. Feldman

The Economics of War and Economic Warfare, 1914–1945

In their recently published and valuable collection of essays on *The Economics of World War I*, the editors Stephen Broadberry and Mark Harrison introduce their volume by noting the “special features” of the 1914–1945 period from an economic viewpoint, namely, that “In both world wars the main combatants were able to devote more than half of their national income to the war effort. This did not happen before 1914, or after 1945, and it seems unlikely that it will ever happen again [...]. Hence the marshalling of economic resources played a much more vital role in the outcome of the two world wars than in any period before or since. That is why we maintain that the history of the two world wars cannot be written without the economics.”¹ On the face of it, this is not a statement with which it is difficult to agree, provided of course that one is clear about what it means. In an earlier edited volume dealing with World War II, Harrison states that “ultimately, economics determined the outcome” of the war, by which he means that the resources available to the Allies made their victory inevitable.² This is also his position on the First World War. Thus, the initial advantages held by the Central Powers in 1914–1916 and by Germany and Japan in 1940–1942 because of their military successes were ultimately lost as the sheer manpower and other vast and superior economic resources of the Allied forces made themselves felt. This is, of course, a highly deterministic interpretation of the wars with which one can agree from hindsight but which neglects the implications of Clausewitz’s dictum that war is politics by other means. It was, after all, the political systems and political cultures of Germany and the Austro-Hungarian Empire, in the one case, and Germany and Japan, in the other, that led them down the path of exposure to such overwhelming superiority, and one can at least contemplate different political scenarios, especially in the First World War, but even in the Second, that might have produced less disastrous outcomes for the losers. If Germany seriously agreed to restore Belgium in the first half of World War I or if Hitler maintained his relationship with Stalin or, better yet, if someone managed to kill Hitler between 1938 and 1940, then a way out short of total disaster might have been found. Needless to

say, these are huge counterfactuals, but it is useful to remind oneself that agency and human choice are vital in explaining what happened. The “totality” of these wars had as much to do with politics as with economics.

The same holds true for the paths taken and not taken when studying the actual economic history of the wars and the place of economic warfare in the story. It is useful to begin with a reminder that the outbreak of the First World War was never expected to be the great economic caesura it turned out to be. While there is some debate about whether there was any anticipation of a long war, and whether the “short-war illusion” was as prevalent as has been argued, there certainly was a widespread belief in significant quarters that modern societies had become too interdependent to allow for a lengthy conflict. The British publicist Norman Angell thought such a conflict impossible; it was one of the assumptions of Count von Schlieffen in devising his plan; and I have learned that Ulrich Wille, the head of the Swiss army during World War I, had expressed similar views before the war.³ In the short run, they were all wrong, but in the long run, they were right. The two world wars were unaffordable and much of the century was devoted to recovering from them. In retrospect, most economic historians and political economists would now characterize the 1870–1914 period as one of “globalization” based on the gold standard and reasonably liberal trade practices and evolving but relatively stable domestic economic and social relations that was brought to a rude halt by the Great War, an interruption that continued through the interwar period, World War II, and the Cold War.⁴ We now perceive it that way because the progress of globalization in recent decades has necessarily led to a revival of interest in its earlier manifestations from a contemporary perspective. At the same time, the burgeoning interest in the economic history of the two world wars, exemplified by this conference, but also by meetings and publications dealing, for example, with new interpretations of Germany’s mobilization and economy in the Second World War and the behavior of French industry under German occupation after 1940 are moved not only by the need to correct existing interpretations and to fill gaps in our knowledge but also by a concern with the way in which the wars had consequences which shaped industrial, financial, and social development of both the interwar period and the post-1945 world. One asks, what is the relationship between the world that was destroyed in 1914 and the world in which we have been living since 1945 and in what ways did the wars affect that relationship?

The outbreak of war in 1914 meant the victory of the military state over what the political scientist Richard Rosecrance has called the trading state and was the unhappy outcome of the prewar tension between the progress of the aforementioned internationalist economic world order based on the gold standard and liberal trade practices and the growing struggle for hegemony in Europe fueled by international rivalries in the destabilized regions of southeast Europe and the Ottoman Empire.⁵ This struggle was characterized by armaments races and the development of military

mobilization plans with triggering mechanisms that insured the participation of all the great states of Europe in the event of a conflagration. It was no accident that the economic planning for a war was so limited since, from the perspective of historical analysis, it was a means of evading the implications of the tension between the military and the trading state arising from their coexistence. The abandonment of convertibility throughout Europe, that is, the suspension of the gold standard, at the outbreak of the war, therefore, was not simply a necessary financial measure but also had great symbolic value as the beginning of the subordination of the old monetary order to national military considerations. The historical perspective that takes into account the wartime history of the neutrals is especially useful in this respect since the neutrals' stake in the trading state and in the old economic order was obvious and they could rightly view and experience the outbreak of the war as a giant imposition on their interests and ultimately on their sovereignty. This was true whether or not there were sectors in which they ultimately profited or partially profited from the war in the end.

Thus, while historians engage in learned debates about the sectoral and international transmission of economic problems, for instance, banking crises, there is nothing to debate about when it comes to the practices and consequences of economic warfare. Their transmission was very rapid and very visible. The neutrals all suffered from the interruption of foreign trade, facing problems of import substitution and finding new customers, but the cause was not troubles in faraway places about which they knew little but rather next-door or near neighbors or nations of great power and importance like the United States. What this meant being forced to put up with foreign wartime trade controls within their own borders as well as unprecedented controls by their own governments along with the organization of industry and commerce for the purpose of collectively dealing with the demands of the warring parties. The Germans had spared Holland the invasion experienced by Belgium, but this was because the Germans counted on Holland as a transit route for imports into Germany and as a source of agricultural goods. The British, of course, sought to counter such expectations and make their blockade more effective by demanding that Dutch imports not be transshipped to Germany, and the enforcement of Allied demands was implemented by the Netherlands Overseas Trust, described as a shareholding company of shipping companies, trading companies, and banks, which acted in the name of the Dutch government in regulating the disposition of imports. In the later phase of the war, the Allies sequestered Dutch ships but paid their owners handsomely for this involuntary service despite paper protests by the Dutch Government. At the same time, the Dutch Government permitted the supply to Germany of vast amounts of foodstuffs absolutely vital to the continuation of the German war effort and did so with the acceptance of the British government, which was well aware that the Dutch were highly dependent on German coal. This was true of the Danes and Swedes as well,

the former supplying Germany with foodstuffs, the latter with iron ore, in return for coal and certain German finished goods. To be sure, much greater Allied pressure was put on the Dutch and Danes after 1917 which led to serious problems with Germany, but these were ultimately ironed out without military complications.⁶

Needless to say, the Swiss also became embedded in these economic warfare games, which inevitably revolutionized the ways in which they had traded before 1914. Thus, the Central Powers set up a Trusteeship Organization in Zurich which oversaw trade in important war related materials, while the Allies set up a much more comprehensive Swiss Society for Economic Surveillance to check the provenance of Swiss imports and insure that their utilization would not benefit the Central Powers. As in Holland, industrial and commercial self-organization, in this case the creation of syndicates for various imported raw materials and products, were set up that implemented Allied demands. In any case, the Swiss were also caught betwixt and between, and as Roman Rossfeld and Tobias Straumann argue, the situation became particularly tough after 1917 and America's entry into the war which led to yet further increased pressure on the neutrals. Thus, the Swiss, like the other neutrals, were spared bloody military engagement, although not the expense of the military preparedness necessary to defend their neutrality, but were by no means spared the pressures of economic warfare as reflected in growing shortages of raw materials and food for their populations with the accompany social consequences to be discussed later. However, while the neutrals could no longer enjoy the freedoms and possibilities of the global economy shattered in 1914, it would be a mistake to think that they had somehow experienced what has been called “total war”.⁷ As Marc Frey has put it with respect to Holland, “In World War I, the Netherlands was deeply affected by instruments of total war—submarine warfare and naval blockade. However, considering that the Netherlands was able to maintain its neutrality, it seems inappropriate to speak of a total war in that country. In the end, the belligerents infringed on Dutch rights to a considerable degree, but they respected the very essence of neutrality.”⁸

I have now, of course, mentioned those magic words, “total war” and one must turn to the phenomenon itself, no matter how vague and confusing it may be. The term was a creation of Erich Ludendorff, who was mentally unbalanced, and for whom the single-minded mobilization of all the human and material resources of the nation for war was something like the high point of human existence. While many saner people have written about total war, as far as I can tell, there are no real measures of how total “total war” is supposed to be or even clear definitions of what it is. Ideally typically, it seems to involve the maximum possible engagement of the human and financial and material resources of the nation for the purposes of making war along with the mobilization not only of science and technology but also the national culture in the cause. From the perspective of historical analysis, the concept of total war may serve as a valuable heuristic device in determining both the extent and the limits of

achieving a state of total war as well as understanding the limiting and hindering factors in its realization.⁹

These inhibiting elements were very substantial during the First World War, and there is no better testimony to this than Ludendorff himself. His post-1918 career was a litany of complaint about Germany's failures in total mobilization and indirect testimony to the fact that those in charge of Germany's mobilization had strong reservations about entering Ludendorff's Valhalla. In a sense this is rather odd because World War I Germany later served as the model for economic mobilization in the Second World War. It was the Germans, after all, who provided the most important theoretical foundations for the mobilization of the economy in the persons of Walther Rathenau and Wichard von Moellendorff, whose ideas of creating a Raw Materials Office to garner and distribute scarce raw materials through a combination of industrial self-organization and government steering provided the model for successful wartime economic management. Similarly, it was the Germans, stimulated by war time food shortages that created the most extensive program for management of the food supply through a system of forced deliveries from the farmers, and price controls throughout the distribution system. Finally, it was the Germans who engaged in the most formidable weapons and munitions program in 1916–1917 designed to replace men with machines and meet the demands of the new war of materiel. Nevertheless, the end result was widely recognized to be a great failure even before persons like me entered the archives and, I believe, proved that this was the case.¹⁰

I do not want to repeat here what I have written in various books and articles, but the important point is that Germany's civilian and military leadership, and also its economic leadership, were extremely unenthusiastic about total mobilization of the workforce or the entire economy in the first two years of the war and stoutly resisted the munitions, labor, and bureaucratic reorganization programs of Hindenburg and Ludendorff and their proto-fascist adviser, Colonel Max Bauer in 1916–1917. They feared, quite rightly, that such measures would overstrain the economy, be potentially ruinous to its finances, and upset the social balance of forces in Germany with revolutionary consequence. While heavy industry in particular but also some other branches involved in the war effort were allied with the Supreme Command and supported some of the measures, their enthusiasm was limited, not only by the necessity of making concessions to organized labor but also by the disruption caused to the economy. The big business community, perhaps best represented by Hugo Stinnes and Carl Duisberg of Bayer-Leverkusen, was rather schizophrenic in its attitudes, believing on the one hand in a victorious peace and annexations and, on the other hand, that the world of international trade and commercial relations would need to be resurrected once it was all over. They disliked government intervention and were very hostile to the corporatist ideas of state management of the economy through

the instrumentalities of industrial self-government. When the war ended badly for Germany, they acted as if they never had been the annexationists they were, and continued in the belief that international trade relations could be restored on the old basis as if nothing had happened. They were hardly alone in trying to return to the world that was, as is evidenced in the disastrous British return to gold in 1925.¹¹ Nevertheless, the British formulas for managing their food supply problems and mobilization during the war were far better than those employed by the Germans, Austrians, Russians, or Italians. Where these states encouraged thriving black markets and terrible shortages through bureaucratic mismanagement and unenforceable price controls, the British used financial incentives and a more liberal approach. This did not eliminate grumbling but did produce much better results and even a more egalitarian provision of necessities to the British people. All the warring nations were ultimately forced to make concessions to labor, and even those like Austria, Italy, and Russia that initially sought to militarize their labor force, ultimately moved in the direction of concessions and mechanisms for joint labor-management collaboration. In the cases of Britain and France, however, reforms, often little more than verbal, were more freely given, and this was done by competent political leadership with democratic legitimization. In any case, one of the effects of the implementation of total war measures was their delegitimation by the end of the war. The demand for an end to bureaucratic management and the desire for a return to liberal economic practices were certainly universal among the business classes but also in the bourgeoisie at large, except in the defeated nations, where inflationary practices had to be continued in order to maintain social peace and deal with the economic destabilization caused by the war. While labor unrest was universal by the end of the war, as demonstrated by the *Landesstreik* here in Switzerland, the capacity to put an end to this unrest depended not only on victory but also on the capacity of governments to retain their authority and the delegitimation of wartime economic controls and corporatist arrangements.¹²

This does not mean that the pre-war capitalist world and the globalization that had been one of its hallmarks had been really restored. The history of the interwar economy and the legacy of the First World War need not be and cannot be recounted here, but there are certainly important aspects that need to be emphasized. First, the victory of the old industrial order in 1919–1921 was a pyrrhic since the interwar performance of the international economy was miserable. If there was a restoration after 1918, it was because the performance of governments had been so unsatisfactory during the war, but this hardly wiped away the charges of profiteering and exploitation that were so widespread at the end of the war and fueled so much of the labor unrest. Legitimation depends on performance, and the hyper-inflations in Central Europe, as well as the depressions of 1920–1921 and the Great Depression in the world after 1929 undermined the legitimacy of capitalism once

again, so that there were few capitalist defenses against calls for regulation and planning by the time the National Socialists took power and democracy suffered all over Europe. There was no real economic recover between 1918 and 1939 that in anyway favored the kind of international order that existed prior to 1914, and instead of a free market, one had exchange controls and various trade barriers that favored autarchy, bi-lateral trade arrangements, and other controls. In many cases, countries borrowed directly from the practices of the wartime period. Second and I think this is a very important point made in the current literature on the effects of the First World War; there was a serious disorientation of national goals that made a return to globalization even more difficult. Whatever its faults and limitations, the fragmentation of the Austrian-Hungarian Empire and the triumph of economic nationalism and nostrification in the successor states and in Southeast Europe constrained economic development while leaving the area open to Great Power ambitions, above all those of Germany. Albrecht Ritschl has suggestively argued that “crucial for the further evolution of German imperialism was the experience of the failed western blitz campaign of 1914. Given this failure, the thrust of German’s imperialist drive turned away from maritime rivalry with Britain and towards territorial expansion in Eastern Europe, with many of the Malthusian and Darwinist forebodings of what was to come in World War II. It was only a small step for Germany’s extreme right to interpret the British naval blockade as a new turn in a Malthusian struggle for survival to seeking new arable Lebensraum in the east.”¹³ The process by which Germany reoriented itself in its ambitions from the overseas world to Central and Southeastern Europe as a result of its experiences with the British Blockade and its limited successes in international trade in the Weimar period needs much further investigation. It is worth noting that Germany’s best customer in 1930–1933 was the Soviet Union. While Germany’s bankers continued to think in terms of a revival of German overseas ambitions, this was very much on the back burner in military and diplomatic circles as well as for the National Socialists. As for France, its situation and the fate of globalization, has been neatly summed up by Pierre-Cyrille Hautcoeur: “Before 1914, France had a central financial and political position in continental Europe and the Mediterranean, which balanced the industrial position of Germany and complemented the mostly intercontinental position of Britain. Its instruments were diplomacy and loans to Spain, Italy, Russia, Austria, the Ottoman Empire, Egypt, et cetera. The war disrupted this order and France, like other major countries, hesitated between reconstructing a new global system from scratch and a more autarchy-oriented, state-organized economy for which many thought, erroneously for a large part, the war had given an efficient example. Partly because of that hesitation, no solution was found. Autarky was costly and unacceptable for business, and the French, British, and German ambitions were every day in conflict over the new interna-

tional order, as the example of the reconstruction and collapse of the international monetary and financial system shows. It led directly to the Great Depression and the Second World War.”¹⁴

Such perspectives help to explain why the Second World War and its economics were so different from the First World War despite obvious similarities and lines of continuity and also why the Second World War was so much more “total”. For many years it was believed that Hitler had sought to avoid “total war”, had eschewed armament in depth, counted on Blitzkrieg victories, and failed to engage in full mobilization for war until 1942. The so-called “weapons miracle” that began in that year was attributed to the genius of Speer and his organizational and rationalization measures. Added to this was the fact that Hitler remained fearful of another November 9, 1918 and quite deliberately sought to reduce the strains on the German people as much as possible and prevent domestic unrest. The Blitzkrieg was viewed as a domestic political measure as well as a strategy to avoid an overstraining of the economy through mobilization for total war.¹⁵

As it turns out, not much of this seems to be true, as is shown by a variety of studies undertaken by J. Adam Tooze, Mark Spoerer, Jonas Scherner and Jochen Streb. On the one hand, these scholars, above all Tooze and Spoerer, have severely challenged the accuracy and reliability of the statistical work of Rolf Wagenführ, who was not only Speer’s statistician but was also the chief source for post-1945 interpretations of the wartime German economy and was also an important source for postwar planning for Germany in the West and the East. The major peculiarity of the Wagenführ statistics is that they support the contention widely disseminated on their basis that German armaments production actually fell in the first year of the war and then remained relatively static in 1940–1941, the great surge only coming in 1942, after Speer took over the management of the German industrial economy and that this upsurge was then continued until 1944 thanks to the full mobilization of the German economy allegedly absent in the first years of the war. The Wagenführ statistics have been used to buttress the claim that Germany was not mobilized for “total war” prior to Speer’s arrival and also served the interests of Speer and his supporters and their claims for having enabled Germany to hold out in the last years of the war. This was the complement to the legend he spread that he was the only truly superior and competent person in the top echelons of the National Socialist regime and, at the same time, that he had no knowledge of or engagement in the Holocaust.¹⁶ On the other hand, Scherner and Streb have complemented the analyses of Spoerer and Tooze by testing the macroeconomic data and conclusions connected with the Wagenführ studies against the microeconomic data contained in the auditing reports on selected firms and concerns in the war economy, and these reports significantly undermine the contention that there was some downturn in productivity in the early part of the war followed by some great transformation under Speer.¹⁷

What the new research has demonstrated is that the Wagenführ data, when corrected by use of the United States Strategic Bombing Survey data, show that the story of increased war production and reduced costs is a continuous one. Wagenführ employed a very narrow definition of armaments, which left out an immense amount of military procurement that took place between 1938 and 1941 and also used 1943 prices as a gauge for dealing with prices in the earlier period. Production costs and prices were much lower in 1943 and 1944 because of efficiency effects that had kicked in by that time, that is, it was much cheaper to produce weapons and munitions in 1943 than in 1940–1941. Most of the alleged reforms undertaken by Speer, such as the introduction of fixed price contracts and elimination of cost-plus-fixed fee contracts, antedated Speer's takeover of industrial production. As it turns out, there was no drop in actual war production in 1940–1941 but rather a shifting from ammunition production, where enormous stockpiles had been built up, to other sectors, especially U-boats and tanks. The microeconomic data studied by Scherner and Streb simply reinforce the conclusions of the new macroeconomic work by showing high levels of production, lower costs, and greater overall efficiency over the course of the entire wartime period as a result of the continuous learning that had taken place. Big plant investment and new machinery in the earlier period made possible the employment of an increasing number of inexperienced but trainable workers and the growing employment of foreign workers. As their study of the auditing reports show, however, there was no significant procurement or other institutional changes affecting enterprise performance in 1942. What all this new research adds up to is that the gearing up of the German economy for war was a continuous process beginning in 1938 and that, while some of those involved certainly learned from the experiences of the First World War, there is nevertheless a vast difference between the two experiences. There was no labor movement to deal with; industry and banking were disciplined and supportive. Whether one agrees with Götz Aly's exaggerated and not entirely reliable description of Hitler's National Socialist Germany as being a «Volksstaat» or not, there can be no question about the regime's doing everything possible to prevent the shortages and deprivations of the First World War being replicated in the Second. As is quite clear, however, this was a policy pursued by plunder and that was unencumbered by the inhibitions of the earlier experience.¹⁸ What made the Second World War so total was the existence of National Socialist Germany and its ambitions. Thus, it can be argued that for Holland, for example, the Second World War was total.¹⁹ While Swiss neutrality was respected, Switzerland's situation was also rendered very different by the existence of Nazi Germany. No one would have ever thought of creating a Bergier Commission to study Switzerland's role in the First World War, but the problem of the Swiss role in the Second World War arises precisely because of the kind of economic warfare conducted by the Germans which drew Switzerland into areas of complicity that are certainly well known to this readership.²⁰

If, as Tooze correctly argues, Germany's failure arose from its inability to become a global superpower because it simply lacked the economic resources to do so no matter how hard it tried, one is nevertheless confronted with the question of the extent to which anything was left of the impulses to restore the kind of economic rationality and global economic thinking of the kind that some people still hoped to restore at the end of the First World War. The answer is somewhat mixed. Judging by the behavior of firms, concerns, and banks in the Second World War, I think that those who argue that their first concern was to do everything possible to preserve themselves and insure their sustainability under the conditions created by Nazi Germany are correct. They accepted the fact that their freedom of maneuver was limited and that their policies and expectations had to operate within the confines of what the regime allowed. There was plenty of room for entrepreneurial decision making and normal management practice provided one understood what was possible under the existing political conditions.²¹

The record shows that German industry had collaborated with the regime from the outset since this was the only way to secure raw materials and labor in the war economy. At the same time, rational business decision making went on throughout this period, obviously within the context of conditions set down by the regime. There can be no question about business collaboration with the Nazi State, therefore, but there was also some freedom of maneuver in that could be perceived and exercised within the confines of Nazi policies.²² This was especially evident in Western Europe where, to be sure, the German business interests did participate in efforts to gain control and influence in the occupied countries but also where they exercised considerable caution in their relations with French, Belgian, and Dutch enterprises in the realization that a time might come when normal business relations would be restored. Such attitudes became more pronounced, of course, beginning in late 1942, when these businessmen also realized that the tide was beginning to turn. At the same time, recent studies show that such opportunistic adaptation was also performed by the French firms anxious to survive the adaptation whether Germany won or lost. It should come as no surprise, therefore, that it would take years, not only to reconstruct what had been destroyed in the Second World War, which in physical terms was quite feasible in a relatively short period of time, but more importantly to restore the possibilities for the kind of globalization that had been aborted in 1914 through the transformation of economic thinking away from those ideas that had been nurtured by the experiences of war.

Notes

- 1 Broadberry Stephen, Harrison Mark (ed.), *The Economics of World War I*, Cambridge 2005, p. 36.
- 2 Harrison Mark (ed.), *The Economics of World War II. Six Great Powers in International Comparison*, Cambridge 1998, p. 2.
- 3 For a good account of the historiographical debate, see Herwig Holger H., “Germany and the ‘Short-War’ Illusion: Toward a New Interpretation?”, *Journal of Military History* 66 (July 2002), p. 681–693. The most critical position on the prevalence of the short-war idea has been provided by Förster Stig, “Dreams and Nightmares. German Military Leadership and the Images of Future Warfare, 1871–1914”, in: Boemeke Manfred F., Chickering Roger, Förster Stig (ed.), *Anticipating Total War. The German and American Experiences, 1871–1914*, Washington D. C., New York 1999, p. 343–376. For Angell’s views, see Angell Norman, *The Great Illusion: A Study of the Relation of Military Power in Nations to Their Economic and Social Advantage*, London 1910. For Schlieffen’s view of the inability of the world economy to sustain a long war, see Feldman Gerald D., *Army, Industry and Labor in Germany, 1914–1918*, Princeton 1966 (reprint Oxford, Munich 1992), p. 6. On Wille, see the paper presented at this conference by Rossfeld Roman, Straumann Tobias, “Zwischen den Fronten oder an allen Fronten? Schweizer Unternehmen im Spannungsfeld von Politik, Wirtschaft und Kultur in den Jahren 1914–1918”, p. 1.
- 4 See: Frieden Jeffry A., *Global Capitalism. Its Fall and Rise in the Twentieth Century*, New York, London 2006; Torp Cornelius, “Weltwirtschaft vor dem Weltkrieg. Die erste Welle ökonomischer Globalisierung vor 1914”, *Historische Zeitschrift* 279 (2004), p. 561–609; important Torp Cornelius, *Die Herausforderung der Globalisierung. Wirtschaft und Politik in Deutschland 1860–1914*, Göttingen 2005.
- 5 Rosecrance Richard, *The Rise of the Trading State: Commerce and Conquest in the Modern World*, New York 1985.
- 6 See de Jong Hermann, “Between the Devil and the Deep Blue Sea: The Dutch Economy During World War I”, in: Broadberry/Harrison (note 1), p. 137–168.
- 7 Straumann/Rossfeld (note 3), p. 20 ff.
- 8 Frey Marc, “Bullying the Neutrals: The Case of the Netherlands”, in: Chickering Roger, Förster Stig (ed.), *Great War. Total War. Combat and Mobilization on the Western Front, 1914–1918*, Cambridge 2000, p. 244.
- 9 See Ludendorff Erich, *Der totale Krieg*, Munich 1935; Speier Hans, “Ludendorff: The German Concept of Total War”, in: Earle Edward Meade (ed.), *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler*, New York 1966, p. 306–321. For a very useful and sober discussion, see Chickering Roger, “Total War: The Use and Abuse of a Concept”, in: Boemeke Manfred F., Chickering Roger, Förster Stig (ed.), *Anticipating Total War. The German and American Experiences, 1871–1914*, Cambridge 1999, p. 13–28.
- 10 Feldman (note 3), Pt. II.
- 11 See Feldman Gerald D., “War Aims, State Intervention, and Business Leadership in Germany. The case of Hugo Stinnes”, in: Chickering/Förster (note 8), p. 349–368.
- 12 See: Feldman Gerald D., “Mobilizing Economies for War”, and Horne John, “Labor and Labor Movements in World War I”, in: Winter Jay, Parker Geoffrey, Habeck Mary R. (ed.), *The Great War and the Twentieth Century*, New Haven, London 2000, p. 166–227. See also, Feldman Gerald D., “Economic and Social Problems of the German Demobilization, 1918–1919”, *Journal of Modern History* 47/1 (March 1975), p. 1–47, and “War Economy and Controlled Economy: The Discrediting of ‘Socialism’ in Germany During World War I”, in: Schröder Hans-Jürgen, *Confrontation and Cooperation. Germany and the United States in the Era of World War I, 1900–1924* (Germany and the United States of America. The Krefeld Historical Symposia, vol. 2), Providence, Oxford 1993, p. 229–252.
- 13 Ritschl Albrecht, “Germany’s Economy at War, 1914–1918 and Beyond”, in: Broadberry/Harrison (note 1), p. 41–76, quote on p. 73.
- 14 Hautcoeur Pierre-Cyrille, “Was the Great War a Watershed? The Economics of World War I in France”, in: Broadberry/Harrison (note 1), p. 169–205, quote on p. 201.

- 15 The classic presentations of these arguments are to be found in: Klein Burton H., *Germany's Economic Preparations for War*, Cambridge (Mass.) 1959; Milward Alan S., *The German Economy at War*, London 1965.
- 16 Spoerer Mark, “Demontage eines Mythos? Zu der Kontroverse über das nationalsozialistische ‘Wirtschaftswunder’”, *Geschichte und Gesellschaft* 31/3 (2005), p. 415–438; Tooze J. Adam, “No Room for Miracles. German Industrial Output in World War II Reassessed”, *ibid.*, p. 439–464. For Wagenführ’s work, see Wagenführ Rolf, *Die deutsche Industrie im Kriege 1939–1945*, 2nd ed., Berlin 1963. The path to Tooze’s findings was prepared by his brilliant study, *Statistics and the German State 1900–1945: The Making of Modern Economic Knowledge*, Cambridge 2001. His findings about the National Socialist economy now appear in more comprehensive form in his *Wages of Destruction. The Making and Breaking of the Nazi Economy*, London 2006.
- 17 Scherner Jonas, Streb Jochen, “Das Ende eines Mythos? Albert Speer und das so genannte Rüstungswunder”, *Vierteljahrsschrift für Sozial- und Wirtschaftsgeschichte* 93/2 (2006), p. 172–196. See also Scherner’s forthcoming documentation to be published in the *Vierteljahreshefte für Zeitgeschichte*, “Bericht zur Deutschen Wirtschaftslage 1943/44. Eine Darstellung des Reichsministeriums für Rüstung und Kriegsproduktion über die Entwicklung der deutschen Kriegswirtschaft bis Sommer 1944”.
- 18 Aly Götz, *Hitlers Volkstaat: Raub, Rassenkrieg und Nationalsozialismus*, Frankfurt a. M. 2005. While recognizing the importance of the issues raised by Aly, Tooze has been highly critical of Aly’s interpretation of the German economy and his economic determinism. See Tooze J. Adam, “Doch falsch gerechnet – weil falsch gedacht”, *Die Tageszeitung* 7616 (16. 3. 2005), p. 16.
- 19 See Frey (note 8), p. 243 f.
- 20 *Final Report of the Independent Commission of Experts. Switzerland. National Socialism and the Second World War*, Zurich 2002.
- 21 This depressing conclusion is confirmed by a recent collection of papers dealing with the occupied countries and neutrals, Lund Joachim (ed.), *Working for the New Order. European Business under German Domination 1939–1945*, Copenhagen 2006. See also Joly Hervé (ed.), “Les Entreprises Allemandes Durant la Seconde Guerre Mondiale”, *Histoire Economie, & Société* 4 (2005), p. 451–553.
- 22 See: Buchheim Christoph, “Unternehmen in Deutschland und NS-Regime: Versuch einer Synthese”, *Historische Zeitschrift* 282 (2006), p. 351–390; Scherner Jonas, “Das Verhältnis zwischen NS-Regime und Industrieunternehmen”, *Zeitschrift für Unternehmensgeschichte* 51/2 (2006), p. 166–190.