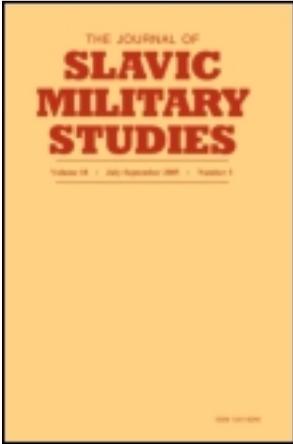


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Production in Interwar Czechoslovakia¹

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On the Nature and Role of Arms Production in Interwar Czechoslovakia¹

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Arms production in interwar Czechoslovakia has been a fascinating subject to research. The development of Czechoslovak weapons production was remarkably interesting as it was influenced by many political, military, and economic factors. The arms industry was obviously a particular branch that, together with arms exports, represented a matter that was also very politically delicate. In the 1930s, the rapid revitalization of the armament industry played an important role in the Czechoslovak economy. The armament boom helped the Czechoslovak economy to achieve better results and improved the situation in many branches of the Czechoslovak industry. However, high defense expenditures represented a rather dangerous phenomenon, with possible negative effects on the Czechoslovak economy in the long run.

Both the production and export of Czechoslovak arms in the interwar period remain very interesting phenomena that should not be neglected by scholars. Although the theme has attracted attention of several historians, many important details are yet to be explained. Unfortunately, this research has been complicated by some factors. Of course, arms production

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was, in many respects, a specific branch of Czechoslovak industry, as well as (together with arms exports) a very sensitive political issue. Just as in other states, Czechoslovakia did not want to disclose detailed results, actual capacity, structure, development plans, and other important data regarding the arms industry. These significant circumstances naturally influenced official statistical surveys.² Some arms sales did not appear in the official statistics that were sent from Czechoslovakia to respected international organizations and political sensitivity was not the only reason for hiding these exports.³ In some cases, other aspects also played an important role. For example, the Czechoslovak government recognized that publication of some information (including exact figures) could harm the economic interests of Czechoslovak producers while helping their foreign rivals. When dealing with statistical discrepancies and misleading official data, other relevant documents should also be noted—above all, many interesting records, giving evidence of close cooperation between the Czechoslovak government and individual arms producers, which are stored at archives in the Czech Republic.⁴

After the breakup of Austria-Hungary empire, the newly established Czechoslovakia inherited an advanced arms industry dominated by Škoda Works, a significant Pilsen-based company and one of the leading European arms factories. On the other hand, many problems came to light in arms production after the dissolution of the Habsburg Empire, including various complications related to large-scale changes in ownership. The structure of the arms industry had been inherited from the former monarchy and did not correspond to the real needs of the new Czechoslovak state. Staffing levels in arms research and development was perceived to be another problem, as German specialists had dominated in this field before the First World War. As far as arms production and many other branches were concerned, the replacement of German specialists with Czech experts was both an important and difficult goal for Czechoslovak government.⁵

Despite these problems, the new state obviously needed a large and stable arms industry that would be able to both help Czechoslovakia defend its

² These circumstances were probably the main reason for the State Statistical Office's summaries frequent omission of detailed information on arms supplies.

³ Similar misleading statistics were, of course, published in other countries. In this connection, it should be mentioned that world arms trade monitoring has ever been very difficult. Undoubtedly, the arms exports of interwar Czechoslovakia represent an interesting research subject. However, it is a complex theme, worthy of special attention, and this article intentionally does not deal with this phenomenon.

⁴ Archive of the Ministry of Foreign Affairs of the Czech Republic, Prague; Škoda Archive, Pilsen; National Archive, Prague, etc.

⁵ Karlický, V. (1995). *Česká zbrojní technika* (pp. 687–688). [Czech weaponry]. In *Studie o technice v českých zemích* [Study on engineering in the Czech lands], Vol. VI, 1918–1945, Part 2. Ivan Smolka, (ed.). Prague: Národní technické muzeum.

sovereignty and reduce, to the greatest extent possible, Czechoslovak dependence on arms imports. Czechoslovakia was established in the unstable Central European region and its relations with neighboring states were somewhat tense (and repeatedly greatly so).⁶

Both these and other factors affected the development of particular and unique ties between the state and the arms industry. Evidence of these ties can be seen in the state's attempts, by various means, to influence both structure and total production rate of the Czechoslovak arms industry. The Czechoslovak government supported domestic arms factories even when this backing was not economically effective but appeared, in regard to the state's long-term military strategy, to be a necessary step. Naturally, this process intensified during the 1930s, when Czechoslovakia felt increasingly threatened by Nazi Germany. Moreover, the Czechoslovak government encouraged the expansion of arms production in territories located a relatively great distance from any potential aggressor (i.e., inland and mainly in Slovakia).⁷

Like many other companies directly after the end of the First World War, Škoda Works, the most important arms factory in the Czech Lands, had to face several problems, some of these connected to the arduous transformation of selected arms production segments to a manufacturing program reflecting the demands of a peace time economy. In this difficult situation, the French company Schneider et Cie took over ownership of Škoda Works in September 1919.⁸ Thanks to this connection with strong French enterprise, as well as significant ties to the Czechoslovak political elite and other favorable factors, Škoda Works overcame the crisis and eventually morphed into a powerful and secure company. To a great extent, the restructuring of arms production and the following revitalization of this industry contributed to the new general expansion of the Czechoslovak enterprise. Škoda Works focused on heavy arms production, mainly on cannons and ammunition manufacturing. In spite of all its problems, Škoda Works succeeded in maintaining the high quality of their arms and also utilized some considerable changes in developed states' military strategies—for example, an increasing importance of artillery in their armies.⁹ In the interwar period, the Czechoslovak army was Škoda Works' most important customer and its demands largely influenced both the arms production program and the general economic strategy of the Pilsen-based company. From the mid-1920s

⁶ Armed conflicts with Poland and Hungary or later tension in Czechoslovak relations with Germany could here be cited.

⁷ However, results of this strategy were quite disputable. For more details, see Pavel, J. (2004). *Velikost a struktura výdajů na národní obranu v Československu v letech 1918–1938* [The size and structure of defense expenditures in Czechoslovakia in 1918–1938]. Prague: Národohospodářský ústav Josefa Hlávky.

⁸ Průcha, V. (2004). *Hospodářské a sociální dějiny Československa v letech 1918–1992* (pp. 215–216). [Economic and social history of Czechoslovakia 1918–1992], Volume I. Brno: Doplněk.

⁹ Karlický, V. (1999). *Svět okřídleného šípů, Koncern Škoda Plzeň 1918–1945* (p. 484). [World of the Winged Arrow, Škoda Works in the years 1918–1945]. Pilsen: Škoda a.s.

TABLE 1 Total Sales of Škoda Works, 1925–1938 (in Czechoslovak Crowns)

Year	Arms production		Total sales
	Domestic sales	Exports	
1925	120,129,190	47,914,308	705,146,417
1926	86,520,568	88,820,681	689,797,599
1927	28,643,260	123,408,672	816,275,247
1928	111,119,513	114,010,567	1,095,787,544
1929	63,946,947	572,214,589	1,527,077,155
1930	176,995,680	559,385,839	1,634,604,584
1931	134,945,920	259,117,600	1,206,354,865
1932	80,954,483	67,316,977	654,186,962
1933	77,539,722	92,986,028	594,726,188
1934	288,754,937	89,440,202	789,910,958
1935	452,453,059	104,635,858	1,073,557,864
1936	253,826,301	324,791,900	1,003,820,570
1937	479,954,556	628,152,719	1,711,356,357
1938	611,794,653	682,493,542	1,977,015,298

Source: Karlický, V. (1999). *Svět okřídleného šípů, Koncern Škoda Plzeň 1918–1945* (pp. 598–599). [World of the winged arrow, Škoda works in the years 1918–1945]. Pilsen: Škoda a.s.

and after the successful post-war stabilization of the enterprise, research and development in the field of arms production advanced quickly and it resulted in new high-quality products. Naturally, the Great Depression halted Škoda Works' general expansion and it was compelled to change its sales strategy and adopt cost-saving measures. However, Škoda Works, like many other arms factories, entered the arms boom period in the mid-1930s, while the second half of the decade brought plenty of new sales opportunities for the Pilsen-based company¹⁰ (for sales development see Table 1).¹¹

In both the scope and structure of their arms production program, Škoda Works offered a wide range of products. In addition to other weapons, Škoda Works manufactured high quality anti-tank guns (e.g., model 37, 37 mm caliber), anti-aircraft guns (e.g., model 22, 8.35 cm caliber), fortress guns (e.g., model 36, 4 cm caliber) and mortars (e.g., model 36/B5, 8 cm caliber). Some of these weapons had particular uses, such as the fortress guns (model 36), which were primarily intended for Czechoslovak border fortifications and, therefore, ordered by the Czechoslovak government in the 1930s. Subsequently, these guns could have become a valuable export item, as several countries (including Argentina, France, Belgium,

¹⁰ For more information, see Karlický, V. 1999, *passim*. Cf. Jíša, V., & Vaněk, A. (1962). *Škodovy závody 1918–1938* [Škoda Works 1918–1938]. Prague: Práce.

¹¹ For more details on Škoda Works' sales in the interwar period, see statistical surveys located in Archiv společnosti Škoda Plzeň [Škoda Archive, Pilsen]. For example, *Roční statistika pro Schneidera (1915–1938)*, *Statistiques 1926–1931* [Annual statistics made for Schneider (1915–1938)]. Part: Statistics 1926–1931 and *Zakázky nad 100 000 Kč (léta 1928–1930 a 1934–1936)* [Orders over 100,000 Czechoslovak crowns (years 1928–1930 and 1934–1936)].

and Yugoslavia) were interested in importing them, though the Munich Agreement of September 1938 and following events effectively hampered this lucrative trade.¹² Although they did not belong among the main products, weapons such as tanks and armored vehicles were also produced by Škoda Works. To a small extent, the Pilsen-based company was engaged in the development and production of small arms.¹³

In interwar Czechoslovakia, both production and export of weapons were dominated by two large manufacturers: Škoda Works and Zbrojovka Brno (Czechoslovak Arms Factory of Brno). Unlike Škoda Works, Zbrojovka Brno was founded after the establishment of Czechoslovakia and the company's beginnings were rather unprepossessing. In January 1919, Václav Klobáček, the Minister of Defense, signed a decree founding the Czechoslovak state arms factory (Zbrojovka Brno's original name) in the buildings where artillery workshops had been prior to the breakup of Austria-Hungary. Like other enterprises, Zbrojovka Brno had various problems to solve, some of these connected to the general lack of specialists and the newly established Czechoslovak government's inexact arms production strategy. The transformation into a joint-stock company in June 1924 was an important milestone in the enterprise's development. The state held a majority (75% share) in the new joint stock company Czechoslovak Arms Factory of Brno, while Škoda Works obtained most of the remaining stock (20% share). Although this connection was generally regarded as a somewhat controversial, in the long-term, it brought advantages rather than harmful consequences to the Brno-based company.¹⁴ Relations between these two enterprises were rather complex. In some cases, the two companies co operated and divided their profits, while in others they were in competition.

After the difficult initial stage, the annual production capacity of the company started to increase rapidly. Zbrojovka Brno swiftly developed and expanded over the next two decades and became a significant player in the world arms trade. Statistical surveys covering the period 1919–1939 are genuinely impressive. The Brno-based company had 566 employees upon its establishment and the number had increased four-fold by 1922 (to approximately 2,400) and 40-fold by 1938 (to about 22,500).¹⁵ Zbrojovka Brno was

¹² For more information on the fortress guns (model 36), see Janoušek, J. (2007). *Československé dělostřelectvo 1918–1939* (pp. 142–145). [Czechoslovak artillery 1918–1939]. Prague: Corona.

¹³ The detailed list of Škoda Works' weapons is quite large. For more details on Škoda Works' engagement in the development and production of small arms, see Šáda, M. (1971). *Československé ruční palné zbraně a kulometry* [Czechoslovak small arms and machine guns]. Prague: Našu vojsko.

¹⁴ For more information on the development of Zbrojovka Brno during the first years of its existence, see Franěk, O. (1969). *Dějiny koncernu brněnské Zbrojovky* [History of Zbrojovka Brno], Volume I. Brno: Blok.

¹⁵ Moravský zemský archiv v Brně, pracoviště Třebíč, fond Zbrojovka, a. s., Brno/značka fondu: H 864, 220/1/3 (*Přehledy Zbrojovky 1918–1944, 1945–1956*) [Moravian Land Archives, Brno, collection: Zbrojovka, a. s., Brno, collection number: H 864, collection located in Třebíč (further only MLA, H 864) serial number (further only SN) 220/1/3 (Zbrojovka Brno's Surveys 1918–1944, 1945–1956)].

TABLE 2 The Development of Zbrojovka Brno's Net Profit, 1919–1938 (in millions Czechoslovak Crowns)

Year	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Profit	1.7	2.6	3.4	5.8	4.8	5.0	6.3	5.7	8.3	9.5
Year	1929	1930	1931	1932–1934*			1935	1936	1937	1938
Profit	8.0	2.0	0.5	5.2			12.6	13.2	18.1	28.4

*Change in billing cycle

Source: MLA, H 864, SN 220/1/3 (Přehledy Zbrojovky 1918–1944, 1945–1956).

a successful firm enjoying steadily growing sales and profits, though with the obvious exception of the grueling years of the Great Depression (for the development of net profit, see Table 2). Along with the growing production in Brno, other Zbrojovka's business activities were also expanding. Among other activities, Zbrojovka built new plants (including in Povážská Bystrica and in Vsetín), bought ironworks in Podbrezová and two mines (named Evžen and Václav) in Petřvald, invested in producing machine guns and ammunition in Romania. It should be borne in mind that arms production was clearly generating the largest part of Zbrojovka's manufacturing program and steadily overshadowing non-military products.

In contrast to Škoda Works, Zbrojovka primarily focused on small arms production. With regard to the contemporary needs of the Czechoslovak army, Zbrojovka was manufacturing handguns (including pistol model 22)¹⁶ during the company's first years. A number of problems repeatedly arose in this production segment, which was consequently ceded to Czech Armament Works in 1923.¹⁷ About two years after its foundation, Zbrojovka started to manufacture Mauser model rifles. The original versions of the model were gradually improved and more modern ones were developed with regard to major customers' wishes. The rifle production grew into a prominent part of Zbrojovka's manufacturing programme and it reached its first culmination point in 1929, when 143,555 rifles were dispatched from the Brno plant. After a decline during the Great Depression, rifle production recovered and reached the second culmination point in 1938, with 260,120 rifles being dispatched.¹⁸

The development and production of machine guns represent a very interesting chapter in Zbrojovka's history. The beginning was rather knotty, partly due to hesitation by the Czechoslovak government, which delayed the selection of machine guns appropriate for the Czechoslovak army (as

¹⁶ About 19,000 units were sold to the Czechoslovak army. MLA, H 864, SN 220/1/1 (*Přehled vývoje Zbrojovky Brno (dělostř. dílny) 1915–1941*) [An outline of Zbrojovka Brno's (artillery workshops') development in the period 1915–1941].

¹⁷ The full name of this company was Czech Armament Works in Prague of the Manufacturing Plant in Strakonice.

¹⁸ MLA, H 864, SN 220/1/1 (*Přehled vývoje Zbrojovky Brno (dělostř. dílny) 1915–1941*) [An outline of Zbrojovka Brno's (artillery workshops') development in the period 1915–1941].

regards a particular model and producer). Eventually, a series manufacture of light machine guns ZB VZ-26 began in 1927. The model ZB VZ-26—whose predecessors had originally been developed in Zbrojovka Praga (Arms Factory Praga)—was a high-quality gun at that time and brought fame to Zbrojovka Brno (and, to a certain degree, to the whole of the Czechoslovak arms industry).¹⁹ Being inspired by the ZB VZ-26, other successful models followed—including ZGB 33, license to produce this model was consequently sold to Great Britain, where it was manufactured under the moniker of the Bren Gun.²⁰ As with rifle production, machine gun manufacturing entered a boom period in the second half of the 1930s and reached a record output in 1938, when 36,301 light machine guns and 5,815 heavy machine guns were dispatched from the Brno plant.²¹ Zbrojovka's production program included a broad range of weaponry. Among other items, equipment for border fortifications (e.g., gunports) turned out during the second half of the 1930s are important to bear in mind. Zbrojovka's arms were usually regarded as high-quality products, though on the other hand, were often being considered to be too intricate and expensive.

Of course, some other companies were also engaged in arms production in interwar Czechoslovakia. Several Czech entrepreneurs started to take a serious interest in arms manufacturing directly after the end of the First World War. One of these entrepreneurs, František Janeček, founded a new arms factory that was originally situated in Mnichovo Hradiště and later, in 1922, moved to Prague. In addition to other activities, Janeček's Arms Factory repaired and modernized Schwarzlose machine guns for the Ministry of Defense. The company also developed new rifle models.²² Zbrojovka Praga, founded by J. Novotný, became another arms manufacturer of note.

As indicated above, Zbrojovka Praga developed the Praga machine gun that was an auspicious fore runner to the ZB VZ-26, a very successful model later made in Brno. However, Zbrojovka Praga soon succumbed to competition from large enterprises and discontinued its activities in 1926. Further, the Czech Armament Works' manufacturing plant in Strakonice was the largest Czechoslovak producer of handguns and offered various products, with pistol models 24, 27, 36, and 38 belonging among the most famous weapons made in this enterprise.²³ Some other small firms, specializing

¹⁹ The ZB VZ-26 was one of the most successful export items, bringing high profits to Zbrojovka Brno.

²⁰ The name Bren was derived from Brno and Enfield, site of the British Royal Small Arms Factory.

²¹ MLA, H 864, SN 220/1/1 (*Přehled vývoje Zbrojovky Brno (dělostř. dílny) 1915–1941*) [An outline of Zbrojovka Brno's (artillery workshops') development in the period 1915–1941].

²² For more information on Janeček's Arms Factory, see Vančura, J. (1956). *Z dějin Janečkovy zbrojovky* [From the history of Janeček's arms factory]. Prague: Práce. For more details on the Ministry of Defence's orders, see Pavel, 2004.

²³ For more details on small-bore arms production in Strakonice, see Popelínský, L. (2010). *Československé a české malorážní zbraně a jejich život* (pp. 15–18). [Czechoslovak and Czech smallbore arms]. Brno: Lynx.

in a few specific products, also launched their own pistol production in interwar Czechoslovakia.²⁴ Czechoslovakia also inherited two ammunition factories—Sellier & Bellot, a Prague-based company, and Roth, located in Bratislava. Sellier & Bellot, a firm with long tradition, became an important supplier of ammunition for handguns used by the Czechoslovak army and police. In 1936, Sellier & Bellot moved its production to a new large plant built in Vlašim and this measure resulted in the firm's rapid expansion.²⁵

In the Czechoslovak arms industry, tanks and military vehicle manufacturing constituted a particular production segment. In producing lorries (e.g., T-24, T-25, and T-4/12) and special vehicles for the army, Tatra, a manufacturer situated in Kopřivnice, grew to be a real pioneer in the field of military vehicle production in Czechoslovakia. From Tatra's point of view, the situation in the Czechoslovak market worsened in the 1930s, when it had to face strong competition from its rivals Škoda Works (which was mainly manufacturing Škoda L, S, and V models)²⁶ and ČKD²⁷ (largely producing Praga AV and RV models). In comparison to civilian vehicle production, military vehicle manufacturing generally represented a supplementary activity for Czechoslovak car factories. Škoda Works and ČKD were also producing tanks, including light tanks LT-34, LT-35, and LT-38, which were probably the best models made in interwar Czechoslovakia. The light tanks LT-38 were produced in the ČKD Praga plant in co operation with Škoda Works. Overwhelming its rivals in its category, this model belonged among the most highly valued weapons of the time. However, the LT-38 light tanks were introduced into the the Czechoslovak army's weaponry only in June 1938, a few months before Czechoslovakia collapsed.²⁸ After March 1939, when German troops invaded the Czech Lands and the Protectorate of Bohemia and Moravia was established, the LT-38 tanks were used by the German army.²⁹

As far as both quantitative and qualitative aspects are concerned, Czechoslovak arms production achieved several unequivocal successes in the interwar period. However, it also showed some evident problems and deficiencies. Along with other arms, some first-rate cannons,³⁰ machine guns, and rifles, comparable to the best foreign weapons, were made in

²⁴ For more information on small-scale producers, see Šáda, M. (1966). *Umlčené zbraně: Československá zbrojní výroba 1918–1939* (pp. 228–230). ['Gagged Weapons', Czechoslovak arms production 1918–1939], Prague: Naše vojsko.

²⁵ For more information on the firm Sellier & Bellot, see Hýkel, J., & Karlický, V. (2006). *Dějiny firmy Sellier & Bellot* [A history of the firm Sellier & Bellot]. Prague:

²⁶ These models were produced in Mladá Boleslav. In 1925, Škoda Works bought Laurin & Klement, the car factory located in Mladá Boleslav. Consequently, The logo L&K was replaced by Škoda Works' winged arrow.

²⁷ ČKD is an abbreviation of the name Czech-Moravian-Kolben-Daněk.

²⁸ For information on other Czechoslovak arms producers, see Karlický, 1995, pp. 687–731.

²⁹ During the Second World War, the LT-38 tank rapidly fell into obsolescence due to the rapid development of new models.

³⁰ For information on cannon production, see Janoušek, 2007.

Czechoslovakia. The Czechoslovak arms industry was offering some modern and reliable weapons, which were highly valued abroad. Nevertheless, several production segments were markedly underdeveloped. The somewhat slower development of military aircraft production did not correspond to the steadily growing role of aircraft as part of a modern military strategy. Similarly, tank manufacture lagged behind the Czechoslovak army's growing need for modern models of this important weapon. As for small arms, submachine gun development and production were rather neglected, something presumably primarily due to the Czechoslovak supreme command's negative attitude toward submachine guns.³¹

In the complicated period of the 1930s, the general importance of Czechoslovak arms production and export, which were one of the most important factors contributing both to positive foreign trade results and the entire Czechoslovak economy, changed considerably. The arms boom of the latter part of the 1930s, accompanied by a growth in arms exports, became an important trend, though obviously not only from an economic point of view. The transition from the crisis years to the arms boom period in the mid-1930s was quite dynamic. The rapid revitalization of the arms industry was undoubtedly directly influenced by the new political situation in Central Europe and the ensuing shift in the attitude of the Czechoslovak government to arms companies. However, this arms boom was not merely a Czechoslovak phenomenon. Generally speaking and on an international scale, arms production and exports recovered from the Great Depression faster than did the production and export of non-military commodities.³²

Naturally, the arms boom of the latter part of the 1930s should not be regarded as a very favorable phenomenon for the Czechoslovak economy, nor as being devoid of negative side effects. This process had some rather controversial aspects. In regard to state subventions to arms factories and some other factors, it is also necessary to analyse the development of arms production within the broader context of defense expenditure in Czechoslovakia. Alongside firms directly involved in arms production and building border fortifications, increasing defense expenditures influenced many other companies from several branches of the Czechoslovak industry. Generally, high defense expenditure was obviously impacting on the entire Czechoslovak economy. In the second half of the 1930s, the high defense

³¹ Essentially, the supreme command had been rejecting submachine guns until the mid-1930s, their high consumption of ammunition being presented as the main reason for this negative attitude. For more details, see Šáda, 1977, pp. 83–84. For more information on the achievements and problems of the Czechoslovak arms industry, see Kubů, E., & Pátek, J. (2000). *Mýtus a realita hospodářské vyspělosti Československa mezi světovými válkami* (pp. 123–124). [Myth and reality of the Czechoslovak economic advancement in the interwar period], Prague: Karolinum.

³² For more information, see Hauner, M. (1986). *Military Budgets and the Armament Industry*. In *The Economic History of Eastern Europe 1919–1975*, (p. 53), Vol. II, ed. M. C. Kaser & E. A., Radice, (eds.). Oxford: Clarendon Press.

expenditure strategy brought primarily positive economic effects. On the other hand, there was a great risk that this hazardous fiscal policy would evolve into an oppressive burden in the long run, resulting in several serious problems for the Czechoslovak economy. However, considering the following events (the Munich Agreement, the dissolution of Czechoslovakia, and the outbreak of the Second World War), we can only speculate on possible long-term consequences for a peace time economy.³³

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³³ For more details on these high defence expenditures and their impact on the Czechoslovak economy, see Pavel, 2004.

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