

# Food and Nutrition (Austria-Hungary)

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**Food became a scarce – and thus decisive – resource for the Habsburg Empire’s warfare. Agricultural production in Austria-Hungary dramatically deteriorated due to causes more or less related to the war. The consumers’ shrinking food supply reflected not only the declining amount of foodstuffs available to the Habsburg Empire, but also their unequal distribution at state, provincial, regional and local levels. Everyday struggles for food fostered the fragmentation of wartime society – with effects that lasted far beyond the war period.**

## Table of Contents

- [1 Introduction](#)
- [2 Food Production](#)
- [3 Food Distribution](#)
- [4 Food Consumption](#)
- [5 Conclusion](#)
- [Notes](#)
- [Selected Bibliography](#)
- [Citation](#)

## Introduction

During the First World War food became a scarce – and thus decisive – resource for the Habsburg Empire’s warfare, with regard to the armed forces as well as the people on the "home front." While the [historiography](#) has evaluated the food crisis as a key factor of Austria-Hungary’s military, economic and political breakdown,<sup>[1]</sup> for contemporaries this was rather surprising. Prior to the war the Dual Monarchy was normally self-sufficient in basic foodstuffs; substantial imports were only necessary in the case of bad harvests. In order to assess the wartime food crisis, three areas along the agro-food chain have to be taken into account: production, distribution and consumption. This article’s regional focus is mostly on the Austrian half of the monarchy but will compare with the Hungarian part whenever possible.

## Food Production

Agricultural production in Austria-Hungary dramatically deteriorated during the war (Table 1). The agricultural component of the Gross Domestic Product (GDP), i.e. the total value of marketed agricultural products and services, from 1913 to 1917 decreased from 9,430 to 5,639 million Kronen in absolute terms or by 40 percent in relative terms. Compared to the Hungarian part of the Dual Monarchy (-34 percent), the contraction proved to be even more severe in the Austrian part (-48 percent). According to the figures of selected crops, both components of arable production – acreage and yields per hectare – decreased during the war (Tables 2 and 3). However, considerable regional differences emerged: acreage declined by nearly one half in Austria, yet it was quite stable in Hungary. Although both territories experienced declining yields per hectare, the shortfalls were more dramatic in Austria than in Hungary. For instance, the loss in bread grain yields 1913 to 1917 amounted to 38 percent for wheat and 44 percent for rye in Austria compared to 20 percent for wheat and 19 percent for rye in Hungary. The deterioration of agricultural

resources affected the livestock as well, especially in Austria where there were declining numbers of cattle (-20 percent), pigs (-61 percent) and sheep (-15 percent) 1910 to 1917.<sup>[2]</sup> Military concentration areas experienced even more dramatic losses. In Tyrol near the south-western frontline, for instance, farming families were heavily hit by military requisitions.<sup>[3]</sup> Despite regional differences, the Habsburg Empire's agro-systems lost much of their performance during the war period.

	1913	1914	1915	1916	1917
<b>Austria</b>					
Million <i>Kronen</i> (1913 prices)	4,255.6	3,686.7	3,220.8	2,910.0	2,210.7
Index (1913 = 100)	100	87	76	68	52
<b>Hungary</b>					
Million <i>Kronen</i> (1913 prices)	5,174.4	4,564.9	4,789.0	3,942.6	3,428.0
Index (1913 = 100)	100	88	93	76	66
<b>Austria-Hungary</b>					
Million <i>Kronen</i> (1913 prices)	9,430.0	8,251.6	8,009.8	6,852.6	5,638.7
Index (1913 = 100)	100	88	85	73	60

Table 1: Agricultural GDP in Austria-Hungary, 1913-1917<sup>[4]</sup>

	1913	1914	1915	1916	1917
<b>Acreage</b>	Size (1,000 ha)	Index (1913 = 100)			
Wheat	1,213	55	61	67	51
Rye	1,964	65	76	80	59
Barley	1,092	64	69	73	54
Oats	1,905	60	70	77	49
Maize	284	65	71	51	–
Potatoes	1,276	56	71	78	69
<b>Yields</b>	Size (100 kg/ha)	Index (1913 = 100)			
Wheat	13.4	115	88	69	62
Rye	13.8	108	75	59	56
Barley	16.0	114	63	66	41
Oats	14.1	118	57	67	71
Maize	11.9	122	120	83	–
Potatoes	90.6	119	106	69	73

Table 2: Production of selected crops in Austria, 1913-1917<sup>[5]</sup>

	1913	1914	1915	1916	1917	1918
<b>Acreage</b>	Size (1,000 ha)	Index (1913 = 100)				
Wheat	3,453	104	104	95	98	98
Rye	1,102	105	103	96	97	95
Barley	1,232	94	97	89	83	80
Oats	1,277	91	92	91	86	83
Maize	2,916	98	99	92	89	91
Potatoes	565	101	104	97	99	79
<b>Yields</b>	Size (100 kg/ha)	Index (1913 = 100)				
Wheat	13.2	68	91	76	80	62
Rye	12.2	82	89	77	81	68
Barley	14.7	84	75	72	55	63
Oats	12.1	96	88	94	63	56
Maize	18.4	96	84	55	62	56
Potatoes	78.7	107	109	88	59	77

Table 3: Production of selected crops in Hungary, 1913-1918<sup>[6]</sup>

The causes of the deterioration of agricultural production were more or less related to the war. First, in the early stages of the war, the [Russian occupation](#) of parts of the Austrian territory – Galicia, which accounted for about one third of the country's grain harvest, and the Bukovina – dried up an important source of domestic food supply. Due to widespread devastation through Russian capture and Austrian recapture, these crown lands never regained their full agricultural performance until the end of war. Second, the mobilization of resources for the war effort led to a persistent [labour](#) shortage, lack of draught animals and scarcity of mineral fertilizers. The substitution of domestic fertilizers (e.g. lime-nitrogen) or *Ersatz* matter (e.g. crushed bones) for fertilizers imported prior to the war proved to be as ineffective as the mobilization of soil nutrients by additional application of lime. In the crown land of Tyrol, for instance, the application of mineral fertilizers decreased from 3,800 tons in 1913 to 1,710 tons in 1918; this absolute decline coincided with the relative decline of nitrogen and phosphorus in favour of potash whose use more than quadrupled.<sup>[7]</sup> In combination with the overuse of potash, the underuse of organic fertilizers due to reduced and underfed livestock posed a threat to soil organisms, therefore reducing soil fertility.<sup>[8]</sup> Not surprisingly, in 1919 the agronomic journal *Wiener Landwirtschaftliche Zeitung* complained about the massive "depletion" (*Raubbau*) during the war period.<sup>[9]</sup>

Second, the labour supply was dwindling. The assignment of [prisoners of war](#), though impressive in numbers, was no efficient solution to the lack of domestic farm labourers conscripted to the armed forces. The decrease in labour and capital inputs caused agricultural outputs to fall in Austria and – though less dramatically – Hungary.

Third, the attempts of the state authorities to limit food prices in favour of the consumers had adverse effects on the producers' motivation to maximize or at least stabilize farm outputs, especially cereals. In addition to the negative impact of limited absolute prices of cereals at the farm gate, the wartime shifts in the relative prices of arable and animal products led large farmers and estate-owners to respond by moving out of bread grain and into animal feed production, converting arable land into meadows and pastures and even using crops needed for human consumption as livestock feed. Such state-induced market incentives had less impact on the subsistence-oriented survival strategies of small and medium peasant families; they often adjusted their production efforts to the consumption needs of the reduced household.

Fourth, the 1914 fall in crop yields in Hungary – in contrast to their rise in Austria – suggests that the sudden decline of agricultural production after the outbreak of hostilities resulted from adverse climatic conditions rather than the impact of the war.<sup>[10]</sup>

## Food Distribution

Though the Dual Monarchy as a whole was normally self-sufficient in basic foodstuffs in the pre-war period, the degree of self-sufficiency in its two halves, separated by the river Leitha – therefore called "Cisleithania" and "Transleithania" –, was extremely divergent ([Figure 1](#)). While Austria was nearly self-sufficient in dairy products, only two thirds of bread grain and four-tenths of maize consumed were domestically produced; the shortfalls were for the most part imported from Hungary. However, Austria's meat balance was even worse than its grain balance: only one half of the pigs and three tenths of the cattle slaughtered were domestically fed; the rest of the meat was of Hungarian origin. These proportions indicate the distribution of labour between the two parts of the [empire](#) which had fostered uneven regional development at least since the mid-18<sup>th</sup> century: Austria with its industrial cores in Lower Austria, Styria, Bohemia, Moravia and Silesia delivered textiles and technological equipment; these regions were surrounded by agrarian peripheries with predominant peasant communities and scattered estates. Hungary as an agrarian periphery, dominated by large estates with wage labourers, delivered arable and livestock products. This interregional division of labour was prompted by the 1850 Austrian-Hungarian customs union which had opened-up the Viennese food market with its 2 million consumers to Magyar food producers, processors and traders. Thus, flour mills and other branches of food processing formed the most dynamic sector of Hungary's industry which, as a whole, faced fierce competition from Austria's export-oriented industry.<sup>[11]</sup>

Feeding the 2 million inhabitants of the imperial capital was one of the key tasks of the Austrian-Hungarian agro-food system in the pre-war era. Depending on the kinds of foodstuffs, the regions of origin of Vienna's food provision lay close to or far from the city. Despite highly productive arable regions in the flat and hilly lands, Austria was far from meeting its [urban population's](#) requirements of bread grain. From the average annual consumption of flour of 144.6 kilograms per capita in Austria in the pre-

war era, in the Alpine lands, including Vienna, 77.5 kilograms per capita – more than a half – had to be imported; these imports originated for the most part from Hungary. Since the arable regions of the plain and hilly parts of the Alpine lands were largely self-sufficient in bread grain, Vienna's import rate was surely much above average. In short, most of the Viennese bread was made of Hungarian flour. Vienna's provision with meat largely depended on Hungarian deliveries as well. In 1914 more than the half of the animals for slaughter – especially cattle, pigs and sheep – on the city's central livestock market of St. Marx came from beyond the river Leitha, whereas only one third originated from the Alpine lands. Only the city's provision with milk was for the most part of Austrian origin: in 1908 the total amount consumed was produced largely in Lower Austria (71 percent), followed by adjacent Moravia (17 percent). Hungary only delivered a small fraction (12 percent).<sup>[12]</sup>

All in all, two spaces of Viennese food provision interfered with each other: a ring around the city encompassing Lower and Upper Austria, Southern Moravia and Western Hungary, especially for milk provision, and a corridor connecting the city with the interior of Hungary, especially for grain provision. Both spaces were limited by the relation of retail prices and transportation costs of foodstuffs. Within the ring around Vienna, the short and, therefore, cheap network of roads between places of production and consumption had acted in favour of branches such as dairy farming. Within the Austrian-Hungarian corridor, arable farming and livestock breeding had been promoted through long, but – thanks to steam-engine [technology](#) – relatively cheap transport connections: the river Danube and the emerging railroad network with links via Temesvár/Timișoara and Debrecen to the south- and east-Hungarian regions highly favourable to agricultural uses. In short, Vienna's hinterland prior to the war was shaped both regionally and transnationally.<sup>[13]</sup>

Vienna's highly effective food provision network dramatically deteriorated during the war. The stream of foodstuffs through the transnational corridor more and more ran dry. By 1917 Austrian imports from Hungary compared to the pre-war level had declined to 2 percent for grain, 3 percent for flour, 29 percent for cattle, 19 percent for pigs and 17 percent for milk ([Figure 2](#)). Deliveries to the municipal animal market 1914 to 1918 shrank by 70 percent ([Figure 3](#)). At the same time, regional distribution changed as indicated by the ratio between Hungary (not less than -76 percent) and the Alpine lands, especially Lower Austria (only -56 percent). All in all, Vienna's space of food provision was relocated from the Austrian-Hungarian corridor to the Lower Austrian ring – except for milk flows from the city's regional hinterland which nearly ran dry by the end of war ([Figure 4](#)).

Vienna's shrinking food supply reflected not only the declining amount of foodstuffs available to the Habsburg Empire, but also their unequal distribution, especially between "Cisleithania" and "Transleithania." This problem was debated in the cartoon "Cis und Trans" published 1917 in the Viennese [press](#) ([Figure 5](#)). The Austrian part ("Cis") is represented by the Viennese Mayor [Richard Weiskirchner \(1861-1926\)](#) and the Federal Minister of Food [Anton Höfer \(1871-1949\)](#) desperately begging for food deliveries and – divided by the river Leitha – the Hungarian part ("Trans") is shown as a fat bloke stone-heartedly withholding his multitudinous herd of animals. The inscribed message reflects the Viennese popular sentiment towards "the Hungarians" who violated the values of "moral economy" for nationalist and capitalist motives. However, the wartime balance of bread grain not only proves Austria as a deficit region, but also disproves Hungary as a land of plenty (Table 4). In Austria the gap between domestic supply and demand of bread grain even widened. Contrary to pre-war surpluses of bread grain, Hungary's production lagged behind the normal level of consumption with hardly any amounts left to be exported – except for 1915 when remarkable deliveries went to [Germany](#). Due to the [Allied sea blockade](#), imports were insufficient to fill the empire's food gap – even in 1916 and 1917 when substantial amounts of bread grain were brought from the [Habsburg-occupied territories](#) of [Romania](#) and [Ukraine](#). Accordingly, material shortage rather than moral hazard explains the unequal distribution of foodstuffs between the two parts of the Habsburg Empire. However, in Hungary the average calorific value of rations was considerably higher than in Austria, nourishing anti-Magyar sentiments among German and Slavic ethnic groups in the [multi-national empire](#).<sup>[14]</sup>

Year	Net Output Austria	Net Output Hungary	Net Imports	Total Consumption	Balance Austria*	Balance Hungary*
1909/13	3,868	5,078	234	9,180	-1,472	+1,148
1914	2,542	3,737	522	6,801	-2,798	-193
1915	2,103	4,707	68	6,878	-3,237	+777
1916	1,765	3,642	541	5,948	-3,575	-288
1917	1,703	3,728	1,164	6,596	-3,637	-202
1918	1,649	3,134	190	4,973	-3,691	-796

\* Difference between annual net output and pre-war total consumption (Austria: 5,340, Hungary: 3,930).

Table 4: Balance of bread grain in Austria-Hungary, 1909/13–1918 (1,000 tons)<sup>[15]</sup>

The Austro-Hungarian food conflict engendered a permanent dispute between the two administrations that was never resolved until the end of war. The overarching problem behind it was the inefficient institutional framework of coordination between the separate Austrian and Hungarian authorities. This involved several sub-problems. First, according to the 1850 customs union, Hungary was allowed – but definitely not obliged – to deliver its food surpluses to Austria. Thus, any delivery commitment was subject to bilateral negotiations via direct correspondence between the two Premiers.<sup>[16]</sup> Second, no arrangements had been made for meeting the food requirements of the armed forces and the civilian population in case of war. According to the initial wartime agreement of 1915, the joint army's needs were to be met by the two states in proportion to their respective grain output. This stipulation – which neither party ever fully met – disregarded Austria's dependency on food imports from Hungary. In the face of Austria's deteriorating food situation, Hungary agreed to deliver the army's total requirements of bread grain from 1916.<sup>[17]</sup> Third, besides the burden of the army's food provision, Hungary had more reasons to trim back food exports to Austria. Severe food shortages raised the risk of urban riots which might have threatened the Magyar domination of a country predominantly populated by other ethnic groups (Slavs, Romanians, Germans etc.). Moreover, the food question provided Budapest a means for raising a protest in Vienna against the disproportionate conscription of domestic peasants to the joint army, expressing concern over its adverse effect on agricultural production.<sup>[18]</sup> Fourth, the Habsburg Monarchy never succeeded in establishing a supra-national agency for food distribution with adequate executive power. Even the Joint Food Committee (*Gemeinsamer Ernährungsausschuss*), formed in early 1917 after Francis Joseph I, Emperor of Austria's (1830-1916) death on the initiative of his successor Charles I, Emperor of Austria (1887-1922), was largely a toothless institution lacking power over the national food administrations in the two halves of the empire.<sup>[19]</sup>

The struggle for food reached far beyond the Austrian-Hungarian conflict; it also affected the provincial, regional and local levels.<sup>[20]</sup> First, in response to input shortages and price controls, market-oriented farmers under-reported actual harvests to the authorities, withheld their grain stocks from delivery to the official distribution channels and sold considerable proportions of their outputs at far higher prices on the black market. The emergence of a "shadow economy" aggravated the inequality of food distribution between surplus and deficit regions, between countryside and towns and between wealthier and poorer classes.<sup>[21]</sup> Second, the implementation of central public-private organizations for food distribution, beginning with the War Grain Distribution Institution (*Kriegs-Getreide-Verkehrsanstalt*) in 1915, proved to be rather ineffective with regard to equality. With the dual status of public agency and private merchant, the tasks of this and similar organizations for other foodstuffs (potatoes, sugar, coffee, legumes, fruits etc.) comprised the purchase of the producers' surpluses at official prices, the storage of the acquired stocks and their distribution to processors and retailers according to official consumption plans. Incompetence, overload and corruption prevented the "centrals" (*Zentralen*) to tackle the problem of uneven food distribution. Rather than orderly distribution, a chaotic competition between crown lands, districts, municipalities, enterprises and military units – each against all – for any food stock accessible prevailed.<sup>[22]</sup> Third, the state's attempt to restrain these centrifugal forces by foundation of central food agencies in Austria (*Amt für Volksernährung*) and Hungary (*Landes-Volksernährungsamt*) in 1916 with sub-agencies at provincial, district and municipal levels had limited effect due to lack of executive power.<sup>[23]</sup>

## Food Consumption

The deteriorating production and unequal distribution of food resulted in declining quotas of consumption. The average consumption of bread grains per head in the Habsburg Empire decreased steadily compared to the pre-war level (1909/13: 184 kg, 1914: 134 kg, 1915: 136 kg, 1916: 118 kg, 1917: 132 kg, 1918: 101 kg). However, stark differences between and within the two halves of the monarchy emerged: the quota consumed by Austrian civilians in 1917 was probably 30 percent below that of their Hungarian counterparts. The armed forces in general and frontline troops in particular drew on higher – though also declining – allocations of foodstuffs.<sup>[24]</sup> In order to contain public unrest, the authorities attempted to tackle scarcity and unequal allocation of food by rationing of basic foodstuffs, including bread grains (beginning in 1915), sugar, milk, coffee and fats (beginning in 1916), potatoes and jam (beginning in 1917) and meat (beginning in 1918). The civilian population was classified into "self-supporters" with access to agricultural land and livestock and "non-self-supporters" dependent on food purchases. The declining calorific value of the rations in Vienna reflects the worsening food situation in the Habsburg Empire, especially in the Austrian part (Table 5). Compared to the average intake of a Viennese worker of 2,845 kilocalories in the pre-war era, the

official ration at the end of war had shrunk dramatically to 1,293 kilocalories (-81 percent) for normal "non-self-supporters" and 831 kilocalories (-55 percent) for "heavy workers." However, the amounts allocated by the food ration cards were rarely available in the retail stores; the real calorific value provided by the food administration was thus considerably lower. In addition to declining quantities, scarce foodstuffs (e.g. wheat and rye flour) were replaced by natural and chemical surrogates (e.g. potato and maize flour), thus worsening food quality.<sup>[25]</sup>

Foodstuffs	At the time of the introduction of food ration cards	At the end of war
Flour	300	107
Bread	350	450
Fats	154	51
Meat	29	18
Milk	83	–
Potatoes	171	57
Sugar	166	100
Jam	48	48
Total	1,300	831

Table 5: Calorific value of the daily food ration of "non-self-supporters" in Vienna<sup>[26]</sup>

The quantity and quality of urban and rural dwellers' actual food intake is difficult to grasp. According to housekeeping files, Viennese working-class families experienced fundamental dietary changes during the war. Two cases highlight the main tendency (Figure 6). The lower-middle class family A experienced a dramatic decline of real income per head by 1917/18. The upper-lower class family B, though also getting poorer by the end of war, managed to stabilise income in the first years. The per capita food intake reflects the development of family income (Figure 7): while for family A the calorific value of the food consumed declined by 19 percent in total, family B initially improved access to food – probably through access to an allotment garden – until a sharp decline in 1917/18 by 26 percent in total. In both families the share of protein- and fat-rich food declined in favour of carbohydrate-rich food such as bread, potatoes and legumes (family A: 76 percent, family B: 84 percent). The deteriorating food quantity and quality hit children and juveniles most. According to medical examinations of Viennese children soon after the war, 23 percent were severely undernourished, 56 percent were undernourished and 21 percent were normally fed, with great differences between working- and middle-class districts. The nutritional status of schoolchildren was equally bad or even worse in Lower Austrian industrial cities. However, there was no clear distinction between urban and rural areas: while the arable farming regions in the flat and hilly lands (Vienna neighbourhoods, Weinviertel and Waldviertel) showed better results, in the mountainous grassland farming areas (Bucklige Welt and northern fringe of the Alps) the situation was nearly as bad as in most cities (Figure 8). The unequal nutritional status of Lower Austrian regions reflects the rural dwellers' uneven access to food staples.

Dealing with food as both material and symbol became the focal point of everyday life in wartime Vienna, as represented in individual and collective memories of "war bread": it crumbled into thousands of breadcrumbs when cut because scarce bread grains were substituted with inferior surrogates. A crucial watershed emerged between land-owning households who could produce food for their own consumption ("self-supporters") and people without sufficient access to land ("non-self-supporters"). Whereas the poorer classes of the landless population were basically confined to official rations at limited prices, the wealthier classes could provide their families with additional foodstuffs from the "black market" at high prices. In any case, collecting food became a most time-consuming activity, especially for women and children who queued up for half a day – or even half a night – in front of retail stores (Figure 9). Despite surveillance by the police, the queues of hundreds of customers often led to rumour, protest and food riots, involving activists not only from the proletariat, but also the bourgeois milieu. Many lower- and middle-class families could survive neither on the official nor on the unofficial urban market. One non-market survival strategy was to lay out vegetable gardens and feed livestock on small plots of land or even balconies, either legally, through communal and cooperative support (1914: 36 hectares, 1919: 978 hectares), or illegally, through appropriation of uncultivated parcels. Another was to move to the near countryside in order to collect ears of corn or potatoes on the harvested fields or to barter objects of utility and value for foodstuffs. In contrast to "war cookbooks" that addressed housewives as patriotic fighters at the "kitchen front," the worsening lack of resources led family members to frequent factory canteens and charity kitchens.<sup>[27]</sup>

victimized by selfish, incompetent and corrupt perpetrators – local farm-owners, Austrian bureaucrats and "the Hungarians." This popular feeling delegitimized the official [propaganda](#) of the civilians' sacrifice at the "home front" to be subordinated to the soldiers' sacrifice at the war front; rather, the urban population felt its wartime sacrifice – for which it had not received a just return – to be of equal or even higher value. In summer 1918, this politicized "moral economy" was given rein in a "potato war," culminating in violent confrontations between tens of thousands of starving city dwellers, mostly women, children and furloughed soldiers and farm owners in the surrounding villages. All in all, the permanent struggle for food fostered the fragmentation of Viennese wartime society: inwardly, it led to accumulated denunciations, disputes and violence within and between socioeconomic, ethnic and religious groups; outwardly, it accentuated the tensions between city and countryside, producers and consumers, "working class" and "peasantry," with a long-lasting resonance in post-war political culture.<sup>[28]</sup>

## Conclusion

The wartime food crisis of the Habsburg Empire was a culmination of several problem areas along the agro-food chain: the deterioration of production, the inequality of distribution and the moralization of consumption. First of all, it was a material crisis with respect to the scarcity of agricultural products, especially in the Austrian half of the Dual Monarchy. Moreover, it was a social crisis with respect to distributional conflicts at macro-, meso- and micro-levels. Finally, it was a symbolic crisis with respect to the delegitimization of public order in the minds of victimized consumers. With regard to the agro-food chain, the Austrian-Hungarian Monarchy had begun to dissolve long before its legal dissolution in 1918.

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## Notes

1. ↑ See Jindra, Zdeněk: Der wirtschaftliche Zerfall Österreich-Ungarns, in: Teichowa, Alice/Matis, Herbert (eds.): Österreich und die Tschechoslowakei 1918-1938, Vienna 1996, pp. 17–50.
2. ↑ See Löwenfeld-Russ, Hans: Die Regelung der Volksernährung im Kriege, Vienna 1926, pp. 198f.
3. ↑ See Rettenwander, Matthias: Stilles Heldentum? Wirtschafts- und Sozialgeschichte Tirols im Ersten Weltkrieg (Tirol im Ersten Weltkrieg, vol. 2), Innsbruck 1997, pp. 80–92.
4. ↑ Schulze, Max Stephan: Austria-Hungary's Economy in World War I, in: Broadberry, Stephen/Harrison, Mark (eds.): The Economics of World War I. Cambridge 2005, pp. 77–111, here pp. 85f.
5. ↑ Schulze, Economy 2005, p. 92.
6. ↑ Schulze, Economy 2005, p. 93.
7. ↑ See Rettenwander, Heldentum, p. 77.
8. ↑ See Uekötter, Frank: Die Wahrheit ist auf dem Feld. Eine Wissensgeschichte der deutschen Landwirtschaft, Göttingen 2010, pp. 183–190.
9. ↑ See Wiener Landwirtschaftliche Zeitung 69 (1919), p. 572.
10. ↑ See Schulze, Economy 2005, pp. 92–94.
11. ↑ See Komlos, John: Die Habsburgermonarchie als Zollunion. Die Wirtschaftsentwicklung Österreich-Ungarns im 19. Jahrhundert, Vienna 1986, pp. 89–99, 137–141; Good, David: Der wirtschaftliche Aufstieg des Habsburgerreiches 1750–1914, Vienna/Cologne/Graz 1986, pp. 22–30, 90–112.
12. ↑ See Langthaler, Ernst: Die Großstadt und ihr Hinterland, in: Pfoser, Alfred/Weigl, Andreas (eds.): Im Epizentrum des Zusammenbruchs. Wien im Ersten Weltkrieg, Vienna 2013, pp. 232–239; Langthaler, Ernst: Vom transnationalen zum regionalen Hinterland – und retour. Wiens Nahrungsmittelversorgung vor, im und nach dem Ersten Weltkrieg, in: Karner, Stefan/Lesiak, Philipp (eds.): Erster Weltkrieg. Globaler Konflikt – lokale Folgen. Neue Perspektiven, Innsbruck/Vienna/Bolzano 2014, pp. 307–318.
13. ↑ See Langthaler, Großstadt 2013, pp. 232–239.
14. ↑ See Gratz, Richard/Schüller, Richard: Der wirtschaftliche Zusammenbruch Österreich-Ungarns. Die Tragödie der Erschöpfung (Wirtschafts- und Sozialgeschichte des Weltkrieges), Vienna 1930, pp. 37–91.
15. ↑ Schulze, Economy 2005, p. 94; Gratz/Schüller, Zusammenbruch 1930, pp. 40–46.
16. ↑ See Gratz-Schüller, Zusammenbruch 1930, pp. 225–307.
17. ↑ See Schulze, Economy 2005, p. 95f.

18. ↑ See Herwig, Holger H.: *The First World War. Germany and Austria-Hungary 1914-1918*, London 1997, p. 277.
19. ↑ See Landwehr, Ottokar: *Hunger. Die Erschöpfung der Mittelmächte 1917/18*, Zurich/Leipzig/Vienna 1931.
20. ↑ See König, Matthias: *Ernährungslage und Hunger*, in: Kuprian, Hermann J. W./Überegger, Oswald (eds.): *Katastrophenjahre. Der Erste Weltkrieg und Tirol*, Innsbruck 2014, pp. 135–153; Moll, Martin: *Die Steiermark im Ersten Weltkrieg. Der Kampf des Hinterlandes ums Überleben 1914-1918*, Vienna 2014; Hellmuth, Thomas: "Acker und Wiesen wissen nichts von Patriotismus". *Kriegswirtschaft im Ersten Weltkrieg*, in: Dohle, Oskar/Mitterecker, Thomas (eds.): *Salzburg im Ersten Weltkrieg. Fernab der Front - dennoch im Krieg*, Vienna/Cologne/Weimar 2014, pp. 47–60; Kučera, Rudolf: *Život na příděl: Válečná každodennost a politiky dělnické třídy v českých zemích 1914–1918* [Rationed Life: War, Everyday Life and Labour Politics in the Bohemian Lands, 1914-1918], Prague 2013.
21. ↑ See Gratz/Schüller, *Zusammenbruch 1930*, pp. 51–54.
22. ↑ See Löwenfeld-Russ, *Regelung 1926*, pp. 125–130.
23. ↑ *Ibid.*, pp. 290f.
24. ↑ See Schulze, *Economy 2005*, pp. 94–96.
25. ↑ See Löwenfeld-Russ, *Regelung 1926*, pp. 327–360.
26. ↑ Source: Löwenfeld-Russ, *Regelung 1926*, p. 335.
27. ↑ See Sieder, Reinhard: *Behind the Lines: Working-Class Family Life in Wartime Vienna*, in: Wall, Richard/Winter, Jay (eds.): *The Upheaval of War. Family, Work and Welfare in Europe, 1914-1918*, Cambridge 1988, pp. 109–138; Hautmann, Hans: *Hunger ist ein schlechter Koch. Die Ernährungslage der österreichischen Arbeiter im Ersten Weltkrieg*, in: Botz, Gerhard et al. (eds.): *Bewegung und Klasse. Studien zur österreichischen Arbeitergeschichte*, Vienna/Munich/Zurich 1978, pp. 661–681; Mertens, Christian: *Die Auswirkungen des Ersten Weltkriegs auf die Ernährung Wiens*. In: Pfoser, Alfred/Weigl, Andreas (eds.): *Im Epizentrum des Zusammenbruchs. Wien im Ersten Weltkrieg*, Vienna 2013, pp. 161–171; Brenner, Andrea: *Das Maisgespenst im Stacheldraht. Improvisation und Ersatz in der Wiener Lebensmittelversorgung des Ersten Weltkrieges*, in: Pfoser/Weigl, *Im Epizentrum 2013*, pp. 140-149.
28. ↑ See Healy, Maureen: *Vienna and the Fall of the Habsburg Empire. Total War and Everyday Life in World War I*, Cambridge 2004, pp. 31–86.

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