From the hungry 1840s to the dear 1850s: the case of Belgium's food price crisis, 1853–56

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Abstract

This paper investigates the 1853–56 food crisis in Europe. It argues that this was not a classic famine triggered by a far-reaching decline in food availability. Instead, it was one of the first instances of a 'food price crisis' on an international scale: a crisis instigated by high prices obstructing access to food for large parts of the population. This crisis stemmed from new forms of vulnerability resulting from the internationalization of supply chains, the proletarianization of labour and the commercialization of goods and services. As such, it mainly affected market-dependent urban populations. We conclude by drawing parallels with the contemporary global food system.

'[W]hy was there apparently no crisis in the mid-1850s at all comparable to that in the late 1840s?', asked Peter Solar in his contribution to a collection of essays on the impact of the potato blight in Europe published in 2007.[1] In terms of food price levels and decline of purchasing power, the 1850s were as severe as the 1840s, if not worse. Solar pointed out that throughout north-west Europe, annual mean wheat prices from 1853 to 1856 were as high as those of 1847 and moreover remained so for several consecutive years. Yet the 'hungry fifties' did not become as familiar a phrase as the Hungry Forties. Whether that means that the food crisis of the later decade was less devastating and if so, why, is uncertain. Few scholars have turned their attention to the 1850s (the work of Laurent Herment is a recent exception), and much of what we know comes from passing references.[2] With this paper, we want to draw attention to this episode in western European history. We investigate whether it really had less impact than the Hungry Forties and offer an explanation as to why this might have been the case. We do this by focusing on the case of Belgium.

Previous studies have indicated that, if the overall impact of the 1850s food crisis was mild, it wasn't mild at all for those who lived through it. Chevet and Ó Gráda believe that the four years from 1853 to 1856 were 'without contest' as dramatic as 1846, yet Alfani and Ó Gráda's recent overview of famines defined as killing events includes the 1840s but not the 1850s.[3] In

[1] Peter M. Solar, 'The crisis of the late 1840s: what can be learned from prices?', in Cormac Ó Gráda, Richard Paping and E. Vanhaute (eds), *When the potato failed. Causes and effects of the 'last' European subsistence crisis, 1845–1850* (2007), p. 82.

[2] Laurent Herment, 'Les communautés rurales de Seine-et-Oise face à la crise frumentaire, 1853–1856', *Histoire et Mesure* 26 (2011), pp. 187–220.

[3] Jean-Michel Chevet and Cormac Ó Gráda, 'Revisiting "Subsistence Crises": The characteristics of

one of the few case studies, Laurent Herment stated that the food crisis in the surroundings of Paris was severe because of high prices, the size of the harvest deficits, the duration of the crisis and the disruption of the grain trade by the Crimean War. Urban populations suffered but rural populations were barely touched.[4] In his study of per capita food intake in the Netherlands, Merijn Knibbe calculated that cereal consumption in the 1850s did not decline substantially. By contrast, the consumption of animal products declined, causing the biological standard of living to reach its nineteenth-century nadir in the 1850s.[5] The incidence of food riots in England, France, Belgium and Sweden further testifies to distress in this decade.[6] Several authors have highlighted the international dimension of the crisis, pointing to the impact of the Crimean War, but also suggesting a link between the drop in European grain prices after 1856 and the US financial Panic of 1857.[7]

Solar gives several reasons why the 1850s appears to have had a milder overall impact: wheat prices were similar but peaks in potato prices were less pronounced in the 1850s than in the 1840s. Much of the vulnerable population had already been eliminated during the 1840s crisis, markets may have been more efficient after the repeal of the Corn Laws, and governments may have learnt how to handle such crises after the experience of the 1840s.[8] Likewise, Herment emphasizes the efforts of the French government to alleviate distress: it reacted quickly, encouraged local administrations to take action and supported public works to provide the poor with an income.[9]

Our main argument is that the 1840s and 1850s food crises, beyond similarities in mean annual price levels, were very different in nature. The 1840s witnessed what we call a 'famine crisis', whereas the 1850s crisis constituted one of the first 'food price crises' on an international, perhaps even global scale. The first type of crisis is caused by a substantial food availability decline affecting broad groups of society. By contrast, the latter type of crisis is the result primarily of disruptions in trade rather than output, affecting primarily the market-dependent population: wage labourers, small artisans and people in retailing professions, i.e. those groups not directly involved in food production and not having direct, non-market-mediated access to food. While both types of crises might have a similar effect on prices, they will have a different impact on different groups in society.

demographic crises in France in the first half of the 19th century', *Food and Foodways*, 12 (2004), p. 191; G. Alfani and Cormac Ó Gráda, 'Famines in Europe: an Overview', in Guido Alfani and Cormac Ó Gráda (eds), *Famine in European History* (2017), pp. 1–24.

[4] Herment, 'Les communautés rurales de Seine-et-Oise'.

[5] Merijn T. Knibbe, 'De hoofdelijke beschikbaarheid van voedsel en de levensstandaard in Nederland, 1807–1913', *Tijdschrift voor Sociale en Economische Geschiedenis*, 4 (2007), pp. 78–9.

[6] John Bohstedt, *The politics of provisions: food riots, moral economy, and market transition in England, c.1550–1850* (2010), pp. 251–3; Roger Price, *The modernization of rural France: Communications networks and agricultural market structures in nineteenth-century France* (1983), p. 146; Wouter Ronsijn, 'De "laatste" voedselrellen. Voedseloproer in de jaren 1850 in Vlaanderen: een casestudie van Sint-Niklaas', *Tijdschrift voor Sociale en Economische Geschiedenis*, 6 (2009), pp. 80–108; G. Fridlizius, 'The Crimean War and the Swedish economy', *Economy and Hist.*, 3 (1960), pp. 96–7; Christian Petersen, *Bread and the British economy, c.1700–1870* (1995), p. 207.

[7] James L. Huston, 'Western grains and the Panic of 1857', *Agricultural Hist.* 57 (1983), pp. 14–32; see also Charles W. Calomiris and Larry Schweikart, 'The Panic of 1857: Origins, transmission, and containment', *JEcH* 51 (1991), pp. 807–34.

[8] Solar, 'Crisis of the late 1840s', p. 85.

[9] Herment, 'Les communautés rurales de Seine-et-Oise', pp. 201–05.

I

By the middle of the nineteenth century, the classic, localized form of *famine crisis* had been in retreat in Europe for several centuries. Traditional famines have been mostly described as local crises characterized by sudden drops in food supplies and by excess mortality. They are almost always linked to natural disasters (rain, temperature), ecological shocks (eruptions, blights, plagues) and/or manmade calamities (war), reducing food supplies and/or disturbing food supply mechanisms.[10] England and Northern Italy witnessed their last severe famines in the seventeenth century. Eighteenth- and nineteenth-century mortality peaks in France and the Low Countries were modest by comparison with those of previous centuries, even in the crisis years of 1740–41, 1794–95, 1816–18 and 1845–48. It appears that the Western European story of famine ended in 1845–48 with a 'big bang': the Irish Famine, measured in share of the population lost, was one of the most devastating food crises in world history.[11]

During the second half of the nineteenth century, Europe saw a massive increase in food availability. This coincided with more food security, declining relative food prices and a shrinking agricultural population. These developments mark the onset of the first global food regime into which food producers worldwide were integrated.[12] The extension and commodification of food chains and the delinking of production from consumption generated an unprecedented flow of cheap foodstuffs to Europe and brought an end to classic famine crises in this part of the world.

However, the commercialization of food and labour in the globalizing food regime also created new vulnerabilities, making much larger sections of the population than previously sensitive to *food price crises*. These new vulnerabilities included a dependence on wages and on international market conditions. New forms of food entitlement, from direct to indirect market-mediated access, thoroughly changed the political economy of food provisioning. Negotiations related to food supplies and food prices used to be part of the local moral economy based on a twofold principle: a right to food, and a social contract of reciprocal accountability.[13] Our prime argument is that within a context of extending markets and food chains, a decline in community reciprocities created a new vulnerability to food price shocks, affecting first and foremost expanding market-dependent urban populations.[14]

In this article we argue that high prices from 1853 to 1856 marked an international food price crisis, as distress was much more the result of the price and distribution of food than of its availability. The relationship between prices and supplies during this crisis differed from famine crises in two respects: high prices without severe shortages, and a peculiar pattern in the movement of grain prices. There were no profound shortages of staple food in the 1850s in the countries surrounding the North Sea. Potatoes gradually became more resilient to blight, and cereal deficits on local and national levels were complemented by imports. What mattered

[10] Cormac Ó Gráda, *Famine: A short history* (2009), pp. 6–7.

[11] Alfani and Ó Gráda, 'Famines in Europe: an overview'.

[12] Philip McMichael, *Food regimes and agrarian questions* (2013).

[13] Bohstedt, *Politics of provisions*.

[14] Raj Patel and Philip McMichael, 'A political economy of the food riot', *Rev. Fernand Braudel Center for the Study of Economies, Historical Systems, and Civilizations* 32 (2009), pp. 9–35.

for consumers were the rising cost of food and their declining purchasing power. What was new in the 1850s was that food entitlement through markets became the prime arena for the struggle for food security. In several respects the 1853–56 food crisis established a new model. Starting in the late 1840s, the international grain market became a major determinant of price for the domestic markets in the North Sea area. Earlier, imports had been important for parts of this region, such as Flanders in the late Middle Ages and Holland in the early modern period, but from the middle of the nineteenth century they became vital for large parts of Europe.[15] In addition, as imports increased, local agricultural producers were able to turn away from basic food production towards specialization, or to abandon agriculture altogether. This is connected to the intertwined processes of urbanization, proletarianization and industrialization, swelling the ranks of the wage-dependent population.[16] Last but not least, this was an international crisis: it affected most industrializing nations and surpassed the geographic limits of earlier famine crises.

On this occasion, our focus is on Belgium, the first industrialized nation outside England, though we expect our findings will also apply to other industrializing and urbanizing regions in Great Britain and northern France. We compare the causes and effects of the crisis years of the 1850s (which we claim constituted a modern food price crisis) with the crisis of the 1840s (which was mainly a classic famine crisis). We will follow two lines of reasoning. Firstly, we measure the extent of the decline in food availability and the rise of food prices in Belgium in the 1840s and 1850s. During a food price crisis, we expect the decrease in food supplies to be much smaller compared to the famine years in the 1840s. Since food price crises are triggered by market disruptions and price peaks, the link with (substantial) food shortages at the micro- and macro-level should be much less stringent than in classic supply crises. Secondly, we compare the impact of the crises of the 1840s and 1850s on urban and rural populations, focusing on the incidence of food riots, and on shifting levels of mortality, natality and poverty. We assume that the proportion of market-dependent households, buying most of their food, is larger in urban than in rural regions, and vice-versa for the proportion of households with other entitlements to food, i.e. (partial) self-sufficiency and reciprocal credit relations. We expect that the 1840s famine affected both types of households, through the price mechanism as well as the physical absence of food, whereas the 1850s food price crisis would affect mainly the market-dependent population, as supplies were available but prices high. Looking at the experiences of towns and countryside in the 1840s and 1850s is an indirect way of looking at the experiences of these different groups of households. We expect urban areas in the 1850s to have suffered more than rural areas.

The remainder of this article is divided into three parts. First, we look at the proximate causes of the 1850s food crisis: harvest results, price developments, and distortions to the international grain trade during the Crimean War. Next, we explain why Belgium had become vulnerable to international food price crises in the mid-nineteenth century by focusing on

[15] Milja van Tielhof, *The 'mother of all trades': The Baltic grain trade in Amsterdam from the late sixteenth to the early nineteenth century* (2002); Paul Sharp and Jacob Weisdorf, 'Globalization revisited: Market integration and the wheat trade between North America and Britain from the eighteenth century', *Explorations in Economic Hist.* 50 (2013), pp. 88–98.

[16] Jan de Vries, *European Urbanization, 1500–1800* (1984).

population growth and market-dependency. Finally, we analyse the effects of this outburst of a food price crisis by looking at food availability, food riots, poverty levels and demographic patterns. We conclude by drawing some parallels with the present-day, global food system.

II

In July 1853, at the start of a new harvest year, wheat prices began to rise in the North Sea area (see Figure 1). This was the onset of the food crisis of the 1850s, three years of sustained high grain prices, which ended only in late 1856. Starting in the summer of 1853 at about 20 francs per hectolitre, wheat prices rose to 30 francs by the end of the year and continued to fluctuate between 25 and 35 francs until the end of 1856, when prices returned to previous levels. From 1854 to 1856, mean annual prices equalled those of 1847.

A comparison with price developments in earlier crises indicates that this was not a classic famine. First, the duration of the period of sustained high prices was much longer (see Figure 2). Secondly, the seasonal price development was markedly different. In a famine crisis, prices generally followed the *soudure*-pattern, at least in the Southern Netherlands.[17] For example, after the harvest failures of 1739, 1816 and 1846, prices in the market of Sint-Niklaas, Belgium, gradually soared until the following winter, reached peak levels between May and June, and consistently declined and even collapsed after the harvest months (see Figure 3). Prices recorded at the same market between 1853 and 1855 show an entirely different rhythm: they rose much earlier in the agricultural year and remained high for much longer. The only exception was a period of low prices in September 1854 following on episodes of market riots.[18]

Even though price levels were comparable, harvest deficits were generally less dramatic in 1853–56 than in the 1840s, although differences between regions in the North Sea area were considerable (see Table 1). In 1846, particularly rye yields fell far below normal levels. In 1853 and 1855 wheat yields were deficient, although not as much as rye yields had been in the 1840s. The German areas did comparatively well in 1853 but were struck harder in 1855. In most countries, both 1846 and 1853 were followed by abundant harvests. In England, 1847 was below average but the bumper harvest of 1854 made this an *annus mirabilis* according to contemporary accounts.[19] Only in France were yields in 1854 probably insufficient to make up for the previous year's losses.[20] These harvest outcomes did not have a straightforward effect on price levels. Although the 1847 wheat harvest was below average in England, prices collapsed in the second half of that year. By contrast, the 1854 bumper harvest failed to have the same effect.

[17] *Soudure* refers to the pattern of rising prices before the harvest and falling prices after the harvest. Gérard Béaur has recently shown that this pattern was less common than previously believed: Gérard Béaur, 'La "soudure" n'est plus ce qu'elle était. Contribution à l'étude du mouvement saisonnier du marché du blé et du marché de la terre d'après le cas de la région de Chartres au XVIIIe siècle', in Jean-François Chauvard and Isabelle Laboulais (eds), *Les fruits de la récolte* (2007), pp. 93–107.

[18] Ronsijn, 'De "laatste" voedselrellen'.

[19] Petersen, *Bread and the British economy*, p. 206.

[20] Herment, 'Les communautés rurales de Seine-et-Oise', pp. 198–201; Toshio Horii, 'La crise alimentaire de 1853 à 1856 et la Caisse de la Boulangerie de Paris', *Revue Historique*, 272 (1984), pp. 375–7.

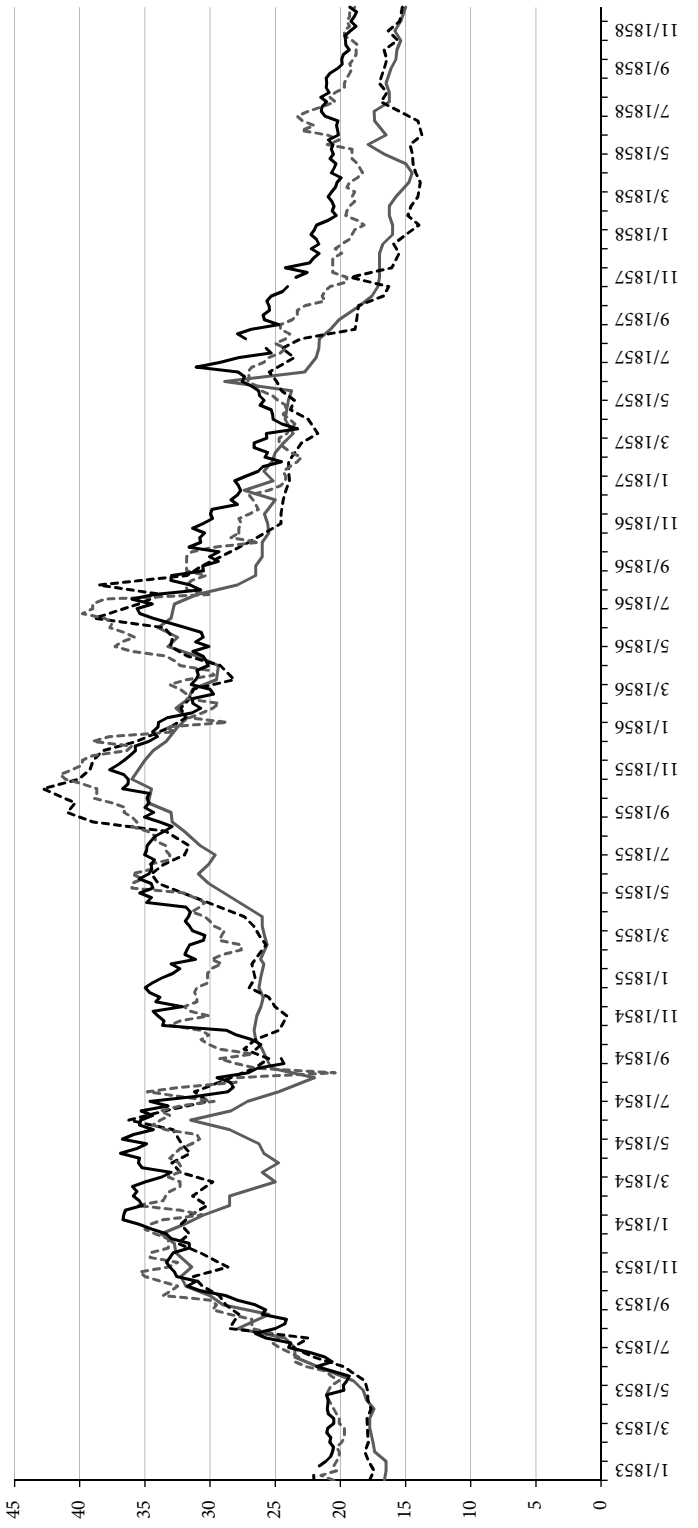

FIGURE 1: Weekly and bi-weekly wheat prices in England, France and Belgium 1853–1858

Note: Weekly prices for London and Sint-Niklaas, bi-weekly for Chartres and Dieppe, in francs per hectolitre.
Source: England (London): Coffman and Pryor, Corn Returns Online (www.cornreturnsonline.org), accessed 19 Mar. 2014; France (Chartres, Dieppe): David S. Jacks, 'Market Integration in the North and Baltic Seas, 1500–1800', *J. European Economic Hist.* 33 (2004), pp. 285–329; id., 'Intra- and international commodity market integration in the Atlantic economy, 1800–1913', *Explorations in Economic Hist.* 42 (2005), pp. 381–413; online data collection (www.sfu.ca/~djacks/index.html); Belgium (Sint-Niklaas): Wouter Ronsijn, 'De donderdagmarkt van Sint-Niklaas, 1720–1900', *Koninklijke Oudheidkundige Kring van het Land van Waas*, 115 (2012), pp. 111–56.

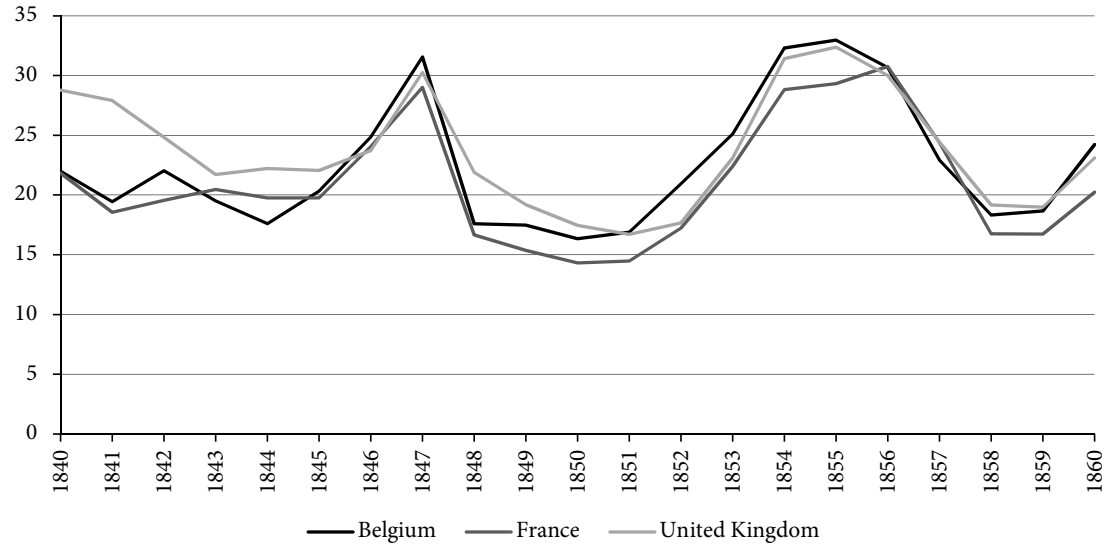

FIGURE 2: Annual mean wheat prices in the United Kingdom, France and Belgium, 1840–1860

Note: Prices are national averages per year in franc per hectolitre.
Source: Belgium: Jean Gadisseur, *Le produit physique de la Belgique, 1830–1913* (1990), pp. 756–7; France: Ernest Labrousse *et al.*, *Le prix du froment en France au temps de la monnaie stable (1726–1913)* (1970), pp. 9–11; United Kingdom: B. R. Mitchell and Phyllis Deane, *Abstract of British Historical Statistics* (1962), pp. 488–9.

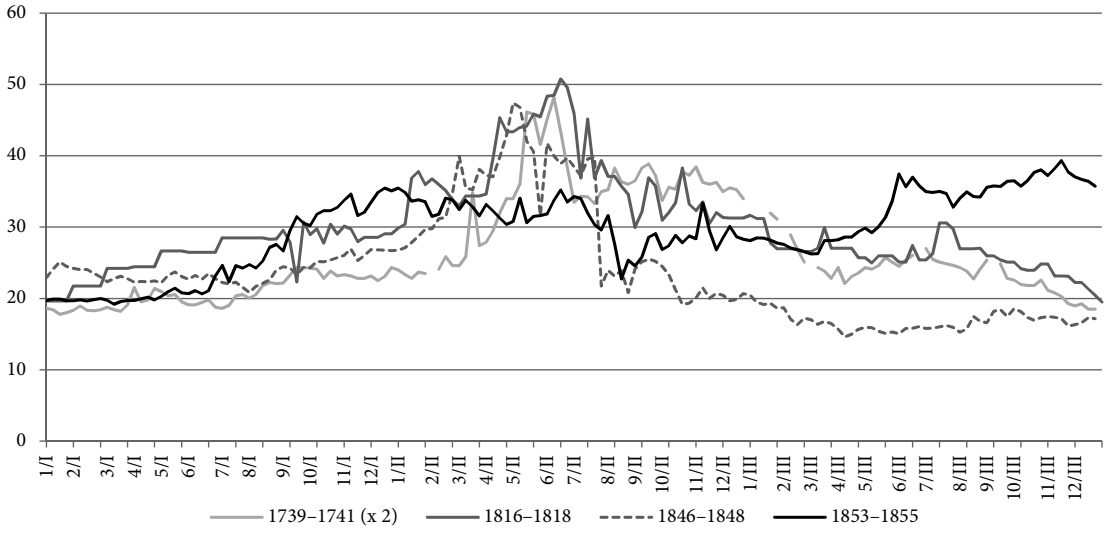

FIGURE 3: Weekly wheat prices during four major subsistence crises in Sint-Niklaas, Belgium, eighteenth and nineteenth century

Note: Weekly prices in franc per hectolitre. Prices of 1739–1741 have been multiplied by two for comparability with nineteenth-century price levels.
Source: Wouter Ronsijn, 'De donderdagmarkt van Sint-Niklaas, 1720–1900', *Koninklijke Oudheidkundige Kring van het Land van Waas*, 115 (2012), pp. 111–56.

TABLE 1: Harvest results wheat and rye, 1840s and 1850s

Wheat	*Coefficient of variation*	*Z-scores*					*Index (average for 1846–1859 = 100)*				
		1846	*1847*	*1853*	*1854*	*1855*	*1846*	*1847*	*1853*	*1854*	*1855*
Belgium	0.13	–0.75	1.29	–1.66	1.21	–1.49	91	116	79	115	81
England	0.13	–0.60	–0.49	–1.83	1.22	–0.51	92	94	77	116	93
Seine-et-Oise	0.13	–1.50	0.97	–1.95	–0.19	–0.32	81	112	76	98	96
Seine-et-Marne	0.15	–1.97	1.07	–1.53	0.52	–0.74	71	116	77	108	89
Oise	0.17	–1.25	1.10	–1.46	0.52	–1.85	79	118	75	109	69
Ille-et-Vilaine	0.13	–0.28	2.16	–0.53	–1.20	–1.09	96	129	93	84	86
Morbihan	0.19	–1.71	1.28	–1.71	0.43	–1.11	67	125	67	108	78
Prussia	0.14	–1.20	1.28	–0.48	0.64	–2.40	83	118	93	109	67
Saxony	0.13	–0.67	–0.08	–1.01	–0.54	–1.70	92	99	87	93	79
Unweighted average	0.14	–1.10	0.95	–1.35	0.29	–1.25	83.6	114.1	80.4	104.4	82.0

Rye	*Coefficient of variation*	*Z-scores*					*Index (average for 1846–1859 = 100)*				
		1846	*1847*	*1853*	*1854*	*1855*	*1846*	*1847*	*1853*	*1854*	*1855*
Belgium	0.24	–2.36	1.53	–0.45	0.77	–0.91	44	136	89	118	78
England											
Seine-et-Oise	0.17	–2.34	1.27	–0.95	0.20	–0.27	59	122	83	104	95
Seine-et-Marne	0.15	–1.77	0.68	0.23	1.37	–0.76	73	110	104	121	88
Oise	0.15	–2.05	0.31	–1.02	0.68	–0.86	70	105	85	110	87
Ille-et-Vilaine	0.24	–0.87	0.14	–0.16	–0.48	–2.52	80	103	96	89	40
Morbihan	0.22	–2.50	1.19	–1.50	0.39	–0.39	45	126	67	109	91
Prussia	0.19	–1.92	1.97	–0.31	0.53	–1.38	64	137	94	110	74
Saxony	0.17	–1.31	1.91	–0.32	–0.27	–0.68	78	132	95	95	88
Unweighted average	0.19	–1.89	1.13	–0.56	0.40	–0.97	64.13	121.38	89.1	107.0	80.1

Note: Authors' calculations based on results of 14 harvests from 1846 to 1859. The Z-scores express how many standard deviations one particular observation differs from the series mean, and are an indicator of the exceptionality of that observation.

Sources: Belgium: Jean Gadisseur, *Le produit physique de la Belgique 1830–1913* (1990), p. 532; France: data courtesy of Laurent Herment; England: M. J. R. Healy and E. L. Jones, 'Wheat Yields in England, 1815–59', *J. of the Royal Statistical Society.* Series A (General), 125 (1962), pp. 574–79; Prussia and Saxony: Ernst Engel, 'Die Getreidepreise, die Ernteerträge und der Getreidehandel im preussischen Staate', *Zeitschrift des Königlich Preussischen Statistitsche Bureaus*, 1 (1861), pp. 249–89.

How yields affected food availability depended on the share of wheat and rye in regional output structures. The 1850s production deficits probably struck rye-producing areas such as Saxony and Prussia, which harvested two to three times more rye than wheat, less hard.[21] Wheat-producing areas such as England and France, the latter growing three times more wheat than rye, were probably struck worse. Still, domestic production may still have covered 90 per cent of Britain's needs during the 1850s crisis, partly through an extension of the area under wheat.[22] Belgium held an in-between position, producing slightly more rye than wheat.[23] In Belgium, per capita bread grain output (wheat, rye, maslin, and spelt) net of grain reserved for seed from 1848 to 1852 was about 208kg on average. In 1846, it was 135kg; in 1853 and 1855, it was 171kg and 158kg respectively.[24] Deficits were therefore smaller in the 1850s.

Furthermore, total food availability in 1845 and 1846 had suffered heavily from the potato blight, which made its first devastating appearance in these years. In 1845, the blight destroyed 70 per cent of the potato harvest in the Netherlands and almost 90 per cent in Belgium; in 1846 it destroyed about 80 to 90 per cent in the Scottish Highland and Ireland.[25] After the mid-1840s, potato yields slowly recovered, reaching 'normal' levels again by the mid-1850s.[26] Potato prices rose both in the years 1846–47 and in 1854–55. In the 1840s, the price peak stood out more clearly, though the absolute price level in Belgium in the 1850s was similar.[27]

Therefore, in most areas including Belgium, deficits in the 1850s were rather modest compared to the 1840s, and cannot explain the general nature and longevity of high prices from 1854 to 1856. Three immediate factors help to explain why prices started to rise almost simultaneously with the harvest of 1853.[28] Firstly, the weak harvests of 1853 made clear that demand for grain imports in wheat-producing countries like France and England would rise. This almost instantly triggered more orders and higher ship freight rates. Secondly, after it had become clear that international demand would rise, rumours of an impending war in the Black Sea area in June 1853 generated uncertainty about the shipment of grain from Russia, a prime supplier of European markets. This created a sense of urgency and, as a result, imports were negotiated much earlier. Quoting Klovland, a 'scramble for wheat' started, further raising freight rates.[29] Third, the uncertainty created by the threat of war also elevated insurance rates.

[21] Maurice Block, *Statistique de la France comparée avec les autres états de l'Europe. Tome Deuxième* (1860), pp. 40, 48–9; Ernst Engel, 'Die Getreidepreise, die Ernteerträge und der Getreidehandel im preussischen Staate', *Zeitschrift des Königlich Preussischen Statistitsche Bureaus*, 1 (1861), pp. 277, 282–3.

[22] Petersen, *Bread and the British economy*, pp. 166, 175–6.

[23] Table 2; Martine Goossens, *The economic development of Belgian agriculture: a regional perspective, 1812–1846* (1993), p. 146.

[24] Based on output estimated by Jean Gadisseur, *Le produit physique de la Belgique, 1830–1913: Présentation critique des données statistiques. Introduction générale. Agriculture* (1990), p. 612.

[25] Eric Vanhaute *et al.*, 'The European subsistence crisis of 1845–1850: a comparative perspective', in Ó Gráda *et al.* (eds), *When the potato failed*, p. 22.

[26] Gadisseur, *Le produit physique*, p. 536.

[27] Solar, 'Crisis of the late 1840s', pp. 82, 85; Ronsijn, 'De "laatste" voedselrellen', p. 91.

[28] Jan Tore Klovland, 'New evidence on the fluctuations in ocean freight rates in the 1850s', *Explorations in Economic Hist.* 46 (2009), pp. 274–8; Adrian Leonard, 'Risk, uncertainty, and market pricing: marine insurance in peacetime and war (paper presented at the Datini – ESTER Advanced Seminar 'The Market and its Agents', Prato, 2–4 May 2014)', pp. 18–19; Price, *Modernization of rural France*, pp. 35, 64, 66; Vassilis Kardasis, *Diaspora merchants in the Black Sea: the Greeks in southern Russia, 1775–1861* (2001), p. 121.

[29] Klovland, 'New evidence on the fluctuations in ocean freight rates', p. 277.

Together these elements made grain shipments more expensive. Grain prices kept on rising during and after the harvest of 1853.

Although freight rates declined once hostilities had broken out, grain prices remained high. The war itself had a direct impact on Western European grain markets as a consequence of the Allies' blockade of Black Sea and Baltic ports, and of Russia's prohibition of grain exports.[30] Russia prohibited exports from the Black Sea and Azov in February 1854 and from Baltic ports at the end of 1855. All embargoes on exports were lifted in the spring of 1856. During the war, Western European grain markets were cut off from the large volumes of Russian grain that could have helped cover western deficits. Only small amounts of Russian grain reached Western Europe through smuggling or via overland routes through Prussia and Austria. Export statistics from Russia and data from importing countries confirm that the trade in Russian grain came to a standstill in 1854 and 1855.[31] National deficits in the North Sea area were made good, except perhaps in France, by drawing on supplies from elsewhere including Prussia and, increasingly, Sweden and the United States.[32] Still, the cessation of Russian imports was clearly a major cause for concern. Prices only started declining in 1856, when the conflict was over and imports from Russia resumed.

In the crisis years, the Belgian government regularly turned to the provincial governors and their regional consultative bodies for advice on the causes of the high price of grain and on possible remedies.[33] In correspondence at the start of the food crisis, the alarming rise in prices during the harvest months of 1853 was attributed to speculation and increased exports to France, where shortages were believed to be much larger. The resulting rising food prices reduced the purchasing power of the labouring classes, reducing the demand for manufactured products, which created more unemployment, and hence exacerbated the effects of grain being expensive. One year later, in September 1854, the Minister of the Interior noted a new rise in grain prices, which he rightly believed did not reflect the actual yields of the grain crops.[34] Among other reasons, he pointed to stocks from the 1853 harvest running out. While the harvests of 1854 seemed excellent, they had not become available in the markets yet partly because the farming population was still too busy harvesting. This time, the international situation was identified as the main cause for high prices: the closure of the Baltic and Black Sea ports and a meagre harvest in the US reduced imports. Others regarded exports, which were still permitted, as the main reason for rising market pressures. However, the governor of East

[30] Valerii L. Stepanov, 'The Crimean War and the Russian economy', *Russian Studies in Hist.*, 51 (2012), pp. 19, 21–3; Olive Anderson, 'Economic warfare in the Crimean War', *Economic Hist. Rev.* 14 (1961), pp. 35, 38; Kardasis, *Diaspora merchants*, p. 121; John E. Cairnes, 'The effect of war on prices', *Dublin Statistical Society* 1 (1856), pp. 231–2.

[31] O. Terner, *Vneshnej torgovli Rossii s 1853 po 1856 g.* (Sankt Peterburg, 1858), pp. 63, 69, 75, 80; B. R. Mitchell and Phyllis Deane, *Abstract of British Historical Statistics* (1962), pp. 100–01; Kardasis, *Diaspora merchants*, pp. 122–6.

[32] John Bennet Lawes and Joseph Henry Gilbert, 'Home produce, imports, consumption, and price of wheat, over forty harvest-years, 1852–53 to 1891–92', *JRASE*, third ser., 4 (1893) Appendix, Table I; Price, *Modernization of rural France*, pp. 65–66, 302; Fridlizius, 'The Crimean war and the Swedish economy', pp. 70–2; Yves Segers, *Economische groei en levensstandaard. De ontwikkeling van de particuliere consumptie en het voedselverbruik in België, 1800–1913* (2003), p. 497; Sharp and Weisdorf, 'Globalization revisited'.

[33] Public Records Office, Ghent (hereafter PROG), provincial archives East Flanders 1870–1900 (hereafter EF 1870–1900), 4A/355.

[34] PROG, EF 1870–1900, 4A/355, 23 Sept. 1854.

Flanders wrote that more was to be expected from the news of the taking of Sebastopol than from any customs measures to ease distress.[35] The disturbance of the international grain trade due to the war continued in the following years, bankrupting several merchant companies. For this reason, the Ghent Chamber of Commerce believed in October 1856 that prices would only drop when trade was restored and Russian grain once again arrived in Belgian ports.[36]

The Belgian government was slow to respond to the likelihood of higher prices and a probable decline in food availability after the mediocre harvest of 1853. Import duties on foodstuffs were lifted fairly promptly in August, but food exports continued to be permitted except for potatoes, whose export was banned in October. An export prohibition on cereals was only enacted at the end of November 1854, after a wave of food riots. The nature and timing of these measures is very close to the parallel measures taken in France.[37] The Belgian export prohibition remained in place until June 1857 and free, untaxed imports were permitted until the following December. In contrast to previous decades, the 1850s were characterized by sharp disagreements on customs policies between supporters of a free-trade regime, who often had interests in the expanding industrial sector, and prohibitionists, who were usually connected to agriculture and landed property. The correspondence on this question between the government and the provincial governors, testifies to this division of opinion and their uncertainty about how to proceed.[38] Their indecision stands in sharp contrast to the swift reaction of the Belgian government after the first upsurge of the potato blight in September 1845. On that occasion, the government immediately proclaimed the tariff-free import of grains, potatoes and other foodstuffs, whilst simultaneously forbidding their export together with that of bread and other baked products. These laws remained in force until the beginning of 1850. At the same time, the national government started to buy food from foreign countries.[39]

III

The proximate causes for sustained, high grain prices in the 1850s were modest harvest failures inside and outside the North Sea area and the dislocation of the international grain trade by the war in the Black Sea area. However, this does not explain the local impact of this crisis. It is clear that in this period, Belgium became more sensitive to shocks in the international grain trade. This was the result of two interrelated trends: a growing population and an increasing number of market-dependent households.

In the century between 1750 and 1850, the population of the southern Netherlands/Belgium doubled to more than 4.4 million inhabitants. After 1850, population growth continued at

[35] PROG, EF 1870–1900, 4A/355, 3 Oct. 1854.

[36] PROG, EF 1870–1900, 4A/355, 13 Oct. 1856.

[37] In France: imperial decrees of 18 Aug. 1853 and 29 Nov. 1854.

[38] Pascale Delfosse, *La politique agricole de l'État belge en période de crise au XIXe siècle: les rapports de force dans une société en transition vers le capitalisme industriel* (1983), pp. 22–4; id., 'État, crises alimentaires et modernisation de l'agriculture en Belgique (1853–1857)', *Revue du Nord*, 72 (1990), pp. 73–4, 83–93; Maarten F. Van Dijck, *De wetenschap van de wetgever. De klassieke politieke economie en het Belgische landbouwbeleid, 1830–1884* (2008), pp. 327–29, 333–34.

[39] Eric Vanhaute, '"So worthy an example to Ireland": the subsistence and industrial crisis of 1845–1850 in Flanders', in O'Grada, Papping and Vanhaute (eds), *When the potato failed*, p. 138.

a slightly slower pace, almost reaching 6.7 million inhabitants by 1900.[40] The share of the urban population remained constant up to about 1850. Measured as the proportion of the population living in municipalities of 5000 inhabitants or more, the degree of urbanization stagnated at around 20 per cent from 1750 until 1850.[41] In absolute numbers, much of the growth occurred in the countryside. In 1846, compared to 1806, there were 1.35 million additional mouths to feed: about 1 million in the countryside, and 0.35 million in the towns.[42] Due to land scarcity and unequal access to land, most of the people in the countryside did not produce enough food to support themselves and had to enter the food market for at least some of their sustenance.

Belgian agricultural output did not keep up with population growth after 1800, making the country increasingly dependent on food imports. In the first half of the nineteenth century, agricultural output grew but lagged behind population. As a result, per capita agricultural production declined.[43] In response, the focus of agriculture shifted towards basic food production: the production of industrial crops declined to the benefit of both potatoes and bread grains. The simultaneous rise in the production of more highly valued wheat and cheaper potatoes indicates a polarization in consumption patterns. Growing tensions in agricultural production and output affected towns in particular. Segers calculated that urban per capita food consumption dropped in the first half of the nineteenth century, not only in industrial centres but also in smaller towns.[44] According to Scholliers, around the middle of the nineteenth century, average food consumption was notably more modest in the towns than in the countryside.[45] Agricultural progress after 1850 was piecemeal; Blomme labels the third quarter of the nineteenth century as 'sluggish growth ending in straightforward stagnation during the 1870s'.[46] Growth in output further slowed down, and although acreage for industrial and fodder crops increased, there was no fundamental change in the agricultural production structure before the last quarter of the century.[47] Up to the 1840s, a Malthusian supply crisis was averted by a growing reliance on potatoes, which could feed twice as many people per hectare than cereals. The outbreak of the blight in September 1845 revealed the population's growing dependence on potato consumption. After the 1840s, no comparable food crisis occurred due to the absence of combined harvest failures such as in 1845 and 1846, and because of increased cereal imports.[48]

[40] Guy Dejongh and Yves Segers, 'Een kleine natie in mutatie. De economische ontwikkeling van de Zuidelijke Nederlanden/België in de eeuw 1750–1850', *Tijdschrift voor Geschiedenis*, 114 (2001), pp. 173–4.

[41] Dejongh and Segers, 'Een kleine natie in mutatie', p. 174; Goossens, *Economic development of Belgian agriculture*, p. 372.

[42] Ibid., p. 364.

[43] Martine Goossens, 'Belgian agricultural output, 1812–1846', *Belgisch Tijdschrift voor Nieuwste Geschiedenis*, 34 (1993), pp. 227–73.

[44] Yves Segers, 'Oysters and rye bread. Polarising living standards in Flanders, 1800–1860', *European Rev. of Economic Hist.* 5 (2001), pp. 301–36.

[45] P. Scholliers, 'From the 'crise des Flandres' (1840s) to Belgium's 'question sociale' (1880s): nutritional landmarks of transition in industrializing Europe', *Food and Foodways* 5 (1992), p. 158.

[46] Jan Blomme, *The economic development of Belgian agriculture, 1880–1980. A quantitative and qualitative analysis* (1993), p. 32.

[47] Jan Blomme, 'Produktie, produktiefactoren en produktiviteit: De Belgische Landbouw 1846–1910', *Belgisch Tijdschrift voor Nieuwste Geschiedenis*, 24 (1993), pp. 275–93.

[48] Goossens, 'Belgian agricultural output', pp. 240–2, 248; Segers, 'Oysters and rye bread'; Blomme, 'Produktie, produktiefactoren en produktiviteit', pp. 281–2.

As a result of rapid demographic growth and lagging agricultural production, the southern Netherlands/Belgium shifted from being a grain-exporting to a grain-importing region. In the second half of the eighteenth century, the southern Netherlands exported about 5 to 7 per cent of its annual harvest of bread grains and buckwheat. These exports continued during the period when the region was annexed to France; in those years, large amounts of grain were transported to the French interior.[49] It was probably the crisis of 1817 and the ensuing agricultural depression of the 1820s that ended grain exports from the southern Netherlands. During this depression, Western Europe was flooded with eastern European and Russian grain, while also facing domestic overproduction. In response, domestic output declined.[50] In the late 1820s, domestic production recovered and expanded, but food imports soon became necessary on a structural basis, particularly from the 1840s onwards. Still, the overall volume of imports remained modest (see Table 2). During the price crisis of the 1850s, the volume of imports into Belgium amounted to about 11 per cent of the volume of the domestic bread grain harvest: 15 per cent for wheat, spelt, and maslin and 5 per cent for rye. In other words, 90 per cent of the bread grain needed for domestic use was still provided by domestic production.

Nonetheless, growing imports strengthened the impact of the international grain trade on local and national supplies and prices, and reinforced the integration of markets. But why and how did high prices affect large parts of the population? The second cause of increasing sensitivity in Belgium to shocks in the international grain trade was the unprecedented growth of a market-dependent population.[51] In the middle of the nineteenth century, one in three Belgian households had no access to land, compared to less than one in five around 1800.[52] On top of that, almost half of the agricultural holdings measured less than one hectare and a majority of those holdings were held by lease for rapidly increasing rents. In other words, about two-thirds of all Belgian families had to acquire at least a portion of their nutritional needs via extra-household supplies. In addition, this was a period of accelerated industrialization with the number of wage labourers growing much faster than the total population. It is clear that the proportion of the population that was partly or predominantly dependent on wage earnings to secure access to food increased sharply, decreasing the proportion of households with other kinds of entitlements such as auto-consumption, local credit relations and payments in kind.

[49] Chris Vandenbroeke, 'Landbouw in de Zuidelijke Nederlanden, 1650–1815', *Algemene geschiedenis der Nederlanden,* 8 (1979), pp. 83–4; Chris Vandenbroeke and W. Vanderpijpen, 'Landbouw en platteland in de Zuidelijke Nederlanden 1770–1844', *Algemene geschiedenis der Nederlanden,* 10 (1981), pp. 187–8; Willy Vanderpijpen, 'De landbouw en de landbouwpolitiek in het Leie- en Scheldedepartement (1794–1814)' (unpublished PhD thesis, Brussels University (VUB), 1983), pp. 203–92.

[50] Goossens, 'Belgian agricultural output', p. 245; Goossens, *Economic development of Belgian agriculture*, pp. 161–5, 202–05; Jan Bieleman, *Boeren in Nederland. Geschiedenis van de landbouw, 1500–2000* (2008), pp. 148–9; Phil Kint, *Prometheus aangevuurd door Demeter. De economische ontwikkeling van de landbouw in Oost-Vlaanderen, 1815–1850* (1989), pp. 138–9.

[51] G. L. de Brabander, *De regionaal-sectoriële verdeling van de economische activiteit in België (1846–1979): een kritische studie van het bronnenmateriaal* (1984); Hilde Greefs and Bruno Blondé, 'The growth of urban industrial regions: Belgian developments in comparative perspective, 1750–1850', in Jon Stobart and Neil Raven (eds), *Towns, regions and industries: urban and industrial change in the Midlands, c.1700–1840* (2005), pp. 210–27.

[52] Eric Vanhaute, 'Rich agriculture and poor farmers: Land, landlords and farmers in Flanders in the eighteenth and nineteenth Centuries', *Rural Hist.* 12 (2001), pp. 19–40.

TABLE 2: Bread grain production, imports and market trade in Belgium, 1840s and 1850s

Average production	*Wheat, spelt, and maslin*	*Rye*	*Total*
1846	6,493,396	5,293,191	11,786,587
1856	8,475,731	6,065,716	14,541,447
Imports			
Annual average of 1852–1856	1,276,172	331,144	1,607,316
As a percentage of production in 1856	15.1	5.5	11.1
Market trade			
Trade volume at the 33 main grain markets, September 1856 to August 1857	1,003,562	521,282	1,524,844
As a percentage of production in 1856	17.4	8.6	12.9

Note: All production and trade volumes in hectolitre. Market trade volumes only include wheat and rye, not spelt or maslin, and the proportion sold is calculated accordingly. Market trade volumes of Liège are not included as they appear faulty.
Source: Production data: *Agriculture, recensement général*, 1846, 1856; Import data: Daniel Degrève, *Le commerce extérieur de la Belgique, 1830–1913–1939* (1982), pp. 304, 309; Market trade volumes: *Bulletin administratif du ministère de l'Intérieur.*

Expanding industrial areas, such as the Walloon industrial basins, required larger catchment areas to feed the workers and their families. In response, the configuration of the internal grain trade changed profoundly. Weekly public markets had long played a central role in the trade of domestically produced grain. Yet only a small proportion of the annual harvest was physically exchanged at these markets. In 1856, trade at the 33 main grain markets in Belgium added up to 17.4 per cent of the total wheat harvest and 8.6 per cent of the total rye harvest (see Table 2). Trade volumes at public markets declined as more transactions were concluded by sample rather than by total volume. In addition, towns and cities were increasingly supplied by tradesmen who bought crops at the farm gate.[53] This shift in the organization of marketing started in the bigger cities, but smaller towns followed from the 1860s onwards.[54] By the end of the nineteenth century, public grain markets had all but disappeared.[55]

Grain sold at the farm gate was often bought by weight, in metric units, where in the public markets it was usually sold by volume, often in ancient local units of measurement.[56] This shift

[53] PROG, provincial archives East Flanders 1830–1850 (hereafter EF 1830–50), 2912 and 2916 and EF 1870–1900, 4A/580.

[54] Chris Vandenbroeke, 'Voedingstoestanden te Gent tijdens de eerste helft van de 19de eeuw', *Belgisch Tijdschrift voor Nieuwste Geschiedenis* 4 (1973), pp. 149–50; Wouter Ronsijn, 'De donderdagmarkt van Oudenaarde, 1750–1900: een reconstructie van anderhalve eeuw prijzen en handelsvolume', *Handelingen van de Geschied- en Oudheidkundige Kring van Oudenaarde* 49 (2012), pp. 3–45; id., 'De donderdagmarkt van Sint-Niklaas, 1720–1900. Een reconstructie van meer dan anderhalve eeuw prijzen en handelsvolume', *Koninklijke Oudheidkundige Kring van het Land van Waas* 115 (2012), pp. 111–56; Isabelle Devos, 'Prijzen van Granen en andere Landbouwprodukten in de Kasselrij Kortrijk (16de–19de eeuw)' (unpublished licentiate thesis, Ghent University, 1990), pp. 531–38.

[55] Paul Van Hissenhoven, *Les grains et le marché d'Anvers* ([1910]), pp. 555–9.

[56] PROG, EF 1830–50, 2912 and EF 1870–1900, 4A/580; *Bulletin administratif du ministère de l'Intérieur*, 8 (1854), p. 328, 11 (1857), p. 436.

from volume to weight, and to a concurrent standardization of measurements, reflects the geographical expansion of the grain trade and the growing number of intermediaries. Data on weight or the specific gravity of grain was needed to price accurately merchandise from diverse geographic origins passing through intermediaries.[57] Concluding transactions by weight rather than by volume permitted these intermediaries to assess the quality of domestic grain more reliably, whether at the farm gate or in public markets, or imported grain purchased from international merchants.

By compiling information on a much larger scale, the intermediaries contributed significantly to the convergence of grain prices both intra-nationally and internationally.[58] Conversely, their behaviour could also be perceived as deceitful speculation. In the crisis years of 1847 and 1854, the peculiar idea circulated that all the grain markets in the country should be held on the same day and hour. Advocates of this idea believed that markets would then be able to function in isolation from each other, and prices could be set without interference from other markets. This project was actually aimed against price integration.[59] It received little support, however, because few believed it would have the desired effect.[60] General opposition to this project is indicative of an altered attitude to the role of market trade and of the increasing interaction between local markets and the international grain trade around 1850.

As a result of demographic growth, lagging agricultural output, a growing market-dependent population and market integration, Belgian consumers increasingly competed with those of other importing countries for the same resources. After the middle of the nineteenth century, people buying wheat at a provincial Belgian market (such as Sint-Niklaas) paid prices similar to those at the London market, even though the purchasing power of British consumers may have been higher than that of Belgian consumers. This reflects the high degree of market integration in Europe at that time. Recent research has shown that the process of market integration accelerated during the second quarter of the nineteenth century, creating a 'European' grain market by the late 1840s.[61] Studies relying on Swiss and Swedish observations have argued that, at the national level, price jumps were still mainly the result of climatic shocks until at least the middle of the nineteenth century.[62] Yet market integration made this correlation less

[57] A. Velkar, '"Deep" integration of 19th century grain markets: coordination and standardisation in a global value chain' (Department of Economic History, LSE, Economic History Working Papers, 145/10, 2010).

[58] See also Guy Dejongh *et al.,* 'In de greep van de markt. De integratie van de regionale landbouwmarkten in België, 1700–1850', *Belgisch Tijdschrift voor Nieuwste Geschiedenis* 30 (2000), pp. 5–47; Erik Buyst *et al.,* 'Road expansion and market integration in the Austrian Low Countries during the second half of the 18th Century', *Histoire et mesure* 21 (2006), pp. 185–219.

[59] Report in *Gazette van Audenaerde*, 25 July 1847, p. 3, col. 2, and 3 Dec. 1854, p. 2, col. 3; *Gazet van St. Nicolaes*, 26 Nov. 1854, p. 2, col. 2 and 3 Dec. 1854, p. 3, col. 1; *Bulletin administratif du ministère de l'Intérieur* 8 (1854), p. 542.

[60] PROG, EF 1870–1900, 4A/355.

[61] David S. Jacks, 'Intra- and international commodity market integration in the Atlantic economy, 1800–1913', *Explorations in Economic Hist.* 42 (2005), pp. 381–413; Solar, 'Crisis of the late 1840s'; David Chilosi *et al.*, 'Europe's many integrations: Geography and grain markets, 1620–1913', *Explorations in Economic Hist.* 50 (2013), pp. 46–68.

[62] Jari Holopainen *et al.*, 'Climatic signatures in crops and grain prices in 19th-century Sweden', *The Holocene* 22 (2012), pp. 939–45; Christian Pfister, 'Fluctuations climatiques et prix céréaliers en Europe du XVIe au XXe siècle', *Annales. Économies, Sociétés, Civilisations* 43 (1988), pp. 25–53; Rodney Edvinsson, 'Harvests and grain prices in Sweden, 1665–1870', *AgHR* 60 (2012), pp. 1–18; see also Solomos Solomou and Weike Wu, 'Weather effects on European agricultural output, 1850–1913', *European Rev. Economic Hist.* 3 (1999), pp. 351–73.

straightforward by the 1850s, and as a result, national price levels no longer reflected national harvest results.

IV

It is our argument that, due to the different nature of the two crises, the effects of the food price crisis of 1853–56 were fundamentally different from the famine crisis of 1845–47. We expect that this dissimilarity will be most evident when comparing the rural and urban experience during the 1850s food crisis. In contrast with the potato famine in the 1840s, this crisis was primarily triggered by reduced consumer purchasing power. We measure this changing access to food in four ways: the availability of food, the incidence of food riots, rural and urban patterns in natality and mortality, and rural and urban patterns in poverty rates.

(a) The availability of food

Yves Segers has calculated that average food availability in mid-nineteenth century Belgium was at a low and even critical level. The mean diet of Belgian residents dropped from about 2850Kcal per day around 1800 to about 2450Kcal around 1850.[63] Segers' data in Figure 4 show the levels of food available for human consumption between 1846 and 1860. Consumption data on vegetable products are based on annual harvest results, imports and exports, and estimates of the proportion of these products not used for human consumption, but do not take into account the possibility of carry-over from one harvest to the next. For animal products, insufficient data were available to reconstruct accurately annual fluctuations, with the exception of cheese.[64] Average per capita food consumption was depressed over the whole period and not only during the crisis years. The data indicate that between 1853 and 1856 the availability of bread grains and, to a lesser extent, potatoes, was not notably lower than during the previous years. In this respect, Segers' results confirm those of an earlier study by Van den Eeckhout and Scholliers.[65] Imports covered harvest deficits, and considering the export prohibition of November 1854, carry-over from the excellent harvest of that year probably compensated for the deficit in 1855. Large volumes of wheat and rye were imported despite the war in the east, particularly from (or through) Prussia and the Netherlands.[66] Likewise, data on grain supplies at local markets show an increase, particularly from 1854 onwards.[67] In Sint-Niklaas for example, a local newspaper reported in November 1854 that countrymen were selling more wheat and buckwheat in the market to take advantage of high prices, while they themselves consumed imported rice.[68] Stability in per capita food

[63] Segers, *Economische groei en levensstandaard*, pp. 256–73; Yves Segers, 'Nutrition and living standards in industrializing Belgium, 1846–1913', *Food and Hist.* 2 (2004), p. 160.

[64] Segers, *Economische groei en levensstandaard*, pp. 77–95.

[65] Patricia Van den Eeckhout and Peter Scholliers, 'De hoofdelijke voedselconsumptie in België, 1831–1939', *Tijdschrift voor Sociale Geschiedenis* 9 (1983), pp. 293–4. See also Jan Blomme, 'De hoofdelijke broodgraanconsumptie in België, 1850–1939: een alternatieve benadering', *Tijdschrift voor Sociale Geschiedenis* 12 (1986), pp. 401–15.

[66] *Tableau général du commerce avec les pays étrangers*, 1840–1860.

[67] Ronsijn, 'De donderdagmarkt van Oudenaarde'; Ronsijn, 'De donderdagmarkt van Sint-Niklaas'; Devos, 'Prijzen van Granen'.

[68] Report in *Gazet van St. Nicolaes*, 12 Nov. 1854 p. 1, col. 2–3.

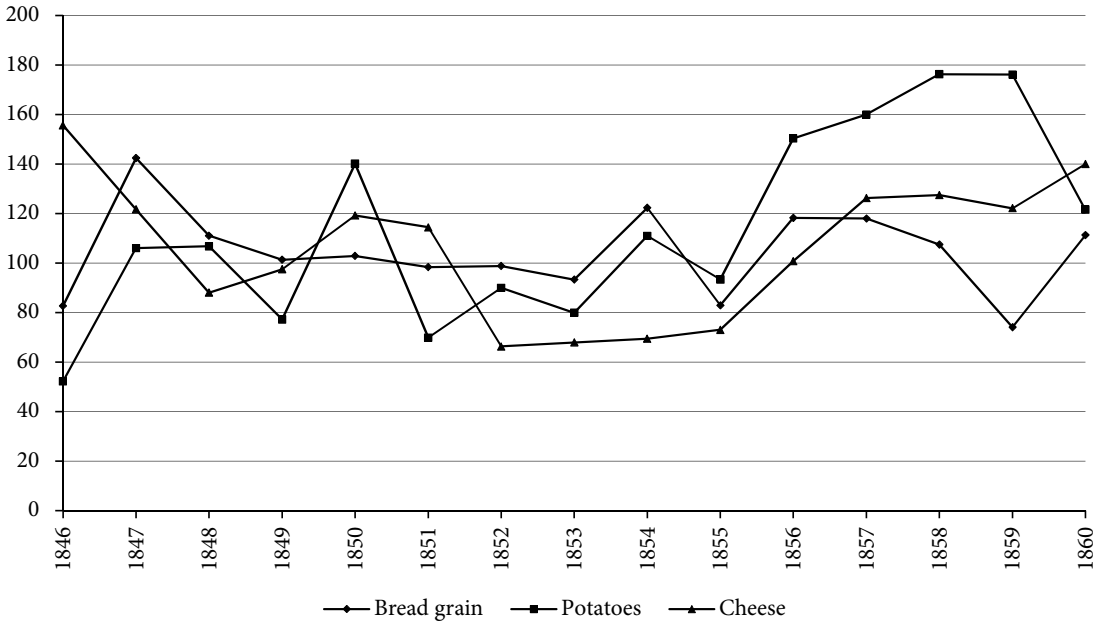

FIGURE 4: Indices of per capita food availability in Belgium, 1846–1860

Note: Average for 1850–1852 = 100.
Source: Yves Segers, *Economische groei en levensstandaard* (2003), pp. 497, 501; *Exposé de la situation du royaume, 1841–1850*; *1851–1860*.

supplies in the 1850s contrasts sharply with the crop shortages of the 1840s, starting with the severe winter of 1844–45. After the initial appearance of the blight in 1845, potato harvests in Belgium remained on average 40 to 60 per cent below pre-crisis levels from 1846 to 1850 (except the harvest of 1849). The food situation became very precarious in late 1846 and the first half of 1847. This was aggravated by poor bread grain, bean and pea harvests. Calculated in grain equivalents, the combined loss of bread grain and potato harvests in 1846 amounted to 66 per cent.[69]

The mid-1850s food crisis was not characterized by a sudden decline in the availability of food: it was the disturbance in the international grain trade that made consumer prices rise sharply. Access to food became difficult for those lacking the required purchasing power. Around the middle of the nineteenth century, about half of private expenditure went on food.[70] Among households with an income below average, this proportion was undoubtedly larger. In these circumstances, a sudden rise in food prices could wreak havoc if wages did not rise accordingly. As Scholliers' index figures (1913=100) show, nominal wages rose sharply in the 1850s, from index 40 in 1850 to 53 in 1856, but real wages stagnated or declined, from 52 in 1850

[69] Vanhaute, '"So worthy an example to Ireland"', pp. 130–1.

[70] Yves Segers, 'Economic growth and living standards. The development of consumer expenditure and food consumption in Belgium, 1800–1913', *J. European Economic Hist.* (2005), p. 521.

to between 47 and 51 from 1853 to 1855.[71] Furthermore, not all occupational groups experienced a rise in nominal wages. For example, wages in Voortman's spinning mill in Ghent stagnated.[72]

The hardship experienced in these years was revealed by the first budget survey held in Belgium in about 1854, which specifically focused on urban and rural labouring households.[73] Edouard Ducpétiaux, reporting the results from this survey, concluded that the food intake of labouring households was often deficient, both in the towns and countryside. He noted how in a large number of cases, expenditure exceeded incomes; wage levels no longer corresponded with food price levels. The resulting deficits were covered by makeshifts, public charity, debt accumulation, or they led to bankruptcies. More generally, it was not only labourers who were facing distress as a result of the recent rise in food prices but also shopkeepers, subordinate employees and even small rentiers. The main causes of this price rise, according to Ducpétiaux, were population growth and the structural production deficit, the war in the East, but also the increased consumption of grain. In response to the blight, people ate fewer potatoes and more bread and butter. That, he argued, explained why food prices in 1854 were high, despite that year's abundant harvest.[74]

(b) The incidence of food riots

High food prices amid harvests that did not seem particularly deficient triggered numerous food riots.[75] Between August and October 1853, food riots were recorded in Liège, Sint-Niklaas and Brussels. Between May and July 1855, the markets of Sint-Niklaas and Ghent were the scene of disturbances, while in September 1856 there was uproar in Ghent. In addition to these localized incidents, there was a wave of food riots in East and West Flanders and the surrounding regions from August to September 1854. Riots were reported in the cities of Tournai, Ypres, Courtrai, Menen, Lokeren, Sint-Niklaas (twice), Bruges, Brussels, Oudenaarde and Mechelen. In many cases, these incidents started at the public markets after one or more merchants were accused of driving up prices. In other instances, bakeries were looted. The timing of this wave of food riots suggests that they were a response to a perceived discrepancy between the excellent harvest that was being brought in at that time, and the persistently high level of grain prices.[76] Although food shortages were much more severe in 1846 and early 1847, collective urban food riots were exceptional.[77] In that decade, there was a marked rise in rural criminality, including trespassing, pillaging and vagrancy. By comparison with the

[71] Peter Scholliers, 'A century of real industrial wages in Belgium, 1840–1939', in Peter Scholliers and Vera Zamagni (eds), *Labour's Reward. Real wages and economic change in 19th- and 20th-century Europe* (1995), pp. 130–4.

[72] Gerda Avondts *et al.*, *Lonen in de spinnerij van het bedrijf A. Voortman – N.V. Texas, 1835–1914* (1976).

[73] The decision to make the survey was taken during the *Congrès de statistique* in Brussels in September 1853.

[74] E. Ducpétiaux, *Budgets économiques des classes ouvrières en Belgique: subsistances, salaires, population* (1855), pp. 135–57, 199, 232.

[75] On labour and other conflicts during this period, see also Julien Maréchal, *La Guerre aux Cheminées: Pollutions, peurs et conflits autour de la grande industrie chimique (Belgique, 1810–1880)* (2016), pp. 152–9.

[76] Ronsijn, 'De "laatste" voedselrellen', pp. 94–6; id., '1845–1860 : De "laatste" voedselrellen in twee kleine Oost-Vlaamse steden, Oudenaarde en Sint-Niklaas', *Congrès de Namur. Actes du 8ème Congrès de l'Association des Cercles francophones d'Histoire et d'Archéologie de Belgique et 50ème Congrès de la Fédération des Cercles d'Archéologie et d'Histoire de Belgique* (2011), pp. 356–7.

[77] Vanhaute, '"So worthy an example to Ireland"', p. 137.

1850s, the potato famine hurt rural populations much more; it instigated more small-scale, less coordinated, and less readily visible forms of social action.

(c) Natality and mortality

The impact of both food crises on births and deaths was notably different between town and countryside. In Figures 5 and 6 we make a distinction between urban and rural natality and mortality ratios. Town and countryside could only be distinguished using national data based on the official designation of municipalities, so what the graphs show are approximations. Nevertheless, they show that the overall impact of the 1840s food crisis was more drastic, and that the crisis of the 1850s hit urban areas harder than rural areas. Birth rates in the 1850s dropped below the levels of the 1840s in the towns, whereas they stayed higher in the countryside. Apart from the mortality peak in 1849 caused by cholera, urban death rates in the 1850s rose close to the level of the 1840s, whereas in the countryside hikes in death rates in the 1850s were less marked, and came later than in the towns. The rise in mortality in 1854 was also partly the result of a cholera epidemic, but this wave was relatively mild compared to 1849.[78] Both indicators of mortality and natality show that the effects of the food crisis were most evident in 1855, suggesting that the longevity of the period of expensive grain exhausted many people's resources, especially in urban settings.

(d) Poverty

Finally, the observation that, in general, urban dwellers suffered more in the 1850s price crisis is supported by data on the number of registered poor. In Figure 7 we record poverty rates in the provinces of East Flanders and Liège; both provinces have a strong urban and rural industrial sector. In East Flanders, the number of registered poor was initially higher in rural areas, but the situation reversed in the 1850s. Poverty in the towns in the 1850s exceeded the levels of the 1840s, whereas in the countryside there was only an interruption in the decline from the very high numbers of the 1840s. In Liège, registered poverty was greater in urban areas and rose in the 1850s to levels comparable to those of the 1840s. In the Liège countryside, by contrast, the impact of the food crisis of the 1850s was hardly visible.

All these indications are consistent with our claim that in Belgium, distress in the 1850s was less the result of an actual shortage of food than of high prices and concomitant problems of food distribution. In general, towns were hit harder by the food crisis of the 1850s than rural areas. Still, the food crisis did not go unnoticed in the countryside, as our demographic data also show, because there too the number of households who had no access to land was increasing. Only a small minority of farms produced sufficient surpluses to be able to benefit from high food prices. The crisis produced divergent effects, depending on the households' position in the food market. Due to higher prices, a portion of the population in towns and the countryside had great difficulty fulfilling their daily dietary needs, even though per capita food availability was not notably lower.

[78] Karel Velle, 'België en de 19de eeuw. Gevolgen van de blauwe dood', *Geschiedenis der Geneeskunde* (1997), pp. 95–105.

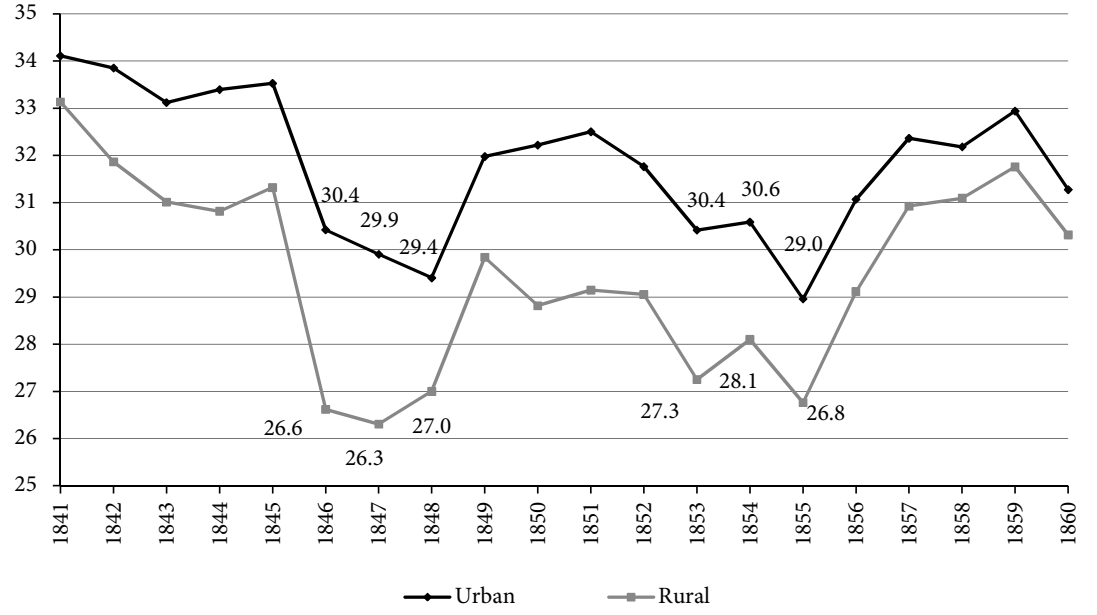

FIGURE 5: Rural and urban natality in Belgium, 1841–1860

Note: Figures show number of births per 1000 inhabitants.
Source: *Exposé de la situation du royaume, 1841–1850*; *1851–1860*.

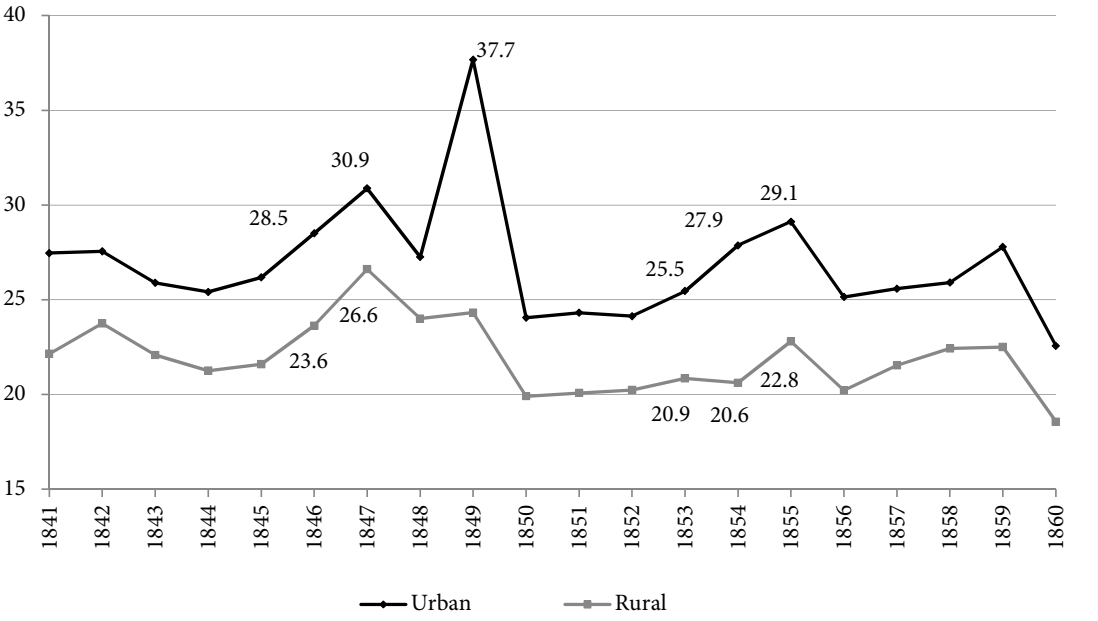

FIGURE 6: Rural and urban mortality in Belgium, 1841–1860

Note: Figures show number of deaths per 1000 inhabitants.
Source: *Exposé de la situation du royaume, 1841–1850*; *1851–1860*.

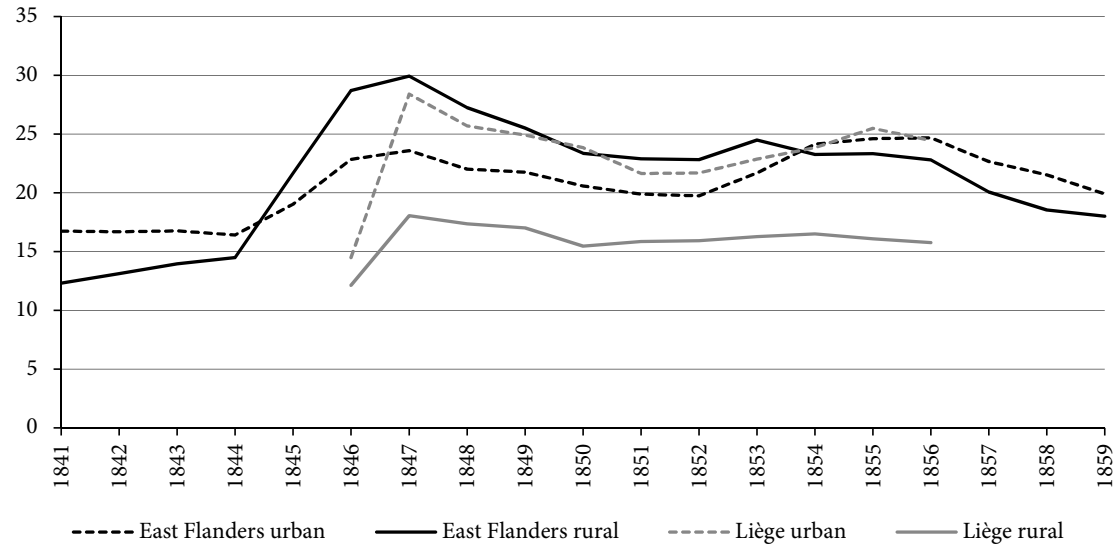

FIGURE 7: Urban and rural poverty in East Flanders and Liège, 1841–1859

Note: Data for East Flanders show the number of people per 100 inhabitants registered by the local public institutions for poor relief. Data for Liège show the number of people per 100 inhabitants receiving poor relief for 1846 according to the population census of that year, and for 1847–57 according to provincial statistics. For the province of Liège, the towns only include Liège, Verviers and Huy. In the source it is unclear if the other towns of the province are included in the rural areas. It was assumed they were not.
Source: East Flanders 1841–50: G. Jacquemyns, *Histoire de la crise économique des Flandres (1845–1850)* (1929), p. 308; East Flanders 1851–59: *Exposé de la situation de la province de la Flandre-Orientale*, 1852–1860; Liège 1846: *Population recensement général*, 1846 (Historical Database of Local and Cadastral Statistics (LOKSTAT–POPPKAD), Ghent University, Quetelet Center for Quantitative Historical Research (Henceforth LOKSTAT–POPPKAD)); Liège 1847–57: Official population numbers, 1847–1857 (LOKSTAT–POPPKAD) and Paul Servais, 'La crise des années 1845–1848 dans l'est de la Wallonie', *Histoire et Mesure*, 26 (2011), p. 185.

These findings concur with the few existing studies of the crisis of the 1850s. In comparison with 1845–47, this crisis was relatively mild in its overall effects, targeting particularly market-dependent wage earners. Therefore, it mainly hit the urban population, as Herment confirmed in his study on France.[79] As in the Netherlands, Belgium did not encounter notable deficits in bread grains.[80] If government intervention helped reduce the impact of the crisis, as Herment and Solar suggest, it was probably mainly at the local level, where institutions could strengthen people's purchasing power by providing direct support (financial or in kind) or by providing additional incomes (e.g. through public works), thereby allowing them to buy the food that was on sale. Still, it seems that central and local governments responded much more swiftly, and with a broader set of interventionist measures, to the food crisis of 1845–47.[81] This is in

[79] Herment, 'Les communautés rurales de Seine-et-Oise', pp. 206–15.

[80] Knibbe, 'De hoofdelijke beschikbaarheid', pp. 78–9.

[81] Vanhaute, "So worthy an example to Ireland", pp. 138–9, 44; Eric Vanhaute and Thijs Lambrecht, 'Famine, exchange networks and the village community. A comparative analysis of the subsistence crises of the 1740s and the 1840s in Flanders', *Continuity and Change* 26 (2011), pp. 173–5; Delfosse, *La politique agricole de l'État belge*, pp. 22–4.

sharp contrast to the hesitant behaviour of the central government in the 1850s, probably due to changing power relations at the top of Belgium's industrializing society. The problem was not the supply of food, but the cost of food. This price was increasingly perceived as the outcome and the regulator of market transactions, which should be independent from direct intervention by public authorities. This created new forms of vulnerability that could only be countered by new, more formal, regulated forms of social policies.

V

Returning to the question of why there was no crisis in the 1850s comparable to that of the 1840s, we have developed the argument that these two crises were different in character, and hence had a different impact on different groups in society. Firstly, the 1850s were not characterized by food scarcity at the aggregate level, in contrast to the 1840s. In 1845 and 1846 the potato blight struck, and there was a substantial drop in rye yields in 1846. The grain harvests of 1853 and 1855 were deficient, but not as much as that of 1846, while potato harvests were recovering from the blight. Because imports covered much of the deficit, there was not noticeably less food available in the mid-1850s compared to previous years. Prices however were high, not only because of poor harvests but also as a result of the anxiety surrounding the Crimean War, the blockade of Baltic and Black Sea ports and Russia's export prohibition on grains. Among other things, this led to elevated freight and insurance rates, and general tensions in the international grain trade throughout the time of the conflict. Prices followed unfamiliar patterns, and remained high for almost three constitutive years, from mid-1853 until late 1856. For those reasons, we call the mid-1850s a food price crisis, but not, unlike the 1840s, a famine crisis.

Secondly, the overall impact of the 1850s food price crisis was milder than that of the 1840s famine crisis, yet price hikes triggered by frictions in the international food chain impeded access to food for the market-dependent population. As we observed, urban populations suffered from increasing poverty, rising mortality and declining natality to a greater degree than populations in the countryside. These differing experiences of urban and rural populations are an indirect indication that the market-dependent population suffered most from the 1850s food price crisis. In the 1840s, distress was caused by both the lack of food and its high price; in the 1850s, the high price was the main issue. Contrary to the hungry 1840s, people in the 1850s protested in a succession of urban food riots against what they perceived to be speculation and unfair prices. Therefore, the problem was one of the distribution of food, rather than the availability of food. This echoes the famous quote of Amartya Sen, that a modern food crisis is not a matter of there not being enough food to eat, but of people not having enough food to eat.[82]

In Belgium in the 1850s, as in other regions in the North Sea area, the protracted decline of rural income and survival networks instigated new types of economic and social relations. This increased the vulnerability of large parts of the population to distortions in the international grain trade and to subsequent price volatility. This vulnerability was rooted in a combination

[82] Amartya Sen, *Poverty and famines: An essay on entitlement and deprivation* (1981), p. 1.

of two processes of rapid market expansion: food imports became increasingly indispensable to feed the population, and a fast-growing proportion of the population depended on precarious forms of wage earning to gain access to food. In turn, and in response to these developments, the food trade in Belgium became increasingly integrated in and dependent upon the global food market. Vulnerability to rising prices and worsening market conditions was not new, but the scale of its impact was. The expensive years of 1853–56 gave shape to what seems to have been one of the first major outbursts of this type of international food price crisis, not provoked by domestic harvest failures or by a breakdown of regional supply chains, but by imbalances in the emerging global food market. It affected Belgium's economic and social fabric on a national level. This new type of vulnerability also reflected new types of societal tensions. Nineteenth-century societies with growing segments of the population without their own means of production were much more reliant on, and exposed to, the vicissitudes of the market.

In the long run, Europe's 'escape from famine' after 1850 was accompanied by a massive increase in food availability, better food security, declining relative food prices and a shrinking agricultural population. The global extension of food chains and the dependence on internationalizing food markets transformed access and entitlement to food in major parts of western Europe. This transformation also came at a cost. New types of food crisis and food vulnerability affected European populations in the nineteenth century, and afflicted major parts of the world in the twentieth. Throughout history, answers to vulnerability related to access to food have been found in diversifying income and coping strategies, and in safeguarding access to resources, land and common goods. The drastic societal transformations in Europe after 1850 eroded former household and village security mechanisms and affected peasants' ability to overcome short-term economic stress (such as harvest shortages, or variations in income, or food prices from one year to the next). To deal with the new forms of vulnerability that followed from this process, in the West, new types of welfare states eventually invested in prolonged food security (access to cheap food) and social protection. In large parts of the Global South, however, vulnerability has switched from a temporary to a structural state of being over the last few decades. The global food price crisis of 2007–08 made it clear that unstable markets and price volatility now affect the food security of hundreds of millions of families, both in cities and in the countryside. In this latest crisis, rising prices were not the result of disturbances in local supply and demand; they were triggered by global market fluctuations and price settings. According to international organizations, the first twenty-first century food crisis was man-made; it was caused by 'short-run overshooting' (bad harvests, low food stocks, export bans, speculation) and long-run negative shifts (population growth, demand for animal feed, biofuel policies). New urban populations and remaining peasantries have lost the protection of direct access to food and must now rely on ever more insecure income resources. These changes affect the entitlement position to food for an unprecedented number of people.[83]

[83] A. Haroon Akram-Lodhi and Cristóbal Kay, 'Surveying the agrarian question' (parts 1 and 2), *J. Peasant Studies* 37 (2010), pp. 177–202, 255–85; Eric Vanhaute, 'From famine to food crisis: what history can teach us about local and global subsistence crises', *J. Peasant Studies* 38 (2011), pp. 47–65.