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Famines and Markets

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FAMINES AND MARKETS

Cormac Ó Gráda

Note: this is Chapter 5 FAMINE: A SHORT HISTORY, forthcoming

MARKETS AND FAMINES

Everything is in plenty, everything is dear.

Remark overheard in Antioch 362AD

In times of crisis, mass opinion both educated and uneducated, likes to picture a small collection of scapegoats, a few enemies of society who should be 'hanged on the lamp posts'. This is a comforting view for society in general to take when the faults of society are shared by the majority of its members.

Leonard Pinnell (Bengal, 1943)

5.1. *Profiteers and 'Calculating Merchants'*

How food markets function during famines is both a sensitive and fraught subject. Do markets exacerbate or mitigate hardship? There is a view, associated in particular with maverick historian Karl Polanyi (1886-1964) that links market forces with the break-up of the social contract that bound ruler and ruled in pre-capitalist communities. Under feudalism, Polanyi argued, *noblesse oblige* had prompted the regulation of markets in order to prevent famines whereas under capitalism, markets were allowed free reign and 'the people could not be prevented from starving

according to the rules of the game'¹. An alternative generalization, more widely accepted today, is that the authorities could not rely on markets to remove disequilibria speedily in 'pre-capitalist' economies, where information was slow to travel and communications expensive. Nor were Polanyi's pre-capitalist economies famine-free – far from it. The deregulation that he criticized occurred only when ruling elites felt that it was safe to allow markets to replace traditional safeguards.²

Polanyi, of course, articulated the age-old suspicion that in times of famine or threatened famine, at least part of the blame rested on producers and traders in essential foodstuffs. Popular suspicions of merchants as profiteers and hoarders led to the pervasive sense that they benefited from free markets. Stories about how traders manipulated markets against the poor during famines are legion. As long ago as 362-3AD the Roman emperor Julian accused the wealthy citizens of Antioch of creating a famine in a city where 'everything is in plenty, everything is dear'. Similar accusations were made against several citizens of Rheims in 1693 who held 'large quantities of grain in their barns which they refused to expose to sale' and against 'millionaire grain barons' in the Sudan in 1985 who, aided and abetted by corrupt officials, hoarded grain during that year's famine. William Laud's pithy judgment, referring to a near-famine in England in 1632, that 'this last yeares famin was made by man and not by God'³ was aimed at such miscreants. Historian Stephen Kaplan eloquently describes popular feeling about the supply of food during famine, or at

¹ Polanyi 1957: 160.

² Persson 1999.

³ Cited in Walter and Wrightson 1976: 31.

least during its early stages, in the following statement about hunger riots in mid-eighteenth century France:⁴

In most of the cases the rioters, men and women, blamed their distress first of all on the merchant: anyone engaged, professionally or opportunistically, in the traffic of grain. The fact that the harvest might be patently bad or the supply notoriously short in a given area no more justified the maneuvers of the traders than it made the concomitant rises palatable... Even in the midst of obvious scarcity, the consumers of each village, bourg, and town believed that if the grain 'of the place' were properly used and honestly apportioned, there would be enough, albeit barely, for everyone at prices which would be onerous but accessible.

In Ireland in the 1840s the press was replete with accounts in the same vein. Thus, in October 1846 the *Waterford Freeman* claimed that 'merchants [were] closing their stores, already counting their gains, and gloating over the misery by which they hope to enrich themselves'. Some months earlier around Loughrea it was 'well known that speculators have made large purchase of oats, and are overholding oat-meal in store at Galway to raise the price of that article, and realize exorbitant profits'. In Westmeath '1s 6d a stone [was being] demanded', while 'in the large village of Portroe the provision dealers [were] charging £1-4-0 for a cwt. of oatmeal with two securities – and 20% for every day the notes remain unpaid after being due'. In Carlow in January 1847 it was alleged that 'the millers and dealers united to spread

⁴ Kaplan 1976: 192.

alarm among the farmers to induce them to bring their grain to market, which they were always holding back in hopes of higher prices'.⁵

In *De Officiis* (written in 44BC) the Roman writer Cicero describes a trader from Rhodes who has imported a large cargo of grain from Alexandria during a famine. The trader knows that other traders have done likewise, but the Rhodians don't know this yet, so should he in the meantime charge them 'fabulous prices'? It would be a surprise if he did not; throughout history, merchants have combined greed and deception – when they could. Histories of famine often feature stories such as that of powerful rice merchants who spread misinformation about the weather in eighteenth-century China, or usurers in western India in 1860 who allegedly engaged sorcerers to prevent the rains from falling, or wealthy cultivators around Hubli in Maharashtra in 1896-7 whose barns were amply stocked, but who concealed their grain, and sent their dependents to the nearest relief works. Where information was thin and the poor ignorant, it is not hard to imagine that merchants and large-scale producers took advantage of their superior knowledge whenever possible.⁶

The same themes often recur in literary allusions to famine. A villainous character in Ben Jonson's *Every Man out of his Humour* (1599) speculates on 'rotten weather', holding back his stocks of grain as aggregate supply diminishes, and then 'makes prices as he lists'. He fools the public by being seen visiting the market almost daily, buying wheat for household use. Compassion for the starving poor is no part of his way of making a living: 'he that will thrive, must think no course vile'.

⁵ Ó Gráda 1999: 135.

⁶ In the case of the trader from Rhodes it is market imperfections that count.

Shakespeare's *Macbeth* (1606) describes a drunken porter who dreams of opening the gates of hell for the 'farmer that hanged himself on the expectation of plenty'. In Ireland, both William Carleton's *Black Prophet* (1847) and Liam O'Flaherty's *House of Gold* (1929) feature reviled grain merchants who brag about having kept the poor alive in times of famine. In Alessandro Manzoni's *I Promessi Sposi* [*The Betrothed*] (1821-42) a character in the street complains at the height of a famine in Milan in 1629-30, 'there's no famine at all really ... It's profiteers, cornering the market'. 'And bakers', adds his companion, 'hiding their stocks of grain. Hanging is the only thing for them.' People rush to the bakers demanding bread at the (low) decreed price; the bakers protest, caught between the decree and rising costs. Manzoni's hero, the gullible Renzo, joins the rioters in Milan and is lucky to escape with his life.

Interventions by those in power on behalf of consumers only lent further credence to the age-old suspicion that the producers and traders in foodstuffs exacerbated famines by hoarding or exporting them. Whether the accusations reported above are fictional or not, they represent the popular conviction that but for the merchant-speculator there would be enough food to tide everyone over the crisis. Throughout the ages governments, bowing to popular pressure, have felt forced to intervene. Big price fluctuations were a threat to public order, and price stability therefore had a public good aspect to it. In ancient Rome politicians courted popularity by supplying grain to the citizenry at below cost – or even free – and by promising to eliminate 'artificial' shortages. The tradition was continued into the early modern era by the Roman *annona*, which aimed at ensuring the city a regular supply of bread. This entailed keeping prices relatively high in times of plenty, in

order to keep them low when the harvest failed. Many other cities adopted variants of this strategy of storage and trade restrictions. Such measures may have insulated urban consumers to some extent, but at considerable cost in output foregone in the countryside. The most extreme version of such regulations is probably the *maximum général* forced through in 1793 by the *sans culottes*, the radical poor who then virtually ran the city of Paris. This entailed controlling the prices of all commodities deemed necessities. The measure (on which more below), which lasted for a year and brought legal trading in foodstuffs virtually to a halt, was backed by the threat of the guillotine against those who profited in the eyes of the law.⁷

Although the *annona* and the *maximum* represented attempts by those in power at preventing famine, another common strand in the people's complaints describes the ruling classes as the beneficiaries of famine. Thus – to cite only three examples separated by space and time – in Kashmir in 917-18AD the rivers swelled with corpses while 'the king's ministers and his guards became wealthy, as they sold stores of rice at high prices', while in Iran in 1870-72 'senior bureaucrats, landlords, grain dealers and high-ranking religious officials who engaged in hoarding and market manipulation' were blamed for famine, and in Malawi in 2002 trading cartels linked to the political elite were accused of large-scale embezzlement and price-fixing.

The danger to order and stability was greatest in the towns, and so regulation rose in line with urbanization. Since ancient times, towns relied on public warehouses, price controls, prohibitions against hoarding, barriers to entry during crises, and export prohibitions to generate supplies in times of famine. Convinced

⁷ Virilouvet 1985; Reinhart 1991; Aftalion 1990.

that speculation was the source of all trouble in 362-3AD, Roman emperor Julian imposed price controls. When the scarcity persisted he imported grain from nearby cities, but this seems to have been purchased by merchants who re-sold it outside Rome at a higher price. In Thessalonica in 676-78AD the authorities ordered that houses suspected of concealing grain be entered and searched – as would happen again in Bengal in 1943.⁸

The list of rulers who sought to mitigate famine by controlling the trade in foodstuffs stretches from ancient times to Ethiopia's Dergue in the 1980s. Long before the *annona*, in Pharaonic Egypt (where the dry climate eased the problems of storage) and in Han China (c. 200BC) public granaries were used as a defense against famine. In ancient Rome the *curator annonae* also held stores of grain but relied on rented storage space. The post-1664 Manchu Qing dynasty built up an elaborate system of granaries in China, managed directly by the state. The authorities also encouraged gentry- and community-operated granaries in places where the resources required to operate them existed. The system was subject to abuse by corrupt officials, and, moreover, grain storage on a large scale was always inherently difficult and costly. In Russia Alexander I and Nicholas I sought unsuccessfully to eradicate famine (in 1822 and 1834, respectively) by creating a system of granaries, to be filled in good years and emptied in bad.

In 1693 Louis XIV's secretary of state, Count Pontchartrain, employed a different strategy, seeking to prevent middlemen from making 'futures' grain purchases and barred merchants and bulk purchasers from attending the market before a certain hour. Pontchartrain prohibited exports and subsidized long-distance trade within

⁸ Stathakopoulos 2004: 356.

France. During the European famine of 1816-18, the second-last to straddle several European borders, prohibitions or restrictions against grain exports were also common. As always, the aim was to alleviate hunger by attempting to increase supplies and forcing prices down. The ban did little for those with no purchasing power, and the balkanization of markets prevented food from moving to the worst affected areas. Thus the controls imposed by some Swiss cantons prevented grain from moving to famine-threatened highland zones, which were forced to import from further afield at higher cost. As a result, some cantons faced mass starvation, while in others prices hardly rose. In 1936 famine in Honan was exacerbated by the failure of the civil authorities to allow corn across the boundary that separated the area under their control from that controlled by Mao Tse Tung's Communists. In Kenya in the early 1980s balkanized grain markets almost led to famine.

Finally, under Ethiopia's Dergue small scale traders feared for their safety because the actions of a handful of leading traders in shifting grain from famine-stricken Wollo province into Addis Abbeba had made all middlemen scapegoats for the famine of 1974. The Dergue targeted grain merchants as class enemies, executing many in front of village crowds in the provinces. Within a decade of the revolution the number of grain dealers had fallen from 20,000-30,000 to less than five thousand.⁹ The campaign against merchants and middlemen seriously constrained the functioning of markets into the 1980s, and may have contributed to the 1984-85 famine.

Sometimes, rulers opted to encourage rather than to restrict trade. In Edessa '[the governor] gave an order than every one who chose might make bread and sell it

⁹ de Waal 1997: 111.

in the market. And there came Jewish women, to whom he gave wheat from the public granary...and they made bread for the market'. In 1024AD the inhabitants of a famine-stricken town on the Volga 'bought bread from the Bolgars'. In 1316AD, a year of extreme famine, the English king guaranteed the safety of merchants from Genoa and Venice who brought corn from southern Italy, while in 1534AD Rome avoided out-and-out famine with the help of grain imported from as far away as Picardy and Brittany.¹⁰

5.2. French *Économistes* and Adam Smith

The intellectual case for unfettered markets as a means of alleviating rather than exacerbating famine was first widely articulated in eighteenth-century France.

Writers such as Claude-Jacques Herbert in the 1750s and A.R.J. Turgot in the 1760s led the charge, claiming that a prohibition on exports made French grain prices too low and too variable, resulting in an under-performing farm sector. Free entry into a liberalized grain trade would arbitrage away any resultant excess profits.

Competition between merchants would also eliminate excessive price differentials between different markets (as stipulated by the Law of One Price, on which more below) and minimize seasonal fluctuations. Differences in geography and climate offered trading economies a form of insurance against harvest failures: *les accidents se compensent entre les royaumes*.¹¹ Supply shocks were bound to produce deviations from the normal price; but market forces were the surest way of minimizing them.

¹⁰ Drèze and Sen 1989: 138–46, 152–58; Wright 1882: 30b; Lucas 1930: 371-2; Sorokin 1975: 179; Bullard 1982: 281-82.

¹¹ Persson 1999: 8 and Chapter 1, *passim*.

Merchants, who bought when prices were low and sold when they were high, reduced seasonal price variations. State intervention, on the contrary, was more likely to produce uncertainty and speculative bubbles.

The *économistes* shifted the focus of public policy from consumer protection to creating incentives for producers to increase production, which would - in the end - benefit consumers as well. They placed their faith instead in Richard Cantillon's '*entrepreneurs*' and Turgot's '*négociants*', just as English-speaking pro-marketeers would in Adam Smith's 'inland traders', and David Ricardo's 'patient, plodding, calculating merchants'. Despite the radicalism of their project – a complete liberalization of a hitherto tightly regulated grain trade – it met with some legislative success from the 1760s on. In France in 1763 and 1764 internal barriers to trade were abolished and foreign trade was partly liberalized. However, a series of bad harvests led to the traditional pattern of popular unrest and the postponement of that Enlightenment project.

As governor of the Limousin (1761-74), Turgot – the most powerful and coherent exponent of the new liberalism – continued to encourage the free trade in corn. When placed in charge of the French economy in 1774, he immediately deregulated the trade in grain and flour. Within a year, however, he was relying on the king's troops to quell widespread riots against high prices and grain exports. The repression cost Turgot his popularity, and he was dismissed in 1776. For a few more decades, whenever crisis threatened, economic theory was powerless in the face of calls for direct action. In due course, however, its logic led to de-regulation. In most of Europe strict regulation eventually gave way to pragmatic reliance on markets.

In France, the issue continued to be widely debated in the decades before the Revolution, and the view that free trade in grain mitigated the damage done by famine was gaining in influence. The revolutionaries of 1789 established free trade in grain but in September 1793, under pressure from the Parisian *sans culottes*, the radicals in control of the Paris Commune imposed price controls on food and other necessities. The so-called *maximum* led to huge queues outside shops, which were soon emptied of supplies. With shopkeepers reluctant or unable to restock, empty shelves and black markets were inevitable. As the crisis intensified the Commune leadership claimed that only the threat of the guillotine would force the hand of hoarders. However, others accused legislators in turn of being part of a 'foreign plot' to starve Paris. The guillotining of the more moderate Danton (5 April 1794) and the radical Robespierre (27 July 1794) were both linked to the political struggles generated by the food crisis. Some historians blame the famine of 1794 on the removal of the *maximum* after Robespierre's downfall; Richard Cobb held that the death rates of the period indicted the free market policies introduced in the wake of Robespierre's overthrow. Others contend that, on the contrary, the *maximum* was deterring farmers from growing the corn the bakers needed to produce bread.¹²

Adam Smith addressed the problem of famine in Book IV of *The Wealth of Nations*. He blamed (wrongly, as it happens) the catastrophic famine of 1770 in Bengal and Bihar on the meddlesome policies of the East India Company, and counselled confidence in the grain trader as the best palliative for a 'dearth' or harvest failure. Smith believed that free markets minimized the inconveniences of 'dearths' by ensuring both intertemporal and interregional arbitrage. Corn

¹² Aftalion 1990: 170.

merchants were best placed 'to divide the inconveniencies of [a scarcity] as equally as possible through all the different months, and weeks, and days of the year'¹³. Their optimal selling strategy would be to even out consumption over the harvest year; those who hoarded supplies too long would be forced to sell at a loss. Moreover, by reallocating grain from areas in relative surplus to those in relative deficit, the market mechanism is likely to produce a net reduction in the damage done by any harvest failure.

Edmund Burke's *Thoughts and Details on Scarcity*, presented in draft form to British Prime Minister William Pitt in November 1795, was another influential tract in the transition toward freer markets. Written at a time when grain prices were high and worries about a French invasion widespread, Burke seems to have intended to publish *Thoughts* in the form of letters addressed to English agronomist Arthur Young, but in the event it appeared posthumously in 1800. In anticipation of Malthus and against the radical thinker Tom Paine, Burke—by this time a rather reactionary thinker--argued that poor relief in times of famine was not the responsibility of politicians: 'the people maintain them, and not they the people'. Statesmen might prevent evil, but they could do 'very little positive good in this, or perhaps in any thing else'. Tampering with food markets even in normal times was risky, claimed Burke; doing so during a famine, when tempers are high and suspicions deep, was 'always the worst'. Burke also condemned the age-old remedy of state or municipal granaries as costly and liable to result in waste and corruption.

In *The Question of Scarcity Plainly Stated*, prompted by the near-famine of 1799-1800, Arthur Young argued that the harvest shortfall was 'great and real [and] a very

¹³ Smith 1976 [1776]: 533-4. See too Rothschild 2001.

high price a necessary consequence', against critics who blamed artificial manipulation by hoarders and speculators. But Young, a defender of the landed interest, did not fully trust merchants' judgement in the matter of predicting the size of the harvest, and as secretary of the Board of Agriculture urged the necessity of a national agricultural census.

Europeans did not have a monopoly on the case for de-regulation, however. Several officials in mid-eighteenth century China objected to state meddling with the grain market. In the late 1740s the governor-general of Guangdong and Guangxi criticized measures such as price ceilings (which he believed would result in higher prices due to the cost of evading them), pressurizing hoarders (which would reduce the stores necessary for later in the agricultural season), and preventing peasants from using grain as collateral when seeking loans. Such criticisms betrayed a fair understanding of market forces; their articulation is perhaps less surprising, given recent research suggesting that Chinese markets were no less integrated than European at this juncture.¹⁴

Although most pro-marketeers focused on the short-run effects of de-regulation, some also held that it reduced the likelihood of famine in the long run. This was because the regional specialization resulting from free trade would increase aggregate output, and therefore would reduce the risks attendant on any proportionate harvest shortfall.¹⁵

Finally, a further benefit of free markets, not articulated by Turgot or Smith, concerns the market for labor. As already noted in Chapter 3, labor migration

¹⁴ Dunstan 2006; Keller and Shiue 2007.

¹⁵ Persson 1999.

arguably limited the damage wrought by poor harvests, since it lessened the pressure on food and medical resources in regions where the crisis was deepest. This is probably true even when the poorest lacked the resources to migrate. In Ireland in the 1840s, emigration was an inefficient form of famine relief, insofar as it did not help those most at risk directly. Nonetheless, famine mortality would surely have been higher without the safety valve of emigration, with more people competing for scarce food supplies.¹⁶

5.3. Markets and Famines in Practice

Whether merchants were (or are) as omniscient and flexible in times of famine as Adam Smith and his French predecessors claimed remains a contested, empirical issue. Not all of Smith's contemporaries agreed with him¹⁷, and many others since have argued that markets do not work as smoothly as he implied.

The performance of markets during famines may be judged from spatial and inter-temporal perspectives. The spatial aspect concerns the movement of foodstuffs from less to more disadvantaged areas. Markets 'failed' when they failed to arbitrage away price spreads bigger than those justified by transport costs. In such cases, food markets flouted the Law of One Price (LOP), first articulated by Richard Cantillon in the 1720s. Cantillon, a pioneer in economics, described LOP as both an equilibrium condition and an adjustment process:

¹⁶ Ó Gráda and O'Rourke 1997.

¹⁷ Rashid 1980.

The price difference between the capital and the provinces must pay for the costs and risks of transport, or otherwise cash will be sent to pay the balance and this will go on until prices and in the provinces reflect the level of these costs and risks.

Cantillon's point is that prices may well deviate from their equilibrium values, but market forces will eventually arbitrage away significant deviations.

Most populist critiques of how markets worked during famines focused on the inter-temporal aspect. They held that traders often, if not always, tended to underestimate the size of the harvest in poor years, and thus engaged in 'excessive' storage. The claim implies an asymmetry in speculators' expectations about the state of the harvest: they tended to be too pessimistic when there is a harvest shortfall.

Empirical evidence on the spatial dimension is mixed. An implication of LOP is that, as long as transport costs do not rise, the coefficient of variation¹⁸ in prices across regional markets should fall during famines. An analysis of grain markets during four famines in pre-industrial Europe produced some evidence of slightly greater market segmentation (in the sense of higher coefficients of variation) during famines, but evidence too in most cases of a quicker-than-normal response to emerging disequilibria. During these famines, markets certainly worked better than might have been expected on the basis of a reading of qualitative and fictional accounts.¹⁹

The contrasting outcome in the maize markets of Botswana and Kenya in years of crisis in the early 1980s is also apposite here. In Botswana, where the average

¹⁸ The coefficient of variation is the standard deviation divided by the average. Less formally, LOP implies that price variability across markets should not increase when the average rises.

¹⁹ Ó Gráda 2001, 2005.

price of maize meal rose from 3.53 to 4.74 *pula* per bag between August 1980 and April 1983, the coefficient of variation across eighteen markets fell from 0.07 to 0.05. In Kenya, however, where the average retail price of maize rose from 2.42 to 4.61 Kenyan shillings per kilo between January and November 1984, the coefficient of variation across eighteen markets trebled from 0.15 to 0.45.²⁰ Further perspective is obtained from the situation in what would later become Germany-Prussia in 1816-17. In these years poor harvests led to high prices and excess mortality in northern and western Germany, while harvests in East Prussia were bountiful. Trade between different parts of Germany-Prussia was far from free, however: in Friedrich List's oft-cited account, 'numerous customs barriers cripple trade and produce the same effects as ligatures which prevent the free circulation of the blood'. In the circumstances, the spatial variation in prices was bound to increase, and it did.

In India during World War II policy-makers gave provincial administrators control over grain flows within their jurisdictions. This helps explain why in mid-May 1943 the maund (about 82 lbs.) of rice that could be had in Cuttack (Orissa) for 6½ Rupees cost over double that in Bareilly (Uttar Pradesh) and over four times as much in Chandar-Puranbazar (Bengal).²¹ Within the province of Bengal in 1943-44, the coefficient of variation of rice prices increased sharply above the average of preceding years (from 0.210 to 0.337). The rise was only in part due to the near-quadrupling in prices in Calcutta in 1943 (excluding Calcutta, the numbers are 0.219 and 0.299). The outcome is described in Figure 5.1a. In an important study of the Bangladesh famine of 1974-75 Martin Ravallion found evidence of 'significant

²⁰ Drèze and Sen 1989: 138-46, 152-58.

²¹ *Star of India*, 13 May 1943.

impediments' to trade between the capital city, Dhaka, and its main sources of supply.²² Figure 5.1b describes the coefficient of variation in the wholesale price of medium quality rice across Bangladesh between July 1972 and the end of 1975: the spike in late 1974 reflects the balkanisation of markets at the height of the crisis.²³

Recent research on famines in Sudan and Ethiopia in the mid-1980s suggests that they too were exacerbated by the weak spatial integration of markets. According to von Braun and Webb, price explosions, price controls, and market disruptions were 'commonplace', resulting in sharply rising marketing costs and making price trends in sub-regions often dependent on conditions in those same sub-regions alone. Regional prices in Ethiopia in normal times moved in tandem but in the mid-1980s and again in 1988, the prices of sorghum and *teff* (the staple crop of the Ethiopian highlands) in Dessie, capital of Wollo province, soared above levels in other regional capitals. Von Braun and Webb link such anomalies to restrictions on private traders buttressed by quotas and road-blocks.²⁴ Trends in the spreads of *teff* and sorghum prices across ten of Ethiopia's provinces before and during the famine tell a somewhat different story, however. The rise in the coefficient of variation of *teff* prices from an average of 0.24 in 1981-83 to 0.28 in 1984 and 0.34 in 1985 was significant, but much less than the rise in Kenya (see above) over roughly the same years. The coefficient of variation of sorghum prices changed little during the same period: 0.43 in 1981-83, 0.41 in 1984, and 0.45 in 1985²⁵.

²² Ravallion 1987.

²³ Note too the implication that retail margins rose, albeit briefly, during the crisis. The Bangladeshi data are taken from Alamgir (1977), the Bengali data from the Pinnell Papers (British Library, India Office Records, Mss. Eur. D911/8, 'Further information desired by the Commission on 3rd Sept 1944: Prices').

²⁴ Webb and von Braun 1994, pp. 47-55; see too von Braun, Teklu, and Webb 1999, Ch. 6.

²⁵ Derived from Kumar 1990: 200-01.

Figure 5.1a. Regional Variation in Rice Prices in Bengal, 1942-43

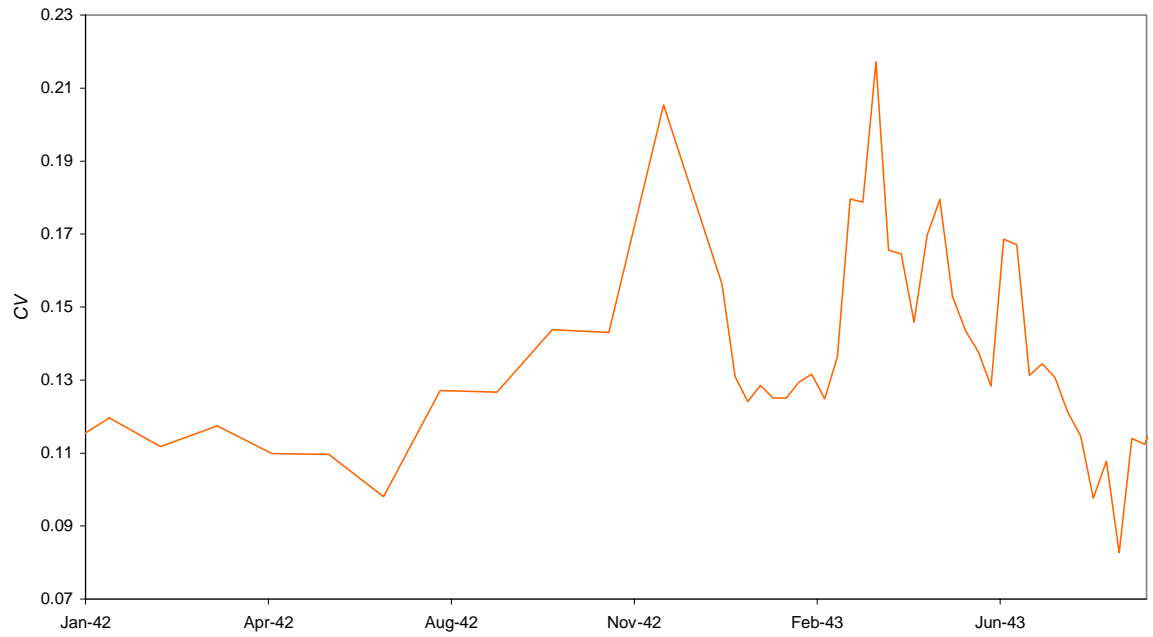
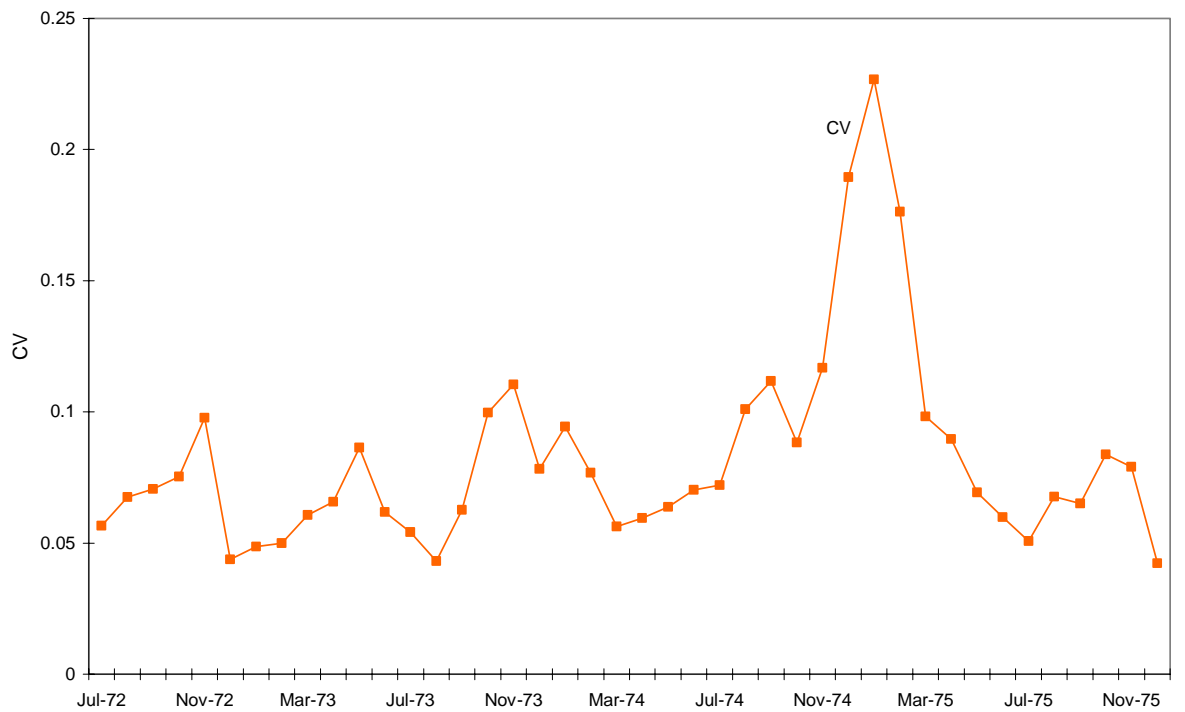


Figure 5.1b. Rice Prices in Bangladesh 1972-75



What of the evidence on intertemporal arbitrage? Direct evidence on quantities stored is elusive, but sometimes something may be inferred from price data. Holders of grain expect to be rewarded for the opportunity cost of storage. In an uncomplicated world where there are no carry-over stocks from one year to the next, this would imply a saw-tooth price seasonality pattern in equilibrium, with low prices in the wake of the harvest giving way gradually to a maximum before the new harvest comes in. Moreover, in a well-functioning market seasonality would be expected to produce the same proportionate increases in prices in bad years as in good. If, however, some farmers and traders begin to hoard in the wake of a poor harvest, so that the proportion of the crop delivered to market in the wake of the harvest is less than in non-crisis years, the result would be proportionately higher prices early in the season -- and therefore a less than proportionate rise between then and when the following harvest's crop is imminent. Hoarding during famines, in other words, implies smaller increases than usual from seasonal trough to peak.²⁶

In the case of grain, in reality this presumption is complicated by the presence of carry-over stocks from one harvest to the next. This produces considerable variation or 'noise' in month-to-month and seasonal price movements. However, research into a series of famines in pre-industrial Europe – France in the 1690s and 1700s, Ireland in the 1840s, Finland in the 1860s – shows that the seasonal rise in prices during famines dwarfed that in non-crisis years. In the case of the potato in Ireland during the 1840s, where storage was not a complication, the outcome was the same: a much sharper seasonal increase during famine than in normal years. Such findings do not rule out excess hoarding, but surely they make it less probable.

²⁶ Ó Gráda 1993: ch. 3; Ó Gráda and Chevet 2002.

Research on twentieth century famines argues that, on the contrary, speculative hoarding can exacerbate famine situations. Amartya Sen's influential analysis of the Great Bengali Famine of 1943-44 (on which more in Chapter 6) builds on the finding of the official Famine Inquiry Commission, which argued that the rise in food prices was 'more than the natural result of the shortage of supply that had occurred'. Sen blamed farmers and grain merchants for converting a 'moderate short-fall in *production*... into an exceptional short-fall in *market release*' (emphases in original), and found that the famine was due in large part to 'speculative withdrawal and panic purchase of rice stocks... encouraged by administrative chaos'. Such speculation exacerbated the deterioration in the exchange entitlements of the poor, already hit by inflationary rises in the price of food. By ruling out food availability decline (FAD) as the fundamental factor in Bengal in 1943-44 (and by extension in other twentieth century famine situations), Sen made room for an interpretation that places near-exclusive stress on market failure and public policy errors. Martin Ravallion's brilliant study of the 1974 Bangladeshi famine broadly corroborated that of Sen. He found that excess mortality was, 'in no small measure, the effect of a speculative crisis'. Rice prices rose dramatically because merchants had badly underestimated a harvest that turned out to be normal. Prices then fell back just as fast.²⁷

In the instances mentioned above, food markets were not subject to drastic governmental interference. In twentieth century Western Europe, however, where famine was an exclusively wartime phenomenon, price controls and rationing were the norm. Black markets followed, almost as inevitably as night follows day. In the

²⁷ Sen 1981; Ravallion 1987.

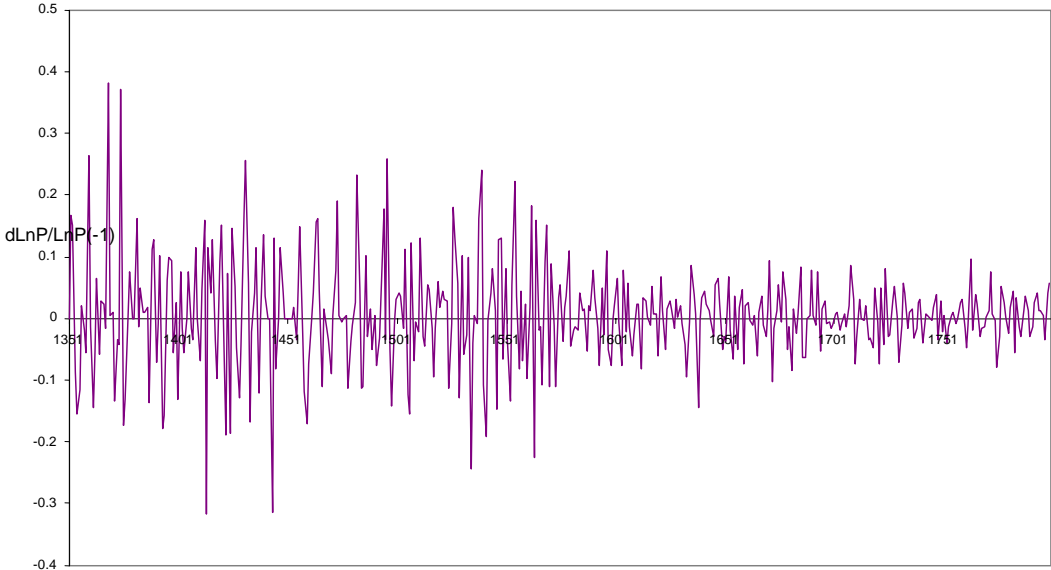
Soviet Union of 1918-19 'war communism' prohibited trade in foodstuffs, but semi-legal markets flourished. Working-class households obtained half or more of their food through means other than rationing. The famine in occupied Greece in 1941-44 followed the naval blockade imposed by the allies in the wake of Greece's occupations by the Italians and the Germans in April 1941. A food scarcity quickly ensued, and assumed crisis proportions within months. In Greece price controls were nothing new in times of food shortage; their introduction even before the German invasion had led to panic purchasing and hoarding, and the rationing of foodstuffs from 1941 on led to intensified black market activity. Short-term price movements on the black market were very sensitive to rumours about the war's progress. The regional variation in prices also rose sharply, a sign that the various black markets were far from integrated, partly because the effectiveness of these markets was hampered by hyperinflation. The authorities sometimes took drastic action against the black marketeers, including public executions, but in vain. For most of those involved (apart from a few major operators) the markets were a means of survival.²⁸

In general, such markets probably mitigated rather than exacerbated crises. A black market in ration cards (which entitled people to various food items, including some they may not have wanted) may well have increased welfare. And insofar as the evasion of price controls encouraged farmers to increase agricultural output, the impact of black markets may again have been benign. However, the same may not apply to illegal trades in foods which should have been ceded to – or requisitioned by – the authorities for redistribution to those at most risk.

²⁸ Adamets 2003: 78-81; Hionidou 2006: 87-108.

Finally, the long-run gains from better spatial and intertemporal arbitrage are clearly evident in Figures 5.2a-5.2c, which refer to the markets for grain in Pisa, Rome, and England. They describe year-to-year differences in the natural log of wheat prices over several centuries prior to 1800.²⁹ The reduced variability in the series – in England and in Pisa from about 1600, in Rome from about 1700 – imply reductions in the cost of holding carry-over stocks and of transport. These must have significantly reduced the vulnerability of the Italian and English poor in the early modern era.

Fig. 5.2a. Year-to-Year Variation in the Price of Wheat in Pisa, 1351-1799



²⁹ The price data are taken from Clark 2004 [England]; Reinhardt 1991, pp. 509-565 [Rome]; Malanima, 'Wheat prices' [Pisa].

Fig. 5.2b. Year-to-Year Variation in the Price of Wheat in Rome, 1564-1797

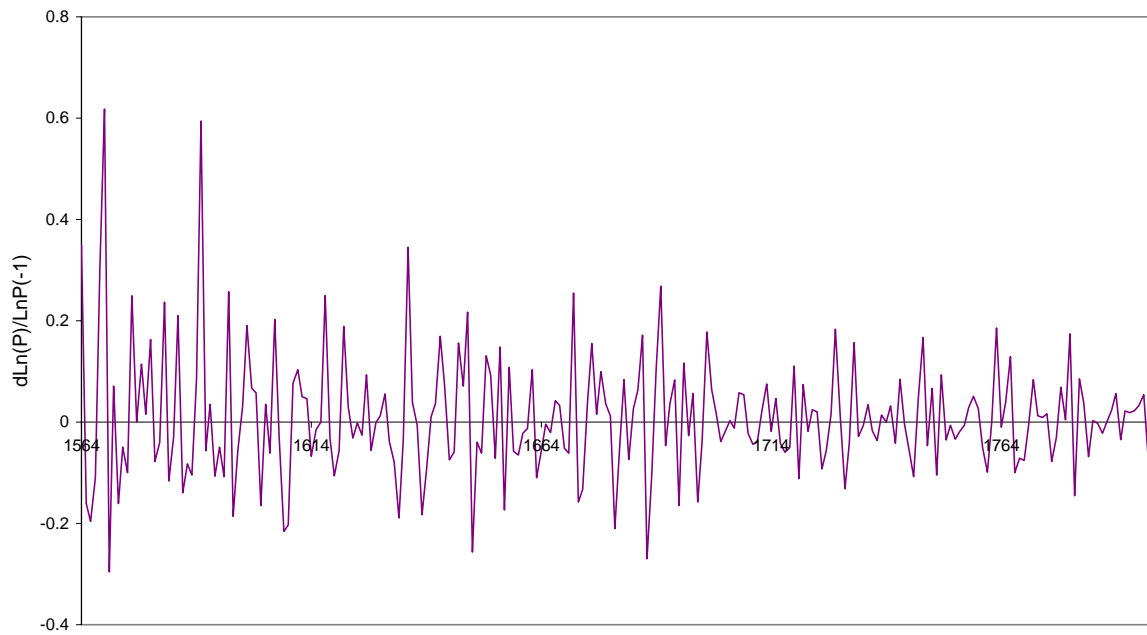
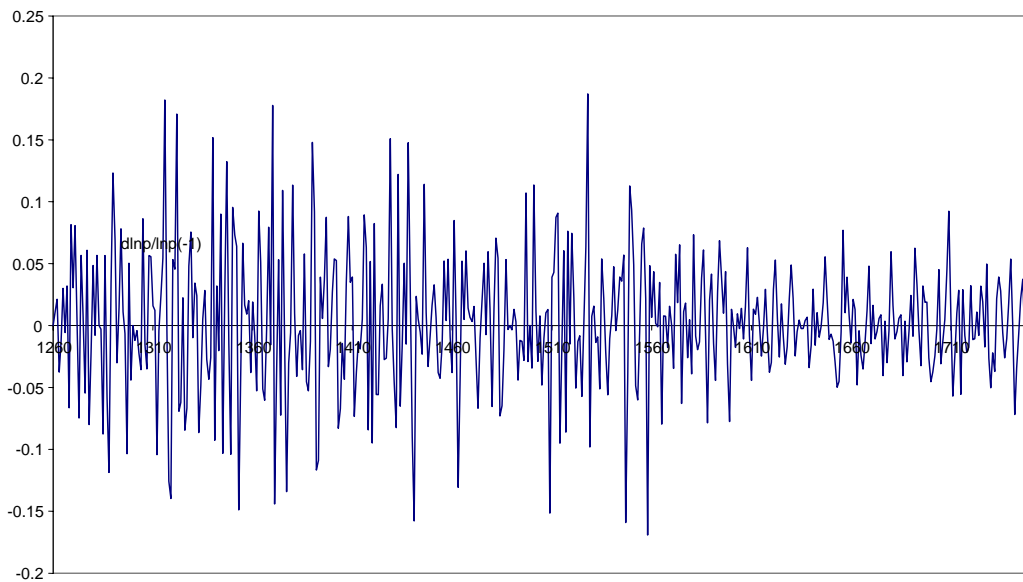


Figure 5.2c. Year-to-year variation in the price of wheat, England 1260-1749



The above analysis has focused on how free markets might benefit the poor by supplying food where and when the demand for it is greatest. 'Need' and 'demand'

are not the same things, however: it is easy to imagine how markets might allow outsiders, armed with the requisite purchasing power, to attract food away from famine-threatened areas. Well-functioning commodity markets are a mixed blessing when the distribution of income moves against the poor, as highlighted by Sen in *Poverty and Famines*. Much depends on the extent to which such exports are used to finance cheaper imported substitutes (e.g. Indian maize for wheat).

Much also depends on the speed with which food markets adjust. Today long-distance movements of foodstuffs during famines, by air and by fast ships, are routine. For example, the international media first began to focus on the crisis in Niger in mid-July 2005. A week later the Irish charity GOAL had chartered a humanitarian airlift into that troubled country. In earlier centuries such a rapid reaction could not be relied on. Table 5.1 makes the point for the case of the Irish famine. Although comparing pre-famine (1840-5) and famine (1846-50) quinquennia captures the slump in production, it also suggests that imports largely made up for the shortfall in production. However, this ignores the lag between the failures of the potato in 1845 and 1846 (with an accompanying reduction in grain acreage) and the arrival of large quantities of imports of maize in the spring and summer of 1847. Treating 1846-50 as a unit muffles the serious food availability problems in 1846-7 in particular, and ignores the time it took to turn the export surplus into a deficit. Exporting wheat in order to import maize was fine in principle, if it could be done speedily, but that was not the case in Ireland in late 1846 and early 1847.

<i>TABLE 5.1. IRISH FOOD SUPPLIES, 1840-5 AND 1846-50 (in 1,000 kcal/day)</i>		
	1840-5	1846-50
Irish production (less seed and horse consumption)	32.1	15.7
Less exports and non-food uses	-11.8	-3.1
Net domestic supplies	20.3	12.6
Plus imports	+0.2	+5.5
Total consumption	20.5	18.1
Source: Ó Gráda (1994: 2000) after Solar (1989: 123)		

In nineteenth-century India, it was a similar story. During the Orissa famine of 1867 the balance of trade responded too slowly and too weakly to mitigate the damage done. At the time the pro-free trade *Calcutta Review* argued that in the event of a poor harvest, trade offered a cushion, since the affected region could import more and export less, and thus insure itself against famine. Though fine in principle, in practice this mechanism worked too sluggishly. In an earlier era prohibitions on exports (and on distillation too) would have been allowed, and probably would have offered some temporary respite against famine.

5.4. Conclusion:

The historical record suggests that the integration of markets and the gradual eradication of famine are linked. Wheat price data from a wide range of European markets highlight the coincidence between reductions over time in (a) the amplitude of year-to-year fluctuations and (b) the frequency of documented famine. So well integrated were European grain markets in the 1840s relative to earlier that 'price

movements do not help much to localize the crisis'³⁰. Smoothly functioning markets did not cause the elimination of famine, however: both were functions of economic development. In backward economies where markets were thin and slow to adjust, ruling elites relied on a variety of strategies in order to ensure the supply of food. Clearly such schemes had some success; they would not have persisted for so long otherwise. But their 'success' came at a cost. A well-documented case in point is the Roman *annona*, part of the regulatory framework in Rome since classical times. This institution brought the Holy City immunity or near-immunity from famine in the early modern era, although presumably at the cost of production and income foregone in its rural hinterland.

Recent research suggests that the 'failure' of food markets was not responsible for famines, at least in early modern Europe. At the same time, it should be emphasized that markets were no panacea: market forces lacked the power and the speed to over-ride severe harvest failures in backward economies. In Ireland in the 1840s as in France in the 1690s and in Finland in the 1860s the catastrophic nature of harvest failures overwhelmed functioning markets. Moreover, in nineteenth-century Ireland and India, a dogmatic faith in markets as a mechanism for relieving famine cost millions of lives.³¹

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³⁰ Solar 2007: 91.

³¹ And compare Garenne *et al.* 2002.

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