SPECULATION AS A CAUSE OF FAMINE – A DANGEROUS MYTH

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ABSTRACT

Decisions on how to deal with a famine are often influenced by an unevidenced belief that the famine is caused by speculation. This paper sets out the analysis and data that would be required to turn this belief from a myth into a sound basis for action. This requires analysis of factors not included in textbook models. This is illustrated by the Bengal Famine of 1943, in which, it has been argued, the authorities concentrated on trying to find speculative stocks when food imports were urgently needed. It is concluded that it will seldom be possible to justify the belief that a given famine is caused by speculation, particularly in the brief period when urgent action is needed.

INTRODUCTION

Rumours that a famine is caused by speculation are common, indeed usual, and have been reported over a long time - certainly, Adam Smith criticized them (1776, 1977, p. 26). A lot of people can die if the authorities deal with a famine as though it was caused by speculation when it was not:

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they may for instance concentrate on finding non-existent speculative hoards instead of importing food, as happened in Bengal in 1943 (Famine Inquiry Commission, 1945). If it was easy for speculators to make their fortunes by creating a famine, we may ask why we do not have a famine every year in all countries. In the absence of evidence and analysis, these claims are myths. Since mainstream economics has been sceptical of claims that speculation causes famine, the onus of proof lies any economist, administrator or politician who claims that speculation caused a given famine. Nevertheless, academics writing on famine continue to claim that famines were caused by famine without producing evidence or economic analysis.

It is easy to imagine a situation where a speculator can create a famine, if one makes sufficiently extreme assumptions and suppresses reality. The Bible describes Joseph and the Pharaoh stealing the public grain reserves after a crop failure, and making the population sell itself into slavery to get enough food to survive (Genesis 41-47), but even in this extreme situation it is not clear whether they created the famine by withholding supplies or whether they just profited from a famine caused by crop failure. If they sold all the reserves, they just profited from it. If they kept back some of the reserves to push up prices, they increased deaths.

This paper discusses the economic analysis that would be needed to show that, in a specific famine, first, it was possible for a famine to be caused by speculation and, second, that rational speculators would have caused the famine and, third, that the speculation was in fact a cause of the famine. The analysis is not confined to the simple textbook analysis of speculation but includes factors that are of key importance in real world situations.

BACKGROUND: THE BENGAL FAMINE

I take the example of the Bengal famine of 1943, as it was far better documented than any food crisis I have come across. Bengal had a capitalist economy where rice was the main food crop. Most of the rice was produced

by subsistence farmers – farmers who grew mainly for their own consumption but sold any surplus they had. Many of them were tenant farmers, who had to pay rent to landlords. Many of them were deeply in debt to moneylenders or landlords. The assembly was done by grain traders, who might also be moneylenders or landlords. In normal years there would be some trade locally, and surpluses would be sold to deficit districts in the rural areas. Rice and significant amounts of fresh foods were sold to the urban areas. The province had a population of 62 million, with some 6 million in urban areas, notably Greater Calcutta, with a population of 4 million. In 'average' years the province could not feed itself, and the urban areas had to import rice and wheat. There was no state marketing board for grain. Full details are given by the Famine Inquiry Commission (1945).

There were changes in supply and demand in 1942 and 1943 which created a pre-famine situation. In 1942, the Japanese invaded Burma which had supplied Bengal's cities so Bengal's shortfall in 1943 would have to come from other Indian provinces instead. About 300,000 Burmese refugees arrived and had to be fed. An unknown number of soldiers arrived: let us guess at 300,000. From the beginning of August 1942, the soldiers were fed non-perishable food like rice and wheat which was bought outside the province, but their fruit, vegetables, meat and fish were bought locally. The population grew by 0.6-2% per year.[2] While the 1941/2 rice crop was good, much of it was exported to deficit provinces. The 1942/43 rice crop was hit by drought, then a cyclone which caused tidal waves and widespread wind and rain damage, and then there was a devastating fungus outbreak .

There was immediate famine in the area hit by tidal waves in October 1942, followed by widespread hunger in late 1942 and famine in 1943 until the 1943/44 rice crop was harvested.

Many administrators from the Viceroy down, many politicians throughout India, and many of the public chose to believe that Bengal had

[2] The Director of Census thought that the three most recent censuses were not comparable and that the 1941 census overstated population, (Government of India, 1946) so one cannot calculate population growth.

sufficient food in 1943, despite a range of forecasts of a serious shortage by government bodies and by rice traders.

The famine hit the areas worst hit by the cyclone immediately and was felt widely by December 1942. Rather than abandon their belief, or stated belief, that there was plenty of food, politicians and administrators sought new explanations. The claim that the famine was caused by speculation was attractive. It meant that the Government of India and governments of other provinces did not need to act: it was Bengal's problem. They refused to supply Bengal. The Bengal government tried to buy rice locally: a very small amount was bought, but prices soared as supply was inelastic – which is what Malthus observed when governments tried to buy non-existent grain stocks. Bengal Government searches found no speculative stocks. The famine got worse. Eventually enough people changed their mind for Bengal to tackle the famine by importing food. (Famine Inquiry Commission, 1945; Bowbrick, 1986; Bowbrick, 1988, 2008; Tauger, 2009; Tauger, 2006)

NORMAL SPECULATION

I concentrate here on rice, the main staple crop, because it was one of the few storable foods, and because the literature on the famine concentrates on this, ignoring all other foods or giving them a brief mention. I discuss below problems that arise from ignoring other crops.

We may first distinguish between normal commercial speculation and speculation that might cause famine. The mainstream economic models for commercial speculation might start with a single trader who must decide how much to buy, at what price, and at what date, and then how much to sell, and when to sell, to maximize profits. Factors that might be relevant would include perceptions of what supplies were 'available' within the market at the time of purchase, and perceptions of the probability of these changing, through import and export for instance. Beliefs in what the market supply will be each month before the next crop is harvested continually change. The perception of

future supply affects decisions: if the new crop is expected to be big, it may be rational to sell all stocks before the new crop hits the market, retaining the minimum working stocks. If the new crop is expected to be low, it may be rational to reduce sales sharply as soon as the trader gets the news, in order to carry over the maximum into the next season. Even in normal years, much of the traders' profit or loss comes from choice of selling date. The availability of credit is important: traders often have to sell a few months before they want to in a rising market because their credit has run out.

I have talked of beliefs, because countries facing famine seldom have hard information on prices, stocks and shipping movements. I discuss the availability of information below. Many of the decisions are based on rumours, both rumours that the speculators believe, and rumours that they do not believe, but that they think will change supply and demand. That is to say traders are gambling. Speculation is risky and risk is a cost.

The models become more complex when competition between firms and the economics of information are included.

Systems like this are normal in many markets, and usually have the effect of damping down fluctuations in supply and in prices.

It is a commonplace that consumption by farmers varies according to the crop size, but that the consumption of poor indebted farmers, including tenant farmers, and of large farmers and landlords change in very different ways. In a famine year, for example, large farmers may be eating more because they are making so much money, but they are well-fed anyway, so no change can be expected. Indebted farmers and tenant farmers sell after harvest, getting higher than usual prices, but not famine prices, so they can pay off what they owe with smaller sales, and eat more.[3] This does not apply if they are permanently indebted. However, the repayment may be set in terms of bags of rice rather than sums of money, so this does not apply. There were

[3] In 1943 the Japanese and German naval blockade meant that there was a serious shortage of some of the necessities of rural life on the Indian market, as well of luxuries, so, it might be argued, people had less use for money than they normally would have. There was also inflation.

contradictory rumours in Bengal, both rumours of farmers eating a lot more than usual, and the observations of much of the rural population going hungry and facing starvation. It is a matter of fact, not economic argument, and it requires careful observation at the time.

HOW SPECULATION CAN CAUSE A FAMINE

Usually traders will buy as cheaply as they can and sell at the highest price they can, with the result that consumers have to pay very high famine prices, so high that they become destitute, go hungry or even starve. The high prices do not change the quantity of food on the market, but they do determine who will starve. This speculation does not *cause* the famine, but it may cause long term hunger in a destitute population. An alternative is for the government to seize or otherwise obtain commercial stocks, and distribute them by rationing, by relief and by food for work. The impact on deaths depends on whether there is a First, Second or Third Degree Shortage (Bowbrick, 1986). This normally reduces the destitution and its long-term effects. This was the standard Indian procedure under the Indian Famine Code, but it was not applied in Bengal in 1943.

The speculation that might cause a famine is quite different. Speculation would only have caused the Bengal famine if it had reduced the total grain supply on the market by one or two million tons – the statistics are too bad to justify a more precise guess. Speculators would have to reduce supply by exporting, by buying rice and destroying it, or by buying it and storing it until after the famine was over (Bowbrick, 1986, 2022).These possibilities were examined at the time and no evidence of this was found (Famine Inquiry Commission, 1945; Braund, 1944; Pinnell, 1944).

The theory starts with simple models, assuming that a firm, or cartel, has perhaps 75% of the market in normal times. It removes, say, 25% of total supply from the market in late 1942 by destroying it, by exporting it, or by storing it until 1944 or 1945. The result is that prices rise sharply because there

is an inelastic demand for food. The cartel intends that the increase in price they get is at least enough to cover its costs and it hopes that it will be much greater. All the sellers in the market, not just cartel members, benefit from the higher price – the non-members are 'free riders' who make the profit without incurring the costs (an important concept in speculation theory). If traders think that the cartel is going ahead whether or not they join it, they will, rationally, choose to be 'free riders'.

If, however, the firm or cartel has only 10% of the market it would still have to withdraw the same 25% of the total supply from the market, three and a half times its normal purchases, to achieve the same rise in price. This increase in prices would then not cover their costs of buying in stocks which were withdrawn. The smaller the proportion of the market controlled by the cartel, the less probable it is that this speculation could be feasible, let alone profitable.

There were in fact millions of firms operating in the Bengal rice market ('firms' being used here in the economic sense, including large farmers, landlords, moneylenders, and large urban manufacturers who store food for their employees rations etc. as well as the grain traders – anyone able to store and then sell outside the village in fact). It is by no means certain that a firm or cartel could have had as much as 2% of the total national market, which makes it extraordinarily unlikely that anyone would have attempted to withdraw 10%, let alone 25%, from the market.

The market consisted of an urban sector, consuming up to 15% of the total rice production, and a rural sector consuming perhaps 85%. People holding stocks in the rural sector included millions of farmers, as well as landlords, moneylenders, and local traders. Most of their normal business was transfers inside this sector. In some years they did export to urban areas, or even export to other provinces in the very few years when Bengal did have a surplus. During the famine unusually large amounts were shipped from the rural traders to Calcutta. The urban traders were procuring for the cities, and handling the imports, and so were much more visible to administrators, city dwellers and academics, who appear to have believed that they had a larger

market share than they did. I have come across nothing in the Bengal literature which sets down which firms might have been involved in speculation to create a famine, nor what market share they might have had.

Contemporary reports were that farmers, landlords, moneylenders and local traders believed from the time the cyclone hit that there was a serious shortage and that prices would rise throughout the season. Those who could do so, sold enough at the high prices at harvest time to cover their immediate financial requirements, taking advantage of the high price. They then stored their remaining stocks and waited for prices to rise to famine levels. They were, therefore, carrying out the normal within-season speculation. Farmers in many countries routinely speculate like this. One result was that the amount of grain hitting the market immediately after harvest was less than the normal marketed surplus; it was reduced by the increased stocks held at village level and locally.

All this implies that it would have been difficult for any cartel to buy enough grain to create a famine by removing it from the market.

The reliability of the rice statistics is discussed below, and it is shown that neither the trade nor the government had any meaningful statistics on which they could have based their actions. There were no statistics at all on foods which may have produced most of the calories in some areas: other grains, pulses, roots, tubers, coconut, breadfruit, fresh fruit, vegetables, meat and fish. They were, therefore, largely ignored by administrators at the time, and by academics commentating on the famine subsequently. It may be guessed that these foods were equally damaged by the drought and cyclone, but not the fungus. Perishables could not be stored for speculation. This implies that removing 25 percent of the rice might only have reduced total food supplies by 12 per cent.

Clearly the onus is on anyone claiming that this speculation is happening to model how much would have to be removed from the market, and to identify who might be part of the cartel. They should also check with the banks to see who might be taking part in the speculation, and do checks on the actual amount large traders were storing. The Bengal Government did this and

found that stocks were lower than in normal years.

ORGANIZING AND MANAGING THE CARTEL

It is unlikely that any one firm would have the market share needed to make it profitable to create a famine, so it would have to create or join a cartel. Speculation theory considers problems in organizing and managing the cartel at some length. The cartel relies on agreements between members, which may not be written down. The agreements would not be enforceable in law, as they deal with an immoral and unlawful enterprise.

All members incur costs, both their normal trading costs and the purchase of extra rice stocks to be exported, hidden or destroyed, as well as the costs of assembly, storage and security – protecting the stores from looting by criminals or the general public.

The problem of 'free riders' arises again. If a firm joins the cartel, it gets the higher market price, but it incurs the significant cost of buying rice to remove it from the market. If a firm refuses to join the cartel, it does not have to help buying the rice that is to be removed from the market, but it still gets the higher market price and can sell all its purchases, not just the proportion that the cartel permits, so it makes a much higher profit. It is then termed a 'free rider'. If the 'free rider' believes that the cartel is going ahead anyway, it would be rational for it to stay out of the cartel and to buy more than usual and store it to sell at the higher price. This, of course, increases the price at the beginning of the famine, further reducing the profit of the cartel.[4] The 'free riders' among the traders can be expected to withhold supplies at the beginning of the famine year, selling later in the year when prices reach their peak. This means an even greater fall in supply in the early part of the year,

[4] This is a development of the theory of the tragedy of the commons, where, for example, farmers who have the right to graze on common land all know that they would all benefit from applying fertilizer to the land, and that they would be better off still if they were the only farmer not to agree to pay for the fertilizer. While this phrase first appeared in print in 1833, the concept certainly was mainstream centuries older, having driven the enclosures, and was probably well known for millennia. It is used routinely in analysing African traditional agricultural systems for instance.

and a sudden increase in supply when they decide to sell late in the year.

It may be argued that it is going to be a lot easier to set up a cartel when there are only a handful of traders, and virtually impossible when there are hundreds. Practical problems, such as the hatred between different religious communities in Bengal at the time, suggest that it would be difficult for any cartel to control a big enough part of the market to cause a famine.

Controlling sales is the next problem. For the plot to work, all members of the cartel must act in concert, in buying, in withholding from the market and in selling. Each individual member would profit by waiting for prices to rise to near peak levels, then breaking their agreement and selling their *total* stocks including those held to create the famine. If one of a three-member cartel did this, there would be a sharp fall in prices, which would mean that the others lost money from the venture. If one member of a ten-member or fifteen-member cartel did this, they would certainly make much more money. If all the other members stuck to the agreement, they might have a reduced profit, but still a substantial profit. However, if they thought it likely that one of the remaining members was going to break the bargain and sell off everything, each would decide that it was in their interest to sell everything immediately, before anybody else did, and the market would collapse – with 25% of normal sales dumped on the market over one or two months! Anybody who hesitated would be bankrupted. There are many models of similar situations coming from various sources, including game theory, the prisoners' dilemma, the theory and practice of agricultural cooperatives, speculation theory, monopoly theory, and marketing economics.

Each member of the cartel knows that the other members are criminals, willing to kill hundreds of thousands of people to make money. Why would they trust them? On the other hand, who would dare to double-cross people like this?

LACK OF INFORMATION

It is easy to sit in a university and build a model assuming perfect information on production, amount marketed, 'availability' and prices. Neither the traders nor the economists dealing with a food crisis have this information.

Would traders form a cartel and buy up quarter of the rice harvest purely on a belief that there was a short crop? Risk and uncertainty are costs. No cartel in Bengal in 1942-43 was operating under perfect information. The cartel could reach a consensus on the probable crop. This could be expected to change up to harvest, and beyond. The consensus might differ from the consensus of competitors, and it would certainly not turn out to be 100% accurate.

Supply statistics

The supply statistics were known to be worse than useless. The official crop forecast, based on eye estimates by chowkidars, semi-literate village watchmen, then 'adjusted' by level after level of administrators and politicians, was known by the government and the Indian statistics profession to be

> *'useless for any purpose'*[5], *'not merely guesses, but frequently demonstrably absurd guesses'* [6] *'a farce . . . a fraud'*[7] *'blatantly absurd results', 'disbelieved by the very government that produced them'* [8][9] *'no meaningful production statistics'* [10] *'not only incorrect but absurd'* [11] *produced by 'a system inherently vicious'* [12]

(See in particular Mahalanobis (1944), Das (1949), Dewey (1978), Tauger

[5] Bowley and Robertson (1934, p. 35)
[6] (Royal Commission on Agriculture in India, 1928, p. 605; Royal Commission on Agriculture in India, 1928)
[7] (Dewey, 1978) p290
[8] (Mahalanobis, 1943)
[9] (Dewey, 1978) p298.
[10] (Bengal Land Revenue Commission, 1940, p. 76)
[11] (F.H. Villiers to Sir Edward Grey, 1914, quoted by Dewey 284.)
[12] (Trevaskis, 1931, p. vol 1 p 200) quoted by Dewey, 1978

(2006) and Bowbrick (2022)for reviews of the literature). The statistics were worse than this would indicate. Desai's [1953] review looks at the discrepancies between surveys using these eye estimates of a standing crop and those of statistical surveys using random plots and weighing the grain harvested. He showed survey estimates being between 47% and 153% of the official forecasts. In seven years in the thirty years from 1914 to 1943, there were poor harvests and the official figures underestimated them. (Bowley and Robertson (1934) cited by Dewey (1978, p. 28)). The underestimate in 1941-42 had been so bad, and so expensive, that the 1942-3 official figures were not 'adjusted' downwards as in previous short crop years. This meant that the 1942-3 crop figures could not be compared with those of previous years. The severity of the fungus outbreak was unprecedented, and nobody looking at the standing crop had any idea of the damage. Only after the crop had been harvested, dried for a few months, then milled, was it possible to see that yields were down by perhaps 70% (Padmanabhan, 1973). Key information for an 'availability model' did not exist – information on net imports, stocks carried over from the previous year, current stocks, stocks carried over into future years, population growth, normal calories consumed, variations in consumption by religion, income and location etc. (Mahalanobis, 1943) Wild guesses were printed and believed. I have worked in countries where the statistics available were as bad as this, or were better only because meaningless statistics were not published.

There was no information on quantity being stored. There would be rumours buzzing round in the trade. The cartel would know, though, that their own actions, buying aggressively, would be the source of many of these rumours – what is now called a feedback loop.

Price statistics

There were no meaningful price statistics (See Bowbrick (1988; 2022),

and Griffiths (2003)[13] for problems in collecting meaningful price statistics, and the particular problems during a food crisis. Dissemination was very difficult indeed in 1943, but today, with mobile phones and the internet, we can disseminate false and misleading price statistics very quickly.

Grain traders have their own networks to collect prices, and to forecast crops, but we cannot expect their conclusions to agree with official figures.

POLICY PREDICTION

The initial famine speculation model requires a closed border: if it is easy to import, the import parity price is the highest price that can be obtained. Government might import food directly. The low prices that follow would bankrupt speculators.

The cartel would have to take a view on the effects of current policies of the Government of India, the Government of Bengal, the governments of provinces with a food surplus, and on the probability of changes in policies. From the outbreak of war, the Indian and provincial governments played an increasing role in the rice trade, setting maximum prices and, by May 1942, controlling, then taking over, all inter-provincial trade rather than letting traders do this on their behalf. It was clear that policy was changing frequently and unpredictably. For example, the policy of free trade within India switched to Government of India control of all inter-provincial trade, then to free trade within a region, then back again. The provincial government might set a maximum price within a district, and forbid private trade from that district, then change the regulation a month or two later. Both the cartel and traders doing normal speculation could have no idea how much would be imported or

[13] I wrote this under the nom de guerre Peter Griffiths, as I was whistleblowing against the World Bank whose policies had created a famine situation. I was able to prevent the famine.

when – a business risk which few would take.

Once the rice traders had begged the Bengal Government to import, from October 1942 on, there was always a probability that very large imports, at least half a million tons within six months and one to two million tons over the year, would begin sooner than later. Any speculator would expect prices to stabilize or fall once these imports began. When these imports did not come, traders realized that Bengal had substantially less food per person per head for the rest of the year than they had expected, and that the amount was falling every day the imports were delayed. Traders had to reconsider their optimum sales pattern and reconsider it each time there were new rumours of impending imports.

What had happened was that in December 1942 the Bengal Government made an announcement to a national Food Conference, which was widely interpreted or reported as saying that Bengal had 'a modest surplus', an announcement which had catastrophic consequences. The Famine Inquiry Commission (1945, p. 46) claims that what they actually said was that in view of the emergencies elsewhere in India, Bengal would manage without imports for five months, but would need substantial imports then. The Conference then agreed that surplus provinces would supply enough rice to Calcutta to keep it fed. In fact, a tenth of the grain promised was sent, partly because of a widespread belief that Bengal had enough food and that speculation, hoarding, inflation, etc were what were creating high prices and hunger. The Viceroy, Linlithgow, personally believed this and continued to do so, so it was the de facto Indian Government policy until he retired in August 1943[14]. Surplus provinces were reluctant to supply Bengal until August 1943.

When they did agree to supply, the Bengal Minister of Food, Surawady, gave his friend and political ally M.A.H. Isphani, who had a large grain trading business, the monopoly for imports: this monopoly was highly profitable, as long as there continued to be a shortage and famine prices could be charged.

[14] *On 19 October 1943, when the famine was serious, the new Viceroy, Wavell, noted in his journal "On the food situation Linlithgow [The outgoing Viceroy] says chief factor morale." Moon, 1973 p34*

The Bengal Government refused to borrow money to import rice, though the money could easily have been raised (Famine Inquiry Commission, 1945). The impact was much the same as would be expected from speculation.

The failure to import from abroad, rather than from other provinces, was predictable. The Imperial War Cabinet and the controllers of allied shipping declined to allocate shipping to Indian food imports, on the grounds that there was an unconvincing request from a Viceroy who did not believe that it was necessary, and that, as Battle of the Atlantic was at its peak, and Britain needed every ship it could get for survival. With hindsight, we can say that the battle was won by April 1943. After this, the belief was that every ship was needed to supply D Day and the attack on Germany – had this failed the war would have been lost. Such decisions are easier to make if one chooses to believe that India and Bengal had enough food, and the rumour was certainly prevalent in Whitehall. Eventually a minute to the Imperial War Cabinet from the Chiefs of the Imperial General Staff saying that the famine was a military disaster as well as a humanitarian catastrophe tipped the balance (War Cabinet Paper WP (43) 349 f 31 July 1943 ((Mansergh, 1973, pp. 139, 217); War Cabinet Paper W.P. (43) 407 R/30/1/4:ff 123-5.), but the food arrived late.

Changes in policy also influenced normal speculation. Traders would plan their sales in the expectation that large imports would start by, say, April. Every day's delay after this date meant that the amount of food per head per day for the rest of the year fell. So, prices continued to rise. This would explain the otherwise inexplicable pattern of rice prices through the famine year.

A different form of price instability emerged during the famine. The Bengal Government, from time to time tried to buy large quantities of 'surplus' rice on the market. As there was no such surplus, the only effect was to push up prices. The Government then tried other, equally unsuccessful measures. These random price movements were impossible for speculators to forecast. No speculator would have taken them into account in 1942.

IMPORTS AND EXPORTS

The theory's initial model has an assumption of a closed economy, with no exports from or imports to Bengal. With open borders, one would expect that when prices jumped in Bengal, trainloads of rice would start arriving in Calcutta within weeks, bringing down the prices and bankrupting the cartel. The economy of India, and its governing ideology, was based on free markets. Traders planning speculation in September 1942, say, would have expected imports to be easy.

When planning the speculation, the cartel would have taken a view on how much in total was going to be exported and imported in each month until the end of the famine, how much was likely to be imported as the famine developed, and when the imports would arrive. If there were large imports the moment it became clear that there was a famine, they would lose a lot of money. We know that members of the trade were forecasting a famine from the cyclone (October 16th, 1942) on, and were demanding that Government arranged enormous imports. They believed that Government would have plans prepared, even if it did not believe the forecasts.

As it turned out, there was a constant change of Government of India policies during the famine period, suspending free trade between provinces, reintroducing free trade, imposing regional free trade, then changing back again. Provincial policy, in neighbouring provinces, in surplus provinces and in Bengal itself, kept changing. The market area went from 'all India' to 'Bengal' to 'Bengal and neighbouring provinces' to 'Bengal' to 'Bengal and perhaps some provinces' with Australia coming into the reckoning eventually. This meant that rational Bengali traders kept changing their beliefs about total availability, about whether there would be imports and when the imports would arrive, which had a major effect on prices and the course of the famine.

THE WAR

The war was also a constantly changing risk factor. In 1942 most Indians expected the Allies to lose. In early 1942 Japan captured Malaya and Singapore then chased Allied troops out of Burma. The Japanese troops were better equipped, better trained and better led according to the Allied High Command. Bengal was then on the front line, with invasion imminent. In August 1942 the Japanese had destroyed all Ceylon's defences and was about to make an unopposed occupation, as the first step in an invasion of India. After what the Japanese had done in China and Burma, the whole population was afraid. Few people believed that the Allies would win the war. The Japanese air force controlled the Bay of Bengal, so imports by sea were impossible. In early August, a Japanese aircraft carrier drove the allied Indian Ocean navy into hiding, then destroyed Ceylon's defences. It was about to launch an unopposed occupation, giving Japan an 'unsinkable aircraft carrier' that would control the approaches to Southern India and the Bay of Bengal, so it could invade India with ease. The day before the invasion the carrier was withdrawn to help mop up the remains of the American fleet at Midway. This did not work as planned and the invasion was postponed. The Japanese bombed Calcutta later in 1942. The battles of El Alamein, then Okinawa, Stalingrad and the Battle of the Atlantic, were critical: an Axis victory in any of them would have made a Japanese invasion more likely. The allies won, so the perceived risk by mid 1943 was very different from mid 1942, but speculators had to respond to the changing risk.[15]

This was an enormous source of risk and uncertainty to the rice trade, one that they had no control of, and no information on. It must be asked whether rational traders in this situation would embark on another very high-risk speculation, deliberately causing a famine.

[15] One effect, reported by the Famine Inquiry Commission, was that many of the grain traders fled Calcutta after the bombing in December 1942, so the government had to create alternative marketing systems.

NON-FINANCIAL COSTS

Risk is a cost. While the literature does discuss some of the financial risks, the non-financial risks can be more important.

Creating a famine would have been highly dangerous for the people operating or employed by a firm or cartel. Invasion was imminent and wartime legislation was in force. Both the public and the authorities would have been hostile to a cartel. Much of Bengal was simmering on the verge of rebellion, and conflict between Hindus and Muslims was about to break into massacre and ethnic cleansing, and the rage could burst out in any direction, so the authorities could not tolerate anything that might upset the population. Accordingly, anybody who was found to have conspired to have created a famine, would have been prosecuted. At the time, conspiring to create a famine might have resulted in 10 to 20 years' rigorous imprisonment. Their total stocks would have been seized, with very little compensation, if any.

There are other risks, more serious for the cartel members, but also faced by traders who did not join the conspiracy. In a famine, there is usually a hostility to traders, and there are claims that they are deliberately creating the famine. The owner and staff may be lynched. Their families may be lynched. There may be riots aimed at the owner's co-religionists or members of their race. In Sierra Leone in 1986, it was found that this meant that rice traders, who remembered the problems in previous food crises, were not willing to trade during a food crisis, even on behalf of Government, however profitable it may be: it was just too dangerous (Griffiths, 2003).

There may be food riots, with the mob breaking into grain stores and stealing the contents. It was noted with great surprise by contemporaries that this did not happen in Bengal, given the political situation. They believed that there would have been riots if the famine had happened in other provinces. Some believed that the population was so malnourished by the time the full horror was realized that they did not have the energy to riot.

In some of the rural areas of Bengal, bands of dacoits ran the district, with police having to abandon their posts.

In 1943 the government searched for the rumoured massive grain stores. They did not find them, just seasonal storage at lower than usual level, but grain was still seized, for propaganda purposes. The army, engaged in distributing food to the starving, sometimes broke open local merchants' stores and told the local population to help themselves. This, of course, meant reduced supply for consumers later in the year, as well as a loss to speculators.

The non-financial risks, often ignored in the literature, would themselves make it extraordinarily unlikely that a famine would have been deliberately created by speculators.

HIDING THE STOCKS

It would have been impossible to hide what was happening. The stocks removed would have been exported, stored or destroyed. Since there was no possibility that the plot could have been concealed, the financial and non-financial risks of creating a famine were prohibitive.

Exports were very public and it would have been noticed by everybody in the trade that the cartel was buying at a very high price, paying the costs of assembly and transport, and selling at a much lower price in other provinces – and this at a time when all other traders were scouring neighbouring provinces for rice, and smuggling it back to Bengal. The food authorities and the Special Branch (security police) were monitoring the docks and the railways (Braund, 1944; Pinnell, 1944). Transporting one or two million tons – 27 to 54 million bags – of rice puts an enormous strain on a transport system not built for this. The railways were also stretched to the limit by wartime transport requirements, even without having to deal with a famine. Creating a famine by exports does not seem to have been possible.

Removing one or two million tons from the market and storing them through 1943, then putting it on the market in 1944, after the famine, was not an option and did not happen. An extra one or two million tons dumped on the market in 1944 would have caused the prices to collapse to a very low

price indeed as the 1943-44 crop had been good (The demand for food is famously inelastic). This would have been noticed, and questions would have been asked, with the possibility that the survivors lynched the traders, or that the government prosecuted them.

The third option is that the stored rice was left to rot over the next few years, which would have been obvious to the neighbours from the smell.

There was little possibility of traders hiding the enormous stockpiles needed to create a famine. 27 to 54 million bags of rice are very visible. A country at that stage of development does not have large, empty, stores in which they can be hidden. Transport was a constraint and impossible to hide (much would have been transported by oxcart, and many of the riverboats had been put out of action in case the Japanese invaded). Thousands of people would have been employed building up the stockpiles. Millions of people, consumers, would have been aware of what was happening.

Those traders who warned of a famine in 1942 would certainly have known what was happening and would have informed the authorities who was holding enormous stocks. Most traders would know what was happening, certainly any that had been approached to join the cartel. From my experience of traders, nearly all of them would wish to prevent the famine.

The cartel would need to borrow enormous sums of money to buy the extra stocks they were withdrawing from the market. Banks would not have lent to fund an extremely high-risk, highly illegal, and politically unpopular scam. In 1943, the banks were, of course, questioned by the food authorities and Special Branch, who were trying to find the stocks. The banks did not report any unusual loans. Wartime mail censorship and informers would have identified the cartel stockholders (Braund, 1944; Pinnell, 1944).

Inevitably there would have been leakage of information by the staff of cartels, from the owners down to security guards. And the more firms in the cartel, the more leakage there would have been. In 1943 the food authorities offered rewards for information about hidden stocks, but none were found.

In addition to the knowledge that famine speculation would have been irrational, we *know* that it did not take place. There is no evidence of massive,

loss-making exports from Bengal, rather that after October 1942 Bengali traders scoured the surrounding provinces to buy any rice available, paying high prices, and that this rice was smuggled into Bengal. Government put enormous amount of effort into finding the one or two million tons that it was believed was removed to cause the famine – not easy to hide. The Civil Supplies Department used the full resources of wartime legislation to search for such stocks. Wartime mail censorship, examination of the bank accounts of traders to see if they were borrowing enough for massive purchases, Special Branch investigations, paid informers in the docks, and rewards for information found nothing. The wartime legislation, Defence of the Realm Act, etc provided powerful means of dealing with people who deemed a threat. Raids on traders showed only that traders had less in store than at the same date in previous years, implying that they were involved in normal speculation. Some of these traders had their stock seized for propaganda purposes. There was never any sign of how the mythical millions of tons of famine-speculation rice were disposed of – if it they had been put on the market in the next few years, the markets would have crashed. If they had been destroyed, thousands of people, relatives of the dead, would have known.

PROTECTION MONEY

Since it was impossible to conceal the enormous speculation stocks, the cartel would not have gone ahead without paying protection money. There is a market for protection. At local level the police and local politicians, and the local mafia would have to be paid off to prevent lynchings, riots and looting. The police and the Civil Supplies department would have to be paid off when they searched wholesalers' premises – as it was, even innocent traders had their stocks confiscated.

It would also be necessary to bribe Indian Civil Service administrators up to the Viceroy himself.

The soldiers who were distributing food to the starving were very angry

at what they saw – they gave their own rations and any military stores they could steal to the starving.[16] The high command, up to the Chiefs of Imperial General Staff, and Field Marshall Wavell, when he became Viceroy, believed that the famine was not only a humanitarian disaster but a military catastrophe which could change the outcome of the war. It was inconceivable that they could be bribed. While one or two might have taken bribes, it would have been impossible to corrupt everyone, including Indian officers and men from different provinces, and British, Australian, African, American and other officers up to the Commander in Chief.

For such a major scam the cartel would have had to bribe politicians and administrators up to cabinet level. It would have had to bribe the leading political parties – and to do it again when a different political party took power in April 1943.

The various changes in food policy including suspension of the free market and refusal to export to Bengal were necessary to sustain the famine. Are we to take it that the speculators also bribed the Food Conference delegates, the Viceroy, Churchill, the representatives of the exporting states, the first minister of Punjab, the Bengal Food Department etc.?

IRRATIONAL WITHHOLDING OF RICE

We know that markets are sometimes hit by irrational action causing say a big rise in the price of shares in one company, or a sudden rush to buy petrol or toilet rolls. This may be a collective madness fuelled by rumours. It is conceivable that people should listen to rumours and decide that there was a massive shortage of rice when there was not. They would buy stocks and the prices would go up, which they would take as confirmation of their business

[16] Brown (1944) observed Indian and British soldiers voluntarily going on short rations to feed the starving, and he suggests they may have stolen some military supplies. Stevenson (2005) says, less convincingly, that they stole so much of the military stocks that the army would have had great difficulty in resisting an invasion or in attacking Arakan.

acumen, so they would buy more. If enough people stored enough rice, prices would rise to a level that many people could not pay, and famine would begin.

Obviously, the speculators would realize that they must sell before the next crop is harvested or they will lose money. At some time, a large trader will decide that the time has come, and will sell. This will push down the price and may cause panic selling by other speculators. The market will crash, and rice will be very cheap, with a price significantly lower than the purchase price. This means that, with hindsight, it is possible to tell if this happened in a given situation. The evidence on the Bengal famine is that there was no such crash.

In the early stages the authorities may believe (a) that there is indeed insufficient food for the period to the next harvest, (b) that there is sufficient food, but it has been withdrawn from the market by professional speculators, or (c) that there has been an irrational speculation. The lack of reliable information in nearly all countries in the past, and in many countries today means that this belief may have been unfounded. And the authorities may be irrational. The authorities may believe that rice is being withheld from the market by irrational speculators or by a cartel, when in fact there was a Second- or Third-Degree shortage, as happened in Bengal.

Action to persuade people to release stocks might include immediate and very well publicized imports: even if these were small in relation to total needs, they might convince speculators that further imports were coming. Taking immediate action to identify stocks and to inform stockholders that compulsory purchasing would begin soon, would reduce the incentive to hold stocks. However, farmers and small rural traders might well feel that they were exempt.

It might be argued that in normal years the trade sets the quantity sold each month and the price to maximize their profit. With the irrational speculation, therefore, they will have a lower profit.

Many of the reasons for believing that cartels would not speculate to create a famine suggest that a professional grain trade are unlikely to take part in a speculative madness fuelled by rumours. But these speculative madnesses do occur in many industries and in commodity markets and stock markets.

This speculation is emphatically not an attempt by wicked traders to create an artificial shortage: it is normal speculation that goes wrong.

'CORNERING THE MARKET'

The classic speculation of 'cornering the market' is irrelevant. This involved buying up grain futures, and then requiring that people delivered actual grain, rather than buying or selling the futures, when there are usually perhaps a dozen futures in existence for every bit of grain. Few poor countries have such futures markets, and modern futures markets have regulations to stop this happening. 'Cornering the market' does not take grain off the market, rather the opposite, so could not cause a famine.

CONCLUSION

This study has shown that no rational speculator would have attempted to create a famine in the situation prevailing in Bengal, which would explain why no evidence could be found to support the myth. Speculation theory shows that speculation to cause a famine is likely to be irrational except in extremely unusual circumstances. I have also set out a lot of factors, not included in textbook speculation theory, which must be considered when one is considering whether there is any truth in the myth for a given country, things like personal safety, the difficulty of concealment, the need to pay bribes and protection money, risks arising from changes in government policy and so on. Real factors in real countries.

The results of a government basing its response to a famine on a belief that speculators were causing it were disastrous in Bengal in 1943, and Adam Smith and Malthus had made similar observations centuries ago.

The onus of proof when claiming that this myth is, in a particular situation, true, lies on the decision makers – politicians, administrators and economists. I do not believe it likely that anyone will produce the necessary hard analysis and hard facts when a decision has to be made in a hurry.

Statistics on production and 'availability' and price statistics are most unlikely to be meaningful. It is extraordinarily unlikely that any economist will be given the resources and cooperation to find the facts and do the analysis in the brief time available before action is needed.

It is particularly alarming that many academics choose to state that speculation is the cause of a particular famine without producing any economics or facts, and the myth has become incorporated in the popular fallacies of economics. Indeed, academics' claims about speculation in the Bengal Famine have become dominant in academic discourse, in spite of the evidence, the theory and the refutations.

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