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Thomas Robert Malthus's *Investigation of the Cause of the Present High Price of Provisions* (1800) and Amartya Kumar Sen

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## Thomas Robert Malthus's *Investigation of the Cause of the Present High Price of Provisions* (1800) and Amartya Kumar Sen†

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### Abstract

Reconsidering Malthus's *Investigation* (1800), this study reveals several findings. As it was not against the Poor Laws, the pamphlet succeeded in influencing the government policy at that time, but the work was forgotten until Keynes's 1933 attention. In 1981, Sen theoretically rationalised the positive effect of the parish allowances referenced in the *Investigation*, and thereby acknowledging Malthus as the forerunner of the exchange entitlement approach. The reason that this contribution took so long to be recognised was because Malthus's theory of poverty tended to be associated with the food availability decline (FAD) approach. In 1800, Malthus expressed doubt in the deficiency of *one-fourth* of provisions, unremedied by parish allowances; however, in 1803, Malthus came to believe that it was near the truth and to be sceptical regarding the Poor Laws, ultimately discarding the exchange entitlement approach referenced in the *Investigation* and taking the FAD approach.

### Keywords

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## 1. Introduction

The anonymous author of the 1798 *Essay on Population*, Malthus (1768–1834) visited Scandinavia in 1799 to collect various population data (James 1966, 67–85). The collected information aided his investigation of the current high price of provisions in England. In the fall of 1800, Malthus hastily wrote a pamphlet on this issue to publish it before the meeting of Parliament that would start on 11 November 1800 (Malthus 1897, 271). Thus, *An Investigation of the Cause of the Present High Price of Provisions* was published in early November 1800. In less than two months, the *Investigation* was reprinted in three editions with some additions.<sup>1</sup> It is easy to envisage considerable public attention to this pamphlet. What prompted Malthus to write it? And what impact did its publication have on government policy?

More than a century later, John Maynard Keynes (1883–1946) brought this rare pamphlet back into the spotlight. In his 1933 *Essays in Biography*, the Cambridge scholar called Malthus ‘the first of the Cambridge economist’, claiming that the *Investigation* presented a pioneering contribution to the Keynesian theory of effective demand (1972, 87–90).<sup>2</sup> However, Cambridge’s Nobel Laureate Sen’s reassessment of it is less well-known, with a few exceptions.<sup>3</sup> In ‘Illustrative Models of Exchange Entitlement’, appended to his *Poverty and Famines* (1981, 174–184), Sen acknowledged that it contained a preliminary examination of Malthus’s exchange entitlement approach. How did Sen interpret the pamphlet?

This study revisits the *Investigation* employing a different perspective from Keynes by examining the socioeconomic background of Malthus’s writing of the pamphlet, its influence on government policy, and Sen’s reading of it. This reconsideration determines why it took so long for the *Investigation* to be reassessed by Sen with a view different from Keynesian theory of effective demand.<sup>4</sup>

As it was written by ‘the Author of the Essay on Population’, the *Investigation* may give readers the impression that it was a simple spinoff of the 1798 *Essay on Population*; however, this impression must be dismissed if the pamphlet was written because of any current affairs or circumstances of the times. James (1979, 85–88) speculated that

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<sup>1</sup> For example, the title of the third edition was appended with the subtitle, *Containing an Illustration of the Nature and Limits of Fair Price in Time of Scarcity; and its Application to the Particular Circumstances of This Country* (see Otter 1836, xlii).

<sup>2</sup> For this survey, see Nakazawa (2017, 25–26).

<sup>3</sup> Brue and Grant (2013, 102–103), Mayhew (2014, 185), Nakazawa (2017, 26), and Wrigley (1999) are the few exceptions that portrayed Sen as in favour of Malthus’s *Investigation*. It is somewhat strange that Daoud (2018), who referred to Wrigley (1999), does not mention *Investigation* at all.

<sup>4</sup> Nakazawa and Hisamatsu (2023) reviewed the background of Malthus’s writing of *Investigation* and its influence on government policy, but their study does not address Sen’s interpretation of the pamphlet, nor does it investigate why it took so long for the pamphlet to be reassessed by Sen.

Malthus wrote it to convince his friend, Samuel Romilly (1757–1818), who was a member of Parliament, and whose thoughts on the 1799–1800 high price of provisions differed from Malthus's—although James did not provide any valid evidence for this speculation. Takahashi (1947, 190) asserted that Malthus was prompted to write it by the 1800 trial of John Rusby, who was prosecuted for rigging the corn exchange market. In addition to this circumstance, this study suggests that the publication of a letter from William Henry Cavendish Cavendish-Bentinck, third Duke of Portland (1738–1809), to George Spencer, fourth Duke of Marlborough (1739–1817) dated 29 September 1800, may have stimulated Malthus motivation for the writing.<sup>5</sup> Section 2 examines the apparent circumstances surrounding Malthus's writing.

According to Wrigley and Souden (1986, 3), the *Investigation* was 'designed to enlighten Parliament and influence policy'. This is implicitly evidenced in Malthus's letter to his friend George Turner (1767–1840) dated 28 November 1800 (Malthus 1897, 270–271). Keynes (1972, 89) referenced this letter when arguing that Prime Minister William Pitt (1759–1806) 'was much impressed' by the pamphlet and that some of Malthus's ideas were adopted by Parliament, but he does not further examine this. Section 3 compares the *Investigation* with the *First Report* presented at the meeting in the House of Commons on November 24 (Anon. 1800), revealing Malthus's influence on Parliament.

The simplified Malthus–Sen model for the exchange entitlement approach is described in Section 4, where the model is supplemented with theoretical results not explicitly led by Sen, such as the effect of the parish allowances on the tendency to level the order of the rich and the poor. Section 5 provides some concluding remarks.

## **2. Background of the *Investigation***

### *2.1 Malthus's travel in Scandinavia*

Malthus left Denmark and entered Sweden on 15 June 1799, and left Sweden and entered Norway on 23 June (James 1966, 67–85). He was initially accompanied by William Otter (1768–1840), Edward Daniel Clarke (1769–1822), and John Marten Cripps (1779–1853). They parted at Vänersborg, Sweden, on 21 June, with Malthus and Otter proceeding toward Norway and Clarke and Cripps toward Finland (*ibid.*, 78). Malthus (1800, 2–3) recorded the journey as follows.

In Sweden in 1799, the price of corn was generally raised by 'a long drought the preceding year'. The 'degree of scarcity' in the province of Värmland of the country was

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<sup>5</sup> Substantial contemporaneous reproductions of the letter, e.g., in the *Scots Magazine* (1800, 884–886), suggests that it was considerably widespread at the time.

much greater than had been experienced in England. Nevertheless, the price of rye, a principal ingredient of bread, 'had not risen above double its usual average', whereas in England in 1799, in a state of scarcity, the degree of which was much inferior to Värmland, 'wheat rose to above three times its former price'.<sup>6</sup> That is, in England, the rate of increase in the price of provisions was higher than the rate that would be fixed by the degree of scarcity.

Some 'persons of sense and information' (*ibid.*, 2), had argued that production of food grains fell relatively short in supply to meet demand as a result of a bad harvest, leading to the raised price. However, from his experiences in Sweden and the data obtained there, Malthus found the cause to differ from what had been assigned to the 1799–1800 high price of provisions.

## 2.2 *The Rusby trial*

Common people initially considered that the 1799–1800 high price was caused by a poor harvest, but they began to doubt this because the 'extraordinary high prices' continued, irrespective of weather conditions. The populace argued that 'there must be roguery somewhere', directing their anger toward corn dealers as speculators. The dealers were accused of hiding corn in their warehouses and to artificially raise its price, and this opinion was largely accepted by 'men of sense'. The public pejoratively called the dealers 'monopolizers', 'forestallers', and 'regraters', while the Lord Chief Justice of the High Court and the grand juries encouraged the 'popular clamor' (*ibid.*, 3).

Rusby was prosecuted for regrating corn at the instigation of Chief Justice Kenyon, who believed the price had been artificially raised by speculators (Bonar 1885, 218). Rusby was brought to court on 4 July 1800 (see Rusby 1800). Malthus's own reference to the justice's action suggests that the trial was on Malthus's mind, but he did not resonate with the popular cry against speculators. On the contrary, he regarded a corn dealer who 'succeed in his speculation' as 'a positive and decided benefactor to the state' (1800, 13), defending the middlemen.

The poor 1799 harvest depleted England's stocks of corn, and even with anticipated imports, it was impossible to accommodate the usual consumption required by all people. Excess demand for corn in the market raised its price. Predicting that 'in a month or two the scarcity would be greater than it was that time', some speculators might keep back their corn for 'their own interest' (*ibid.*, 10). Some people would then be forced to minimise their consumption, although they would be obliged to live a little harder than usual, thanks to this frugal life, they would be able to avoid a fatal famine. Concealing

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<sup>6</sup> Malthus (1800, 21) defined a 'scarcity' of provisions as a 'failure of the usual quantity'.

provisions would not only reveal speculators' self interest but also engender an unintended 'true interest of the state' (*ibid.*).<sup>7</sup> Ultimately, based on the fact that 'the stock of old corn remaining on hand at the beginning of the harvest this year [1800] was unusually small', Malthus argued that 'there had been no speculations in corn that were prejudicial to the country' (*ibid.*, 15).

Following Adam Smith (1976, 525), Malthus also believed that it was impossible to monopolise corn in England ('which is in so many hands'), to the extent that its monopoly harmed many people (1800, 14). The Dutch East India Company had once disposed of an enormous amount of spices to raise the price, but such cases were rare. No matter how large 'the capitals' and 'the company of merchants' was, 'they could not, by the greatest of exertions, purchase *one fourth* of all the corn in the country' (*ibid.*; our emphasis). Thus, Malthus claimed that it was 'impossible' to accuse 'artificial' scarcity for creating high price unless it was 'proved that some man or set of men, with a capital of twenty or thirty millions sterling, has bought up half the corn' in England (*ibid.*, 22). Malthus humorously wrote to Turner, 'I expect your thanks as a farmer; and if I am ducked by the mob I hope the monopolizers and forestallers will give me some dry cloathes' (1897, 271).

### 2.3 *The suspension of specie payments*

According to Malthus (1800, 23), 'many men of sense and information' attributed the 1799–1800 high cost of provisions to the over issuance of paper currency after the Bank of England suspended the gold standard in 1797 (see Viner 1937, 122–124). This opinion was based on the so-called quantity theory of money, which argued that an increase in money supply leads to an increase in the general level of prices.

Malthus argued that a circumstance in which increased paper currency lowered the value of money (or raised general prices) 'could not have taken place to any considerable extent without a sensible depreciation of bank notes in comparison with specie', but 'this depreciation did not happen' in actuality. Even if there had been a sensible depreciation of paper currency in comparison with specie, the progress of its effects would have to been 'slow and gradual'. Therefore, Malthus argued that the cause of 'the sudden and extraordinary rise in the price of provisions which was so sensibly felt' in 1799 could not be attributed to the over issue of banknotes. Malthus (1800, 23–24) finally concluded that, if the quantity of paper currency 'has greatly increased' in 1799, 'it rather [is] the effect than the cause of the high price of provisions' in 1800.<sup>8</sup>

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<sup>7</sup> As James (1979, 89) noted, Malthus may be indebted to Adam Smith here (see Smith [1776] 1976, 524–525).

<sup>8</sup> A similar argument was repeated in succeeding editions (1803–1826) of Malthus's *Essay on Population* (1986, III, 361).

#### 2.4 Portland's letter

It is highly possible that Malthus was influenced by Portland's letter dated September 29 when writing the *Investigation*. Indeed, he stated that 'it has lately received an official sanction in a letter of the Duke of Portland to the Lord Lieutenant of the county of Oxford [Duke of Marlborough], that of late years, even in the best seasons, we have not grown corn sufficient for our own consumption' (*ibid.*, 26). Portland wrote:

Although the quantity of corn which has been imported has far exceeded the most sanguine expectation, neither in that respect, nor in quality, does it, or can it ever compensate the deficiency which was and will be occasioned by such season as that of last year: nor would it have the effect which must be hoped to be derived from it, was it to be brought without reserve to market, in the same quantities in which it is landed; for . . . , according to the most sanguine estimation, *the produce of it is not likely to amount to more than three-fourths of an average crop*, and it is thought by many that it will not exceed three-fifths (1800, 17; our emphasis).<sup>9</sup>

The words "*deficiency of one-fourth*", which appear in the *Investigation*, seem to have been from the above sentence. Portland also refuted 'the prejudices . . . disposing a very large part of the community to believe that the late scarcity was artificial' (*ibid.*, 16) and protected 'the growers of corn, and dealers in that commodity' (*ibid.*, 17), a view that was shared by Malthus. Furthermore, the distinction between scarcity and famine in Portland's letter (*ibid.*, 19) was also similar to that of Malthus (1800, 10). On the other hand, there were also differences between them. Whereas Portland only attributed the cause of the 1799–1800 high price of provisions to scarcity, Malthus did not. In addition, Portland believed that there was a *deficiency of one-fourth* of the provisions, but Malthus was sceptical about this possibility in 1800.

#### 2.5 Malthus on the cause of the 1800 high price

Malthus rejected prevailing opinions regarding the cause of the 1799–1800 high price of provisions and assigned the Poor Law system as the cause, stating that 'the attempt in most parts of the kingdom to increase the parish allowances in proposition to the price of corn' was 'the sole cause, which has occasioned the price of provisions in this country to rise to so much higher than the degree of scarcity would seem to warrant, so much higher than it would do in any other country where this cause did not operate' (*ibid.*, 4–5). To this statement, in the second edition of the *Investigation*, he added the footnote, 'I am not now speaking of the causes that may have contributed to the actual scarcity; but

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<sup>9</sup> It is possible that the sentence in Malthus (1800, 8, 9–10) was much inspired from this statement in Portland's letter.

of the cause of the very high price of provisions in proportion to the actual *degree* of that scarcity' (1949, 194; Malthus's emphasis). What was the intention behind the addition of this footnote?

Regarding the prevailing misreading of the *Investigation*, Malthus later noted in succeeding editions (1803–1826) of the *Essay on Population*:

The pamphlet was mistaken by some for an inquiry into the cause of the scarcity and as such it would naturally appear to be incomplete, adverting, as it does, principally to a single cause. But the sole object of the pamphlet was to give the principal reason for the extreme high price of provisions, in proportion to the degree of the scarcity, *admitting the deficiency of one fourth*,<sup>10</sup> as stated in the Duke of Portland's letter (1986, III, 359; our emphasis).

The additional printing of the *Investigation* in less than two months indicated its strong impact, but the reprint may also have been intended to avoid the spread of the above misunderstanding.

### 3. The Impacts of the *Investigation* on Government Policy

#### 3.1 Parish allowances and high price

According to Malthus, it is 'capable almost of mathematical demonstration, that, *granting a real scarcity of one fourth*,<sup>11</sup> which could not be remedied by importation, it is adequate to the effecting any height of price that the proportion of the circulating medium to the quantity of corn daily consumed would admit' (1800, 16; our emphasis). Prior to demonstrating income redistribution in the Poor Law system, Malthus presented a numerical example of a price mechanism based on the 'principles of trade' that he (*ibid.*, 5) extracted from Smith's theory of price presented in Chapter 7, Book 1, of the *Wealth of Nations*.

Let us suppose a commodity in great request by fifty people, but of which, from some failure in its production, there is only sufficient to supply forty. If the fortieth man from the top have two shillings which he can spend in this commodity, and the thirty nine above him, more, in various proportions, and the ten below, all less, the actual price of the article, according to the genuine principles of trade, will be two shillings. ... Let us suppose, now, that somebody gives the ten poor men, who were excluded, a shilling apiece. ... [T]he price must be allowed

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<sup>10</sup> Note that these words are used in the sense of concession, or from a subjunctive perspective.

<sup>11</sup> See Footnote 10.



to rise to that point which will put it beyond the power of ten out of the fifty to purchase. This point will, perhaps, be half a crown or more, which will now become the price of the commodity (*ibid.*, 5–7).<sup>12</sup>

The following points should be emphasised. First, it is assumed that the 'somebody' is not one of the 50 people, or if that somebody is one of them, they hold extra money apart from what was once available to spend on the commodity in the illustration. Malthus then did *not* intend to demonstrate the effect of income redistribution with an increase in the purchasing power of one shilling per capita; this discussion appears in later pages. Second, 'a commodity', given abstractly in this example, can be applied to any provisions, as Malthus himself stated that the 'rise in the price of corn, and of other provisions ... has been effected exactly in the same manner', and 'it never could have reached its present height, but from the system of Poor Laws and parish allowances, which have operated precisely in the same mode as the donatives of a shilling in the instance I have just adduced' (*ibid.*, 8).<sup>13</sup> In fact, 'the price of wheat necessarily kept pace with' increased poor-rates 'in many parishes' (*ibid.*, 11). As he attributed the system of Poor Laws and parish allowances as the sole cause of the high price, did Malthus call for the abolition of the system?

### 3.2 Malthus on Poor laws in 1800

In his *Investigation*, Malthus noted 'The system of the Poor Laws, in general, I certainly do most heartily condemn, as I have expressed in another place [the 1798 *Essay on Population* (1986, I, Chapter 5)], but I am inclined to think that their operation in present scarcity has been advantageous to the country' (1800, 19). He also stressed that the system would be 'one of the best modes of relief' for the 1800 scarcity in England (*ibid.*).<sup>14</sup> Why did Malthus come to not be against the system of Poor Laws?

According to Malthus, the 'principal benefit' gained from the Poor Law system was in the high price that the people had 'most bitterly complained of' (*ibid.*). The *first* step in the logic leading to this result is found in the example cited in subsection 3.1, the

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<sup>12</sup> Contemporary students of economics would agree that there is a demand schedule in this example (see Smith 1951, 250). In Mankiw's (1998) *Economics*, one of the introductory textbooks used globally, the demand schedule in a music album market was illustrated with the four possible buyers named John, Paul, George, and Ringo (134–137). The didactic textbook explains, 'At any quantity, the price given by the demand curve shows the willingness to pay of the marginal buyer, the buyer who would leave the market first if the price were any higher' (*ibid.*, 136; Mankiw's emphasis). This explanation resembles Malthus's.

<sup>13</sup> Regarding 'butter, cheese, bacon, pickled pork, rice, potatoes, etc.', Malthus also stated that 'their price was fixed at that sum which only such a number could afford to give, as would enable the supply to answer the demand' (1800, 12).

<sup>14</sup> As for Malthus's positive assessment of the effect of the Poor Law in 1800, see Poynter (1969, 154–155) and Wrigley (1999, 124–125).

concluding part of it which developed as 'The additional allowances to the poorest, and the weight of the high prices on those above them, would tend to level the two orders; but, till a complete level had taken place, ten must be always excluded, and the price would always be fixed, as nearly as possible, at that sum which the fortieth man at the top could afford to give' (*ibid.*, 7–8).

The numerical illustration indicated that the newly poorest 10 people may not *temporally* obtain the commodity and that the amount usually consumed by 40 people *ultimately* tends to be allocated to all the 50 people. However, it did not elaborate income transfer from the rich to the poor because the allowances were exogenously given.

Malthus presented another example assuming that there were a rich (middle) class and a poor (working) class in a community; that income transfer from the rich to the poor took place to proportion the poor's money income to the price of provisions under a given total money income; and that there is 'an irremediable deficiency of one fourth of all the provisions of the country' (*ibid.*, 17; our emphasis), i.e., an *absolutely* deficient supply. Malthus gave the following reasoning:

The rise of their [the poor's] wages, or the parish allowances that they *would* receive, *would* enable them to purchase exactly the same quantity of corn, or other provisions, that they did before, whatever their price might be. The same quantity *would* of course be consumed; and, according to the regular principles of trade, as the stock continued diminishing, the price of all the necessaries of life *would* continue rising, in the most rapid and unexampled manner. The middle classes of society *would* very soon be blended with the poor; and the largest fortunes *could* not stand against the accumulated pressure of the extraordinary price of provisions, on the one hand, and the still more extraordinary assessments for allowances to those who had no other means of support, on the other. The cornfactors and farmers *would* undoubtedly be the last that suffered, but, at the expiration of the three quarters of a year, what they received with one hand, they must give away with the other; and a most complete leveling of all property *would* take place. All *would* have the same quantity of money. All the provisions of the country *would* be consumed: and all the people *would* starve together (*ibid.*, 17–18; our emphasis).

Although Malthus 'allowed [him]self to make the supposition' of the tragic possibility of all people's starvation, he stressed that it could *not* happen *in reality* (*ibid.*, 18). It could only occur on the unrealistic assumption of an irremediable deficiency of provisions in which a high number of poor people had actually escaped tragic starvation. On the assumption of a deficiency of one-fifth or one-sixth – which is, he

presumed, more realistic—in provisions for 'ten millions of people', he gave the reasoning that 'the whole of this deficiency, had things been left to their natural course, would have fallen almost exclusively on two, or perhaps three millions of the poorest inhabitants, a very considerable number of whom must in consequence have starved'. Then, the experience in Great Britain was explained as follows.

The operation of the parish allowances, by raising the price of provisions so high, caused the distress to be divided among five or six millions, perhaps, instead of two or three, and to be by no means unfelt even by the remainder of the population. The high price, therefore, which is so much complained of by the poor, has essentially mitigated their distress by bringing down to their level two or three millions more, and making them almost equal sharers in the pressure of the scarcity (*ibid.*, 19–20).

In contrast to the *hypothetically* simulated preceding example of the tragic event, regarding Britain's *actual* experience, Malthus now ascertained that, thanks to the high prices resulting from the parish allowances, 'a much greater number' of the poor had 'not been starved' (*ibid.*, 19). 'No inference, therefore, is meant to be drawn against what has been done for the relief of the poor in the present scarcity', stated Malthus (*ibid.*, 21).

Malthus also argued that the 'further effects of the high price' had been (i) 'to enforce a strict economy in all ranks of life', (ii) 'to encourage an extraordinary importation', and (iii) 'to animate the farmer by the powerful motive of self interest to make every exertion to obtain as great a crop as possible the next year'.<sup>15</sup> Hence, Malthus believed that the means of 'economy, importation, and every possible encouragement to future production' must also have been effective for ending the 1800 scarcity (*ibid.*, 20).<sup>16</sup>

Malthus's encouragement of importation and economy, as well as his not being fully hostile toward the Poor Laws, influenced Parliament.

### 3.3 Malthus and the First report

'The public attention is now fixed with anxiety toward the meeting of Parliament, which is to relieve us from our present difficulties' (*ibid.*, 25), Malthus wrote to Turner:

A friend of mine gave it to the Chancellor, who called it the best that had appeared on the

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<sup>15</sup> A similar argument appeared in the third edition (1806) of Malthus's *Essay on Population*, on 'one or two years of scarcity', 'every mode of economizing food should be resorted to. Nor should we be too ready to complain of that high price of corn, which by encouraging importation increases the supply' (1986, III, 364).

<sup>16</sup> As is well known, Malthus was later against the importation of foreign corn.

subject, and immediately sent it to Mr. Pitt. ... [Y]ou will see that in the First Report of the Committee of the House of Commons, now just published, much of the same kind of reasoning has been adopted (1897, 270–271).<sup>17</sup>

The *First Report* began with an overview of information received from all over the British isle and summarised the circumstances of food grain stocks, production, quality, import quantity, and related concerns (Anon. 1801, 224–230). The Select Committee, 'upon the whole of this information, ... believe[d] that the general deficiency of the crop of wheat, in England and Wales, below an average crop, d[id] not amount to quite so much as *one-fourth*' (*ibid.*, 227; our emphasis). This factual understanding coincided with the *Investigation*. The Committee also followed Malthus in reporting that 'the encouragement' of 'the importation of foreign grain' (*ibid.*, 230) and 'the general practice of economy or frugality' (*ibid.*, 233) should be adopted as a means for improving the 1800 sacristy of provisions. Considerable space in the report was occupied by the discussion regarding frugality, the effect of which was estimated to be smaller than that of importation on the improvement of poverty (*ibid.*, 230–233).

The Select Committee was convinced that 'a great reduction in the consumption of corn, and particularly of wheat, may be produced by the practice of economy among a large proportion of the community'; for 'it may well be expected, from the past conduct of the more opulent classes, that much of what might be saved by the reduction of their own consumption, would be applied to the relief of their indigent neighbours' (*ibid.*, 231).

From the effectiveness expected in the general practice of economy, the Committee continued, 'another measure by which a similar effect may be produced, to great extent, among the laborious classes, without in any degree diminishing their necessary subsistence', referencing the system of parish allowances. If the *Investigation* had repeated criticisms of the Poor Laws that were in his 1798 *Essay on Population*, the 1800 pamphlet might not have been welcomed by the government.

Despite its impact at the time, the *Investigation* was largely forgotten until it came to Keynes's (1933) attention. Half a century after Keynes's reassessment, Sen (1981) turned his attention to the pamphlet.

## 4. Sen's Reading of Malthus

### 4.1 *Sen, Malthus, and poverty*

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<sup>17</sup> The Lord Chancellor (the chairman of the House of Lords) was Alexander Wedderburn (1733–1805) who was one of Adam Smith's students (James 1979, 91; Rae [1895] 1965, 32).

Bengal in India was severely damaged by a 1943–1944 famine, with a deaths of three million people. Having experienced a famine at the young age of 9, Sen had specific insight that famines were not only caused by irremediable deficiency in food supply but also by socioeconomic inequality. In the *Poverty and Famines*, Sen refuted the prevailing view of food availability decline (FAD), in which the causes of major famines in the 20th century world were assigned to the irremediable deficiency of food supplies in each country. His alternative argument was the exchange entitlement approach. With this approach, Sen (1991) explained the mechanism that caused Bengal's 1943 famine as follows.

'Food prices may shoot up because of the increased purchasing power of some occupation groups, and as a result others who have to buy food may be ruined because the real purchasing power of their money incomes shrinks sharply'. Therefore, famine, such as the Bengal experience in 1943, 'may occur without any decline in food output, resulting as it does from a rise in competing demand rather than a fall in total supply'. That is, 'the disastrous Bengal famine was not the reflection of a remarkable over-all shortage of foodgrains in Bengal' (*ibid.*, 329).

The FAD approach criticised by Sen is sometimes associated with Malthus's views on famine in his 1798 *Essay on Population* (e.g., De Waal 1991, 598). However, Sen's interpretation of Malthus differed.

#### 4.2 The Malthus–Sen model of exchange entitlement

Sen (1981) acknowledged that Malthus's 1800 *Investigation* was not merely 'a supplement' to his 1798 *Essay on Population*, but also expressed a theoretical analysis of exchange entitlement prior to his own theorising. According to Sen, 'Malthus also presented a theory linking food shortage to the behaviour of prices and distribution, and that theory was not essentially dependent on the *genesis* of the food shortage' (*ibid.*, 174–175; Sen's emphasis). In his appendix article, Sen expressed concern with that theory, 'and not with Malthus's theory of population' (*ibid.*, 175).

Sen read the following two features in 'Malthus's analysis of adjustments of food prices', (i) prices must rise to eliminate enough 'demanders from the market to make the current supply last', and (ii) the operation of parish allowances made difficult to eliminate the poor's demand for food, thereby leading prices to rise much higher. The rise in price, as indicated in the first feature, was caused 'by the role of prices to adjust demand to supply'. On the second feature, Sen added that 'Malthus did not, of course, condemn the parish allowances for this reason, but regarded it as absurd that the poor should complain of the price rise' (*ibid.*). Sen captured these features by constructing a

'simple' Malthusian model. To consider the influence of Poor Laws on the exchange entitlement of the two classes and the possible tragic equilibrium, we shall further simplify the Malthus–Sen model.

The model fundamentally assumes that (i) each person  $i \in \{R, P\}$  belonging to a community can be rich ( $i = R$ ) or poor ( $i = P$ ), according to each person's disposable income in terms of money ( $y_i$ ) – the rich's disposable income must be at least as large as the poor's,  $y_R \geq y_P$ ; (ii) all people starve if they cannot consume the required amount of corn – the poor spend all their income on corn, while the rich spend a proportion ( $c \in (0,1)$ ) of their income on corn and the remaining proportion ( $1 - c$ ) on luxuries; and (iii) if the rich's disposable income falls to the poor's level, all people fall into poverty, and no luxuries are enjoyed.<sup>18</sup>

Let  $N_i$  be the numbers of  $i$ 's class, with  $N_R > 0$ ;  $w_i$  is  $i$ 's earning in terms of money, with  $cw_R > w_P > 0$  and  $w_i$  being constant;  $a$  is the per capita money (parish allowances) transferred from the rich to the poor;  $p$  is the price of corn; and  $e_i$  is  $i$ 's exchange entitlement. Additionally, suppose that if  $\bar{S}$  ( $> 0$ ) units of corn can be supplied and allocated equally to all community members, no one would starve. The system would then be represented by the following equations and inequalities:

$$y_R = w_R - a \left( \frac{N_P}{N_R} \right), \quad (1)$$

$$y_P = w_P + a, \quad (2)$$

$$p = \left( \frac{cN_R}{\bar{S}} \right) y_R + \left( \frac{N_P}{\bar{S}} \right) y_P, \quad (3)$$

$$e_i = \frac{y_i}{p}, \quad (4)$$

$$\frac{\bar{S}}{N_R + N_P} \geq e_P, \quad (5)$$

$$y_R \geq y_P. \quad (6)$$

Equations (1) and (2) represent the per capita disposable income of the rich and poor,

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<sup>18</sup> That is,  $c = 1$  if  $y_R = y_P$  (then,  $0 < c < 1$  if  $y_R > y_P$ ).

respectively.<sup>19</sup> Equation (3) indicates the short-run price of corn.<sup>20</sup> Equation (4) represents per capita exchange entitlement, indicating the maximum amount of corn that  $i$  could purchase with available disposable income. As shown in equation (5), the exchange entitlement of the poor is assumed not to exceed  $\bar{S}/(N_R + N_P)$  units of corn, the amount from which all community members could exist without starvation.<sup>21</sup> Equation (6) is expressed in assumption (i).

If either of the inequalities holds as an equation, the six unknowns ( $y_R$ ,  $y_P$ ,  $a$ ,  $p$ ,  $e_R$ , and  $e_P$ ) are determined. In other words, the condition of equilibrium in the model is that either equations (5\*) or (6\*) holds.

$$\frac{\bar{S}}{N_R + N_P} = e_P, \quad (5^*)$$

$$y_R = y_P. \quad (6^*)$$

Equation (5\*) indicates a circumstance in which the poor can access corn requirements owing to allowances transferred from the rich. As subsection 4.3 will explore, this is the desirable equilibrium for avoiding famines that can be established even in the case of  $y_R > y_P$ . In contrast, equation (6\*) indicates a leveling of the two classes. As subsection 4.4 will explore, the tragic event is equilibrium (6\*), in which the total amount of corn supplied to the community is *strictly less* than  $\bar{S}$  units.

### 4.3 The effect of parish allowances

Prior to examining how the equilibrium  $\bar{S}/(N_R + N_P) = e_P$  and  $y_R > y_P$  is achieved, we first confirm the relationships between allowances ( $a$ ) and price ( $p$ ). From

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<sup>19</sup> As  $N_R$ , rich people, give  $aN_P$  as the allowance for  $N_P$ , poor people, from their gross earnings ( $w_R N_R$ ), the total income of  $N_R$  can be represented as  $y_R N_R = w_R N_R - aN_P$ . Dividing both sides of this by  $N_R$  gives equation (1). Furthermore, the total income of all poor people equals their gross earnings ( $w_P N_P$ ), added to  $aN_P$ , can be represented as  $y_P N_P = w_P N_P + aN_P$ . Dividing both sides of this by  $N_P$  gives equation (2).

<sup>20</sup> Let  $D$  be the quantity of the community's corn demanded. The total demand for corn in terms of money ( $pD$ ), comprising  $cy_R N_R$  and  $y_P N_P$ , can be represented as  $pD = cy_R N_R + y_P N_P$ , where  $cy_R N_R$  refers to the expenditure that  $N_R$  rich people spend on corn from their income  $y_R N_R$ , and  $y_P N_P$  indicates the expenditure when  $N_P$  poor people buy corn with all their income. The quantity of corn demanded is the decreasing function of its price ( $p$ ) and the increasing function of  $i$ 's disposable income ( $y_i$ ):  $D(p, y_i) = (cy_R N_R + y_P N_P)/p$ . Let  $S$  be the quantity of corn supplied to the community. As the supply is given with  $S = \bar{S}$ , the short-run supply-demand equilibrium ( $S = D(p, y_i)$ ) gives equation (3).

<sup>21</sup> The rich's exchange-entitlement condition,  $e_R \geq \bar{S}/(N_R + N_P)$ , is omitted here because it is evident from equation (6).

$$p = \frac{cw_R N_R + w_P N_P}{\bar{S}} + \left[ \frac{(1-c)N_P}{\bar{S}} \right] a$$

given by substituting equations (1) and (2) into equation (3), an increase in  $a$  raises  $p$ .<sup>22</sup>

Now suppose that the system starts from the circumstance  $\bar{S}/(N_R + N_P) > e_P$  and  $y_R > y_P$ .<sup>23</sup> First, allowances ( $a$ ) would be increased to make the poor's exchange entitlement ( $e_P$ ) close to the norm of the corn ration needs ( $\bar{S}/(N_R + N_P)$ ). The increase in  $a$  raises  $p$ . The increase in  $p$  lowers  $e_P$  from  $e_P = (w_P + a)/p$ , and a new increase in  $a$  is considered.<sup>24</sup> Repeating the steps ultimately achieves equilibrium (5\*).

From equations (1), (2), (3), (4), and (5\*), the respective equilibrium solutions are obtained as follows.

$$\begin{aligned} y_R^* &= \frac{w_R N_R + w_P N_P}{N_R + cN_P}, \\ y_P^* &= c \left( \frac{w_R N_R + w_P N_P}{N_R + cN_P} \right), \\ a^* &= \frac{(cw_R - w_P)N_R}{N_R + cN_P}, \\ p^* &= \frac{c(w_R N_R + w_P N_P)(N_R + N_P)}{(N_R + cN_P)\bar{S}}, \\ e_R^* &= \left( \frac{1}{c} \right) \left( \frac{\bar{S}}{N_R + N_P} \right), \\ e_P^* &= \frac{\bar{S}}{N_R + N_P}. \end{aligned}$$

$y_R^* > y_P^*$  necessarily satisfies the condition of  $c < 1$  that indicates the existence of those who can enjoy luxury.<sup>25</sup> Therefore, assuming that the amount of corn accessible to all the community members is at least as large as that required (i.e.,  $S \geq \bar{S}$ ),<sup>26</sup> and that at least one person can enjoy luxuries in the community, equilibrium (5\*) can be achieved without causing the rich's disposable income to shrink to the poor's level. In this way, Sen reconsidered Malthus's discussion regarding the positive effect of parish allowances, acknowledging him as a pioneer of exchange entitlement approach.

<sup>22</sup> The provision of allowances satisfies that there must be rich and poor community members ( $N_i > 0$  for any  $i$  and  $0 < c$ ), and the rich have sufficient income to provide allowances and enjoy luxuries ( $c < 1$ ).

<sup>23</sup> This opening circumstance refers to the rich's disposable income strictly exceeding the poor's and the amount of corn obtainable for each poor person with available income being less than the norm of rations.

<sup>24</sup>  $e_P = (w_P + a)/p$  is obtained by substituting equation (2) into equation (4) for  $i = P$ .

<sup>25</sup>  $y_R - y_P > 0$  if  $y_R > y_P$ . In the equilibrium,  $y_R^* - y_P^* = (1-c)(w_R N_R + w_P N_P)/(N_R + cN_P)$ . For  $y_R^* - y_P^* > 0$ ,  $1-c > 0$  or  $c < 1$  is sufficient.

<sup>26</sup> In this study,  $S = \bar{S}$  is assumed.



#### 4.4 Tragic equilibrium

From equations (1), (2), (3), (4), and (6\*), the respective equilibrium solutions are obtained as follows.

$$y_R^{**} = y_P^{**} = \frac{w_R N_R + w_P N_P}{N_R + N_P},$$

$$a^{**} = \frac{(w_R - w_P) N_R}{N_R + N_P},$$

$$p^{**} = \frac{w_R N_R + w_P N_P}{\bar{S}},$$

$$e_R^{**} = e_P^{**} = \frac{\bar{S}}{N_R + N_P}.^{27}$$

The rich's disposable income would shrink to the poor's level because the tendency to level the two orders would force the rich to transfer much larger allowances to the poor—essentially a compulsorily raised poor-rates.<sup>28</sup> The result, although both Malthus and Sen did not clarify, can be led by a comparison of the equilibrium allowances ( $a^{**} > a^*$ ).<sup>29</sup>

Following Sen's analysis, assume that when only  $\underline{S}$  ( $:= (1 - 1/4)\bar{S}$ ) units of corn are supplied, there is a one-fourth deficiency in the community. Replacing  $\bar{S}$  of  $e_R^{**} = e_P^{**} = \bar{S}/(N_R + N_P)$  by  $\underline{S}$  gives

$$e_i^{**}|_{\underline{S}} := \frac{\underline{S}}{N_R + N_P} < \frac{\bar{S}}{N_R + N_P}$$

for any  $i$ . Any circumstance in which the supply is irremediably deficient for the requirements, all community members would starve. Sen believed that such '[a] "tragic" possibility' was 'so feared by Malthus' (1981, 177), but Malthus expressed surety that, 'There is no kind of fear, that any such tragical event should ever happen in any country' (1800, 18). This conviction, as previously discussed, was grounded on his 1800 belief that the one-fourth deficiency was not the truth, but only a supposition.

## 5. Concluding Remarks

In his *Investigation*, Malthus rejected prevailing opinions that the 1799–1800 high price of provisions stemmed only from scarcity, that the corn dealers artificially raised the price, and that the high price resulted from the over issue of banknotes. The price of

<sup>27</sup> As the last solutions imply (5\*), equilibrium (6\*) makes (5\*) valid.

<sup>28</sup> Then, price also would be still larger. ( $p^{**} > p^*$ , as shown by  $p^{**} - p^* = (1 - c)w_R N_R (N_R + N_P) / \bar{S} > 0$ . Note here that  $c \rightarrow 1$  as  $y_R \rightarrow y_P$ , and thus  $c > 1$  in the interval that  $y_R > y_P$ .)

<sup>29</sup>  $a^{**} - a^* = (1 - c)N_R (w_R N_R + w_P N_P) / (N_R + N_P) (N_R + cN_P) > 0$ .

provisions, of which the supply is inelastic, rises as the purchasing power of the poor increases through money allowances. Such reasoning led Malthus to attribute the high price to the Poor Law system. Nevertheless, he did not reject this system in his 1800 pamphlet, unlike his 1798 *Essay on Population*. In England, where food was not lacking to an irremediable degree, poverty was indeed alleviated through income redistribution in the form of parish allowances.

This study shows that Malthus likely wrote the *Investigation* under the influence of the Rusby trial and Portland's letter. The pamphlet soon gained the approval of the House of Commons via Pitt. The Select Committee of the House adopted Malthus's proposals to encourage the importation of provisions and frugality in consumption. The Committee was favourable to the system of parish allowances, which was expected to be as effective as an introduction of incentives to avoid consuming grains in the whole country. If Malthus had repeated his previous harsh criticism of the Poor Laws, his proposals in the *Investigation* might not have been welcomed by the government.

Despite its impact at the time, the *Investigation* was forgotten until Keynes's 1933 attention. Thereafter, Sen (1981) theoretically explained the positive effect of the parish allowances discussed in the *Investigation*, and came to regard Malthus as a pioneer of the exchange entitlement approach. It probably took so long for this contribution to be discovered by Sen because Malthus's entire approach to poverty relief tended to be interpreted inseparable from the FAD approach. Why has the FAD approach become associated with Malthus's views on famine?

In his most widely read work, in the succeeding editions (1803–1826) of the *Essay on Population*, Malthus noted: 'I am much inclined to think' that 'the deficiency of one fourth ... was very near the truth' (1986, II, 359). Although the irremediable deficiency of one-fourth seemed to be *unrealistic* in his 1800 view, Malthus came to believe that the deficiency represented a *real* situation, which amplified his scepticism regarding poverty relief through parish allowances. To summarise by borrowing Sen's words, it was not long before Malthus discarded the exchange entitlement approach included in the *Investigation* and returned to the FAD approach to poverty relief.

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