The Indian Reception of Sraffa: A Study of Book Reviews

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Abstract:

This paper examines the Indian reception of Sraffa's *Production of Commodities by Means of Commodities* (1960) by focusing on book reviews published in prominent Indian journals. While Krishna Bharadwaj's review in *The Economic Weekly* (1963) has received significant scholarly attention, this has not been the fate of Sukhamoy Chakravarty's review in *Arthaniti* (1961) and J. K. Mehta's review in the *Indian Journal of Economics* (1962). In Bellino's (2008) book chapter focused solely on book reviews of PCMC, there is only a brief engagement with Bharadwaj's review and the book reviews of Chakravarty and Mehta are only mentioned. From my study of the Indian book reviews, the following key themes emerge: a restatement of key propositions of classical political economy, a critique of marginalism, the relationship between economic theory and policy, and similarities with input-output analysis—thus placing these reviews, especially that of Bharadwaj, as some of the best ones that were published.

Keywords: Piero Sraffa; Krishna Bharadwaj; Sukhamoy Chakravarty; J. K. Mehta, India

JEL codes: B24; B31; B51

Acknowledgements:

This paper was first presented at the YSI-ISHET International Workshop on the Indian Reception to Piero Sraffa held at University of Hyderabad in February 2024; I acknowledge the helpful comments by Christian Gehrke and G. Omkarnath. Subsequently, a revised version was presented at the ESHET 2024 Annual Conference at Graz, Austria; I am grateful to Bertram Schefold (the discussant of my paper), Cristina Marcuzzo, Heinz Kurz and Tony Aspromourgos for their questions and suggestions. Finally, I am grateful to the anonymous reviewer for their comments.

1. Introduction

The study of reviews of Piero Sraffa's 1960 book *Production of Commodities by Means of Commodities* (PCMC hereafter) is not taking place for the first time. From Sraffa's Cambridge Pocket Diary, we know that PCMC was published on 27 May 1960 and the Italian version on 6 June 1960 (Sraffa E/32).[1] Bellino (2008) is squarely devoted to a study of book reviews of PCMC; PCMC was reviewed by prominent economists such as Joan Robinson (February 1961, *Oxford Economic Papers*), Ronald Meek (June 1961, *Scottish Journal of Political Economy*), Maurice Dobb (October 1961, *Labour Monthly*) and Roy Harrod (December 1961, *The Economic Journal*).[2]

The notable reviews by Indian economists are Sukhamoy Chakravarty (July 1961, *Arthaniti*), J. K. Mehta (April 1962, *Indian Journal of Economics*), and Krishna Bharadwaj (August 1963, *Economic Weekly*).[3] In Bellino (2008), while there is a brief engagement with Bharadwaj (1963), Chakravarty (1961) and Mehta (1962) are merely listed. Of course, in a single article, it is not possible to substantially engage with more than 30 reviews of PCMC. This paper focuses attention on the three notable reviews of Sraffa's book by Indian economists and published in Indian journals. Such an endeavor is also to be placed within a larger attempt to document and consolidate the various channels through which Sraffa's ideas were received in India (for examples, see Omkarnath 2018, Thomas 2018a, Walling 2018). And thus, this paper also aims to contribute to enriching the history of Indian economic thought. The final motivation for this paper is to accord an important place to book reviews as scholarly output (although not peer reviewed); the recent paper by Marcuzzo and Zacchia (2023) which studies all the book reviews written by Joan Robinson is a noteworthy attempt in this direction.

One of the things to note is that all the reviews under consideration here are significantly longer than the one and a half-page ones that we are currently familiar with. Chakravarty's is 11 pages, Mehta's is 6 pages, and Bharadwaj's is 5 pages (with each

[1] https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?n=Sraffa.E32#?c=0&m=0&s=0&cv=70&xywh=-186%2C-805%2C3671%2C2511 (last accessed on 6 March 2025).

[2] PCMC was also reviewed in the *American Economic Journal* by M. W. Reder. Bellino (2008) lists around 30 review articles; 'Mehta' is incorrectly published as 'Metha' (Bellino 2008, 37) but this is a typo since it is correctly printed in Roncaglia (1978, 156) which Bellino had consulted. See also the list compiled in Roncaglia (1978, 154-158). Of all the reviews, the draft of the review by Geoffrey Harcourt and Vincent Massaro in *The Economic Record* was seen by Sraffa before publication (Harcourt and Massaro 1964, 715, n. 1; also see Sraffa D3/12/111.173ff which contains their correspondence and the draft review; the link to this digital object is: https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?n=Sraffa.D3.12.111#?c=0&m=0&s=0&cv=213&xywh=-528%2C-129%2C3723%2C2542 (last accessed on 6 March 2025).

[3] Of note is P. R. Brahmananda (1963) which is his first in a series of articles devoted to Sraffa's economics. However, since it is not a book review, we will not engage with it in this essay. Another similar article is by Gautam Mathur (1966) published in the *Indian Economic Review* under the section 'Notes and Memoranda'. There is also a short critical note by Ranganath Bharadwaj (1972) published in the *Indian Economic Journal*.

page divided into three columns). Amongst these three, the ones by Chakravarty and Mehta – respectively titled *Production of Commodities by Means of Commodities: A Review Article* and *Production of Commodities by Means of Commodities* – are inconspicuous as regards their titles. However, the one by Bharadwaj is distinguished and remarkable: *Value Through Exogenous Distribution* (see also Omkarnath 2005, 462). Here, it is important to also mention Brahmananda's (1963) article entitled *Economics: The Sraffa Revolution – 1*.[4] While Brahmananda's title suggests that Sraffa's PCMC marks a "revolution" in economics, Bharadwaj's title emphasizes Sraffa's different approach to value theory (from that of the mainstream).

The paper is structured as follows. Section 2 engages with Chakravarty (1961) and also provides his brief biographical details. Sections 3 and 4 do the same for Mehta (1962) and Bharadwaj (1963). Section 4 offers a conclusion.

2. Sukhamoy Chakravarty

Chakravarty was born in 1934 in Calcutta. After completing his undergraduate honours degree at Presidency College, Calcutta in 1955, he finished his MA in Economics from the University of Calcutta in 1957. During his MA days, in the course on the history of economic thought, he was exposed to the ideas of the classical political economists and Marx (see Chakravarty (1992) [2000]). Chakravarty did his PhD at the Netherlands School of Economics under the supervision of Jan Tinbergen. His PhD thesis, submitted in 1958, was titled *The Logic of Investment Planning*.

The journal *Arthaniti* is published by the Department of Economics, University of Calcutta. It is published biannually (in January and July). The first issue was published in 1957, and the publication was discontinued in 1988; it has been reissued from 2002. The July 1961 issue of *Arthaniti* also had articles by Pranab Bardhan and Sunanda Sen. In addition to PCMC, R. S. Howey's book *The Rise of the Marginal Utility School, 1870-1889* was also reviewed (by R. Datta).[5]

Chakravarty begins his review article by highlighting that the book took more than 30 years to be published and argues that Sraffa's major contributions relate to (i) the role of capital in circular production systems and (ii) a logical advance over Ricardo's struggle with the theory of value and distribution (Chakravarty 1961, 161). On (i), Chakravarty proposes to "indicate the connection between Sraffa's contribution and the recent work on linear economic analysis" (Chakravarty 1961, 162). Subsequently, Chakravarty questions "modern work", i.e., marginalist economics, on their "implicit assumptions" of

[4] See note 3 in this paper.

[5] Thomas (2023b, 37) highlights the importance of studying the lives of economics journals much like studying the lives of individual economists by historians of economic thought. Another reason for studying them is because they "play an important role in directing research and analysis" (Krishnamurty 2016, 622). Furthermore, such studies allow us to understand the nature of scholarship in economics – the monism or pluralism characterizing it.

"marginal concepts" and "constant returns to scale" (Chakravarty 1961, 162). Chakravarty's review of Sraffa's book is probably the very first article he published after his PhD.

Sraffa's depiction of "an economy in a self-replacing state", Chakravarty observes, is "the description of classical circular flow" where the "[c]ommodities produced equal commodities used up as means of production" and "[t]here is no net product" (Chakravarty 1961, 162). However, as Carter rightly points out, such a conception is not found in the classical economists because their conception of the circular flow always included the social surplus – except that in the case of Quesnay's "sterile sector", there is no physical surplus to be found, but by assumption (see Carter 2014, 51).

Value and distribution

According to Chakravarty, what determines commodity prices in Sraffa? "Since there are both profits and wages, prices of commodities are determined by the factor-remunerations together with the technology" (Chakravarty 1961, 162). Today, the majority view among Sraffa scholars is that commodity prices (and wages) are determined by the following 'givens': (i) size and composition of output, (ii) methods of production, and (iii) the rate of profit (determined by the rate of interest set by monetary authorities); alternatively, wages may be given, and the rate of profit gets determined (see Garegnani 1987 [2018], 13327-13328).

Chakravarty initially notes that the labour theory of value is not a sufficiently *general* theory but a "special case" where wages make up the entire national product (Chakravarty 1961, 163).[6] But then Chakravarty argues that:

> "If, however, 'one of the two factors', capital and labour, is assumed to be available at a constant rate of remuneration, then implications of a one-factor theory of value may still continue to hold good, in the sense that changes in the composition of final demand will not affect prices so long as the condition that one particular factor is available at a fixed remuneration is not affected" (Chakravarty 1961, 163).

Here, Chakravarty is making use of the non-substitution theorem (for a discussion, see Salvadori 2018). However, in PCMC, there is no mention of "final demand" anywhere nor are there "factors of production" in the Marshallian sense. In fact, Sraffa is critical of the subjective basis of "demand" in marginalism (Signorino 2001; Thomas 2018a, 27-28). Also, characterising the labour theory of value as a "one-factor theory" seems odd, and of course problematic from a Marxian standpoint.

Chakravarty (1961, 163) subsequently poses a counterfactual question: what happens to the "rate of profits and the structure of relative prices" when "wages are reduced" as opposed to the "composition of final demand"? They will undergo a change. This change,

[6] Chakravarty (1961, 163) also refers to the single factor theory or, in his words, "one-factor theory of value". Perhaps this is not the best way to express the labour theory of value because the aim is to find a suitable *standard* of value – and not to break down the value of a commodity into the various inputs that go into its production.

Chakravarty notes, may be easily comprehended within the Marxian framework by taking recourse to the "organic composition of capital" notion. That is, price changes reflect "the relative differences in the organic composition of capital in the different sectors of the economy" (Chakravarty 1961, 163).

Chakravarty's discussion of Marx, labour theory of value and organic composition of capital is followed by a discussion on Ricardo's search for an invariable measure of value (in the third edition of his *Principles of Political Economy and Taxation*). Chakravarty finds an echo of Samuel Bailey[7] in the then mainstream thought: "Recent tendency has been largely to echo Bailey's point of view, which does not see any substantive difference between 'value' and 'price'…" (Chakravarty 1961, 163). Chakravarty ends this discussion by noting that "[t]here are special cases where we can define certain composite commodities which are invariant with respect to price changes" (Chakravarty 1961, 164). According to Chakravarty, "[t]hey illustrate certain problems relating to intrinsic complementarity of goods…" (Chakravarty 1961, 164). Subsequently, Chakravarty introduces Sraffa's "standard commodity" which is nothing but an invariant composite commodity. This is followed by a brief discussion on the "maximum rate of profits" and the inverse (linear) relationship between wage rate and the profit rate (Chakravarty 1961, 164).

According to Chakravarty, Sraffa's standard commodity helps in determining "the equilibrium remuneration to capital" where capital is not a scalar – "an aggregate quantity of capital" – as in the marginalist aggregate production function (Chakravarty 1961, 165). By "the equilibrium remuneration to capital", Chakravarty means "the rate of profit". However, Sraffa uses the standard commodity primarily to "study … price-movements which accompany a change in distribution" (Sraffa 1960, 18). One way to reconcile these two views is to treat capital theory as a sub-set of value or price theory. Even though economists explicitly or implicitly make use of various notions of capital in research and policy, it is unfortunate that capital theory has been expelled from the education of economists.[8]

For Chakravarty, "[t]he interesting point to re-emphasize is that prices are determined independent of the composition of the final demand" (Chakravarty 1961, 166). Not quite. This is because the size and composition of final demand is embedded within the size and composition of output and consequently they do have an effect on the prices but not in the marginalist manner (see Thomas 2018a, 27-8). According to Sraffa, the "value" or "price" or "exchange-ratio" of a basic commodity "depends as much on the *use* that is made of it in the production of other basic commodities as on the extent to which those commodities extent to which those commodities enter its own production" (Sraffa 1960, 9). Examples of such basic commodities, in PCMC, are "the necessary subsistence of the workers", "fuel for the engines" and "the feed for the cattle" (Sraffa 1960,

[7] Samuel Bailey (1791-1870), a contemporary of Ricardo, advanced criticisms of Ricardo's labour theory of value and his invariable measure of value.

[8] For an accessible discussion of capital theory debates, see Fratini (2019) and for a book-length treatment of the first stage of the capital theory debates of the 1960s, see Harcourt (1972).

9). Therefore, workers' consumption or the workers' final demand – a given – does play a role.

Sraffa and marginalist economics

Chakravarty missed the first given in PCMC – the size and comparison of output (see also Roncaglia 1978, 14-16). A vivid expression of the analytical separation between price system and quantity system is found in Ricardo's distinction between 'value' and 'riches' (see Thomas 2018b, 61-62); while 'value' refers to exchange value and price, 'riches' refer to the quantities of commodities produced and consumed. Indeed, both the symmetry as well as the functional relationship between price and quantities is a marginalist invention (Bharadwaj 1986; Aspromourgos 2019). Moreover, the term 'factor', like the marginalist term 'factors of production', is not the best way to represent Sraffa's economics because of his intellectual stubbornness towards using historically appropriate, logically consistent, and theoretically precise concepts and categories in his analysis.

> Sraffa's "investigation is concerned exclusively with such properties of an economic system as do not depend on changes in the scale of production or in the proportions of 'factors'" (Sraffa 1960, v).

> "It is of course in Quesnay's Tableau Economique that is found the original picture of the system of production and consumption as a circular process, and it stands in striking contrast to the view presented by modern theory, of a one-way avenue that leads from 'Factors of production' to 'Consumption goods'" (Sraffa 1960, 93).

Chakravarty wishes to explore "the connections of this approach with the complete capital models with multiple capital goods so thoroughly discussed in recent literature by Samuelson and Solow (Chakravarty 1961, 165). Chakravarty is here referring to the "theory of linear programming" (Chakravarty 1961, 170) by Solow, Dorfman and Samuelson[9] and Samuelson and Solow's work on capital theory where capital is "treated as a vector" (Chakravarty 1961, 170).

In Chakravarty's discussion of Sraffa's work *vis-à-vis* "contemporary work on linear models" where CRS is assumed, Chakravarty writes that CRS "is not at least inconsistent with Mr. Sraffa's analysis" (Chakravarty 1961, 166). Of course, such a standpoint is found in most reviewers – who only had a marginalist framework to read and understand Sraffa. The assumption of a given size and composition of commodities possesses meaning from a marginalist standpoint only via the assumption of CRS. In classical theory, it is not necessary (see also Thomas 2018a, 20-24; Bellino 2018, Section 5). This also demonstrates that what is necessary in one paradigm is not necessary in another.

[9] Chakravarty refers to this work, the *Quarterly Journal of Economics* paper by Samuelson and Solow titled *A complete capital model involving heterogenous capital goods* published in 1956, and Samuelson's 1961 essay titled *A new theorem on non-substitution*, which is essentially ch.12 in the book *Money, Growth and Methodology and Other Essays in Economics: In Honor of Johan Akerman*. For capital-theoretic problems even when capital is treated as a vector, see Fratini (2019).

Chakravarty writes that Sraffa "does not consider the much stronger proposition discovered by Samuelson and Georgescu-Roegen" – "the well known non-substitution theorem" (Chakravarty 1961, 167). On the next page, Chakravarty goes on to write: "[r]estatement of Mr. Sraffa's problem in terms of inter-industry analysis shows how the proof of the existence and uniqueness of such a 'standard system' follows from the well-known theorem of Perron and Frobenius in connection with non-negative square matrices" (Chakravarty 1961, 168).

In his concluding section of the review article, Chakravarty admits that Samuelson's and Solow's work are characterised by the criticisms Sraffa raised in PCMC – "marginal analysis and the assumption of constant returns to scale" (Chakravarty 1961, 170). Chakravarty correctly notes that "[m]arginal analysis assumes only virtual displacement" but unconvincingly argues that "[t]o rule out virtual displacement is to rule out problems connected with choice" (Chakravarty 1961, 170). Sraffa's criticism is addressed to the *nature* of counterfactuals that employs marginal reasoning and not all kinds of counterfactuals (see Ali 2023; Ginzburg 2013; Kurz *et al.* 2025; Sen 2003; Thomas 2022, 33). Indeed, in part III of PCMC, there is discussion of the *choice* of techniques.

After acknowledging Sraffa's statement in the preface regarding CRS, Chakravarty is not very convinced. According to Chakravarty, the CRS assumption "is another way of stating the assumption of divisibility" (Chakravarty 1961, 171). It is evident that Chakravarty is unable to understand the logic of classical political economy (CPE). Of course, he has not significantly engaged with CPE by this time. It is also unclear whether by this time Chakravarty is able to recognise the analytical differences between classical and marginalist economics.[10]

3. J. K. Mehta

J. K. Mehta obtained his B.A. in English, Mathematics, and Economics from Muir Central College, Uttar Pradesh. He did his M.A in Economics at Allahabad University where H. Stanley Jevons, the son of the pioneering marginalist economist W. S. Jevons, taught him. Mehta was a prolific writer of books – he has published some 16 books in economics.[11] He taught at Allahabad University from 1927 to 1963, and retired as a Full Professor. He became the President of the Indian Economic Association in 1968.

The *Indian Journal of Economics* was established by H. Stanley Jevons. The journal's publisher was Department of Economics, University of Allahabad and the first issue of the journal came out in January 1916.

[10] Chakravarty (like Bose in fact) laments that Sraffa "has nothing to say about the problem of intertemporal allocation of resources" (Chakravarty 1961, 171).

[11] Mehta's 1962 book *A Philosophical Interpretation of Economics* was reviewed by A.L. Macfie, one of the editors of the Glasgow edition of Smith's TMS, in the *Economic Journal* (March, 1963).

Input-output economics and CRS

According to Mehta, Sraffa's "book begins in the style of input-output analysis…" (Mehta 1962, 289). By the 1960s, W. W. Leontief's 1941 book *Structure of the American Economy, 1919–1929* had been published, and the I-O approach – an empirical approach to general equilibrium theories – was gaining popularity in India.[12,13] Mehta is correct to emphasize that "Mr. Sraffa makes no use of the concept of the margin" (Mehta 1962, 289). But then, owing to not possessing an understanding of the analytical approach of CPE, Mehta characterizes Sraffa's system as being static.

> "Equilibrium is envisaged as the result of some adjustments already made in the system and once the position of equilibrium is made the starting point it is possible for one to ignore considerations of balance at the margin. That is why Mr. Sraffa's entire exposition runs in terms of the *constant,* the *static,* the *stock*" (Mehta 1962, 289).

Furthermore, in a static exposition, according to Mehta, "economic relationships are found consistent with the notion of constant returns … When the analysis runs in terms of constants, the question of variability of returns does not arise" (Mehta 1962, 289-290). Here too, Mehta is reading Sraffa with a marginalist lens. Moreover, a given quantity system does not imply that these data are necessarily in equilibrium.

Mehta proceeds to provide the readers with the set of knowns and unknowns in PCMC.

> "With the help of these knowns the unknown exchange values are determined. This is the input-output skeleton. Remember everything is fixed, tastes, techniques and so on. But there is no margin, no capital, no consumption, specifically brought into the picture. Commodities are produced by commodities" (Mehta 1962, 290).

Here it is opportune to reiterate the givens of marginalist theory of value and distribution: (i) individual preferences, (ii) individual endowments, and (iii) techniques of production. Mehta is here unequivocally reading PCMC with a marginalist lens. Moreover, there is of course consumption in Sraffa's PCMC, but not in the familiar marginalist manner. Most importantly, there is both (customary) subsistence and surplus consumption by the workers. While the former is embedded in the quantity equations/system, the latter is part of the social surplus (Sraffa 1960, 9-10). There is also inter-industry use or consumption especially as regards basic products (Sraffa 1960, 8-9) or "productive consumption" in Sraffa's words (Sraffa 1960, 3); this is also embedded within the given quantity system. (On Sraffa's decision to *not* use the term 'capital', see Sraffa 1960, 9.)

Mehta, in the following excerpt, appears to confuse "uniform" with "constant" profit rate: "from constant returns to scale we have constant profit or constant returns to

[12] Although Sraffa writes in his preface that "[a]s was only natural during such a long period (since the late 1920s), others have from time to time independently taken up points of view which are similar to one or others of those adopted in this paper and have developed them further or in different directions from those pursued here" (Sraffa 1960, vi), Leontief is nowhere mentioned in PCMC. On the meetings and intellectual connections between Sraffa and Leontief, see Parys (2016).

[13] The initial work on building input-output tables was carried out at the Indian Statistical Institute (ISI) in 1954 in relation to economic planning (Mukherjee 1967, 16-17).

capital, as it were" (Mehta 1962, 290). Since there is an implicit assumption of free mobility of labour and capital (and of uniform prices of commodities), Sraffa writes that the "rate of profits … must be uniform in all industries" (Sraffa, 1960, 6).[14] Mehta proceeds to ask: "Is all this too artificial or too theoretical?" One supposes this is more an indication of Mehta's frustration in trying to comprehend Sraffa's economics than a well-considered criticism. Mehta then goes on to make a strange claim regarding classical economics: "An ideal distribution of factors would warrant equality of profit rates, constant returns and the like. The classical exposition by its nature lends support to such a warrant" (Mehta 1962, 290). It is unclear what Mehta means by an "ideal distribution of factors" because there is no such conception in the work of the classical political economists. In fact, there is an interesting debate regarding differential profit rates between Ricardo and Sismondi with the latter disagreeing with the former's insistence to analytically focus on free competition (for a brief account see Thomas 2018a, 18).

Although Mehta finds "novelty" in the way Sraffa employs the "surplus" (Mehta 1962, 290), his understanding of Sraffa's surplus is incorrect because he confuses "surplus" with "non-basics". According to Mehta, "since it [surplus] is neither necessary for the natural nor for the human factors, it is treated as luxury good" (Mehta 1962, 290). And: "The luxury good can be treated as money-surplus. When the price of money is merely changed the relative prices of other goods remain unchanged. Profit that is an excess over necessities, must take the form of money-stock or be taken to constitute a luxury good" (Mehta 1962, 291). Of course, Mehta is wrong. The price of non-basics does not depend on the use that is made of it since it does not enter in the production of all other commodities. Consequently, the "[p]rice or value … in case of non-basics [is] the same as cost of production" (Sraffa, 1960, 98; also 8, 9).

Sraffa's approach

Despite his confusion in understanding what Sraffa is trying to do, especially as regards the givens, Mehta provides a very interesting characterization of time in PCMC.

> "In the exposition adopted by Mr. Sraffa there is no period-analysis, no time-sequence. … Time enters into the problem only in the way that the equilibrium position is assumed to last *over time*. But for that very reason time loses its *timeliness*. A snapshot picture of the economy is taken and the question asked is not 'how and why has it assumed such and such a position?' The question put is rather, 'at what prices could be [sic] products sell if the economy has not to deviate from its present position?' We repeat, Mr. Sraffa deals in *constants*, *stocks* and *statics*—the fundamental entities for the pure theorist" (Mehta 1962, 291).

Mehta's "snapshot picture of the economy" is strikingly like the photograph metaphor in Roncaglia (1978, 21),[15] which later gets corroborated by Kurz (2022) after studying

[14] But see Sinha (2021) for a different view and Thomas (2022) for the reasons for my disagreement.

[15] The sentence from Roncaglia (1978, 21) reads: "…the classical economists' analysis of prices examined the situation of a given economic system at a given moment in time, much like a photograph of the system at an instant in time."

Sraffa's archive of unpublished notes where Sraffa writes about the "man from the moon".[16] Insofar as Mehta has gotten the correct metaphor, although the means to arriving there have been through the marginalist route, he deserves credit for his interpretative metaphor (on Sraffa's theorising, see also Thomas 2022).

According to Mehta, in PCMC, under production with subsistence (where there is no surplus), the unknown is prices, and the given is technique of production. And under production with a surplus, the unknowns are "the system of prices" and "the principle of appropriation" and the known/given is technique of production (Mehta 1962, 291).

Mehta, in the following excerpt, rightly describes the aims of marginalist economics.

> "In the traditional system one examines the working of economic forces in order to see how the values of commodities and services are determined. And the forces that determine them determine also the quantities of factors in employment" (Mehta 1962, 291).

However, Mehta finds it difficult to identify Sraffa's theoretical aims.

> "In the macro analysis of the type so ingen[u]ously developed by Mr. Sraffa it is not clear what it is that we are searching for. … When one looks at the economic system from the physical point of view, imagining commodities produced by commodities, one gets a picture that appears so unfamiliar" (Mehta 1962, 291-292).

Indeed, it is true, as Mehta writes, that the Sraffa "picture" is "unfamiliar". After all, as he writes in the preface, Sraffa's "standpoint, which is that of the old classical economists from Adam Smith to Ricardo, has been submerged and forgotten since the advent of the 'marginal' method" (Sraffa, 1960, v).

Mehta's hits and misses

Mehta gets the following points right. That "[e]very form of fixed capital can … be conceived of as a joint product" (Mehta 1962, 293). That land is a non-basic commodity as "it helps the production of other commodities but is not itself produced by them" (Mehta 1962, 293). And most crucially in terms of the method of doing economics, "…each method introduces a new economic system" (Mehta 1962, 294). And that "[t]he reader must be all attention while reading this book. Mr. Sraffa believes in quality rather than quantity and that makes the task of the reader (who needs diluted stuff for easy assimilation) extremely difficult" (Mehta 1962, 293).

Mehta oddly thinks that Sraffa "finds a substitute for money in a *standard commodity*" (Mehta 1962, 292). However, what Sraffa provides us is an analytically satisfactory solution to Ricardo's search for an invariable standard of value – a standard that is invariant to changes in income distribution.

While it is true that Sraffa engages with the labour theory of value in chapter VI of PCMC, it is a critical evaluation in that Sraffa points out that "aggregating … several quantities of labour into a single magnitude which could be regarded as representing the quantity of capital" is impossible because they are not independent of prices (Sraffa 1960,

[16] See also the discussion in Ginzburg (2013, 119; 125-126 n. 43).

38).[17] Thus, Mehta misunderstands Sraffa when he writes that “Mr. Sraffa reverts in Chapter VI to cost-of-production aspect of prices and adopts the real-cost or labour-cost concept” (Mehta 1962, 292).

In PCMC, Sraffa is interested in providing a robust conceptual framework for tackling the theory of value and distribution in the tradition of classical political economy but he is not interested in providing a theory of accumulation and growth. The following assessment of Mehta must be viewed within such a context.[18]

> “But do they not grow by appropriating this surplus? If they do, a stationary economy is converted into a growing one. […] Does Mr. Sraffa make allowance for this or take cognizance of it? He takes account of the passage of time leading to the process of aging capital goods. And yet Mr. Sraffa’s exposition is static in the main. A snapshot picture of an economy is taken even if it is passing through a period of change” (Mehta 1962, 294).

Despite Mehta’s confusions and misunderstandings, he strongly recommended the book – as seen below.

> “Let this difficult book be read for the training it is bound to give to one in the science of correct thinking. The fundamental forces at work in an economy that are cloaked by superficial ones are brought to the surface in this book. We recommend it to all serious students of economic theory” (Mehta 1962, 294).

4. Krishna Bharadwaj

Born in 1935, in Coastal Karnataka, Krishna Bharadwaj obtained an MA in Economics in 1957 and a PhD in Economics in 1960, both from Bombay University. Her PhD thesis on the *Techniques of Transportation Planning* was supervised by D.T. Lakdawala (Omkarnath 2018, 35). It was in 1961, when she was in MIT for a two-year post-doctoral fellowship, that she met Joan Robinson (on her now famous US tour) which aroused her interest in capital theory. And in late 1962, Sachin Chaudhuri, the founder editor of *Economic Weekly*, asked her to review PCMC. It should also be noted that she was to correspond and meet with Sraffa only *after* the publication of her review.[19]

Economic Weekly was first published in 1949.[20] It has been rightly likened to the *Nature* for the social sciences. As the name suggests, it is published once every week. In

[17] For more, see Steedman’s *Marx after Sraffa* (1977).

[18] Arun Bose also levels a similar misguided charge (see the discussion in Thomas 2018a, 25-29).

[19] She sent her review to Sraffa in August 1963; for an account of the subsequent friendship between Bharadwaj and Sraffa, see Gehrke (2021), section II; for a historical assessment of Bharadwaj’s review, see Omkarnath (2005).

[20] Bharadwaj’s review was ‘reprinted’ in Harcourt and Liang (1971); I place ‘reprinted’ in quotes because there are instances where they have deleted some text; in fact, they describe it as “excerpts” (Harcourt and Liang 1971, 183). Moreover, they have converted her abstract into initial paragraphs of the main text and a separate list of references has been included. Curiously, she isn’t acknowledged but only Asian New Age Publishers is (Harcourt and Liang 1971, 374). Her review was *reprinted* in Steedman (1988, 11-14) and in Kurz and Salvadori (2003, 40-43); the latter is a straight photocopy of the former.

1966, the journal underwent a name change – from *Economic Weekly* to *Economic & Political Weekly*.

Bharadwaj's review is more substantive than the other two. There is much to be discerned from her title, abstract and section headings. (It cannot be deduced whether the section titles were her contribution or that of the editor of *Economic Weekly*.) The review is divided into the following sections: 'system of equations', 'importance of distribution', 'the "standard commodity"', 'search for absolute measure of value', 'measurement of capital', and 'Sraffa's contribution'.

Classical vs. Marginalist Economics

The review is titled 'Value through Exogeneous Distribution'. Bharadwaj's title informs the readers that there exists two kinds of value theories – that of the classical political economists characterized by exogenous distribution and that of the marginalist economists characterized by endogenous distribution. The marginal productivity theory of income distribution is an example of the latter.[21] In the former, wage is exogenous to the "system of production"; as Sraffa writes, it consists of "specified necessaries [which are] determined by physiological or social conditions…" (Sraffa 1960, 33); they are independent of prices.

Bharadwaj, in her abstract, notes that both Ricardo and Marx were in search of the "absolute value" of commodities. And that in PCMC, Sraffa addresses this "classical" question. Additionally, she rightly notes that Sraffa's "framework of investigation" is "in spirit, classical" (Bharadwaj 1963, 1450). Furthermore, she notes that this approach is different and bears no resemblance to mainstream economic analysis which is fundamentally based on "variations of factor-proportions or output combinations". Bharadwaj's abstract ends on a hopeful note because, for her, Sraffa's PCMC "created a nucleus of deeply significant ideas which presumably have wide-sweeping consequences" (Bharadwaj 1963, 1450).

Bharadwaj notices a similarity between Sraffa's 'production with surplus' system and that of John von Neumann (see Kurz & Salvadori 2001): "When wage rate is fixed …, technology acts as the price-determinant even in this case of production with surplus. In fact, at this point, Sraffa's system resembles that of Von Neumann" (Bharadwaj 1963, 1450). In viewing technology as the key determinant of price, Bharadwaj joins Mehta and Chakravarty.[22]

[21] By assuming imperfections such as rigid wages, imperfect information, the marginalist theory of distribution is able to account for some real world situations (see Thomas 2023a).

[22] She reiterates this point later: prices in PCMC "are determined by technical conditions" assuming CRS (Bharadwaj 1963, 1451). She is quite emphatic that "[e]ither demand conditions or output composition do not play any part in the determination of these prices" (Bharadwaj 1963, 1451). Like Chakravarty and Mehta, Bharadwaj also claims that "[d]emand plays no essential role in the system" (Bharadwaj 1963, 1451). However, this is not correct – there is no role for demand *only* in the subjective, symmetric, schedule-like way in which the marginalist economists understood and expressed it (see Thomas 2018a, 26-28).

"Distribution", writes Bharadwaj, "in Sraffa's system is not endogenously generated through production relations" (Bharadwaj 1963, 1450). Bharadwaj rightly points out that "[t]his is a significant departure from the widely prevalent practice of obtaining distributive shares from the production function applying the marginal method" (Bharadwaj 1963, 1450 n. 2). Perhaps it is even more important to note that "[n]o theory of distribution is offered in the book" (Bharadwaj 1963, 1450). Here are some extracts complementing that standpoint:

> "…profits and wages are surplus-sharing entities…" (Bharadwaj 1963, 1450).
>
> Wage rate could be "determined by mutual bargaining or by an external authority or by social convention" (Bharadwaj 1963, 1451).
>
> "…the rate of profit is 'susceptible of being determined from outside the system of production, in particular by the level of the money rates of interest'" (Bharadwaj 1963, 1451).

Another difference between CPE and marginalism is that while the former adopts the social class as their fundamental unit of analysis, the latter adopts the individual. As Bharadwaj writes, "Sraffa's theory of relative prices belongs to that group of theories of value determination wherein the horizontal division between classes receives the major emphasis" (Bharadwaj 1963, 1451). Bharadwaj takes this classification from Joan Robinson's chapter on 'normal prices' in her 1962 book *Essays in the Theory of Economic Growth*.[23]

Value and distribution

On the subject of CRS in PCMC, Bharadwaj (1963) is not very certain. In the following sentence, she is simply restating Sraffa: "Given Sraffa's framework of no changes in the scale of operation, the question or otherwise of returns to scale does not arise" (Bharadwaj 1963, 1451). Bharadwaj underscores the "analytical significance" of Sraffa's distinction between basics and non- basics (Bharadwaj 1963, 1451). As she notes, "[r]elative prices are thus influenced … by the production structure of the basics, which are produced means of production" (Bharadwaj 1963, 1451). It is not enough that the commodities are "produced means of production" because such commodities are used in the production of luxuries. As Sraffa writes, "[t]he criterion is whether a commodity enters (no matter whether directly or indirectly) into the production of *all* commodities" (Sraffa 1960, 8). And not all produced means of production are basics.

According to Bharadwaj, "[t]he problem of relative prices is intimately related to that of absolute value and Sraffa's sterling contribution lies in the ingenious concept of the Standard Commodity—the invariant measure of value" (Bharadwaj 1963, 1451). The connection between an "invariant measure of value" and "absolute value" is made by

[23] Recall that Krishna Bharadwaj had met Joan Robinson while at Cambridge, U.S and had had gotten exposed capital theoretic issues (Bharadwaj (1992) [2000], 57).

Sraffa in his introduction to Ricardo's *Principles* (Sraffa 1951, xlvi); Bharadwaj acknowledges this, especially the discussion on page xxxii. The following excerpts taken from Sraffa (1951), Sraffa (1960) and Bharadwaj (1963) show that Bharadwaj was convinced by Sraffa's viewpoints.

> "The rational foundation of the principle of the determining role of the profits of agriculture, which is never explicitly stated by Ricardo, is that in agriculture the same commodity, namely corn, forms both the capital (conceived as composed of the subsistence necessary for workers) and the product; so that the determination of profit by the difference between total product and capital advanced, and also the determination of the ratio of this profit to the capital, is done directly between quantities of corn without any question of valuation" (Sraffa 1951, xxxi).

> "Ricardo's view of the dominant role of the farmer's profit thus appears to have a point of contact with the Physiocratic doctrine of the 'produit net' in so far as the latter is based, as Marx has pointed out, on the 'physical' nature of the surplus in agriculture which takes the form of an excess of food produced over the food advanced for production; whereas in manufacturing, where food and raw materials must be bought from agriculture, a surplus can only appear as a result of the sale of the product" (Sraffa 1960, 93).

> "Corn was sought as a measure of absolute value as there could be a 'material rate' of surplus in it, in the sense, that the same product appeared both as net output and as input. This notion, with its roots in the physiocratic doctrine of 'net product', was based on extremely over-simplified assumptions" (Bharadwaj 1963, 1451).

The Ricardian 'corn model' with corn both in the numerator and denominator of the ratio of the net product to the capital advanced is an example of an "absolute measure of value". Sraffa's standard commodity "is one which consists of the same commodities (contained in the same proportions) as does the aggregate of its own means of production – in other words, such that both product and means of production are quantities of the self-same composite commodity" (Sraffa 1960, 19).

When distribution changes, the prices change. As Bharadwaj writes "[t]he problem of valuation is thus of isolating the price movements of a product so as to observe the changes in its value as if in vacuum" (Bharadwaj 1963, 1451). A single commodity like gold was considered by Ricardo. The following excerpt from Ricardo is most illuminating in relation to Sraffa finding an invariable standard of value.

> "May not these proportions be so nearly equally distant from the two extremes, the one where little fixed capital is used, the other where little labour is employed, as to form a just mean between them?" (Sraffa 1951, 45-6).

Bharadwaj rightly observes that "…Sraffa constructs such a commodity with the technical characteristic that it consists of the same commodities combined in the same proportion as the aggregate of their means of production" (Bharadwaj 1963, 1452). And, only basics can enter this. The solution required a "composite commodity" – a "mixture of commodities", as Sraffa (1960, 18) put it.

In chapter V 'Uniqueness of the Standard System', Sraffa argues that any "given economic system" can be uniquely transformed into a "standard system" (Sraffa 1960, 26).

In the previous chapter on 'The Standard Commodity', Sraffa had noted that the inverse relationship between the rate of profits and wage share "is of interest only if it can be shown that its application is not limited to the imaginary standard system but is capable of being extended to the actual economic system of observation" (Sraffa 1960, 22). And so Bharadwaj writes that "Sraffa proves that such a miniature system is embedded in an actual economy" (Bharadwaj 1963, 1452). An "actual" economy, according to Sraffa, is one wherein the commodities consumed (for production) and produced (for consumption and for production) are observed directly.

The conflict between social classes was mentioned by Smith, demonstrated by Ricardo, and was developed further by Marx. Sraffa too, writing in the tradition of classical political economy or the surplus approach, locates or identifies an inverse relationship between wage share and the rate of profit as being embedded in the very fabric of the competitive capitalist economy (Sraffa 1960, 22).[24] And as Bharadwaj puts it, "[t]his relation is not limited to the imaginary standard system alone but can be extended to the actual economic system" (Bharadwaj 1963, 1452).

Capital theory

Bharadwaj (1963, 1452n) recalls Sraffa's observations at the 1958 Corfu conference that were published in *The Theory of Capital* (Lutz and Hague 1961). The importance of precision in theoretical measurements *vis-à-vis* statistical measurements will remain a fundamental issue in economics. Bharadwaj, employing Joan Robinson's comment on measurement from her book *Economic Philosophy*, correctly notes that "it is precisely in the physical non-human world of technology that Sraffa's system is embedded" (Bharadwaj 1963, 1452).[25]

For Bharadwaj, "Sraffa's demonstration regarding the impossibility of measuring capital, independently of distribution and prices is powerful and convincing" (Bharadwaj 1963, 1453). As she writes, "[t]he quantity of Capital which arises from the solution of the simultaneous equations is not distorted by variations in the measuring yardstick itself, since it is expressed in terms of the standard commodity which is invariant with respect to changes in the distribution pattern" (Bharadwaj 1963, 1453). As a matter of fact, Sraffa

[24] Although Smith, Ricardo and Marx espoused and employed various specifications of labour theory of value, Sraffa did not. Hence, the inverse relationship between the rate of profit and wage share does not require or entail any conception of the labour theory of value.

[25] The Robinson quote used by Bharadwaj is as follows: "[w]eight and length, of course, are human conventions but once the convention is established, they do not change, for practical purposes, because, they refer to the *physical, non-human* world" (Bharadwaj 1963, 1452; emphasis added by Bharadwaj). Today, a quote, similar in its intent, from William Petty, widely considered to be the founder of the surplus approach, is used by those working in the CPE tradition to highlight the importance of objective measurements in economics.

> "The Method I take … is not yet very usual; for instead of using only comparative and superlative Words, and intellectual Arguments, I have taken the course (as a Specimen of the Political Arithmetick I have long aimed at) to express myself in Terms of Number, Weight, or Measure; to use only Arguments of Sense, and to consider only such Causes, as have visible Foundations in Nature; leaving those that depend upon the mutable Minds, Opinions, Appetites, and Passions of particular Men, to the Consideration of others." (Petty 1662, 244)

points out analytical dissatisfactions with dated quantities of labour (Marxian) and average period of production (Austrian) as they are not "independent of prices and distribution" (Bharadwaj 1963, 1453).[26]

Bharadwaj gives attention to Sraffa's discussion of fixed capital. After all, the three chapters (VII-IX) on joint production in PCMC, according to Sraffa (1960, 43 n. 1) serve as "a preliminary to the discussion of Fixed Capital and Land in chapters X and XI". Treating fixed capital as a "genus" of joint production "implies that the same machine, at different ages, should be treated as so many different products, each with its own price" (Sraffa 1960, 63). Therefore, Bharadwaj writes: "An alternative method of calculating 'correct' book-value of capital after depreciation emerges from Sraffa's discussion on fixed capital" (Bharadwaj 1963, 1453). Bharadwaj views Sraffa's treatment of fixed capital as "a particular case of joint-product" (Bharadwaj 1963, 1453). Bharadwaj then goes on to list the benefits of Sraffa's conception of fixed capital in depreciation accounting. I reproduce them in full below.

> "This depreciation formula scores over the traditional one in many ways. In the first place, it can allow for any complex pattern of productive efficiency of the capital good during its life-time whereas the conventional formula is based upon uniform efficiency, contrary to reality. Secondly, it can make allowance for variations of inputs in every production period so that changes in efficiency of other inputs are also permitted. Thirdly, it can be applied to the cases where the same machine is used in different productive operations with varying efficiency" (Bharadwaj 1963, 1453).

Viewing fixed capital (by ages) on the input and output side, Bharadwaj notes, "has now became familiar" (Bharadwaj 1963, 1453); after paraphrasing Sraffa's claim that "this method had fallen into oblivion after Marx", she adds "[h]owever, Von Neumann's model makes use of such a concept" (Bharadwaj 1963, 1453n).

Sraffa's contributions

Under the sub-title 'Sraffa's contribution', Bharadwaj highlights the following themes and ideas.

First is Sraffa's decision to study an economic system wherein "[n]o changes in output and no changes in the proportions in which different means of production are used by an industry are considered" (Sraffa 1960, v). Bharadwaj writes:

> "The concept of stationary state, with its invariance of structure, offered itself as a convenient scale of reference to successive approximation, it provided a firm foundation on which to superimpose change" (Bharadwaj 1963, 1453).

To term this a "stationary state" is odd given how this term has been used in Ricardo's growth theory. Allowing for changes in distribution, according to Bharadwaj, offers an

[26] Similarly, for Sraffa, 'cost' or 'cost of production' (classical) is not independent of prices (and distribution).

additional degree of freedom and "is a step further towards a more realistic analytical foundation" (Bharadwaj 1963, 1453).

Second is regarding the connection between techniques and prices. A "change in techniques" alters "the entire configuration of relative prices" (Bharadwaj 1963, 1453). Bharadwaj's insight here is valuable: "they involve a comparison of two different economic worlds" (Bharadwaj 1963, 1454). She views this implication as "another of the challenges to marginalism" (Bharadwaj 1963, 1454n).

Third is related to CRS. According to Bharadwaj, in the case of subsystems, "one gets a feeling as though the assumption of constant returns to scale is necessary" (Bharadwaj 1963, 1454n). Bharadwaj, much like Mehta, Chakravarty and other reviewers, are unable to grasp the analytically separate price and quantity system in CPE. Perhaps one way to cut through the smoke characterising Sraffa's interpreters is to think of CRS in two ways: *a priori* (*ex ante*) and *a posteriori* (*ex post*). In CPE, owing to the analytical separation between the price and quantity system, there is absolutely no *ex-ante* CRS assumption. In marginalism, this is not so. However, when we conduct logical/mathematical operations on the given quantity system in CPE, we do assume that the proportions remain same. This should not be equated with the logical necessity of CRS in marginalism in the determination of prices under conditions of perfect competition (see also Bellino 2018, 854).

Fourth is about potential extensions of Sraffa's system. "So far as growth is concerned, a fusion of Sraffa's System with that of von Neumann appears to have promising potentialities" (Bharadwaj 1963, 1454). Gautam Mathur does precisely this (see Walling 2018).

Bharadwaj concludes her review by rightly noting that "… Sraffa regenerates the classical approach to Economics …" and that his contribution is "relevant and sprightly" (Bharadwaj 1963, 1454).

5. Conclusion

From my study of the Indian book reviews of Sraffa's PCMC, the following key themes emerge: a restatement of key propositions of classical political economy, a critique of marginalism, the relationship between economic theory and policy, and similarities with input-output analysis. As for the reviews in and of themselves, it is clear that Chakravarty (1961) and Mehta (1962) really struggle to make sense of Sraffa's economics. Of course, it is not likely that they were aware of the analytical differences between classical and marginalist economics. While Chakravarty tries to make sense of PCMC by referring to the work on capital theory done by Samuelson and Solow, Mehta scrutinizes the methodological positions. Mehta's use of the photograph metaphor is very much of interest to the scholars of Sraffa. Like Chakravarty, Bharadwaj too did not have significant exposure to the ideas of classical economists; as she writes, "[m]y acquaintance with Marx was mainly from a cursory reading of *Capital* and with Smith and Ricardo mainly secondhand through history of thought compendiums. … Sraffa's book fascinated me and inspired me to read the originals in depth" (Bharadwaj (1992) [2000], 59). Her in-depth reading comes through in her review article, which also brought praise from Sraffa: "I am delighted with your excellent article, which will be of great help to many who have been puzzled by my book. I have no doubt that you have correctly grasped the main lines of the argument, and also guessed some of the directions in which, in my view the criticism of marginalism should be developed" (Letter to Krishna Bharadwaj, 8 September 1963; as cited in Omkarnath 2005, 463). In carrying out this study of the Indian book reviews of PCMC, this paper also contributes to the nascent sub-field of the history of Indian economic thought.

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