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Rational Inefficiency:
A Discourse on John Richard Hicks, Joe Staten Bain and Harvey Leibenstein

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Abstract

Rationality and efficiency are often considered two sides of a same coin. Often we argue that in the absence of market failures, rationality always generates efficiency. The present paper, however, goes against this current of wisdom. It argues that rationality reflects the state of mind that determines the course of decision-making for an individual. Efficiency, on the other hand, conventionally reflects the financial results of an economic activity. But the human mind always desires more than what those financial outcomes provide. Therefore, rationality should not be identical to efficiency. This is the concept of 'rational inefficiency', or equivalently, 'irrational efficiency', which is theme of this article. It discusses in this context three important hypotheses, as developed in the literature on efficiency. Those are (a) the Quiet Life Hypothesis, (b) the Structure-Conduct-Performance Hypothesis, and (c) the x-efficiency Hypothesis.

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D01,D03, L10, L25

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Industrial Organisation, Efficiency, Rationality, Market Structure

In an emerging market economy, efficiency is the kingpin for survival and development. Inefficient productive units cannot survive domestically in the face of competition from multi-national corporations; nor could it grow based on global

markets, thanks again to more competitive firms. The question of efficiency is, therefore, taken up very seriously in the context of economic reforms in many countries, including India. But the theme has its genesis at the dawn of European economic thought – in the writings of the so-called Physiocrats. In the Physiocartic era, however, 'efficiency' was interpreted in the macro-economic framework. Quesnay's '*Tableau Economique*' is an example in point.[1] It continues down to the classical tradition, and dominated the writings of Adam Smith and David Ricardo.[2] A paradigm shift is, however, noticed in the neo-classical era, as the focus shifts to the micro economic level – more specifically, at the firm - or the industry- level. Here we find new concepts emerge, for example, allocative efficiency, scale efficiency, and later on, scope efficiency, which determine the efficiency score of a firm. The contribution of Alfred Marshall,[3] W.S. Jevons, C. Menger[4] and W. Baumal[5] may be cited in this context. One of the conclusions that the neo classical writers have established is that monopoly is inefficient from the viewpoint of resource allocation; suboptimal level of production leads to higher average cost of production, and hence, a wastage of resources. The earlier Neo-classical economists, especially Marshallians, however, believe that perfect competition is the natural state of a market. Under the weight of Sraffa's concept of 'Laws of returns', which invalidates the continuance of perfect competition[6], they use the concept of 'externalities' in support of their belief about the competitive market, as Marshall himself did. But gradually the monopoly, as conceived by Cournot, is accepted as 'the natural case'. Hicks writes, 'With this assumption, this cardinal difficulty of increasing returns disappeared, since a firm might still be in equilibrium under conditions of diminishing cost.' From this field of study has emerged an interesting branch of literature where monopoly has been discussed from different angles - mainly, the reasons thereof and the consequences thereto. These form the central theme of this article. We take up three important hypotheses in this field, namely, (a) the Quite Life Hypothesis (QLH) that Hicks developed in 1935; (b) the Structure-Conduct-Performance Paradigm (SCPP), as proposed by Bain in 1959; and (c) the x-efficiency theory, where, following the deliberation of Leibenstein in 1969, a number of economists have contributed to. These three hypotheses are discussed in three sections that follow. In section IV we, however, seek to develop a logical thread amongst them.

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[1] Robbins, A history of economic thought, pp.77-113

[2] Dobb, Theories of Value, pp. 38-95

[3] Marshall, Principles of Economics, Book IV

[4] For Jevons and Menger, see Robbins, A history of economic thought, pp. 258-284

[5] Baumol *et al.* Contestable Markets and Industry

[6] Hicks, 'Annual survey of Economics', p. 2

I

 In the neoclassical tradition, a competitive firm maximises its profit when the ruling price equals the long-run marginal and average costs. That is the lowest point of the long-run average cost curve so that the utilisation of resources gets optimised. Thus, in a competitive equilibrium, the profit maximising point coincides with the optimal resource utilisation point. In monopoly, however, the profit maximising (MR = MC) point does not so behave, giving rise to wastage of economic resources. Thus, from the societal viewpoint, it is an inefficient point, though efficient from the monopolist. Moreover, as Hicks argues, a monopolist is often found to produce away from the MR = MC point, though in its neighbourhood. The question that now arises is: Is it irrational to belong to a point away from MR=MC? To Hicks, it is not irrational. In the conventional analysis, revenue and cost are measured in financial or monetary terms. More specifically, revenue is defined as the money value of all the products a firm produces, and the cost as the money value of all resources it employs. But, in essence, revenue should represent what he gets, not only in terms of money, but the pain and discomfort as well which he suffers in the process.[7] Hence, the inequality between MR and MC in monetary terms should not be taken to represent the inequality between MR and MC in the true sense of the term. This is especially true since, as a human being, a monopolist is affected by a host of qualitative factors, or the so-called 'subjective factors, *pari pasue* with the monetary factors of production. Thus, guided by his subjective and objective factors, a monopolist equates his 'emotional' MR = 'emotional' MC, where emotional MR is defined as the monetary MR plus the subjective gain; and emotional MC is defined as the monetary cost plus the subjective cost. This idiosyncratic emotional MR = emotional MC may not be abreast with the financial MR= financial MC. The monopolist will not make an attempt to move to the theoretical utopia of financial MR=MC as he takes up his subjective costs into consideration. This propensity of the monopolist to maintain his position away from the profit maximising MR= MC is referred to as 'the Quite Life' by Hicks in his article in 1935. It should be noted that Hicks has not analysed the subjective gains and losses in detail; nor how they counterbalance each other. We will see shortly that Leibenstein delves into these questions in a theoretical framework.

Hicks argues that the monopolist will not exert himself to reach the point of MR=MC as he enjoys 'the Quite life', the greatest reward of monopoly power.

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[7] These issues were first discussed by Jevons. See his Theory of political economy, especially the Chapter on 'Theory of pleasure and pain'.

This behaviour of a monopolist goes against the conventional assumption of rationality as underlying the neo classical tradition. While refuting this conventional sense of the term, Hicks argues that the monopolist will not try to reach the level of MR= MC due to his 'highly rising subjective cost'. It is indeed the maiden effort of considering subjective factors as an explanation of the so-called irrational behaviour of a firm. He believes that if the monopolist has a 'sharply rising subjective cost', he would verily dedicate himself to maintaining his monopoly position rather than moving to the point where MR=MC. Another question that arises in this context is whether such an act of the monopolist, though technically inefficient, should be considered rational from the viewpoint of resource allocation as well. This brings us to the contention that a monopolist, or for that matter any producer, would be rational not to move to the profit maximising position. Fare *et. al.,* so also Bogetoft and Hougaard, explain this behaviour of the monopolist by describing it as 'rational inefficiency'. This concept signifies that it would be perfectly rational to maintain a point of inefficiency if the cost of reducing this inefficiency outweighs the gains arising out of a movement towards efficiency. Rational inefficiencies are said to exist in markets where firms enjoy a certain amount of market power. Fare *et al.* suggest that a monopolist does not maximise his revenues, but optimises a quite life that he enjoys situating himself in a monopoly position.[8] According to Bogetoft, the term 'inefficiency', which he describes as the 'slack', could be a part of the 'fringe benefits' that stakeholders enjoy - it could be in the form of compensation paid to employees so that a loyal group of workers is generated. Thus, inefficiency may not be completely irrational and waste. This kind of slack would be a part of the long run plan of a monopoly producer.[9]

The Hicksian concept of 'the quite life' and its implications, as narrated above, has many offshoots in the literature. This idea is recurrent in the rationales for economic reforms in many countries, including India. In his quest of maintaining a quite life, a monopolist affords to remain inefficient without going for technological up gradation and/or exploring new markets. Organisational inefficiencies are also not infrequent in this type of market. Such an application of 'the quite life' is dominant in the writings of Vins and Koetter[10] , Berger and

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[8] Fare *et al* , 'Rational Inefficiency: The quite life', p. 2

[9] Bogetoft, 'Rational Inefficiencies', pp.1-30

[10] Vins, 'The Quite Life in Banking'

Hannan[11], Casu and Girardone[12]. In India's economic reform this idea of quite life has been a guiding light. This is evident in that the thrust of India's economic reforms rests on the promotion of competition by way of repealing the MRTP Act, liberal import policies, and easy entry of private banks, both domestic and foreign origin.

Prima facie, though the above line of thought is apparently in line with Hicksian concept of quiet life, it is not really so in the final analysis. Monopoly and inefficiency are analysed there from the view point of the economy. The existence of the quiet life leads to inefficiency and this is reflected by the welfare loss for the economy. But Hicks discusses the issue from the micro perspective, especially from the viewpoint of a monopolist, and to him, monopoly is not at all inefficient.

II

At the time when Hicks' idea of a monopolist enjoying 'the quite life' had been at the centre of discussion, Edward Mason, a contemporary of Hicks, brought forward the idea of the Structure-Conduct-Performance paradigm. The idea that remained fluid with Mason was later crystallised, and that too, with due empirical supports, by J.S Bain in 1959. The underlying tone in the theory, which Bain has elaborated, is how efficiency is guided by the scale of operation, the pricing policies and the competitive forces. His line of argument is that the barriers to entry (including product differentiations) enable individual firms to expand their scale, and thus, raise the concentration of a market (i.e. higher market-share of individual firms). But the question is: Are bigger firms more efficient than smaller ones? We note here that Bain defines such efficiencies – as generated through the expansion of scale – as the technical efficiency in the sense of optimal use of resources. This line of argument he juxtaposes against an alternative hypothesis: that smaller firms are more efficient. The theoretic logic underpinning the proposition is that greater competition compels the firms to make all-out efforts to raise productivity – and, hence, more efficient - as the 'survival of the fittest' is the rule of game in competition. To Bain, it is the allocative efficiency. Two opposite forces thus prevail in the domain of efficiency: a) the allocative efficiency, varying inversely with the degree of concentration in an industry; and b) the technical efficiency, varying directly with the degree of concentration.

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[11] Berge, 'The efficiency cost of market power in banking and industry', pp 454-465

[12] Casu, 'Does competition lead to efficiency?'

Before deliberating on Bains' question of efficiency, let us discuss his concepts of 'structure, 'conduct' and 'performance', the three legs on which his hypothesis is built. 'Structure' in the SCPP hypothesis denotes the 'organisational characteristic of a market'[13], which indeed reflects sellers' concentration therein. The concentration determines whether the market is 'atomistic' or oligopolistic. In an atomistic market structure, a single seller can not affect the ruling price to his own advantages (or, for that matter, the quantities he sells). In an oligopoly market, on the other hand, he can do so, after duly anticipating 'the reaction of the rival in the industry'. In such markets, higher the degree of seller concentration, higher is the probability that the sellers enjoy a greater monopoly power in the market, and hence, more profit efficiency; conversely, lower market concentrations leads to less profit efficiency. Equally important component of a market structure is the product differentiation, which generates monopoly power for a firm, giving him flexibility in setting the prices. Bain, however, points out that, because of product differentiation, a large number of small firms exist in such markets producing goods similar to those differentiated products. Bains' oligopoly market is thus constituted by a small number of big firms side by side a large number of small firms. The oligopoly market is also characterised with, according to Bain, the barriers to entry, which explain the degree of competition, in general, and the relationship between new entrant and old producers, in particular. Higher barriers to entry are associated with monopolistic pricing policy, while moderate barriers to entry lead to limit pricing. When the barriers are low, the market structure is often found unstable.

Market conduct refers to the profit seeking activities of the firms. It includes how (i) different sellers react against their 'intrinsically rivalrous decision and action'[14] so that they make successful rational decisions; (ii) the pricing policies adopted by the sellers and (iii) the use of 'predatory tactics'[15]and 'exclusionary tactics'[16]. An oligopolist's conduct, just as it is in other markets, is guided by its ultimate goal. Bain, however, considers the maximisation of profit as the goal of a firm. In this context, he considers four alternative concepts of profit that an oligopolist might pursue: (a) joint profit maximization, (b) individuals'

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[13] Bain, Industrial organization, p. 7

[14] Ibid p. 302

[15] Predatory tactics are used by established firms in the industry to weaken or eliminate established competitors.

[16] Exclusionary tactics are aimed to discourage potential new competitors

profit maximization, (c) hybrid profit maximization[17]; or else, (d) maximization of fair profit. Of all these concepts of market conduct, only the third one can be tested empirically.

Market Performance encompasses the strategically end results of market conducts. For the seller it is measured by how well do they adjust their outputs to the changes in effective demand; and for the buyers, by their ability to adjust to the changing supply in the market. Though performance is multi-dimensional with variations across industries, this performance determines the efficiency of a firm. Bain, however, takes into account both technical efficiency and allocative efficiency to measure performance. Technical efficiency is constituted of the efficiency arising out of technical aspects of the organisation and internal efficiency of individual members. The efficiency of the organisation is measured by the scale of operations (scale efficiency), degree of vertical integration (scale efficiency) and the efficient utilisation of plant resources. Internal efficiency is the efficiency of the managers in minimizing cost, which, in turn, depends on their degree of wisdom to this end. Allocative efficiency is concerned with the rate of output in the industry. This is measured by the long run relationship between its selling price and marginal cost.

The synthesis of these concepts leads to various questions. The basic one is: How does the size of an organisation affect its efficiency of? Now the size of a firm may be determined by the market concentration (that represents a producer's monopoly power), which, in turn, might be governed by product differentiation, and/or the barriers to entry. Two contextual questions are, therefore: Is there any relationship between product differentiation and the market concentration? If yes, how does this relation account for the market performance? And, secondly, do the barriers to entry affect the market performance? We emphasise here that two opposite forces are involved in the determination of overall efficiency. An industry with higher monopoly power usually enjoys technical efficiencies; a more competitive industry, on the other hand, enjoys allocative efficiencies. Overall efficiency of a firm, indeed, depends on the relative weights of these opposite forces.

Bain has empirically tested these questions in the context of the American industries. His findings relating to the relationship between structure and

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[17] Hybrid profit maximization entails both joint profit maximization and independent profit maximization. In markets where there are significant seller concentration and seller interdependence, the sellers are motivated to pursue individual profit maximization at the expense of the rival. Bain, Industrial organization , p. 319

performance are as follows: (i) industries with larger market concentrations (i.e. where there are some large-scale firms enjoying monopoly power) have lower incidence of technically inefficient firms; (ii) industries with low barriers to entry have a substantial group of technically inefficient small firms; and (iii) such industries (having low barriers to entry) are more conducive to competition, and, hence, enjoy more allocative efficiency. Bain[18] reports that 'no evident association' prevails between the market concentration and the inefficiency of small firms, and that inefficient sellers were found in the fringe of markets with high and low barriers to entry alike. Similar results were found for the relationship between the product differentiation and the level of efficiency. Bain stresses that the small inefficient firms survive in the market with large firms due to the higher prices that monopolist/oligopolist fixes up in the market.[19]

Bain's hypothesis is, however, criticised on the ground that it does not provide a clear mandate as to what really does efficiency depend upon. The Chicago school[20] has levelled this hypothesis as being fuzzy suggesting that other methods such as price theory models and game theoretic models should be tried to these ends. It is true that Bain's findings might prima facie appear contradictory in the sense that a monopoly (or competitive) firm may be efficient or inefficient. But if we look into the question segregating efficiency into technical and allocative components, the contradiction disappears to a good extent. If a monopolist is found inefficient, the underlying reason should be that its allocative inefficiency over-compensates its benefit arising out its technical efficiency. For an inefficient competitive firm, on the other hand, technical inefficiency might over-compensate the allocative efficiency.

This hypothesis has, however, many versions and extensions, some of which have culminated to the genesis of Industrial organisation study. Extending Bain's SCP paradigm, for example, Demsetz has developed the Efficient Structure Hypothesis in 1973, which Peltzman has tested empirically in 1977. They believe that that monopoly profits does not arise because of tacit or explicit collusion among oligopoly firms, but on the strength of their risk-taking behaviour in an uncertain world, and also, of course, luck.

III

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[18] Ibid, p. 437
[19] Ibid, p. 437
[20] Monti, EC competition law, pp. 63-65

One of the important components of technical efficiency that has been neglected by Bain in his analysis of the SCPP is the 'internal efficiency'[21] of an organisation. This internal efficiency of the organisation has been discussed by Leibenstein as x-efficiency in 1969. The difference between QLH and SCPP is that the latter fails to analyse the factors that lead to (in)efficiency. It is, indeed, more descriptive in deliberation, bearing less flavour of analysis. Leibenstein, on the other hand, explicitly attributes (in)efficiefncy to subjective factors prevailing at different layers of the organisation. His x-efficiency theory seeks to identify the subjective factors that affect the performance of the individuals, associated with the organisation, and, in so doing, the theory analyses how they affect the performance of the firm. Another unique feature of the theory is the shift of focus from the micro level of the firm to its micro-micro level dealing with the individuals. Since these human factors of production are complex, and also multifarious, such a study should not be simple. Taking a cue from Hicks' analysis, Leibenstein builds up his theory on the psychological factors that lead to efficiency. Leibenstein's theory of x-efficiency pushes forth the effort to understand the black box of the human mind. It tries to understand why a person will not work as much as he should; what could be done to propel the individuals' wisdom to the level where he moves out of his comfort zone or inertia. The theory of x-efficiency shifts the focus from allocative and technical efficiency to the study of x-efficiency. According to Leibenstein, an individual in the organisation brings with him certain factors that cannot be assessed or measured, and hence, the production function fails to take those factors into consideration. As a result, the traditional theory only takes into allocative efficiency and technical efficiency of an organisation. In this connection, we may cite the world development report (2015), which put emphasis on the fact that the existence of an economic man is far from reality, and any policy based on the assumption of an economic man is bound to go astray. This is the spirit of Leibenstein when he tells us that human beings are not rational and that their behaviour influences the production function which the traditional theory of production ignores. A holistic approach should, therefore, consider the human aspects of the human factors, and incorporate them into the production function so that the efficiency gets maximised.

Among various factors that determine the x-efficiency, Leibenstein stresses on motivation, notably (i) intra-plant motivation and (ii) inter-plant motivation; in addition to what he calls (iii) non-market input efficiency.[22] The efficiency of a firm depends upon the efficiency of the workers employed in the

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[21] Bain, Industrial Organization, p. 376

[22] Leibenstein, 'Allocative efficiency vs. X-efficiency', p. 407

organisation, as well as that of the managers. Its efficiency could, therefore, be augmented by motivating workers and managers, which he calls intra-plant and inter-plant motivations, respectively – the former one emerging from peer pressures, and the latter from external pressures. But a question that arises is that: Why does anyone remain in the inefficient zone? Leibenstein believes that worker and managers cannot be enforced to work efficiently for a variety of reasons, such as (a) that the production function is not known so that individuals inefficiency cannot be identified (the problem of asymmetric information), (b) that the labour contracts is never exhaustive to seal out all sources of inefficiency (the moral hazard problem) and (c) that many factors of production (e.g. sincerity, integrity and devotion of workers/managers) are not marketed. While workers/managers can thus afford to be inefficient, they are willing to be so on the ground of what is called 'the selective rationality'. Leibenstein points out that the behaviour of an individual is constrained by what is his function in the organisation. In the process of interpreting the job, s/he selects from a subset of "activity-pace–quality–time' (APQT) bundle. The individual will have to choose from a set of alternative activities, the pace at which these activities are carried out, as also the quality of the activity and the time to be spent on performing the activity. While s/he chooses his APQT bundle s/he is in fact trying to interpret her/his effort position. This effort position comprises of a set of effort points adjacent to one another within which the individual is willing to extend her/his effort. These effort points have the same level of utility. A movement from one effort point to a higher one entails a utility cost. He elaborates, 'A set of effort points where the utility cost of shifting from one point within the set to any point within or outside that is greater than utility gained comprises the inert area.'[23][24] This inert area is the manifestation of the human inertia. Further, each individual in the organisation has her/his inert area. A discrepancy in the effort position of the individual and the expected effort position of the management leads to an entropy situation. Entropy is the downfall of the organisation as it is not able to move from its inert area. Entropy is a latent force, which every organisation should control. Leibenstein believes that the flow of information from the management to the individuals is an important factor in controlling entropy. Hence, the x-efficient manger faces the task of facilitating this flow of information which is essential for matching the effort points of the individual to the expected one. Any mismatch between them gives rise to inefficiency. This mismatch is present due to the inert area, and is retained because

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[23] Leibenstein, 'Aspects of the x-efficiency', p. 589

[24] Leibenstein, 'Organizational or Frictional Equilibria', p. 606

the firms have monopoly position. They can move out of this inertia if it is compelled to do so due to competition.

In Leibenstein's analysis of x-efficiency, we can see that the employees and managers in an organisation are considered inefficient due to motivational deficiencies. From those individuals' viewpoint, their actions are efficient in so far as they are in a state of inertia, where by their utility gains for any movement away cannot outweigh its underlying loss of utility. As a utility-maximiser they are certainly rational, although from the viewpoint of the organisation, the production point that their joint actions yield is inefficient. Leibenstein's x-efficiency theory thus explains the real-life experience of 'rational inefficiency'.

IV

All three hypotheses, discussed above, have one thing in common - the prevalence of inefficiency in an organisation. The concept of inefficiency, however, varies across them; so also their interpretations. In Hicks' Quite Life a monopolist is regarded as inefficient as he does not produce at the optimal level of MR=MC. If we analyse this stand of the monopolist from a micro perspective, we can see that the monopolist makes a rational decision as it is based on the equality of his emotional MR and his emotional MC.

The undertone of Bain's SCPP analysis is that a monopolist may be inefficient from the viewpoint of resource allocation although he might be enjoying technical efficiency. Thus, from the monopolist's standpoint, the organisation is efficient, but it is inefficient in the macro framework as it involves wastage of resources. On the other hand, a competitive firm is surely efficient from the macro viewpoint as there is no wastage of resources for a firm operating at the lowest point of the long run average cost; but it is not efficient as he cannot enjoy profit as high as a monopolist. Both these firms are inefficient – a monopolist from the welfare point of view, and a competitive firm from the individualistic viewpoint.

Leibenstein's x-efficiency theory goes much deeper - from the micro level to the micro-micro level of an organisation. He analyses inefficiency as a motivational deficiency. An Individual in an organisation maintains his position of inefficiency as he feels that a movement from this position entails a cost much higher than the benefit that might accrue to him. So the inefficient position of the individual from the point of view of the organisation is rational from the individual's point of view. However, if everyone in the organisation remains static in their own comfort zone, then it will ultimately lead to entropy. As per

Leibenstein the only way to get out of this sluggish position is to introduce competition in the system. Thus, Leibenstein's comfort zone is similar to what Hicks considers 'the quiet life'. What Hicks identifies as plausible factors contributing to 'the quiet life' are discussed at length by Leibenstein while deliberating on the comfort zone. The subjective issues are also there in Bain, *albeit* in an implicit tone, especially when he discusses 'wisdom' as an explanation for technical efficiency.

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