

## Kaldor on the theory of the firm : 1934-1938<sup>1)</sup>

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### I Introduction

Nicholas Kaldor (1908-1986) is now known as one of the most renowned critics of the equilibrium economics. His stress on the increasing return and the cumulative causation has encouraged the growth of heterodox directions in the economics, such as that of post-Keynesians, Regulationists, as well as evolutionary economists. However, in the 1930s, Kaldor was a member of the ‘Robbins Circle’ at the London School of Economics and Political Science (LSE). Recent researchers on Kaldor generally regard the early Kaldor in this period as a supporter of equilibrium economics such as Austrian economics and Lausanne economics (Targetti 1992; Thirlwall 1987; Nei 1989, 1991). Indeed, Kaldor recollected as follows:

‘Robbins’ economics (much influenced by his contacts with Viennese economists, mainly von Mises) was the general equilibrium theory of Walras and the method of presentation of Wicksell and of Knight, Risk, Uncertainty and Profit. Robbins as a young economist absorbed this theory-the keystone of which is the marginal productivity theory of distribution in its generalized form, as expounded by Wicksell and Wicksteed-with the fervour of a convert and propounded it with the zeal of a missionary. It was thanks to him that I acquired a thorough grasp of that theory without being hampered by doubts and hesitations-which in other circumstances might have inhibited me from mounting the intellectual effort required to master its content’ (Kaldor 1986, pp.14-15).

This recollection reveals Kaldor’s indebtedness to Robbins. However, it is not a sufficient evidence to conclude that all of the early Kaldor’s works in the 1930s are confined within the equilibrium economics. In ‘The Equilibrium of the Firm’ (Kaldor 1934a), he focused on the indeterminateness that is significant to the entrepreneur’s role in the ‘coordination’ of the firm. Later, in a review of J. Robinson’s *The Economics of Imperfect Competition* (J. Robinson 1933), Kaldor proposed an ‘imagined de-

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mand curve' that is perceived by dynamic anticipation of entrepreneurs. These are realistic factors that are not dependent on an equilibrium concept. Further, in 'Market Imperfection and Excess Capacity' (Kaldor 1935), Kaldor referred to market imperfection. In his later recollection, Kaldor paralleled it with the Keynesian revolution:

'The discovery that competition in a capitalist economy does not conform to the assumption of pure or perfect competition was, just as Keynes's *General Theory*, the product of the intellectual ferment of the 1930's' (Kaldor 1986, p.53).

Our view is that Kaldor had from the beginning maintained a critical attitude toward the equilibrium economics. We have the impression that early Kaldor's contributions to the equilibrium economics have not been studied seriously<sup>2)</sup>. In this paper, we reveal Kaldor's critical stance to the equilibrium economics by examining his presentation of the theory of the firm in this period.

Kaldor's theory of the firm contained a theoretical key to the cost controversy of the 1920s and 1930s. Kaldor's is not generally considered as a participant in the cost controversy. However, if we regard the theory of the imperfect or monopolistic competition of J. Robinson and Chamberlin as the solution of the cost controversy, we can extend the framework of the cost controversy so as to cover Kaldor's reflection on J. Robinson's *The Economics of Imperfect Competition* and his debate against Chamberlin. (Chamberlin 1937, 1938, 1962; Kaldor 1935, 1938). By inquiring into this relationship, we will show Kaldor's position in the cost controversy and clarify his critical contribution to equilibrium economics.

## II The Cost Controversy and the Long Term Supply Curve

Kaldor discussed the cost controversy in 'The Equilibrium of the Firm' (Kaldor 1934b). First, we begin with a brief description of the cost controversy. Marshall proposed the concept of the representative firm, in which external and internal economies are normally in a stationary state, and provided an accurate explanation of an industry's equilibrium and an individual firm's disequilibrium (Marshall 1920). However, first Clapham and Pigou discussed in 1922 on the 'empty box' of the firm (Clapham 1922; Pigou 1922), next Robertson pointed out the tendency of increasing returns and the internal economy in 1924 (Robertson 1924), and finally Sraffa keenly criticized Marshall's partial equilibrium theory in 1926 (Sraffa 1926). Stimulated by Sraffa's criticism, J. Robinson constructed the theory of imperfect competition in 1933 (J. Robinson 1933). On the other hand, A. Young and L. Robbins at LSE considered the theory of the firm from a different position than that were discussed at Cambridge. Young recognized Marshall's external economies as the basic accompanying fact of increasing returns and suggested the path of a dynamic increasing return, while Robbins harshly criticized Marshall's concept of representative firm from the recognition of the different capacities of individual firms in an industry.

Then how was Kaldor concerned with this controversy? First, Kaldor stated that the concept of the supply curve under the partial equilibrium theory developed by Marshall only shows 'the postula-

tion of a definite functional relationship between price and rate of supply in various industries' (Kaldor 1934, p.34), and it is 'by no means such a straightforward self-evident concept as its counterpart, the demand curve' (*Ibid.*, p.34). This is because 'perfect competition' and 'the existence of a definite cost function for each firm' are assumed. Therefore, we can understand the supply curve as follows: 'In order to arrive at the supply curve for an industry, therefore, it must be shown that corresponding to each price there will be a definite number of firms in the industry and a definite amount produced by each *when all firms are in equilibrium*' (*Ibid.*, p.35).

Marshall explained the disequilibrium of individual firms and the equilibrium of an industry by using the concept of the representative firm. However, Kaldor agreed with Robertson's argument (Robertson 1930) and recognized Marshall's device as 'anything other than a small-scale replica of the supply curve of the industry as a whole' (*Ibid.*, p.36). Further, he thought that Marshall's argument focused on the equilibrium of an industry rather than the equilibrium of an individual firm: 'Instead of analyzing at first the conditions of equilibrium for individual firms and then deriving from them, as far as possible, the conditions of equilibrium for an industry, Marshall first postulated the latter and then created a *Hilfskonstruktion* which answered its requirements' (*Ibid.*, p.36). In addition, Kaldor examined Robbins's criticism of the representative firm and insisted that Robbins criticized only a particular solution of Marshall. In Kaldor's view, a wider perspective was needed in the discussion on the theory of the firm. Therefore, Kaldor's criticism on Marshall pertained not to the equilibrium of an industry but the equilibrium of an individual firm.

Kaldor examined the problem whether a perfect competition is consistent with a definite cost function for each firm from both viewpoints of the short-run and the long-run. According to Kaldor, in the short run, the supply of some factors is assumed to be fixed, and as the prices of the other factors are given, the cost per unit must necessarily rise after a certain point. Therefore, whether a cost curve turns upward under perfect competition in the short-run consideration presents no difficulties (*Ibid.*, pp.38-39). However, considering a long run supply curve, Kaldor suggested that these two presumptions are not compatible with regard to the following three points.

#### **(i) Indivisibility and increasing returns**

If the assumption of complete divisibility of all factors is omitted, we know that the cost per unit must necessarily fall. This is due to the fact that with increasing output, more and more indivisibilities (actual and potential) are overcome. As far as this fact is concerned, even if costs rise over a certain range beyond the point of the output where costs of production reach a minimum, they must fall again until they reach the same level. Therefore, in the long run, the limitation on the size of the firm cannot be explained (*Ibid.*, pp.39-40): 'The idea of a determinate equilibrium corresponding to each given constellation of tastes and obstacles becomes questionable in a world where the existence of indivisibilities offers advantages for co-operative production' (*Ibid.*, p.47).

#### **(ii) Diseconomies**

If external economies affect all firms equally by definition, it cannot explain why the output of an individual firm remains relatively small (the number of firms in the industry being relatively large). This is because the theory of external economies only provides a reason for the increasing costs of the industry, but provides no explanation regarding why the costs of the individual firm rise in relation to

the costs of the industry. Therefore, the diseconomies must be 'internal' in order for them to account for the limitation upon the size of the firm (*Ibid.*, p.40).

### **(iii) Fixed factor**

The technically optimum size of a productive combination cannot be determined merely by the prices of the factors and the production function of the commodity. This is because we cannot assume a decreasing return to all factors simultaneously. Therefore, in order to determine the optimum size of the combination, it is necessary to assume that the supply of at least one of the factors in the production function should be fixed. This fixed cost is the 'entrepreneurship function' (*Ibid.*, p.42). The entrepreneurship function consists of 'risk' and 'management', and the latter consists of 'supervision' and 'coordination'. Risk is defined as the bearing of uncertainty and supervision is an indivisible factor; therefore, they are not fixed costs. However, the coordination factor is the essential part of the function of management and it must pass through a single brain by a whole board of directors. Therefore, a firm's long-run cost curve is determined by the fixed supply of the coordinating ability. However, Kaldor suggested that coordination is not a fixed factor because it is an 'essentially dynamic function' and 'it is essentially a feature, not of equilibrium but of disequilibrium'. In other words, 'in a full long-period equilibrium (in Marshall's stationary state), the task of management is reduced to pure supervision, co-ordinating ability becomes a free good and the technically optimum size of the individual firm becomes infinite (or indeterminate)' (*Ibid.*, p.45).

Based on the above, Kaldor insisted on the dynamic character of a firm: 'Under static assumptions there will be a continuous tendency for the size of the firm to grow and therefore long-period static equilibrium and perfect competition are incompatible assumptions' (*Ibid.*, p.46), and 'the existing organization of the economic system, the division of the productive organization into a great number of independent units under a single control, is essentially one adapted to the existence of dynamic change and imperfect foresight' (*Ibid.*, p.46).

Kaldor referred to J. Robinson and Chamberlin's argument: 'There appears a line of escape for those who believe that the position of equilibrium under imperfect competition is otherwise determinate' (*Ibid.*, p.48). With regard to this argument, Kaldor insisted that the argument that the average cost curve is tangential to the demand curve in the long run is not always valid: 'This is true, not only the equilibrium amount produced by a given firm will be indeterminate, but also the number of firms in the industry, given the conditions of the demand for goods and the supply of factors' (*Ibid.*, 49). Kaldor's argument here is definitely a critique composed at that point of time when 'The Equilibrium of the Firm' was written. Further, there are his genial critique features in three essays: 'Mrs. Robinson's Economics of Imperfect Competition' (Kaldor 1934c), 'Market Imperfection and Excess Capacity' (Kaldor 1935) and 'Professor Chamberlin on Monopolistic and Imperfect Competition' (Kaldor 1938). This issue is discussed in the next chapter.

Thus, Kaldor pointed out the inconsistency between the long run supply curve and perfect competition with regard to (i) the problem of indivisibility and increasing returns, (ii) external economies and (iii) the problem of fixed factors, and insisted that Marshall's stationary state does not always settle down. The background of Kaldor's above mentioned three critiques of equilibrium economics is given below. First, in (i), the point that Kaldor's consideration of the theoretical significance of indivisi-

bility and increasing returns imply that he was influenced by Young's lecture. Although he does not mention this explicitly, Kaldor had attended Young's lecture (Kaldor 1990). Further, Kaldor criticized J. Robinson and Chamberlin from the viewpoint of the indivisibility and increasing returns. Kaldor's argument was not the first mention of this point, but we confirm that Kaldor had a critical attitude to the perfect competition of divisibility. Second, in (ii), the point on external economies suggests that Kaldor was influenced by Young and Robbins. Young recognized external economies as the basis of increasing returns, and Robbins attached considerable importance to the different capacities of individual firms in an industry. This point is not original either. Finally, Kaldor's argument regarding fixed costs in (iii) is original. In Marshall's stationary state, the average cost curve must be 'U' shaped. Austin Robinson explained this shape of the curve on the basis of a firm's coordination ability (A. Robinson 1958). In brief, the average cost curve is 'U' shaped, due to the coordination ability that a firm has, and the firm's scale is determined by this shape. However, Kaldor argued that since a firm's coordination is, in the long run, dependent on dynamic characteristics, its scale is indeterminate. If we consider Austin Robinson's argument in the determination of a firm's scale, Kaldor's viewpoint was a fresh one at that time<sup>3</sup>. After all, Kaldor's assertion that the firm does not have the optimum size necessarily in the long run means that Marshall's stationary state does not exist. In this context, Kaldor always had a dynamic firm in mind that is in a disequilibrium condition. In addition, this is related to the imagined demand curves discussed in Part III.

Thus, the early Kaldor demolished the assumption of perfect competition in the cost controversy and later adopted a critical attitude toward equilibrium economics.

### III Market Imperfection and Excess Capacity

#### III-1 Kaldor on Robinson's *Economics of Imperfection Competition*

Joan Robinson's *Economics of Imperfect Competition* (J. Robinson 1933) was published as a solution to the cost controversy. She elucidated in it the puzzles of perfect competition in the case of increasing returns, excess capacity, differentiation and the representative firm. Her theory of imperfect competition focused on the downward sloping demand curve for individual producers. An individual producer that maximizes his profit has to fulfill the double condition of the equality of marginal revenue and marginal cost as well as the equality of average revenue and average cost. The equilibrium point is shown by a point of tangency between the individual producer's demand curve and the downward-sloping average cost curve. The producer's output is smaller than the optimal scale (the output at the minimum average cost). Robinson referred to it as an 'excess capacity'. Further, producers in the same industry have an identical cost curve and face an identical demand curve. Therefore, the industry is in equilibrium. This situation corresponds to Marshall's stationary state.

Kaldor agreed with J. Robinson in respect to the 'price differentiation' and 'mathematical and geometrical' arguments, he criticized i) the inconsistency between the title and the contents (Kaldor 1934c, pp.53-54), ii) the marketing cost (*Ibid.*, pp.53-54), iii) the application of marginal theory to imperfect competition (*Ibid.*, p.57), iv) problems among labour unions, exploitation and imperfect competition (*Ibid.*, p.58), and v) the doubt concerning the competitive equilibrium: the industry's equilibrium

based on the producer's equilibrium (*Ibid.*, pp.59-60).

In reference to these critical points raised by Kaldor, we discuss the competitive equilibrium problem of (v). We separate Kaldor's argument of (v) into a) the concept of industry and b) the concept of the individual producer, and explain one by one.

**a) The concept of industry**

J. Robinson's concept of an 'industry' is based on the assumption that the products of different firms consist of a 'chain of substitutes' surrounded on each side by a 'marked gap'. There is no doubt that such a boundary exists for each individual producer. However, there is no reason to assume that this boundary is the same for any group of producers and that the sensitiveness of demand for the products of any particular producer is of the same order of magnitude with respect to the prices of any group of the producer's rivals (*Ibid.*, p.59).

**b) The concept of individual producer**

Kaldor criticized J. Robinson's individual demand curve as follows. The traditional 'market demand curve' for a certain product is not of the same type as the imagined demand curve that is relevant in determining the actions of an individual producer. The market demand curve is a functional relationship between the price and the amounts bought from a particular producer. The imagined demand curve is the image of this functional relationship as it exists in the mind of the entrepreneur. In brief, the imagined demand curve is more or less elastic and discontinuous, while the real demand curve is continuous<sup>4</sup>. The reason that J. Robinson excludes this difference is that she assumed perfect knowledge and perfect information (*Ibid.*, pp.59-60).

In Kaldor's view, the central problem of the competition in an 'imperfect market' is based on the firm's price-quantity strategies, which are given by their relationship with their rivals and their expectations. He found in J. Robinson's analysis a negligence of the interdependence among firms in an oligopolistic situation.

In this manner, Kaldor criticized J. Robinson's argument by referring to the imagined demand curve. The imagined demand curve is a basic element of the coordination problem of a firm, since it is relevant to its decision making and involves a dynamic character. Thus, early Kaldor challenged the prevalent thinking of the equilibrium economics. In Kaldor's view, J. Robinson's theory of imperfect competition was still dominated by the concept of equilibrium, in settling the equilibrium of individual firms and the equilibrium of an industry.

### **III-2 Kaldor vs. Chamberlin on Market Imperfection and Excess Capacity**

Kaldor appreciated Chamberlin's *Theory of Monopolistic Competition* higher than J. Robinson's *Economics of Imperfect Competition*; this is because Chamberlin considered product differentiation and firm strategy from the independent decision making of a firm. However, also in this case, Kaldor adopted a critical attitude. This is referred to as 'Kaldor vs. Chamberlin'.

Kaldor's first critical essay on Chamberlin is entitled 'Market Imperfection and Excess Capacity' (Kaldor 1935). It contains four points of criticism: i) the interrelations of the demand for various producers' products, ii) consumer preferences evenly distributed over the entire field and a firm under

perfect competition and perfect information, iii) institutional monopoly with identical costs, and iv) excess supply and economies of scale. We explain them successively.

***i) Interrelationship of the demand for various producers' products***

Kaldor suggested that products are differentiated and not connected each other like a chain of substitutes. 'No doubt, in most cases, the products of various producers selling the same sort of goods are not perfect substitutes for each other in the sense that the slightest price difference would eliminate all demand for the products of higher-price producers' (*Ibid.*, p.66). Kaldor explained it by raising following three points: a) slight differences in the products themselves, b) differences in the geographical locations of the producers in cases where the consumers themselves are distributed over a broader area, and c) a certain inertia on the part of the buyers themselves, who will require either some time or a certain magnitude in the price difference (*Ibid.*, p.66).

***ii) Consumer preferences evenly distributed over the entire field and a firm under perfect competition and perfect information***

In Kaldor's view, the reason why an entrepreneur assumes an imagined demand curve without depending on perfect competition or perfect knowledge is that consumer preferences are not evenly distributed over the entire field, and then if new firms enter the field, individual demand curves cannot shift to the left without changing their slopes. Kaldor separated cases of divisibility and those of indivisibility. In the divisibility case where economies of scale are completely absent, perfect competition must necessarily establish itself solely as a result of the free play of economic forces, while in the indivisibility case where economies of scale exist, the demand elasticities for individual producers become infinite, due to which new firms will cease to enter the field (*Ibid.*, pp.70-72).

***iii) Institutional monopoly with identical costs***

Kaldor thought that 'institutional monopolies', which Chamberlin had referred to, consisted of patents, copyrights, trademarks or even a trade name, and therefore each firm has a different cost curve in the case of institutional monopolies. However, Chamberlin's argument contains 'the uniformity assumption' that the relative costs of producing different varieties must be the same for different producers and, consequently, their cost curves for each single variety must also be identical (*Ibid.*, pp.72-74). In brief, Kaldor criticized Chamberlin's uniformity assumption.

***iv) Excess supply and economies of scale***

Kaldor thought that in most cases, the development of an industry is promoted by 'specialization' or 'disintegration', which leads to a demand curve for each single product becoming considerably more elastic. This will result a state where there is little 'excess capacity'; that is, given the number of different products that are produced simultaneously by each firm, an increase in the output of all of these products would reduce the cost per unit (*Ibid.*, pp.76-79).

Thus, Kaldor suggested the following: as the number of firms increases due to new entrants, each firm 'necessarily makes the chain of substitutes tighter', and then the sensitivities of not only the existing competitors but also potential competitors increase<sup>5)</sup>.

Chamberlin refuted Kaldor's arguments in 'Monopolistic or Imperfect Competition' (Chamberlin 1937) with regard to the following three points: (i) the elasticities of individual demand curves, (ii) divisibility and indivisibility and (iii) the incompatibility between free entry and product differentiation.



**(i) *The elasticities of individual demand curves***

Chamberlin refuted Kaldor's idea that if the number of firms increases, the individual demand curves become more elastic to show perfect competition; he considered Kaldor's concept of 'in-between products' to be inappropriate taking into account the expansion of the area in this geographical example. In addition, even when the products may easily be regarded as coming 'closer together' in the case of a large number of producers, the resulting situation does not necessarily approach pure competition; this is because the slope of the demand curve is determined based on consumer valuation (*Ibid.*, pp.563-564).

**(ii) *Divisibility and indivisibility***

Chamberlin criticized the separation of divisibility and indivisibility as being insignificant. This was because although Kaldor's divisibility was explained by a horizontal cost curve and the demand curve becoming more elastic, if the demand curve is not horizontal, it would lead to the absurd result of there being 'an infinite number of infinitesimally small firms' (*Ibid.*, p.565). If the buyers are infinitely divisible, the demand curve is not horizontal. In addition, as compared with buyers, sellers would not become more numerous and come closer together (*Ibid.*, p.565). These are the reasons why Chamberlin refuted Kaldor's argument.

**(iii) *The incompatibility between free entry and product differentiation***

Chamberlin agreed with Kaldor on the incompatibility between free entry and product differentiation because Chamberlin recognized that there can be no freedom of entry with respect to the particular product produced by any individual firm under monopolistic competition (*Ibid.*, pp. 566-567).

Thus, Chamberlin generally disagreed with Kaldor except with regard to 'the incompatibility between free entry and product differentiation'. With regard to Chamberlin's critique, Kaldor again refuted Chamberlin in 'Professor Chamberlin on Monopolistic and Imperfect Competition' (Kaldor 1938) with regard to the following points: (i) the validity of the double condition, (ii) the relationship between the number of firms and market imperfection, (iii) increasing returns under imperfect competition and (iv) free entry and monopolistic competition. We will discuss each of these individually.

**(i) *The validity of the double condition***

With regard to Chamberlin's criticism of Robinson's double condition and his clarification of the difference between imperfect and monopolistic competition, Kaldor suggested that Robinson's double condition' was geometrically valid. Thus, Kaldor recognized a common format between Chamberlin's and Robinson's arguments.

**(ii) *The relationship between the number of firms and market imperfection***

Considering that even if Chamberlin recognized the diversity of firms when he set up the uniformity assumption, Kaldor again refuted Chamberlin's argument with regard to the following: (a) changes in the size of the competitive field, (b) changes in the density of competition and (c) confusion between the slope of a curve and its elasticity. First, regarding (a), Chamberlin assumed that even if the number of firms increases, the demand curves of the existing firms remain the same as before. However, Kaldor suggested that if demand increases, the density of the population increases, and consequently the elasticity of the demand curve also increases (*Ibid.*, p.84). Second, regarding (b), if new varieties appear, the cross-elasticities of the demands of the existing products increase. Kaldor



suggested that Chamberlin had omitted the effect of cross-elasticities in his consideration (*Ibid.*, pp.86-87). Finally, regarding (c), Kaldor suggested that Chamberlin should consider the fact that elasticity increases as the number of firms increases (*Ibid.*, pp.86-87).

**(iii) Increasing returns under imperfect competition**

Chamberlin refuted Kaldor's view on increasing returns under imperfect competition because he considered them to be the result of monopolistic competition, and not a part of it. However, Kaldor suggested that the entry of new firms is impossible if products are differentiated and therefore attached considerable importance to increasing returns.

**(iv) Free entry and monopolistic competition**

In the theory of monopolistic competition, where each firm has an identical cost curve and the equilibrium for a group of firms is determined, there can be freedom of entry only in the sense of freedom to produce substitutes. However, Kaldor criticized Chamberlin's conclusion that monopolistic competition is inconsistent with free entry and considered it as no great achievement of *The Theory of Monopolistic Competition* (*Ibid.*, pp.89-91).

Kaldor again refuted such arguments of Chamberlin without changing his position. Chamberlin also replied to Kaldor's refutation, but he still stood his ground. It must be pointed out that Kaldor had a different viewpoint from Chamberlin regarding the market, and this is an extremely important difference between Kaldor and Chamberlin because the former approved of Chamberlin's omission of monopoly from monopolistic competition, although Chamberlin is inconsistent: 'To have shown that the monopoloid situations of the real world are quite compatible with full freedom of entry, that is to say with the complete absence of particular advantages vested in particular people, I have always regarded as one of the great achievements of the Theory of Monopolistic Competition' (Kaldor 1938, p.91). Chamberlin merely shows a tangency solution in order to express market imperfection as a matter of form. Chamberlin assumed complicated imperfect markets. Therefore Chamberlin's argument system is not as simple as Robinson's double condition. However, Chamberlin's argument formally expresses the same world as J. Robinson's does<sup>6)</sup>.

Thus, we recognize that Kaldor and Chamberlin are dissimilar, but Chamberlin revised and modified 'Monopolistic or Imperfect Competition' in the 9<sup>th</sup> chapter of *The Theory of Monopolistic Competition, fifth edition*. There is no doubt that Kaldor strongly influenced Chamberlin because Kaldor's criticism made Chamberlin modify the difficulties in the entry of new firms by product differentiation and turn to oligopoly. In addition, if we consider that J. Robinson's theory of imperfect competition and Chamberlin's theory of monopolistic competition are important solutions to the cost controversy, Kaldor's theoretical modification of their theory is a very significant contribution.

## **IV Conclusion**

### **Summary**

- 1) With regard to the cost controversy, Kaldor did not explain the equilibrium of an industry and the disequilibrium of an individual firm by using Marshall's concept of representative firm; instead, he noticed there a dynamic general equilibrium of the firm with the role of entrepreneur. In addition,

he adopted critical attitude toward J. Robinson's *Theory of Imperfect Competition*, which reconstructed Marshall's problem. In this topic, Kaldor was not indebted to Cambridge economists but to LSE economists, Young and Robbins.

- 2) With regard to Marshall's stationary state, Kaldor focused following three points: (i) indivisibility and increasing returns, (ii) external economies, and (iii) the indeterminateness of a firm's coordination. Further, he showed that the optimum output is unable to attain the minimum long-run average cost. In addition, Kaldor devised a unique theoretical mechanism of an imagined demand curve and suggested the dynamic character of a firm.
- 3) Kaldor attached appreciated Chamberlin's argument higher than Robinson's in terms of a firm's subjectivity, product differentiation and strategy. Kaldor separated divisibility and indivisibility with regard to the imagined demand curve and then theoretically modified Chamberlin's theory of monopolistic competition so as to lead necessarily to an oligopoly. Therefore, early Kaldor's view is very interesting, when we consider the evolution of the theory of the firm afterwards.

Thus, early Kaldor's theory of the firm is not only a fresh theory in the cost controversy but also a valuable contribution. It contains the concept of increasing returns as well as an idea of dynamic character of a firm that is dependent on market imperfection. The idea of the indeterminateness of a firm's coordination and an imagined demand curve are the manifestation of his critical attitude toward the neoclassical economic theory that presumes perfect foresight and perfect information. The concept of market imperfection with regard to indivisibility and increasing returns is a severe criticism against the concept of perfect competition that is supported by neoclassical economics<sup>7)</sup>.

Indeed, Kaldor accepted the Austrian economics of LSE and Young's concept of increasing returns, in order to depict a near-real world. Based on them, Kaldor presented a theory of the firm that has critical implications for equilibrium economics.

However, on the other hand, although Kaldor's arguments are helpful in developing the dynamic character of a firm on the basis of coordination and the imagined demand curve, it is problematic whether we can regard Kaldor fully aware of the essential character of a firm. His works were prior to the famous Coase's article (Coase 1937). If we consider the organization of a firm from the viewpoint of Coase's essay, we cannot suggest the coordination of a firm, which Kaldor insisted was 'indeterminate'. In this context, it is doubtful whether Kaldor's theory really represents the theory of the firm. In addition, the decision making in Kaldor's firm depends on the maximizing principle of  $MR = MC$ . Thus, his theory follows the marginal productivity theory. Kaldor's argument is central not to a firm's organization but to its dynamism.

In the late 1930s, Kaldor was attracted by a new tide around Keynes and did not continue an extensive research on the theory of the firm; this is because Kaldor recognized several limitations in the Austrian subjectivism. If we think that the later Kaldor intended to connect Keynesian economics with market imperfection (Kaldor 1983), it is regrettable that he did not accomplish his research in this area. However, we can conclude that early Kaldor's theory of the firm contained plenty of potential possibilities.

## Notes

- 1) This paper is based on the paper which was presented at the 1st ESHET-JSHET International Conference to be held at Univ. of Nice-Sophia Antipolis, France, 17 Dec. - 20 Dec., 2006. I'm very grateful for many significant comments.
- 2) Although a large number of studies have been made on Kaldor as Post-Keynesian (Targetti 1992; Thirlwall 1992; Toner 1999; Inoue 1999; Nei 1989, 1991), only few attempts have so far been made at early Kaldor (Targetti 1992; Thirlwall 1989; Nei 1989, 1991). Targetti (1992) and Thirlwall (1989) pointed that Kaldor's 'A Classificatory Note on the Determinateness of Static Equilibrium' (Kaldor 1934a) was for its great exposition of the existence, uniqueness and stability of equilibrium. Therefore it is generally grasped that early Kaldor supported general equilibrium. In addition, Nei (1989, 1991) showed that early Kaldor converted from the marginal economics to Post-Keynesian's economics. These studies research early Kaldor in contrast with later Kaldor as Post-Keynesian. The arguments in evolutionary economics (Toner 1999; Inoue 1999) research only later Kaldor's contributions.
- 3) Austin Robinson strongly criticized Kaldor's argument: 'In Mr.Kaldor's long period we shall be not only dead but in Nirvana. And the economics of Nirvana, the study of the principles on which decisions should be made in a decision less world, is surely the most fruitless of sciences' (A. Robinson 1934, p.250). Coase insisted that the size of the firm is determinate (Coase 1937).
- 4) If we attach importance to the point that imagined demand curve is more or less elastic and discontinuous, we presume that Kaldor assumed the situation of Game Theory or Oligopoly. Because this is much the same argument as Sweezy discussed "kinked demand curve". Sweezy insisted the following: 'Mr. Nicholas Kaldor has suggested the name "imagined demand curve" for the concept which is applicable to the oligopoly case, and in this article I propose to follow this usage' (Sweezy 1939, 404).
- 5) Kaldor insisted that we couldn't apply the argument of excess supply to the welfare economics (Kaldor 1935, 79-80). In this point Kaldor was influenced by Robbins on the impossibility of Interpersonal Comparison of Utility. This is related to Kaldor's new welfare economics (Kaldor 1939).
- 6) Stigler insisted that Chamberlin couldn't reduce his picture of reality to a manageable analytical system because his arguments required two assumptions, "uniformity" and "symmetry". Stigler's point is same to Kaldor's critique of Chamberlin.
- 7) Hicks insisted the new classical perfect competition as follows: 'it has to be recognized that a general abandonment of the assumption of perfect competition, a universal adoption of the assumption of monopoly, must have very destructive consequences for economic theory' (Hicks 1942, p.83).

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