

Revisiting the two Cambridge schools for the current controversy

José Domingo Portero Lameiro¹

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Abstract. The measurement of capital has generated great controversy between the University of Cambridge (Great Britain) and the Massachusetts Institute of Technology of Cambridge (United States of America). The debate took place mainly during the golden age of capitalism and was not fully resolved, although, certainly, today it is frequent to study Economics without paying attention to it. In short, it is an unfinished question, where it does not even seem that there is currently a consensus to admit what its main results were. The problem arises when we accept that investments allow future consumption and, therefore, we equate these capital assets with goods/products. For its part, the British school argued that capital should be understood as an instrument that attempts to safeguard economic value. On the other hand, the North American side considered that capital should be an instrument of economic value that varies according to the laws of the free market.

Keywords: capital, measurement, controversy, debate

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[es] Reconsiderando las dos escuelas de Cambridge para la controversia actual

Resumen. La medición del capital ha generado grandes controversias entre la Universidad de Cambridge (Gran Bretaña) y el *Massachusetts Institute of Technology* de Cambridge (Estados Unidos de América). El debate tuvo lugar principalmente durante la edad dorada del capitalismo y no quedó totalmente resuelto, aunque, ciertamente, en la actualidad es frecuente que se estudie Economía sin prestar atención al mismo. En definitiva, se trata de una cuestión inconclusa, donde ni siquiera parece que actualmente haya consenso en admitir cuáles fueron sus principales resultados. El problema aparece cuando aceptamos que las inversiones posibilitan consumos futuros y, por consiguiente, equiparamos estos activos de capital con los bienes/productos. Por su parte, la escuela británica defendió que el capital debe ser entendido como un instrumento que intenta salvaguardar valor económico. De otro lado, la vertiente norteamericana consideró que el capital debe ser visto como un instrumento de un valor económico que varía en función de las leyes del libre mercado.

Palabras clave: capital, medición, controversia, debate

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Sumario: 1. Preamble. 2. Development of the issue. 3. Epilogue. 4. Bibliography.

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¹ Universidad de Cádiz
josedomingo.portero@uca.es

1. Preamble

The measurement of capital has generated a great controversy between the University of Cambridge (Great Britain) and the Massachusetts Institute of Technology (MIT) of Cambridge (USA). The debate took place mainly during the golden age of capitalism (1950-1970) and was not fully resolved. This was one of three controversies sparked off in those years in both Cambridges: 1. The measurement of changes in productivity, 2. the determination of profit, the distribution of income, and the accumulation of capital, and 3. the theory of capital². That is, it is an unfinished question, where it does not even seem that there is currently a consensus to admit what its main results were. Moreover, the doctrine is not peaceful either in accepting its importance or, in other words, for many economists such a discussion lacks relevance.

Furthermore, the controversy lies in the measurement of capital as a factor of production and the influence of such notion on the distribution of the resulting product. On the other hand, in the school of Cambridge (Great Britain), important figures of the history of economic thought stand out, such as Piero Sraffa, Joan Robinson and Nicholas Kaldor. And, on the other hand, Paul Samuelson and Robert Solow are positioned on the North American side.

Likewise, before going into disquisitions, it is necessary to admit that in a capitalist economy there are two price systems: on the one hand, that of goods as a product and, on the other, that of capital assets. In effect, the price system of production depends on wages and profits. However, the price of capital assets depends, fundamentally, on the estimates of future benefits that are made in the present. The problem arises when we accept that investments allow future consumption and, therefore, we equate these capital assets with goods/products. However, there are two types of prices –as we have just seen– that, in turn, are subject to various variables, the dilemma is therefore to try to equalize the price systems of both.

For its part, the British school argued that capital should be understood as an instrument that attempts to safeguard economic value (Fiorito, 2007, pp. 56-58). On the other hand,

the North American side considered that capital should be an instrument of economic value that varies according to the laws of the free market (Bhaduri, 1966, pp. 285-287).

2. Development of the issue

One of the fundamental concepts of Economics is the study of the production function that, for the purpose of simplification, is usually represented by relating only two factors of production and a product –which can be dedicated to immediate consumption or, on the contrary, to deferred/future, if used as an investment. In general, the manuals of Economic Theory reflect the equation:

$$Y = f(K, L)$$

where “Y” is the national income (or GDP as a proxy), “K” the capital and “L” the labor or work.

Traditionally, homogeneity is allowed within each factor. However, Joan Robinson began the debate with the opposite observation, to say, for the Professor of the British school not all workers are equal, and capital also presents, by itself, heterogeneity (Robinson, 1953-54, p. 81).

In this context, following Robinson’s observations, how capital will be measured when it is usual for companies to produce different products/services, use different profiles of workers and use multiple techniques and technologies. According to Professor Robinson, it has traditionally and erroneously been suggested to students of Introduction to Economic Theory that the aforementioned factors are measured in monetary units (Robinson, 1953-54, p. 81). And, precisely, that is the backdrop of the debate, according to her, because that error gave rise to assume –also, erroneously– that: 1. The capital encompasses both machinery and investment; 2. The saving is deferred/future consumption and, in that sense, equivalent to investment.

However, following Robinson’s observations, since not all capital is investment/financial capital, since it also includes industrial capital, its value will not always coincide with that of deferred/future consumption –note that the latter would be limited to financial capital. In

² I appreciate the observations of the two anonymous reviewers of the *Iberian Journal of the History of Economic Thought*. They have been very useful for me.

any case, if the deferred/future consumption or, in other words, the investment/financial capital contributes, unfailingly, to production, then it will allow a profit that, in parallel to the salary in the case of the labor factor, for the capital it will be the interest rate. And, indeed, the problem for Robinson and, subsequently, also for Piero Sraffa (Fiorito, 2007, pp. 88-90) is that the value of capital really depends as much or more on the interest rate than on the amount of capital invested. In other words, the fact that “capital” included investments in fixed and circulating capital involves reproducible assets, that is, it implies time and, therefore, interest –demand side–; but, at the same time, reproduction also means covering production costs –supply side–. In short, this double characteristic of “capital” is essential to understand the problem.

In brief, for the measurement of capital, the interest rate is determinant, which, in turn, obeys market prices, while these depend on the interest rate. Thus, the circularity of the arguments complicated the understanding of the debate and, above all, it detracted from its usefulness. In short, it is not possible to determine market prices without knowing the interest rate, nor vice versa. Therefore, capital cannot be measured. In other words, even by measuring capital in physical terms, there is no reason to rule out that the demand for capital –and simultaneously that of labor– behaves in a direct –and not inverse– relationship with respect to the interest rate (Harcourt, 1972, p. 122).

Given these difficulties, the contribution of Professor Robinson focused on defending that if the interest rate is the same in all sectors of activity, in a competitive market in equilibrium, the prices of the same type of capital goods cannot be uniform (Robinson, 1953-54, pp. 99-100).

The deepening, Sraffa in 1960 argued that the prices of capital goods in labor-intensive sectors will be higher than those observed in capital-intensive sectors –so that the interest rate remains the same in all economic sectors. Likewise, Sraffa admitted that the intensity in capital is not the same in all productive sectors of industrial capital goods/machinery (Harcourt, 1972, p. 122).

Therefore, for Joan Robinson, industrial capital is not homogeneous and cannot be added as financial capital –the latter, however, can easily be added when measured in monetary units. In a way, this proposal of the British school questions the neoclassical/North American side of prices as an indicator of scarcity in general.

For their part, the American economists had already resolved the debate in another way: considering it valid to add the value of all goods in monetary units to obtain the measurement of capital. At the same time, they admitted that it was a simplification that was difficult to extrapolate at the national level, which resulted in proposing a new solution. Thus, Samuelson –of the North American school– suggested the use of so-called “per capita production functions” for the measurement of capital. Broadly speaking, they tried to relate the productivity of any worker to the amount of capital he uses; assuming, at the same time, that the price of capital is determined in a competitive market. In short, it is a highly criticized model that only worked well at the empirical level and, for that matter, derived in the well-known “Wicksell effects”. These effects suggest that, in practice, the measurement of capital becomes an extremely difficult task, since it is influenced by the existence of real effects, such as the depreciation and obsolescence of industrial capital, as well as variations in the nominal value of the financial capital (Samuelson, 1962, pp. 202-206).

In short, although a priori, from the American point of view, the relevance for Wicksell’s effects diminished. However, the validity of these effects was later recognized, among others, by Samuelson (Samuelson, 1962, p. 206).

Finally, Professor Robinson argued that the most transcendent of the effects of Wicksell is to admit that the value of capital is continually changing. This implies that it would be wrong to consider that there is only one point of equilibrium –where investment equals savings, etc. In short, Robinson believes that the error was placed at the beginning of the debate, because according to her, the essential reality of any economy was hidden (Robinson, 1971, pp. 597-602).

3. Epilogue

The debate is not solved although; certainly, nowadays it is frequent to study Economics without paying attention to it. In this way, it does not seem at all insignificant that the issue would resurface at any future time. In addition, I consider that getting familiar with the controversies of the history of economic thought helps to understand economic theory.

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