

BAUER'S UNSOLVABLE ACCUMULATION SCHEMES

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Abstract :

In this paper we give a new statement on Bauer's (1913) accumulation schemes. It is an important model because it is one of the firsts where the question of capital transfers is explicitly introduced. By using and extending Orzech & Groll (1983) formalization of the problem we are able to make two definitive statements. First, we clarify the debate engaged between O. Bauer and R. Luxemburg (1913) on the realisation of surplus-value in a capitalist economy in which the development of the productive forces is taken into account. This enables us to give a definite answer on the possibility of a boundless economic accumulation in a capitalist society. Second, we show that the over determination of Bauer's model, first demonstrated by Bronfenbrenner & Wolfson (1984) in an Harrodian framework, cannot be lifted up by allowing the rate of surplus to increase from period to period, as Samuelson & Wolfson (1986) think, using Bronfenbrenner & Wolfson's formulation of the problem. The reason for this impossibility lays in the fact that this model is a bisectorial one where the markets are, by assumptions, cleared at every period at the same time that the rate of exploitation and the pace of technical progress are given. This conclusion could be generalized to many Marxist models.

In a first part, we will present Bauer numerical example and assumptions derived from it, explicitly or implicitly. Orzech & Groll (1983) formalization of Bauer's model is extended, allowing to determinate capital transfers at each period.

In a second part, we present what could be called the proportion crisis in Bauer's model. The possibility of this crisis was first discovered by R. Luxemburg in her critical evaluation of Marxist analyses of capitalist development. Bauer's boundless capitalist accumulation would not be possible because of an impossibility to realize part of the surplus-value. This is true. Bauer, in fact, reasons in a socialist society where production is organized by a central organ. Surplus-value embodied in productions, in this context, has not to be realized before being invested. This leads us to a second point on the interpretation of the development of productive forces. In Luxemburg's model, and, in general, in the Marxist tradition, sectoral organic compositions of capital increase at the same speed that the global organic composition of capital. In this sense it can be said that the lasts represent the mechanization of production. In Bauer's model, they do not. They adapt to physical capital transfers

between sectors for the markets cannot clear without this amendment. They do not represent the mechanization of production. With this interpretation of the development of productive forces it seemed logical, because the exchange of money against goods cannot be treated in the schemes, that Bauer thought he answered to Luxemburg's critique. Therefore, if Luxemburg is wrong when she excludes capitalist competition from her scheme of extended reproduction, Bauer is also wrong in considering he overcame the difficulty. He just showed the possibility of accumulation in a socialist society. That is why Bauer formulation of macroeconomic crises and fluctuations in a capitalist society cannot be accepted. This will be the object of the third part of this paper.

Continuing to develop Orzech & Groll's (1983) formalization we show that the centrally planned economy runs out of surplus value after 34 periods if the rhythm of technical development is imposed. We cannot speak anymore of capital transfers between sectors. Technical development coupled with the assumption that markets clear at every period imposes that the sector producing consumption goods do not transfers goods anymore but make that a part of its disinvestment necessary to keep the desired increase of the global organic composition of capital is supported by the sector producing capital goods. This will last, paradoxically, until the sector producing capital goods disappears. We can therefore conclude that even a socialist economy accumulation of capital is not necessarily boundless.

To overcome this difficulty, it seemed that the rate of surplus value or the rate of exploitation had to be allowed to increase in time. But a simple demonstration shows that this cannot be done without contradicting the assumption that markets clear at each period. There would be an excess demand of consumption goods. This could not be seen by Samuelson & Wolfson (1986) because they transformed Bauer's bisectorial model in a unisectorial one.

Finally, in a sixth part, we show that the rate of surplus cannot be even fixed at a level which would allow the economy to run out of profit at the latest times. In fact, the assumption that market clear at each period coupled with the one making that the rhythm of the growth of global organic composition is imposed, make the model over determined. In this case, either the rate of surplus value is given and the increase in the global organic composition of capital is endogenous or, the increase of global organic composition is given, i.e. technical development, and the rate of surplus value, because markets have to clear systematically, become endogenous. This negative conclusion seems to true of Luxemburg's model too. This critical evaluation can found an echo in the rhetoric used by Bauer when he presents the numbers in his model as "arbitrary assumptions". We know that assumptions have to be justified and numbers chosen arbitrarily.

We conclude by questioning the Marxist assumptions of a given global technical development coupled with a given rate of surplus-value, being given that markets clear at every period.

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