Income creation, actual income, and expectations

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SUMMARY: *The article argues that Clower's "dual decision" hypothesis about total, actual income as a constraint on demand is inconsistent with its assumptions. Instead expectations or constraints on the movements of wages and prices are the only possibilities for unemployment. These possibilities can only be envisaged in a model with at least two independent sectors.*

1. Introduction

In an already classical article Clower (1966) presents a "dual decision" hypothesis as an explanation of the Keynesian consumption function. According to this hypothesis the households, who are taken to be in a situation of disequilibrium, do not decide on their demand, until their incomes are known. Consequently the actual incomes of the households will be an argument in their demand functions. This is not the case in neoclassical, general equilibrium models with a variable supply of productive factors. In such models, apart from initial holdings, the arguments will be price variables rather than incomes. Clower considers his hypothesis to explain the essential difference between Keynes and the Classics including the cause of involuntary unemployment. With some modifications Leijonhufvud (1968) uses the "dual decision" hypothesis as the foundation of part of his interpretation of Keynes[1].

1. Leijonhufvud (1968, p. 73–75) mentions, however, the importance of expectations and the transactions structure with independent savers and investors. Thus the following critique of Clower's "dual decision" hypothesis is not necessarily valid for Leijonhufvud's exposition, but should perhaps rather be regarded as a clarification. Compare also the critical comments of Leijonhufvud (1973) on the "dual decision" hypothesis. Later both Clower (1967) and Leijonhufvud (1974) have suggested other explanations. Clower now supposes that the stock of means of payments in the hands of the households is the real limit to their demand in a given period, while Leijonhufvud explains the situation described by Keynes as a disequilibrium á la Marshall. About the latter it is said that "an independently specified short-term sales-expectation which he then – in characteristic Marshallian fashion – proceeds to merge with realized sales proceeds (Keynes, chap. 5)". (Leijonhufvud (1974, p. 168)).

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In what follows I shall first question Clower's use of actual, total income as a basis for the "dual decision" hypothesis. This has implications for the interpretation of the cause of unemployment in his model. Next I shall discuss the rôle of expectations and the relationship between the organization of production and the possibility to act in a consistent way according to a "dual decision" hypothesis. As a last point I shall argue that whatever the cause is for involuntary unemployment, a description of such a situation requires a model with at least two independent sectors.

2. The actual, total income

Clower's arguments for the "dual decision" hypothesis are based on a model in which the households supply factors of production in the form of services and demand finished goods in the form af non-durable goods. In the neoclassical general equilibrium theory it is assumed that the households decide simultaneously on the supply of services and the demand for goods, and that all desired quantities are realized. In contrast with this assumption Clower suggests that disequilibrium is the most common situation, and therefore a discrepancy exists between at least some desired and realized quantities. In such a situation the "dual decision" hypothesis states that the households use a stepwise decision process and only decide on their demand for goods, when their actual incomes are known. As the profits of the firms accrue to the households, their incomes comprise wage as well as profit incomes.

Actual profits or residual incomes can, however, be recorded at the earliest simultaneously with production and sale. This means that actual profit incomes of a given period cannot be the basis for a "dual decision" hypothesis, because this is a hypothesis about the demand of the same period[2]. Unless it is unrealistically assumed that always profits are zero in situations of disequilibrium, the income basis for such a hypothesis cannot comprise the total, actual income of the economy in the period considered. The non-simultaneous element in the "dual decision" hypothesis rules out the possibility that the total, actual income according to this hypothesis may be a determinant of demand in the same period.

This does not exclude that part of the actual income of a period may be the basis for a "dual decision" hypothesis. One can assume either that only part of the demand of all households is dependent on part of their incomes,

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2. The period is the minimum unit of time for decision, production, and sale introduced by the assumption of a stepwise decision process.

or more likely that some, but not all households act according to a "dual decision" hypothesis. These possibilities exist if for example wage rates and employment are agreed upon before the production takes place. In that case the wage income may be a determinant of part of the demand.

A model like Clower's where actual, total income irrespective of its source is a determinant of the demand in the same period, must therefore be argued on grounds other than a "dual decision" hypothesis. As the income is assumed to determine the demand and activity by which the same income is created, the model implies a simultaneous decision process. Further it cannot be a model which assumes uncertainty about production or demand, since the total income in such a model will be an expected variable, whose actual value is not known until the end of the period. Nor, as mentioned earlier, can it be a general equilibrium model with a variable supply of labour, since in that case income will not be an independent argument in the demand functions. It must therefore be a model with simultaneous decisions, full information and with constraints on the behaviour of the households, for instance in the form of restrictions on the movements of wages and prices. Therefore the households are not necessarily in their optimum.

As long as the actual, total income is used as an argument in the demand functions, the model by Clower will be of the same type as the ones implied in the interpretations of Keynes which we know from Hicks (1937), Modigliani (1944), Patinkin (1956), and others. It is this group which Clower summarizes under the heading "the Keynesian Counterrevolution", and against whose interpretation he argues. However, he does not disengage himself from their explanation of involuntary unemployment. This is of course also the case for the explanation later given by Barro and Grossman (1971; 1976).

This interpretation of Clower may also be seen in his use of the actual profit, $\underline{r}$ in the derivation of the demand functions of the households. Clower says that "Profit receipts do not concern us since we are still proceeding on the assumption that the condition $\underline{r} = \bar{r}$ is satisfied (this is no longer essential to the argument, but is very convenient). What we are supposing, in effect, is that household receivers of profit income have perfect information about profit prospects (they may even by producer-consumers) and react to this information precisely as if corresponding amounts of numeraire profit were actually being received" (1966, p. 121, note 2). Earlier $\bar{r}$ is defined as the profit of the firms in a market experiment, where it only depends on price variables and so is assumed to be the profit in a general equilibrium model (1966, p. 106–107).

Clower thus assumes, first that there is full information, and that expected profit therefore equals actual profit, and second that actual profit equals profit in a general equilibrium model. The latter assumption is equivalent to an assumption of full employment. If the second assumption is abandoned as a misspecification by Clower, and one is content with the first assumption about full foresight, unemployment must be caused by exogenous constraints for instance on the movements of wages and prices. The reason being that if the households, as profit earners, owners of the firms, and with full information about the quantities sold, and the prices, are free to determine prices and wages, it would by definition exclude involuntary unemployment. Thus a full interpretation of Clower's assumptions will lead either to the non-existence of unemployment or to exogenous constraints on the behaviour of the households i.e. restrictions on the movements of wages and prices as the cause of unemployment. But the latter explanation is also the assertion of the "Keynesian Counterrevolutionaries"[3].

3. The rôle of expectations

From the preceeding section it follows that unemployment without restrictions on the behaviour of the households has to be explained in a model with less than full information i.e. expectations that can be either fulfilled or disappointed. Involuntary unemployment needs no more particular assumptions. The reason being that agents may believe that they cannot by their own actions profitably increase their demand and employment from a given level.

In the preceeding section it is also argued that in a model with a consistent "dual decision" hypothesis only part of the actual income in a period can be a determinant of demand in the same period. Conversely it will hold that total demand cannot be determined only by this part of the income. This is

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3. Such an assumption about full foresight with regard to the profit is not in agreement with Keynes (1936). In his chapter 5 on "Expectation as Determining Output and Employment" it is said that the entrepreneur "has no choice but to be guided by these expectations, if he is to produce at all by processess which occupy time" (1936, p. 46). And later that "The *actually realised* results of the production and sale of output will only be relevant to employment in so far as they cause a modification of subsequent expectations" (1936, p. 47). Even later it is indeed said that "For, although output and employment are determined by the producer's short-term expectations and not by past results, the most recent results usually play a predominant part in determining what these expectations are" (1936, p. 50–51). But it must be noted that it is not the results of the actual but of earlier periods, which may determine the expectations and thus the production and the employment in a given period.

due to the fact that no utility considerations would lead to an activity which resulted in income, but not in demand. The residual demand and income have to be determined in a different way. This demand may in a model with credit instruments of course wholly or in part manifest itself in another period.

In a model with a consistent "dual decision" hypothesis that part of total demand which is not dependent upon actual income has to be determined by expectations or factors determined by expectations. As argued above a consistent "dual decision" hypothesis is based on an assumption of disequilibrium and uncertainty together with an assumption that some households have full information about their income before expenditure is made. It follows that the rest of the households cannot have the same information so they must be uncertain about their incomes till the end of the period considered. Therefore the demand not determined by the "dual decision" hypothesis has to be determined either as a function of expected income, or perhaps as a function of wealth, assets, or the composition of assets transferred from earlier periods. Since the present value of these holdings with no restrictions on the movements of wages and prices will depend upon the assessment of future developments, part of total demand will in such a model in all cases depend upon expectations.

The determination of employment in models with expectations and a stepwise course will depend on the more definite assumptions about this course. Let it for the moment be assumed that the households consist of two homogeneous groups, wage and profit earners. If it is further assumed that wage earners act according to a "dual decision" hypothesis, it is hereby given that with respect to time profit earners are the first to make decisions. They do that with respect to production and hereby commit themselves to a certain employment and expenditure on wages i.e. wage income. Therefore the decision about production and wage income must be based on expectations[4]. In a given period the existence of unemployment cannot be explained by the "dual decision" hypothesis as such. Rather the reason for unemployment has to be found in the expectations of the entrepreneurs with regard to profits or the value of some assets. Actual magnitudes may influence expectations in subsequent periods and at that time influence decisions about production (cf. quotations by Keynes in note 3).

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4. With such a consistent "dual decision" hypothesis for wage earners the demand for labor cannot be a function of total, actual income as implied by Grossman (1972) and Barro and Grossman (1971) in their combination of the analyses of Clower (1966) and Patinkin (1956).

If on the other hand it is assumed that the profit earners base their decision about production on orders only i.e. act in a way comparable to a "dual decision" hypothesis of the wage earners, it follows from this passive attitude on the part of the entrepreneurs that the wage earners must determine the production by their orders. As these orders must lead production and wage payments in time, they must be based on the expectations of the wage earners about their income. Therefore an assumption about production being based on orders is not consistent with the possibility that wage earners act according to a "dual decision" hypothesis. It is the expectations of the wage earners that must drive the model and may make themselves unemployed.

With only two homogenous groups of households there will be a close connection between the assumption about the organization of production and whether wage earners or profit earners can be assumed to act according to a "dual decision" hypothesis. Further the assumption that production is determined by expectations is consistent with and follows from a consistent "dual decision" hypothesis for wage earners. On the other hand, of course, a "dual decision" hypothesis is not a requirement for supposing that production and demand are based on expectations.

In the more general case with disequilibrium and uncertainty and more than two homogeneous groups of households still not all groups can get rid of this uncertainty. If some groups only decide on their demand for goods, when their actual receipts are known, these groups cannot have any influence on production and employment other than through the expectations of other groups of households in subsequent periods.

4. The number of sectors

In Clower's article all households are aggregated, as only one utility function and therefore one unit is used. The production side or the technical possibilities are in the same way characterized by one transformation function. Such an aggregation structure assumes that mutually similar households own a part corresponding to their actual labour supply of mutually similar firms. If this is the case, there will be no basis for trade between these agents composed in a similar way of households and firms. Therefore a possible uncertainty can only be due to the production process. Expectations in connection with such uncertainty may of course influence the behaviour of the agents in the model, but can hardly be described as a cause of involuntary unemployment. Normally the agents will be able by their own actions to alter the

supply of labour and the income expected in different situations. In the same way a distinction between wage income and profit income will be irrelevant, because utility maximization normally is assumed to be constrained only by the total income of the unit considered. For these reasons expectations or exogenously given wages and prices will be of no importance for unemployment in models with such an aggregation structure.

Unemployment must be described in models with possibilities of trade with either factors of production or commodities. This requires a specification with more than one sector. In case of trade with labour this is only possible if some households own a part of the firms different from their part of the employment. In case of trade with commodities this is only possible if not all households own firms producing the same mixture of goods, or if not all households are similar with respect to preferences. In these and the composite cases the cause of unemployment must be found in the fact that at least one of the independently specified agents in a situation with unemployed resources either cannot or does not think it can, by its own actions, increase its income and demand. If they cannot increase their activity, this must be due to constraints for instance on wages and prices. That corresponds to the earlier mentioned interpretation of Keynes given by "The Keynesian Counterrevolution". In the case where the agents do not consider it profitable to increase their activity expectations must be the cause of unemployment. In the latter case the agents considered might think they are faced with a kinked demand curve for their products. This is quite likely, as firms with imperfect knowledge even in atomistic situations will feel that they are faced by a falling demand curve.

5. Conclusion

The non-simultaneous assumption of the "dual decision" hypothesis rules out the situation described by Clower where actual, total income for all households is a determinant of demand in the same period. A consistent use of the hypothesis requires that only part of the income is an argument in some demand functions.

In models where this is the case, and only some households act according to the "dual decision" hypothesis, part of the total demand must be determined by expectations. If wage earners act according to the hypothesis, production and employment must be based on expectations of the profit earners. If on the other hand profit earners base their decision about production and employment exclusively on orders, wage earners must act on expectations

about their income. Therefore an assumption about production being based on orders is not consistent with a "dual decision" hypothesis about the behaviour of the wage earners.

Unemployment can either be the result of constraints on the behaviour of the households in the form of restrictions on the movements of wages and prices or the result of expectations on the part of all or some groups of households. But the possibility of expectations causing unemployment exists independently of the "dual decision" hypothesis. Only in an indirect way this hypothesis may be said to account for unemployment. This is because it implies that some part of demand must be determined by expectations.

Expectations and rigid wages and prices as a cause of unemployment can only be envisaged in models with a possibility for trade. Like the "dual decision" hypothesis this requires a specification with at least two independent sectors.

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