7. Thick markets and thin theories: R.W. Clower and the economics of J.M. Keynes

Maria Cristina Marcuzzo

Clower's involvement with Keynes is a long-standing affair. He gave us the following account of the first encounter: 'My first serious reading in economics was Keynes's *General Theory*, which I found fascinating not because I understood much of it (though I thought I understood all of it at the time), but rather because of Keynes's irreverent yet graceful style' (Clower, 1984b, p. 259).

His seventieth anniversary falls in the same year as the sixtieth anniversary of the *General Theory*, thus providing further justification for the topic chosen in this note, which addresses a particular feature of Clower's interpretation of the economics of J.M. Keynes.

Paraphrasing Clower's words, the title summarizes the thrust of his interpretation. Underlying Keynes's income determination model is a representation of the market mechanism derived from Marshall where economic agents organize and operate trading institutions 'for the purpose of coordinating, for a profit, the economic activities of other agents' (Clower, 1984b, p. 263). On the contrary, 'Keynesian' macroeconomics was developed within a Walrasian framework, where markets are represented as synonymous with impersonal forces of demand and supply, brought into equilibrium by the *auctioneer*. Both Marshallian and Walrasian models of the economy conceive the economic system as naturally self-adjusting, but whereas the Walrasian world is characterized by the 'absence of an explicit account of the execution as distinct from the scheduling of commodity trades' (Clower, 1975, p.13), the Marshallian world incorporates a distinct view of how markets work.

In fact, underlying the Marshallian supply and demand mechanism is a particular view of market organization which Clower labels the 'thick market hypothesis'. It means assuming that agents can buy or sell any desired quantity of any commodity at short notice at a going price. This hypothesis is contrasted with a representation of the market as a situation in which agents cannot anticipate the price at which desired sales or purchases can be realized and is described by him as the 'thin market hypothesis'.
Underlying the thick market hypothesis is a postulate that markets clear, leading the system into states of stable equilibria; thus adopting this hypothesis means endorsing the belief in the self-adjusting properties of the economic system.

According to Clower, underlying Keynes’s output adjustment mechanism there is the same conception of market organization (the thick market assumption) as in the classics. This means that the central message of the General Theory – that ‘the existing economic system [is not], in any significant sense, self adjusting’ (Clower and Leijohnhufvud, 1984, p. 209) – appears, according to Clower, more announced than executed.

In this note I shall discuss this aspect of Clower’s interpretation of the economics of J.M. Keynes, which is conveyed in the proposition that ‘Keynes’s theory of effective demand contained nothing essentially new’ (Clower, 1991, p. 256).

Clower’s interest in how markets are represented in standard theories is almost as old as his interest in Keynes.

Since his 1955 paper in *Pakistan Economic Journal*, the relevant distinction in price theory is sought not in the familiar area of market forms (competition and monopoly), but rather in what Clower there calls the ‘market function’, namely the exercise of ‘market authority’. The figures of the *marketor* and the *marktsee* are introduced to draw attention to the fact that in any market there is a specific unit that has the responsibility for setting prices. The *marktsee* is precisely the unit that exercises this authority by making demand estimates and adjusting commodity stock. Both in competition and in monopoly, ‘price changes are simply a means of adjusting stock holdings or for avoiding adjustments which would have to occur in the absence of price changes’ (Clower, 1955, p. 148).

Almost forty years later, in his 1994 ‘The effective demand fraud’, the *marktsees/marketors* parable is employed to illustrate the view of market organization which, according to him, is common to Keynes and the ‘classics’ (from Smith to Marshall and Wicksell). The common idea is that:

trading in every market area is sufficiently brisk, hence markets sufficiently thick, that the subjective price expectation assumptions defining competitive marketor behaviour, viz.

\[ \frac{\partial p_j^*}{\partial q_j} \neq 0; \quad \frac{\partial w_j^*}{\partial n_j} \neq 0. \]

(where \( p_j^* \) = expected sale price by marketor \( j \); \( q_j \) = output supplied by marketor \( j \); \( w_j^* \) = expected wage rate paid by marketor \( j \); \( n_j \) = labour demanded by marketor \( j \) are not disconfirmed by experience) (Clower, 1994, p. 378).
His most famous paper (1965) on 'The Keynesian Counter-revolution', which gave birth to the quantity-constrained macro-models, although not directed to the issue of market organization, contains an interesting reference to it: 'Keynesian economics brings current transactions into price theory whereas traditional analysis [that is, general equilibrium theory] explicitly leaves them out' (Clower, 1984a, pp. 55–6).

In 1975, in another important paper on the 'Keynesian perplex', the distinction between Marshallian and neo-Walrasian approaches is grounded on the different representation of how market activities are represented. It is worth quoting the passage in full:

In Marshallian analysis, economic agents are conceived to be not so much rational as reasonable. Individuals fumble and grope rather than optimize ... The coordination of economic activities is carried out within particular markets by traders (manufacturers and bankers, as well as wholesalers, brokers and retailers) who either do the task effectively or drift into bankruptcy. As for the coordination of activities among markets, since that is not anyone's specific concern it may or may not be done well ... Neo-Walrasian analysis works with just one grand trading center where, thanks to the freely provided services of a deus ex machina called the 'auctioneer', multilateral trades of anything for everything else are potentially open to every economic agent on terms of exchange that are known in advance of any actual trade ... On this view, the rationality of economic agents may be taken for granted, for price information is not only complete but also costless to obtain, and quantity information is irrelevant to anyone but the auctioneer ... As for the coordination of economic activities, that is not so much a question to be investigated as a proposition to be proved. That the economic system 'works' may be taken for granted, for how could it fail to work when every relevant aspect of individual behaviour is costlessly monitored and controlled by a central coordinator? (Clower, 1975, pp. 8–9)

There are no doubts for Clower that Keynes's world is Marshallian rather than neo-Walrasian. It exhibits many features of 'a middleman economy', where there are specialized traders who hold inventories of, and operate markets for, most commodities traded in the economy. This also explains why the Walrasian interpretation of Keynes would not do, because it 'fails to conform with Keynes' argument mainly because it presumes that output adjustments are driven by market-determined prices rather by the competitive jostling of independent profit-seeking, market-making firms' (Clower, 1989, p. 144).

Thus, according to Clower, the crucial flaw in neo-Walrasian theory is the absence of an explicit analysis of how actual trading occurs, while Marshallian analysis is built on the assumption that markets exist and 'work'.

The implications of adopting or rejecting the thick market hypothesis are at the core of a set of closely related papers: 'New directions for Keynesian economics' (Clower, 1987), 'Keynes and the classics revisited' (Clower, 1988), 'Keynes's General Theory: A contemporary perspective' (Clower, 1990), 'Ohlin and the General Theory' (Clower, 1991).
In thick markets, short-run sale and purchase decisions are governed by prevailing (average) market prices; this means that traders are assumed to know the price at which any desired quantity of a commodity can be bought or sold. On the contrary, 'a thin market is one in which the opposite presumption holds: trading volume is too slight to permit traders to gauge, even within broad limits, the price at which desired sales or purchases can be completed at short notice' (Clower, 1990, p. 79). The crucial difference is that in a thick market ‘producers can reliably predict the qualitative effects of changes in asking price on individual sales’ (Clower, 1991, p. 252), whereas in thin markets this is not the case.

The inference that Clower draws is that in this respect there is nothing new in the General Theory. Keynes's polemics against the 'classics' is misplaced on the issue of the output adjustment mechanism, which is simply an extension to the economy as a whole of the Marshallian supply and demand analysis, or alternatively of the thick market assumption. Clower's point, stated in 'irreverent yet graceful style', is that the General Theory is a book which produced a revolution in economics, but its analytical content is not revolutionary (Clower, 1991, p. 246; 1997).

I think it cannot be disputed that Clower is right in claiming that the aggregate supply and aggregate demand apparatus devised by Keynes is an extension to the economy as a whole of the tools employed by Marshall to depict the working of a single market. However, is it sufficient to infer that in devising the income adjustment mechanism Keynes did not discover anything essentially new?

According to Clower, the claim of originality can be made only by attributing to Keynes - as Patinkin is said to have done - the thin market hypothesis. Unfortunately, as Clower is ready to point out, this is in patent contrast with the evidence. The argument is presented as follows.

Figure 7.1 and Figure 7.2 represent the working of the system under the thick and thin market hypotheses, respectively. In Figure 7.1, where \( S(w_p) \) is the aggregate supply curve for a given money wage \( w_p \), producers are assumed 'to know that "undesired inventory holdings" produced by unanticipated differences between output and sales can quickly be eliminated by moderate adjustments in asking price' (Clower, 1991, p. 252). The profit maximization hypothesis enables us to ascertain the equilibrium level of output, the equilibrium level of price being defined 'by the requirement that inventories be at some desired level (possibly zero)' (ibid.).

A description of the system under the thin market hypothesis is given in Figure 7.2, where \( S \) is the short-run supply curve, \( p_o \) is the given asking price, \( q_{cap} \) is capacity output, \( CM \) is the aggregate marginal cost curve. In a thin market, individual producers are unable to predict the effect of changes in asking price on short-period sales. Thus, since they do not have information about probable
alternative sales at alternative prices, profit maximization cannot be the rule for choosing prices and output. Asking prices will then be set at a level that ensures that average total costs will be covered whenever sales are above the break-even point, but while output is made to adjust passively to match the average volume of sales. Inventories will be held to avoid frequent adjustment of output. In general, in thin markets, prices will be inflexible since they 'are neither efficient nor reliable short-period instrument for inventory control' (ibid.). As for the demand, since the form of the aggregate demand curve depends on the form of the aggregate supply, the two demand curves in Figure 7.1 and Figure 7.2 differ.

Summing up, in a thick market output is determined by the equality of marginal cost to current asking price, whereas the equilibrium asking price is set by the desired level (possibly zero) of inventories. On the contrary, in a thin market output is demand-determined and asking price is cost-determined.

On two points I agree with Clower. The first is in attributing to Keynes the thick market hypothesis and the second in asserting that standard Keynesian textbooks misrepresent Keynes as if he had the thin market hypothesis. In fact, profit maximization, rising marginal costs, and given degree of competition are the pieces contained in the box of tools that Keynes inherited (and treasured) from Marshall.
Figure 7.2  Thin market hypothesis

It is also true that, in standard textbooks, the Keynesian output adjustment mechanism is presented as if the supply curve were perfectly elastic until full capacity was reached. The horizontal supply curve -- the 'pure Keynesian case' -- is sometimes accounted for with the assumption, which Keynes never made, of constant factor costs up to full employment and mark-up pricing (Dornbusch and Fisher, 1994). Clower's point is that, in standard textbooks, what is in general omitted is price-setting behaviour, as if prices were set at some pre-assigned level. Thus, the Klein-Hansen tradition reformulated Keynesian macroeconomics as if it implied that 'demand creates its own supply' at a level of prices which remains fixed. As a consequence, any price-making decision is eliminated from the model, in patent contrast with Keynes's (and Marshall's) approach.4

However, the implication that Clower draws from attributing to Keynes the thick market hypothesis is more doubtful. The argument is that since Keynes's effective demand implies clearing output markets, through prices generated by the marketors activities, it is analytically equivalent to the Marshallian -- or classical -- macro-theory. The conclusion drawn is that the principle of effective demand cannot be invoked to introduce the possibility of an equilibrium at less than full employment, unless the labour market (and money-wage rigidities, Clower, 1991, p. 328) are brought in.5
On the basis of Clower's interpretation, can we really say that by adopting the thick market hypothesis in his output adjustment mechanism Keynes did not introduce a new element in the theory he was criticizing?

My answer is that Keynes provided an explanation not only of how output but also how prices in aggregate are determined. Whereas in Marshall the price level is 'explained' by the velocity of circulation and the quantity of money, in Keynes it is determined by aggregate demand and aggregate supply.

I maintain that this is a significant departure from the classical tradition that relied on the quantity theory of money to determine the level of prices and on Say's law to determine the level of economic activity. The demise of the quantity theory, eventually accomplished in the General Theory, was brought about together with his rejection of Say's law. In the next section I shall briefly trace the development of Keynes's thinking on this issue and then proceed to present my argument.

According to the economist who was closest to Keynes, R.F. Kahn:

Keynes' long struggle over a period of six years to produce a version of the Treatise worthy of publication was directed partly to an escape from the stranglehold of the Quantity Theory of Money in its crude form. In the end Keynes was able to write that 'The forms of the Quantity Theory ... on which we have all been brought up ... are but ill adapted for this purpose [of exhibiting] the causal process by which the price level is determined, and the method of transition from one position to another.' (Kahn, 1984, quoting from Keynes, 1971, p. 120)

'Nevertheless' – Kahn continues – 'Keynes seems to have been so much under the spell of the Quantity Theory that he could write about his Fundamental Equations as though they were "versions" of the Quantity Theory' (Kahn, 1984, p. 56).

In the Treatise the logic of the quantity theory is questioned on two grounds: (i) the slowness of the adjustment required to bring about the final equilibrium position renders it almost irrelevant as an explanation of actual processes; (ii) since 'a change in the total quantity of money ... is algebraically consistent for a time with more than one set of consequences' (Keynes, 1971, p. 243) the quantity theory of money cannot be interpreted as exhibiting a causal process.

Still in October 1932, according to Kahn, the new theory had yet to see the light (Kahn, 1984, p. 113): 'It is disconcerting in these October 1932 lecture notes (Keynes, 1979, p. 56) to read of "the rate of interest such as to cause saving to be in excess of investment"' (Kahn, 1984, p. 113).

In fact, an argument similar to that presented in the Treatise is adopted by Keynes in a letter to Dennis Robertson of 3 May 1933, to reject the quantity theory:

In my present state of mind ... I doubt that either version of the Cambridge equation is of any serious utility, and I can't remember that I have ever come across a case of
Thick markets and thin theories

anyone ever using either of them for practical purposes of interpretation ... One can of course write down quite a number of equations of this type, stating the de facto relationship of some one thing to some other. But are they of any use for causal interpretation? All the versions of the Quantity Theory, which make no distinction between swops and intermediate transactions and genuine production-consumption transactions, seem to me to tell one nothing. (Keynes, 1975, p. 18)

Since we have evidence that Keynes associated the theory of liquidity preference with his earlier bull-bear discussion in the Treatise, and the Treatise offered only the destruens pars of the criticism of the quantity theory, it appears that Keynes was able to provide the alternative approach to the quantity theory only when the output adjustment mechanism was discovered. And this result Keynes arrived at between late 1932 and early 1933.7

Eventually, the General Theory was presented by Keynes himself as 'the final escape from the confusions of the Quantity Theory, which once entangled me. I regard the price level as a whole as being determined in precisely the same way as individual prices; that is to say, under the influence of supply and demand' (Keynes, 1973, pp. xxxiv-xxxv).

It is well known that Keynes gave credit to Kahn for providing the essential tool to determine the price level on the same basis as the determination of individual prices (Keynes, 1973, Appendix, p. 400n). Kahn substantiated the claim. In a letter of March 1974 to Patinkin he described one of the major results of the 1931 article on the multiplier as 'Finally disposing of the idea that the price level is determined by the quantity of money' (Patinkin and Leith, 1977, p. 147).

In fact in 1932, the aggregate supply curve was the topic of the lectures given by Kahn. His procedure was described by Tarshis in his summary of the lectures notes he took as Kahn’s student (Tarshis, 1979).

Kahn’s aggregate supply function is drawn in the space where, on the vertical axis, we have the expected proceeds necessary to induce entrepreneurs to produce a given output and on the horizontal axis we have the level of output. We start from determination of the supply curve of each level of output for a single firm. The supply price answers the question: given marginal and average costs, associated with a given level of output, \( O_p \), what must the price be in order that the firm maximizing its profits be willing to produce precisely that level of output?

The level of output, \( O_p \), will be produced only if profits are at a maximum; that is to say, only if at \( O_p \) marginal revenue equals marginal cost. In addition, the price must be at least as high as the variable unit cost; otherwise the entrepreneur would earn more (or, in this instance, lose less) by suspending production. Thus, on the basis of the well-known relationship between price and
marginal revenue, for a given elasticity of demand measured at $O_i$, the supply price, $p_i$, is:

$$ p_i = \left( \frac{k}{k-1} \right) MC_i $$

where $k =$ elasticity of demand and $MC_i =$ marginal costs at $O_i$. The supply curve is then given by:

$$ Z(O_i) = p_i O_i = \left( \frac{k}{k-1} \right) MC_i O_i $$

The aggregation problem is ‘solved’ by assuming that, for any given level of output, the distribution among firms of their individual share is known. The aggregate level of equilibrium output, $Q$, is then:

$$ \sum_{k=1}^{m} Q^k $$

Where $m =$ number of firms; $Q^k =$ Output produced by the $k$th firm.

It is worth noting that Kahn's aggregate supply curve is drawn allowing for different values of the elasticity of demand and for both increasing and constant marginal costs. Specific assumptions are reflected in the shape of the aggregate supply curve and in the value of its elasticity. The importance of the aggregate supply curve, drawn in the expected proceeds–aggregate output space, is that derivation from it of the 'level of prices' is straightforward: for each level of output, it is given by the ratio of expected proceeds to output. This means that the level of price can be determined by the same forces as the level of output and not by the quantity of money.

As is well known, in the General Theory Keynes presents the employment function, rather than the supply curve, as better suited to address 'the problems of industry and output as a whole, as distinct from the problems of a single industry or firm in a given environment' (Keynes, 1973, p. 282).

The employment function is a behavioural relationship which still allows us to infer from the level of employment the level of output and prices at which profits are maximized. When there is an increase in aggregate demand, how prices behave depends on how wages behave, and this depends on whether employment is raised. In turn, an increase in employment will occur only if the expectations of profits are such as to induce entrepreneurs to increase output.
Given Keynes's assumption of rising marginal costs and of a given degree of competition, an increase in output and employment will entail an increase in prices. As we have seen, Kahn's approach was more general since it could accommodate different assumptions about the shape of the marginal cost curve and the elasticity of demand. Thus in Kahn's case, the increase in prices or the fall in real wages was not a necessary consequence of an increase in effective demand.

The point of the aggregate supply function is that the same decision-making mechanism is behind determination of the equilibrium level of output and prices in the aggregate as in a single market. On the contrary, in the classical (Marshallian) theory behind the determination of the level of prices there is the level of the quantity of money. The quantity theory does not give any indication of how price decisions are made. In fact, any decision-making mechanism is eliminated from the story and 'impersonal forces' such as velocity of circulation dominate the scene. This is precisely what Clower has often denounced as the fault of general equilibrium and aggregative models (both of Keynesian and monetarist type) as opposed to 'general process analysis' where 'price as well as quantity adjustments are explicitly associated with conscious decisions of individual economic agents' (Clower, 1984c, p. 225).

During his long interest in Keynes Clower produced very valuable contributions, which helped many economists to escape the mystique of standard representations of the working of actual market economies.

The force of his arguments against 'market idols' directed research toward promising areas and encouraged original thinking. Again and again he warned the profession against re-casting the General Theory in a Walrasian model, drawing attention to the historical context in which theories are set rather than finding a way to fit them into a general accepted model. Still, I remain unconvinced by his verdict that Keynes's output adjustment mechanism is 'analytically equivalent' to Marshall's.

In Keynes the output adjustment mechanism allows the disposal of the quantity theory of money as an explanation of determination of the price level; I consider it a major achievement, precisely in the direction suggested by Clower's work. In the General Theory, prices in aggregate are set by firms in response to changes in demand and costs and are the result of business decisions. Variations in the quantity of money matter only in so far as they translate themselves into changes in effective demand. In fact, an increase in the quantity of money may not generate a proportional increase in effective demand, because on the basis of the theory of liquidity preference, the velocity of circulation cannot be taken as constant. Thus, prices in aggregate may rise even if the quantity of money has not increased and, conversely, an increase in the quantity of money may not be followed by an increased in the level of prices.
The ‘classical’ theory does not give us this result. Since it rests on some version of Say’s law, either in the form of identity of saving and investment (Ricardo) or of the interest rate as a mechanism through which they are brought into equilibrium (Marshall), the level of output is supply-determined and demand conforms to it. With an increase in the quantity of money only prices are affected and, unless some ‘hoarding’ is allowed for, changes in prices are always proportional to changes in the quantity of money. In Keynes, on the contrary, effective demand affects output and prices, as a consequence of the same entrepreneurial decision. The combination of output–price changes is a matter of market organizations, cost structures and business choices.

Keynes may not have been a great revolutionary thinker when it came to subverting basic tenets in microeconomics (as we would say now) or in value theory (as it was said then), but he did subvert the way in which relations among aggregate variables are analysed. This is precisely what Keynes claimed for the General Theory. Yet, had Clower presented his views to the Monday Political Economy Club at King’s College, Cambridge, I am sure that Keynes would have appreciated them as thoughtful and accepted the ‘ingrained distrust of “authority”’ (Clower, 1984b, p. 260) which inspired them.

NOTES

1. While in the 1955 paper market-makers are called marketees and their customers marketers, these designations are reversed in subsequent papers so that later on marketers designated market operators. See Clower (1997).

2. Alternatively, the distinction between thick markets and thin markets is that in the former ‘demand as seen by the individual seller is assumed accurately to reflect demand as it actually is’ (Clower, 1991, p. 260).

3. A completely different issue is to ask why Keynes was so conservative on these issues. A suggested interpretation can be found in Marcuzzo (1994, 1996a).


5. In Clower’s words: ‘Whatever the reason factor services might remain idle, unemployment in Keynes’ General Theory does not derive from non-clearance of the market for output. Unemployment equilibrium in Keynes’ partial equilibrium macroeconomy is a consequence of non-clearance of “the labor market”, not non-clearance of “the market for output”’ (Clower, 1997, p. 42).

6. This paragraph draws on Marcuzzo (1996b; 1996c).

7. According to Moggridge, ‘by early 1933 at the latest the basic output-adjustment framework of the General Theory was in place, as were the theory of liquidity preference and the notion of the marginal efficiency of capital’ (Moggridge, 1992, pp. 564–5).

8. ‘The object of the employment function [is] to relate the amount of effective demand, measured in terms of wage unit ... with the amount of employment, the supply price of the output of which will compare to that amount of effective demand’ (Keynes, 1973, p. 280).

9. However, in the space expected proceeds—aggregate employment, the slope of the line from any point on the employment function to the origin ‘no longer represents “the price level” but instead the ratio of values added to that level of employment’ (Tarshis, 1979, p. 380).
REFERENCES


