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RESUMO/ABSTRACT

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Keywords: Keynes, Effective Demand, Real Wage, Money Wage, Employment.

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1. INTRODUCTION

Over the last forty years, there has been a discontinuous effort of translating Keynes's principle of effective demand into the real-wage vs. employment space. Several works by Barro and Grossman (1971), Davidson (1983, 1998), Dalziel and Lavoie (2003) and Lavoie (2003) testify for the interest in this issue. One of the objectives of existing literature consists of proposing a unified, teaching-friendly framework for comparing Keynes's theory of employment with neoclassical theory: the real-wage vs. employment space.

My contribution is twofold. I extend a model proposed by Dalziel and Lavoie (2003) and discuss the main difference between Keynes and neoclassics in the extended Dalziel-Lavoie framework: the consequences of money-wage flexibility (see also Simonazzi and Vianello, 2005).

2. PREVIOUS RESEARCH

According to Barro and Grossman (1971), a Keynesian labour-demand is formed by two parts (see Figure 1): a downward-sloping part corresponding to the marginal labour-productivity schedule (MLP); and a vertical part that intersects the horizontal axis at the employment level associated with the production level determined by a given real aggregate-demand E. It is doubtful, however, that the Keynesian demand prospected by Barro and Grossman (1971) is an appropriate translation of Keynes's principle of effective demand into the real-wage vs. employment space (see Lavoie, 2003).

A different approach is taken by Davidson (1983, 1998) who correctly interprets Chapter 3 of *The General Theory*. The level of employment is determined by the

intersection, the so-called point of effective demand, between the aggregate nominal demand and the aggregate nominal supply, both defined for a given monetary wage (see Figure 2). The associated real wage is therefore determined by the so-called market-equilibrium curve, based on the equality between real wage and marginal-labour productivity in a purely competitive economy (see Figure 3).

A similar approach is taken by Lavoie (2003) as well as by Dalziel and Lavoie (2003) who point out that the quantity of labour and the real wage, associated with the point of effective demand, can be determined by the interception between the notional demand for labour, that is the marginal labour-productivity schedule, and the aggregate-demand constraint translated into the real-wage vs. employment space:

(1) $Y(L) = wL + B$

where B is an autonomous component of real demand, wL are total real wages and $Y(L)$ is a production function, increasing in employment L at a decreasing rate (see Figure 4).

3. AN EXTENSION OF THE DALZIEL-LAVOIE MODEL

Marc Lavoie (2003, p. 169) claims that his model is robust to a more general specification of the aggregate-demand constraint, such as the following one:

(2) $Y(L) = (1 - s_\omega)wL + (1 - s_\pi)\pi + A$

where $s_\omega \in [0,1]$ is the propensity to save of wage-earners, $s_\pi \in [0,1]$ is the propensity to save of profit-earners with $s_\pi > s_\omega$, A is an autonomous component of real demand, π

are real profits. I agree with Lavoie's claim, although some qualifications seem useful for discussing a point of the Dalziel-Lavoie work that I do not consider consistent with what Keynes argues in the Chapter 19 of *The General Theory*.

Let us assume, for sake of simplicity, that $Y(L) = L^\varepsilon$ with $\varepsilon \in (0,1)$ being the (constant) elasticity of Y with respect to L. Under (2), the point of effective demand (in Figure 5) is given by:

$$(3) \qquad L* = \left[\frac{A}{(1-\varepsilon)s_\pi + \varepsilon s_\omega} \right]^{\frac{1}{\varepsilon}} \qquad \text{and} \qquad w* = \varepsilon(L*)^{\varepsilon-1}.$$

Therefore, one can easily show that:

$$(4) \qquad \frac{\partial w*}{\partial L*} < 0 \quad , \quad \frac{\partial L*}{\partial A} > 0 \quad , \quad \frac{\partial L*}{\partial s_\pi} < 0 \quad \text{and} \quad \frac{\partial L*}{\partial s_\omega} < 0 \ .$$

4. A CRITIQUE TO DALZIEL AND LAVOIE

Dalziel and Lavoie (2003) seem to argue that Keynes would agree with the following statement:

"In particular, workers and firms are unable to restore full employment by reducing real wages, […]" (p. 333).

On this relevant point, the authors indeed start their article writing that:

>"When Keynes wrote *The General Theory of Employment, Interest and Money* during the Great Depression of the 1930s, his aim was to explain situations of high unemployment that were not self-correcting through workers accepting lower real wages" (p. 333).

Consistently with the above statement, Dalziel and Lavoie show that a reduction in the real wage, due to either a fall in the money wage or a rise in the general level of prices, is unable to increase the employment level (p. 337).

In contrast to Dalziel and Lavoie, I will argue that Keynes wrote *The General Theory* to explain situations of high unemployment that were not self-correcting through workers accepting lower *money* wages. Further, I will show that if a money wage cut is able to reduce the real wage, then the lower real wage necessarily imply - in Keynes's view - a higher, and permanent, level of employment.

Let me start making explicit that, in my view, the main difference between Keynes and neoclassics is not about the effects on unemployment of a reduction in the *real* wage; it is about the effects on unemployment of a reduction in the *money* wage (see Keynes 1936, Chapter 19). Both Keynes and neoclassics would agree that a lower real wage is associated with a higher employment level and vice-versa. The main question is whether or not a lower money wage is associated with a lower real wage and a higher employment level. Specifically, a neoclassic would argue that a money-wage cut determines a real-wage cut and *therefore* determines a higher employment level, while Keynes would reply that a money-wage cut does not imply a higher employment level and *therefore* does not imply a real-wage cut.

To be more precise, in the neoclassical theory, if there is unemployment and the money-wage W can freely decrease, provided that the quantitative theory of money

$MV = PY(L)$ holds[1], then a reduction of W generates a less-than-proportional reduction of the price-level P. This, in turn, implies a decrease in the real wage and a tendency toward full employment.

According to Keynes, a fall in the money wage W decreases the real wage if the following condition holds:

(5) $\qquad \dfrac{\partial w^*}{\partial W} = \dfrac{\partial w^*}{\partial L^*}\dfrac{\partial L^*}{\partial W} > 0$

Given that the sign of $\dfrac{\partial w^*}{\partial L^*}$ is unambiguously negative, for (5) to hold, the following condition must hold:

(6) $\qquad \dfrac{\partial L^*}{\partial W} < 0$.

By consequence of (5) and (6), if a money wage cut is able to reduce the real wage, then the level of employment associated with the lower real wage must be higher.

The sign of $\dfrac{\partial L^*}{\partial W}$, however, depends on a number of factors. Specifically, one can formalize the problem as follows:

(7) $\qquad \dfrac{\partial L^*}{\partial W} = \dfrac{\partial L^*}{\partial A}\dfrac{\partial A}{\partial W} + \dfrac{\partial L^*}{\partial \varepsilon}\dfrac{\partial \varepsilon}{\partial W} + \dfrac{\partial L^*}{\partial s_\pi}\dfrac{\partial s_\pi}{\partial W} + \dfrac{\partial L^*}{\partial s_\omega}\dfrac{\partial s_\omega}{\partial W}$.

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[1] M is the nominal supply of money and V is the velocity of money circulation, both exogenously given.

In the Chapter 19 of *The General Theory*, Keynes discusses the signs of $\frac{\partial A}{\partial W}$, $\frac{\partial \varepsilon}{\partial W}$,

$\frac{\partial s_\pi}{\partial W}$, $\frac{\partial s_\omega}{\partial W}$ and concludes that the impact of a reduction in the money wage on the

employment level is likely to be either null or negative, that is:

(8) $\qquad \frac{\partial L^*}{\partial W} \geq 0$.

As a matter of example, Keynes maintains that, in a closed economy, the main argument

supporting the idea that a reduction in the money wage increases employment is that the

reduction in W implies a decrease in P^2, which increases the real money-supply and

decreases the real interest-rate. The latter, in turn, increases autonomous investments[3]

$\left(\frac{\partial A}{\partial W} < 0 \right)$. The rest of the effects of a reduction in W, in presence of unemployment, do

not necessarily go - according to Keynes - into the right direction[4]. The implied

decrease in P determines an increase in the real value of debts which negatively affects

investment decisions of indebted entrepreneurs[5] $\left(\frac{\partial A}{\partial W} > 0 \right)$. In addition, the decrease in

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[2] "A reduction of money-wages will somewhat reduce prices." (Keynes 1936, p. 262). It is likely that

Keynes relies this statement on an equation like $P = W(w^*)^{-1}$, where w* is as in expression (3).

[3] This assumes that investments respond positively to a reduction in the real cost of borrowing, which is

non-obvious as argued in past empirical and theoretical studies (Ebersole 1938, Schalke 1946, Wilson and

Andrews 1951, Garegnani 1978, Garegnani 1979).

[4] We select Keynes's arguments in Chapter 19 that can be discussed in the extended Dalziel-Lavoie

framework.

[5] Investment decisions of entrepreneurs are also negatively affected, in Keynes's view, by the expectation

of an increase in taxation due to a rise in the real burden of the national debt.

W generates workers' discontent and discourages both debt-financed investments $\left(\frac{\partial A}{\partial W} > 0\right)$ and profit-financed investments $\left(\frac{\partial s_\pi}{\partial W} < 0\right)$. Further, a reduction in W creates the expectation of future money-wage cuts and postpones consumption of wage-earners $\left(\frac{\partial s_\omega}{\partial W} < 0\right)$. The sum of positive and negative effects on employment of a money-wage reduction is, in Keynes's view, null or negative[6] as in expression (8).

Let us consider the case that the net effect of a reduction in money wages is null. This, in the extended Dalziel-Lavoie model, means that the point of effective demand (in Figure 5) is unchanged, the real wage implied by the point of effective demand is unchanged and the reduction of W fully translates into a reduction of P. If, instead, the net effect is negative, then the locus of effective demand (2) shifts upward, the implied real wage rises and the reduction of W generates a more-than-proportional reduction of P[7].

6. CONCLUSION

If a cut in money wages is able to generate a cut in real wages, as supposed by Dalziel and Lavoie (2003, p. 337), then the lower real wage would inevitably be associated - in Keynes's view - with a higher, and permanent, level of employment. Therefore, the argument of Dalziel and Lavoie (2003) that workers and firms are unable to restore full employment by reducing *real* wages is not consistent with Keynes's view. Students

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[6] "There is, therefore, no ground for the belief that a flexible wage policy is capable of maintaining a state of continuous full employment" (Keynes 1936, p. 267).

[7] "It follows, therefore, that if labour were to respond to conditions of gradually diminishing employment by offering its services at a gradually diminishing money wage, this would not, as a rule, have the effect of reducing real wages and might even have the effect of increasing them, through its adverse influence on the volume of output" (Keynes 1936, p. 269).

must be aware that, according to Keynes, workers and firms are unable to restore full employment by reducing *money* wages as a reduced money wage does not automatically imply a reduced real wage[8].

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[8] "There may be no expedient by which labour can reduce its *real* wage to a given figure by making revised *money* bargains with entrepreneurs. " (Keynes 1936, p. 13).

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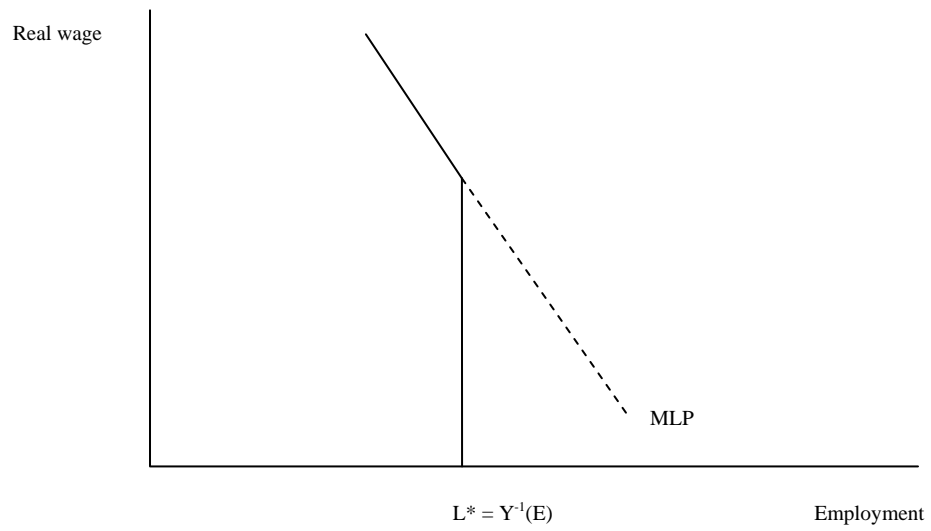
Figure 1

Barro-Grossman's model

Real wage — Employment axis diagram with curve labeled MLP (dashed portion), vertical line at $L^* = Y^{-1}(E)$
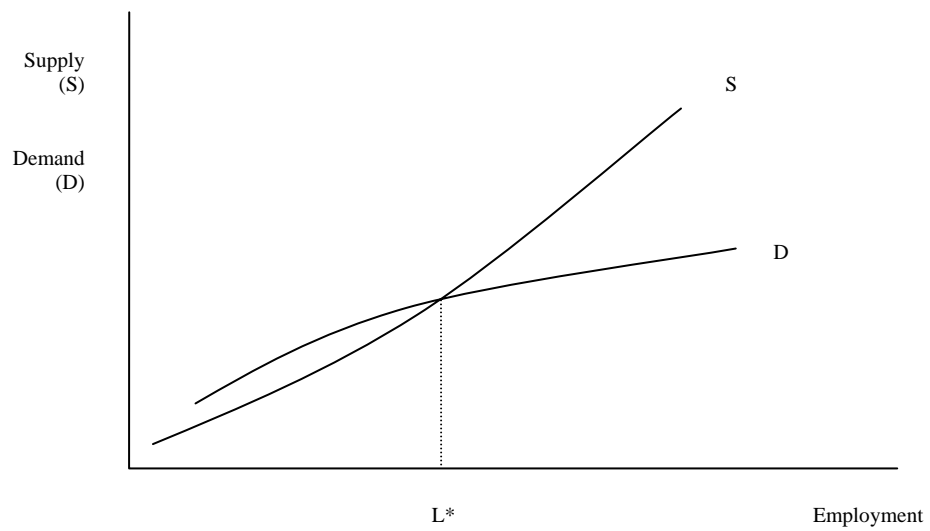
Figure 2

Davidson's model (part 1)
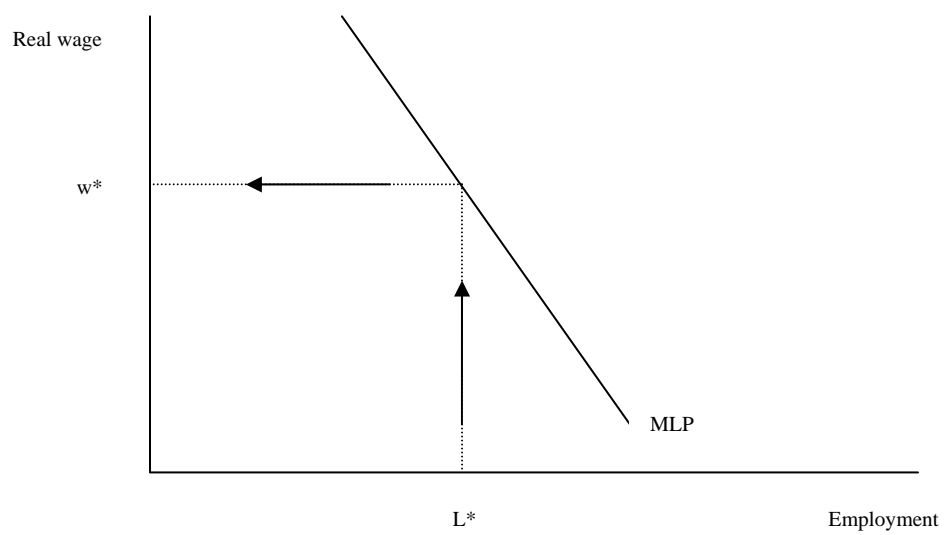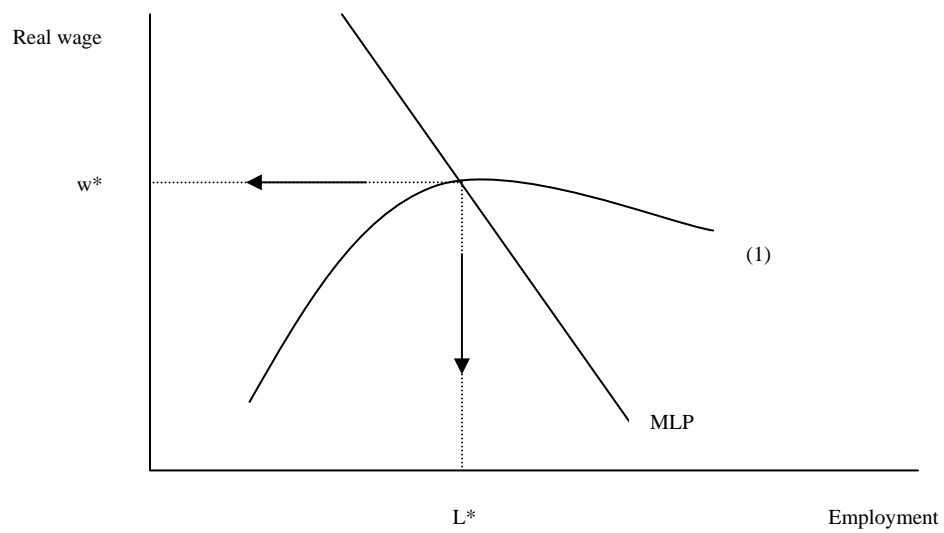
Figure 3

Davidson's model (part 2)

Figure 4

Dalziel-Lavoie's model

Figure 5

Extended Dalziel-Lavoie's model