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Short-Run Stabilization by an Employer of Last Resort
Seminar Paper 8

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Bard

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by an Employer of Last Resort**

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SHORT-RUN MACROECONOMIC STABILIZATION BY AN EMPLOYER OF LAST RESORT[*]

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In contrast to supply side dogma, modern economies appear to be subject to strong fluctuations in demand. This at any rate will be our premiss. Moreover, there do not appear to be, in the modern world, any strong, market-based forces leading to stability. So there is a need for stabilization policies.

Investment spending appears to be a major source of demand variation. Yet if the purpose of investment were simply a corrective, moving the actual capital/labor ratio to its optimal level, stabilization would hardly be needed. Such a long-run position would be stationary, or, if the labor force were growing, the economy would expand uniformly. This is the picture presented by neo-Classical theory, articulated, for example, by Hayek (1941).

But both Keynes and the older Classicals, especially Ricardo and Marx, offer a different view: investment is the accumulation of capital, a process by which productive power is created, organized and managed. It is driven by the desire for power and wealth, and there is no definable 'optimum'. Investment expands productive power, but does not move the economy towards any definite destination. Given such motivation and the important role of technological innovation, the urge to invest will sometimes be strong and widespread, but at other times weak and uncertain. This may help to explain the need for stabilizing policies, arising from the demand side.

In post-War Mass Production economies (Nell, 1998), constant returns appear to prevail in the short run; to put it differently, unit costs are broadly constant[1]. Workers need only be semi-skilled and teams can easily be broken up and re-formed; processes can be operated at varying levels of intensity in response to variations in demand, and they can easily be shut down and started up. It is likewise easy to layoff and recall workers.

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[1] The widespread existence of constant unit costs came to light beginning with the debate on prices and pricing in the 1930s and 40s, cf. Hall and Hitch, 1938, Andrews, 1949. . The suggestion here is that constant costs were the result of technological developments in manufacturing processes (Hunter, 1985). The evidence for constant costs is summarized and discussed in Lavoie, 1995, Ch. 3.

Models can be developed based on an aggregate utilization function[2], with distinctive properties[3]. The Mass Production economy will be characterized by a straight line rising from the origin. As a first approximation Consumption can be identified with wages and salaries[4], while Investment can be taken as exogenous. As employment rises, the wage bill – and so Consumption spending – will rise at a constant rate, namely the normal wage rate. The wage bill - assumed equal to Consumption spending - is represented by a straight line rising to the right from the origin; its angle is the wage rate. Investment spending will be treated as exogenous in the short run, so will be marked off on the vertical axis. Aggregate demand will then be the line C+I, rising to the right from the I point on the vertical axis; its slope is the wage rate.

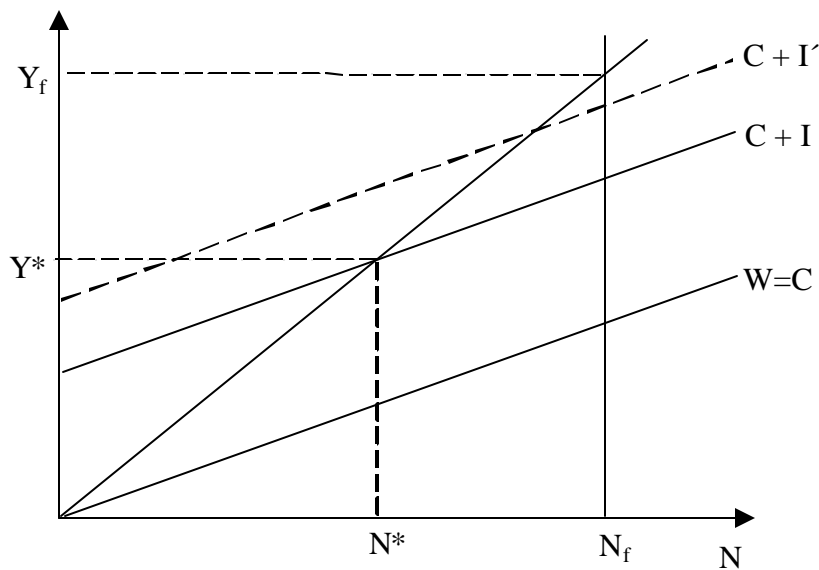*Adjustment to Demand Fluctuations in the Mass Production economy*

Fig 1: Adjustment in the Mass Production economy

 The origin, here and in later diagrams, is the point at which labor cost absorbs all output. Employment in such an economy will depend only on effective demand; there is no

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[2] To move from individual firms to the aggregate it is not necessary to hold the composition of output constant, so long as the movements are small. The aggregate function, of course, oversimplifies. When proportions of capital to consumer goods change in Mass Production the degree of utilization changes, but unit costs and prices are not affected.

[3] The Penn World Tables provide data making it possible to plot output per head against capital per head with a large number of observations. When this is done for the advanced OECD economies, the scatter diagram shows no evidence of curvature. The same plot for the backward economies exhibits pronounced curvature, for middle range economies moderate curvature. Of course this can be considered no more than suggestive.

[4] Wages and salaries in the aggregate are closely correlated with Consumption spending, but do not fully explain it. Some obvious adjustments are easily made. Consumer spending also depends on the terms and availability of consumer credit. In addition it reflects transfer payments. Wealth and profitability are significant variables. But for the present purposes, which are purely illustrative, a simple 'absolute income' theory will suffice.

marginal productivity adjustment.[5]   Output will increase with the amount of labor employed (capacity utilized); all and only wages will be spent on consumption, and all profits will be saved as retained earnings. Investment can be taken as exogenous as a first approximation.[6] Expenditure is given by the C + I line. (This ignores G, government spending, for the moment, although in the modern world it will be much greater than in the earlier forms of the capitalist economy.)   But the output function will be a straight line rising from the origin with a slope equal to the average productivity of labor. Suppose Investment is exceptionally high; then employment will be increased, and Consumption will also be exceptionally high. Conversely, if Investment is low, employment will be low, and thus so will Consumption. Consumption adjusts in the same direction that Investment moves.[7]   When investment rises, consumption, output and employment also increase in a definite proportion.[8]
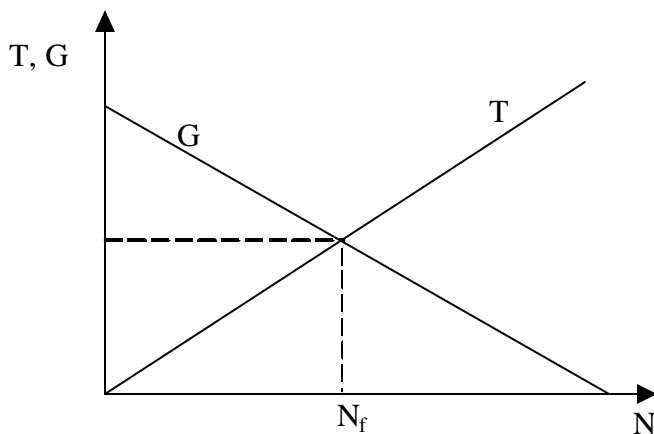

Fig 2: Government stabilization in the Mass Production economy

The effect of Government can be illustrated with a flat tax on wages and Government spending on unemployment insurance. Tax revenues rise with N, and welfare spending falls. Rates are adjusted so the budget balances at full employment. If Investment

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[5] That is, employment is *not* determined in the labor market. It follows directly from the demand for output, given the output-employment function – as in Kalecki. Hicks, following Keynes, initially modeled effective demand by setting up the IS-LM system together with a labor market and a conventional production function. Later he came to feel that this was a mistake (Hicks, 1977, 1989).
[6] On these assumptions Investment determines – and equals - realized Profits. When households save a certain percentage out of wages and salaries the Consumption line will swing below the Wages line – Profits will be reduced. When wealth-owning households (or businesses subsidizing top managers) add to their consumption spending in proportion to the level of activity, this swings the C + I line upwards, increasing Profits.
[7] The output multiplier in this simple example will be $1/(1-wn)$, where w is the real wage and n is labor per unit of output.
[8] And money? Let household saving increase with the rate of interest (as consumer durable spending declines), while business investment declines as the rate of interest rises. (Neither influence is likely to be very great.) We can then construct a downward-sloping function (an analogue to the traditional IS) relating the rate of interest, i, to employment, N. It will intersect a horizontal line representing the level of the rate of interest as pegged by the Central Bank; this will determine the level of employment.

spending falls below the level required for full employment, tax revenues decline and welfare spending rises, providing a stimulus. If Investment booms, taxes rise and spending falls, and the resulting surplus acts as a drag on the economy.

In modern economies Investment and Consumption tend to move in the same direction, so that fluctuations are enhanced, rather than dampened. The system is volatile, and will be even more so if Investment responds to changes in output through an accelerator. But the Government budget automatically moves counter-cyclically.

An unstable labor market

In the labor market in modern economies we find that money wages tend systematically to be driven in the wrong direction. The labor demand function – or employment function – is derived by plotting the components of the employment multiplier, namely the real wage, and employment, against each other. Assuming Profits to be retained and saved, and Wage income spent, ignoring both household saving and household spending financed by credit, the curve will show the employment generated (measured on the horizontal axis) by consumption spending at each level of the real wage (on the vertical axis.) The intercept on the horizontal axis shows the employment generated by Investment spending; then the curve rises at a falling rate from left to right, approaching the line 1/n asymptotically, where n is labor per unit of output[9]. (Nell, 1988, 1991; Rowthorn, 1982 ;Lavoie, 1992)

This curve can be combined with either of two hypotheses about labor supply. Households may be supposed to defend a certain target level of consumption. If the real wage falls the household will then have to offer more labor. In the extreme case this may take the form of a rectangular hyperbola. Alternatively there is the more conventional view that higher wages will call forth greater labor force participation.

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[9] Why do unit wage increases at higher levels of the wage generate larger increases in overall employment? Because at higher levels of the wage, the respending effects will be greater. A higher wage here functions like a higher marginal propensity to consume in conventional theory.
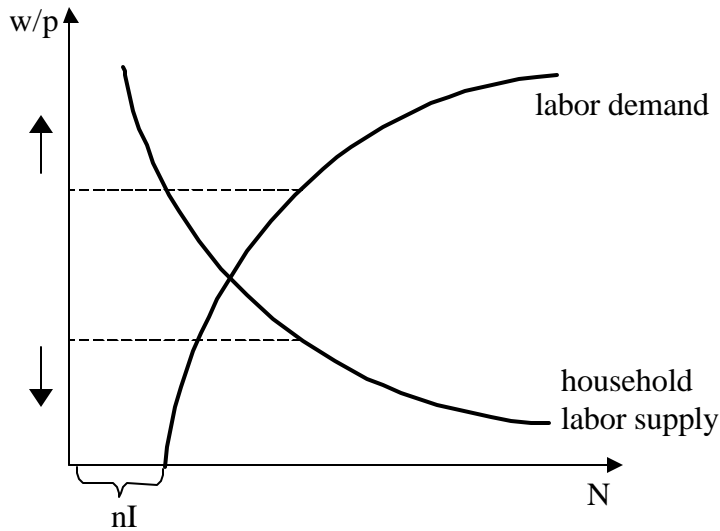
Fig 3. Mass Production Labor Market: Lifestyle Defense

In Figure 3, it is clear that if the *real* wage is too high, labor demand will exceed labor supply, and there will be a tendency to bid *money* wages up. (If labor is in short supply, so that goods are not being produced, there will also be pressure on prices and inflation will result.) If the real wage is too low, labor supply will exceed labor demand, and the labor market will be slack, putting downward pressure on money wages. But in the modern economy money wages are likely to be sticky, so may not drift down. Nevertheless, there will be no tendency for the market to make a correction. The same clearly holds in Figure 7, with a conventional labor force participation function[10].

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[10] If the intercept of the labor supply line were to the left of the intercept of the labor demand, there could be two intersections, one stable, the other unstable.

w/p

household
labor supply

labor demand

(w/p)*

w/p > (w/p)* tends to rise

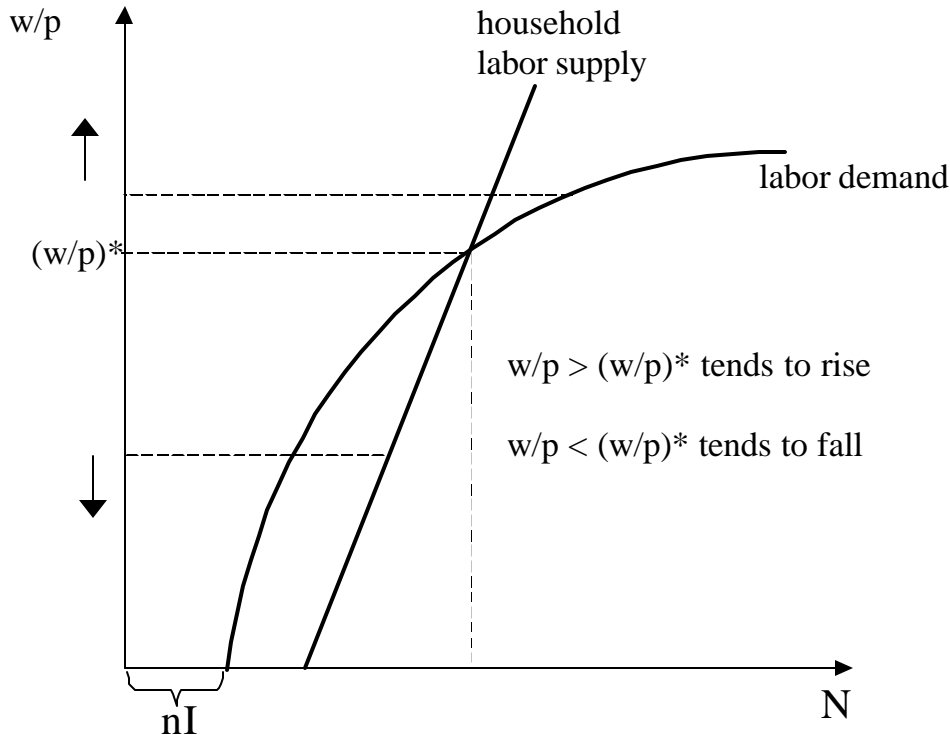w/p < (w/p)* tends to fall

N

nI

Fig 4. Mass Production Labor Market: Rising Participation

The development of Mass Production (Nell, 1998), then, besides vastly increasing productivity and raising normal growth rates, has also brought us a system in which volatility is self-augmenting, in both product and labor markets.[11]

The problem is that Mass Production labor markets seem to tend to generate inflation. To control inflation Governments in the advanced economies have typically resorted to slowing down the economy, i.e. creating unemployment. In this case the automatic stabilizer would tend to undermine the effort to control inflationary pressures. Consequently, such stabilizers have been neglected or even dismantled.

Constructing an automatic stabilizer that covers inflation

Automatic stabilization has significant advantages. It is not necessary to wait on policy makers to reach decisions and act. Policy need not wait on legislation by Congress, or upon decisions by courts. Stabilization will not depend on which party is in power. Nor does it rest on the frequently weak and unreliable effects of interest rates and monetary policy.

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[11] By contrast, it has been argued that the Price Mechanism provided pre-World War I economies with a built-in system of self-regulation – although perhaps it didn't always work very well. This suggests a new way of looking at the debate over the amplitude of the business cycle, (Nell and Phillips, 1995, 1998.) In spite of a much larger government sector, managed with an explicit intent to stabilize the system, the post-War economy has not been significantly less unstable than the economies prior to World War I. This is not a failure of Keynesian policies; it is rather that Keynesian policies have been needed to dampen down the volatility inherent in the new patterns of adjustment

'Automatic stabilizers' expand in the slump and contract in the boom, thereby providing the economy with a tendency to self-regulation. To date these have been largely transfer payments to the jobless. But the program could be combined with the 'buffer stock' principle and operate so as to stabilize wages as well as the level of output.[12]. This would largely dispense with transfers; it would become a stabilizing public sector employment program, expanding in hard times and contracting in good, at a fixed wage. Such a program will be superior to one based on transfer payments – it will be shown here that, when other aspects of the economy are the same, it will produce a larger output, with the same level of private sector employment. It will also help to stabilize the money wage.

This is the idea behind the proposals for an Employer of Last Resort program. A public service sector will be created that will offer a job at a basic living wage to anyone who able and willing to work.[13] These workers will not only do useful and productive work; they will also keep up their skills and work habits, perhaps even receiving extra training. This sector will then provide an effective labor supply to the private sector when the latter expands, and will absorb excess labor when the private sector contracts. Labor will move from the ELR to the private sector, first, because the latter offers a higher wage, but also because it offers opportunities for advancement, not generally available in the ELR. Full employment – employment of everyone that wants a job and is able to work – will thus be maintained, and the basic wage will be stabilized, since the ELR acts as a 'buffer stock'. (Mitchell, 1997) Moreover, the ELR supports and develops 'human capital' – the skills and habits of the labor force – independently of the level and fluctuations of investment in the private sector. And it provides income for families, reducing poverty, benefiting children, all of which can be expected to reduce crime and social disorder.

The working of automatic stabilizers

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[12] Such a stabilization program would require 'functional finance', but financing questions are not the issue here. For how to pay for an ELR, cf Nell and Majewski, forthcoming; Mosler, 1996; Wray, 1998.

[13] Jobs doing what? Many socially useful programs can be imagined; suggestions have included environmental cleanup, community service, education and school assistance including day care and home day care, home nursing and elder care, simple construction and home repair, and many other projects. Organizing the work to be effective will require managerial skill, particularly given that the workers may be untrained and undereducated, and that the better ones are likely to be bid away by the private sector. A good part of the effort will go into training, both formal and informal. Problems include possible competition with the private sector and 'substitution' of ELR workers in projects which local governments ought to be doing on their own budgets. See Wray, 2000; Forstater, 1998; and Nell and Majewski, forthcoming.
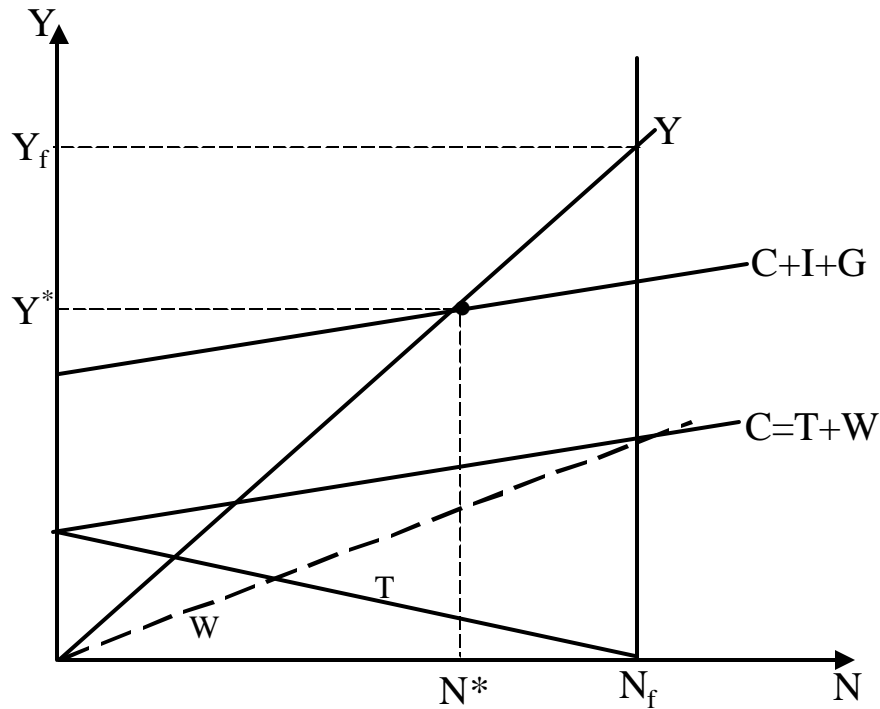
Fig 5: Employment and Output with Transfer Payments

An automatic stabilizer will change the Mass Production employment adjustment by raising consumption at every level short of full employment, while reducing its range of variation. This can be seen in Figure 5, which plots income on the vertical axis and employment on the horizontal. Private employment runs from the origin to N_f here (and in subsequent diagrams.) At full employment, N_f, transfers will be zero; as employment falls, transfers rise, until at zero employment transfers reach their maximum at the intercept of the line T. The aggregate household income function will be the sum of wages plus transfers, and by assumption, this will equal household consumption, C = T+W. When Investment (and Government spending on goods and services) are added, the result is aggregate demand, which intersects the utilization function to determine employment and output.

Now consider an ELR (Figure 6). As above private employment will measured from the origin running to N_f; ELR employment will be measured from N_f moving back towards the origin.
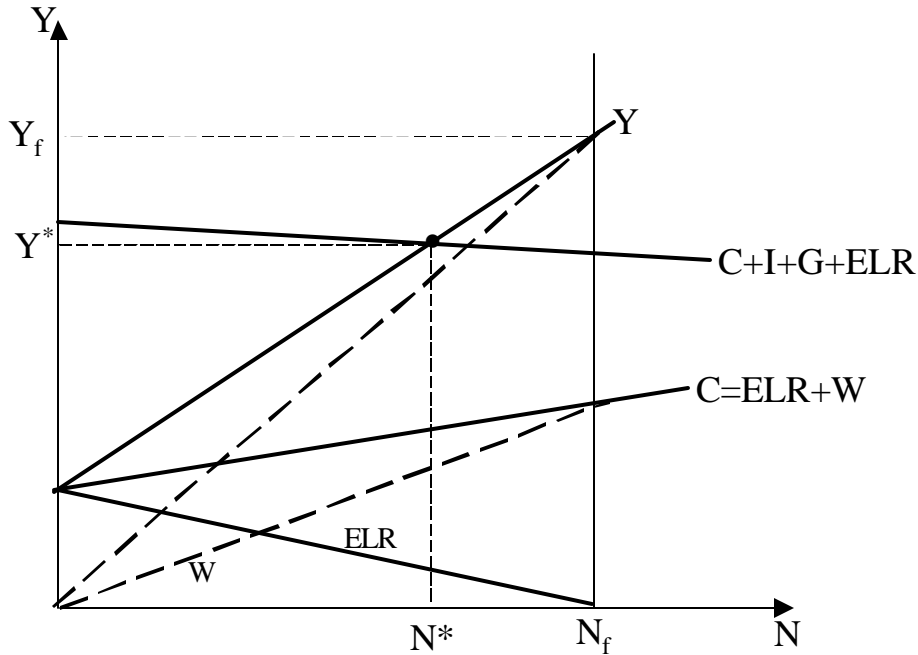
Fig. 6: Employment and Output with an ELR

So, a diagram for total output can be constructed in similar way to the above aggregate household function. Output will depend on ELR employment as well as on private sector employment. The latter will normally be more productive. ELR output will be at its maximum when private sector employment is zero; private sector output will be at its maximum when ELR employment is zero. As private sector employment increases ELR employment will fall, until all labor is employed in the private sector. The aggregate output line labeled Y is the linear combination of these two. Provisionally, ELR output will be taken as equal to ELR costs, here assumed to be only wage costs.[14]

As in the case of unemployment insurance, (continuing to ignore both household saving and household credit) total consumption demand will consist of two parts. There will be consumer spending out of private wages and this will be augmented by consumer spending out of ELR wages, in the same way that transfer payments supported consumption above. ELR wages will lie substantially below the private sector average – so that the private sector can always attract labor from the ELR.[15] As private sector employment rises, ELR employment falls; hence as private consumer spending rises, ELR-based consumer spending falls. Once again, the total is the combination of both, again indicated by the line labeled C = ELR + W. To get total spending Investment and Government spending must be added to this.

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[14] Changing this assumption makes the diagrams a little more complicated.

[15] This does not necessarily imply that they are deliberately set at a low level. If they are set at a high level, then private sector wages will be driven up until the private sector is able to attract the labor it needs. The ELR is a *market* system; a basic wage is set, and the rest of the economy has to adapt to it. Since this wage is stabilized it will act both as a floor to money wages, and as a drag on rising wages.

But now Government spending must include ELR spending, in addition to its normal spending on goods and services. The ELR produces socially useful goods and services that are paid for by the Government, and provided free to the community at large. This spending will fall as private sector employment increases, starting from a maximum when private employment is zero. So total spending will be private sector consumption and investment, ELR consumption and Government spending 'purchasing' ELR output. The slope of aggregate spending depends on whether or not the decline in Government spending as private employment rises outweighs the rise in household spending as workers shift from the public to the private sector[16]. If it does the slope will be negative; if the differential between public and private wages is large enough, the slope will be positive. If they just balance it will be flat. Equilibrium occurs at the intersection of this line with the Y line, as indicated by the dot. Private employment is N*, ELR employment is N_f - N*. ELR output is given by the intersection of the vertical line rising from N* with the ELR output line.

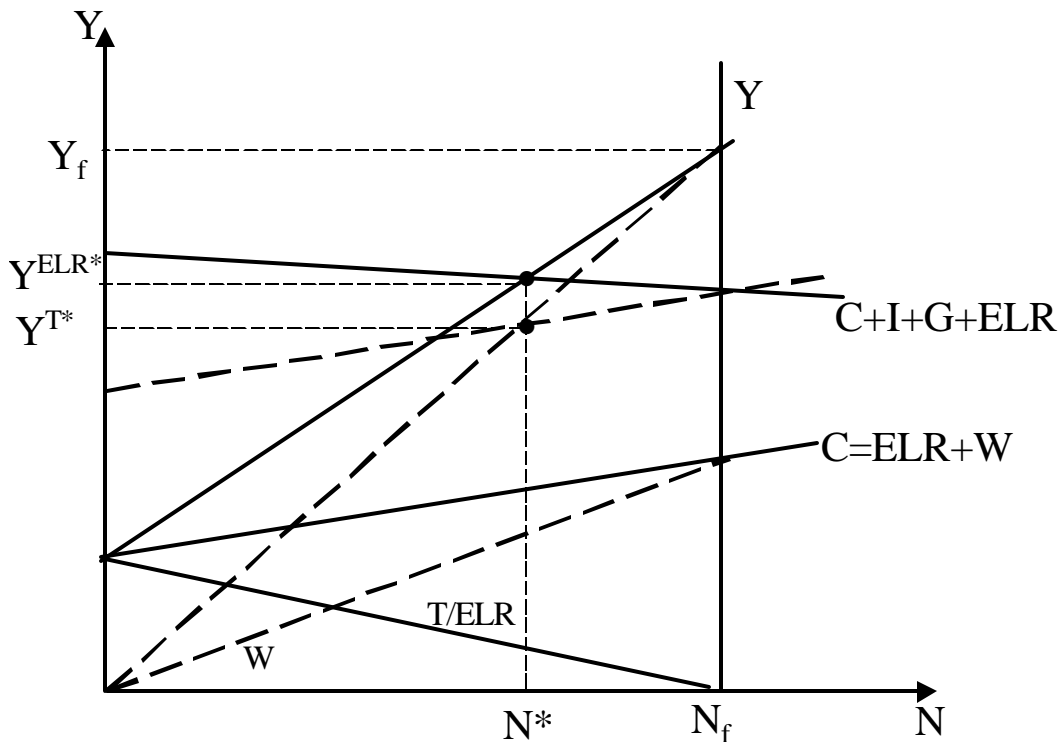*Comparing unemployment insurance with the ELR*

Fig 7: Employment and Output: Transfers versus ELR

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[16] Assuming all ELR output is 'purchased' by the Government, and ignoring any other Government spending. . Then $E = I+C+G$, where $C = w_p N_p + w_e(N_f-N_p)$ and $G = w_e(N_f-N_p)$. Under these assumptions $dE/dN_p = w_p - 2w_e$. If w_p is less than twice w_e then the aggregate spending line will slope down; otherwise it will rise. If some ELR output is sold commercially to the private sector, as might be plausible, or if there are other elements of Government spending that depend on the level of employment, the equation will have to be modified.

Now compare the ELR and a transfer payment system as answers to the problem of unemployment arising from insufficient aggregate demand. In the simplest case, with no markup on the ELR and ignoring taxes (they can be designed to be neutral) the answer is simple. This can be seen in Figure 7, which superimposes Figure 6 on Figure 5, by drawing the ELR solution on the unemployment insurance diagram. At every point on the employment axis, output will be the combined output of the private sector and the ELR. But Government spending will exactly cover the output of the ELR. Therefore private spending will depend only on Investment and the consumption supported by the combined private and public sector wage bills. But this will be the same as the consumption demand in an unemployment insurance system, where the transfer payments were at the same level as the ELR wage. So if Investment is the same in the two systems, private employment will be the same. But output will be greater by the amount of the ELR output, which will be the same as Government ELR spending. .

The expenditure equilibrium of the economy will then be given by the intersection of the output function and the aggregate spending function, each including the ELR. The total output function will show the combined output of the ELR and the private sector; the total expenditure function will show the combined spending of ELR and private sector workers, plus Investment (and normal Government spending), plus the Government spending on the ELR. Output will be higher in the ELR economy than under a system of unemployment insurance, but employment will be the same. (This conclusion will have to be modified if the output of the ELR has the effect of increasing the productivity of the private sector.[17] In that event output would be even higher, but employment would be lower.)

However this is a "stripped down" version of the ELR. The higher level of employment ensured by the ELR is likely to stimulate private investment; after all, the ELR creates a new set of active economic agents. Moreover, in addition to private sector Investment there will have to be ELR Investment, since the ELR program will have to grow to keep pace with the rest of the economy. Such additional Investment would then raise employment in the ELR above that of the corresponding 'transfer payment' system. Moreover, the ELR will very likely make purchases from the private sector, which will generate additional private employment. Further, many ELR services, e.g. child-care, teaching assistance, Legal Aid, might be marketed to local governments and the private sector. These services would be sold at a markup over costs, earning profit. This profit would be a withdrawal, to be offset by ELR investment.

Digression: implications for the currency

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[17] Munnel (1990), Aschauer (1990) and others have presented evidence that Government capital spending is strongly correlated with increases in private sector productivity. ELR spending , if properly designed, might well have the same effect.
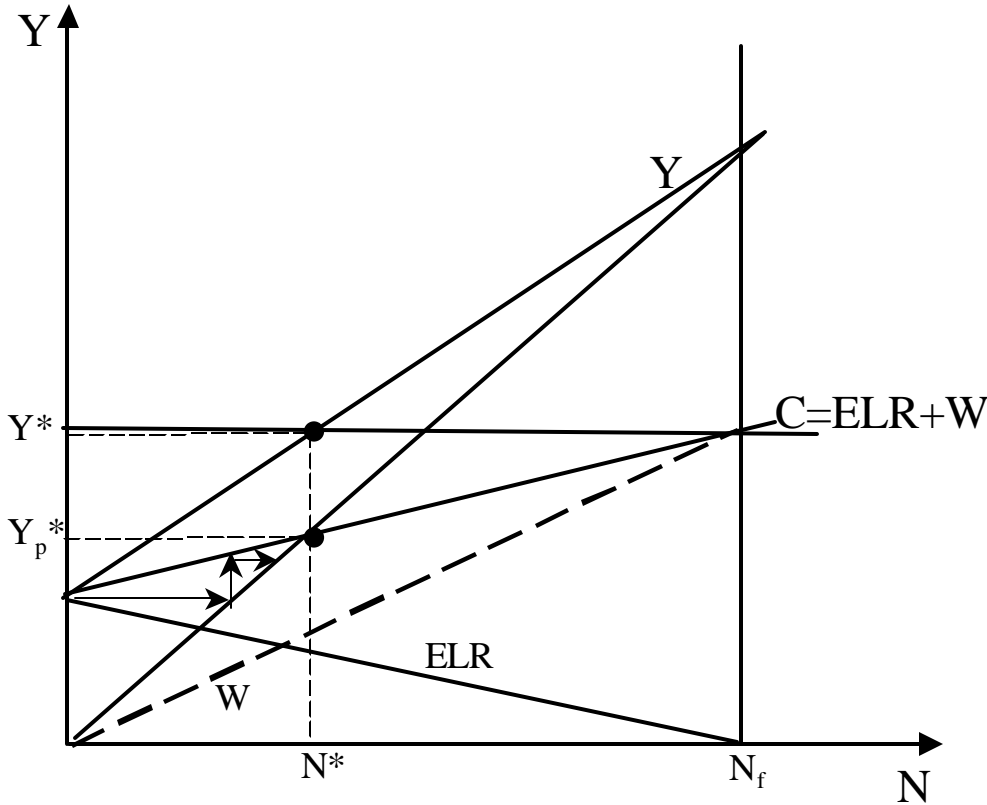
Fig. 8: Spending ELR Wages

An old argument against welfare asserts that if sufficiently large-scale, it 'undermines the currency'[18]. This has never been a problem in practice even with very large welfare programs. But there is a logic to the argument, even if it has been abused by ideologues. Why work for money if you can get it for free? In an ELR everyone has to work to get money. The implications for incentives can shown, using the same diagrams, by comparing the two systems at the point of zero private sector employment.[19] (Figure 8) Assume no investment and that Government spending will be exclusively welfare payments in the one case, and ELR payments in the other. In the transfer economy, all economically active agents will be receiving welfare payments; in the ELR all will be working in public sector jobs.

Initially we suppose that everyone works for the ELR, producing the maximum public sector output, which the Government pays for, providing ELR wages. These, however, are then spent on household consumption. But consumer goods are produced by the private sector, which must bid away labor from the ELR. The initial ELR spending purchases an output from the private sector, as indicated by the arrow in Figure 8, which, in turn, requires employment. Anticipating the spending of ELR wages, consumer sector firms will draw down their lines of credit to offer employment. These new private sector workers, in turn, will spend their wages on consumption goods, leading to further private

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[18] A fiat currency is issued as a way of transferring resources to the State; it is 'tax-driven', (Wray, 1998). The treatment of taxes is presented in the Appendix.
[19] Thanks to Warren Mosler for discussions regarding this section.

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sector hiring, and further spending. There will be fewer ELR workers, and more private sector workers, but total spending will go up, since private sector wages are higher. Eventually this converges on N^* employed in the private sector, and $N_f - N^*$ in the public. The spending of ELR wages on consumer goods generates employment and provides the profit for consumer goods firms. Total output equals ELR output plus private sector output.

Now consider this same process in the transfer payment economy. *Ex hypothesi,* everyone is receiving payment for doing nothing in fiat currency issued by the Government. Recipients of transfer payments try to spend them to purchase consumer goods. But why would anyone give up useful goods for paper or accounting units that everyone is already receiving for nothing? Why open the shop to sell goods for the same paper or accounting units that can be had by staying home and doing nothing? Why go to work in the private sector? True the private sector wage is, say, twice the level of transfer payments – but that means working for half a week in order to get the same payment that one could have by staying home and taking it easy!

In the ELR economy the fiat currency has value because everyone has to work for ELR wages, to earn the currency in which taxes are paid. For labor to shift to the private sector is reasonable because the private sector pays twice as much for the same hours. But such a shift does not make sense in the transfer economy. This is not an argument against transfer payments or welfare systems; but it is a reminder that a currency rests on contrived scarcity. Transfer payments cannot become *universal* without undermining the incentives on which a fiat currency rests.

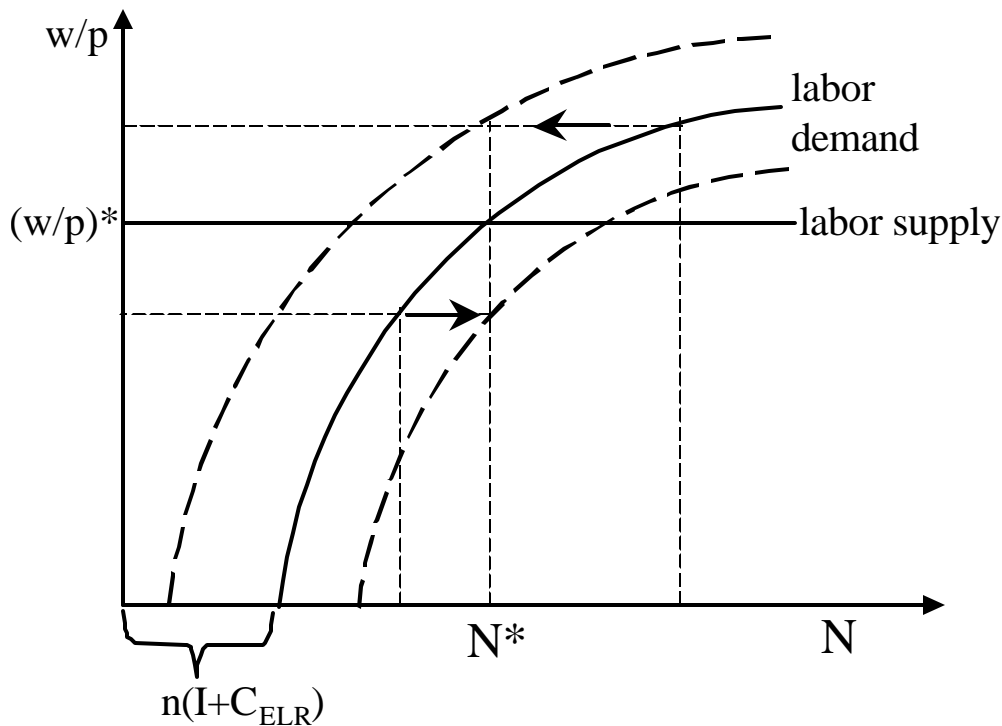### *Money wages, the ELR and the labor market*

Fig 9: Stability of the Private Sector Labor Market in an ELR Economy

Money wages will be stabilized very simply (Figure 9). There is no longer any interaction between demand and supply of labor that could put pressure on money wages. The average wage level of the private economy will simply be a markup over the ELR wage. Labor will be available to the private sector at that wage; so the 'supply function' will be a horizontal line starting from the vertical axis at point indicating the markup over the ELR wage. That is, at the wage w/p* any workers needed will be willing to move on short notice from the ELR to the private sector. (We assume that there is no point at which additional inducements will be needed to attract further workers.) The horizontal line at this wage will intersect the labor demand function.

Suppose the wage offered by the private sector is too low, resulting in $N < N^*$. Employment in the ELR will rise and ELR output will increase. As the additional ELR wages are spent, demand for private sector goods increases, and the intercept on the horizontal axis will shift out, increasing the demand for workers at all levels of the wage. However, at too low a wage the private sector will find that it has trouble attracting adequate labor; it will have to raise the wage it offers. As it does it will hire more labor and N will rise towards N*.

Alternatively, suppose it pays too high a wage. Labor will flow out of the ELR, swamping the private sector, which will hire $N > N^*$. The ELR wage bill will decline, and so the intercept will shift in, reducing the private sector demand for workers at all wage levels. At the same time the private sector will be facing an oversupply of labor; it will find that it can easily cut back and still have enough workers. As it does so, N will fall towards N*.

Clearly this intersection will be stable at any point, since the ELR treats the labor it employs as a 'buffer stock'. That is, it absorbs labor from the private sector as the ELR wage while supplying it to the private sector at a fixed markup over that wage. There is no longer any 'household labor supply' to the private sector, so there cannot be a real wage that is 'too high' or 'too low', i.e. such that it would set up destabilizing market pressures on the nominal wage.
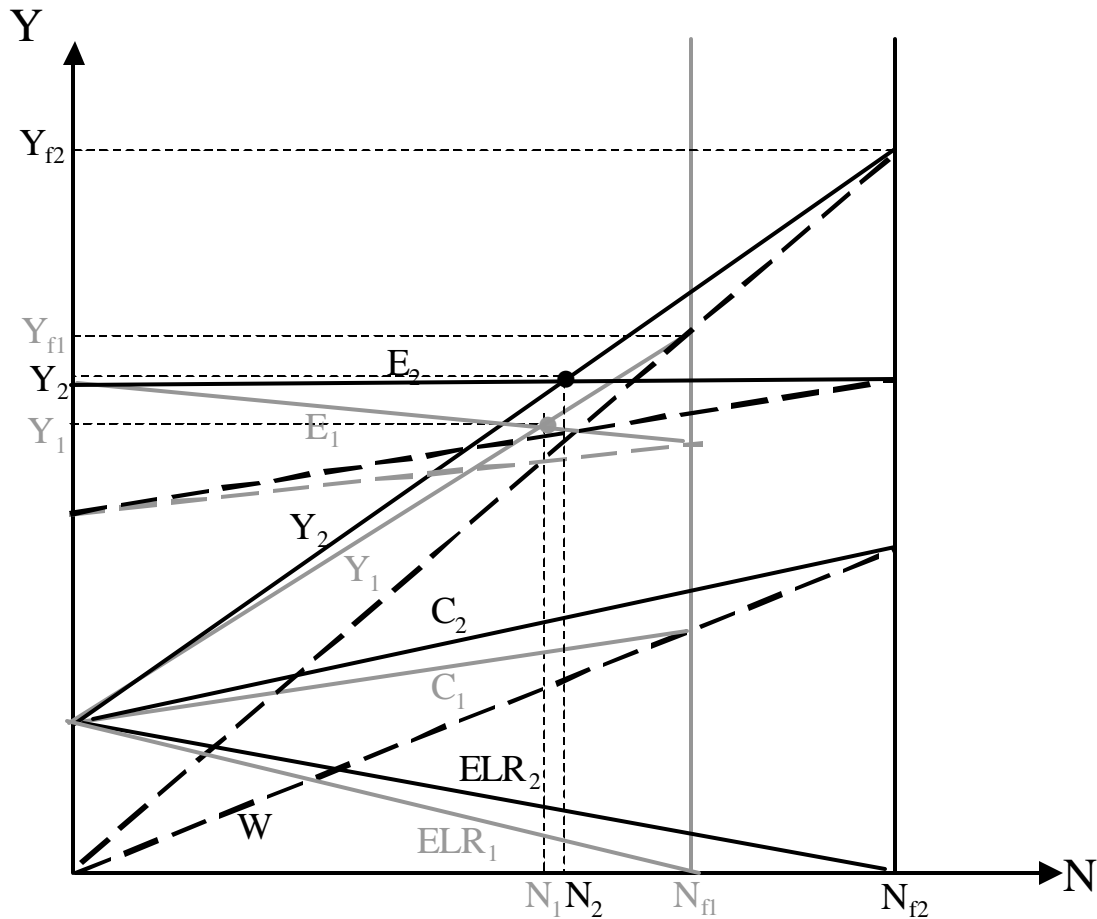

Fig 10. A Change in the Level of Full Employment

Now consider what happens when both the ELR wage and the private sector wage are changed together[20]. This is a change in the wage structure of the whole system and it has a significant impact on the economy . The effects of such a change can be decomposed into two parts. First, there will be a change in household spending, and consequently, in

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[20] The effect of changes in the real wage on Investment are not considered here. A rise in real wages increases demand; it may even lead to a virtuous cycle of self-improvement in some set of households (Nell, 2001; Nell and Argyrous, 2001) leading to a regular *growth of demand*. This would surely stimulate Investment. On the other hand, as Marglin and Bhaduri, 1990, and Taylor, 1991, have emphasized, a rise in wages reduces profits. Business at some times might be more responsive to changes in demand, at others to changes in profits. The evidence is not strong for this, however, and the impact of wage changes on investment will not be considered here..

employment and output. Suppose the wage increases; then spending and employment will be higher. But the new level of the wage now means that the labor force will be smaller, if households typically defend a target standard of living, or larger if higher wages attract new participants in the labor force. Taking the latter as an example, we can draw in the equilibrium level of employment and output at the new wage, exactly as in Figure 6. Now however, in Figure 10, we mark off the new level of full employment. The additional workers will now be employed in the ELR, so the household consumption function will have to be redrawn to reflect this. Their employment will now generate additional ELR output, so the output function will likewise have to be redrawn, as will the Government ELR spending function.

The additional ELR employment, matched by additional Government ELR spending, must lead to an increase in household consumption spending by ELR-supported households. This increases private sector employment, leading to further respending of wages. So, as Figure 10 clearly shows, both output and private sector employment will increase, when the level of full employment rises as a result of an increase in the real wage. Of course, if the level of full employment *fell* when the wage rose*,* as it would if households uniformly aimed at target incomes, the opposite conclusions would follow. The impact of a change in the wage structure depends on the *nature and shape* of the labor supply function.

Conclusions

Technological developments in the modern economy replaced the stabilizing price mechanism with a more volatile adjustment process, based on the multiplier (and accelerator). But automatic stabilizers embedded in government policy can be designed to reduce these fluctuations and restore a measure of stability. These have important advantages over discretionary policies, stemming from the fact that policy responses do not have to await successful political action.

But to date automatic stabilizers have largely been built around transfer payments, which do not put unemployed factors to use. Nor can a transfer payment system help to control inflation. By contrast the ELR puts the unemployed to work for a basic wage, and it stabilizes that wage.

In terms of short run comparisons, the ELR appears to be superior to a transfer payment system in two ways. First it generates additional output. So an economy operating an ELR, but otherwise identical to an economy with a transfer payment system, will at least have a higher level of output but the same private sector employment. Since the ELR will also require regular investments, and may well market part of its output to the private sector, this conclusion must be considered minimal – the ELR economy might well be substantially better in both employment and output. Since the higher level of activity is likely to stimulate productivity growth it might also have higher productivity.

Secondly, it will help control inflation. In contrast to the Craft Economy, the money wage in a modern economy is arguably unstable, generating inflationary pressures. The transfer payment system does not affect this one way or the other. But the ELR exerts a stabilizing force on money wages.

Finally, these comparisons obviously concern the short-term aspects of the macro economy. We have taken Investment as exogenous. But it could be argued in addition that an ELR could be designed to provide workers for venture capital projects, promoting innovation, that it could provide services for cleaning up the environment, and that provision of worker training and public goods would tend to raise productivity. It will bring large sections of the disadvantaged population into the economy on a permanent basis, thereby creating large new markets for consumer durables. In the long run, then, an ELR system could be designed to grow faster than an otherwise similar economy stabilized by transfer payments. But that is another subject.

Appendix

To keep the diagrams simple, taxes and savings were excluded. It is easy to show that the results do not depend on this assumption, either for the case of unemployment insurance or for the ELR. First we take Investment as fixed exogenously, since the analysis is for short-period effective demand. Then we write the equation for Consumption in a system with unemployment insurance, followed by the equation for Consumption in an ELR economy. Output in an economy with unemployment insurance will simply be the private sector's output; but in an ELR economy, ELR output must be added to that of the private sector to get total output. Government spending on goods and services will be lumped together with Investment; but ELR government spending will equal ELR output.

$I = I^*$ Investment given

$C = (1\text{-}h)[w_p N_p + w_u(N_f\text{-}N_p)]$ Consumption in unemployment insurance case

$C = (1\text{-}h)[w_p N_p + we(N_f\text{-}N_p)]$ Consumption in the ELR case

Here h is the tax rate on wages (alternatively, it could be interpreted as savings), w_p the private sector wage, w_u unemployment benefit, w_e the ELR wage, N_p private sector employment, N_f full employment, z output per worker private sector and u output per worker employed by the ELR.

$Y = zN_p$ Output in the private sector; unemployment insurance case

$Y = zN_p + u(N_f - N_p)$ Output in the ELR case

$G_e = w_e(N_f - N_p)$ Government spending in the ELR case

Expenditure in the the two cases will differ by the amount of Government spending

$E = I + C$ Expenditure in the unemployment insurance case

$E = I + C + G_e$ Expenditure in the ELR case

In both cases equiliblrium requires that output equal expenditure

$Y = E$

Assuming that there is the same private economy in both scenarios, so that h, I, w_p, N_f, and z are the same and that $w_u = w_e = u$, then, in equilibrium:,

$N_p = [I + (1\text{-}h)w_u N_f] / [z - (1\text{-}h)(w_p - w_u)]$ The unemployment insurance case

$N_p = [I + (1\text{-}h)w_e N_f] / [z - (1\text{-}h)(w_p - w_e)]$ The ELR case

Private employment will be the same in both scenarios. So we find from the utilization functions that output in the ELR case will be greater than output with unemployment insurance as long as:

$zN_p + u(N_f - N_p) > zN_p$, or $N_f > N_p$

Output in the ELR case will be greater as long as the economy is at less than full employment.

$Y = z[I + (1\text{-}h)w_u N_F] / [z - (1\text{-}h)(w_p - w_u)]$ The unemployment insurance case

$Y = uN_f + (z\text{-}u)[I + (1\text{-}h)w_e N_f] / [z - (1\text{-}h)(w_p - w_e)]$ The ELR case.

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