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Minimum wages in a Post-Keynesian Perspective

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Abstract

There has long been a discussion about the employment impact of minimum wages and this discussion has recently been renewed with the introduction of an economy-wide, binding minimum wage in Germany in 2015. In traditional reasoning, based on the allocational approach of modern labour market economics, it has been suggested that the impact is clearly negative on the assumption of a competitive labour market and clearly positive on the assumption of a monopsonistic labour market. Unfortunately, both predictions conflict with the empirical findings, which do not show a clear-cut impact of significant size in any direction.

A post-Keynesian employment market, based on a different pre-analytical vision of the economy than traditional mainstream economics, is presented here. Its most likely prediction of a negligible impact is very much in line with the empirical evidence.

Key words: Post-Keynesianism, minimum wage, aggregate demand, aggregate supply

JEL codes: B50, E12, E23, J31

1. Introduction

The discussion about minimum wages is an old one[1]. The introduction of a minimum wage in Germany in 2015 added yet another chapter to that discussion[2]. While most mainstream economists – represented by the majority position within the German Council of Economic Experts (*Sachverständigenrat*) – claim that there is a negative employment effect, particularly for lower-skilled and young, inexperienced workers (see SVR 2013: 284ff.), progressive or dissenting economists – represented by the minority position within the German Council of Economic Experts – argue that a minimum wage will actually increase the quantity of employment (see SVR 2013: 289f., Bofinger 2014: 164ff.).

Both positions are based on a partial analysis of the labour market using allocational reasoning. Assuming the ordinary labour market to be characterized by perfect competition – as the mainstream position does – a minimum wage will undoubtedly have significantly negative employment effects once the minimum wage is higher than the market-clearing wage rate associated with the respective skill level[3]. This is so, because any job that does not earn its labour cost, i.e. where the (minimum) wage rate is higher than the marginal productivity of that job, will eventually be priced out of the market. And a minimum wage that is set below the market-clearing wage rate would clearly be useless. This straightforward result, based on the pre-analytical vision of the labour market being the operator of intertemporal exchange between (real) income, leisure time and postponed consumption, can only be altered without challenging that pre-analytical vision by refuting the assumption of perfect competition. Assuming a monopsonistic labour market, i.e. a labour market with one (dominant) employer, a minimum wage rate set between the profit-maximizing wage rate of the monopsonistic firm and the maximum wage rate associated with the productivity of the same quantity of employment will increase the level of employment and reduce the mark-down on wages (see, e.g., Manning 2003; Ashenfelter/Farber/Ransom 2010).

Both models present clear cut and opposing predictions about the impact of minimum wage rates on employment and it should, therefore, be easy to evaluate these theories empirically: As there are many countries with long histories of minimum wage legislation (Neumark/Wascher 2008: 9ff., ILO 2014), we should be in a position to falsify either of the two models or, rather, the assumptions on which they rest. Alas, meta-studies on the minimum wage (see, e.g., Doucouliagos/Stanley 2009; Wolfson/Belman 2014) paint a perplexing picture: "Economists have conducted hundreds of studies of the employment impact of the minimum wage. Summarizing those studies is a daunting task, but two recent meta-studies analyzing the research conducted since the early 1990s concludes that the minimum wage has little or no discernible effect on the employment prospects of low-wage workers" (Schmitt 2013: 22).

There are two possible ways to tackle the question of why this is the case. (1) Remaining within the traditional pre-analytic vision (i.e. accepting the ontological dimensions of the mainstream paradigm), one has to find "channels of adjustment" that

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[1] For an overview, see Neumark/Salas/Wascher (2014).

[2] See e.g. Heitger 2003, Franz 2007, Bauer/Kluve/Schaffner/Schmidt 2009, Paloyo/Schaffner/Schmidt 2013.

[3] Most simulation studies for Germany predicted a loss of more than one million jobs (i.e. about 3% of total employment!) if the current minimum wage of 8,50€ was introduced (see, e.g., Schuster 2013: 33).

could stop managers from firing workers as would be expected by the ordinary competitive market model (see Hirsch/Kaufman/Zelenska 2011: 1; Schmitt 2013: 11ff.): increasing productivity via training or lower labour-turnover or reducing the effect of nominal minimum wages on real minimum wages by allowing the cost to be passed on in the form of price increases. Of course, one could also assume that real world labour markets may be partly competitive (in some regions) and partly monopsonistic (in other regions): Depending on the employment shares of both market structures, this would cancel out positive and negative employment effects. (2) If one turns to a different pre-analytical vision – which would mean a truly heterodox approach[4] – then a different prediction about the impact of minimum wages on employment becomes possible: one which is better in line with the empirical picture.

This is exactly what the present paper attempts to provide. Taking the empirical evidence as a strong disincentive to accepting the traditional reasoning, we will provide a model of a post-Keynesian 'employment market' that not only suggests a macroeconomic frame, but is based on a pre-analytic vision of the economy as a system of nominal obligations (part 2)[5]. This general model needs to be restructured in such a way as to portray the effect of minimum wages on employment. As the effect of minimum wages is to hamper wage dispersion, or even to shrink the lower bound thereof, in order to avoid 'unfair' wages (or, morally speaking, 'exploitation') for that part of the labour force that is no longer covered by collective agreements (see Bachmann et al. 2008: 28ff.), we can rely on a two-sector model created to discuss the employment effects of growing wage dispersion (part 3). Finally, we need to judge the likely effect of minimum wages on employment under alternative assumptions regarding the parameters involved (part 4).

2.   A Post-Keynesian Model of the Employment Market

Post-Keynesianism is a portmanteau term for a variety of quite different heterodox approaches. By relying closely on the ideas presented in Chap. 2 of Keynes' *magnum opus*, fundamentalist or monetary Keynesianism appears to have elaborated the most highly-visible approach to providing an alternative to the ordinary labour market of the neoclassical mainstream (see e.g. Weintraub 1957, Davidson/Smolensky 1964, Davidson 1994, Kregel 1984/85)[6]. Monetary Keynesianism does not only forcefully reject Walras' law as (positive or negative) heuristic (see Heise 2017), it also provides a

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[4] For a theoretical deduction of heterodox economics, see Heise/Thieme (2016: 1107ff.).

[5] To my knowledge, there are only three post-Keynesian studies on minimum wages, of which one is not in English (Seccareccia 1991) and the other two rather broad in nature (Herr/Kazandziska/Mahnkopf-Praprotnik 2009; Herr/Kazandziska 2011).

[6] Of course, ever since Franco Modigliani's extension of Hicks' ISLM interpretation of Keynes' *General Theory* (see Modigliani 1944), the labour market and employment determinantion have played a significant role in those economic approaches that are termed 'Keynesian'. However, to my knowledge, other than monetary Keynesianism, there is no other post-Keynesian approach that attempts explicitly to reject traditional labour market reasoning and to take seriously Keynes' claim that the real wage is no exogenous control or distributive device, but is endogenously determined *pari passu* with the quantity of employment. Therefore, Lavoie's approach (Lavoie 2014: 280ff.) is not followed here which – based on the conception of market rationing – rejects the idea of a 'well-behaved' uniquely negative employment-real wage relation with respect to effective as opposed to notional demand configurations. His intention is to introduce functional (not personal!) income distribution into employment determination but not to reject traditional real wage modelling altogether.

microeconomically-based, yet macroeconomically-embedded employment determination that turns the quantity-price nexus of mainstream labour markets upside down. It is not the real wage rate that causally governs labour supply and demand until equilibrium is reached at the full employment level; but rather the quantity of labour demanded and supplied (at the level where real wage and profit expectations are fulfilled and, therefore, a stable position beyond the market-clearing point is reached) is determined endogenously and simultaneously with the real wage rate[7]. The employment market[8], as will be developed below, cannot, therefore, be considered by way of a partial analysis, independently of its macro-economic environment. We will, thus, have first to outline a post-Keynesian macro model, before we concentrate – but always keeping the macro-economic links in mind – on the employment market.

The stylised post-Keynesian model presented here is an elaboration of Setterfield (2006), Heise (2008) and Pusch/Heise (2010). It comprises 10 structural, behavioural and definitional equations. The structural equations depict the post-Keynesian core of the model. The behavioural equations refer to empirically-based descriptions of behaviour of macroeconomic actors (e.g. the policy of the Central Bank) that might be subject to change and, in any case, does not affect the paradigmatic core. We start with the demand equation:

$$D_t = \alpha(\bar{w}, I_t, \bar{m}, \bar{G}, L_t),\tag{1}$$

where D is the value of aggregate demand, which evolves as a function of (given) nominal wages $\bar{w}$, nominal private investment outlays I, the (given) investment multiplier $\bar{m}$, (given) governmental spending $\bar{G}$, and labour employed L.

The supply relation is:

$$Z_t = \beta(\bar{w}, \bar{T}, L_t).\tag{2}$$

Z is the value of aggregate supply. $\bar{T}$ denotes (given) technology. The next equation is an equilibrium condition:

$$D_t \equiv Z_t.\tag{3}$$

The price level p depends on the nominal (given) wage rate $\bar{w}$, given technology and a given mark-up $\bar{\pi}$:

$$p_t = \gamma(\bar{w}, \bar{T}, \bar{\pi}).\tag{4}$$

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[7] „…, and the volume of employment is uniquely related to a given level of real wages – not the other way round" (Keynes 1936: 30).

[8] Throughout this paper, I will call the virtual place of employment determination from a post-Keynesian perspective the 'employment market', in order to distinguish it from the ordinary 'labour market' of neoclassical provenance.

The model also includes an equation for the output gap:

$$Y_t^{gap} = Y_t - Y_{Trend}, \tag{5}$$

where Y is real income and Y_{Trend} is (given) trend income. Real income

$$Y_t = \theta(\overline{K}, L_t, \overline{T}) \tag{6}$$

is dependent on production factors and technology. L is the level of employment determined by eq. (3), K is the (given) stock of real capital. The next equation describes nominal private investment outlays:

$$I_t = \lambda(i_t, \overline{E}) \tag{7}$$

which depend on a (given) schedule of expected profit rates $\overline{E}$ and the long-term interest rate i. The latter is determined by the following equation:

$$i_t = \mu(i_t^{CB}, \overline{L}P). \tag{8}$$

Here the Central Bank's instrument variable i_t^{CB} comes in to play, as does the (given) schedule of liquidity preferences $\overline{L}P$.

Lastly, we provide a behavioural equation for the CB's interest rate:

$$i_t^{CB} = \phi(p_t^{gap}, Y_t^{gap}) \tag{9}$$

which depends on the price gap p^{gap} and the output gap. The price gap is defined by

$$p_t^{gap} = p_t - p^*, \tag{10}$$

where p stands for the actual price level and p^* is the (given) targeted price level[9].

The model comprises an aggregate demand-aggregate supply section (eq. 1–3) determining the equilibrium employment level, an ordinary production function (eq. 6), mark-up pricing (eq. 4), a (Taylor-rule) monetary reaction function (eq. 9–10 and 5) portraying the money and credit market and endogenously (and only implictly) determining the quantity of money, and a Keynesian investment function (eq. 7). The model is distinctly post-Keynesian in nature inasmuch as: the employment level depends on the propensity to consume, the incentive to invest, the nature of long-term expectations, and liquidity preference considerations (see Keynes (1936: 250); money is endogenously created; and nominal investment outlays ("finance") generate the nominal obligations on which a monetary economy is based.

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[9] Typically, eq. (4) and eq. (10) are expressed in terms of rates of change (i.e. inflation rates and rates of change of wages). For the sake of simplicity, levels (i.e. price levels and wage rates) are used here.

The post-Keynesian employment market is depicted by the aggregate demand – aggregate supply section (eq. 1 – 3) and has first been elaborated by the late Sidney Weintraub (1957). As shown in fig. 1, overall employment is determined by the intersection of the aggregate demand curve D and the aggregate supply curve Z. The D-curve is the aggregation of firms' expectations about nominal revenues taking the nominal wage rate as given. The Z-curve is the aggregation of firms' nominal costs associated with a certain level of employment, the given nominal wage rate, technology, and fixed capital stock. The resultant quantity of employment in the overall economy is thus the number of jobs made available by employers under profit maximization principles in a world of fundamental uncertainty.

Fig. 1: Employment determination in a Z-D-model

$$Z_t = \beta(\bar{w}, \bar{T}, L_t).$$

$$D_t = \alpha(\bar{w}, I_t, \bar{m}, \bar{G}, L_t)$$

Nominal revenues; nominal costs

L* Quantity of employment
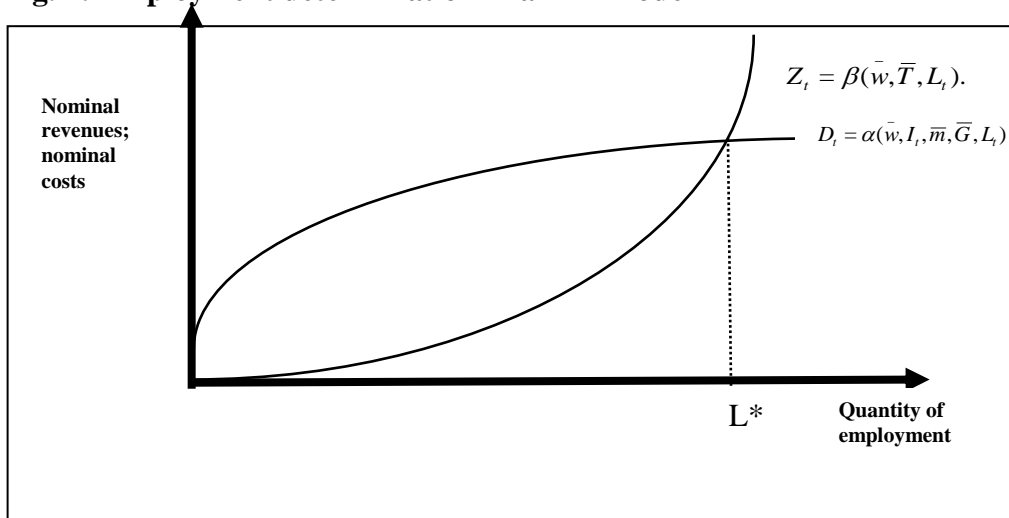
Whether L* equals the quantity of employment supplied by households at the ruling wage rate, surpasses it or falls short of it, cannot be predicted with accuracy – in economic history, we have experienced all three constellations[10]. What can be said with some certainty is that a mature economy with a large capital stock (i.e. low marginal efficiency of capital), high income and saturation level (i.e. low marginal propensity to consume), and high labour market participation rates for both men and women will be far less likely to secure full employment than an economy with lower capital stock (i.e. higher marginal efficiency of capital), lower income and saturation levels (i.e. higher marginal propensity to consume), and lower labour market participation rates. What can also be said is that any disequilibrium between supply and demand of employment cannot easily be cured by curtailing wage aspirations (see e.g. Davidson 1994: 179ff.), as the nominal wage rate (which is the appropriate controlable variable) enters equally into both aggregate demand and supply functions – graphically acting as a shift parameter that leaves the intersection of the curves unaltered with respect to the quantity of employment[11]. Therefore, Keynes and post-Keynesians favour(ed) a wage regime

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[10] Post-war (West) German economic history, for instance, showed a period of ,excess employment' up until the early 1970s (when migrant labour was invited into Germany to close the gap), ,full employment' until the first oil crisis in the mid-1970s and unemployment ever since.

[11] This result rests on two assumptions: (1) a closed economy; and (2) endogenous money. Of course, the assumption of a closed economy is not very realistic. But the introduction of external economic relations does not necessarily produce a different result (this depends on the exchange rate system) or would imply a beggar-thy-neighbour strategy. The second assumption is, of course, a basic post-Keynesian assumption, which undermines the likelihood of positive real-balance effects in favour of

that is able to introduce some downward rigidity as an institutional device for safeguarding the stability of the economic system[12].

It is necessary to point out at this stage that a labour market in which supply and demand for labour is equilibrated by real wage movements does not exist in any operative way (see, e.g., Lucas 1981: 242; Darity/Horn 1988: 220; Heise 2017). Real wages can neither be determined exogenously by the parties to collective bargaining nor by individual actors, but will be determined in line with employment and the price-level once the nominal wage rate is set and the production technology is given. Taking the common features of a 'well-behaved' production function for granted (eq. 6), higher employment is *ceteris paribus* associated with a lower real wage rate. But this correlation cannot be turned into a causality running from lower real wages to higher employment.

3. A Sectoral Refinement

In order to discuss the effect of minimum wages on employment, we need to portray a two-sector model of the post-Keynesian employment market (see Heise 1998; Heise 1999): sector A comprises all firms that are affected by the minimum wage and sector B comprises all firms that pay wages above the minimum wage level (see fig. 2)[13].

L_A and L_B denote the quantities of employment in sector A and B respectively[14]; u depicts unemployment. What we are interested in is the impact of an increase in the nominal wage rate in sector A up to the level of a fixed minimum wage rate, while the wage rate in sector B stays unchanged. As elaborated in Heise (1998: 254ff.), the sectoral employment effect of a change in the sectoral wage rate depends on the relative weight of the 'substitution effect' of relative price changes of commodities (i.e. the respective sectoral price elasticities of demand) and the 'income effect' of (wage) income changes (i.e. the respective income elasticities of demand). The overall employment effect can be summarized as follows[15]:

$$N° = k\,(\eta_{A,A} + \eta_{B,A} - \varepsilon_A - 1)\,w_A° + (1 - k)\,(\eta_{B,B} + \eta_{A,B} - \varepsilon_B - 1)\,w_B° \qquad (11)$$

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negative real-balance effects in case of a severe deflationary process.

[12] "In the light of these considerations I am now of the opinion that the maintenance of a stable general level of money-wages is, on the balance of considerations, the most advisable policy for a closed system; …" (Keynes 1936: 270).

[13] Of course, sector A will comprise firms from many different industrial sectors and branches. In Germany, most firms with most of the employees that will be affected by the minimum wage legislation are from branches such as agriculture, forestry and fishing, retail, transportation, food and beverages, and hotels and restaurants (see Bellmann et al. 2015).

[14] In different studies (see Knabe/Schöb/Thum 2014; Brenke/Müller 2013; Falck et al 2013; Heumer/Lesch/Schröder 2013; Kalina/Weinkopf 2013), the percentage of employees affected by the minimum wage in Germany, i.e. L_A, ranges between 14% - 20% of total employment.

[15] Specifying eq. 1 and eq. 2 and assuming, for the sake of simplicity, that only wage earners consume and no governmental spending, we get: $Z_i = (\pi_i/\omega_i)\,w_i\,N_i$ and $D_i = c_{i,i}\,w_i\,N_i + c_{j,i}\,w_j\,N_j + I_i$ with π_i = average labour productivity in sector i and ω_i = marginal labour productivity in sector i; w_i = nominal wage rate in sector i and N_i = empoyment in sector i; $c_{i,j}$ = marginal propensity to consume commodities from sector j of wage earners from sector i and I_i = (autonomous) investment spending on commodities of sector i. Now, the rate of change of employment with respect the rate of change of the nominal wage rate depends on the relative rate of change of the D- and Z-functions: $N_i° \mid w_i° = c_{i,i}°\,N_i° - (\pi_i° - \omega_i°)$. Defining $c_{i,i}° = \eta_{i,i}$; $\pi_i° - \omega_i° = \varepsilon_i$ and k = share of employment in sector i (and, respectively, (1-k) as employment share of sector j), we get: $N° = k\,(\eta_{i,i} + \eta_{j,i} - \varepsilon_i - 1)\,w_i° + (1 - k)\,(\eta_{j,j} + \eta_{i,j} - \varepsilon_j - 1)\,w_j°$.

(ε_i = *absolute value of the own price-elasticity of demand for commodities of sector i;* $\eta_{i,j}$ = *income-elasticity of demand of wage earners of sector j for commodities of sector I;k = employment share of sector A;* ° *denotes the rate of growth [percentage change] of a variable*)

Figure 2: A Post Keynesian 2-sector-model of the employment market
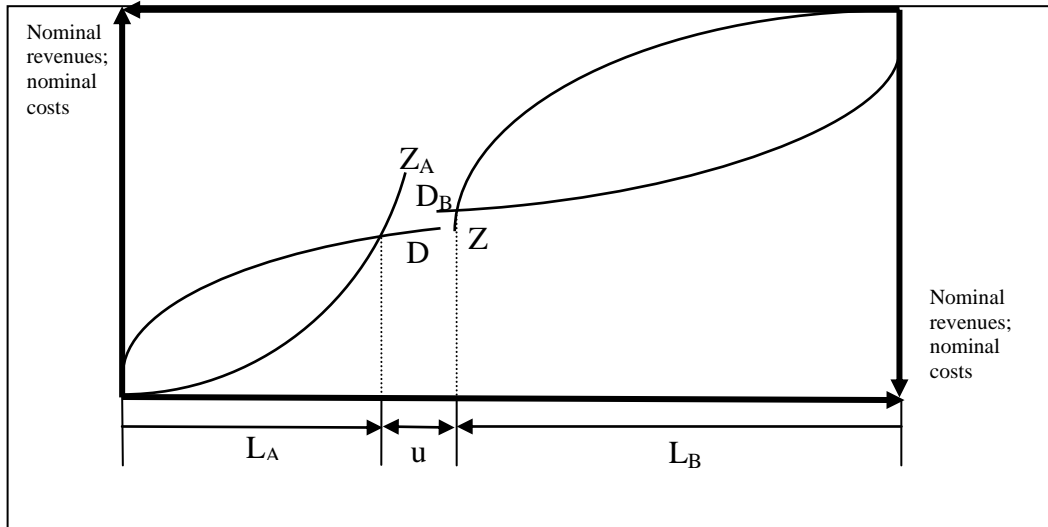
Assuming the absence of 'money illusion', an increase of nominal wages in both sectors at the same rate will cause prices to increase accordingly (eq. 4) and − relative prices being unaltered – the quantity of employment will not be affected: i.e. $N° = 0$ as long as the price increase does not trigger a contractionary monetary reaction by the central bank (eq. 10).

But what is the outcome if wages increase in one sector only? Let us assume the introduction of a fixed, binding minimum wage for all branches, resulting in an increase of the nominal wage rate in sector A by x%, while the nominal wage rate in sector B stays unchanged:

$$w_A° = x$$

$$w_B° = 0$$

Disregarding cross-price elasticities of demand and any possible reaction from the central bank, the employment effect will be[16]:

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[16] Herr/Kazandziska/Mahnkopf-Praprotnik (2009: 12) come to the following conclusion with respect to employment effects of minimum wages in a post-Keynesian approach: „…:minimum wages will change the structure of wages, the structure of prices, the structure of demand for final products and the structure of demand for inputs. How employment is affected is theoretically open and extremely difficult to predict empirically." If 'theoretically open' is to mean that there may be different post-Keynesian model specifications with potentially different results, the statement is correct but also somewhat trivial. And whether the effects are 'extremely difficult to predict' depends on the specific model specification − formal specifications as opposed to narrative approaches, at least, offer the charme to make prediction rather easy. Whether such predictions can easily be falsified empirically, is

$$N_A° = k (\eta_{A,A} − \varepsilon_A − 1) w_A° + (1 - k) \eta_{A,B} w_B° \qquad (12)$$

$$\Rightarrow \qquad N_A° \mid w_A° = k (\eta_{A,A} − \varepsilon_A − 1) x \qquad (12a)$$

$$N_B° = (1 − k) (\eta_{B,B} − \varepsilon_B − 1) w_B° + k \eta_{B,A} w_A° \qquad (13)$$

$$\Rightarrow \qquad N_B° \mid w_A° = k \eta_{B,A} x \qquad (13a)$$

$$N° \mid w_A° = k (\eta_{A,A} + \eta_{B,A} − \varepsilon_A − 1) x \qquad (14)$$

The 'substitution effect' is given by the magnitude of the price-elasticity of demand for those commodities produced by workers affected by the minimum wage legislation, ε_A; the 'income effect' is determined by the income elasticities of demand of those workers affected by the minimum wage for commodities from sector A, $\eta_{A,A}$, and for commodities from sector B, $\eta_{B,A}$ (see eq. 14). From eq. 12a and eq. 13a, the respective sectoral impacts of the introduction of a minimum wage in sector A can be specified. Obviously, they will be of different magnitude and they might also be of different sign: While sector B might gain from minimum wages in sector A (income effect), sector A itself will have to weigh the positive income effect against the negative substitution effect. Most likely, the employment impact in sector B will be positive, while it will be negative in sector A (see Fig. 3).

Figure 3: A Post Keynesian employment market with minimum wage
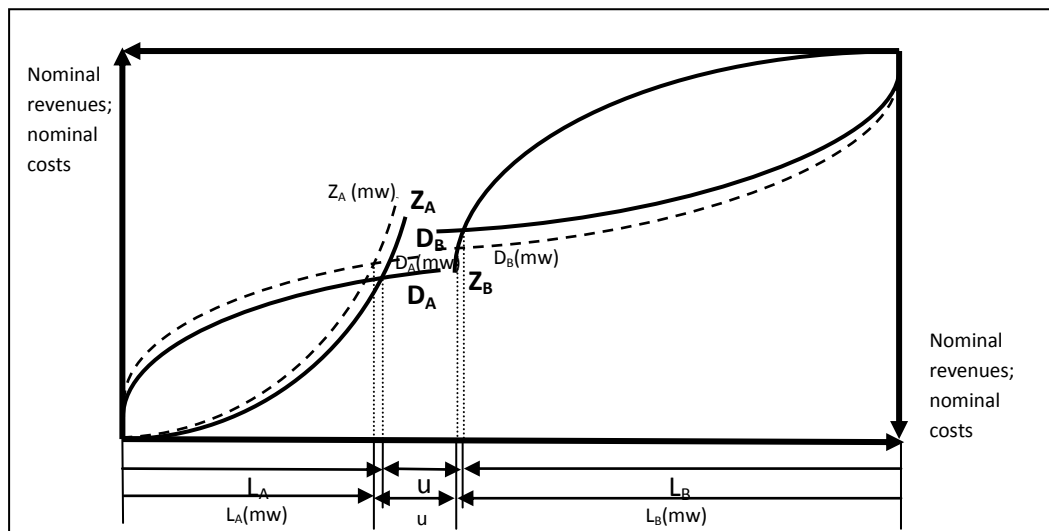
Note: mw denotes the respective function or variable after the introduction of a minimum wage

4. Discussion

From chapter 19 of the *General Theory*, we can infer that Keynes was rather skeptical about the positive effect of wage reductions on employment outcomes. Contrary to

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yet another question and depends on the testability of the theoretical predictors. But, maybe, that is what they meant by 'extremely difficult to predict empirically'.

neoclassical labour market theory[17], Keynes argued that both moderate wage reductions and moderate wage increases, which result in neither massive deflationary nor massive inflationary pressure, will affect the price level, but not the total quantity of employment (see Keynes 1936: 267). It is only once wage changes trigger a contractionary monetary reaction or markedly increase the real burden of nominal obligations that negative employment effects are likely to occur.

Keynes, however, assumed a single nominal wage rate for all firms (by transforming different types of labour into 'ordinary labour') and thus concentrated on change in the general wage level, while ignoring the possible effects of a change in the wage structure. In order to shift our attention to precisely this object of inquiry, we had to refine the simple post-Keynesian employment market model by introducing two different sectors, A and B, in which the nominal wage rates w_A and w_B differ and may change in different ways. As we have seen, the sectoral, as well as total, employment effect of a change in the wage structure due to the introduction of a general, binding minimum wage depends on the respective magnitudes of the income- and price-elasticities of demand.

In order to predict the effect of a minimum wage in sector A, we would have to estimate the price-elasticity of demand for those commodities affected by the introduction of a minimum wage and the income-elasticities of demand of the wage-earners of sector A. This, alas, poses serious problems[18]. While the income-elasticities of wage-earners affected by a minimum wage can be reasonably assumed to be quite high (i.e. around the magnitude of 1), the price-elasticities of demand for those commodities affected by the minimum wage may vary considerably as they are very different (see footnote 13). Tab. 1 summarises a number of parameter constellations that are possible, but not all equally likely.

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[17] Pigou's *Theory of Unemployment* (Pigou 1933) which Keynes explicitly critisized in his *General Theory*, can still be seen as the foundation of modern labour market theory.

[18] Taking with Keynes (1939; 1940) a rather skeptical approach to econometric methods, I refrain from own statistical interferences but rather rely on judging the likelihood of parameters..

Tab. 1: Employment impact of minimum wages under different parameter constellations

Price- and income elasticities of demand	Employment impact			Likelihood
	Total	Sector A	Sector B	
$\eta_{A,A} = 1$; $\eta_{B,A} = 1$				
a) $/\varepsilon_A/ = 1$	°	-	+	High
b) $/\varepsilon_A/ > 1$	-	--	+	Medium
c) $/\varepsilon_A/ < 1$	+	+°	+	Low
$\eta_{A,A} < 1$; $\eta_{B,A} < 1$				
d) $/\varepsilon_A/ = 1$	-	-	+	Medium – high
e) $/\varepsilon_A/ > 1$	--	--	+	Low – medium
f) $/\varepsilon_A/ < 1$	°-	-	+	Low

Note: ° no effect; °- very small negative effect, - small negative effect, -- large negative effect,   +° very small positive effect, + small positive effect

As already noted, it appears rather likely that the income-elasticity of low income earners – i.e. those that are affected by the minimum wage – is close to unity[19]. But it cannot completely be ruled out that it may be considerably lower than unity, if, for instance, minimum wage earners are beneficiaries of supplemental transfer income ('*Aufstocker*') or secondary wage earners ('*Zuverdiener*')[20]. And the price-elasticity of commodities of sector A can only be estimated from empirical research: Meta-studies on price-elasticities (Tellis 1988, Maurer 1995) show an enormous variation ranging from -10 to +2. According to these studies, the average price-elasticity is about –1,8.

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[19] Dynan/Skinner/Zeldes (2004: 416) calculate savings ratios of the lowest income quintile between -22% and +9% depending on different income definitions. With such low savings ratios, the income elasticity proves to be close to unity (or even above).

[20] Knabe/Schöb/Thum (2014: 147ff.) estimate that about 10% of all employees affected by a minimum wage in Germany are recipients of supplemental transfer income ('*Aufstocker*').

Taking into consideration a reporting bias[21] and the fact that these empirical elasticities are measured by way of partial analysis (i.e. assuming changes only in the relative price of the one commodity under investigation), whereas the introduction of a minimum wage will affect many commodities and thus the relative price impact on the single commodity will be lower, the assumption of (close to) unity price-elasticity appears justified, but a higher magnitude is not entirely unlikely.

A final thought shall be given to the case of a monopsonistic labour market. Although I am skeptical about the empirical relevance of such a market structure[22], the monopsonistic labour market model has received considerable attention because it appeared to be the only theoretical foundation for those who attempted to reject the glooming negative employment outcome of minimum wages as exposed by the ordinary competitive labour market model. We have presented a different approach challenging this commonly negative employment effect – however, it may be of interest to see what difference the labour market structure makes within a post-Keynesian model. And it is here that the Lavoie-model becomes a potentially useful analytical tool: The Lavoie-model (see Lavoie 2014: 280ff.) claims to be able to analyse the importance of functional income distribution for the determination of employment by introducing the distinction between notional and effective labour demand (see Fig. 4): The 'notional' demand for labour is basically portrayed by the ordinary negatively sloped labour demand curve assuming decreasing labour productivity but disregarding demand constraints from the commodity market. Such constraints are integrated into the construction of a hump-shaped 'effective' demand curve for labour assuming the demand for commodities (and, therefore, the demand for labour under the condition of a given technique and capital stock) out of consumption spending by wage-earners and (given) autonomous spending by capitalists. Assuming that wage-earners spend all their wage income, effective labour demand is primarily dependent on the autonomous spending of capitalists who earn what they spent.

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[21] "The 'file drawer hypothesis' suggests there may be many studies that are unpublished because their results are not consistent with the normal expectation of a significantly negative price elasticity. The negatively skewed distribution of elasticities…seems to support this hypothesis" (Tellis 1988: 337).

[22] There are only very few studies adressing the empirics of monopsonistic labour markets. Most of them concentrate on very narrow regional, industry-specific markets (e.g. Ransom/Sims 2010) and estimate the wage-elasticity of labour supply (e.g. Falch 2010, Staiger/Spetz/Phibbs 2010, Booth/Katic 2011). For Germany, Bachmann/Frings (2015) report, quite in line with most of these other studies, wage elasticities which appear to be low enough not to assume perfectly competitive labour markets. Moreover, they appear to be industry-specific with only a few low-wage industries (such as Hotels and Restaurants) showing wage-elasticities of a magnitude that might indicate market power for firms. In any case, a monopsony is characterized by restrictions on the demand- side of the market, not particular features on the supply-side. Therefore, it is debatable whether wage-elasticities are an appropriate measure for the monopsony-status of a certain market.

Figure 4: Notional and effective labour demand curves
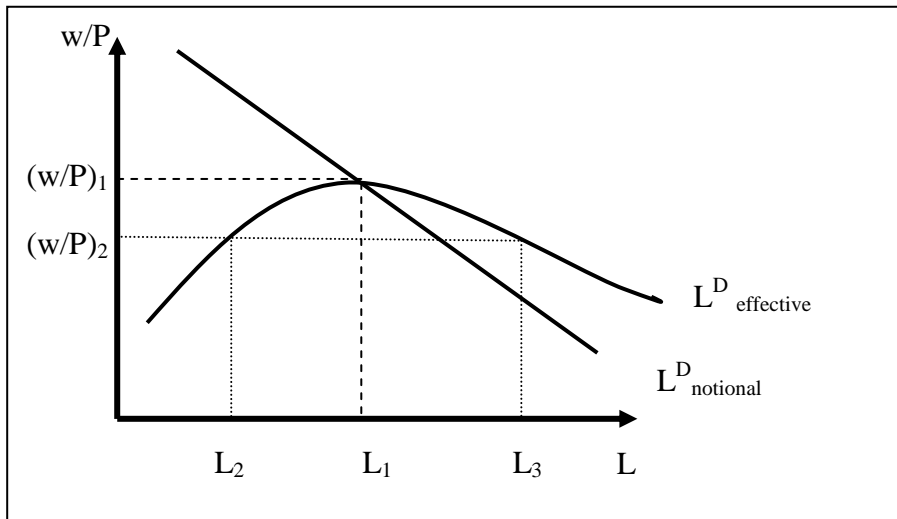
The hump-shape of the effective labour demand curve indicates the respective change of the real wage in order to maintain commodity market clearing: The effective labour demand curve reaches a local maximum at the real wage rate $(w/P)_1$, intersecting the notional labour demand curve at the employment level of L_1. This is where the real wage rate just equals (marginal) labour productivity and portrays the situation of a competitive labour market. However, if the labour market is supposed to reflect a (regional) monopsony, the idea is that the monopsonistic firm may charge a mark-down on wages, pays only $(w/P)_2$ and, thus changes functional income distribution in its own favour. *Ceteris paribus*, in order to maintain commodity market equilibrium, the monopsonistic company would either have to decrease employment to L_2 or increase it to L_3. This rather unfamiliar result originates from the fact that lower employment payed at the wage rate that equals its (marginal) labour productivity would create excess demand on the commodity market as long as autonomous capitalist spending is not reduced. And due to decreasing returns, the real wage-rate would also have to be reduced in the case when employment is increased to L_3 in order to guanrantee commodity market equilibrium.

Although employment would theoretically be indetermined in case of a change in functional income distribution, it appears more likely that L_2 will be chosen by the monopsonistic firm as the curtailment of employment demand will be the device to reduce the real wage rate to $(w/P)_2$ and the profit rate (not real profits which are constant along the effective demand curve) will be higher than in the case of L_3. What this means is that any change in functional income distribution due to monopsonistic market power on the labour market will reduce the employment level as compared to a competitive market strcuture and, hence, any increase in the real wage rate between $(w/P)_2$ and $(w/P)_1$ due to minimum wage legislation will increase employment rather than lower it. This result appears quite in line with the foregoing post-Keynesian analysis indicating that the income effect of a minimum wage overcompensates the substitution effect.

Of course, this result rests on a number of assumptions which have all been made explicit in the argumentation above, namely: a) (given) autonomous spending of the capitalists , b) the ability of the monopsonistic firm to impose a mark-down on the real wage rate and, thus, to influence functional income distribution. While the first assumption can be accepted as a partial analytical tool to isolate the labour market from

its broader macroeconomic environment, yet for a determinantion of the employment level, spending of the capitalists must certainly be endogenized as it determines the exact location of the effective demand curve. The second assumption is more serious as it appears to contradict the post-Keynesian postulate of the endogeneity of real wages (see Herr/Kazandziska/Mahnkopf-Praprotnik 2009: 8). How are monopsonistic firms able to charge a mark-down on real wages if all they can control is the nominal wage rate? Of course, if the price level P is fixed, any reduction in the nominal wage rate w − forced by a reduction in labour demand as from L_1 to L_2 − would be enough to get the assumed result[23]. But why should the price level remain unaltered, if nominal spending and nominal wage costs fall? This could only be the case if incomplete competition − on the commodity market, not the labour market − would allow for a price-setting behaviour of the firms (see eq. 4). However, on the one hand that would be an additional assumption which is entirely unrelated to the assumption of a (regional) monopsony on the labour market and, even if assumed, would allow for the charging of a mark-up on prices irrespecftive of the market structure of the labour market the firm is acting in. On the other hand, even if a regional monopsony in the labour market is assumed, any decrease in the nominal wage rate due to market power in the labour market would be passed on to prices as long as the competitive structure in the commodity market does not change − only this would make it possible to raise the mark-up and, in this way, increase the mark-down on wages. Therefore, the analysis based on the Lavoie-model explains how functional income distribution − however derived - impacts on the demand for labour, yet it does not give support to the proposition that a (regional) monopsonistic labour market has any direct influence on the real wage rate and employment level and therefore, no independent argument can be derived from this analysis that would predict an increase in employment as the result of an economy-wide, binding minimum wage.

5. Conclusion

As shown in Tab. 1, the impact of the introduction of an economy-wide, binding minimum wage on overall employment in a post-Keynesian perspective is most likely to be negligible or at least very small, provided no contractionary monetary reaction is triggered. The picture may, however, look different if single branches or the whole of sector A, comprising all industries that are affected by the minimum wage, are taken separately. This result is very much in line with the empirical findings of the above-mentioned meta-studies and appears to fit reality (with respect to deviant industry results; see e.g. Machin/Manning/Rahman 2003, König/Möller 2007) much better than either the neoclassical mainstream labour market model of perfect competition or that of monopsony.

Moreover, the labour market structure has no impact of its own on functional income distribution and − other than its possible impact on the wage structure (i.e. personal income distribution) − on the employment level. Therefore, support for minimum wages in order to institutionally assist collective bargaining systems which can no longer protect low wage earners does not have to rest on theoretical foundations which are of dubious empirical significance.

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[23] And that is obviously what Lavoie (2014: 283) has in mind when he equates an increase in nominal wages w with an increase with real wages w/P.

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