Arne Heise

Minimum wages and the resilience of neoclassical labour market economics: Some preliminary evidence from Germany

_ _ _ _ _ _ _ _ _ _ _ _ _

ZOSS
ZENTRUM FÜR ÖKONOMISCHE
UND SOZIOLOGISCHE STUDIEN

Minimum wages and the resilience of neoclassical labour market economics: Some preliminary evidence from Germany

Arne Heise

1. Introduction

Although the discussion about what heterodox economics is has yet to be settled (see e.g. Mearman 2012; Mearman/Berger/Guizzo 2019), it appears safe to say that all non-mainstream approaches are united in their rejection of neoclassical economics, addressing unemployment as a failure of real-wage-driven labour markets to clear at the equilibrium wage rate determined by marginal productivity and marginal utility. In this theoretical exposition, unfettered labour markets will always show a tendency towards market clearing – excluding involuntary unemployment as a substantial phenomenon beyond temporary (cyclical) disequilibrium or frictional occurrence. The existence of long-term mass unemployment in all highly developed capitalist economies over most periods of their recent history, i.e. the obvious divergence of theoretical *ex ante* predictions from real-world experience, can be considered one of the very driving forces behind the establishment of alternative theories: according to Thomas S. Kuhn (1962), the failure to pass the empirical test of theoretical prediction classified as an 'anomaly' can trigger scientific revolutions in the sense that, eventually, new theoretical approaches – paradigms – will take over[1] once they provide theoretical solutions that better explain (*ex post*) what was formerly an 'anomaly'. The publication of Kuhn's *Structure of Scientific Revolutions* in the early 1960s reinforced the motivation of many heterodox economists[2] to be part of such a revolution in their academic field.

Although Kuhn cannot be blamed for being overly naive about the willingness of protagonists of a 'paradigm in crisis' to defend it by refining or marginally correcting it, his focus was on change, not continuity. Therefore, he might have underestimated or, at least under-emphasised the resilience of a paradigm – particularly in the social sciences, where the famous 'Duhem-Quine' critique points to the impossibility of an outright empirical falsification of entire paradigms. Merely single causal statements can be rejected on empirical grounds demanding, at least, some defending 'repair work' in the underlying structures (assumptions) of the paradigm. With respect to neoclassical labour market theory, myriads of attempts have been made to reconcile *ex post* theoretical prediction with empirical evidence. Assumptions have been rectified in order to render the simple supply-and-demand model of the labour market more realistic: skipping the assumption of perfect competition, for instance, allows the deviation of the

---

[1] Sheila Dow (in: Merman/Berger/Guizzo 2019: 28) nicely points out the fact that scientific ‚revolutions' should not be understood as immediate, sudden and dramatic break but rather a generational shift of paradigms „that if you look at a discipline or a school of thought of one point in time and than look at it, say, two decades later, understandings, meanings, frameworks may have changed completely".

[2] Although the term ‚heterodox economist' had obviously been used as early as the 1930s (see Ayres 1936), it fell into disuse thereafter for a long time. Therefore, economists dissatisfied with neoclassical economics in the early 1960s would not have referred to themselves as ‚heterodox economists'.

real wage from its market-clearing level to be explained as rational maximisation behaviour in monopolies, 'right-to-manage' or 'insider–outsider' models. Lifting the assumption of perfect knowledge paves the way for 'incomplete contract' models that give rise to the emergence of efficiency wages above the market-clearing level in order to prevent the workers from shirking. Finally, introducing transaction cost (e.g. mobility or information cost) enables economists to produce 'job search' models that explain 'equilibrium' unemployment, where unemployment co-exists with vacancies of equal magnitude. Although some of these revisions of the simple labour market model appear somewhat artificial, they have served its purpose: to reconcile theoretical prediction (*ex post*) with empirical reality.[3]

2. Change and continuity: minimum wages, predictions from neoclassical labour market theory and empirical reality

Having survived the real-world test of long-term unemployment, neoclassical labour market theory came under severe pressure after its theoretical (*ex ante*) prediction of the employment effects of the introduction of minimum wages was entirely nullified by empirical research:

> *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)

It has been argued that minimum wage research has put neoclassical labour market theorizing in a rather awkward position (see Heise 2019): for a theoretical approach which either postulates clear and substantial negative employment effects of minimum wages (competitive model) or clear and substantial positive employment effects (monopsonistic model), these empirical findings – which are entirely replicated by the concomitant minimum wage research on the recent introduction of a statutory, economy-wide minimum wage in Germany in 2015[4] – can be seen as falsification in the worst case or, at least, as yet another severe 'anomaly'[5] of neoclassical labour market theory demanding further re-consideration of its theoretical basis.

---

[3] This is, of course, not to say that these models correctly explain the real-world phenomenon of 'unemployment', but only that the existence of unemployment does not objectively falsify neoclassical labour market theory. 'Non-falsification' does not mean 'proof'.

[4] See the evaluation of the German Minimum Wage Commission, which was established in order to accompany the introduction of the minimum wage in Germany by conducting research on its own and commissioning and collecting concomitant minimum wage research: e.g. Zilius/Bruttel 2018.

[5] The literature on monopsonistic labour markets has been put forward in order to cope with the 'anomaly' of minimum wages having no discernible effect on employment. The idea was to show that minimum wages must not necessarily – as in the competitive model – produce negative effects. But the prediction of the monopsonistic model is one not of a neutral employment effect but rather

In order to better understand and rate the efforts of labour market economists faced with the situation at hand, it appears helpful – particularly given the historical resilience of neoclassical labour market research noted above – to rely not on the theorist of change, Thomas Samuel Kuhn, but rather on the theorist of scientific resilience: the Polish bacteriologist and sociologist of science Ludwik Fleck. According to Fleck (1979), there are three potential paths[6] for dealing with anomalies such as that facing neoclassical labour market theorizing: the most common would probably be to supplement the existing theoretical body in order to reconcile theoretical prediction with empirical evidence (*thought style supplementation*). Bruttel/Baumann/Dütsch (2019) hint at such a strategy when they mention other 'channels of adaptation' to minimum wages than quantity (employment) adjustments: (1) an increase in labour productivity to keep higher (minimum) wages profitable; (2) a reduction in working hours to keep employment constant at lower activity level and (3) an increase in prices to keep real wages unaltered. Yet neither theoretical reflection nor empirical investigation support this kind of defence: (1) theoretically, the productivity increase appears to be something of a *deus ex machina*, since any such productivity reserve should have been teased out of the production process by competition anyway without necessitating minimum wages as a trigger. Moreover, empirical studies show no increase in productivity due to the introduction of a minimum wage in Germany after 2015 (see Bossler/Gürtzgen/Lochner et al. 2018) or elsewhere (Sabia 2015). (2) Reducing working hours could potentially overcome the anomaly in question when it is not the number of jobs (employment) but the number of hours that is reduced as a consequence of the increase in the hourly real wage rate. And, although there is reported evidence

---

of employment effects depending on the level of the minimum wage: a minimum wage only slightly higher than the wage rate set monopsonistically will produce significant positive employment effects. A minimum wage much higher than the monopsonistically set wage rate will produce substantial negative effects, and only a very specific wage rate that is not too high and not too low will produce neutral employment effects. That is to say, in order to explain the manifest empirical result of a neutral employment effect, either the minimum wage must just be set at a very specific level if we assume monopsonistic labour markets to be the rule or an even more specific level if we assume labour markets to be competitive in some sectors and monopsonistic in others. In that case, the minimum wage must just reach a level at which the positive employment effects of the monopsonistic labour markets compensate the negative employment effects of the competitive labour markets. Assuming 'monopsonistic' labour markets merely to mean not a single employer in the literal sense of the word 'mono' but a low wage-elasticity of labour supply giving employers a limited amount of wage-setting power ('quasi-monopsony') and assuming that elasticities will be different in every quasi-monopsonistic sector (see e.g. Bachmann/Frings 2015 for Germany), the specificity of a minimum wage exclusively producing neutral employment effects must be even higher. The likelihood that any minimum wage has ever just met these specificities cannot be rated as high; the likelihood that the minimum wages around the globe have all been set just at that specific level is surely close to zero.

[6] There is one more path which will not be considered here, as it appears to be the most stubborn, least constructive approach: denying the empirical invalidation of the theoretical prediction (in the case of Germany, this approach is taken by Knabe/Schöb/Thum2020).

that companies reduced the contracted working hours of low-paid workers after the introduction of minimum wages in Germany, there is no evidence of a reduction in the actual performed hourly volume of labour in the economy after the introduction of minimum wages in 2015. (3) Of course, if the increase in hourly wages could simply be rolled over into prices, the real (hourly) wage would remain constant and no quantity adjustment would need to follow. And although there is evidence that this is what we have actually experienced in Germany, this is hardly reconcilable with neoclassical labour market theory: here, companies are modelled as 'price takers' and 'quantity adjusters'. The price of each good is determined in the commodity market under given conditions of supply and demand. If the commodity market is taken as perfectly competitive, no single company can set the price. If the commodity market is taken as imperfect, the price will be set at a level above marginal productivity, including a mark up reflecting the degree of market imperfection. After all, as long as the commodity market's structure does not change, there is no way companies could simply increase commodity prices without inhibiting profit maximisation.[7]

To summarise, we are inclined to follow Ludwik Fleck (1979:27), who anticipated such 'repair work' on the paradigm and would have considered it to be merely "laborious efforts (...) to explain an exception" in order to stabilise and defend a 'paradigm in crisis'.

A much deeper cut could be expected from a paradigmatic shift in approaching the problem at hand (*thought style transformation*), such as taking a heterodox perspective (see e.g. Heise 2018; Heise/Pusch 2019; Herr/Kazandziska 2011) radically challenging conventional wisdom ('the mainstream' or 'standard economics') and thus potentially triggering a scientific revolution in the Kuhnian sense. However, assuming, to cite Ludwik Fleck, strong '*thought style compulsion*', this approach will be considered very risky by most economists and only serve as a last resort after other, more thought style-compatible approaches have been pursued.[8]

Hence a third avenue may be taken: extending the 'simple' model in order to match it closer with reality (*thought style extension*).[9]

---

[7] Alan B. Krueger (2018: 267) points out that in the 'real world' most companies act within imperfect markets and should rather be taken as price-setters; however, he refers to labour, not commodity markets and thus 'price-setters' means 'wage-setters' in this context. If the power of setting wages is restricted by minimum wage legislation, this does not simply translate into higher power to set prices in the commodity market.

[8] Interestingly, the literature evaluating employment forecasts of minimum wages mentions these heterodox studies only in passing and entirely neglects them when drawing conclusions from their evaluations; see e.g. Bruttel/Baumann/Dütsch 2019.

[9] The idea of basing a model on labour market imperfections – i.e. the monopsonistic labour market model exposed in footnote 5 – must also be included in the type of scientific reaction dubbed '*thought style extension*'. However, for the reasons given in footnote 5, it cannot really be considered a successful extension convincingly reconciling theoretical prediction with empirical evidence, but is

3. A labour market model including frictions – a useful extension for rescuing neoclassical labour market economics?

In a recent paper, Braun/Döhrn/Krause et al. appear to have set themselves exactly this kind of task when they state:

> *There is […] a consensus among labor economists that these neoclassic models are an overly simplistic representation of the economy.* (Braun/Döhrn/Krause et al. 2019: 3)

In a very stylized, yet thorough way, Braun/Döhrn/Krause et al. (2019) extend the 'simple' neoclassical model of the labour market into a complex two-sector model allowing searches and matching frictions. The gist of the extension can be summarised as follows: the level of actual employment is not only determined by real wage-driven labour supply and demand, but also by job searches, vacancy creation and corresponding activities.

In this setting (see fig 1.), employment depends not solely on aspects of productivity and utility (L_D and L_S as in the simple model), but also on a complex interaction between job searches and corresponding activities by the labour market actors (effective job contracts L_e) explaining vacancy creation, separation and finding rates. As a result, even when the wage rate happens to be at the market-clearing level ($(w/P)^*$), the actual number of job contracts effectively closed at any time (L_1) will be lower than at the potential full employment level (L^*), leaving some job seekers unemployed alongside the same number of vacancies at the company level (L^*-L_1). This type of frictional unemployment – which will always occur when we assume imperfect information about the characteristics and distribution of jobs and job seekers in the labour market[10] – is entirely compatible with the 'Beveridge definition' of full employment.[11]

If we assume the job search and vacancy creation activities to be positively correlated with the real wage rate[12] and the real wage rate to be negatively correlated with labour

---

rather seen as being merely a variant of the ordinary model. For instance, Knabe/Schöb/Thum (2014) – in an influential study for opponents of the introduction of a minimum wage in Germany – based their predictions on both variants: assuming a competitive labour market environment in Germany, they predicted job losse of around 900,000 (or about 2.5% of the German work force), while in a monopsonistic setting, the predicted job loss would still be substantial but clearly lower: about 420,000 (or 1.2% of the German work force).

[10] This is not at all new to labour economics (see Reder 1969), but has not been related to the minimum wage literature before.

[11] According to William Beveridge (1945: 18), a situation of full employment is reached whenever the number of unemployed workers is matched with the number of vacancies available.

[12] Job search and vacancy creation combine to determine effective job contracting. A rise in the real wage rate will increase opportunity cost of unemployment and therefore positively relate the real wage rate with workers' job search activities, while it may increase opportunity cost of vacancies and therefore negatively relate the real wage rate with vacancy creation by firms.

demand (or job offers), it is unclear how many job contracts become effective – and thus how many workers are without a job. Likewise, the effect of introducing a minimum wage exceeding its equilibrium level ($(w/P)_1$) also remains uncertain[13]: real-wage-related employment offers will fall (L_3 and 'classical' unemployment will rise to $L_4–L_3$), yet effective job contracting may rise (L_2 and thus frictional unemployment will fall to $L_3–L_2$), leaving the actual employment (and unemployment) impact of minimum wages dependent on the relative strength of both reactions.[14]

Figure 1: The neoclassical labour market with frictions
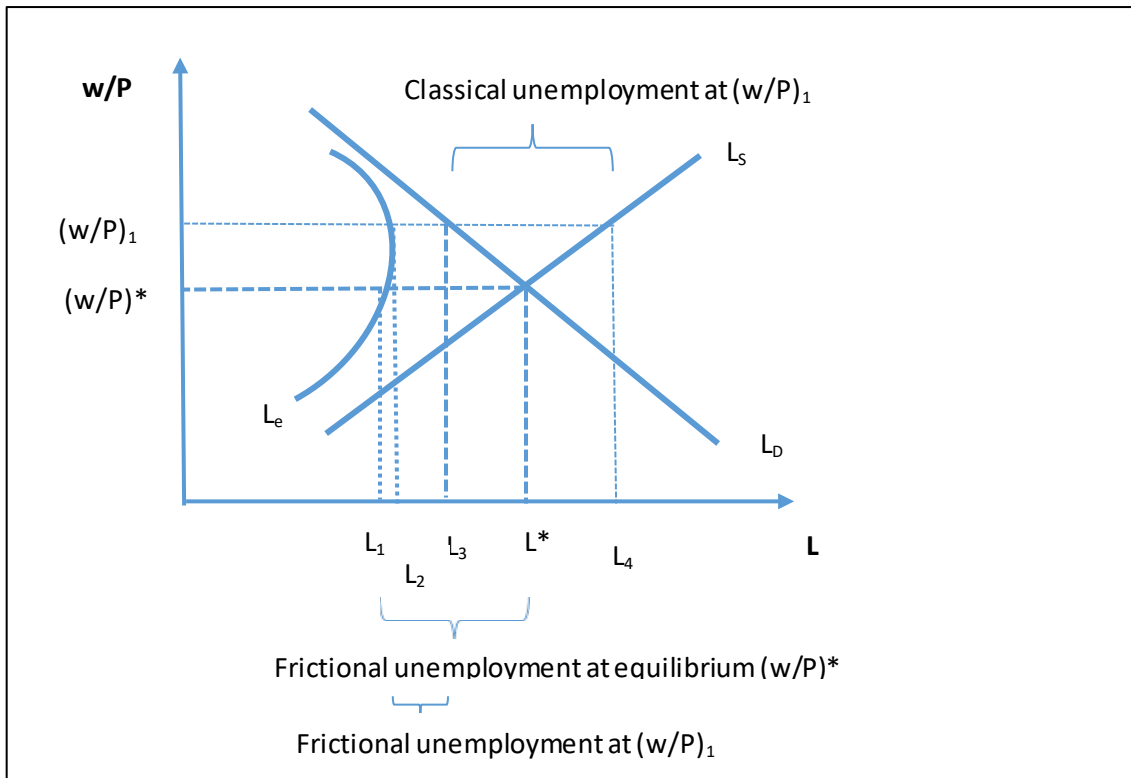
In order to decide on the impact of the introduction of a minimum wage of the magnitude experienced in Germany in 2015, Braun/Döhrn/Krause et al. therefore run simulations based on a one-sector and a two-sector labour market model[15] with frictions using calibrations for those parameters determining the relative strength of both reactions – the calibrations are drawn from the literature. The results are compared with simulations based on a 'simple' neoclassical labour market model without frictions.

---

[13] Hence, Braun/Döhrn/Krause et al. (2019: 20) state: „The effects of introducing a binding minimum wage on equilibrium outcomes are too complex to analytically analyze. Hence, we turn to a quantitative analysis".

[14] In fig. 1, classical unemployment $L_4 – L_3$ plus frictional unemplyoment $L_3 – L_2$ in a minimum wage setting appear to be substantially higher than frictional unemployment $L^* - L_1$ in equilibrium without a minimum wage. But clearly, the result is different if the slopes of the curves would change.

[15] The two-sector model distinguishes between a sector using high qualified labour (i.e. low exposition to minimum wages) and another sector using low qualified labour (i.e. high exposition to minimum wages).

It is one thing to scrutinise the results of complex simulations, but another to draw conclusions from such simulations. It is the latter which requires some qualification in the case of the Braun/Döhrn/Krause et al. article: they conclude that the results of the two models – the simple neoclassical one and the extended model including frictions both in the 1-sector and the 2-sector variations – are similar in terms of the unambiguity and substantiality with respect to the negative employment effect of introducing a minimum wage, although the magnitudes differ slightly: in the 2-sector labour market model with frictions, employment after 5 years will be 2.7% lower after the introduction of a minimum wage, while it will be 3.4% lower if a simple 2-sector neoclassical model is used. This result is due to the dominance of the ordinary price-quantity channel over the other possible channels of influence, such as the job search or vacancy creation channels.

4. Concluding remarks

Of course, once the complexity of a model is increased, the number of possible effects of introducing a minimum wage is also increased – at best opening the model for real-world phenomena which had previously been neglected. However, the fact that the extensions of the simple neoclassical model do not substantially modify the negative employment effect of minimum wages as its most important feature renders this kind of thought style extension futile: it cannot 'heal' the empirical falsification of its model prediction. Or, to put it differently: the only merit of the Braun/Döhrn/Krause et al. article is to show that extensions of the simple neoclassical labour market model in a direction incorporating real-world frictions still cannot deliver what is promised: a more useful representation of the economy in line with empirical evidence. Moreover, if the core prediction of a model is drawn into doubt, all other insights of the model – i.e. the alleged importance of labour market and social policies for the effect of minimum wages – must also be treated with great care and scientific reservation.

Therefore, the main conclusion from the Braun/Döhrn/Krause et al. paper is that the long-term macroeconomic effects of the German minimum wage should not be evaluated on the basis of an extended 1-or 2-sector neoclassical labour market model, whether it includes frictions or not. From a political perspective, this implies that no policy recommendations should be drawn from a theoretical basis which differs so alarmingly from real-world experiences. From a scientific perspective, researchers should be prepared to more radically question a thought style which – even if supplemented and extended – cannot be brought in line with reality unless they are prepared to fall victim to what Ludwik Fleck has called a 'harmony of deception'. However, this would be even more unacceptable, as there are alternative approaches which appear to be far better 'representations of the economy' than any supplementation or extension of neoclassical labour market economics.

Literature

Ayres, C. (1936); Fifty Years' Development in Ideas of Human Nature and Motivation; in: American Economic Review Vol. 26, No. 1

Bachmann, R., Frings, H. (2015); Monopsonistic Competition, Low-Wage Labour Markets, and Minimum Wages – An Empirical Analysis, Ruhr Economic Papers No. 599, Bochum et al.

Beveridge, W. (1945); Full Employment in a Free Society, New York

Bossler, M. Gürtzgen, N., Lochner, B. et al. (2018); The German Minimum Wage: Effects on Productivity, Profitability, and Investments; FAU Discussion Papers in Economics, No. 13, Nuremberg-Erlangen

Braun, H., Döhrn, R., Krause, M., et al. (2019). Macroeconomic Long-Run Effects of the German Minimum Wage when Labor Markets are Frictional. Jahrbücher für Nationalökonomie und Statistik, 0(0), pp. -. Retrieved 2 Jan. 2020, from doi:10.1515/jbnst-2018-0080

Bruttel, O., Baumann, A., Dütsch, M. (2019); Beschäftigungseffekte des gesetzlichen Mindestlohns: Prognosen und empirische Befunde; in: Perspektiven der Wirtschaftspolitik, Vol. 20, N0.3, pp. 237 - 253

Fleck, L. (1979); Genesis and Development of a Scientific Fact, Chicago

Heise, A. (2018); Reconciling Facts with Fiction, or: A Theoretical Speculation of why the Minimum Wage has no Discernible Effect on Employment; in: E-Journal of International and Comparative Labour Studies, Vol. 7, No.3, pp. 1 – 23

Heise, A. (2019); The resilience of modern neoclassical economics – a case study in the light of Ludwik Fleck's "harmony of deception"; in: The Journal of Philosophical Economics, Vol. XIII, No. 1, pp. 1-18

Heise, A., Pusch, T. (2019); Introducing minimum wages in Germany: employment effects in a post Keynesian perspective; in: Journal of Evolutionary Economics. https://doi.org/10.1007/s00191-019-00652-9

Herr, H., Kazandziska, M. (2011): Principles of minimum wage policy : economics, institutions and recommendations; Global Labour University working papers ; No.11

Kleinhenz, G., Bauernschuster, S. (2008); Staatlicher Mindestlohn – Musterfall eines Mangels an Aufklärung über die Ökonomik sozialer Politik; in: ifo Schnelldienst, Vol. 61, No. 6, pp. 45 – 48

Knabe, A., Schöb, R., Thum, M. (2014); Der flächendeckende Mindestlohn; in: Perspektiven der Wirtschaftspolitik, Vol. 15, No.2, pp. 133–157

Knabe, A., Schöb, R., Thum, M. (2020); Prognosen und empirische Befunde: Wie groß ist die Kluft beim Mindestlohn wirklich? in: Perspektiven der Wirtschaftspolitik (forthcoming)

Krueger, A.B. (2018); Luncheon Address: Reflections on Dwindling Workers Bargaining Power and Monetary Policy; Conference on 'Changing Markets Structures and Implication for Monetary Policy, Federal Reserve Bank pf Kansas City, August 24, (on: https://www.kansascityfed.org/~/media/files/publicat/sympos/2018/2018krueger.pdf?la=en; retrieved: 03.02.2020)

Kuhn, Th. S. (1962); The Structure of Scientific Revolutions, Chicago

Mearman, A. (2012); 'Heterodox Economics' and the Problem of Classification; in: Journal of Economic Methodology, Vol. 19, No.4, pp. 407 - 424

Mearman, A., Berger, S., Guizzo, D.(2019); What is Heterodox Economics? Conversations with Leading Economists, Abingdon

Reder, M.W. (1969); The Theory of Frictional Unemployment; in: Economica, Vol. 36, No. 141, pp. 1 - 28

Sabia, Joseph J. (2015); Do minimum wages stimulate productivity and growth?, IZA World of Labor Issue 221, Institute for the Study of Labor (IZA), Bonn

Schmitt, J. (2013); Why Does the Minimum Wage Have No Discernible Effect on Employment?, CEPR Reports and Issue Briefs No.4, Washington

Zilius, J., Bruttel, O. (2018); Auswirkungen des gesetzlichen Mindestlohns – Bilanz nach fast 4 Jahren; in: Wirtschaftsdienst, Vol. 98, No.10, pp. 711–717