Signalling, Wage Structure, and Unions
Supervision 2

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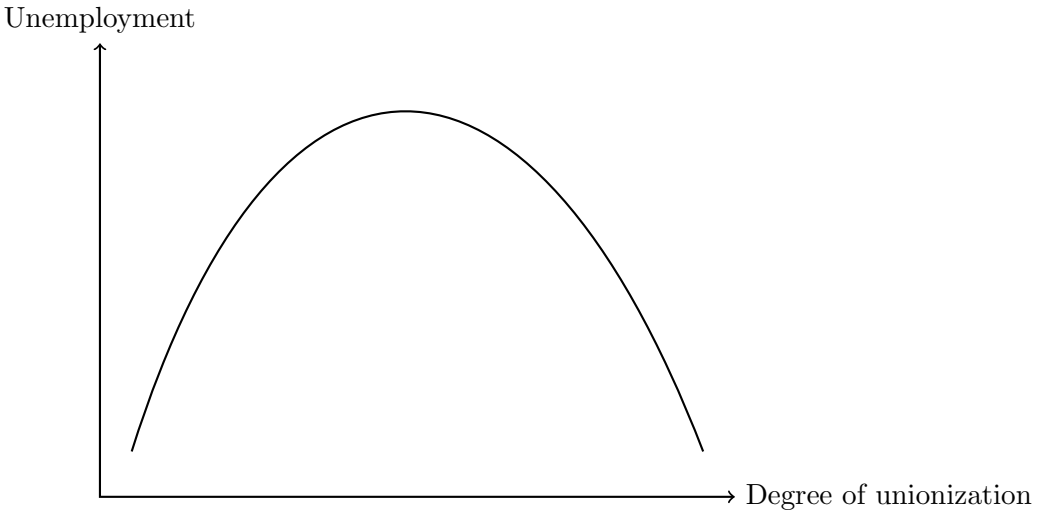
Question 1

This question concerns the centralization of union wage bargaining, and to some extent the degree of union representation. In some countries, wage bargaining takes place within firms and only covers union-members, and in others, wage bargains cover all workers in a particular industry.

Calmfors and Driffill [1988] set out a famous hypothesis that under such circumstances, the relationship between the level of unemployment and the degree of collective bargaining admits a maximum at some point, as such:



This is the so-called "Calmfors-Driffill hypothesis". The theoretical reason for such a relationship are supposed to come from the internalization of bargaining outcomes. When wage-setting is highly decentralized, the labour market is supposed to exhibit greater real wage flexibility and restraint which allows for lower unemployment. The 1988 paper identified countries such as the US, Switzerland, Japan, and Canada as belonging to this category. As wage-setting starts to become centralized, unions accrue monopoly power and start to maximize their own welfare. In doing so they push up the real wage for their own members, but this imposes externalities on non-members who are priced out of the labour market. Thus there is a wage premium negotiated by unions for members. This intermediate case is said to apply to countries such as Germany, Belgium and the Netherlands. When wage-setting is fully centralized, macroeconomic considerations are taken into account during the wage bargain, and wage demands curtailed to a level that benefits workers as a whole. This is said to be the system in the Nordic countries and Austria. If this theory is taken to be accurate, then with decentralization we should observe a relatively low real wage, with intermediate centralization we should observe higher wages for unionized workers and lower wages

for non-unionized workers, and with near-total centralization we should expect a more equal wage distribution again, but maybe with an average higher real wage compared to the decentralized case since workers have more bargaining power. This can also be seen through the single-factor ANOVA of wages in the economy as outlined in Card, Lemieux, and Riddell [2004],

$$W_i = U_i W_i^U + (1 - U_i) W_i^{NU}$$

where W_i is the observed wage for worker i, U_i is a dummy variable equal to 1 if worker i is a member of a union, and W_i^U and W_i^{NU} are wages in the unionized and non-unionized sector respectively. If unuons alter the mean and variance of wages by Δ_W and Δ_V respectively, then the overall variance of wages will be

$$V = V^N + U\Delta_V + U(1 - U)\Delta_W^2$$

where U is the fraction of unionized workers, V is the variance of wages for all workers and V^N is the variance of wages for nonunion workers. $U\Delta_V$ captures the difference in wage dispersion within union and non-union sectors; one may exhibit greater wage inequality than the other. $U(1-U)\Delta_W^2$ captures the difference in the mean wages of union and nonunion workers. As U increases, the total variance in wages (a measure of wage inequality) increase until a maximum point where $U = \frac{\Delta_V + \Delta_W^2}{2\Delta_W^2}$, assuming away any dependence of V^N, $Delta_V$, and Δ_W on U. Past this point, V is decreasing in U. So we may expect wages to be less dispersed in the European countries where wage bargaining is highly centralized, greater wage inequality in the US, Canada, and UK where wage bargaining is within a firm and only covers members. As it stands, this is mostly empirically true, but one must be careful in drawing any causal inferences from this. It may be that unionization makes labour relatively expensive, such that firms invest more into the hiring process and select from the upper end of the worker skill distribution. Unionization may only lead to a minor equalization in wages when extended to the lower-skilled workers. Also, Aidt and Tzannatos [2008] find very weak evidence for the 'hump-shaped' relationship between unionization and unemployment in their survey of the literature, and even less evidence for such a relationship for wages.

Question 2

The most famous paper suggesting small or positive effects of the minimum wage on employment has to be Card and Krueger [1994] (CK). Their paper used survey data from fast-food restaurants to evaluate the effect of a minimum wage hike in New Jersey, and found a small positive effect on employment. The paper has been criticized on empirical grounds; Neumark and Wascher [2000] noted the greater variability in Card and Krueger's data for employment change than in the payroll data, with the "pattern of differences consistent with severe measurement error in CK's data". It is well-known that measurement error leads to an attenuation bias in the OLS estimates, where the estimates suggest smaller employment effects than is the case. Despite this, some studies have revisited the issue and basically confirmed CK's findings; Dube, Naidu, and Reich [2007] commission an independent San Fransisco surveying firm to collect data on hourly wages and employment from fast-food and table-service restaurants. They find their data has smaller amounts of measurement error, and that San Francisco's adoption of an indexed minimum wage increased worker pay and compressed wage inequality. At the same time, there was a small price increase but substantial increases in job tenure and in the proportion of full-time workers among fast-food restaurants (where the minimum wage tends to be binding) but not among table-service restaurants. Other

studies also tend to find employment effects close to zero in response to a minimum wage increase, including Dube, Lester, and Reich [2010] which examined border counties on all instances in the US where states raised the minimum wage. This involved a much larger sample size than CK (66 quarters of restaurant data for 504 border counties) and still found no evidence of detrimental effects on low-wage employment. Still, there are some that find a disemployment effect for specific groups like teen workers, such as Baskaya and Rubinstein [2012].

There are several theoretical reasons why convincing disemployment effects of the minimum wage might be difficult to find. First of all, the 'economics 101' model of minimum wages is a partial equilibrium model. A minimum wage acts as a price floor; draw the downward-sloping demand curve and upward-sloping supply curve and we get some form of involuntary unemployment. However, in the general equilibrium it is plausible that the market for low-wage labour differs from the market for goods in important ways. One person's spending is another person's income, but if spending on goods tends to contribute more to the incomes of high-income individuals, and the marginal propensity to consume for low-wage individuals is much higher (which seems a plausible assumption), then an increase in the minimum wage may have demand-boosting effects that offset or even override the disemployment effects. Another obvious explanation is the monopsony power of firms. This might be especially true in the fast-food industry where barriers to entry are low and the industry is dominated by brands with a substantial share of the market (McDonald's has a market share of 17% in the US). It is covered in many microeconomics courses that when there is monopsony power, workers are paid below their marginal product and a minimum wage could actually increase employment and wages. Monopsony power doesn't only arise when a firm has a large share of the market; if there are heterogeneous workplaces due to travel distance then a single firm can have some form of spatial monopoly. A higher minimum wage may also intensify the job search effort and lead to better employer-employee matching, although the effect could also run the other way. For example, Zhang [2018] develops a general equilibrium spatial search model to study the effects of local and federal minimum wage policies, and the analysis suggests that minimum wage increases increase the welfare of high-skilled workers but lower the welfare of low-skilled workers, and that the disemployment effects of a minimum wage are underestimated if one ignores labor mobility between counties.

(a)

The Krueger and Mueller [2014] paper uses survey data to analyse the behaviour of reservation wages over the spell of unemployment. They find that self-reported reservation wages decline as one remains in unemployment, and this effect is primarily driven by older individuals and those with personal savings.

The McCall search model can be consistent with this effect. The essential part of the model is that workers receive a job offer each period, and accept or reject the offer based on whether the expected lifetime utility of the offered wage contract is higher than the expected utility of continuing the job search. One modification that has to be made to the McCall search model to explain the empirical finding in Krueger and Mueller is that agents no longer have infinite lives. Older workers then have a limited time to spend their expected future income, and the opportunity cost of the job search is higher. Firstly, the benefit of a better wage offer in the next period is attenuated: a wage that is permanently £100 higher will accrue more benefits to someone at the start of their working life than someone near the end of their life. Secondly, a loss of one period's earnings is a much larger proportion of expected future income for an older person. This is broadly analogous to Modigliani's life-cycle hypothesis for consumption.

However, this might explain why older workers may set lower reservation wages, but not why

the reservation wage decreases over time only for older workers. It may be plausible to add the assumption that all workers with some form of savings have the same tendency to expect too high a reservation wage due to cognitive biases. It could then be argued that older workers are more sensitive to realizations that their reservation wage might be too high due to the reasons outlined above (they react more to a period of unsuccessful job hunts because the stakes are higher for them). This would neatly explain the same phenomenon for individuals with personal savings; individuals with no savings are more desperate for a job, and do not expect too high a reservation wage. However, individuals with savings expect a reservation wage that is too high given the underlying wage distribution (just like older workers) and their sensitivity to this over-expectation increases as their assets get exhausted.