Minimum Wages, Risk Aversion and Asset Accumulation

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Abstract

I find that the workers' ability to self-insure via asset accumulation has an important role in determining the response of consumption inequality to minimum wage increases. Workers increase their savings to self-insure against the increased unemployment risk of higher minimum wage levels. This means that in my baseline model minimum wages achieve reductions in consumption inequality even when set at relatively high levels that cause unemployment to rise. In a model without savings, increasing the minimum wage level to such levels would increase consumption inequality because increased unemployment risk has a more significant pass-through to consumption inequality.

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JEL Classification: D58, E22, E24, J20, J3

1. Introduction

Minimum wages are often motivated by concerns over inequality and poverty, however their impact on consumption inequality, a key outcome for assessing welfare impacts, has not received significant attention in either the structural or empirical literature. One reason for this is that the structural literature on minimum wages draws extensively on models with search frictions, as in van den Berg and Ridder (1998), Flinn (2006) and Engbom and Moser (2017), which typically assume risk neutral agents. The assumption of risk neutrality hinders analysis of the impact of the minimum wage on consumption inequality because, in risk neutral models, workers are indifferent to (mean-preserving) variation in consumption over time and across different employment states. Models with risk neutral workers are therefore unable to offer well defined predictions regarding consumption, and typically assume workers consume all income so consumption inequality is directly equated with income inequality.

In this paper, I propose an on-the-job search model with capital skill complementarity with risk averse workers who can self-insure via asset accumulation. Adding these features allows me to examine the impact of minimum wages on consumption inequality. While it is not the goal of this paper, including asset accumulation could also provide useful insights into the distribution of gains and losses from the minimum wage, since ownership of firms' equity can be endogonized.

I find that workers increase their savings to self-insure themselves against increased unemployment risk as the minimum wage increases. Their ability to self-insure means decreases in consumption inequality from the minimum wage continue to occur at relatively high minimum wage levels i.e. even when unemployment is rising. In a model where workers have no access to savings increasing the minimum wage to such levels would increase consumption inequality because increased unemployment risk has a more significant pass-through to consumption inequality.

I am aware of aware of only one other study, Aaronson et al. (2012), to look at the impact of the minimum wage on the consumption and savings/debt decisions of workers. Aaronson et al. (2012) provide difference-in-difference estimates of the short term spending response of households affected by a minimum wage hike. They find a \$1 hourly minimum wage hike increases quarterly household income by \$250 and quarterly household spending by \$700 in the short term. The authors attempt to reconcile those findings with a life cycle model where they model the minimum wage hike as a temporary deterministic increase to an exogenous income process. This is very different from the approach of this paper, which is to consider the steady state consumption impacts of a permanent change in the minimum wage, allowing for endogenous changes in wages, unemployment and job mobility rates.

This approach builds on a broader literature that combines search frictions with asset accumulation, e.g. Andolfatto (1996), Krusell et al. (2010) and Lise (2011). However, this literature has not explicitly considered the role of the minimum wage in this setting.

The rest of this paper is organised as follows. Section 2 will present my model, and Section 3 sets out my calibration strategy. Section 4 presents results from simulating the steady state impact of minimum wages on asset accumulation and consumption inequality, and Section 5 concludes.

2. The Model

2.1. *Model Environment*

Model Environment: Workers

There are two skill types of workers, unskilled and skilled, with skill indexed by $j \in u, s$. The fraction of the worker population of skill type j is denoted ℓ_j, and I normalise the total population to one. All workers and firm owners have a common discount factor, $\beta \in (0, 1)$. Workers can insure through risk free assets, a, but cannot borrow, and have constant relative risk aversion (CRRA) preferences over consumption, c:

$$u(c) = \frac{c^{1-\iota}}{1-\iota}, \ \iota > 0 \tag{1}$$

The budget constraint facing a worker takes the general form: $c + \frac{a'}{1+r} = y + a$, where a' represents the next period asset holdings of the worker, and y and r are the current period income and the risk-free rate of return respectively.

Model Environment: Production Structure

I have two stages of production. First there is an intermediate goods sector with search frictions, where I maintain the typical assumptions of the search literature (no capital and constant returns to scale production in labour inputs). Second, I include a final good sector with a production function that combines intermediate goods with capital, and features imperfect substitutability of all factors and capital skill complementarity as per Krusell et al. (2000) (henceforth referred to as the "KORV" production function).

There will be a segmented intermediate goods sector for each worker skill type ($j \in u, s$). Firms in these intermediate sectors can be thought of as hiring agencies for the final goods firm, that face search frictions and wage bargaining.

Model Environment: Final Good Firms

Final goods are produced using capital structures, K_{st}, capital equipment, K_{eq}, and the intermediate goods produced by unskilled and by skilled workers, denoted by U and S respectively:

$$
\begin{aligned}
(2) \qquad Y &= AG(K_{st}, K_{eq}, U, S) \\
&= AK_{st}^{\alpha}[\mu U^{\sigma} + (1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma}{\rho}}]^{\frac{1-\alpha}{\sigma}}
\end{aligned}
$$

with $\sigma, \rho < 1$ and $\alpha, \lambda, \mu \in (0,1)$. The elasticity of substitution between the intermediate good produced by unskilled workers and capital equipment, denoted by $\varepsilon_{u,k_{eq}}$, equals $1/(1-\sigma)$. The elasticity of substitution between the intermediate goods produced by unskilled and skilled workers, denoted $\varepsilon_{u,s}$, is also given by $1/(1-\sigma)$. The elasticity of substitution between the skilled intermediate input and capital equipment, denoted by $\varepsilon_{s,k_{eq}}$, is given by $1/(1-\rho)$. The parameter, α, together with λ, determine the capital share of output, and μ determines the output share of unskilled intermediate good sectors.

The production function will exhibit capital skill complementarity, meaning capital equipment will be more substitutable with the intermediate good produced by unskilled workers than with the intermediate good produced by skilled workers (i.e. $\varepsilon_{u,k_{eq}} > \varepsilon_{s,k_{eq}}$), whenever $\sigma > \rho$. This is exactly what Krusell et al. (2000) find to be the case and I will use their parameter estimates (I discuss my calibration approach further in section 3).

Model Environment: Intermediate Goods Sectors

There is a separate intermediate goods sector for each worker type $j \in \{u, s\}$, and one intermediate firm for each worker in the economy. This implies the fraction of intermediate goods firms in sector j equals the fraction of type j workers in the total worker population, ℓ_j. I assume all intermediate firms sell competitively to the final good firm.

I assume constant returns to scale in intermediate good sectors, with the output of a given intermediate sector j equal to the employment rate of type j workers multiplied by their population density ℓ_j and hours worked $\bar{h}$. This implies $U = \ell_u(1-e_u^{ue})\bar{h}$ and $S = \ell_s(1-e_s^{ue})\bar{h}$, where e_j^{ue} is the unemployment rate of a type j worker. I include hours worked as the KORV production function was originally specified with labour input measured in terms of total hours, however, I assume both worker types are full-time, i.e. work a fixed 40 hour week, and do not model the intensive margin of labour supply. Intermediate goods sectors are completely segmented in the sense that a type j firm can only ever employ a type j worker and vice versa.

Model Environment: Search Frictions and Wage Bargaining in the Intermediate Goods Sectors

I assume that both unemployed and employed workers randomly search for jobs. The homogeneity of intermediate goods firms means workers exist in one of three states: unemployed; employed but not yet poached by another employer ('not-poached'); or employed and poached ('poached'). The employment state for a worker of skill type j is denoted as $\Upsilon_j \in \{ue, np, p\}$, where the indices $\{ue, np, p\}$ represent the unemployed, not-poached and poached employment states respectively.

The number of newly formed job matches is given by matching function $M(S_j, V_j)$, where S_j is the effective number of type j job searchers (unemployed and not-poached workers) and V_j is the number of type j vacancies. I assume that unemployed workers search more intensely than non-poached workers so that $S_j = N_j^{ue} + \chi_j N_j^{np}$, where N_j^{ue} is the number of unemployed type j workers, N_j^{np} is the number of not-poached workers, and χ_j is the search intensity rate for employees relative to the unemployed ($\chi > 0$). Once a worker is poached they stop searching as all firms are the same.

Defining $\theta_j \equiv V_j/S_j$ as labour market tightness, the contact rate is $q(\theta_j) \equiv M(S_j, V_j)/V_j$ for type j firms, and $(\theta_j q(\theta_j),\ \chi_j\theta_j q(\theta_j))$ for type j unemployed and not-poached workers respectively. The fraction of type j workers who are poached is denoted by e_j^p and the fraction who are not-poached by e_j^{np} (with the residual fraction unemployed denoted by e_j^{ue}). The share of effective job searching workers that are not-poached is denoted as $s_j^{np} \equiv \frac{\chi_j e_j^{np}}{\chi_j e_j^{np} + e_j^{ue}}$, and the share that are unemployed as $s_j^{ue} \equiv 1 - s_j^{np}$. Finally matches are destroyed with exogenous probability, δ_j.

I follow the approach of Cahuc et al. (2006) where all firms and workers engage in Nash bargaining. For unemployed workers matched with a firm, who then become 'not-poached' workers in my terminology, standard Nash bargaining takes place. This bargaining is subject to the constraint that the bargained wage must be at least as large as the legally binding minimum wage, m_w. Note that the bargained wage will depend on the asset holdings, a, of the worker since these determine the value of remaining in unemployment and of entering employment.

When a not-poached worker makes contact with another employer, becoming a poached worker, they also engage in Nash bargaining but this time the bargain is between the incumbent and poaching employer and the worker, as in Cahuc et al. (2006). The rival employers bid-up the wage until the value of employing a poached worker to the firm equals the value of carrying a vacancy. Free entry will drive the latter to zero, due to the existence of a fixed vacancy cost κ_j. As type j firms are a priori identical, the poaching firm will offer the same wage as the incumbent (which we will see is the price of the intermediate good) leaving the worker indifferent between the two rival firms. I arbitrarily assume the worker moves with probability one to a poaching firm conditional on making contact with them. This assumption means job contact rates, which are unobservable in the data, are equal to job mobility rates, which are observable.

2.2. *Behaviour in the Model Economy*

Behaviour: workers

A worker of a given type j exists in one of three employment states: unemployed and receiving flow income b, not-poached and receiving the higher of the Nash bargained wage w_j^b and the minimum wage m_w, or poached and receiving wage w_j^p. The expected lifetime utility of being in each of these employment states with asset holidings, a, is denoted by $V_j^{ue}(a)$, $V_j^{np}(a)$, and $V_j^p(a)$ respectively.

Workers face a trivial labour market participation decision, but also must choose how much assets to carry forward to the next period, a', given their current asset level, a, and employment state. The Bellman equations for a unemployed, not-poached and poached worker are therefore:

(3)
$$V_j^{ue}(a) = \max_{a'} \left\{ u(b + a - \frac{a'}{1+r}) + \beta[\theta_j q(\theta_j) V_j^{np}(a') + (1 - \theta_j q(\theta_j)) V_j^{ue}(a')] \right\}$$

(4)
$$V_j^{np}(a) = \max_{a'} \left\{ u(\max(w_j^b(a), m_w) + a - \frac{a'}{1+r}) + \beta\big[\delta_j V_j^{ue}(a') + \right.$$
$$\left. (1-\delta_j)[\chi\theta_j q(\theta_j) V_j^p(a') + (1 - \chi\theta_j q(\theta_j)) V_j^{np}(a')]\big] \right\}$$

(5) $$V_j^p(a) = \max_{a'} \left\{ u(w_j^p + a - \frac{a'}{1+r}) + \beta[\delta_j V_j^{ue}(a') + (1-\delta_j) V_j^p(a')] \right\}$$

Equation (3) tells us that an unemployed worker of skill level j receives benefits, b, in the current period and in the next period either gets a job offer with probability $\theta_j q(\theta_j)$, which they will always accept and so become a not-poached worker, or remains unemployed with probability $1 - \theta_j q(\theta_j)$. Equation (4) tells us that a not-poached worker gets the higher of the Nash bargained wage or the minimum wage in the current period and in the following period loses their job with probability δ_j , gets poached with probability $(1 - \delta_j)\chi\theta_j q(\theta_j)$ or remains not-poached with probability $(1 - \delta_j)(1 - \chi\theta_j q(\theta_j))$. Finally equation (5) tell us that a poached worker gets a wage w_j^p in the current period and the next period either loses their job with probability δ_j or remains employed as a poached worker (since they have already reached the top of the job ladder) with probability $1-\delta_j$.[1]

The optimal savings policy functions derived from these Bellman equations are denoted $\{\psi_j^{ue}(a),\ \psi_j^{np}(a),\ \psi_j^{p}(a)\}$. These, combined with transition rates between employment states, also imply the steady state distribution of assets by employment state: $\{f_j^{ue}(a), f_j^{np}(a), f_j^{p}(a)\}$, where $f(a)$ denotes the pdf of the asset distribution.

Behaviour: Final Good Producers

The final good producer's profit maximisation problem is as follows, where we normalise the price of the final good to one:

$$\max_{K_{st},K_{eq},U,S} \Pi = AK_{st}^{\alpha}[\mu U^{\sigma} + (1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma}{\rho}}]^{\frac{1-\alpha}{\sigma}} - p_u U - p_s S - r_{st}K_{st} - r_{eq}K_{eq} \tag{6}$$

As in Krusell et al. (2000), I impose a no arbitrage condition between capital equipment and capital structures. This implies that the net of depreciation rental rates for capital equipment and structures must be equal to some common interest rate, r, which implies their gross rental rates, r_{eq} and r_{st}, are related as follows: $r_{eq} - \delta_{eq} = r_{st} - \delta_{st} = r$, where δ_{eq} and δ_{st} are the depreciation rates for capital equipment and structures respectively.[2] I assume the final goods sector is competitive so factors of production are paid their marginal products, as shown in equations (7) through to (10).

$$p_u = A(1-\alpha)K_{st}^{\alpha}[\mu U^{\sigma} + (1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma}{\rho}}]^{\frac{1-\alpha-\sigma}{\sigma}}\mu U^{\sigma-1} \tag{7}$$

$$p_s = A(1-\alpha)K_{st}^{\alpha}[\mu U^{\sigma} + (1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma}{\rho}}]^{\frac{1-\alpha-\sigma}{\sigma}} \times(1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma-\rho}{\rho}}(1-\lambda)S^{\rho-1} \tag{8}$$

$$r_{eq} = A(1-\alpha)K_{st}^{\alpha}[\mu U^{\sigma} + (1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma}{\rho}}]^{\frac{1-\alpha-\sigma}{\sigma}} \times(1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma-\rho}{\rho}}K_{eq}^{\rho-1} \tag{9}$$

$$r_{st} = \alpha AK_{st}^{\alpha-1}[\mu U^{\sigma} + (1-\mu)(\lambda K_{eq}^{\rho} + (1-\lambda)S^{\rho})^{\frac{\sigma}{\rho}}]^{\frac{1-\alpha}{\sigma}} \tag{10}$$

[1] I show later that poached workers are paid a wage equal to the price of the intermediate good they produce, which is independent of the worker's asset holdings. The price of the intermediate good is equal to the marginal product of the intermediate good, which will always exceed the minimum wage in equilibrium. If this were not the case intermediate firms would be loss making and leave the market, until the price of the intermediate good is bid up by the final good producer to the level of the minimum wage (Inada conditions guarantee this point will be reached)

[2] When it comes to calibrating the model I will assume that both net of depreciation rates equal the natural rate of interest $r = \frac{1}{\beta} - 1$.

Behaviour: Intermediate Goods Producers

Intermediate firms are either inactive, generating zero expected liftetime utility for their owners (we refer to the expected lifetime utility of firm ownership as the firm's value), or exist in one of three active states: (i) carrying a vacancy, with a firm value denoted by J^v_j (ii) employing a not-poached worker who has assets a (recall assets determine bargained wages), with a firm value denoted by $J^{np}_j(a)$, and (iii) employing a poached worker at a wage w^p_j, with a firm value denoted by J^p_j. The corresponding bellman equations are:

$$J^v_j = -\kappa_j + \beta[q(\theta_j)\{s^{ue}_j \int J^{np}_j(a) f^{ue}_j(a) + (1 - s^{ue}_j)J^p_j\} + (1 - q(\theta_j))J^v_j] \tag{11}$$

$$\begin{aligned} J^{np}_j(a) = {} & p_j - \max(w^b_j(a), m_w) + \\ & \beta\Big[(1 - \delta_j)\big\{\chi\theta_j q(\theta_j)J^p_j + (1 - \chi\theta_j q(\theta_j))J^{np}_j(\psi^{np}_j(a))\big\} + \delta_j J^v_j\Big] \end{aligned} \tag{12}$$

$$J^p_j = p_j - w^p_j + \beta[(1 - \delta_j)J^p_j + \delta_j J^v_j] \tag{13}$$

Equation (11) tells us that a firm in intermediate good sector j carrying a vacancy pays a vacancy cost, κ_j, in the current period and in the next period makes contact with an unemployed worker with asset holdings a with probability $q(\theta_j)s^{ue}_j f^{ue}_j(a)$, makes contact with an employed worker with probability $q(\theta_j)(1-s^{ue})$, or remains carrying a vacancy with probability $1 - q(\theta_j)$. Equation (12) tells us that a firm employing a not-poached worker with assets a gets profits $p_j - \max(w^b_j(a), m_w)$ in the current period and in the next period remains employing that worker (whose asset level evolves according to their optimal savings choice $\psi^{np}_j(a)$) with the probability $(1 - \delta_j)(1 - \chi\theta_j q(\theta_j))$, loses the worker to a rival firm with probability $(1 - \delta_j)\chi\theta_j q(\theta_j)$, or the job is destroyed with probability δ_j. Finally equation (13) tells us a firm employing a poached worker gets profit $p_j - w^p_j$ in the current period and in the next period the job is either destroyed with probability δ_j or they remain employing the poached worker with probability $1 - \delta_j$.

Free entry into markets by inactive firms will drive the value of holding a vacant job, J^v_j, to zero, and competition between employers drives the value of employing a poached worker to the value of holding vacancy e.g. $J^p_j = 0$ too. The free entry condition ($J^v_j = 0$) and poaching condition ($J^p_j = 0$) imply the poached wage, w^p_j equals the price of the intermediate good p_j.

Using these conditions, and substituting 12 into 11, I get the following no entry condition:

$$\begin{aligned} \kappa_j &= \beta q(\theta_j)s^{ue}_j \int J^{np}_j(a) f^{ue}_j(a) \\ \Rightarrow \frac{\kappa_j}{\beta q(\theta_j)s^{ue}_j} &= p_j - \int \max(w^b_j(a), m_w) f^{ue}_j(a)da \end{aligned} \tag{14}$$

$$+ \int \left[\beta(1-\delta_j)(1-\chi\theta_j q(\theta_j))J_j^{np}(\psi_j^{np}(a))\right] f_j^{ue}(a)da$$

Inactive firms will enter the market, by posting a new vacancy, until the discounted expected profits from hiring a not-poached worker (RHS of equation (14)) equal the discounted expected vacancy cost (LHS of the equation). The discounting of expected profits reflects both the discount factor and the risk that the worker will be exogenously separated from the firm (with probability δ_j) or be poached by another firm (with probability $\chi\theta_j q(\theta_j)$).

The Nash bargained wage is determined in the standard maximisation problem, shown in equation (15).

$$w_j^b(a) = \underset{w_j^b(a)}{\operatorname{argmax}} (V_j^{np}(a) - V_j^u(a))^{\phi_j} (J_j^{np}(a))^{1-\phi_j} \tag{15}$$

The asymmetry between the risk neutrality of the managers of intermediate firms and risk aversion of workers means the first order condition of the Nash bargaining problem yields a polynomial in $w_j^b(a)$, after substitution of the relevant value functions (equations (4) and (12)) into equation (15). The order of this polynomial is determined by the degree of relative risk aversion ι in the utility function given in equation (1).

2.3. *Equilibrium*

One condition for a steady state equilibrium in the model, which I will formally define later, is that the labour market is in steady state. This requires the following equations to hold:

$$\delta_j(1-e_j^{ue}) = \theta_j q(\theta_j) e_j^{ue} \tag{16}$$

$$\theta_j q(\theta_j) e_j^{ue} = (\delta_j + (1-\delta_j)\chi_j \theta_j q(\theta_j)) e_j^{np} \tag{17}$$

Equation (16) equates inflows into unemployment (LHS of the equation) to outflows (RHS), where the inflow consists of employees losing their jobs, with probability δ_j, and the outflow is unemployed workers gaining jobs, with probability $\theta_j q(\theta_j)$. Similarly equation (17) equates the inflow in of workers into the not-poached state (LHS) with the outflow (RHS), where the inflow consists of unemployed workers gaining employment with probability $\theta_j q(\theta_j)$, and the outflow is not-poached workers either losing their job, with probability δ_j, or becoming poached, with probability $(1-\delta_j)\chi_j\theta_j q(\theta_j)$.

I denote the labour market tightness and unemployment level satisfying these conditions as θ_j^{ss} and $e_j^{ue^{ss}}$ respectively. I derive a supply function for intermediate goods, shown in equation (18), from these steady state conditions and the no entry condition in the intermediate good sector. The corresponding demand equation comes from the first order conditions of the final good producer's profit maximisation problem, and is shown in equation (19).

$$p_j^s = \frac{\kappa_j}{\beta q(\theta_j^{ss}) s_j^{ue}} + \int [\max(w_j^b(a), m_w) - \beta(1-\delta_j)(1-\chi\theta_j q(\theta_j)) J_j^{np}(\psi_j^{np}(a))] f_j^{np}(a) \tag{18}$$

$$p_j^d = \frac{\partial Y}{\partial(1 - e_j^{ue^{ss}})} \tag{19}$$

The intersection of this system of equations determines equilibrium in the intermediate goods market for a given interest rate.

2.4. *Equilibrium Definition*

Note that in my baseline calibration and for simulated results I assume a small open economy, and hence solve the model for a constant interest rate, r. I therefore do not impose an asset clearing condition as part of the equilibrium definition.

Definition 1. *The recursive stationary equilibrium consists of:*

(i) a set of worker value functions $\{V_j^{ue}(a),\ V_j^{np}(a),\ V_j^p(a)\}$ and the individual decision rules for asset holdings $\{\psi_j^{ue}(a),\ \psi_j^{np}(a),\ \psi_j^p(a)\}$ for all workers;

(ii) the distribution of asset holdings for each worker and for each employment state: $f_j^{ue}(a)$, $f_j^{np}(a)$ and $f_j^p(a)$) and a set of employment states $\{e_j^{ue}, e_j^{np}, e_j^p\}$.

(iii) a set of firm value functions $\{J_j^v, J_j^{np}, J_j^p(a)\}$,and vacancies, v_j, for all intermediate goods firms;

(iv) a choice of capital equipment, capital structures,unskilled and skilled intermediate goods (K_{eq}, K_{st}, U, S) by the final good producer

(v) prices $\{p_j,\ w_j^b(a),\ w_j^p\}$; which satisfy:

(1) Consumer Optimisation:
Given the job-finding probabilities and prices, the individual decision rules $\{\psi_j^{ue}(a),\ \psi_j^{np}(a),\ \psi_j^p(a)\}$ satisfy conditions 3, 4 and 5.

(2) Final Good Producer Optimisation:
Given prices and job contact rates, the final good producer demands capital equipment and structures, K_{eq} and K_{st} and intermediate goods U and S to satisfy the FOCs 7 through to 10 .

(3) Steady State in the Intermediate Good Sector:
The no-entry condition, 14, and steady state conditions 16 and 17 are met.

(4) *Intermediate Goods Market Clearing:*
Demand and supply for each intermediate good must be equal, implying conditions 18 and 19 hold for all intermediate good sectors $j \in u, s$*.*

(5) *Wage Determination:*
not-poached workers are paid the higher of the Nash bargained wage wage $w_j^b(a)$ *and the minimum wage,* m_w*, and poached workers are paid the competitive wage,* $w_j^p = p_j$

(6) *Consistency:*
Given employment and vacancy rates, the job contact rates determined by the matching function are consistent with those used in the worker and firm optimisation problems.

2.5. *Solution Algorithm*

For a fixed world interest rate, r, we:

(1) Guess unemployment rate e_{j0}^{ue} for each skill type $j = u, s$. Use this guess to calculate the implied amount of intermediate goods produced by unskilled and skilled workers (U and S).

(2) Solve the final good firms FOCs to get the final good firms' use of capital equipment and structures K_{eq} and K_{st} and the price of intermediate goods p_u and p_s that are consistent with the implied levels of U and S calculated above.

(3) Use the conditions 16 and 17 to derive vacancy levels necessary for the unemployment guess $e_{j,0}^{ue}$ to be consistent with steady state in the labour market. This then implies employment transition probabilities for the unemployed and employed via the matching function: $\theta_j q(\theta_j)$ and $\chi_j \theta_j q(\theta_j)$ respectively.

(4) Use the price of intermediate goods and employment transition probabilities calculated above to solve workers' value functions (computational details are specified below) and Nash bargained wage, $w_j^b(a)$. Wage of not-poached worker is whatever is highest of this bargained wage and minimum wage

    (a) A guess and verify process is necessary within this step i.e. I first guess the bargained wage at each asset level, use this to solve for workers' and intermediate firms' value functions, and then update the guess of the bargained wage using equation (15).

(5) Use the asset policy rules $\{\psi_j^{ue}(a),\ \psi_j^{np}(a),\ \psi_j^{p}(a)\}$ derived in above step and employment transition probabilities $\theta_j q(\theta_j)$ and $\chi_j \theta_j q(\theta_j$ to construct

transition matrix P, and solve for the invariant asset distributions $f_j^{ue}(a)$, $f_j^{np}(a)$ and $f_j^{p}(a)$.

(6) Use the bargained wage function $w_j^b(a)$, invariant asset distribution $f_j^{ue}(a)$ and price of intermediate goods p_j to compute an updated unemployment guess, e_{j1}^{ue} for $j \in \{u, s\}$, by solving the free entry condition 14.

(7) Update and repeat iteration until convergence of unemployment guess.

I implement this solution algorithm using the following computational specifications. First, I solve workers value functions using value function iteration (VFI), over an asset grid with 250 points. I then solve for the invariant asset distribution using by interpolating the policy rules obtained in the VFI step over a finer asset-grid with 5000 points. The time period is monthly (though I present some wage results in hourly format for comparison with the minimum wage).

3. Calibration

3.1. *Calibration Strategy*

I will take all but one of the parameters of the final good production function from Krusell et al. (2000). This means applying parameters estimated under the assumption of competitive labour markets to my model that assumes labour market frictions. However, results from a companion paper of my thesis suggest the parameter estimates obtained by Krusell et al. (2000) are robust to allowing for labour market frictions. This provides some reassurance that applying their parameter estimates to a model with search frictions is not unreasonable. There is a separate issue that the estimates that Krusell et al. (2000) provide are based on calibration to the US economy, and I will be calibrating my model to the UK. However, given similarities in labour market trends in the US and UK and, relatively open capital markets between the two countries, this again does not seem unreasonable as a calibration approach.

I use the matching function specification, and parameter, from Hagedorn and Manovskii (2008b) - $M(u, v) = uv/(u^\gamma + v^\gamma)^{1/\gamma}$, which ensures job contact rates are bounded between zero and one. I focus on estimating: (i) TFP, (ii) the share parameter, μ, in the KORV production function,and (iii) recruitment costs κ_u, κ_s. I denote the parameters to be estimated as $\Phi = (A, \mu, \kappa_u, \kappa_s)$. The remaining parameters are taken from the literature and are denoted by Ω.

I estimate the parameters in Φ by simulated method of moments (SMM), targeting median wages and unemployment rates for non-graduates and graduates. The absolute magnitudes of median wages help to discipline the TFP parameter, A, and their relative magnitudes will discipline the output share parameter, μ. Finally, unemployment rates are an obvious, and widely used, way to pin down the costs of vacancy creation in the model (κ_u, κ_s).

The SMM approach I use is summarised in equation (20), where $\hat{M}$ denotes a vector of the empirical moments given above, and $M(\Phi, \Omega)$ denotes the model predictions of these moments for given choice of estimated and calibrated parameters.[3] All of the empirical moments are taken from Labour Force Survey data for 2013-14.

$$\Phi^* = \underset{\Phi}{\operatorname{argmin}}(M(\Phi, \Omega) - \hat{M})' W (M(\Phi, \Omega) - \hat{M}) \tag{20}$$

3.2. *Estimation Results*

Table 1 summarises the ability of my model to match its empirical targets. Given the model is just identified (I have four parameters to estimate and target four moments), it is not surprising that I hit the empirical targets more or less exactly. Table 2 shows the parameters I estimate using SMM. The share parameter μ is most relevant for hitting relative wages of unskilled and skilled workers in my model and as expected, given a positive skill premium in the data, its estimated value allocates more output share to skilled workers. It is perhaps counter-intuitive that the estimated recruitment costs are higher for unskilled workers than skilled; however this is compensating for the fact that job separation rates are higher for unskilled workers in the data and the minimum wage is more significant for these workers relative to their median wage. Therefore without the difference in recruitment costs, the unemployment gap between unskilled and skilled workers would be counter-factually large.

The parameters that I take from the literature, directly from the data, set at their statutory levels or set by assumption are shown in Table 3. I calibrate the model to data from 2013-14, as this precedes the significant increases in the minimum wage that started in 2014-15 and are planned to end when the minimum wage reaches 60% of the median wage in 2020-21. I assume unemployment income is paid at a fixed rate that is common for all workers. [4]

3.3. *Non-targeted Empirical Moments*

Table 4 compares the model's predictions to a range of empirical moments we have not explicitly targeted. The model predicts smaller mark-ups and a higher labour share of income than the model I developed in my paper that does not include asset accumulation. One possible explanation for this is that the ability to self-insure improves workers outside options (the expected lifetime utility of being

[3] The weighting matrix W, is chosen so I effectively minimise the percentage deviation of model moments from their empirical moments, which avoids the scale of absolute moment deviations biasing estimates i.e. $W = I.\frac{1}{\hat{M}}$.

[4] Unlike in many other jurisdictions, the main form of unemployment benefits in the UK is paid at a flat rate, as under my baseline calibration, rather than as a fixed percentage of previous earnings.

TABLE 1. Estimation Results

Moment	Model Moment	Empirical Moment	% Deviation (Model - Data)
Median Hourly Wage: Unskilled	9.53	9.5	0.27
Median Hourly Wage: Skilled	15.82	15.71	0.74
Unemployment: Unskilled	0.07	0.07	0.29
Unemployment: Skilled	0.03	0.03	-0.01

TABLE 2. Estimated Parameters

Parameter	Description	Value
μ	Share parameter determining skill premium in KORV production function	0.389
A	Total Factor Productivity	9.475
κ_u	Hiring cost: unskilled workers	1393.96
κ_s	Hiring cost: skilled workers	1038.18

in unemployment) and hence leaves them in a stronger bargaining position with firms.

I also examine the model's predictions for asset-accumulation both by skill level (rows 5 and 6 of Table 4) and for wealth inequality (rows 6 and 7). The model gets the right sign of the correlation between education and wealth but, significantly underestimates its magnitude. The model also under-predicts the degree of right tail inequality in the wealth distribution, as measured by the share of total wealth held by the top 1% of the wealth distribution. However, the model only has two sources of risk, wage and unemployment, and is not designed to capture many of the savings motives usually emphasised in the literature, i.e. bequests, pension savings, and ill-health, so these results are not entirely surprising.

4. RESULTS

I first present results from the model without a minimum wage in order to build intuition in the underlying model mechanisms. I then present results on the comparative static impacts of increasing the minimum wage. All simulated impacts of the minimum wage described in this section are equilibrium outcomes conforming to the equilibrium definition provided in section 2.4. These results therefore reflect steady state impacts only and do not include any transition dynamics.

TABLE 3. Calibrated Parameters

Parameter	Description	Source	Value
δ_u	Job destruction rate: unskilled	LFS 2013q4-2014q3	0.011
δ_s	Job destruction rate: skilled	LFS 2013q4-2014q3	0.007
χ_u	Relative search intensity of employed to unemployed: unskilled	LFS 2013q4-2014q3 (ratio of employer change rate to unemployment exit)	0.112
χ_s	Relative search intensity of employed to unemployed: unskilled	LFS 2013q4-2014q3 (ratio of employer change rate to unemployment exit)	0.075
b	Monthly Unemployment benefits (job seekers allowance)	Legislative level 2013-14	313.492
m_w	Hourly minimum wage	Legislative level 2013-14	6.31
σ	Elasticity of substitution between unskilled and skilled workers	Krusell et al. (2000)	0.401
ρ	Elasticity of substitution between skilled workers and capital equipment	Krusell et al. (2000)	-0.495
α	Capital Structures Parameter	Krusell et al. (2000)	0.117
λ	Input share parameter for capital equipment and skilled labour	Krusell et al. (2000)	0.3
γ	Matching Parameter	Hagedorn and Manovskii (2008a)	0.407
β	Monthly discount factor for workers and firms	By assumption	0.996
ϕ_u	Nash Bargaining Parameter for unskilled workers	By assumption	0.5
ϕ_s	Nash Bargaining Parameter for skilled workers	By assumption	0.5

4.1. *Results: No Minimum Wage*

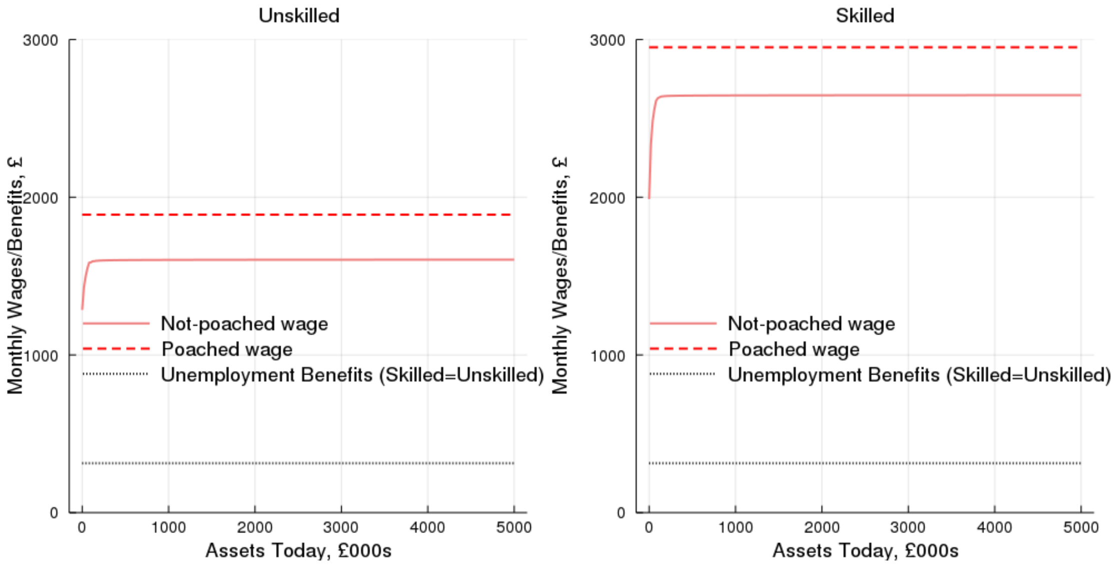
I focus here on savings decisions by workers since this is the key contribution of this paper. These savings decisions are driven by the earnings risk workers face; Figure 1 shows how earnings vary by the employment state (unemployed, not-poached and poached), skill and asset holdings of the worker. The model predicts a positive relationship both between a not-poached worker's wage (determined by standard Nash bargaining) and their asset holdings, and between workers' wages and their skill type. Both results are driven by my choice of bargaining parameter (recall I set $\Phi = 0.5$ for both skill types). However, the positive relationship between a not-poached worker's wage and their asset holdings is only significant at low levels

TABLE 4. Non-targeted Macro Moments

Moment	Model Moment	Empirical Moment
Labour Share of GVA[1]	0.82	0.76
Mark-Up Ratio[2]	1.01	1.5
Net Capital Stock/GVA[3]	1.78	2.6
Median Wealth Unskilled[4]	£66,896	£84,644
Median Wealth Skilled[4]	£69,803	£211,200
Top 10% Wealth Share[5]	0.35	0.52
Top 1% Wealth Share[5]	0.13	0.2

[1] Bank of England, includes self-employed labour income (imputing it as compensation per employee multiplied by number of self-employed). GVA=Gross Value Added
[2] Empirical moment taken from De Loecker and Eeckhout (2018), model moment is calculated analagously (as described in text).
[3] UK National accounts, ONS.
[4] Data from Wealth and Asset Survey (WAS), ONS. WAS defines total net wealth as the sum of four components and is net of all liabilities: net property wealth, net financial wealth, private pension wealth.
[5] UK Data from World Inequality Database. Based on net personal wealth is the total value of non-financial and financial assets (housing, land, deposits, bonds, equities, etc.) held by persons aged over 20, minus their debts.

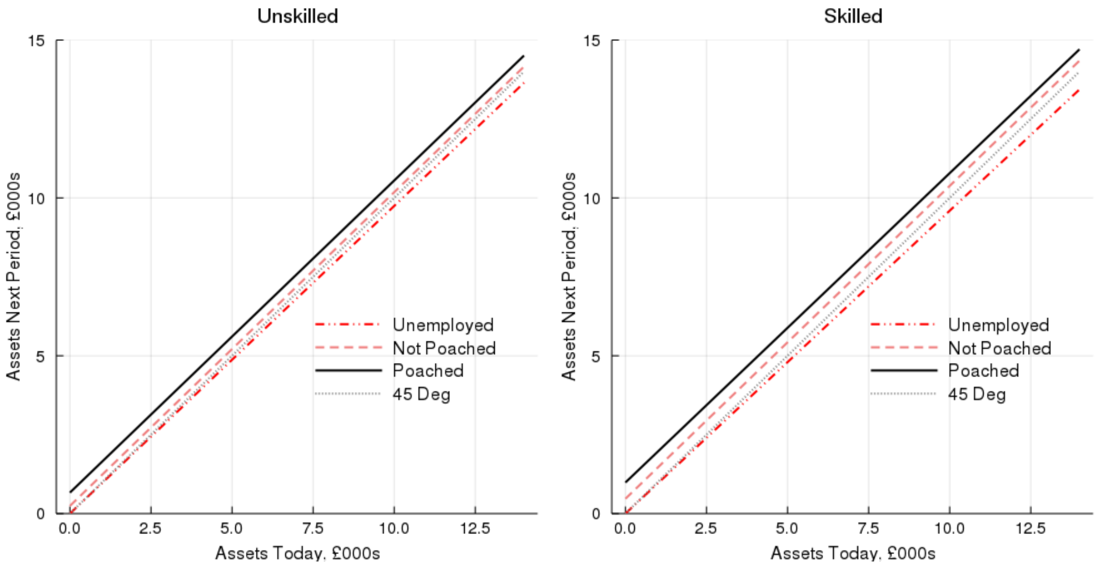
FIGURE 1. Wages in the Model



of assets; at higher levels the relationship is largely flat, which is consistent with results in the literature e.g. Andolfatto (1996).[5]

[5] see Appendix A for discussion of the relationship between the not-poached worker's wage and their asset holdings and skill type, and how the bargaining parameter influences this relationship.

Figure 2. Savings Policy Functions



Notes: The asset grid in this figure is truncated so that differences in policy functions are visible. This has the side-effect of giving the false appearance that policy functions do not converge.

Figure 2 plots the savings policy functions of workers by employment state and skill. First, for all skill types, unemployed workers have the lowest propensity to save and poached workers the highest. This is in keeping with results from Lise (2011) in that those at the top of the job ladder have the most to lose and so have a greater precautionary savings motive. The dispersion in savings policies across employment states is greatest for skilled workers; an intuitive result given that they face the greatest income risk.

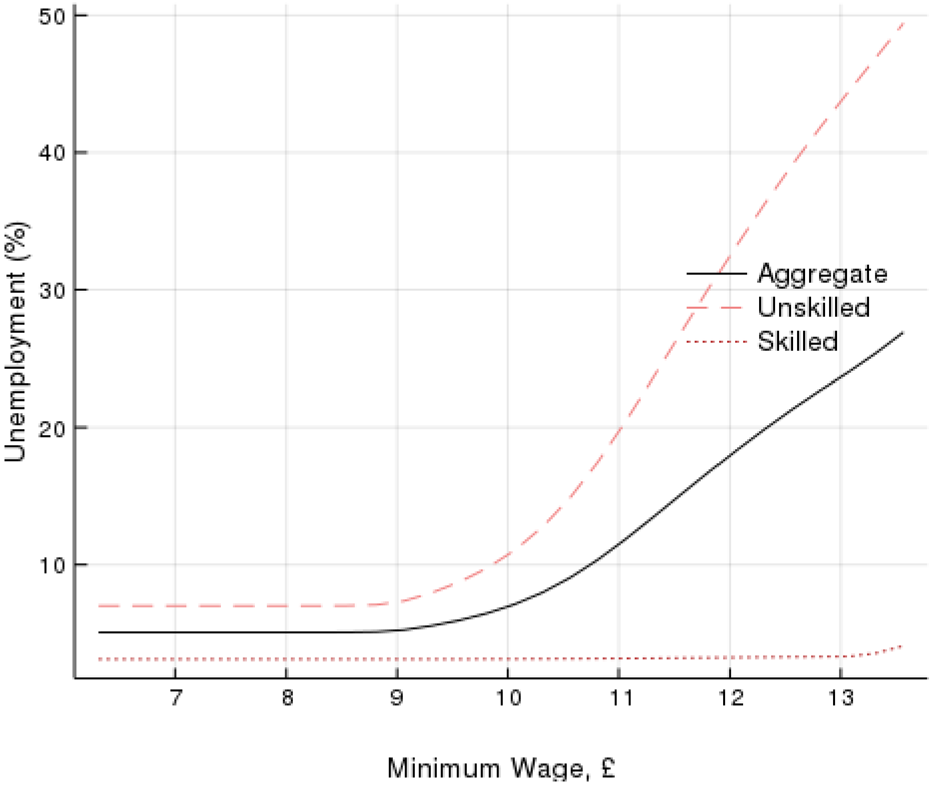
4.2. *Results: Minimum Wage Impacts*

I again start by considering earnings risk, and how this varies with the minimum wage, before presenting the key results of this paper; the impact of the minimum wage on savings and hence on consumption inequality.

Minimum Wage Impacts: Unemployment, Wage and Earnings Risk

The largest earnings risk in the model comes from the threat of unemployment, as suggested in Figure 1. The impact of the minimum wage on equilibrium unemployment rates in the model is shown in Figure 3. Figure 4 compares the unemployment response in the baseline model developed here ("Series 1" in the Figure) to the unemployment response in a model with no savings but ability heterogeneity: "Series 2"). Figure 4 also includes the unemployment response of a model with no savings and no ability heterogeneity ("Series 3") so that we can distinguish the impact of including savings and removing heterogeneity in ability.

Figure 3. Unemployment Response



The results show that the difference between the unemployment response in this paper and that in my paper with no asset accumulation is entirely driven by the lack of ability heterogeneity; including savings in the model does not change the response of unemployment to the minimum wage.

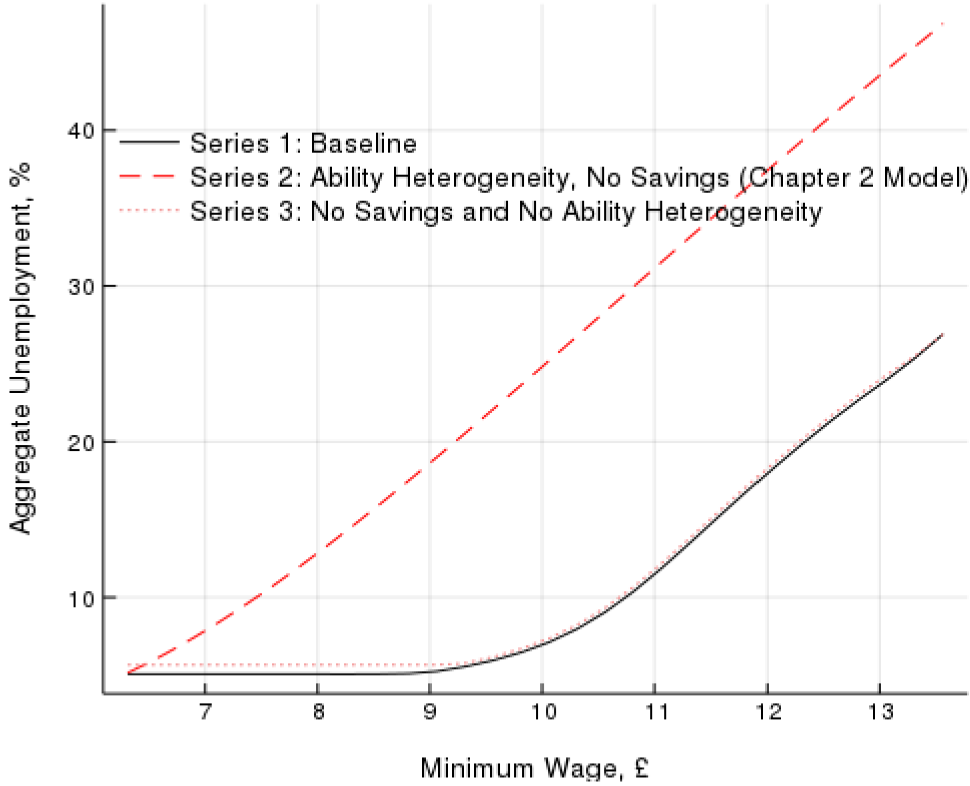
I now consider how the minimum wage affects the cross sectional variance of wages and earnings faced by workers, conditional on their skill type (earnings is defined as unemployment benefits for unemployed workers and wages for employed workers).[6] The variance in wages for a given skill type of worker is in principle driven by two sources of wage dispersion. First, wages vary across the different employment states of workers (not-poached or poached). Second, wages of not-poached workers

[6]The cross sectional variance in wages across workers of a given skill type j is shown in equation (21) (where Υ represents the employment state of a worker and w denotes their wage) and the cross sectional variance of earnings is given in equation (22) (where ω denotes earnings).

$$Var(w_j) = \int^{\Upsilon \in \{np,p\}} \int^{a} w_j^{\Upsilon}(a)^2 f_j^{\Upsilon}(a) da\, d\Upsilon - \left(\int^{\Upsilon \in \{np,p\}} \int^{a} w_j^{\Upsilon}(a) f_j^{\Upsilon}(a) da\, d\Upsilon \right)^2 \tag{21}$$

$$Var(\omega_j) = \int^{\Upsilon \in \{ue,np,p\}} \int^{a} \omega_j^{\Upsilon}(a)^2 f_j^{\Upsilon}(a) da\, d\Upsilon - \left(\int^{\Upsilon \in \{ue,np,p\}} \int^{a} \omega_j^{\Upsilon}(a) f_j^{\Upsilon}(a) da\, d\Upsilon \right)^2 \tag{22}$$

Figure 4. Comparison of Unemployment Responses

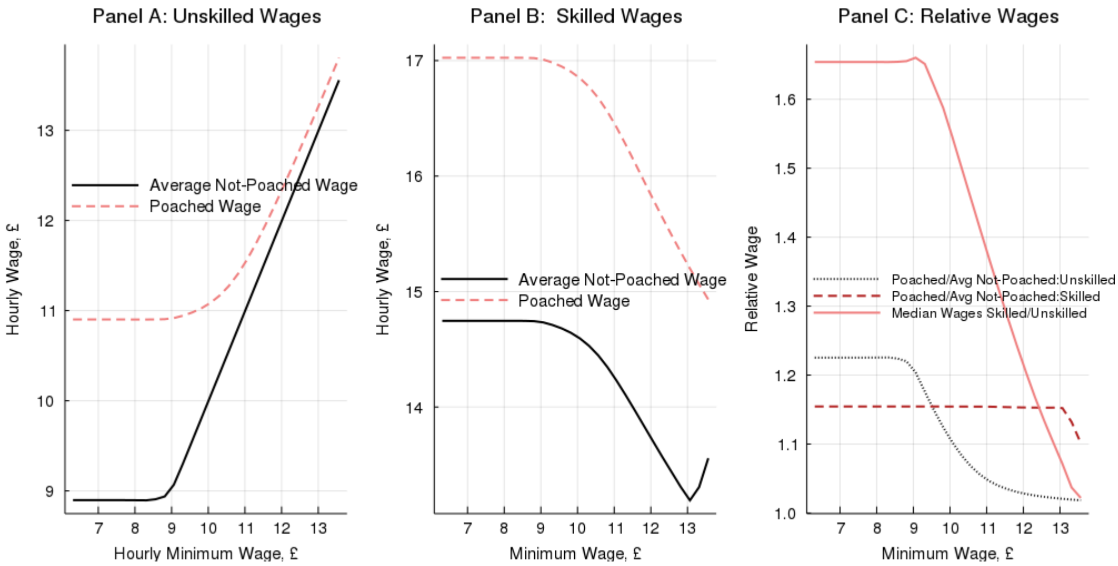


vary with their asset holdings, which will be distributed according to the non-degenerate invariant distribution of asset holdings. However, we have seen above, i.e. in Figure 1, that wages of not-poached workers do not significantly vary with asset holdings, except at low levels, so the variation in wages across employment states will be the principal source of wage/earnings dispersion for a given skill type of worker.

Figure 5 shows the impact of the minimum wage on the level of the poached wage and the average not-poached wage received by unskilled and skilled workers.[7] We see that, at low levels, the minimum wage binds only on not-poached unskilled workers. The minimum wage generates a positive spillover for poached unskilled workers because it increases the unemployment rate of unskilled workers, and therefore raises the marginal product and price of the intermediate good produced by unskilled workers. However, the increased unemployment of unskilled workers generates a negative spillover on the wages of not-poached and poached skilled workers, as shown in Panel B of Figure 5. This reflects the levels of elasticity of

[7]The average wage of a not-poached worker of skill type j, denoted $\bar{w}_j^{np}$, is defined as $\bar{w}_j^{np} \equiv \int^a w_j^{np}(a) f_j^{np}(a) da$.

Figure 5. Wage Response By Skill

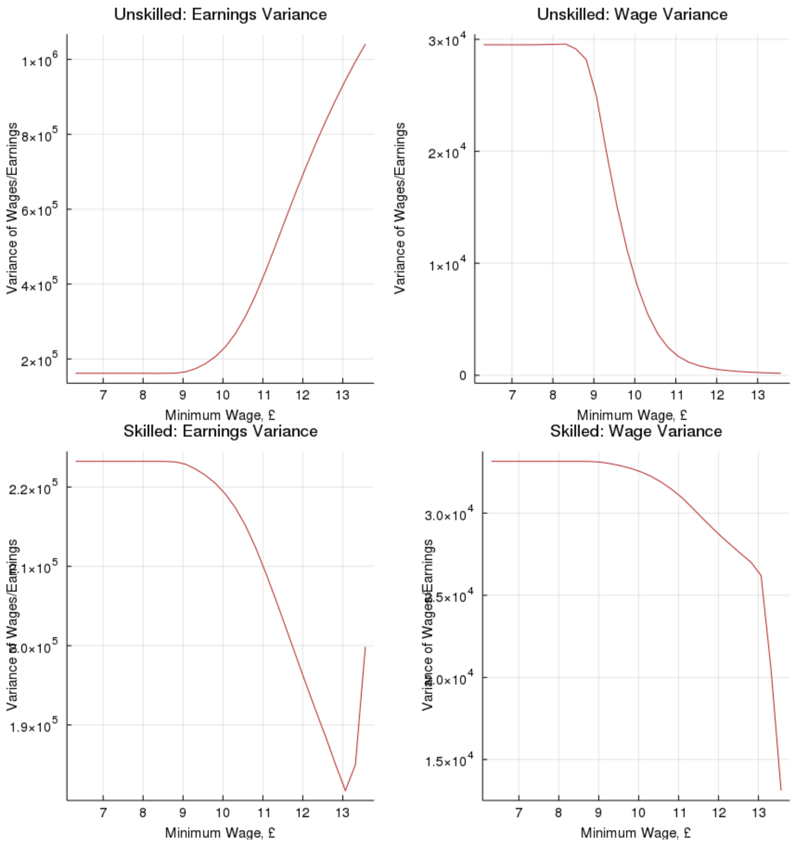


substitution between factor inputs in the KORV production function as determined by the parameter values used in my calibration. The combined effect of these minimum wage impacts is a relatively sharp decline in the skill premium, as shown in Panel C of Figure 5.

Figure 6 shows the impact of the minimum wage on the cross sectional variance of earnings and wages faced by unskilled and skilled workers. The minimum wage uniformly decreases the variance of wages for unskilled workers. However, it also increases the wage levels for not-poached and poached unskilled workers relative to unemployment benefits, which, combined with the increase in unemployment, causes a uniform increase in the variance of earnings for unskilled workers. We have seen that the increased unemployment of unskilled workers reduces the wage received by not-poached and poached skilled workers. This means skilled workers initially see their earnings risk fall in response to small increases in the minimum wage, due the decreasing gap between their unemployment benefits and wages. However, the earnings risk faced by skilled workers increases significantly once the minimum wage is high enough to directly bind their wages, which is driven by the increase in their unemployment rate and increase in their wage levels. In contrast the variance of their wages decreases uniformly.

To summarise, the minimum wage sharply decreases the variance in wages faced by unskilled workers but, because of its positive impact on unemployment and average wages, eventually causes earnings risk for unskilled workers to rise. The unemployment response of unskilled workers has spillover impacts on the earnings

Figure 6. Variance of Wages and Earnings, by Skill



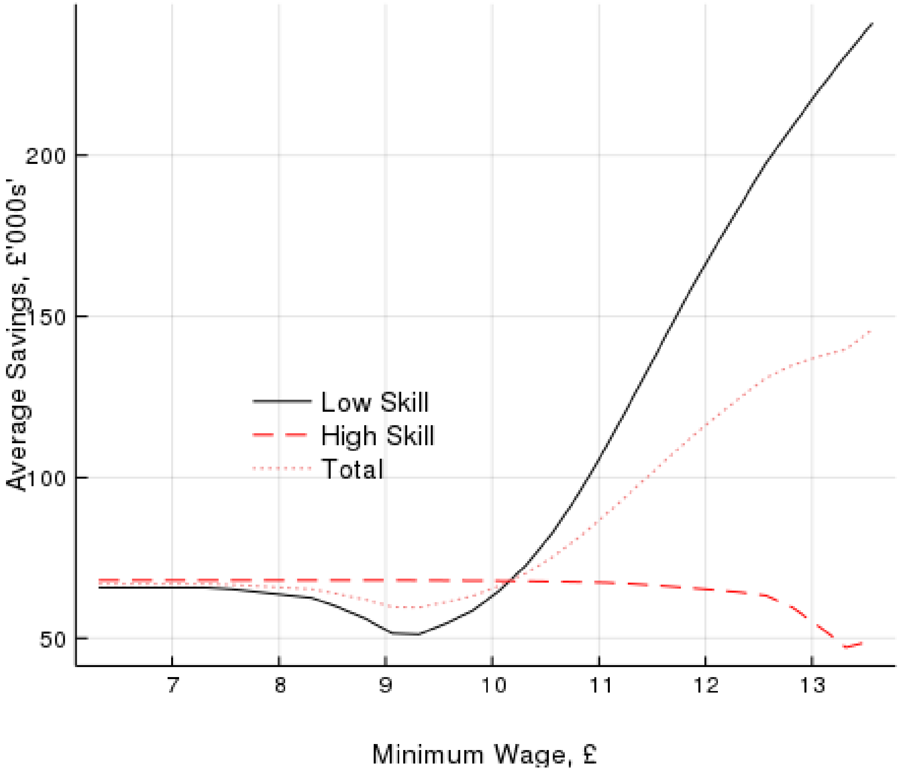
and variance of wages faced by skilled workers, causing their earnings risk to intially fall before rising steeply when minimum wages are high enough to directly bind their wages.

Minimum Wage Impacts: Savings

Figure 7 shows how the average steady asset holdings of unskilled and skilled workers varies with the minimum wage, where the average is taken across the invariant distribution of asset holdings and employment states.[8] We see that, unsurprisingly, the asset holdings of unskilled workers are significantly more responsive to minimum wages than skilled workers. Two forces shape the savings response of unskilled workers to higher minimum wage levels: the mechanical decrease in the variance of their wages, and the increase in the variance of their earnings which is caused both by a higher unemployment rate and by an increasing gap between unemployment benefits and wage levels. Initially the decrease in the variance of

[8]Specifically, Figure 7 plots $\bar{a}_j(m_w) \equiv \int^{\Upsilon \in \{ue,np,p\}} \int^a a f_j^{\Upsilon}(a) da \; d\Upsilon$, and $\bar{a}(m_w) = \sum^{j \in \{u,s\}} \bar{a}_j(m_w) \ell_j$.

Figure 7. Savings Response By Skill



unskilled workers' wages means they reduce their precautionary savings. However, when the minimum wage is increased to higher levels unskilled workers increase their savings due to the increase in the variance of their earnings.

Skilled workers also decrease their savings initially due to the gradual decrease in the variance of their earnings shown in Figure 6. At much higher minimum wage levels the increase in skilled workers' unemployment rates induces them to increase their savings too.

Figure 8 provides more detail on the savings response of workers to changes in the minimum wage by showing how the policy function response of workers varies with their skill level and employment state. Each subplot shows the percentage change in the workers' choice of next period assets a' (as a function of assets held today, a) relative to their asset choice when the minimum wage is set to its 2013 value (£6.31).[9]

[9] Specifically, Figure 8 plots $\Delta\psi_j^{\Upsilon}(a|m_w) \equiv \frac{\psi_j^{\Upsilon}(a|m_w)-\psi_j^{\Upsilon}(a|m_w^{2013})}{\psi_j^{\Upsilon}(a|m_w^{2013})}$ for each value of the minimum wage m_w, and for all employment states, $\Upsilon \in \{ue, np, p\}$ and skill types of workers.

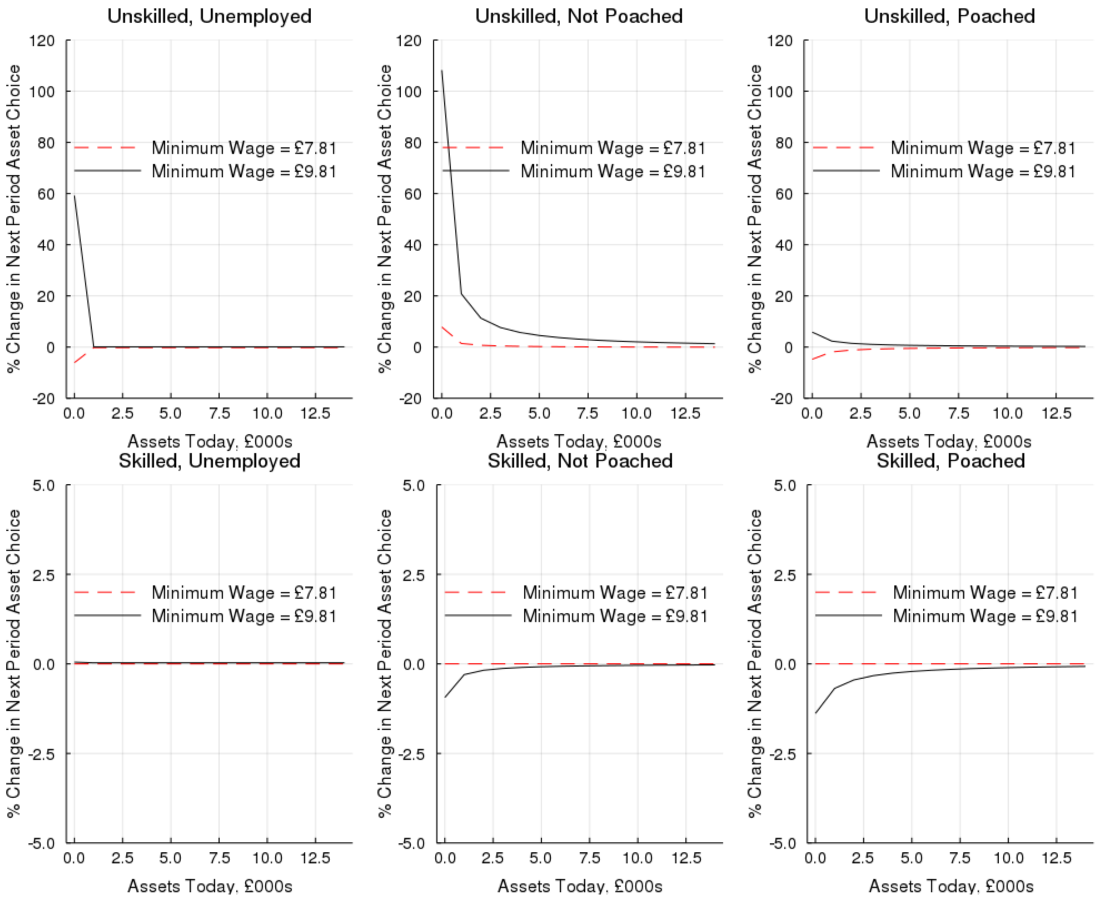
Three findings stand out. First, not-poached unskilled workers are the most responsive to minimum wage changes, which is not surprising given that the minimum wage directly binds their wages but only has an indirect impact on unskilled poached workers and on all skilled workers (except at very high minimum wage values where it is binding for both skill types of workers). Second, moderate increases in the minimum wage induce both the unemployed and poached unskilled workers to save less, due to the decrease in the variance of wages, but more significant increases induce them to save more due to increases in the variance of earnings. In contrast, not-poached unskilled workers save more in response to both moderate and higher minimum wage increases, suggesting that the increase in the variance of earnings is more relevant to them than the reduction in the variance of wages. Finally, the savings decisions of skilled workers respond only to the higher of the minimum wage values I consider. Both not-poached and poached skilled workers decrease their savings at these minimum wage values because of the decrease in the variance of their earnings caused by the negative spillover impact of higher unskilled unemployment on their wage levels.

To summarise, moderate minimum wage increases causes unskilled workers to decrease their levels of precautionary savings. However, at higher minimum wage levels unskilled workers increase their savings in response to increases in their earnings risk. This pattern is mirrored at higher minimum wage levels for skilled workers, though they decrease their savings at lower minimum wage levels because of spillover impacts from the increased unemployment of unskilled workers. These savings responses are important to understanding the aggregate inequality responses, which are discussed below.

Minimum Wage Impacts: Inequality

Figure 9 shows how the gini coefficients for wages, income, wealth and consumption vary with the level of the minimum wage in my model. These measures of inequality are calculated across all workers in the economy i.e. they do not condition on skill type. Wage inequality uniformly decreases with the minimum wage, which reflects a fall in wage dispersion within worker skill types (see Figure 6) and a fall in the wage-skill premium induced by the minimum wage (see panel C of Figure 5). Income inequality initially falls because of this decrease in wage inequality but then rises as the unemployment rate of unskilled workers increases. Initially wealth inequality rises because unskilled workers decrease their savings from an average level that was already below that of skilled workers. As the unemployment impact of the minimum wage increases unskilled workers increase their savings causing wealth inequality to fall as the average savings level of unskilled workers catches up with the average savings level of skilled workers. As the minimum wage is increased further, wealth inequality increases as the savings of unskilled workers surpass those of skilled workers and continue to rise.

Figure 8. Changes to Savings Policy Functions

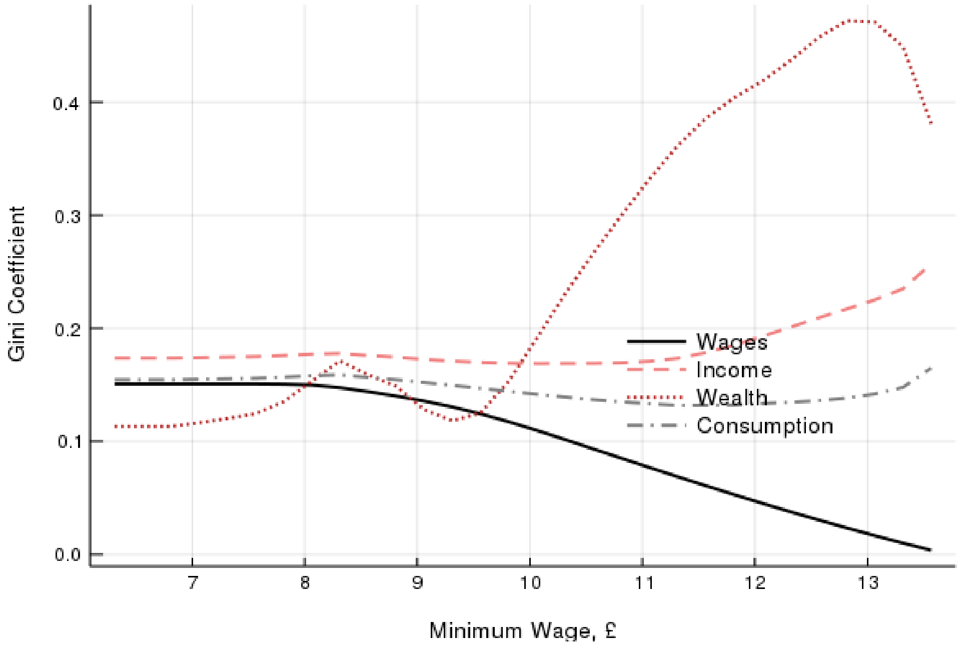


Notes: Each subplot shows the percentage change in the workers choice of next period assets relative to their asset choice when the minimum wage is set to its 2013 value (£6.31).

Finally, consumption inequality and income inequality both have a “U” shaped relationship with the minimum wage, which is the net impact of the fall in wage inequality and increases in unemployment rates. However, the turning point of this relationship occurs at a significantly lower minimum wage value for income inequality than for consumption inequality. This reflects the ability of workers to self-insure themselves against increased unemployment risk using asset accumulation. This is a key result of my model since in models without asset accumulation, consumption inequality would increase much sooner.

Figure 10 shows the response of consumption inequality in the baseline model developed here compared to a benchmark model with the same production and labour market structure but risk neutral workers with no access to savings. In

Figure 9. Inequality Response to Minimum Wage



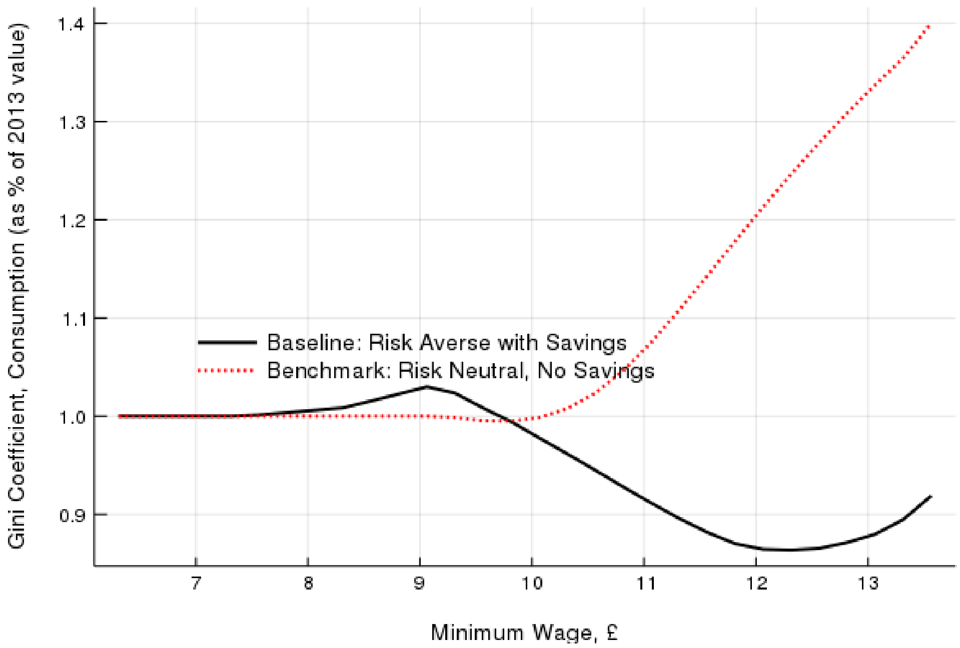
this benchmark model, the response of income inequality and consumption inequality are the same. For moderate levels of the minimum wage, the decrease in wage inequality is almost exactly offset by an increase in unemployment risk to leave consumption inequality in the model without savings broadly flat. At higher minimum wage values, the increase in unemployment risk dominates causing consumption inequality to rise significantly. In contrast, consumption inequality in the model developed here is heavily shaped by the savings responses discussed above. There is a small initial rise in consumption inequality, which mirrors the initial increase in wealth inequality and is driven by the fall in unskilled workers' savings. However, as the minimum wage increases, consumption inequality falls significantly and doesn't start rising until the minimum wage is increased to relatively high values i.e. above £12. The minimum wage therefore appears to be more effective at reducing consumption inequality when one allows for workers to self-insure with asset accumulation than in models where this is ruled out. [10]

5. Conclusion

The introduction of minimum wages, and increases to their value, are often motivated by concern over inequality. A crucial dimension of inequality, at least as it pertains to welfare, is consumption inequality. However existing structural models

[10]This conclusion also holds when considering consumption inequality conditional on skill type, rather than inequality for the entire population of workers - see Appendix B.

Figure 10. Inequality Response to Minimum Wage, under different models



of the minimum wage tend to assume risk neutral agents who can't save, and have no desire to do so. This limits the scope for analysis of the impact of minimum wages on consumption inequality, since in such models consumption inequality is synonymous with income inequality.

This paper has developed a model of the minimum wage that features on-the-job search and asset accumulation by workers, alongside a production function with several margins of substitution between factor inputs. This paper shows that allowing for asset accumulation implies the minimum wage is more effective at reducing consumption inequality than equivalent models with risk neutral workers would suggest. This is because savings allow workers to self-insure themselves against increases in unemployment and earnings risk generated by the minimum wage, limiting the pass through of these risks to consumption.

However, this conclusion comes with two important caveats. First, my analysis is based on the steady state impact of minimum wages and so does not include the impact of any transition dynamics. This could be significant if an increase in the minimum wage significantly increases consumption inequality along the transition path as workers adjust their savings. However, both unemployment and savings would adjust gradually along the transition path to equilibrium so it is certainly not a given that consumption inequality would increase.

The second caveat is that I have considered the minimum wage in isolation of other policy instruments like taxes and transfers. Considering the efficacy of the mininum wage as a redistributive instrument compared to other policies represents a potentially useful extension to the analysis presented in this paper.

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Appendix A. Bargained wages, wealth, skill and the Nash bargaining parameter

If I had opted for pure monoposny model, i.e with $\beta = 0$, then not-poached wages (effectively reservation wages) would be less than unemployment benefits for both types of workers as both worker types would be willing to pay a price to enter the labour market so that they can eventually earn the poached wage. skilled workers would be willing to pay a higher price, as they have a higher poached wage, and hence would have lower reservation wages then low skill workers.

Further, the fact that workers would receive less in their not-poached state than in unemployment would mean the not-poached wage decreases with wealth for both worker skill types, under pure monopsony. This is because increasing wealth has two opposing effects on the not-poached wage level: on the one hand it increases unemployed workers expected lifetime utility, which means they require a higher wage to enter employment.

On the other hand, it also increases their lifetime utility from being employed at a given wage which puts downward pressure on the reservation wage. If not-poached wages are always paid less than the unemployment benefit - as is the case under pure monopsony - decreasing marginal utility means the gain in lifetime utility from being unemployed with a higher asset level is less than the gain when workers are not-poached, so the not-poached wage decreases with wealth.

Appendix B. Consumption Inequality Conditional on Skill Type

Figure 11. Inequality Response to Minimum Wage