

Real Wage and Nominal Price Stickiness in Keynesian Models

1. Real wage stickiness and involuntary unemployment
2. Price stickiness
3. Keynesian IS-LM-FE and demand shocks
4. Keynesian SRAS, LRAS, FE and demand shocks

1 Real Wage Stickiness and Involuntary Unemployment

1.1 Equilibrium real wage \neq market-clearing real wage

When the real wage is too high \implies involuntary unemployment (not present in Classical model)

1.2 Efficiency wages

- Assumptions

- Work effort (E) is increasing in the real wage, initially at an increasing rate and eventually at a decreasing rate
 - * carrot or gift exchange motive - workers who feel well-treated by their employer want to do a good job in exchange
 - * stick - If the worker shirks on the job the employer can fire him/her. And if the worker is not making any more than in alternative employment, he might not care much. However, if he is making more than he feels he could in an alternative job, he will work hard in order to keep this job.

– Firm wants to maximize effort per dollar spent on wages. The wage which achieves this maximum is the **efficiency wage**.

- Implications

– For either the carrot or stick motives to be operative, the efficiency wage must be above the market-clearing wage.

– Therefore, there will be excess labor supply, defined as involuntary unemployment.

– The full equilibrium level of employment \bar{N} (FE) is below the market-clearing level in the Classical model.

– Shifts in labor supply have no effect on the efficiency wage, on \bar{N} or FE in contrast to the Classical model.

- The efficiency wage will respond to aggregate unemployment as the value of keeping the job increases with unemployment implying more work effort for a given wage, allowing the efficiency wage to fall.

1.3 Models with labor contracts

- If nominal wage fixed and not indexed for inflation, employment increases when real wage falls - not consistent with evidence
- If indexed, as in Europe, another reason for the real wage to be fixed.

2 Price Stickiness

2.1 Perfect competition (Classical model) vs. Monopolistic competition (Keynesian model)

- Perfect competition - something like wheat, gold - homogeneous good traded on organized market - if producer raises his price above the market price, he sells nothing. **price-taker**
- Monopolistic competition - differentiated goods - most goods we buy - if producer charges slightly higher price, some consumers will still buy his product. **price-setter**

- Menu costs - small cost to changing price - reprinting menus or convincing consumers that you are being fair.
 - If the difference between optimal price and actual price is small, leave price unchanged.
 - Change price only when this difference becomes large relative to the size of menu costs or the difference is expected to persist for a long enough time period.
 - Empirical evidence - many prices are fixed for periods of time - most prices are not as volatile as commodity prices
- Optimal price

$$P^* = (1 + \eta) MC$$

where η is the markup over marginal cost.

- **Desired price is above marginal cost**
- Firm produces all that is demanded at that price \implies willing to do so as long as price is at least as large as marginal cost.
- Labor demand is determined by labor needed to produce output demanded.
- Why is the firm willing to produce and sell more at P^* as demand increases?

3 Keynesian IS-LM model

- No change in variables which shift IS or LM
- Efficiency wages - FE does not shift with a change in labor supply - otherwise same as in Classical model
- Sticky prices - unless there is a large need for price to change, it does not respond immediately to a shock.
- Short-run equilibrium occurs at intersection of IS and LM and can be away from FE.

- Prices eventually adjust if firms are producing away from Keynesian FE.
- Long-run equilibrium occurs at intersection of IS, LM, and FE..
- An increase in demand (ex. M up, G up, T down) raises output.

4 Keynesian AS-AD

- SRAS is horizontal.

- A shock representing a large need for price to change would shift SRAS immediately.
- Short-run equilibrium occurs at the intersection of SRAS and AD.
- SRAS moves slowly over time when the economy is away from FE.
- Long-run equilibrium occurs at the intersection of SRAS, LRAS = Keynesian FE, and AD.
- An increase in demand (ex. M up, G up, T down) raises output