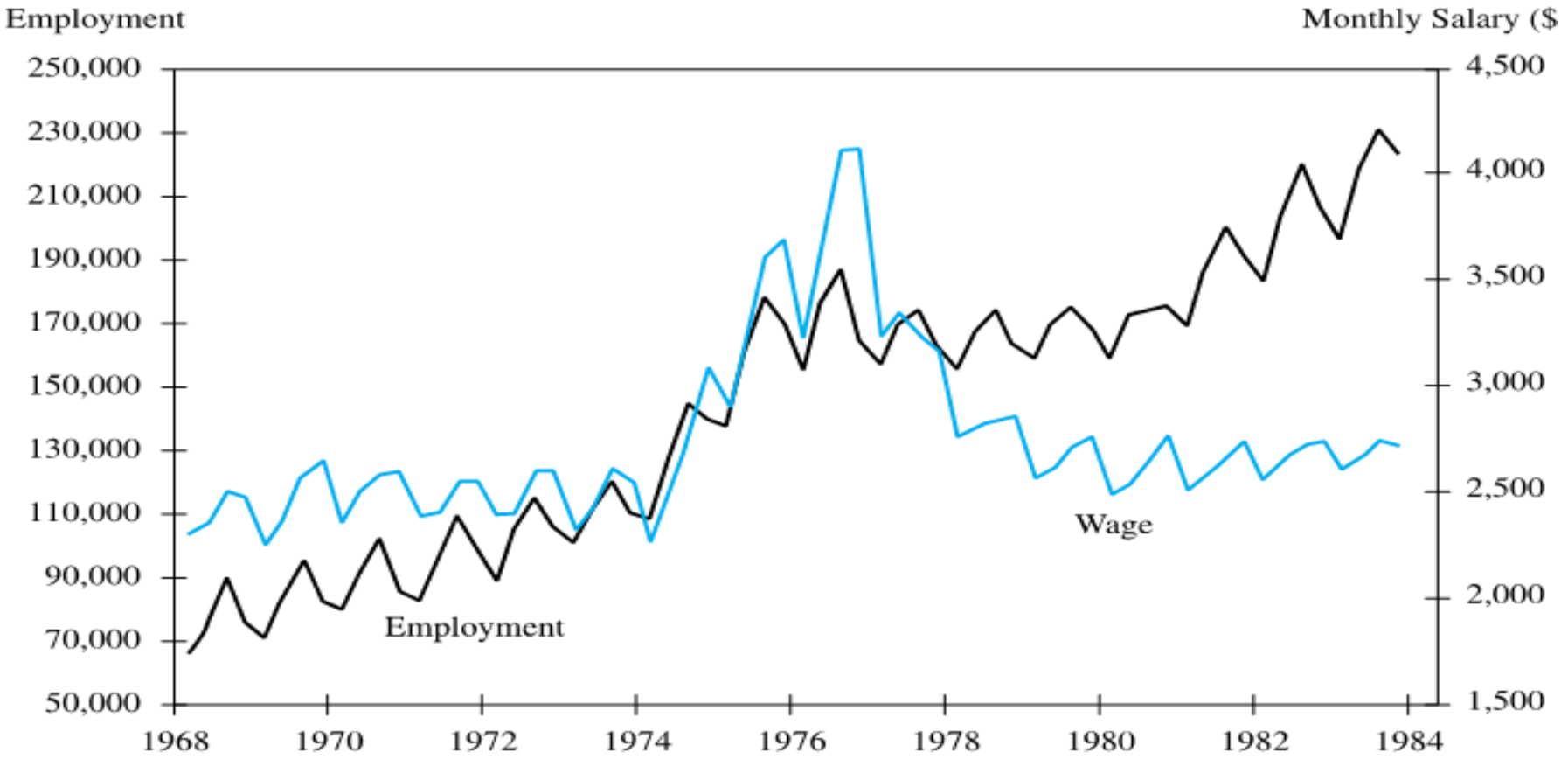
Request that you should not refuse

- PLEASE SWITCH OFF AND PUT AWAY YOUR CELL PHONES
- LAPTOPS OK IF WORK IS ACADEMIC
- REMOVE BAGS AND OTHER MATERIALS THAT CAN CAUSE DISTRACTION
- STOP HAVING SIDE CONVERSATIONS
- PARTICIPATE IN CLASS

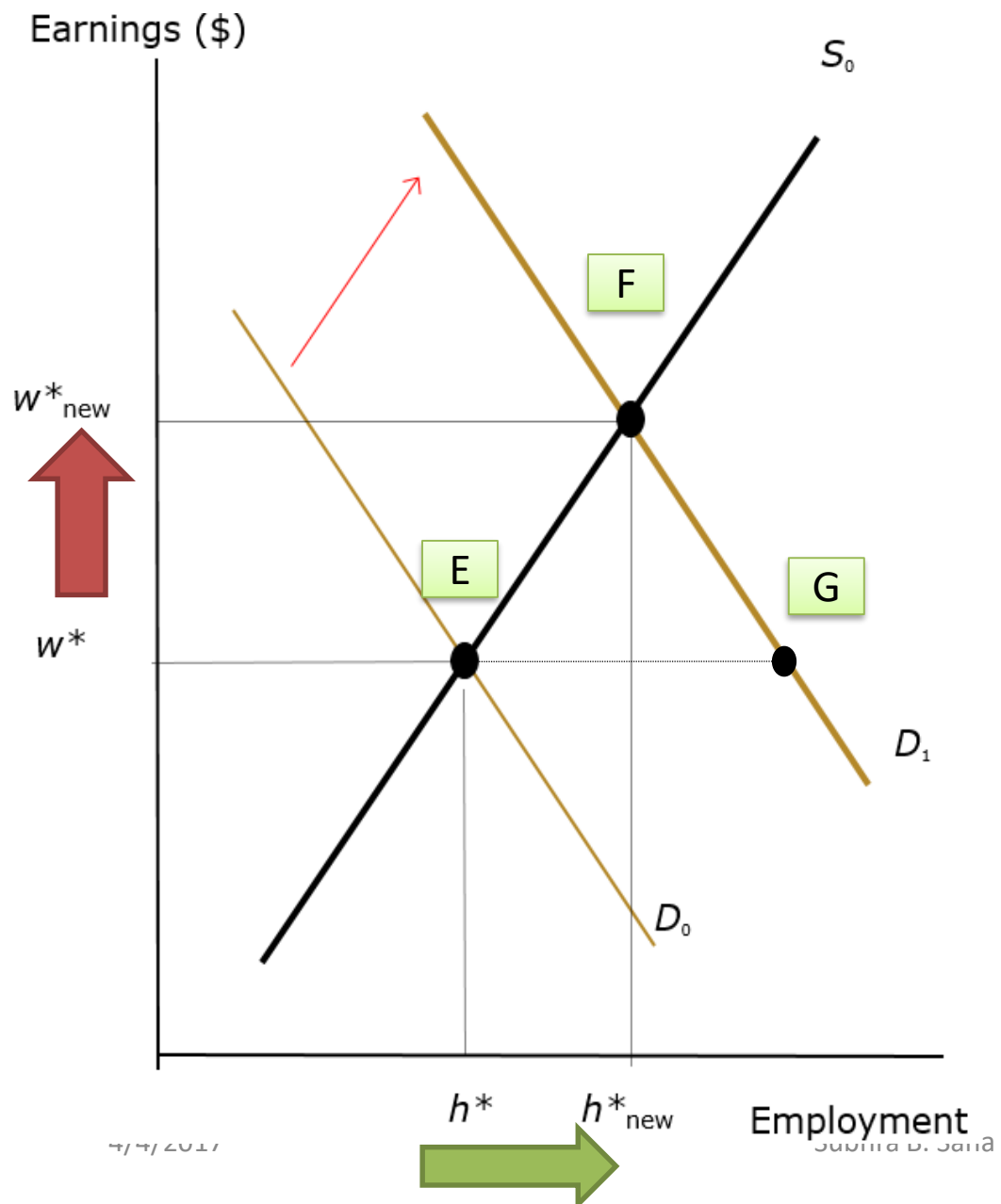
Class 2
Parametric Solutions of Basic Micro Model of Labor Market
Natural Disasters and Labor Markets

- **Housekeeping issues**
- **June 29th Thursday Capstone Exam**
- **June 28th Wednesday 2:30 PM – 5:30 PM Extra Office Hours by me (not Alan)**
- **Take answering questions in class a little more seriously**

Fact/Observation: Trends in Employment & Earnings (Wages) of Engineers in Alaska

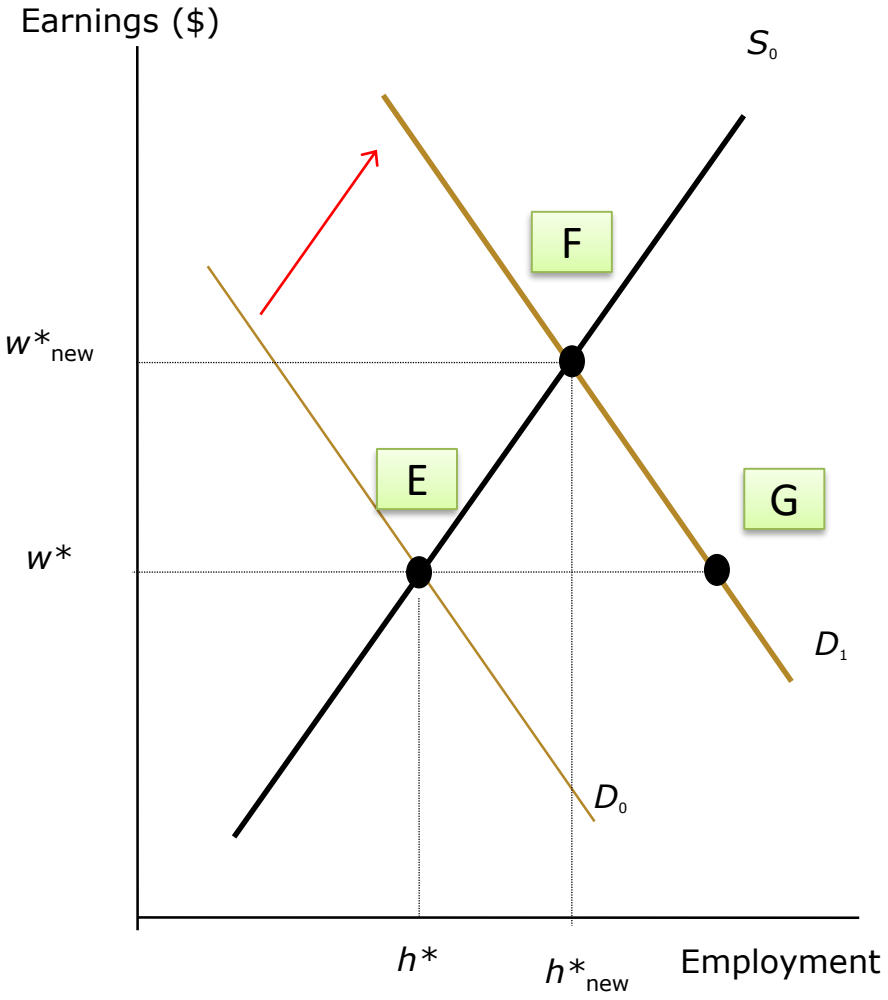


The Labor Market for Engineers and Construction of the Oil Pipeline in Alaska



- Who demands labor?
- Who supplies labor?
- What is being transacted?
- Endogenous variables?
- Why is labor demand downward sloping?
- Why is labor supply upward sloping?
- What is the baseline equilibrium?
- What is the new equilibrium after the change?
- Why did the equilibrium wage and employment change?
- Does this theory explains facts fully?
- If not, what needs to happen to show that this theory explains facts fully?

UG Class (UD): Baseline and Case 1 (The Change) Quantitative/Numerical



$$w = 100 - h^d \ldots(1)$$

$$w = h^s \ldots(2)$$

$$\exists\ w = w^*\ \ni\ h^d = h^s = h^*$$

$$w^* = 100 - h^* \ldots(1.1)$$

$$w^* = h^* \ldots(2.1)$$

$$h^* = 50 = w^* \ldots.(3)$$

$$w = 200 - h^d \ldots(4)$$

$$w = h^s \ldots(2)$$

$$\exists\ w = w^*\ \ni\ h^d = h^s = h^*$$

$$h^*_{new} = 100 = w^*_{new} \ldots.(5)$$

Grad Level: Generalized/Parameterized equations

$$w = A - Bh^d \ldots(1)$$

$$w = C + Dh^s \ldots(2)$$

$$w^* = A - Bh^* \ldots(1.1)$$

$$w^* = C + Dh^* \ldots(2.1)$$

$$\exists\ w = w^*\ \ni\ h^d = h^s = h^*$$

$$w^* = A - Bh^*$$

$$w^* = A - B\left(\frac{A-C}{B+D}\right)$$

$$w^* = \frac{AD + BC}{B+D}$$

$$A - Bh^* = C + Dh^*$$

$$\Rightarrow h^* = \frac{A-C}{B+D}$$

Questions on equilibrium wage and employment

$$w^* = \frac{AD + BC}{B + D}$$

$$h^* = \frac{A - C}{B + D}$$

- For what values of A, B, C and D can equilibrium wage be equal to 0?
- For what values of A,B, C and D can equilibrium employment be equal to 0?

Grad Level: Computational Solutions: Use Excel

$$w^* = \frac{AD + BC}{B + D} \qquad h^* = \frac{A - C}{B + D}$$

	Baseline (solved in class)	Case 1 (solved in class)	Case 2 (do at home)	Case 3 (do at home)
A	100	200	100	200
B	1	1	1	1
C	0	0	0	0
D	1	1	1/4	¼
h*	**?**	**?**	**?**	**?**
w*	**?**	**?**	**?**	**?**

Questions on Worker (Producer) Surplus and Firm (Consumer) Surplus

- Find the expressions for Firm Surplus = Consumer Surplus
- Find the expressions for Worker Surplus = Producer Surplus
- Can you find numerical values of elasticity of demand and supply in Baseline, Case 1, Case 2, Case 3 and Case 4 above?

Questions on Elasticity of Labor Demand and Elasticity of Labor Supply

$$\left|\eta^d\right| = \frac{\partial h^d / h^d}{\partial w / w} = \frac{w}{h^d} \times \frac{\partial h^d}{\partial w} = \frac{\%\Delta h^d}{\%\Delta w}$$

$$\eta^s = \frac{\partial h^s / h^s}{\partial w / w} = \frac{w}{h^s} \times \frac{\partial h^s}{\partial w} = \frac{\%\Delta h^s}{\%\Delta w}$$

- Given the equations of demand and supply can you find expressions for elasticity of labor?
- Given the equations of demand and supply can you find expressions for elasticity of labor supply?
- Can you find numerical values of elasticity of demand and supply in Baseline, Case 1, Case 2, Case 3 and Case 4 above?

Baseline & Case 1 is given above & done in class.

Follow it to to draw TWO separate graphs (Baseline & Case 2) and (Baseline & Case 3) on your own

indicate numerical value of wage and employment in baseline and case 2/case 3 graphs

In each case tell a story to explain the shifts of the labor demand and/or shift in labor supply

Suppose the computer science industry in a US city has labor demand and supply curves estimated as

$$w = A - Bh^d \ldots(1)$$

$$w = C + Dh^s \ldots(2)$$

In the baseline the industry only employs US Citizens. Suppose **K** (legal & naturalized) immigrants move into this industry from a foreign city. Which equation will you modify (equation 1 or equation 2) and how? You might want to draw a graph to know. Find the equilibrium wage and employment in baseline and in the case of new equilibrium.

Suppose the manufacturing industry in a US city has labor demand and supply curves estimated as

$$w = A - Bh^d \ldots(1)$$

$$w = C + Dh^s \ldots(2)$$

In the baseline the industry does not use any machines. Suppose the firms in the industry start employing **R** robots to substitute humans. Which equation will you modify (equation 1 or equation 2) and how? You might want to draw a graph to know. Find the equilibrium wage and employment in baseline and in the case of new equilibrium.

Suppose the manufacturing industry in a US city has labor demand and supply curves estimated as

$$w = A - Bh^d \ldots(1)$$

$$w = C + Dh^s \ldots(2)$$

In the baseline the industry does not have any minimum wage restriction. Suppose a new law is passed where this sector has to pay a wage floor of **Z which is above the baseline equilibrium wage**. Which equation will you modify (equation 1 or equation 2) and how? You might want to draw a graph to know. Find the equilibrium wage and employment in baseline and in the case of new equilibrium.

Natural Disasters Paper: Context: Mariel Boatlift paper (David Card): No impact on employment and wages in the way suggested by theory: Unit of Analysis Matters (county versus state): Limit yourself to Eq 1-E10 & Table 1, 2 & 3

Use basic demand and supply graphs for the county that is hit by hurricanes and for the county that is not hit by the hurricanes to predict the implications on changes in wages and changes in employment (in the county that is hit by hurricane and in the county that is spared by hurricane). Please draw the graphs – follow discussion in class

Analyzing the paper: Questions to Answer

- What are the dependent variable (s)?
- What is the main independent/explanatory variable?
- What are the control variables?
- What is the unit of analysis?
- What is the strategy to identify the effect of hurricanes? [Fixed Effects & DD/GDD: comparing neighboring counties before and after an exogenous shock]
- What are the sources of data? Are you happy with how the variables are measured ?
- Which parameters from the regression are important to make the author's point?
- Did the results match the author's predictions/intended results?
- What is the purpose of Table 5-8? [robustness]
- What is the academic importance of this paper? What is its contribution?
- What can be some of the big issues with this paper? [Think: if this would be an experiment (RCT) which assumptions may be violated?]

$$Q_{it} = f(Q_t, Z_i, S_t, H_{it}) + u_{it} \ldots.(1)$$

$$y_{it} = f(y_t, Z_i, S_t, H_{it}) + v_{it} \ldots.(2)$$

$$Q_{it} = \theta_{1i} Q_t + \theta_{2i} Z_i + \theta_{3i} Z_i t + \theta_{4i} S_t + \theta_{5i} H^D{}_{it} + \theta_{6i} H^N{}_{ijt} + u_{it} \ldots.(3)$$

$$y_{it} = \phi_{1i} y_t + \phi_{2i} Z_i + \phi_{3i} Z_i t + \phi_{4i} S_t + \phi_{5i} H^D{}_{it} + \phi_{6i} H^N{}_{ijt} + v_{it} \ldots.(4)$$

$$Q_{it} = \theta_{1i} Q_t + \theta_{2i} Z_i + \theta_{3i} Z_i t + \theta_{4i} S_t + \theta_{5i} H^D{}_{it} + \theta_{6i} H^N{}_{ijt} + u_{it} \ldots.(3)$$

$$Q_{it-1} = \theta_{1i} Q_{t-1} + \theta_{2i} Z_i + \theta_{3i} Z_i (t-1) + \theta_{4i} S_{t-1} + \theta_{5i} H^D{}_{it-1} + \theta_{6i} H^N{}_{ijt-1} + u_{it-1} \ldots.(3.1)$$

$$y_{it} = \phi_{1i} y_t + \phi_{2i} Z_i + \phi_{3i} Z_i t + \phi_{4i} S_t + \phi_{5i} H^D{}_{it} + \phi_{6i} H^N{}_{ijt} + v_{it} \ldots.(4)$$

$$y_{it-1} = \phi_{1i} y_{t-1} + \phi_{2i} Z_i + \phi_{3i} Z_i (t-1) + \phi_{4i} S_{t-1} + \phi_{5i} H^D{}_{it-1} + \phi_{6i} H^N{}_{ijt-1} + v_{it-1} \ldots.(4.1)$$

$$\Delta x_{it} = x_{it} - x_{it-1}$$

$$\Delta Q_{it} = \theta'_{1i} \Delta Q_t + \theta'_{3i} Z_t + \theta'_{4i} \Delta S_t + \theta'_{5i} \Delta H^D{}_{it} + \theta'_{6i} \Delta H^N{}_{ijt} + \Delta u_{it} \ldots.(5)$$

$$\Delta y_{it} = \phi'_{1i} \Delta y_t + \phi'_{3i} Z_i + \phi'_{4i} \Delta S_t + \phi'_{5i} \Delta H^D{}_{it} + \phi'_{6i} \Delta H^N{}_{ijt} + \Delta v_{it} \ldots.(7)$$

$$\ln Q_{it} = f(\ln Q_t, Z_i, S_t, H_{it}) + u_{it}$$

$$\ln y_{it} = f(\ln y_t, Z_i, S_t, H_{it}) + v_{it}$$

$$\ln Q_{it} = \theta_{1i} \ln Q_t + \theta_{2i} Z_i + \theta_{3i} Z_i t + \theta_{4i} S_t + \theta_{5i} H^D{}_{it} + \theta_{6i} H^N{}_{ijt} + u_{it}$$

$$\ln y_{it} = \phi_{1i} \ln y_t + \phi_{2i} Z_i + \phi_{3i} Z_i t + \phi_{4i} S_t + \phi_{5i} H^D{}_{it} + \phi_{6i} H^N{}_{ijt} + v_{it}$$

$$\Delta \ln Q_{it} = \theta_{1i} \Delta \ln Q_t + \theta_{3i} Z_t + \theta_{4i} \Delta S_t + \theta_{5i} \Delta H^D{}_{it} + \theta_{6i} \Delta H^N{}_{ijt} + \Delta u_{it} \ldots.(6)$$

$$\Delta \ln y_{it} = \phi_{1i} \Delta \ln y_t + \phi_{3i} Z_i + \phi_{4i} \Delta S_t + \phi_{5i} \Delta H^D{}_{it} + \phi_{6i} \Delta H^N{}_{ijt} + \Delta v_{it} \ldots.(8)$$