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## Final Exam

You have until 5:00pm to complete the exam, be certain to use your time wisely. Answer all questions directly on the exam. You may use any printouts and notes that you brought with you or any files you have saved on your computer. You may not access the internet or exchange any type of messages during the exam. If using any sort of electronic device, turn off any wifi or cellular data connections. Answer questions completely but concisely. Including additional incorrect information in an otherwise correct answer may result in a loss of points. Remember to put your name on the exam. Good luck!

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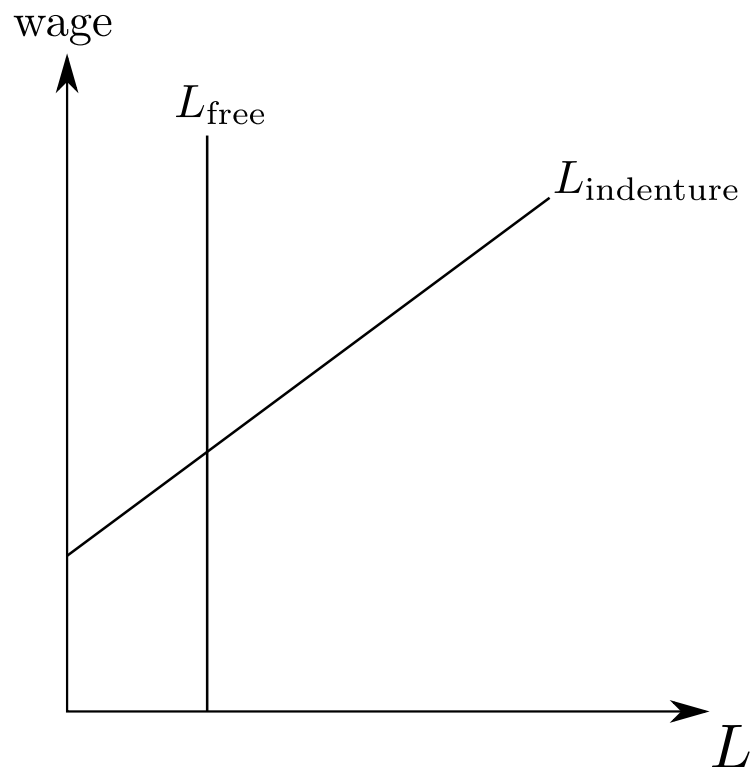
**Name:**

1. (25 points) Railroads made significant contributions to the American economy. However, the extent of those contributions, and the best way to measure them, have been a point of debate among economic historians.
  - (a) With no more than one sentence devoted to each group, discuss the different groups that received economic gains from the expansion of railroads. Be certain to explain why each group gained from railroad expansion.
  - (b) Describe how you would ideally measure the gains for each group you discussed in part (a), being as specific as possible about what data you would use. Limit your answer to no more than two sentences per group.
  - (c) Now consider specifically the work of Donaldson and Hornbeck on railroads. Does their approach of measuring market access capture all of the surplus gains you described in part (a)? Be certain to fully explain your answer.
  - (d) Explain why their measure of market access for certain counties could go down as the railroad network continues to expand.

2. (25 points) A big advance in economic history in recent years is the availability of complete count federal census data, datasets that include every person in the United States for each census year up to 1940. New techniques for linking individuals across censuses have allowed us to track individuals over time, giving economic historians new insights into the labor markets of the past. The work by Abramitzky, Boustan and Eriksson is an excellent example of this. Let's work through their main advances to our understanding of immigrant assimilation during the Age of Mass Migration.
- (a) Explain why studies using only a single cross section of data (data from one census) overstate the earnings assimilation of immigrants relative to studies using repeated cross sections (data from multiple censuses). Your answer should be specific to the Age of Mass Migration.
  - (b) Explain why studies using repeated cross sections (data from multiple censuses) overstate the earnings assimilation of immigrants relative to studies using panel data (data with individuals linked across censuses). Your answer should be specific to the Age of Mass Migration.
  - (c) Abramitzky, Boustan and Eriksson were limited to estimating income on the basis of an individual's stated occupation. Suppose that they were able to directly measure annual income and used this as their dependent variable. Do you think that this would lead to greater or smaller estimates of immigrant earnings assimilation relative to relying on occupation-based earnings when using a single cross section of data? Fully explain your answer.
  - (d) Would using actual earnings rather than earnings estimated on the basis of occupation lead to greater or smaller estimates of immigrant earnings assimilation when using panel data? Fully explain your answer.

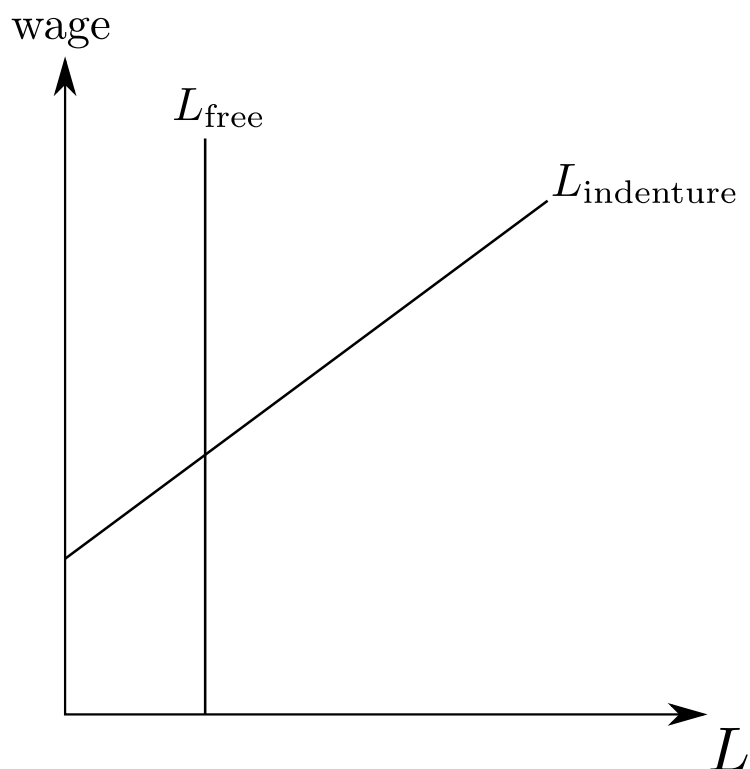
3. (25 points) In class we used a graph of the labor supplies of free laborers, indentured servants and slaves to explain the disappearance of indentured servitude and the increased reliance of the American economy on slave labor. Recall that the slave labor supply curve was a function of the cost of transporting slaves across the Atlantic.

(a) Let's consider how the composition of the American labor force would have changed over time had slavery never been permitted. The graph below shows a free laborer supply curve and an indentured servant labor supply curve for the colonial economy in 1750.



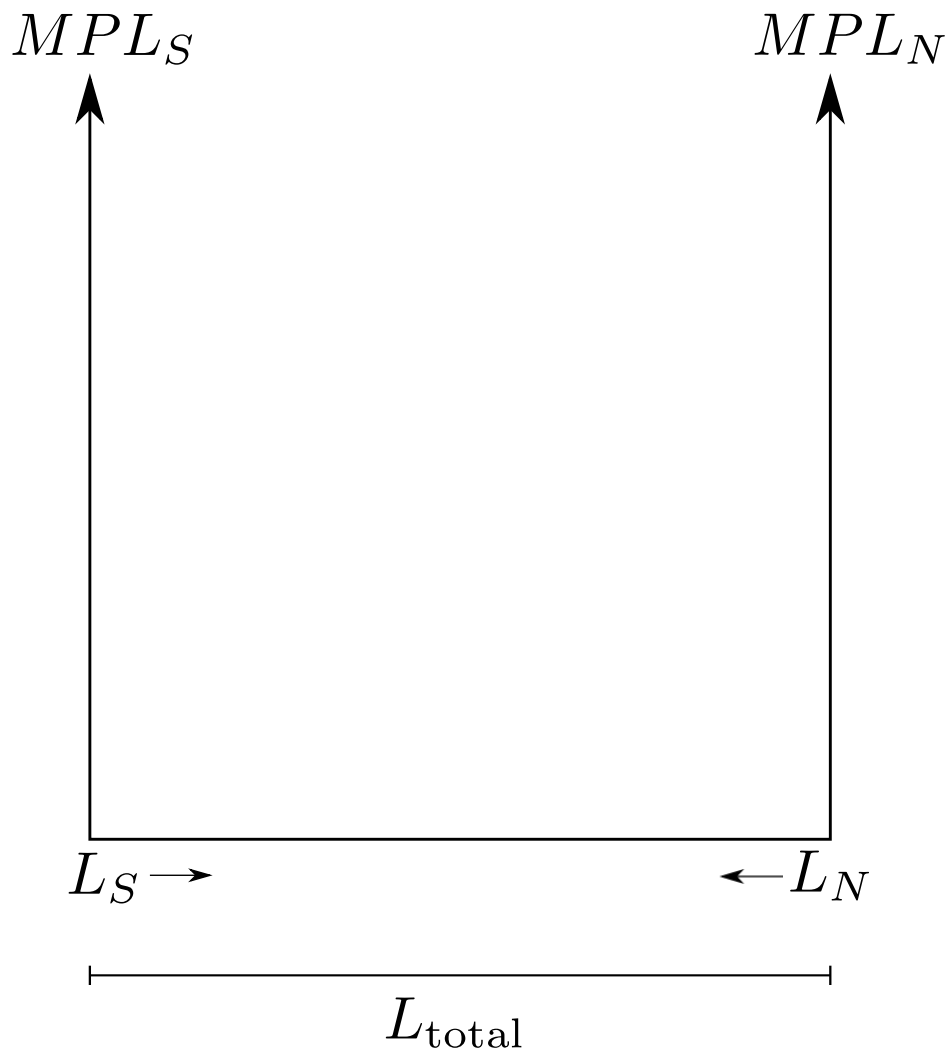
On the graph, show how the two labor supply curves would shift when fares for crossing the Atlantic decline and how this changes the overall labor supply curve in the colonies. Include a two sentence explanation of why the reduction in trans-Atlantic fares affects the overall colonial labor supply curve.

- (b) Now think about a different scenario (one consistent with the actual history of the United States). As of 1808, the importation of slaves into the United States was outlawed. On the graph below, add two curves, one representing the supply of slave labor before 1808 and one showing the supply of slave labor after 1808. Note that this is different than what we considered in class: you should account for the domestic supply of slave labor, not just the importation of slave labor.



- (c) In no more than two sentences, explain what determines the vertical intercept of the pre-1808 supply of slave labor curve you drew in part (b).
- (d) In no more than two sentences, explain what determines the vertical intercept of the post-1808 supply of slave labor curve you drew in part (b).

4. (25 points) The graph below measures the marginal product of labor in the South ( $MPL_S$ ) as a function of the number of laborers in the South ( $L_S$ ) and the marginal product of labor in the North ( $MPL_N$ ) as a function of the number of laborers in the North ( $L_N$ ). The number of laborers in the South is measured from the left and the number of laborers in the North is measured from the right. The total number of laborers ( $L_{\text{total}}$ ) is fixed and equal to the sum of  $L_S$  and  $L_N$ .



- (a) On the graph, draw two curves, one representing the marginal product of labor in the North as a function of  $L_N$  and the other representing the marginal product of labor in the South as a function of  $L_S$ . In no more than three sentences, explain why the curves have the shapes you have chosen.
- (b) Given Collins and Wanamaker's findings about the impacts of migration on earnings, show a point on your graph that represents the distribution of workers between the South and North prior to the Great Migration. Label the number of Southern laborers under this allocation  $L_S^{\text{pre}}$  and the number of Northern laborers under this allocation  $L_N^{\text{pre}}$ . In no more than two sentences, explain why you chose this particular allocation.
- (c) If labor markets are competitive and transportation costs are low, what should the equilibrium distribution of labor be after the Great Migration? Label the number of Southern laborers under this allocation  $L_S^{\text{post}}$  and the number of Northern laborers under this allocation  $L_N^{\text{post}}$ . In no more than three sentences, explain why this would be the equilibrium.
- (d) Explain why we may not reach the equilibrium distribution of labor you graphed in part (c). Your answer should be specific to the United States in the early 1900s. In other words, any issues you discuss should have been present in the early 1900s.