Market Analysis, ECO 5351, Darren Grant, Spring 2020.

In this assignment, you will design a presentation describing how a particular labor market "works," identifying a primary problem facing that market and how it is addressed. Over the course of the semester, we have become familiar with several labor markets and how they operate. Now it is your turn to add to our list! Hard copies of your slides, interview notes, and article are due in class on Thursday, Apr. 30. You are welcome to present on that day or (by advance arrangement) at any earlier class meeting.

The guidelines are as follows:

1.   You must create a PowerPoint presentation consisting of between eight and ten slides to present in class. The outline of your presentation is listed below.

2.   In class, you will be given eight minutes to make your presentation. Questions may be asked, by me or your classmates, afterwards, as well, for a few minutes.

3.   In the grading, completion of the assignment according to the instructions counts the most, followed by the clear identification of a problem and its solution, the quality of the analysis, the factual content of your slides, and the quality of your verbal presentation, in decreasing order.

4.   This assignment is intended to use and evaluate critical thinking skills and communication skills. These skills' development is an objective of the MBA program. Critical thinking skills involve distinguishing relevant and irrelevant information regarding a business problem and developing a valid argument in support of a conclusion. Communications skills involve using language and content that suits the intended audience and organizing content in a logical sequence. Please keep this in mind in developing your presentation.

Here is what to do:

1.   Choose a labor market to analyze. The market need not be perfectly competitive, and can be related to your current job if you have one. You are welcome to discuss your choice with me, but I would prefer not to suggest markets to analyze–I would rather leave that up to you. The only markets ruled out are those we will analyze this semester: professional sports, priests and pastors, drug dealing, and, of course, pirates. ☺

        Please let me know the market you chose–if someone has already selected that market, I will ask you to choose a different market. This ensures variety in the class presentations.

2.   Gather information about your market, based on personal experience, discussions with people who work or hire in that market, and/or readings. You should have a basic understanding of the institutional features of the market (Is it competitive? Are there unions? etc.), supply and demand (Is production labor intensive? Is there lots of turnover? etc.), and wages and employment.

        There are three sources I want you to use in particular. The first is an "interview," or discussion about your market, with at least one person who works in it, hopefully at the managerial level. The second is at least one good newspaper, magazine, or journal article of 1,000 words or more. The third, for basic wage, employment, and expected employment growth data, is the Bureau of Labor Statistics' Occupational Outlook Handbook (OOH), http://www.bls.gov/ooh/ . (Look up the closest occupation if necessary.)

3.   Prepare your PowerPoint presentation, as discussed below.

4.   Practice your presentation. Public speaking skills are very valuable!

5.   Give your presentation in class and turn in to me a hard copy of your slides, article, OOH printout, and interview notes, all stapled together.

Here is the way to structure your presentation:

1.   Your presentation will have a narrative. I want you to identify a "problem" that your labor market has, and show how the market solves it, or how the firms in that market solve it.

        For example, in our baseball discussion, one "problem" faced by Major League Baseball is how to finance the development of baseball skill when minor league teams are not financially viable on their own. This problem is solved by binding players to the Major League teams that draft them for their first six seasons in the majors, after which they can become free agents. These teams can underpay their players relative to their productivity, which creates a surplus that is used to offset losses on teams' farm systems (the minor leagues).

        Identify the problem in your title–now you have a hook to make your presentation interesting. For example: "FAST FOOD RESTAURANTS–HOW DO THEY MINIMIZE LABOR COSTS GIVEN RAPIDLY FLUCTUATING PRODUCT DEMAND?"

        If you understand your market well, your narrative–the problem and the solution–will "spring to life" as it did in the many readings we have had this semester. While firms share certain basic labor market problems that they must solve, the details of the problem and of the solutions generally differ by market. Understanding these will help make your presentation distinct and meaningful.

2.   After your title slide, present some basic facts about your market (as mentioned above). Describe, in simple terms, how this market functions. This can take two to four slides. If you can make a meaningful chart, graph, or table of basic information about your market, please do so.

3.   Next, clearly describe the problem to be solved by your market. This should take one slide.

4.   Next, describe the *main* way or ways your market / firms solve this problem. Do not present a laundry list–focus on the important stuff. Also, do not include hypotheticals, only actual solutions that are actually being used. This part of your presentation should include at least one link to the economic theory discussed in class, and one theory-related graph to illustrate this link. That is, show how the theory of labor economics helps us understand how this market / firm solves the problem you stated. This part of the presentation should take two to four slides.

5.   Present a one-slide conclusion.

Your slides should list bullet points, or present a simple graph, table, or image, but they should not be extremely wordy–you augment the slides with your verbal discussion. Therefore, do *not* simply read your slides; instead, elaborate on the information given in the slides. You are welcome to prepare your talk on your own paper and read from it–that is not the same as reading your slides to the class. I am happy to review your PowerPoints by request, with at least 24 hours lead time.

Player Evaluation Assignment, ECO 5351, Darren Grant, Spring 2013.

This assignment is due at the beginning of class on Tuesday, Feb. 12. Written material should be typed, 12 pt. font, double spaced, and the whole assignment stapled together. Please do not ask me to accept assignments that are not stapled, and please do not exceed the space limit of three written pages of text–my grading will stop there. (Copies of your spreadsheet and graphs do not count in the three page limit.)

As indicated on the course syllabus, on this and all other assignments, all work is to be strictly your own. You are welcome to contact classmates to clarify the requirements (i.e., what the assignment is asking), but on all substantive matters please direct your questions to me.

In this assignment we will assess the value of Major League Baseball (MLB) free agent pitchers signed for the 2012 season, using a simplified version of the methods described in the article "An Economic Evaluation of the Moneyball Hypothesis." Six web sites will be of use in doing so:

- Player Salary Database: http://content.usatoday.com/sports/baseball/salaries/default.aspx
- Player Performance Database: http://www.baseball-almanac.com/players/ballplayer.shtml
- Team Pitching Statistics: http://espn.go.com/mlb/stats/team/_/stat/pitching/year/2012
- Team Attendance Statistics: http://espn.go.com/mlb/attendance/_/year/2012
- Team Standings: http://espn.go.com/mlb/standings/_/year/2012
- Team Average Ticket Prices (for the 2012 season): see handout

Here is what to do:

Team Sheet:

The first sheet will relate the team's pitching effectiveness to winning percentage and revenue.

1.   For each team, record their *opponents'* OBP and SLG from the team pitching database above, along with team earned run average (ERA), attendance, winning percentage, and the average team ticket price, from the appropriate links.

2.   Put the team name in the first column of the sheet, their total number of wins in the second column, opponents' OBP in the third column, opponents' SLG in the fourth, and leave the fifth column blank for now. Then put team ERA in the sixth column, attendance in the seventh column, ticket price in the eighth column, and calculate total team ticket revenue and put that in the ninth column.

3.   The "Economic Evaluation" article indicated that OBP was twice as important as SLG in producing runs and wins. Thus, create a simple "index" of the offensive production of the opposing teams, 100*[2*OBP + SLG], and put that in your fifth column. Multiplying by 100 just makes the numbers easier to read and interpret.

4.   Create a scatterplot that relates the index you have just created, on the x-axis, to the team's wins, on the y-axis. Include the Excel trendline and display the equation of the trendline (this is an option in the chart design / layout tab). If the index decreases by 1, how many more games does the team win?

5.   Re-do step 4 using team ERA instead. This is a simple summary measure of pitching effectiveness.

6.	Create another scatterplot of win percentage (x-axis) and revenue (y-axis), and include the Excel trendline and the equation, as before. If the team wins one more game, how much more revenue do they make?

Player Sheet:

The second sheet of your spreadsheet will relate pitcher salaries to pitcher effectiveness.

1.	Choose, from at least ten different MLB teams, twenty free agent pitchers *at random.* Please note: to be a free agent, a player must be in his seventh year in MLB or higher.

2.	Obtain each pitcher's 2012 ERA from the performance database above.

3.	Obtain those players' 2012 salaries from the salary database.

4.	Put the player name in the <u>first</u> column, their ERA in the <u>second</u> column, and their 2012 salary in the <u>third</u> column.

5.	Make a scatterplot of these pitchers' ERAs vs. their salaries. Add a trendline. According to the trendline, how much is a one-run decrease in a pitcher's ERA worth in additional pay?

Drawing Conclusions:

In the team sheet, you placed a value on decreases in the team's ERA. Each good pitcher (which most free agents are) pitches about 1/10th of the team's total innings. Thus, from the results on the team sheet, you can calculate the implied value of a one run reduction in an individual pitchers' ERA: the additional revenue that a team employing such a player would receive. The graph on the player sheet also gives a value of a one run reduction in an individual pitchers' ERA, based on actual negotiated salaries. How well do the two match? Are free agents' salaries set according to the player's productivity? Your write up should offer a clear answer to these questions, including a clear statement / calculation of each of the two values listed above.

Your Write Up:

Write out, in three double-spaced, typewritten pages, 1) what you did, including writing out any formulas you utilized in your spreadsheet; 2) why you did it, including an explanation and justification of the formulas you used; and 3) conclusions. To write out the formulas, you may use traditional algebraic notation or copy the Excel formulas out of your spreadsheet. Attach a printout of your data and graphs to the back of your write up. Everything should be *stapled* together and follow the formatting specified at the top of this assignment. Take care to make your graphs clear and visually pleasing: in business, presentation matters.

Bring a copy of your spreadsheet file to class if you are interested in discussing the assignment that day–I will invite a couple of students to present their work to the class.

As with all assignments, you are invited to contact me by e-mail or phone with questions. Please get started early, that gives you time to work through any complications you may run into.

Teachers Assignment, ECO 5351, Darren Grant, Spring 2013.

This assignment is due at the beginning of class on Tuesday, March 5. Written material should be typed, 12 pt. font, double spaced, and the whole assignment stapled together, including copies of all supporting material identified in #7 below. Please do not ask me to accept assignments that are not stapled, and please do not exceed the space limit of three written pages–my grading will stop there.

We will discuss this assignment in class, so on the due date please have computer-readable copies of your graphs available, either on a CD, flash drive, or via e-mail. You may be invited to show them to the class and describe them briefly. As with all assignments, this is to be independent work.

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The superintendent of your school district wishes to better understand how economic factors affect inequality in academic achievement across the district. Several web sites will be of use in finding out:

•   Academic Excellence Indicator System: http://www.tea.state.tx.us/perfreport/aeis/
•   Texas School District Maps: http://wgisprd.tea.state.tx.us/SDL/
•   Texas School Accountability Rating System (2010 version): http://www.tea.state.tx.us/perfreport/account/2010/index.html
•   Individual School District Web Sites (look up on google)
•   *Journal of Human Resources* article by Hanushek, Kain, and Rivkin

Here is what to do:

1.   Choose and obtain my approval of a school district in Texas to study. The district must have at least twenty elementary schools that include the 5th grade, and should have some variation in socioeconomic status across schools. You can use the Map site to look at districts. Obtain approval from me–each student will study a different district, and I want districts outside of the Houston and DFW Metro areas. You will not need to study every school in your district, just twenty elementaries, selected to maximize variation in the percentage of economically disadvantaged students (who receive free or reduced lunch) in the school.

2.   Obtain a copy of the teacher salary schedule from your district and four surrounding districts. These are generally available on the district's web site, but occasionally you will have to call and have them FAX it to you.

3.   Read the JHR article, focusing on the main points and not getting bogged down in details.

4.   Go to the AEIS and obtain, for each of the twenty schools you have chosen, the percent passing the 5th grade TAKS mathematics, the percent passing the 5th grade TAKS reading, the percentage of students on free or reduced lunch (economically disadvantaged), the percentage of teachers in the school with five years of experience or less, and the average total operating expenditures per student (by function). Each of these numbers should be for 2010 (2009-2010 school year), because the testing system changed for 2011. Record these numbers in a nicely organized spreadsheet.

5.   Create nice-looking scatterplots of the percentage of economically disadvantaged students vs. math scores (% passing), economic disadvantage vs. reading scores, economic disadvantage vs. the percent of teachers with less than 5 yrs. experience, and economic disadvantage vs. average

operating expenditures. Treat economic disadvantage as the independent, or X, variable, and the others as dependent, or Y, variables. Include a trend line in each.

6.   Also create a graph of percent teachers with less than 5 yrs. experience vs. math scores, and another that replaces math scores with reading scores. Here, the percentage of inexperienced teachers is the independent variable and the test scores are the dependent variable. Again, include trend lines.

7.   Write a memo to the superintendent, organized around answers to the questions below, to explain how economic factors affect inequality in academic achievement across the district. Make the memo no longer than three typewritten pages maximum, with printouts of your data, graphs, and salaries, stapled to the back. Turn it in to me and I will forward it to the superintendent for you...

Here are the questions!

1.   <u>Competitiveness of Markets</u>. First, compare salaries across districts. What does it mean for teaching salaries to be competitive? Are they reasonably competitive across your market area? Why? Are they more competitive for beginning teachers or experienced teachers?

2.   <u>Labor Demand</u>. Carefully examine the teacher salary schedule for your district. Describe the patterns that it contains. Theory suggests that the amount employers are willing to pay workers reflects their productivity. If so, what does the salary schedule indicate school districts do, and do not, value in teachers? Does this make sense?

3.   <u>Labor Supply</u>. Briefly summarize the JHR article. Then briefly summarize your graphs in #5 above. Interpret the trend lines. Do your graphs suggest that teacher supply follows the patterns described in the JHR article?

4.   <u>Equilibrium</u>. Your teacher salary schedule has no compensating differentials of any kind. In this labor market, what does that mean?–what would it be like, instead, to have compensating differentials? Describe how the lack of compensating differentials affects the teacher supply patterns you described above. Does the lack of compensating diffferentials have any other repercussions in this market?

5.   <u>Output</u>. Finally, let's look at performance, as measured by test scores. Based on your graphs in #6 above, are these scores related to the percentage of inexperienced teachers? Quantify the relationship by interpreting the trend line. Do the pay policies of school districts appear to influence student achievement in the schools you studied?

One or two paragraphs should suffice to answer each set of questions (1-5). Conclude your write-up with brief concluding remarks that focus on the big picture.

CPS Data Analysis Assignment, ECO 5351, Darren Grant, Spring 2013.

This assignment is due at the beginning of class on Tuesday, Apr. 9. Please type all written material, 12 pt. font, double spaced, and staple the whole assignment together.

You are human resources director for large a nationwide company. The CEO asks you to look into whether your married and unmarried employees are being paid comparably, and if they are not, to suggest a solution. Using data on employee characteristics and wages from your records, you are to conduct an analysis to answer the CEO's question and suggest remedial action if warranted.

(The data you will be given is actual, recent data, but not from a particular company–it is from the January 2012 Current Population Survey, a nationwide labor market survey that is conducted by the Census Bureau and managed by the Bureau of Labor Statistics. Each student in the class has different data. See http://www.bls.gov/cps/tables.htm for an overview of the information gathered using this survey. In this data, married = married with spouse present, i.e., not separated.)

There are four general steps to the analysis. First, you will compare the mean values of different employee characteristics among married and unmarried employees, to see how they differ. Second, you will estimate a standard wage equation (using regression) to see if there is a "problem." Third, you will recommend a solution to the discrimination problem. Fourth, you will implement and evaluate the solution you propose, to see if the discrimination problem has gone away.

Specifically, here is what to do:

1.   Read the JHR article, "Does Marriage Really Make Men More Productive?" as background information. You will have to read it carefully to understand its main points, and you are welcome to ask me about them. There is a little stuff in there (such as "multinomial logit") that you won't understand, but you will be able to grasp the main points in a careful reading.

2.   Turning to your data, what fraction of your employees are married? Take the means of all the variables for your married workers and your unmarried workers, separately, and place them in a nicely formatted table. How do they compare? What is the difference in the average pay of your married and unmarried workers? Based on the means you have calculated, what human capital factors contribute to these differences?

3.   Your data contains all the variables you need. However, for your regressions you will need the squares of experience and job tenure, and the natural logarithm of wages. Create those columns in your spreadsheet. Be sure to put logged wages in the second column (actual wages are in the first column).

4.   Run a wage equation regression using all of your explanatory variables and all of your observations. Interpret each of the coefficients. Are the coefficient signs consistent with human capital theory? Are the returns to schooling consistent with human capital theory? Is there evidence of discrimination against women? Minorities? Unmarried people?

5.   On a new sheet, create experience-wage profiles of the type that we discussed in class, using the equation you have estimated. Using your coefficient estimates, calculate the predicted wages received by high school graduates, and by college graduates, over the course of a 30-year career, assuming they stay at one firm. Then graph these out, in Excel, on a single graph, with hourly wages on the vertical axis and years of working on the horizontal. The graph will have two curves,

one for high school graduates, and one for college graduates. Do these resemble the "age-earnings profiles" that we look at in class?

6.   If you have evidence of discrimination against married people in your regression, you must recommend a course of action to your CEO. One recommendation could be to keep wages as they are, despite the results of your regression. The alternative would be to adjust wages in order to eliminate the wage differential. If you choose the former, to do nothing, you must support it with a careful discussion of the JHR article *and* the other two articles you have been provided. If you choose the latter, you must come up with a formula to adjust wages in order to mitigate the effects of the discrimination. Brainstorm some alternatives and then discuss them with me.

7.   If you do choose to revise wages, implement and evaluate your method. Use the formula to generate a "revised log wages" column, in the third column of your spreadsheet. Then re-run your basic regression to determine whether in fact the marriage premium is eliminated. Does your method have any potential problems or weaknesses?

8.   Write up your findings in the form of a memo to your CEO, at least three and no more than four typewritten pages long, attach this to a printout of the first page (only) of your data and printouts of your regression results, and turn it in. Keep your data and spreadsheet for at least a week afterwards–I reserve the right to ask to see your data and spreadsheet. Your write up should explain what you did, why you did it, and what you found. It should answer the questions posed above, and, most importantly, should include your recommendation to the CEO and a justification for that recommendation. The table created in step 2 should be embedded in the memo, not placed at the end.

Note: The regression tool in Excel is an add-in. In the 2007 version, you have to go to the big "Office" button, choose Excel options, and add in the "Analysis ToolPak." In the 2010 version, do the same from the "File" tab. Then you will find regression in the "Data Analysis Tools" available under the Data heading. It's not hard to use once you find it.

      For any regression coefficient to be "statistically significant" the appropriate t-statistic, which is given in your Excel regression results, must basically be greater than 2 in absolute value.