Unemployment Interactive

# 1.0 Summary

1.1. Level 1

Title: Level 1: Recognize

Learning Objective: Recognition: Distinguish between employment, the different types of unemployment (frictional, structural, cyclical, and seasonal), labor force, non-labor force, and adult population.

Description: Determine the employment status of a group of individuals.

Scenario: You are an intern at your local branch of the Bureau of Labor Statistics and have been randomly surveying a number of households. Your boss is now asking you to use the information you have collected to determine the employment status of the various household members.

1.2 Level 2

Title: Level 2: Calculate

Learning Objective: Application: Explain and measure the unemployment, employment, labor force participation rates, and Natural Rate of Unemployment (optional) using simulated data.

Description: Calculate employment statistics using data from Level 1, and determine how these statistics would change in given scenarios.

Scenario: You have now been promoted to manager at your local branch of the Bureau of Labor Statistics and have been asked to calculate various employment statistics based on the data you previously collected as an intern.

1.3 Level 3

Title: Level 3: Analyze

Learning Objective: Application: Explain and measure the unemployment, employment, labor force participation rates, and Natural Rate of Unemployment (optional) using real national, state and regional data.

Description: Analyze recent trends and changes in the United States’ unemployment rate at the national, state, and county levels.

Scenario: You have been promoted to Labor Analyst at the Bureau of Labor Statistics in Washington, D.C., and have been asked by Congress to analyze recent changes in the United States’ unemployment rate at the national, state, and county levels

1.4 Level 4

Title: Level 4: Compare

Learning Objective: Conceptual: compare the different measures of the actual unemployment, employment, labor force participation rates over time at the national level. Examine how the unemployment, employment, labor force participation rates, relates to each other over different time periods of expansions and recessions

Description: Compare trends and changes in the United States unemployment rate across various historical time periods.

Scenario: The National Bureau of Economic Research heard about your experience analyzing employment data and wants you to help with a project. The spoke with your boss, and he has asked you to help them compare U.S. unemployment rates across various historical time periods.

# 2.0 Settings

2.1 Level Settings

1. Which levels would you like to include?
   1. Level 1 & Level 2
   2. Level 3
   3. Level 4

Full effect of these settings on introductory screens, scenarios, scoring, progress indicator, etc. is TBD.

2.2 Content Settings

1. Would you like to include the topic of the natural rate of unemployment?
   1. Yes
   2. No

2.3 Grading Settings

1. Try It: Student’s score is deducted only if they answer the final try incorrectly.
2. Practice: Student’s score is deducted beginning with their second incorrect try.
3. Assessment: Student’s score is deducted beginning with their first incorrect try.

2.4 Feedback Settings

1. On: Description
2. Off: Description

# 3.0 Grading & Scoring

3.1 Overview

* The student will start with a score of 0%.
* Each assessment moment in the interactive will be assigned a percentage value.
* Each assessment moment in the interactive will be assigned a number of tries.
* If the student gets an assessment moment incorrect on their final try, the correct answer will be revealed to them.
* Deduction tables will determine the fraction of each assessment moment’s percentage value that a student will receive based on their number of incorrect tries.
* As the student answers/completes assessment moments correctly, their percentage will increase by the appropriate amount.

3.2 Percentage Value

For details on the percentage value assigned to each assessment moment, see the following spreadsheet: [Unemployment\_Scoring.xlsx](file:///C:\Users\paulgraf\AppData\Local\Temp\Temp1_Unemployment.zip\Unemployment\File%20%231%20-%20Content%20Document%20&%20Related%20Materials\Unemployment_Scoring.xlsx)

3.3. Grading Details

3.3.1 Tries

|  |  |  |
| --- | --- | --- |
| **Level** | **Assessment Moment** | **Tries Allowed** |
| 1 | Individual 1 – 18 | 5 |
| 2 | Calculation Questions | 3 |
|  | Scenario Questions | 1 |
| 3 | Q1 | 2 |
|  | Q2 | 2 |
|  | Q3 | 2 |
|  | Q4 | 3 |
|  | Q5 | 2 |
|  | Q6 | 2 |
| 4 | Q1 | 2 |
|  | Q2 | 2 |
|  | Q3 | 3 |
|  | Q4 | 2 |
|  | Q5 | 2 |
|  | Q6 | 3 |

3.3.2 Deductions – Level 1

|  |  |  |  |
| --- | --- | --- | --- |
| **# Incorrect Tries** | **Try It** | **Practice** | **Assessment** |
| 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | .8 |
| 2 | 1 | .75 | .6 |
| 3 | 1 | .5 | .4 |
| 4 | 1 | .25 | .2 |
| 5 | 0 | 0 | 0 |
|  |  |  |  |

3.3.3 Deductions – 3 Try Questions

Applies to:

* Level 2: Calculation Questions
* Level 3: Q4
* Level 4 : Q3 & Q6

|  |  |  |  |
| --- | --- | --- | --- |
| **# Incorrect Tries** | **Try It** | **Practice** | **Assessment** |
| 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | .75 |
| 2 | 1 | .5 | .5 |
| 3 | 0 | 0 | 0 |

3.3.4 Deductions – 2 Try Questions

Applies to:

* Level 3: Q1, Q2, Q3, Q5, Q6
* Level 4 : Q1, Q2, Q4, Q5

|  |  |  |  |
| --- | --- | --- | --- |
| **# Incorrect Tries** | **Try It** | **Practice** | **Assessment** |
| 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | .5 |
| 2 | 0 | 0 | 0 |

3.3.5 Deductions – 1 Try Questions

Applies to:

* Level 2: Scenario Questions

|  |  |  |  |
| --- | --- | --- | --- |
| **# Incorrect Tries** | **Try It** | **Practice** | **Assessment** |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 |

# 4.0 Level 1

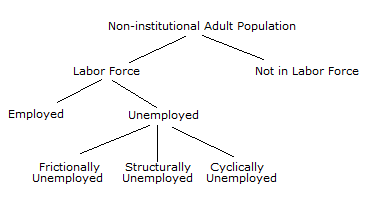
4.1 Overview

Students must determine the employment status of a group of individuals on the left by dragging and dropping them into the correct category in a tree diagram on the right.

4.2 Categories

4.2.1 Tree Diagram:

The display will organize the categories into a tree as indicated below, with the 5 categories at the end of the tree being the ones students can drop individuals from the left into.



4.2.2 Category Definitions:

Rolling over/clicking a category title in the tree diagram reveals the category’s definition.

* Non-institutional Adult Population
  + Rollover (BLS definition): Included are persons 16 years of age and older residing in the 50 States and the District of Columbia who are not inmates of institutions (for example, penal and mental facilities, homes for the aged), and who are not on active duty in the Armed Forces.
* Not in Labor Force (People who do not have a job and are not actively looking)
  + **Rollover (BLS definition):** Includes persons aged 16 years and older in the civilian non-institutional population who are neither employed nor unemployed in accordance with the definitions contained in this glossary. Information is collected on their desire for and availability for work, job search activity in the prior year, and reasons for not currently searching.
* Employed (People who have a job)
  + **Rollover (BLS definition):** Persons 16 years and over in the civilian noninstitutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if he or she holds more than one job. Excluded are persons whose only activity consisted of work around their own house (painting, repairing, or own home housework) or volunteer work for religious, charitable, and other organizations.
* Unemployed (People who do not have a job and are actively looking)
  + **Rollover (BLS definition)** Persons aged 16 years and older who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4-week period ending with the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.
* Frictionally Unemployed
  + **Rollover**: Unemployment that arises from people entering and leaving the labor force, from quitting jobs to find better ones, and from the process of matching workers with jobs. It can also occur as a result of a layoff or termination with cause.
* Structurally Unemployed
  + **Rollover**: Unemployment that arises from a mismatch between the skills and attributes of workers and the requirements of jobs. It can be created when there are technological advances or other deceases in labor demand in a specific industry.
* Cyclically Unemployed
  + **Rollover**: Unemployment that arises from a decline in economic activity from a downturn in the business cycle (recession).

4.2.3 Category Numbering:

Each category in the tree will display the number of individuals who are currently placed within it; at the start of the level, these numbers will be 0. When an individual is placed correctly into a category, the numbers will update. The numbers should update step by step up the tree so that it is clear how the numbers move up the tree.

* Example 1: An individual is correctly placed in the Structurally Unemployed category, and the following categories increase by one in the following order:
  + Structurally Unemployed
  + Unemployed
  + Labor Force
  + Non-institutional Adult Population
* Example 2: An individual is correctly placed in the Not in Labor Force category, and the following categories increase by one in the following order:
  + Not in Labor Force
  + Non-institutional Adult Population

4.3 Individuals

4.3.1 Overview:

* The left hand side will have 18 individuals that the student will need to categorize.
* Rolling over an individual will reveal the description associated with that individual.
* The 18 individuals will be randomly drawn from the category pools of individuals as follows:
  + The individuals that the students are required to categorize will be chosen randomly from the pool of individuals for each of the 5 categories. The number of individuals chosen for each of the 5 categories will be determined as follows:
    - 2 of the 5 categories will be randomly chosen to include 3 individuals
    - The remaining 3 categories will include 4 individuals.

4.3.2 Category Pools of Individuals:

* Not in Labor Force - Pool of 15
  + Jiayi stays home cooking, cleaning and taking care of her home and her family.
  + Roger stays home taking care of his three children.
  + Two weeks ago, Kayla stopped looking for work after sending her resume out to 30 potential employers and only receiving one interview (in which she did not receive a job offer).
  + Marge recently quit her job after 30 years of working at a financial firm so she would have more time to pursue her hobbies.
  + Vikram is a full-time student taking six classes at American University.
  + Shelia is a part-time student taking three classes at State University. When she’s not at school or studying, she helps take care of her three younger siblings.
  + Micah wants to work but has not looked for work for six weeks, because he feels there are no jobs in residential construction.
  + Trey recently wanted to work but has not looked for work in the last six weeks.
  + Joseph quit his job to take care of his elderly parents.
  + Jared is 14 years old and earns money working 25 hours each week at his parent’s store.
  + Greg volunteers 30 hours each week at the local soup kitchen.
  + Eric needed a break from his job search and has not looked for a job in four weeks.
  + Jen is a full time student graduating in three weeks and still can’t find a job for after graduation.
  + Jaesek has been trying to find a job for over a year but has not applied to any jobs in the last two months, because he feels there are no jobs currently available.
  + Natalia wants and is available to work, but has not applied for any jobs in the last five weeks.
* Employed – Pool of 15
  + Sarah works 40 hours each week at the local retail shoe store.
  + Morgan works 20 hours each week at the on-campus bookstore.
  + Xuan works from home as a retail blogger.
  + Bonnie owns her own business. She worked 40 hours last week, but did not receive a paycheck.
  + Don, age 16, works without pay on his father’s farm 23 hours each week.
  + Matt works 40 hours on his grandparent’s farm but is only paid for 10 hours.
  + Yan was sick with the flu for three weeks and did not receive a paycheck from his job as a salesperson.
  + Stephanie’s work place has closed down for four weeks due to a recent hurricane.
  + Tenecia is currently on a four week vacation from her medical practice.
  + Logan, who is a member of the local union, is currently not working due to a labor dispute with his manufacturing employer. Fortunately, both sides expect a resolution by next week.
  + Evan is taking some time off from his job as a professional golfer due to personal reasons.
  + Jose owns his own investment company, but pays himself with stock options and not a paycheck.
  + Victor, a former full time policeman, is currently training full time to become a police captain.
  + Yushi works 30 hours each week as a nurse at the local hospital.
  + Jesse works 10 hours a phone representative at the local call center, 15 hours out of her home as a beautician, and 8 hours as a waitress each week.
* Frictionally Unemployed – Pool of 7
  + Jim has recently accepted a new job, but he does not begin this job until 30 days from now.
  + Eric needed a break from his job search and has not looked for a job in two weeks.
  + Julie recently graduated from college with a degree in Marketing and is now sending out resumes in hopes of finding a job.
  + Mike recently graduated from a local technical school with a certificate in auto mechanics, but his job does not start until one month from now.
  + Nick quit his job as a banker to pursue a new career in music, but he has not yet made any money as a musician.
  + Frank is still looking for work after applying unsuccessfully to 40 jobs for which he
  + Daniel was fired from his job for poor performance last week and is currently look for alternative employment.
* Structurally Unemployed - Pool of 8
  + Amanda used to work at a travel agency that has recently due to lack of business caused by online travel websites.
  + Zhoa recently lost his job, because his company closed down and is moving overseas.
  + Bob’s assembly line job has been replaced by automation.
  + Bo lost his job due to new government regulations that resulted in the closure of the local gasoline refinery.
  + Sofia, a cashier, was recently laid off from her retail job due to the store’s use of new automated self-checkout registers.
  + Scott recently lost his job as an investment broker, because more people are making their investment decisions themselves on-line.
  + Nika is currently looking for, but cannot find, a job. She is either over qualified or under qualified for the jobs in her search.
  + Shaunak lost his job as a reporter for the area newspaper due to a decline in newspaper subscriptions.
* Cyclically Unemployed - Pool of 8
  + LaShanna used to work at a real estate office, which recently laid off some of its workers, including LaShanna, due to the recession.
  + Jim lost his retail job due to an overall decline in the country’s spending.
  + Jackie was laid off recently due to the recent downturn in the overall economy.
  + Joyce lost her manufacturing job due the most recent recession.
  + Mckenzie has recently graduated, but can’t find a job because of a slowdown in the overall economy.
  + Larry lost his job due to a decrease in his customers’ overall spending resulting from a drop-off in the country’s overall demand for goods and services.
  + Kumar was recently laid off from work due to his company’s recent decline in sales revenue caused by the slowdown in the economy.
  + Juan lost his job on Wall Street due to a recent financial crisis that affected the entire economy.
* Seasonally Unemployed - Pool of 8
  + Phil was recently laid off from his construction job due to winter weather conditions.
  + Stephen was recently laid off from his job after the holiday season ended.
  + Joan owns an ice cream stand that closes down during cold weather. Since it is now wintertime, her ice cream stand is currently closed.
  + Fei only works as a lifeguard on the beach, but cannot start until the weather warms up.
  + Zheng was recently laid off from his job as a ski instructor at the local ski trails, because the snow has started melting.
  + Rick is a landscaper who works during the summertime and is currently out of work due to the winter weather.
  + Tucker is a minor league professional baseball player who’s season doesn’t begin for another five weeks.
  + Brenda is a part time professor at the local college and is currently waiting to work until the fall session begins in four months.

4.4 Assessment

4.4.1 Interaction:

* If a student drags an individual into the correct category, they will be given a correct feedback message and the individual will be grayed out on the left. Rolling over the grayed out individual will show which category the individual was correctly placed into.
* If a student drags an individual into the incorrect category, they will be given an incorrect message and the individual will be marked with a red alert. The number of the red alert will indicate the number of times the student has wrongly categorized the individual. Clicking the alert will show which categories the individual was incorrectly placed into.

4.4.2 Feedback:

TBD

4.5 Transition to Level 2

4.6.1 Overview:

* At the end of Level 1, animate a time lapse that simulates the student having continued to survey people and determine their unemployment status over the course of a month.
* Individuals from the left will be shown being moved into categories, and the numbers on the categories will increase quickly along with a calendar flipping through an entire month.

4.6.2 Numbers in Tree:

The final numbers in each category of the tree will need to be somewhat realistic, so we will base them on the latest national data as described below (all numbers will need to be rounded to the whole number):

* Non-institutional Adult Population (P) = {5000, 7000}
* Labor Force (L) = P x (CIVPART+ {-.2,.2}/100), where CIVPART is a FRED Series ID updated monthly
* Not In Labor Force (N) = P - L
* Unemployed (U) = L x (UNRATE + {-.2,.2}/100), where UNRATE is a FRED Series ID updated monthly
* Employed (E) = L - U
* Cyclically Unemployed (C) = L x [(UNRATE – NROU)/100], where NROU is a FRED Series ID updated quarterly If UNRATE < NROU, then C = 0.
  + Note: NROU is estimated into future dates, so we will need to use the NROU variable associated with the same month as the other series, rather than just using the last variable.
* Structurally Unemployed (ST) = (U-C)/3
* Frictionally Unemployed (F) = U-C-ST

4.6.3 Numbers in Tree – Example:

P=5020, all data is the latest as of 2/14/13

|  |
| --- |
|  |
| L = 3,193  N = 1,827  U =252  E = 2,941  C = 85  ST = 56  F = 111 |

# 5.0 Level 2

5.1 Overview

Student must calculate various labor statistics based on the data in the post-time-lapse tree and then answer questions about how these statistics would change given a certain scenario

5.2 Display

* The tree from the transition will remain in the central part of the screen.
* The student will be asked various assessment questions in the bottom right of the screen.
* The left part of the screen (where the individuals previously were) will contain two pie charts based on the post-time-lapse tree values.

5.3 Assessment – Calculation Questions

5.3.1 Overview:

The student will be asked to answer the following questions. Question 4 will only be included if the instructor answered “Yes” to Content Setting #1.

5.3.2 Question 1:

1. The labor force participation rate of the group above is percent.

* Answer: L/P x 100 rounded to 2 decimal places.
  + NOTE: Will want them to round to the nearest hundredth. We should indicate this beneath the questions statement so it is clear.
* The labor force participation rate text should be called out as a link. When the user rolls over/clicks they see the following equation:
* If the student gets the answer wrong on the first try, they will see the following incorrect feedback message if feedback is on: “The labor force participation rate is the percentage of the people in the non-institutional adult population who are in the labor force.”
* If the student gets the answer wrong on the second try, they will see the following incorrect feedback message if feedback is on:

The labor force participation rate is the percentage of the people in the non-institutional adult population who are in the labor force.

* If the student gets the answer wrong on the third try, they will see the following incorrect feedback message if feedback is on:

The labor force participation rate is the percentage of the people in the non-institutional adult population who are in the labor force.

* + Where L is the # in the labor force, P is the number in the Non-institutional adult population, and ## is the answer.
* After the student gets the question right, the percentage is blatantly added to the Labor Force slice of the Non-Institutional Adult Population pie chart and 100 minus the answer is blatantly added to the Not In Labor Force slide of the pie chart.

5.3.3 Question 2:

1. The employment rate of the group above is percent.

* Answer: E/L x 100 rounded to 2 decimal places.
  + NOTE: Will want them to round to the nearest hundredth. We should indicate this beneath the questions statement so it is clear.
* The employment rate text should be called out as a link. When the user rolls over/clicks on the test they see the following equation:
* If the student gets the answer wrong on the first try, they will see the following incorrect feedback message if feedback is on: “The employment rate is the percentage of the people in the labor force who are employed.”
* If the student gets the answer wrong on the second try, they will see the following incorrect feedback message if feedback is on:

The employment rate is the percentage of the people in the labor force who are employed.

* If the student gets the answer wrong on the third try, they will see the following incorrect feedback message if feedback is on:

The employment rate is the percentage of the people in the labor force who are employed.

* + Where E is the number employed, L is the number in the labor force, and ## is the answer.
* After the student gets the question right, the percentage is blatantly added to the Employed slice of the Labor Force pie chart on the left.

5.3.5 Question 3:

1. The unemployment rate of the group above is percent.

* Answer: U/L x 100 rounded to 2 decimal places.
  + NOTE: Will want them to round to the nearest hundredth. We should indicate this beneath the questions statement so it is clear.
* The unemployment rate text should be called out as a link. When the user rolls over/clicks on the test they see the following equation:
* If the student gets the answer wrong on the first try, they will see the following incorrect feedback message if feedback is on: “The unemployment rate is the percentage of the people in the labor force who are unemployed.”
* If the student gets the answer wrong on the second try, they will see the following incorrect feedback message if feedback is on:

The unemployment rate is the percentage of the people in the labor force who are unemployed.

* If the student gets the answer wrong on the third try, they will see the following incorrect feedback message if feedback is on:

The unemployment rate is the percentage of the people in the labor force who are unemployed.

* + Where U is the number unemployed, L is the number in the labor force, and ## is the answer.
* After the student gets the question right, the percentage is blatantly added to the Unemployed slice of the Labor Force pie chart on the left.

5.3.4 Question 4:

1. The economy is considered at full employment when there is no cyclical unemployment. The unemployment rate when the economy is at full employment is considered the natural rate of unemployment.

The data above suggests that the natural rate of unemployment is percent.

* Answer: U-C/L x 100 rounded to 2 decimal places.
  + NOTE: Will want them to round to the nearest hundredth. We should indicate this beneath the questions statement so it is clear.
* The natural rate of unemployment rate text should be called out as a link. When the user rolls over/clicks on the test they see the following equation:
* If the student gets the answer wrong on the first try, they will see the following incorrect feedback message if feedback is on: “The natural rate of unemployment is the percentage of the people in the labor force who are frictionally or structurally unemployed.”
* If the student gets the answer wrong on the second try, they will see the following incorrect feedback message if feedback is on:

The natural rate of unemployment is the percentage of the people in the labor force who are frictionally or structurally unemployed.

* If the student gets the answer wrong on the third try, they will see the following incorrect feedback message if feedback is on:

The natural rate of unemployment is the percentage of the people in the labor force who are frictionally or structurally unemployed.

* + Where U is the number employed, C is the number cyclically unemployed, L is the number in the labor force, and ## is the answer.

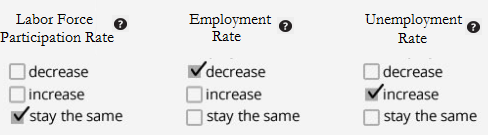
5.4 Assessment – Scenario Question

5.4.1 The Question:

* Following the calculation questions, the student will be asked to answer a scenario question three times, with the <scenario> portion of the question being randomly chosen from the scenario pool.

What would happen to the labor force participation, employment, and unemployment rates if <scenario>?

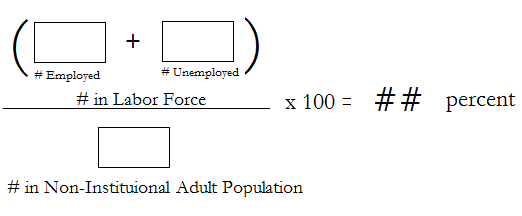
* To answer the question, for each of the three rates, the student must choose whether the rate decreases, increases or stays the same.



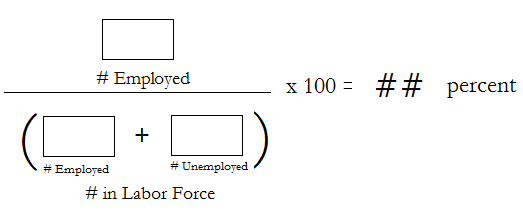
* + The student can click the icon next to each of the rates to popup an equation tool to help them solve the problem.

5.4.2 Equation Tools:

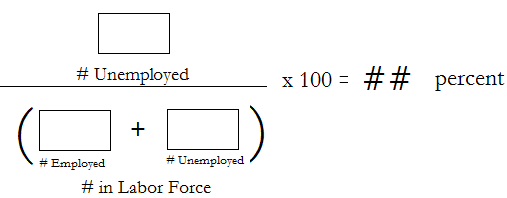
* The equation tool will allow the user to enter in values in input fields and will automatically solve the rate. If the user attempts to divide by 0, we will need there to be an error.
* Labor Force Participation rate equation tool:



* Employment Rate equation tool:



* Unemployment Rate equation tool:



5.4.3: Answer & Scenario Pool:

* When the student submits their answer, the screen will animate a group of people being moved from one category to another.
* The numbers in the categories and the pie charts on the left will update accordingly.
* If the scenario does not require a group to move from one category to another the people will simply move out of the category and then move back in.
* Then, the student will receive feedback on whether they were right or wrong for each of the three rates, and the process will repeat two more times with a different scenario.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Move From | Move To | # to Move | Answer |
| a group of people who are employed full time lose their jobs and find part time employment | No Movement – stay in Employed category | NA | NA | L – Stays the same  E – Stays the same  U – Stays the same |
| a group of autoworkers who were recently replaced by high-tech robots decide to stop looking for work | Structurally Unemployed | Not in Labor Force | {5,10} | L – Decreases  E- Increases  U- Decreases |
| a group of people who had given up on finding work due to the recession start looking for work again | Not in Labor Force | Cyclically Unemployed | {5,10} | L – Increases  E- Decreases  U- Increases |
| a group of baby boomers retire from their full time jobs | Employed | Not in Labor Force | {5,10} | L – Decreases  E- Decreases  U- Increases |
| a group of people who are employed full time at a factory lose their jobs due to the plant moving outside the country. | Employed | Structurally Unemployed | {5,10} | L – Stays the same  E – Decreases  U – Increases |
| a group of people who quit their previous jobs found better full time jobs. | Frictionally Unemployed | Employed | {5,10} | L – Stays the same  E- Increases  U- Decreases |
| a group of full time students graduate and get full time jobs. | Not in Labor Force | Employed | {5,10} | L – Increases  E- Increases  U- Decreases |
| a group of people who were employed full time decide to stay at home with their kids | Employed | Not in Labor Force | {5,10} | L – Decreases  E- Decreases  U- Increases |

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5.4.4 Feedback:

If the scenario requires people to move from one category to another, student will see the following feedback message at the conclusion of the animation showing the individuals moving:

<#> people who were categorized as <movefrom> are now classified as <moveto>, causing the Labor Force Participation rate to <L-answer>, the Employment rate to <E-answer> and the Unemployment rate to <U-answer>.

* <#> is the number of individuals moving – Column 4
* <movefrom> is the title of the category the individuals were originally in – Column 2
* <moveto> is the title of the category the individuals move to – Column 3
* <L-answer> is the word “decrease” or “increase” depending on how the labor force participation rate changed – Column 5
* <E-answer> is the word “decrease” or “increase” depending on how the employment rate changed – Column 5
* <U-answer> is the word “decrease” or “increase” depending on how the unemployment rate changed – Column 5

# 6.0 Level 3

6.1 Overview

Student must answer several questions about regional unemployment data by exploring a map of the United States.

6.2 Display

6.2.1 National View:

* Screen will contain a map of the 50 United States with a timeline beneath it.
* The timeline will start at 01/2000 and will go to the most recent month for which unemployment data is available.
* The states will be color coded based on the unemployment rate for whichever month is selected on the timeline, and the color coding legend will be available on the left.
* To the right of the map, the U.S. unemployment rate will be called out with the following variables called out secondarily:
  + Labor Force Participation Rate
  + Employment Rate
  + Natural Rate of Unemployment
    - Appears only if instructor answered “Yes” to Content Setting #1.
* When a user rolls over a state, the unemployment rate for that state for whichever month is selected on the timeline will be displayed.

6.2.2 State View:

* When the user clicks a state, the screen will zoom into a map of just that state, with all of its county’s displayed.
* There will be a timeline beneath the map that will start at 01/2000 and will go to the most recent month for which unemployment data for the given state is available.
* The counties will be color coded based on the unemployment rate for whichever month is selected on the timeline, and the color coding legend will be available on the left.
* To the right of the map, the unemployment rate for the state and the nation will be called out.
* When a user rolls over a county, the unemployment rate for that state for whichever month is selected on the timeline will be displayed.

6.2.3 County View:

* When the user clicks a county, they will be taken to a line chart of the county’s unemployment rate over the time period present on the National View & State View timelines.
  + The graph will be titled: Unemployment Rate
  + The y-axis will be titled: Unemployment Rate (% of Labor Force)
    - The y-axis should start at 0 and go to 26.
  + The x-axis will be a simple timeline in which each year is labeled and each quarter is ticked. The timeline should start at 01/2000 and go to the most recent month.
* The user can choose to check on/off the county, state and national unemployment rate to compare them on the graph. The checkboxes should be labeled as follow:
  + <county>, where <county> is the name of the county.
  + <state>, where <state> is the name of the state the county is within.
  + United States
* Rolling over any point on the lines present on the graph will show the unemployment rate for the given line and the given month.

6.2.4 Search:

* In each view, there will be search bar that allows the user to search by state or county.
* If the user searches by state, the map will zoom into the appropriate State View.
* If the user searches by county, the map will zoom into the appropriate State View and highlight the appropriate county.

6.2.5 Data:

You can find the FRED series IDs needed to achieve this display in the following spreadsheet: [Unemployment\_SeriesIDs.xls](file:///C:\Users\paulgraf\AppData\Local\Temp\Temp1_Unemployment.zip\Unemployment\File%20%231%20-%20Content%20Document%20&%20Related%20Materials\Unemployment_SeriesIDs.xls)

6.3 Assessment

6.3.1 Overview:

The student will be asked to answer the following questions. Question 2 will only be included if the instructor answered “Yes” to Content Setting #1.

6.3.2 Question 1:

1. What happened to the national unemployment rate between <month1> and <month2>?
   1. It increased
   2. It decreased
   3. It stayed the same

* <month2> is the latest date available and <month1> is one year before <month2>.
* Answer: Depends on data
* Feedback:

After First Incorrect Try:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Answer: Increased | Answer: Decreased | Answer: Same |
| Response: Increased | Correct. | Incorrect.  You’re close. The unemployment rate changed between <month1> and <month2>, but it did not increase. | Incorrect.  The unemployment rate did not change between <month1> and <month2>. |
| Response: Decreased | Incorrect.  You’re close. The unemployment rate changed between <month1> and <month2>, but it did not decrease. | Correct. | Incorrect.  The unemployment rate did not change between <month1> and <month2>. |
| Response: Same | Incorrect.  The unemployment rate changed between <month1> and <month2>. Did it increase or decrease? | Incorrect.  The unemployment rate changed between <month1> and <month2>. Did it increase or decrease? | Correct. |

After Second Incorrect Try:

|  |  |  |
| --- | --- | --- |
| Answer: Increased | Answer: Decreased | Answer: Same |
| Incorrect.  The unemployment rate increased between <month1> and <month2>. | Incorrect.  The unemployment rate decreased between <month1> and <month2>. | Incorrect.  The unemployment rate stayed the same between <month1> and <month2>. |

6.3.3 Question 2:

1. \*How does the national unemployment rate in <month2> compare to the natural rate of unemployment in the same month?
   1. It is higher than the natural rate of unemployment.
   2. It is lower than the natural rate of unemployment.
   3. It is the same than the natural rate of unemployment.

* <month2> is the same <month2> as in question 1.
* Answer: Depends on data
* Feedback:

After First Incorrect Try:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Answer: Higher | Answer: Lower | Answer: Same |
| Response: Higher | Correct. | Incorrect.  You’re close. In <month2>, the unemployment rate is different than the natural rate of unemployment, but it is not higher. | Incorrect.  In <month2>, the unemployment rate is not different than the natural rate of unemployment. |
| Response: Lower | Incorrect.  You’re close. In <month2>, the unemployment rate is different than the natural rate of unemployment, but it is not lower. | Correct. | Incorrect.  In <month2>, the unemployment rate is not different than the natural rate of unemployment. |
| Response: Same | Incorrect.  In <month2>, the unemployment rate is different than the natural rate of unemployment. Is it higher or lower? | Incorrect.  In <month2>, the unemployment rate is different than the natural rate of unemployment. Is it higher or lower? | Correct. |

After Second Incorrect Try:

|  |  |  |
| --- | --- | --- |
| Answer: Higher | Answer: Lower | Answer: Same |
| Incorrect.  In <month2>, the unemployment rate is higher than the natural rate of unemployment. | Incorrect.  In <month2>, the unemployment rate is lower than the natural rate of unemployment. | Incorrect.  In <month2>, the unemployment rate is the same as the natural rate of unemployment. |

6.3.4 Question 3:

1. What happened to the labor force participation rate between <month1> and <month2>?
   1. It increased
   2. It decreased
   3. It stayed the same

* <month1> and <month2> are the same as in question 1.
* Answer: Depends on data
* Feedback:

After First Incorrect Try:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Answer: Increased | Answer: Decreased | Answer: Same |
| Response: Increased | Correct. | Incorrect.  You’re close. The labor force participation rate changed between <month1> and <month2>, but it did not increase. | Incorrect.  The labor force participation rate did not change between <month1> and <month2>. |
| Response: Decreased | Incorrect.  You’re close. The labor force participation rate changed between <month1> and <month2>, but it did not decrease. | Correct. | Incorrect.  The labor force participation rate did not change between <month1> and <month2>. |
| Response: Same | Incorrect.  The labor force participation rate changed between <month1> and <month2>. Did it increase or decrease? | Incorrect.  The labor force participation rate changed between <month1> and <month2>. Did it increase or decrease? | Correct. |

After Second Incorrect Try:

|  |  |  |
| --- | --- | --- |
| Answer: Increased | Answer: Decreased | Answer: Same |
| Incorrect.  The labor force participation rate increased between <month1> and <month2>. | Incorrect.  The labor force participation rate decreased between <month1> and <month2>. | Incorrect.  The labor force participation rate stayed the same between <month1> and <month2>. |

6.3.5 Question 4:

1. The national unemployment rate <answer1> and the labor force participation rate <answer3> from <month1> to <month2>. At the same time, the natural rate of unemployment in <month2> was <answer2>. What is a possible explanation for this data?
   1. See spreadsheet
   2. See spreadsheet
   3. See spreadsheet

* <month1> and <month2> are the same as in question 1. <answer1> is the answer to question 1, <answer2> is the answer to question 2, and <answer3> is the answer to question 3.
* NOTE: If the instructor answered “No” to Content Setting #2 the second sentence of the questions should be removed.
* Answer: See spreadsheet: [Level3\_Question4.xlsx](file:///C:\Users\paulgraf\AppData\Local\Temp\Temp1_Unemployment.zip\Unemployment\File%20%231%20-%20Content%20Document%20&%20Related%20Materials\Level3_Question4.xlsx)
* Feedback: TBD

6.3.6 Question 5:

1. Select a State to explore. In <month2>, how does the unemployment rate in <state> compare to the national unemployment rate in <month2>?
   1. It is higher than the national unemployment rate.
   2. It is lower than the national unemployment rate.
   3. It is the same as the national unemployment rate.

* <month2> is the same as in question 1.
* Answer: Depends on data
* Feedback:

After First Incorrect Try:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Answer: Higher | Answer: Lower | Answer: Same |
| Response: Higher | Correct. | Incorrect.  You’re close. In <month2>, the unemployment rate in <state> is different than the national unemployment rate, but it is not higher. | Incorrect.  In <month2>, the unemployment rate in <state> is not different than the national unemployment rate. |
| Response: Lower | Incorrect.  You’re close. In <month2>, the unemployment rate in <state> is different than the national unemployment rate, but it is not lower. | Correct. | Incorrect.  In <month2>, the unemployment rate in <state> is not different than the national unemployment rate. |
| Response: Same | Incorrect.  In <month2>, the unemployment rate in <state> is different than the national unemployment rate. Is it higher or lower? | Incorrect.  In <month2>, the unemployment rate in <state> is different than the national unemployment rate. Is it higher or lower? | Correct. |

After Second Incorrect Try:

|  |  |  |
| --- | --- | --- |
| Answer: Higher | Answer: Lower | Answer: Same |
| Incorrect.  In <month2>, the unemployment rate in <state> is higher than the national unemployment rate. | Incorrect.  In <month2>, the unemployment rate in <state> is lower than the national unemployment rate. | Incorrect.  In <month2>, the unemployment rate in <state> is the same as the national unemployment rate. |

6.3.7 Question 6:

1. Select two counties to explore. In <month2>, how does the unemployment rate in <county1> compare to the unemployment rate in <county2>?
   1. It is higher than the unemployment rate in <county2>.
   2. It is lower than the unemployment rate in <county2>.
   3. It is the same as the unemployment rate in <county2>.
2. <month2> is the same as in question 1, <county1> is the name of the first county the student selected, and <county2> is the name of the second county the student selected.

* Answer: Depends on data
* Feedback:

After First Incorrect Try:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Answer: Higher | Answer: Lower | Answer: Same |
| Response: Higher | Correct. | Incorrect.  You’re close. In <month2>, the unemployment rate in <county1> is different than the unemployment rate in <county2>, but it is not higher. | Incorrect.  In <month2>, the unemployment rate in <county1> is not different than the unemployment rate in <county2>. |
| Response: Lower | Incorrect.  You’re close. In <month2>, the unemployment rate in <county1> is different than the unemployment rate in <county2>, but it is not lower. | Correct. | Incorrect.  In <month2>, the unemployment rate in <county1> is not different than the unemployment rate in <county2>. |
| Response: Same | Incorrect.  In <month2>, the unemployment rate in <county1> is different than the unemployment rate in <county2>. Is it higher or lower? | Incorrect.  In <month2>, the unemployment rate in <county1> is different than the unemployment rate in <county2>. Is it higher or lower? | Correct. |

After Second Incorrect Try:

|  |  |  |
| --- | --- | --- |
| Answer: Higher | Answer: Lower | Answer: Same |
| Incorrect.  In <month2>, the unemployment rate in <county1> is higher than the unemployment rate in <county2>. | Incorrect.  In <month2>, the unemployment rate in <county1> is lower than the unemployment rate in <county2>. | Incorrect.  In <month2>, the unemployment rate in <county1> is the same as the unemployment rate in <county2>. |

# 7.0 Level 4

7.1 Overview

Student must answer several comparative questions about historical recessionary and expansionary periods exploring them on a line graph.

7.2 Display

7.2.1 Overview:

* On the left, will be a list of recessionary and expansionary periods.
* On the top right, will be a graph of the United States Unemployment rate.
* On the bottom right, will be a place to answer assessment questions.

7.2.2 Recessionary & Expansionary Periods:

* The user will be able to select from the following periods:
  + Recessions
    - Great Depression: August 1929 - March 1933
    - May 1937 - June 1938
    - February 1945 - October 1945
    - November 1948 - October 1949
    - July 1953 - May 1954
    - August 1957 - April 1958
    - April 1960 - February 1961
    - December 1969 - November 1970
    - Nov 1973 –Mar 1975
    - Jan–July 1980
    - July 1981 –Nov 1982
    - July 1990 –Mar 1991
    - March 2001–Nov 2001
    - Great Recession: December 2007 – June 2009
  + Expansions

|  |
| --- |
| * + - Oct 1945–Nov 1948 |
| * + - Oct 1949–July 1953 |
| * + - May 1954–Aug 1957 |
| * + - April 1958–April 1960 |
| * + - Feb 1961–Dec 1969 |
| * + - Nov 1970–Nov 1973 |
| * + - Mar 1975–Jan 1980 |
| * + - Dec 1982–July 1990 |
| * + - Mar 1991–Mar 2001 |
| * + - Nov 2001–Dec 2007 * The user will be able to select up to 3 recessionary periods OR 3 expansionary periods to add to the graph.   + If the user selects a recessionary period and then an expansionary period, the recessionary period will be unselected.   + If the user selects a 4th recessionary period, the first selected recessionary period will be unselected.   + If the user selects a 4th expansionary period, the first selected expansionary period will be unselected. * There should be some way for users to gain historical information on various recessionary/expansionary periods. |

7.2.3 The Graph:

* The graph will be titled: United States’ Unemployment Rate
* The y-axis will be titled: Unemployment Rate (% of Labor Force)
  + The y-axis should start at 0 and go to 26.
* The x-axis will be titled: Month (month 0 indicates official start of recession) when recessionary periods are selected and will be titled: Month (month 0 indicates official start of expansion) when expansionary periods are selected.
  + Month 0 on the x axis will be the start of the recessionary/expansionary period.
  + The x axis will start at -12, which is one year before the start of each recession/expansion.
  + The x axis will end 12 months after the end of the longest recession/expansion selected.
* There will be a vertical line that the user can drag along the x-axis that will display the dates and unemployment rate values for each of the lines on the graph in that month.
* When the user rolls over a point on the specific line, they will see a rollover providing more information for the data at that point.
* There should be some way for the user to distinguish between the official start and end of the recessionary/expansionary period and the dates that are represented on the graph itself.

7.2.4 Data:

You can find the FRED series IDs needed to achieve this display in the following spreadsheet: [Unemployment\_SeriesIDs.xls](file:///C:\Users\paulgraf\AppData\Local\Temp\Temp1_Unemployment.zip\Unemployment\File%20%231%20-%20Content%20Document%20&%20Related%20Materials\Unemployment_SeriesIDs.xls)

7.3 Assessment

7.3.1 Question 1:

1. During which of the following recessionary periods did the United States Unemployment Rate reach the highest level?
   1. Great Depression : August 1929 - March 1933
   2. <period1>
   3. Great Recession: December 2007 – June 2009

* <period1> is a randomly selected recessionary period other than the Great Depression and Great Recession.
* Answer: Great Depression
* Feedback: TBD

7.3.2 Question 2:

1. During which of the following recessionary periods did the United States Unemployment Rate increase the most from its lowest to its highest rate?
   1. Great Depression : August 1929 - March 1933
   2. <period1>
   3. Great Recession: December 2007 – June 2009

* <period1> is a randomly selected recessionary period other than the Great Depression and Great Recession.

1. Answer: Great Depression.

* Feedback: TBD

7.3.3 Question 3:

1. During which of the following recessionary periods did the United States Unemployment rate differ the most from the Natural Rate of Unemployment Historical average of 5.6%?
   1. Great Depression : August 1929 - March 1933
   2. <period1>
   3. Great Recession: December 2007 – June 2009

* <period1> is a randomly selected recessionary period other than the Great Depression and Great Recession.
* Answer: Great Depression
* Feedback: TBD

7.3.4 Question 4:

1. During which of the following expansionary periods did the United States Unemployment Rate reach the lowest level?
   1. <period1>
   2. <period2>
   3. <period3>

* <period1>, <period2>, and <period3> are randomly selected expansionary periods.
* Answer: Depends on data.
* Feedback: TBD

7.3.5 Question 5:

1. During which of the following expansionary periods did the United States Unemployment Rate decrease the most from its highest to its lowest rate?
   1. <period1>
   2. <period2>
   3. <period3>

* <period1>, <period2>, and <period3> are randomly selected expansionary periods.
* Answer: Depends on data.
* Feedback: TBD

7.3.6 Question 6:

1. During which of the following expansionary periods did the United States Unemployment rate differ the most from the Natural Rate of Unemployment Historical average of 5.6%?
   1. <period1>
   2. <period2>
   3. <period3>

* <period1>, <period2>, and <period3> are randomly selected expansionary periods.
* Answer: Depends on data.
* Feedback: TBD

Date 7/16/2013

Addendum:  
Section: Level 4 - 7.2 Display

Expand/collapse functionality On the left, will be a list of recessionary and expansionary periods.