Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (save as into your I drive folder)

Barreto

Delete this before using. Handout provided electronically.

Macro Topics

The Solow Model with Population Growth

More people lowers capital per worker. That is bad for *y* and *c*. More people is similar to depreciation in that *k* falls. We will model population growth in the Solow Model as a constant percentage increase every year, *n*. We will figure out how adding *n > 0* changes the model and then play comparative statics games.

Open Population.xls and click the Show Algebra button in the *EqPath* sheet.

1. The point of the algebra is to show why cell H14’s formula is =(F14-G14)/(1+n). Add comments on the equations (in your own words) as I walk through them. Ask if anything is confusing.

**Wait.**

1. What do you think would happen if every exogenous variable increased by 0.01?

**Wait.**

1. Use Excel’s Scenario Manager on a random economy to answer this question. You can follow me or race ahead of me. Paste a picture of your results below.
2. Use the transparent chart trick to compare *c* in the base to +0.01 economy. Paste your chart below.

**Wait.**

1. Use the *EqPath* sheet with a random economy to find the steady-state. Report *y\** below.
2. Use this formula,, to see if the steady-state solution in Excel is correct. Is it?
3. Increase *n* by 1% point in Excel and report your new *y\** below.
4. Compute the percentage increase in low *n y\** over high *n* *y\** and report your answer below.
5. The ratio of low *n* to high *n y\** is. Reduce and evaluate this ratio for your economies.
6. Does your answer to Q9 agree with Q8?

HW: Watch the first two screencasts in the *ToDo* sheet of TechProgress.xls and do tasks 1 and 2. Please watch very carefully and be sure to read the *Tech* sheet. Concentrate on the concept of *efficiency units*. This is the secret key to understanding the model. Remember: “The actual economy is what really matters.”