Barreto, Spring 2014, DePauw University

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Econ 390: Macro Topics

# Exam 1: Economic Growth

*15 Questions. First ten questions worth 5 points and last five are 10 points.*

Open the Excel workbook Exam1S2014.xls. It is the only file you are allowed to have open. Do not cheat. If you have any questions, raise your hand and I will help you.

**Immediately Save As to your I drive folder.** You don’t have to change

the name of the file, but it has to be in your I drive folder so I can access it.

Use the chart below, created using Maddison’s *World Economy* data, to answer questions 1 – 5.



Q1) What two things are wrong with this chart? (There are actually three so I’m giving you a break.)

1)

2)

Q2) Botswana is the country doing really well compared to the other countries on that chart. From 1970 (when it seemed to take off) to 2008, real GDP per person went from 650 (GK$) to 4,800. Compute the CAGR in the *Intro* sheet. Label your answer clearly and report it here: \_\_\_\_\_\_\_.

Q3) Does the Rule of 70 seem to be working here? Explain and show your work in the *Intro* sheet.

Q4) Botswana’s Real GDP per person growth rate is outstanding, but that doesn’t mean that Botswana is a rich country. Then why do we care about the percentage change so much?

Q5) What fundamental lesson does the chart convey?

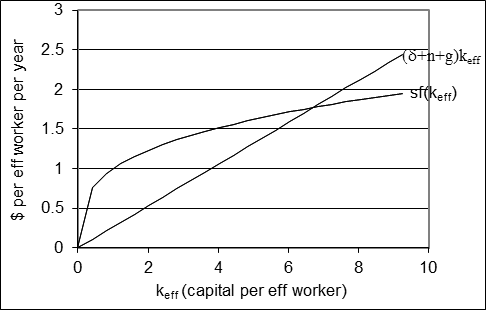
Read the *Intro* sheet to get a sense of what is going on, then go to the *EqPath* sheet to answer the remaining questions on this exam.

Q6) Describe how the value for *k* at the end of the 1st year, 0.00057, is determined. I want a description of how the variables in the model (y, c, i, and k) are related to each other. A flow chart would be nice.

Q7) What does the value of cell H14, 0.00057, tell you?

Q8) If the economy started from an *Initial k* of 1 instead of 6.7, would *k* at the end of the 1st year be bigger or smaller? Explain why.

Q9) Below is the canonical graph of the Solow Model for the economy with s=1%. Explain how this graph works. I mean, the intersection is obviously important, but what does it tell you and *why* does it tell you that?



Q10) In the graph above, explain why it is incorrect to conclude that *g* increases will lower *k\** and, thus, hurt the economy.

*These are 10 point questions so they require more work and explanation.*

Q11) Copy the *EqPath* sheet and rename it *NCP*. Click the  button. Run the economy for 50 years.

1. Why can’t you see *y* in any of the charts? Is it being plotted or is something wrong in this workbook?
2. What result could the NCP highlight to defend their position that *s* should not be changed? Please give me a specific number and explain why this supports the NCP’s position.

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Q12) Copy the *EqPath* sheet and rename it *NSP*. Do NOT click the  button. Change *s* to 30% and run the economy to its steady state. What result would the NSP show the NCP to convince them that they are idiots? Explain.

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Q13) In a town hall meeting, the NCP’s Aglutton says, “The NSP’s plan will cause *c* to crater! The transition will kill us! I don’t care about what others would do for me, I just want to consume!” Is this correct? (Not the ethics of Aglutton’s position, but the claim about *c* cratering.) Answer by discussing the transition and directly compare numbers in the spreadsheet to explain your answer below.

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Q14) Should the NSP attempt to move the saving rate even higher? Why or why not? Do something in Excel to help support your answer and explain below what you did and what it shows.

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Q15) In your *NSP* sheet, you should see that the Econ will enjoy an insane 94.45% increase in *y* a year after they raise *s.* What kind of growth is this? Explain. Draw a chart using data from Excel to support your explanation and reproduce a rough, hand-drawn version below. If you can’t do it in Excel, at least give me the hand-drawn version with your answer.

**Save your workbook one last time. When you turn in your exam, I will check to make sure it is in your I drive folder.**