May 4th at 7:30pm: Answer F-1 and F-2 in class using supplemental materials turned in before or prior to the exam (Figures, Tables, lists of equations or references, no sentences or text please).   To save time, please turn in your topic review or case study slides with Figures, Tables and references. Presentations will be graded on format and content, always list cast study or topic review references in standard format at the end of your presentation (see supplemental materials below). Check back here for examples of case study and topic presentations after May 6th. Let me know if you need references for the questions below before you take the final exam.

Presentations due before May 16th: students are encouraged to present their case study or research report to the class for an extra 10 points in addition to the 25 points for the required written online submission in pptx and pdf format (see blackboard). Each student who attends a presentation and comments on a presentation also receives five points (as with the De Soto reports). Presenting your topic or case study improves your final presentation.

Due on blackboard before May 16th: Masters students: your case study slides in .pptx format. PhD Students: your topic literature reviews and models in word format and or pptx format. Include source files for equations and Figures where possible.

F-1 Population growth dividends: A) What does **Deaton 2013** argue was the greatest intellectual error of the 20th century? Use the 2016 World Bank GMR Chapter 5 and models from one of our texts to argue that an increase/decrease in population growth will slow or increase economic growth. Which story fits the standards Solow-Swan model best, illustrate this story using standard growth Solow diagram (be sure to distinguish between long term and transitional growth). How might these results differ

B) **PhD students:** use B&S, 2004 (2nd ed) in the CD reader or Aghion and Howitt, 2006 or Jones and Volmort (2013) 3rd ed to present the key equations* of a model where population growth can increase economic growth. How does this take place? Does speed of converge or gender play a role? Compare migration with a "natural" increase or decrease in population growth. *as long as they are in word format, submitted before the exam, you can bring numbered equations printed the exam and refer to them in the text of your answer (do prepare text in advance).

C) **Masters Students:** Find your case study country or countries in WB-IMF, 2016 Table C.3 Economies by World Bank Group classification and demographic typology (page 216). Discuss the potential effect of population growth on growth in your country over the next 30 years (see Bloom and Canning or see the Appendix of WB-IMF, 2016. Discuss the role of remittances or migration in your country's growth (if any). See for example the debate over guest workers and aid to Haiti and the discuss the wisdom of the Turkey/Australia solution to the refugee crisis.

Supplementary materials for use in class: Please bring printed references and Tables/Figures use in question F-1 or F-2 (not your final case study or topic review which is turned in online). Please, only bring tables and figures you plan to refer to in your answers to F1 and F-2. Do number each Figure and Table clearly, make sure the text is large enough so the numbers and titles are legible. Do not bring text or an outline of your answer. If you print in black and white, make sure the lines have symbols or can be clearly distinguished (dotted vs solid, etc.) Put references in author (date) format, print references you plan to refer to on a separate sheet. You can use lists of points and bullet points in your answers, you just cannot bring them with you to the exam. At the beginning of the exam, turn in your supplemental material I will grade format and return it to you after you turn in part A of questions F-1 and F-2. It is best to submit your supplemental material online 24 hours before the exam so I can review and OK it in advance.

F-1 Population & Growth References (see also texts from Syllabus):

Bloom, D., and D. Canning. 2004. "Global Demographic Change: Dimensions and Economic Significance." In Global Demographic Change: Economic Impacts and Policy Challenges, proceedings of a symposium, sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 26–28, 9–56.
http://www.populationmedia.org/wp-content/uploads/2008/07/david-bloom-population-and-economics.pdf

World Bank/IMF (2016) Global Monitoring Report 2015/2016 (pdf) Development Goals in an Era of Demographic Change. Washington, DC: World Bank. License: CC BY 3.0 IGO

F-2: Foreign capital, growth and convergence is a point of debate for globalization and finance (foreign aid) skeptics. The impact of international foreign exchange flows of all types, from private lending to FDI to aid inflows are subjects of intense debate. Everyone should answer part A (really a growth strategy question) and then choose part A or Part B. Everyone should answer part A of this question, then choose one of parts b-c (part d relates to your case study)

(a) Use the Solow model Figure 4 below (from Blair Henry, 2007) to discuss how financial liberalization (banks and stock markets) and/or capital account openness affects growth and income per capita (see Henry's 2007 JEL survey). Do we know whether financial development and capital inflows causes rather than follow economic growth? Why are why not*? Optional Please briefly summarize the evidence presented in the "meta-analyses" of private capital flows Cline (2010).*

(b) Phd Students: review the econometric evidence on the direction of causality of financial development or capital inflows (or ODA) see Roodman, 2008)? *See Aghion & Howitt Chapt 11, p. 239 and/or the growth econometrics handout, & Roodman, 2008)*. Use Lucas Lectures Chapter 2 page 68 to derive the MPK = r*/α point on the Figure 4 below. *How can specific models of finance or capital inflows and growth help us identify the direction of growth (recall the Levine lectures, and of course the Roodman critique of the Levine Studies…). What other approaches help us identify the direction of causality (see the growth econometrics handout).*

(c) Masters students: Discuss and provide evidence regarding aid or capital inflows and growth in your country or countries. How did aid or capital inflows contribute to growth (look at the contribution of TFP, capital investment and labor/human capital if possible).   Can you separate out the effects of capital inflows or outflows and trade?
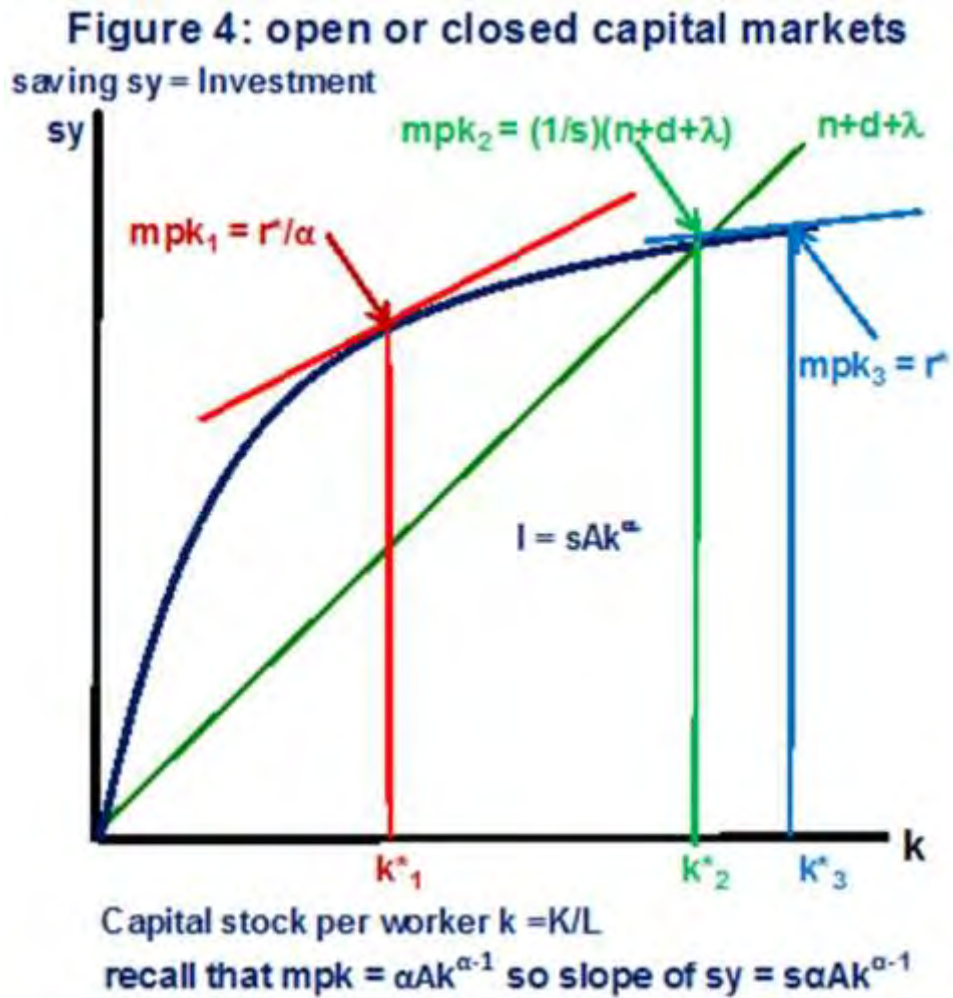
F-3: Aid and growth (optional): For at least sixty years Peter Thomas Bauer and new Angus Deaton and Bill Easterly have argued ODA does not help and indeed impairs the development prospects of poor countries. (a) Use the Galiani et al. 2014 or 2016 to update the meta study by Mekasha and Tarp (2013) and the Mozambique case study to discuss the role of aid in economic growth. What are the risks for foreign aid inflows? Use the recent paper by Galiani et al 2016 to update the "meta" literature review by Mekasha and Tarp (2016). Why has it been so difficult to show aid affects growth? Relate the Dutch Disease to the negative effects of aid on growth. Has this been a problem in Africa since Gleneagles in 2008 (Live Aid 2008).   (b) What role have capital inflows or outflows or ODA flows played in your case study countries growth (or lack of growth).

F-3 Aid References:

Galiani, Sebastian; Knack, Stephen; Xu, Lixin Colin; Zou, Ben. 2014. *The effect of aid on growth : evidence from a quasi-experiment*. Policy Research working paper ; no. WPS 6865; Impact Evaluation series ; no. IE 125. Washington, DC: World Bank Group.
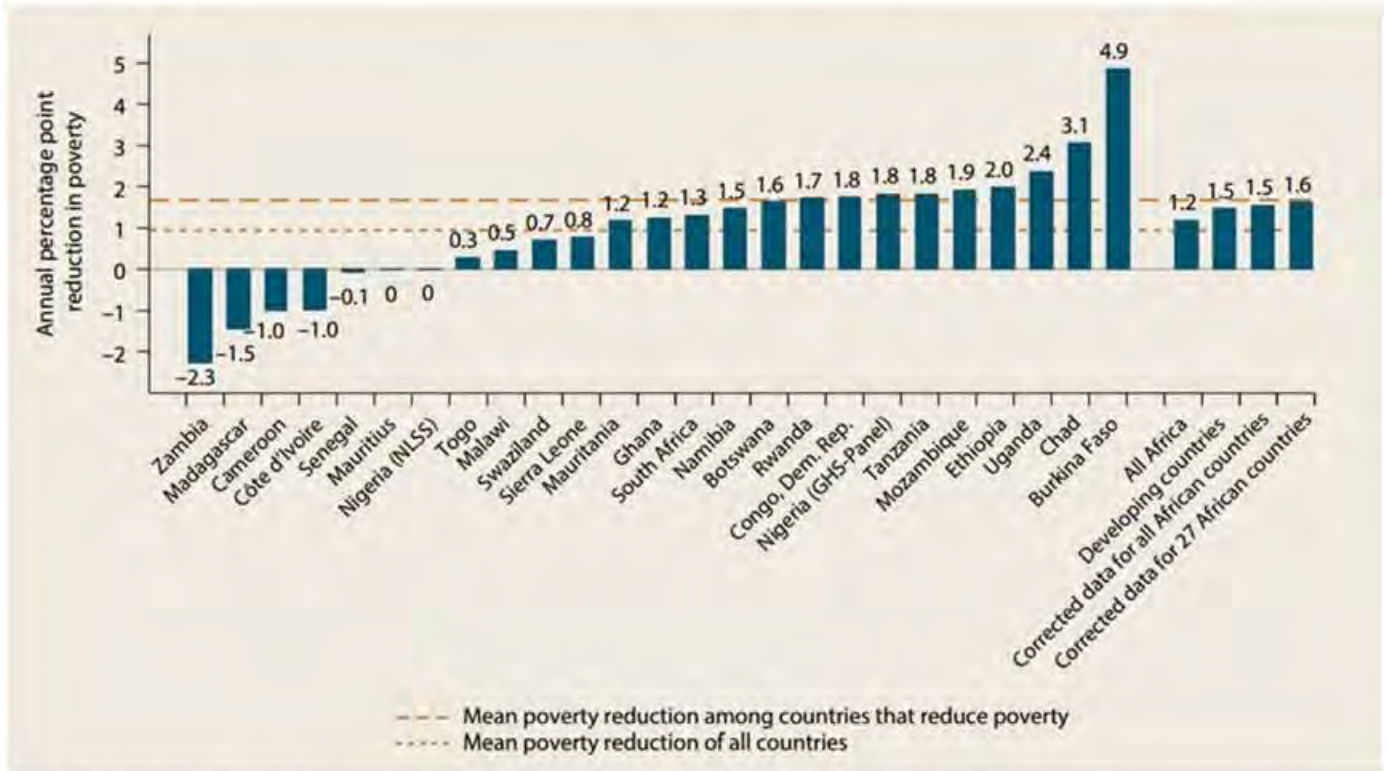
Agenor, 2004 2nd Edition, Adjustment and growth: Chapter 16: Aid Adjustment and External Growth

Figure 4: open or closed capital markets

saving sy = Investment

sy

$mpk_2 = (1/s)(n+d+\lambda)$ $n+d+\lambda$

$mpk_1 = r^*/\alpha$

$mpk_3 = r^*$

$I = sAk^{\alpha}$

k^*_1 k^*_2 k^*_3 k

Capital stock per worker k = K/L

recall that $mpk = \alpha Ak^{\alpha-1}$ so slope of $sy = s\alpha Ak^{\alpha-1}$

***Please check to make sure your African country is in this chart. Otherwise the quality of HH income data, inequality etc. is questionable… hopefully one of your peer or comparator countries is here.

FIGURE 2.2   **Analysis based only on comparable surveys suggests that poverty reduction in Africa was faster than previously thought**

- – – Mean poverty reduction among countries that reduce poverty
- · · · · Mean poverty reduction of all countries

https://openknowledge.worldbank.org/handle/10986/22575

F-5 Bonus Question (answer online or in class if you can) The World Bank-IMF 2016 Global Monitoring Report *Development Goals in an Era of Demographic Change* identifies two potential demographic dividends. The first has to do with the share of working age population and is transitory and positive and negative. In contrast according to the GMR as summarized on page 14, "*As changes in the age structure expand production and resources, a second demographic dividend may arise as savings build up and greater investment is possible in human and physical capital. The bonus provided by the first dividend is transitory, while the second dividend produces lasting benefits in the form of greater productivity growth and enhanced sustainable development. Yet, these outcomes are not automatic—they depend on effective policies. The two demographic dividends thus represent an opportunity—and not a guarantee— of greater prosperity and improved living standards.*" (a) Focusing on the 2nd dividend use the growth theory we have studied in this class to discuss how even a permanent increase in savings may have only transitory effects on growth rates (unless we believe in endogenous growth models). Can increased savings or human capital investment have permanent effects on long term growth in an exogenous growth model? Explain (hint: one of hybrid models discussed on the midterm and in the Agenor chapter on Human capital and economic growth). Why does economic growth increase permanently in this case? Suppose this effect works in receiving countries, but we see the opposite effect in sending countries (a brain drain?). What would the effect of migration be on convergence in this case? Contrast with the textbook case where n rises in rich countries and falls in the migrant sending country? What can skilled migrant exporting countries do to reverse this effect (China, India and South Africa are doing this). Finally discuss how return migration of skilled migrants is can accelerate convergence and global growth… (b) If you have not already, discuss how the 1st Demographic dividend relates to modern migration and asylum policies, why might this be more important to Germany or Japan than the U.S., UK or Italy? Briefly explain why immigration tends to increase TFP and native wages whereas greater exchange of goods as opposed to people, may not (see Hausmann or Peri and Shih on this). Discuss how the 1st Demographic dividend could in fact contribute to long term growth and global convergence.

References

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Card, D. and Giovanni Peri (2016). *Immigration Economics: A Review,* UC Berkeley, UC Davis and NBER and NBER.

Clemens, M. A., & Pritchett, L. (2016). *The New Economic Case for Migration Restrictions: A*n Assessment. *Center for Global Development Working Paper*, Working Paper #423, Washington DC.

Bahar, Dany & H. Rapoport (2016)"Migration, Knowledge Diffusion & the Comparative Advantage of Nations."

Clemens, Michael A (2011) "Economics and Emigration: Trillion-Dollar Bills on the Sidewalk?," Journal of Economic Perspectives, 2011, 25 (3), 83–106.

Clemens, M. A (2014) "A case against taxes and quotas on high-skill emigration," Journal of Globalization and Development, 2014, 5 (1), 1–39.

Clemens,M.A. Claudio E. Montenegro, and Lant Pritchett (2009) "*The Place Premium: Wage Differences* for Identical Workers Across the US Border," Working Paper, Harvard Kennedy School of Government 2009.

Collier, Paul (2013) Exodus: How Migration Is Changing Our World, Oxford: Oxford University Press, 2013.

Cortés, Patricia and José Tessada (2011)"Low-Skilled Immigration and the Labor Supply of Highly Skilled Women," *American Economic Journal: Applied Economics*, 3 (3), 88–123.

Please correct this reference: Angrist, Joshua D.and Pischke, (2014). Mastering 'Metrics: The Path from Cause to Effect (p. iv). Princeton University Press. Kindle Edition. "Applied econometrics, known to aficionados as 'metrics, is the original data science. 'Metrics

encompasses the statistical methods economists use to untangle cause and effect in human affairs. Through accessible discussion and with a dose of kung fu-themed humor, Mastering 'Metrics presents the essential tools of econometric research

F-6 Dutch Disease, Middle income Traps and Growth (not a question this year, but let me know if you are interested)

Frankel, J. A. (2010). The natural resource curse: a survey (No. w15836). National Bureau of Economic Research.

Collier, P., & Goderis, B. (2009). Commodity Prices, Growth, and the Natural Resource Curse: Reconciling a Conundrum. http://users.ox.ac.uk/~econpco/research/pdfs/CommodityPricesGrowthV1-1.pdf

Sachs, Jeffrey, 2007, "How to Handle the Macroeconomics of Oil Wealth," Ch. 7 in Escaping the Resource Curse, edited by M.Humphreys, J.Sachs and J.Stiglitz (Columbia University Press: NY), pp.173-193.

Sachs, Jeffrey, and Andrew Warner, 1995, "Natural Resource Abundance and Economic Growth," in G. Meier and J. Rauch, eds., Leading Issues in Economic Development, New York: Oxford University Press. NBER WP 5398.

Sachs, Jeffrey, and Andrew Warner, 2001, "The Curse of Natural Resources," European Economic Review (Elsevier), vol. 45(4-6), pages 827-838, May.

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Sarraf, Maria, and Moortaza Jiwanji. October 2001. "Beating the Resource Curse: The Case of Botswana." Environmental Economics Series Paper No. 83. T

Galiani, Sebastian, Stephen Knack, Ben Zou, Lixin Colin Xu The Effect of Aid on Growth: Evidence from a Quasi-Experiment NBER Working Paper No. 22164 Issued in April 2016 NBER [1]

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[1] The literature on aid and growth has not found a convincing instrumental variable to identify the causal effects of aid. This paper exploits an instrumental variable based on the fact that since 1987, eligibility for aid from the International Development Association (IDA) has been based partly on whether or not a country is below a certain threshold of per capita income. The paper finds evidence that other donors tend to reinforce rather than compensate for reductions in IDA aid following threshold crossings. Overall, aid as a share of gross national income (GNI) drops about 59 percent on average after countries cross the threshold. Focusing on the 35 countries that have crossed the income threshold from below between 1987 and 2010, a positive, statistically significant, and economically sizable effect of aid on growth is found. A one percentage point increase in the aid to GNI ratio from the sample mean raises annual real per capita growth in gross domestic product by approximately 0.35 percentage points.

TABLE 3: <u>GROSS</u> OFFICIAL DEVELOPMENT ASSISTANCE IN 2015
Preliminary data for 2015 Source OECD

	ODA USD million current				ODA USD million At 2014 prices & Fx rates	Percent change 2014 to 2015
	2 014	2 015	Share	Cumm	2015	Change
United States	31 793	33 864	22	22	31 475	-7.1
Germany	19 641	19 347	13	35	23 038	19.1
United Kingdom	18 809	19 917	13	48	20 036	0.6
Japan	15 146	15 708	10	59	16 930	7.8
France	11 132	12 540	8. 3	67	13 175	5.1
Sweden	7 102	6 309	4. 2	71	8 538	35.3
Netherlands	5 821	5 726	3. 8	75	6 942	21.2
Norway	4 294	5 110	3. 4	79	5 548	8.6
Canada	4 330	4 286	2. 8	81	5 015	17.0
Italy	3 897	4 096	2. 7	84	4 639	13.3
Australia	3 222	4 405	2. 9	87	3 897	-11.5
Switzerland	3 575	3 603	2. 4	89	3 799	5.4
Denmark	2 655	3 151	2. 1	92	3 133	-0.6
Belgium	1 935	2 495	1. 7	93	2 306	-7.6
Spain	1 769	2 118	1. 4	95	2 101	-0.8
Korea	1 993	1 938	1. 3	96	2 097	8.2
Finland	1 312	1 635	1. 1	97	1 565	-4.3
Austria	1 215	1 239	. 8	98	1 433	15.6
Ireland	718	816	. 5	98	831	1.9
Poland	467	473	. 3	99	557	17.8

References for Final Exam: Spring 2016 Growth and Economic Development F-1 Population Growth Dividends

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