Lectures in Macroeconomic Policy Analysis

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General Department of Economic and Public Finance Policy
Royal Government of Cambodia
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* These sixteen lectures were delivered by the author when he was Senior Economic Advisor to the General Department of Economic and Public Finance Policy, Ministry of Economy and Finance, Royal Government of Cambodia during June-December 2015 as part of the training program to the Department's staff. The views expressed in these lectures are those of the author and not necessarily that of the Ministry of Economy and Finance or its departments.

Preface

These lectures were delivered to the staff of the General Department of Economic and Public Finance Policy, Ministry of Economy and Finance, Royal Government of Cambodia, Phnom Penh during June-December 2015. Given as part of a training program for the department's relatively young staff, the key objective of these lectures was to familiarize the staff with a wide range of issues related to macroeconomic policy analysis and to equip them to understand the technical as well as the practical dimensions of macroeconomic policy making in real world situations. The educational background of the Ministry's staff varied quite a bit in specifics, but most of them had a Masters Degree in economics, development studies, public policy, international relations, and related subjects. I have made a conscious effort at pitching the technicalities of these lectures at a level that is comfortable for, and easy to grasp by, staff with these varied educational backgrounds. It is hoped that these lectures equip the staff to think like 'development professionals' in general and 'macroeconomic policymakers' in particular. In preparing these lecture presentations as power point slides, I have departed much from the contemporary best practice of crisp, few, and short bullet slides with infographics thrown in; instead, I have used rather long and wordy sentences in the slides with the objective of enabling my young trainees to use these presentation slides as lecture notes. I am aware that this departure from global best practice mars the aesthetics of these lecture slides but believe that the benefits to the trainees outweigh the aesthetic costs.

The Lecture series begin by dealing with the basics of why and how macro aggregates such as gross domestic product, the general price level, and unemployment are measured (Sessions 1 and 2). Sessions 3 and 4 first clarify the concepts of aggregate demand, aggregate supply, and inflation expectations, and then introduce the core macroeconomic model that is commonly used by policy makers around the world for policy analysis and policy making. Sessions 5 to 8 put the macroeconomic model to analyze the aggregate effects of three major tools of macroeconomic-cum-financial policy – fiscal policy, monetary and exchange rate policy, and macro-prudential policy – paying special attention to the practical issues and challenges that policymakers face in putting these policy tools to work in real world situations. Session 9 takes a quick tour of the historical evolution of macroeconomic policy thinking – highlighting why and how the views on the effectiveness of fiscal, monetary, and prudential policies have changed and are still changing. The quick tour is intended help young development professionals to be aware of the somewhat confusing professional views held by the different schools of macroeconomic thought (such as the Keynesian, monetarist, new-classical, and new-Keynesian) but at the same time be able to take appropriate decisions as policymakers in the real world.

Session 10 makes the transition from short run issues of macroeconomic (and financial) stabilization around the long run trends in macro aggregates to the determinants of the long run (trend) growth itself. The well known Solow growth model is explained first and the embellishments of that model by the endogenous growth theory next, complemented by a quick glance at empirical facts of global growth for the last several centuries. Session 11 moves on to understand the social dimensions - inequality, inclusion, health and education - of economic growth and development. Session 12 deals with the basic principles of public finance for supporting growth and development and the practical issues relating to how best to raise resources for financing public expenditures. Session 13 looks at the principles of public expenditure in theory and practice, paying special attention to issues relating to how to measure and raise the efficiency and effectiveness of public expenditures. Session 14 examines the issues surrounding fiscal sustainability and discipline paying special attention to how to benchmark a country's fiscal sustainability and discipline in practice. Session 15 focuses on one specific tool that is increasingly used by countries around the world for fostering fiscal sustainability and discipline – fiscal rules. Session 16 wraps up the training program by identifying a set of not-so-good development policies that countries should be cautious in pursuing and highlighting some big unsettled issues in macroeconomic policy analysis and development policymaking.

The training program and this lecture series were enriched immensely by the many young staff from the General Department of Economic and Public Finance Policy at the Ministry of Economy and Finance who attended the lectures. The training program and the lecture series would not have been possible but for the unrelenting support that I received from H.E. Vongsey Vissoth, Secretary of State at the Ministry of Economy and Finance, Dr. Phan Phalla, Director General of the General Department of Economic and Public Finance Policy, and Mr. Chheang Vanarith, Director of the Macroeconomics and Fiscal Policy Department. I owe special thanks to them for their kindness, support, and encouragement.

Srinivasa Madhur
Phnom Penh, December 2015

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Session 1: Macroeconomics: Begin with the Basics

(Dictionary meaning of macro - very large in scale, scope, or capability)

GDEPFP, Ministry of Economy and Finance, RGC

22 May 2015

Srinivasa Madhur

Senior Economic Advisor

Macroeconomics mostly explores three sets of aggregate issues - total output and fluctuations in it, price level and changes in it, and employment/unemployment

- The focus is mostly on aggregates – big picture, not so much on minute details
- Why we do that? – historically all the three things- output, price level, and unemployment move in tandem with each other
- Such co-movements have shown reasonable degree of cyclical regularities over time
- An upward trajectory (expansion) of few years followed by a few years of downward trajectory (recession or contraction) – called business cycles
- In the upward trajectory – output, price level, and employment – all go up, and the opposite happens in the downward trajectory
- Since these trajectories do not necessarily change the basic long run or secular trend in the three aggregate measures, the focus of macroeconomics is mostly on the short run cyclical aggregate fluctuations, not on the long run, trend level itself

Often, developing countries experience growth cycles, not the conventional business cycles

- Developing countries generally have faster growth in output (catching up or convergence)
- They may thus see a growth cycle, with periods of higher output growth followed by periods of slower growth (not an absolute decline in output)
- Moreover, the regular patterns of growth cycles may not be seen in agriculture that forms a large part of their economies.
- The latter is more dependent on natural factors such as the weather conditions
- Agriculture-induced growth slowdowns may also result in higher, not lower price level (inflation) – not recession but stagflation
- The nature of the cyclical fluctuations may be quite different between developed and developing countries

Most of the time, the macro-fluctuations tend to be mild or moderate, but at times they could be severe - 'crisis'

- Such situations cause deep declines in output and the price level (plus a big increase in unemployment)
- Not just that, the recovery from the macroeconomic slump would also take much longer – the downturn causing prolonged suffering for the people
- Going by historical experience, such situations are rarer than the normal mild or moderate cyclical fluctuations - hence 'low probability high impact' events
- Often, such events are preceded immediately by unusually high output/growth, low unemployment, and financial buoyancy – 'bubbles'
- Hence, initially they may look like usual fluctuations but soon they cause panic situations, even affecting the long term aggregate trends (hysteresis)
- Such crises have occurred both in both developed and developing countries in the past, but perhaps more in the latter
- 8 centuries of such crisis has been systematically documented recently; some eg., the 1930s great depression, the 2008-09 great recession, the 1997-98 Asian economic crisis, and the 1980s Latin American crisis, and a whole set of individual country crises
- Big rethinking in macroeconomics has often followed by such crises

Output, income, GDP are related, but not the same things, as are 'actuals' and 'potentials'

- Output – is a gross concept, income or GDP are value added terms (avoid double or multiple counting of the same thing)
- Output or GDP can be either in nominal values or adjusted for changes in price level – nominal and real
- How to get 'real' in practice? Different ways of adjusting for the price level – price index numbers
- Real GDP – Actual and potential- the divergence between the two is the focus of most macroeconomic analysis
- What is 'potential GDP', or what is 'natural rate' of unemployment? How to get them in practice? Rigorous methods verse thumb rules
- Production frontier/full employment-based concepts

Income can be gross or net; domestic or national; in local currencies or external currencies; market exchange rates or PPP

- Gross income or GDP does not adjust for 'depreciation of capital or investment'
- Net income or NDP deducts depreciation
- GDP or NDP – both are an aggregate measure of what a country has produced or earned
- GNI and NNI – are the national counterparts of GDP and NNI that adjusts for net factor incomes from abroad
- Nominal or real, gross or net, domestic or national – all could be either measured in the local currency or in an external currency (say, in US dollar)
- Even when expressing in terms of an external currency, it could be either using the market exchange rates or purchasing power parity exchange rates

The distinction between stocks and flows is critical in macroeconomic analysis

- A stock is something ‘at a point in time’, while a flow is some thing that accrues ‘during a period of time’
- At the end of such and such day, verses during a period
- Income is a flow, wealth is a stock, investment is a flow, capital is a stock
- The time unit for measuring a flow can vary - hours, days, weeks, months, quarters, semesters, or a year , or many years
- Both stocks and flows could be high frequency or low frequency numbers

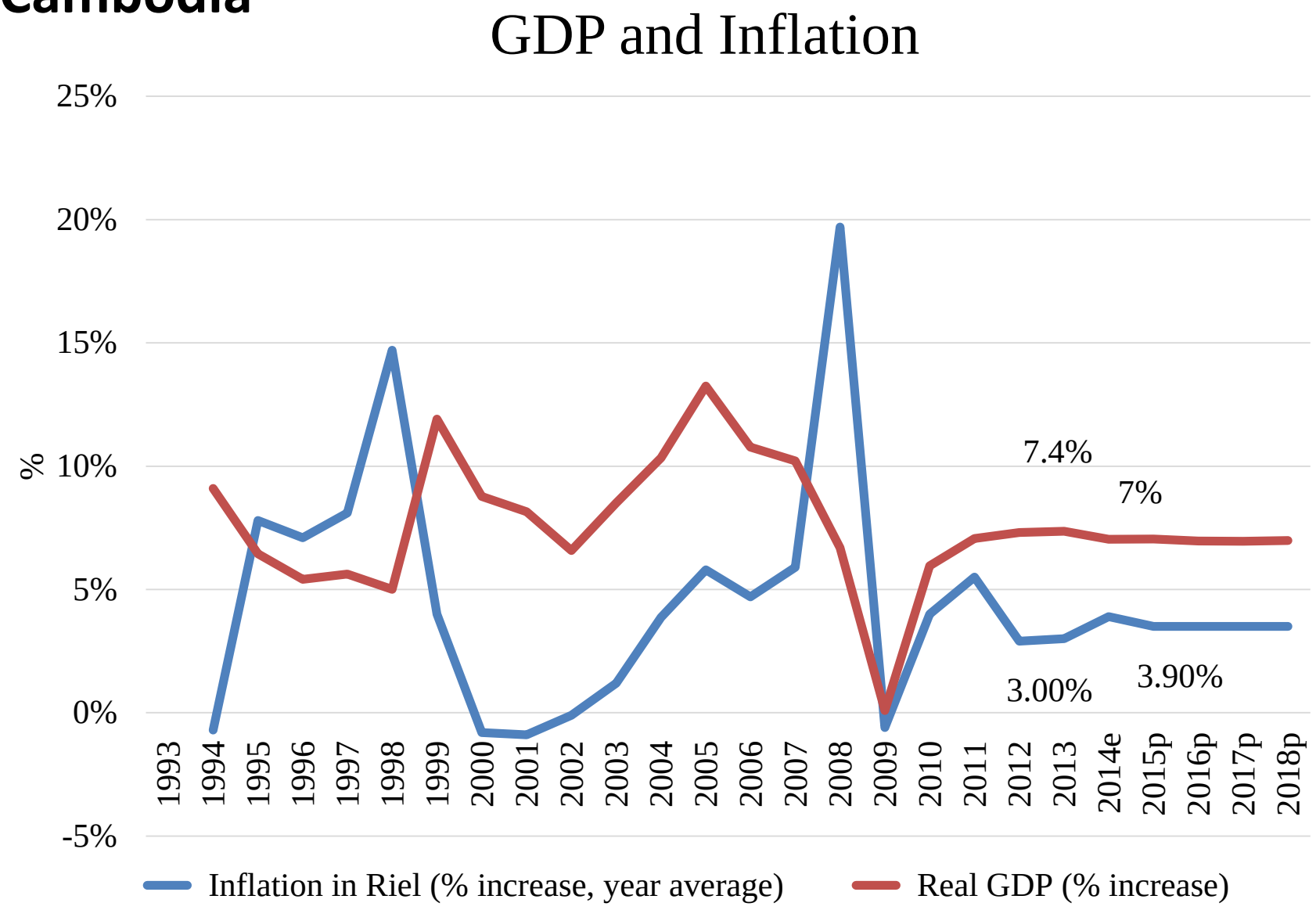
GDP (and its various versions) is a war-born, fiscally necessitated concept, later perfected by Simon Kuznets and Richard Stone – who subsequently won the Nobel Prizes for that work

- In 1665, William Petty, a British official first produced an estimate of what perhaps comes close to the concept of GDP
- Why? To have an idea of how much resources England could raise through taxes to fight a war with the Dutch – the Anglo-Dutch war (1664-67)
- The definitions we now use date back to the great depression and the WWII.
- Stuck in the great depression, US President Franklin Roosevelt wanted to have an accurate measure of the state of the American economy, so Simon Kuznets took on that task
- For the first time, US GNP estimates were published in 1942
- *"The story of GDP since 1940 is also the story of macroeconomics'* –(Diane Coyle, (2014) GDP: A Brief Affectionate History, Princeton University Press.

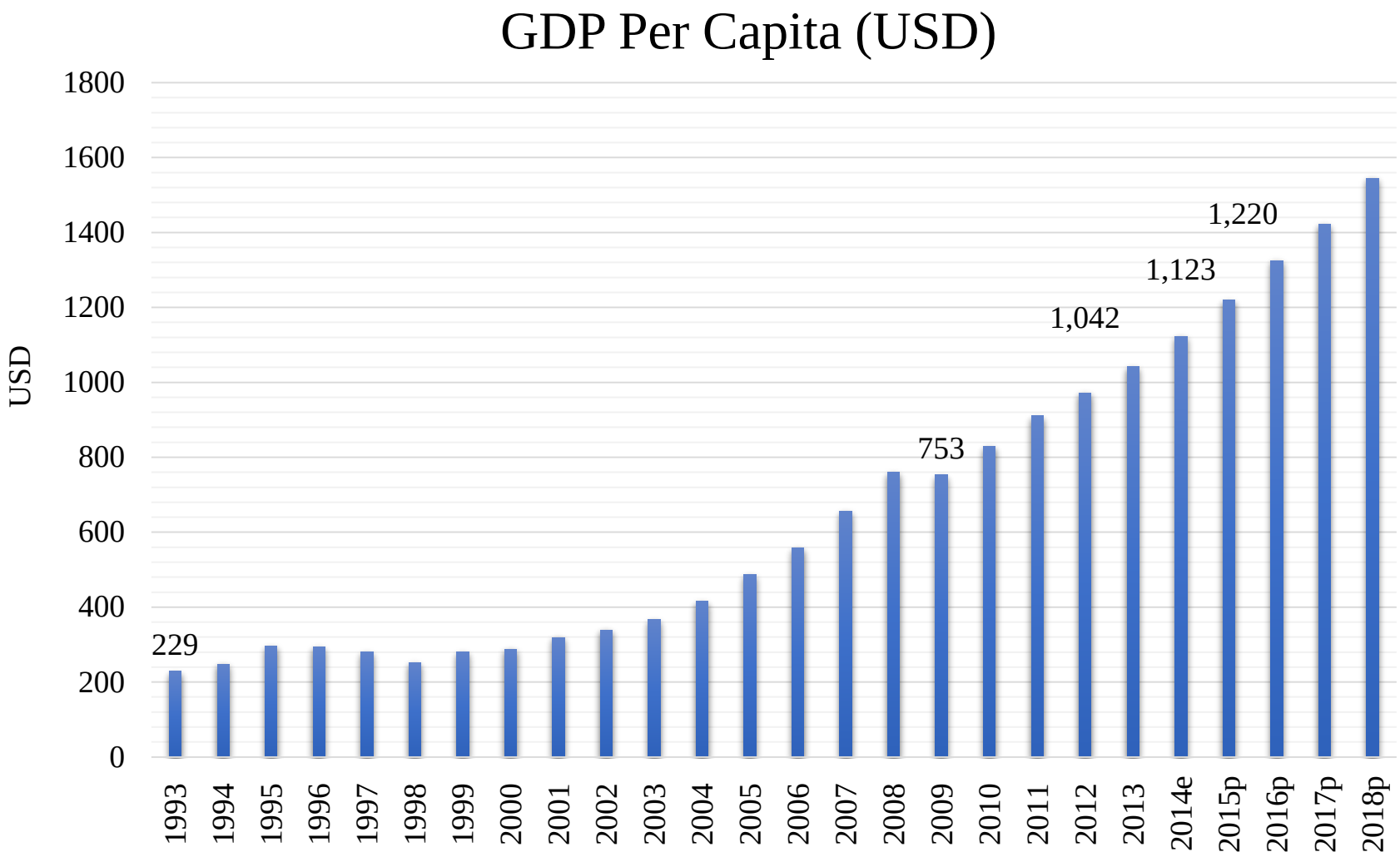
But always keep in mind the limitations of GDP (and of course, the price level, and unemployment)

- GDP is is always an estimate – its is not a 'primary fact' but an empirical construct' – Richard Stone
- More problems in poorer, developing countries – large agricultural sector, rural areas, and the informal sector
- It does not take into account the depreciation of natural resources and the damage to the environment
- GPD, and its per capita version, does not take into account inequalities across people
- It does not include other dimensions of wellbeing – sanitation, safe drinking water, health, education etc.,
- Despite all these limitations, GDP is the best single, simple, measure that is also mostly, not always, highly correlated with many other measures of well being
- Hence, macroeconomics has to depend on this great invention, albeit with caution in interpreting what a higher or lower GDP or per capita GDP means
- We shall use it thus, though not overuse it.

Take a look at the GDP growth and Inflation in Cambodia



And a more beautiful chart on per capita GDP



Next session - Alternative ways of looking at GDP (and the Price level) and its measurement

Macroeconomic Policy Analysis
Session 2: Alternative Measures GDP and the Price Level for Macroeconomic Analysis

GDEPFP, Ministry of Economy and Finance, RGC

27 May 2015

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Senior Economic Advisor

GDP can be measured in different ways – from the demand side, from the supply or output side, or from the functional side

- From the demand side : Y = C + I + G + X-M (sum of private consumption, total Investment, government purchases, and net exports)
- From the supply/sectoral side: Y = YAG + YIND + YSER +TXI (sum of value added from agriculture, industry, services , and indirect taxes)
- From the functional side: Y = WGE+ PRF + RNT+INT+DEP+TXI (sum of total wages, profits, rental income, net interest, depreciation, and indirect taxes)
- What are the best uses a macroeconomist can make of these different ways of GDP decomposition?

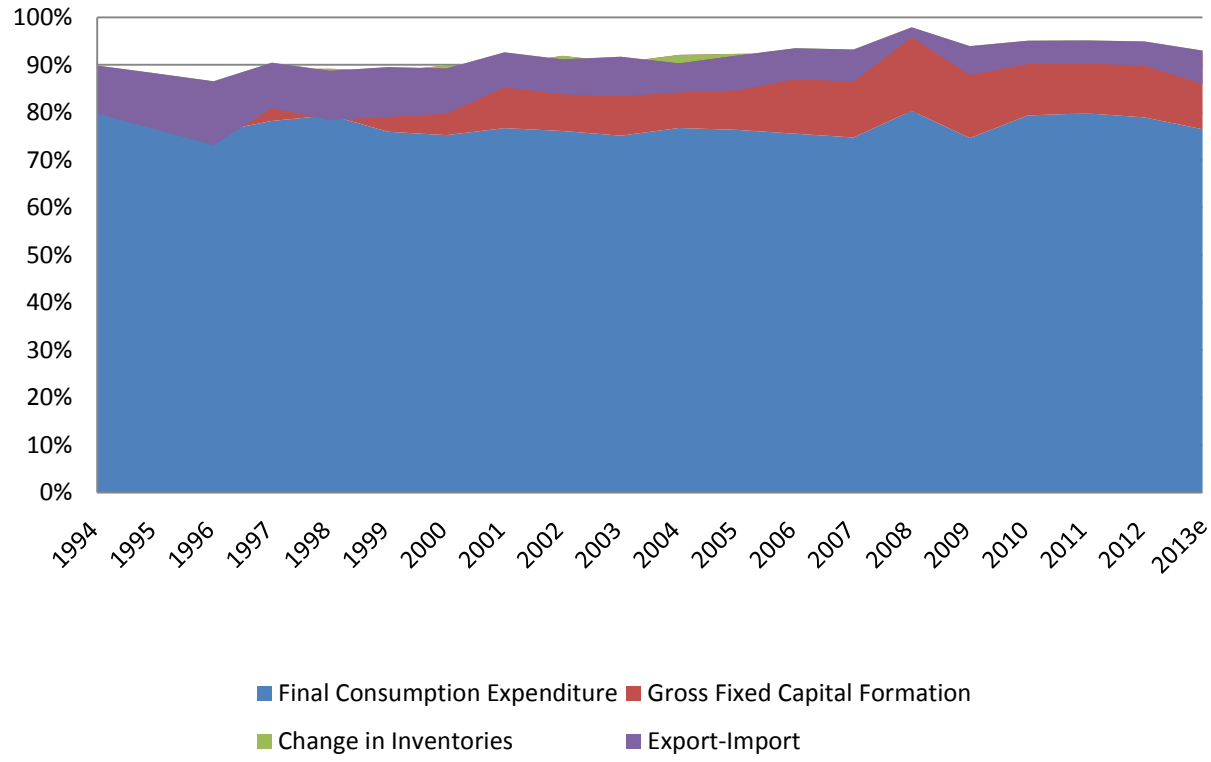
So is the price level – many ways of getting an estimate of it too, but none good for all occasions

- Consumer price index - nationwide and breakups
- Wholesale price index – nationwide and breakups
- GDP deflator – nationwide only
- Why do we have different measures of the price level (inflation)?
- What are the merits and demerits of the different measures?
- What about asset prices, such as land, stocks, and other assets? Lessons from the 2008/09 GFC!
- The price indices reflect goods market, not much of the asset/financial markets?
- How best should a macroeconomist use them?

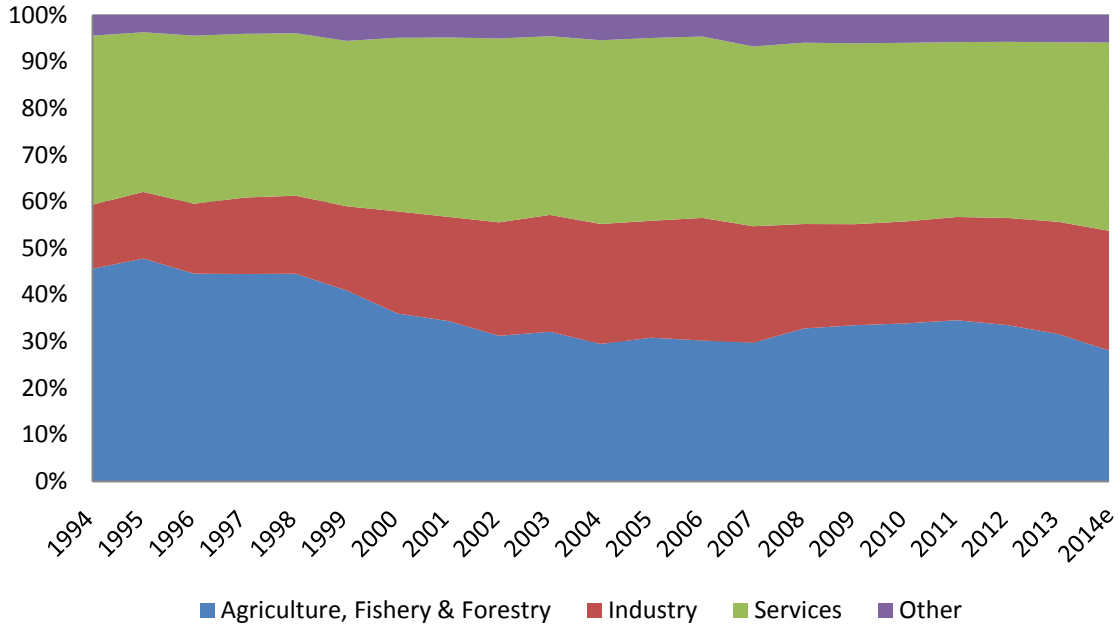
There are many limitations of GDP and the price level even as aggregate indices of economic activity, not to mention as measures of overall wellbeing of the people

- Measuring agricultural GDP is somewhat straightforward, as is industrial production (although difficult still)
- Measuring the value-added from the service sector is even more difficult
- Unaccounted/underground economic activities/income not easy to capture
- Converting money values to real values – what price index to use?
- How best then should a macroeconomist use GDP and the price level (growth and inflation, say) in his/her work? In comparing over time as well as across countries?
- The key is to 'qualify' macro quantities? Use them 'moderately' or 'responsibly'?

Cambodia: GDP at current prices (Expenditure composition) – over time, the share of consumption has remained stable; share of investment has risen , while that of net exports fallen – what implications?



Cambodia: GDP at current prices sectoral composition – over time, the share of agriculture declined, industry up, while services stable – what macro implications?



Next session – the basic toolkits of macroeconomic analysis – the core macro model – the IS and the LM

Macroeconomic Policy Analysis
Session 3: Aggregate Demand and Aggregate Supply for Macroeconomic Analysis

GDEPFP, Ministry of Economy and Finance, RGC

2 June 2015

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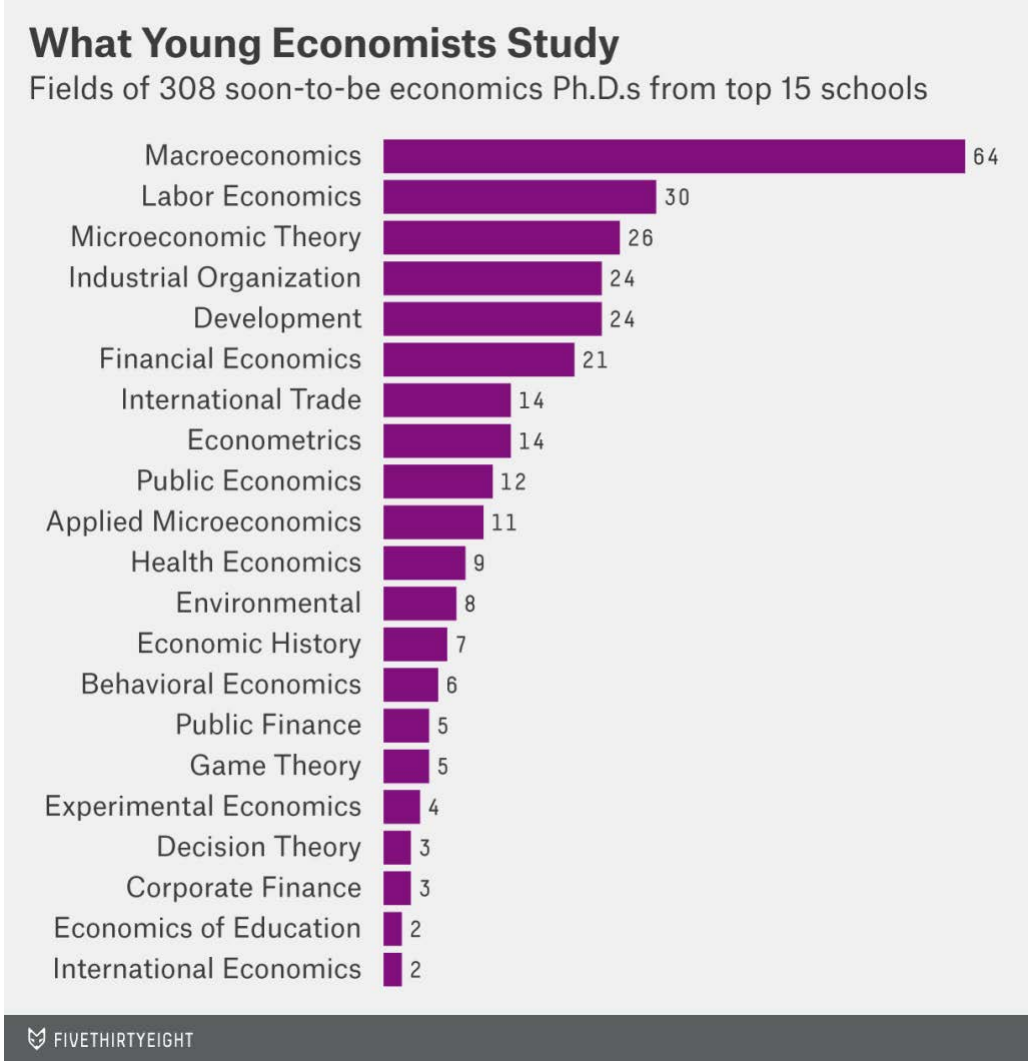
Senior Economic Advisor

Why you are on the right track in studying macroeconomics?



Macroeconomics is all about aggregate demand and aggregate supply and how to design policies to make the two come together to equilibrate the economy

- Aggregate demand and aggregate supply, and the interactions between the two
- Determination of output and the price level (given the potential output)
- Aggregate demand has an IS and an LM. How are they related?
- Is there a trade-off between output and the price level/inflation?
- What role for expectations and wage-price flexibility for the core macroeconomic model?
- Are the way expectations formed (static, adaptive, or forward-looking) make a difference to the core macroeconomic model and its policy implications, and how?

Except in special cases, aggregate demand slopes downwards and can be affected by both fiscal and monetary policies

- AD = C/P +I /P + {G + (X-M)} – slope and shifts
- The wealth effect – when the price level falls, the real value of household wealth increases too – raising C/P
- The interest rate effect – when the price level falls, the demand for money falls, and the real interest rate, nominal interest rate, R adjusted for the price level falls too – raising I/P.
- The trade effect - when the price level falls, the relative price of net exports falls too – raising (X-M) (raising exports and lowering imports)
- The AD curve (depicting the negative relationship between AD and P) the two) can be shifted by changes in its components –C/P, I/P, G, or (X-M)
- Fiscal policy affects AD by affecting the components of AD (mainly by changing G and taxes T) and monetary policy (by changing R and hence r)
- How is AD related to the IS and the LM curves? How can the former be derived from the latter two tools – Keynes, Friedman, neo-classical, new-Keynesians, and all that.

Except for special cases, the short run aggregate supply (AS) curve slopes upwards, but is generally not much affected by fiscal and monetary polices

- What is the long run in macroeconomics? – a period in which prices (and wages) adjust fully to bring actual output to its potential level (typically close to full employment, or natural rate of unemployment).
- What is the short run in macroeconomics – a period in which prices (and wages) do not fully adjust to bring actual output to its potential level (typically close to full employment or natural rate of unemployment)
- The long run supply curve is vertical (depicting that when price adjustment is complete, actual output is equal to its potential level, so no unexploited resources)
- By tracing what happens to the price level and supply as AD shifts over a period when price (and wage) adjustment is incomplete, the short run AS curve (depicting the relationship between the AS/production and P) is derived - slopes upwards
- The slope of the AS curve determines the proportions in which changes in AD results in output changes (unemployment) and the price level (inflation) changes – the crux of the core macroeconomic model since 1936
- How does a large weather-dependent, agricultural sector in an economy make a difference to the AD, AS, and the output inflation division of AD shifts?

The core macroeconomic model is simple, and has changed very little after Keynes first and Freidman next developed it – still the macroeconomic workhorse

- (1) $Y/P = C/P + I/P + \{G^* + (X^* - M^*)\}$ (Aggregate demand)
- (2) $C/P = f(Y/P, r)$ (Consumption function)
- (3) $I/P = g(r)$ (Investment function)
- (4) $MD/P = l(Y/P, r)$ (Money demand function)
- (5) $MD = MS^*$ (Money market equilibrium)
- With G ,X, M, and MS taken as exogenous to the core model (thus the superscript stars on them), we now have 5 equations in 6 unknowns – Y, P,C, I, MD, and r (real interest rate) – the core model has one equation short – the missing equation problem in macroeconomics
- (6) $P = P^*$ – in the simple Keynesian model - the price level is exogenous (wage-price stickiness and the horizontal short run supply curve) – aggregate demand shifts result mostly in changes in output and unemployment, not inflation)
- (7) $Y/P = y = y^*$ - In the simple monetarist model (actual real output is equal to the potential output and thus exogenous to the model (vertical short run supply curve – aggregate demand shifts result in mostly inflation, not changes in output and unemployment)

The core Keynesian IS-LM model takes the price level as given (the wage rigidity assumption);

- Substituting equation (6) in to equations (1) to (3), we have:
- (8) $Y/P^* = f(Y/P^*, r) + g(r) + \{G^* + (X^*-M^*)\}$
- Similarly, substituting equation (6) in to equations (4) and (5), we have:
- (9) $MS^* = l(Y/P^*, r)$
- We now have two equations (8) and (9) in two unknowns, Y and r, as in the typical Keynesian IS-LM model. Equation (8) is the IS curve, and (9) the LM curve
- If we make the typical additional assumption of liquidity trap, we have:
- (10) $r = r^*$, then we get the Keynesian cross (equation (8) alone determining real income Y/P^*
- That is the case of a horizontal LM curve.

The core monetarist model takes real income as given (by the labor-demand and labor supply functions with wage flexibility)

- Substituting equation (7) in to equations (4) and (5), we have:
- (11) $MS^* = P \{l(y^*, r)\}$
- Similarly, substituting equation (7) in to equations (1) to (3), we have:
- (12) $Y/P = y^* = f(y^*, r) + g(r) + \{G^* + (X^*-M^*)\}$
- We now have two equations (11) and (12) in two unknowns, P and r, as in the typical monetarist model
- Equation (12) can be solved for r (savings-investment determining the interest rate as in the classical model) and then using that value of r equation (11) can be solved for P.
- Note that we have the classical dichotomy between the real and the monetary sectors - real income and the real interest rate determined in the real sector and the price level (and inflation) in the monetary sector.

Next session: The Philips Curve (PC) and the role of expectations in macroeconomic analysis introduced

(Macroeconomic Policy Analysis) Session 4: The Philips Curve and the Role of Expectations in Macroeconomic Analysis

GDEPFP, Ministry of Economy and Finance, RGC

3 June 2015

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Senior Economic Advisor

The Phillips Curve (PC) supplied the missing equation to bridge the gap between the Keynesian and the monetarist models

- The Philips curve was initially a macroeconomic measurement in search of a theory
- AW Philips' 1958 article plotted the unemployment rate and the the change in nominal wages and found a negative relationship between them for Britain since 1861
- That then pointed towards some kind of continuous relationship between unemployment rate and inflation
- (13) $p = k(U)$ – (where p = change in the price level or inflation, and U the unemployment rate)
- It is only one step away to relate U to the relative aggregate demand pressure as:
- (14) $U = u(y-y^*)$
- Equations (13) and (14) together gives the missing equation that along with Equations (1) to (5) can now determine the 6 unknowns of the core macro model

The (PC) thus broke the classical-monetarist dichotomy as well as the Keynesian complacency about inflationary pressures of unrestrained aggregate demand expansion

- Implicit in the pre-PC views of inflation was a 'reverse L-shaped' aggregate supply curve
- The joint on the 'reverse L' often called full employment or alternatively the 'potential output'
- The Philips curve replaced that 'disjointed' output-inflation theory by a more continuous relationship between inflation and aggregate demand-pressure
- It thus presented the policymakers with a trade-off to choose from – higher aggregate demand could yield some output gain but would also be accompanied by higher inflation
- Policy makers were now required to choose their preferred combination of the two – a point on the PC
- This was a more general macroeconomic theory then either the Keynesian or the classical (monetarist) theories

But the life span of the the original PC was short, as Friedman and Edmund Phelps augmented the original spec. with inflation expectations – a rebirth for the PC?

- The original PC did not have 'expectations' built into it - so it was thought that there is a stable relationship between inflation and the output gap
- Then came Friedman's (and Edmund Phelps') inflation expectations-augmented Philips curve:
- (15) p = j{(y – y*), pe}, where 'pe' stands for expected inflation
- But then, how do people (especially the workforce) form expectations about inflation?
- With imperfect information, inflation expectations were supposed to be formed adaptively (a backward-looking expectation formation process)
- In such an expectation formation process, pe is simply seen as a function of past inflation rates.
- It is thus clear that there may be a trade-off between inflation and output for a while, but as soon as people incorporated the recent inflation rates in their expectation formation, that trade-off vanishes (the trade-off is thus short-lived)
- Today's inflation becomes tomorrow's wage rise, and thus to achieve more output gain, policymakers have to continuously be resorting to accelerated inflation over time

Then came the forward-looking, rational expectations that questioned even the short-lived tradeoff between inflation and output

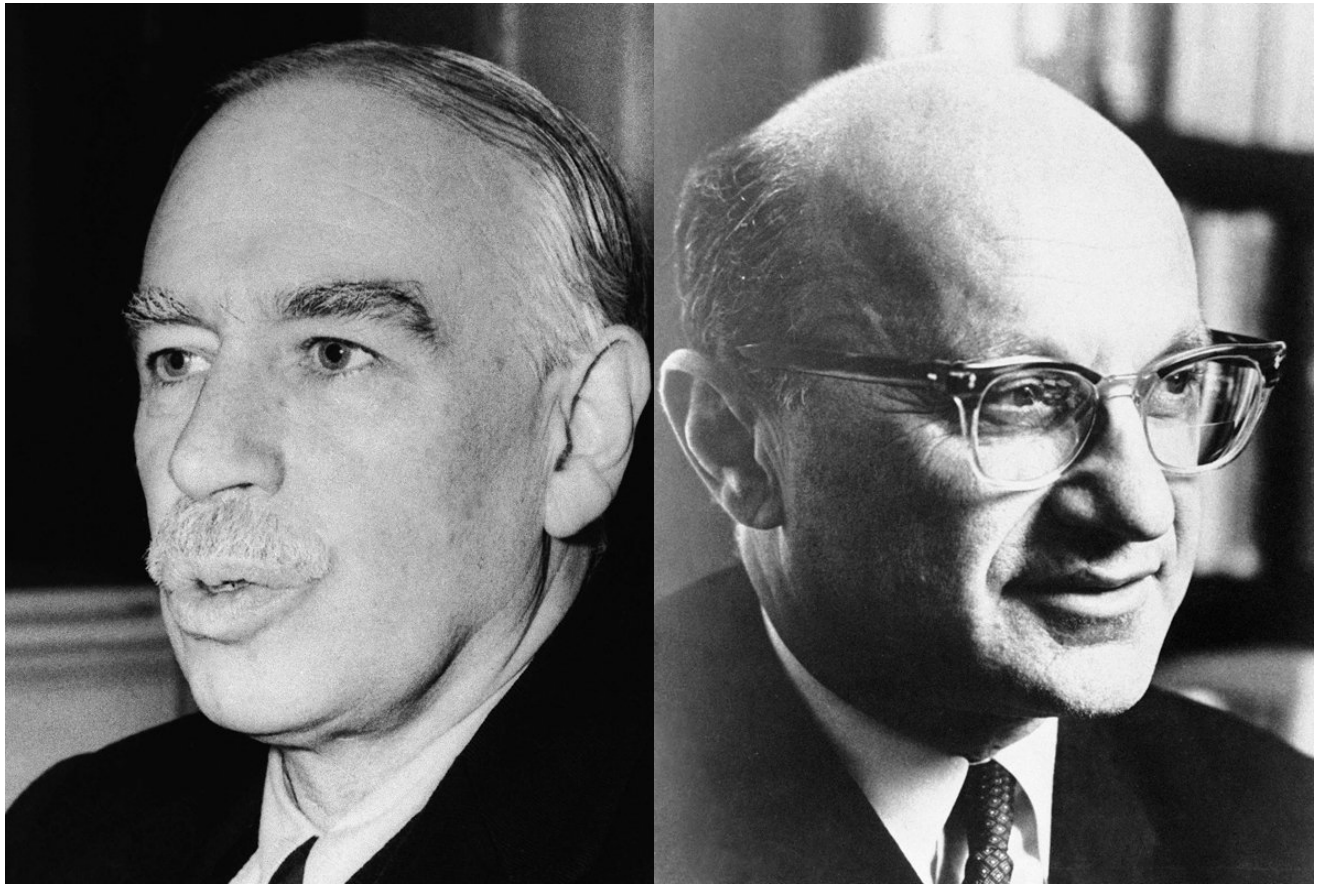
- With rational expectations, the adjustment of inflation expectations to actual inflation became so quick that distinction between the short-run and long run supply curves was rendered redundant
- Indeed, if people had full information, they would have the same macroeconomic model as the policy makers
- People's inflation expectations formed by using that information will thus make any macroplolicies ineffective in getting output gain even in the shortest of short periods – policy ineffectiveness (Robert Lucas)
- In addition, note that pe can also enter equations 2, 3, and 4 – leading to lower effects of fiscal and monetary policies on AD in the first place
- One version of rational expectations - current fiscal deficits are equal to future taxes (Robert Barro's Ricardian equivalence), so fiscal policy cannot affect even AD, let alone y
- Business cycles then are indeed 'real business cycles' and not 'AD-induced business cycles')

Despite the rational expectations revolution's predominance in the 1980s, a more eclectic new-Keynesian model has continued to be the preferred model on the part of the policymakers around the world

- Rational expectations revolution, although stole the limelight in the 1980s, it was not something that has been fully bought by the policymakers around the world
- A more eclectic Keynesian position – or new-Keynesianism - has always prevailed and continues to prevail in both academic circles and more importantly policy makers' thinking
- However, the role of expectations is now much more appreciated by both academics and policymakers than was the case back in the 1960s
- That then is the major contribution of the modifications of the PC in the years since its birth in 1958
- All said and done, what should policy makers do when 'idle men, idle machines, and unmet demand' coexist on a large scale for years?
- To use fiscal and monetary policies - the two key macroeconomic levers often available to them - in one or another combination or just throw their hands up in desperation?

Macroeconomics has evolved over the years very similar to the iconic Volkswagen Beetle (1949 model verses 2010 model shown here) – changed over the years, yet preserved its basic features!

And these two great economists were responsible for that, despite each of them looking at almost opposite directions in their intellectual pursuits



Next session – Putting the macroeconomic model (s) to work – macroeconomics of fiscal policy

Macroeconomic Policy Analysis
Session 5: Macroeconomics of Fiscal Policy

GDEPFP, Ministry of Economy and Finance, RGC

15 June 2015

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Senior Economic Advisor

What is Fiscal Policy?

Fiscal policy refers to changes in government expenditure and/or government revenues

How does Fiscal Policy affect the economy?

1. **Resource Allocation**
   When government raises or lowers taxes, certain economic activities and sectors gain and others lose. Similar outcomes occur with government expenditures.

2. **Income Distribution**
   The composition of government expenditures and taxes also affect the incomes of different segments of certain people.

3. **Macro-Stabilization**
   Government expenditures and taxes also affect aggregate demand and hence, the output gap, unemployment, and inflation.

These three functions (or effects) – not always consistent with each other – together affect overall economic growth and socioeconomic development of a country

Today's focus is on the Macro-Stabilization role – or the Macroeconomics of Fiscal Policy

- How do changes in government expenditures and taxation affect aggregate demand?
- Does fiscal expansion crowd out private sector demand – either private consumption or private investment?
- How much does a fiscal policy-led change in aggregate demand affect real output/GDP (unemployment), inflation, net exports, or balance of payments more generally?
- All this, using a simple, minimalist, yet highly useful macroeconomic model

To help answer these questions, we need a macro framework

(and some simple maths)

A minimalist macro-model

1. $y = \frac{1}{H}[G' + X' + A'] + \frac{1}{H} ir$ **IS Curve**

2. $r = \left(\frac{MS'}{Pj}\right) - \left(\frac{k}{j}\right) y$ **LM Curve**

3. $P = n(y - y') + P'$ **Phillips Curve-type relation**

where:

y – real output; **y'** – potential output; **r** – real interest rate; **P** – general price level; **P'** – supply shock proxy; **G'** – real government purchases; **X'** – real exports; **A'** – autonomous component of real expenditure; **MS'** – nominal money supply; **n** – price-level responsiveness to output gap; **1/H** – conventional Keynesian multiplier; **i** – interest responsiveness of private investment (-ve); **k** – income responsiveness of money demand (+ve); **j** – interest responsiveness of real money demand (-ve)

A minimalist macro-model (cont'd)

Rearranging and substituting terms in equations (1) and (2), we arrive at a minimalist macro-model with two equations and two unknowns:

4. $$y = \frac{1}{H+i\left(\frac{k}{j}\right)}[G' + X' + A'] + \frac{1}{H+i\left(\frac{k}{j}\right)}\left(\frac{i}{j}\right)\left(\frac{MS'}{P}\right)$$ **Aggregate Demand**

5. $$P = n(y - y') + P'$$ **Aggregate Supply**

We can use these relationships to make a few simple conclusions regarding the macro effects of Fiscal Policy

Macro effects of Fiscal Policy

4. $y = \frac{1}{H+i\left(\frac{k}{j}\right)}[G' + X' + A'] + \frac{1}{H+i\left(\frac{k}{j}\right)}\left(\frac{i}{j}\right)\left(\frac{MS'}{P}\right)$ **Aggregate Demand**

5. $P = n(y - y') + P'$ **Aggregate Supply**

Under extreme recessionary conditions (flat LM and Phillips curves):

- **r** and **P** do not rise with fiscal stimulus

Macro effects of Fiscal Policy (cont'd)

4. $y = \frac{1}{H+i\left(\frac{k}{j}\right)}[G' + X' + A'] + \frac{1}{H+i\left(\frac{k}{j}\right)}\left(\frac{i}{j}\right)\left(\frac{MS'}{P}\right)$ **Aggregate Demand**

5. $P = n(y - y') + P'$ **Aggregate Supply**

Under less extreme conditions (upward sloping LM curve):

- Some crowding out of private investment takes place
  - The addition of ***i(k/j)*** to **H** in the denominator of the fiscal multiplier reduces the value of the multiplier
- The second term in equation (4) gives the effect on output of an increase in money supply (MS') for a given price-level
  - $\frac{1}{H+i\left(\frac{k}{j}\right)}\left(\frac{i}{j}\right)$ is positive, since i and j are negative and k and H are positive

Macro effects of Fiscal Policy (cont'd)

$$4. \quad y = \frac{1}{H+i\left(\frac{k}{j}\right)}[G' + X' + A'] + \frac{1}{H+i\left(\frac{k}{j}\right)}\left(\frac{i}{j}\right)\left(\frac{MS'}{P}\right) \qquad \text{Aggregate Demand}$$

$$5. \quad P = n(y - y') + P' \qquad \text{Aggregate Supply}$$

- However, prices would also rise through equation (5), subsequently reducing the positive effects of both fiscal and monetary expansion from the initial effects

- What happens to net exports or the current account balance? Normally, it should lead to higher imports and hence, lower net exports and current account balance (but note the simplicity of the model here)

Fiscal Multipliers on Output: Some estimates from the US

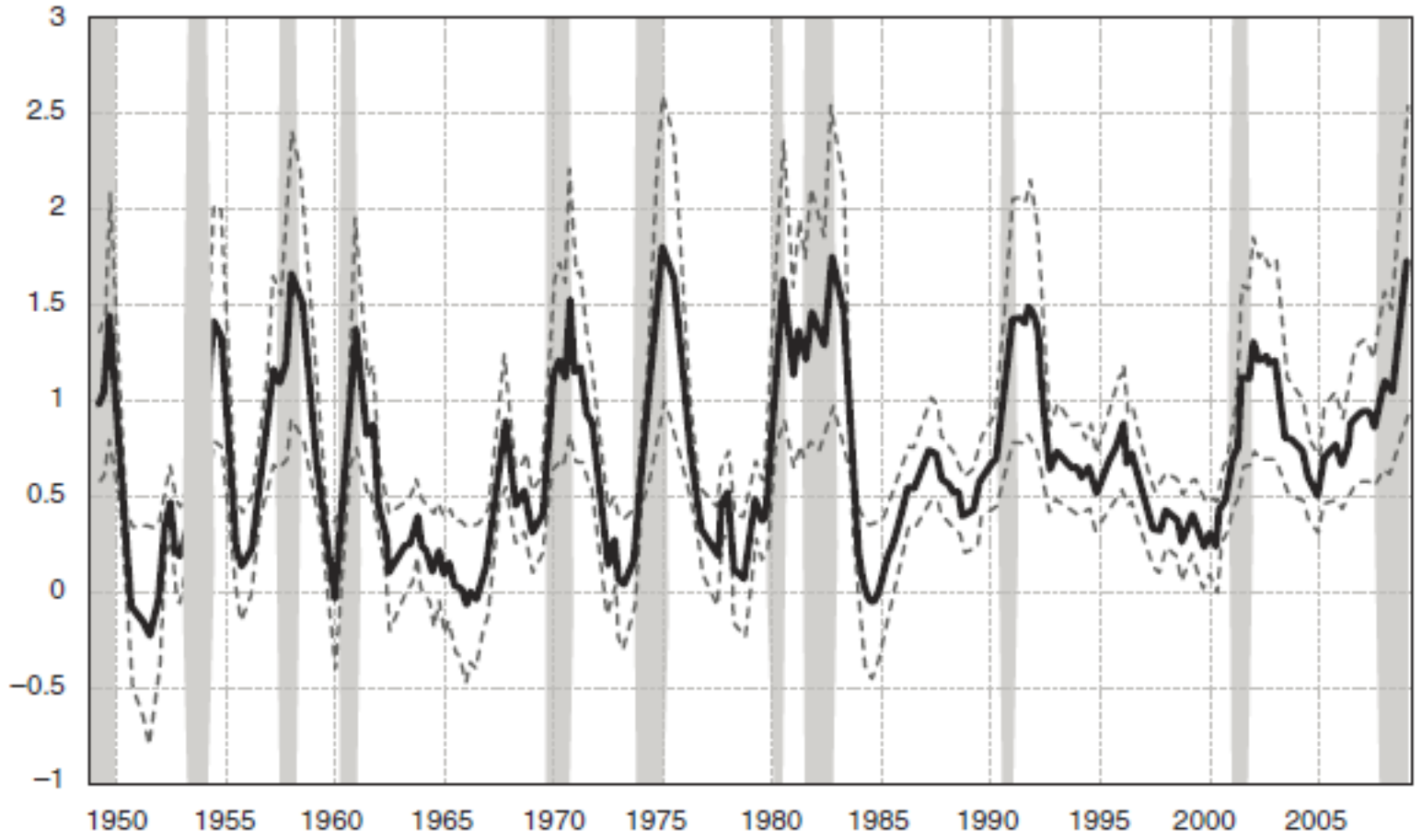
- Menzie Chinn (2013)
  - For government purchases (G'): **0.5x to 2.5x**
  - For transfer payments: **0.4x to 2.4x**
  - For tax cuts to lower & middle income people: **0.3x to 1.5x**

- Ramey (2011)
  - For government spending: **0.8x to 1.5x**

- Nakamura and Steinsson (2011)
  - For government spending: **1.5x**

- Almunia et al (2010)
  - For government spending: **>1.0x**

Historical Fiscal Multipliers for US Govt. Spending during expansions and contractions



Source: Auerbach and Gorodnichenko (2012).

Next session – Beyond the model-introduction of expectations and future debt-discounting make major differences to the model results and hence, to fiscal policy in practice

Macroeconomic Policy Analysis
Session 6: Macroeconomics of Fiscal Policy in Practice

GDEPFP, Ministry of Economy and Finance, RGC

23 June 2015

Srinivasa Madhur

Senior Economic Advisor

The core macro-model at the backdrop

(1) $Y = 1/H\ [G' + X' + A'] + 1/H\ (ir)$

(2) $r = MS'/p.j - (k/j)\ y$ ……. or

(3) $Y = \{1/\ [H+i(k/j)]\}\ [G'+X'+A'] + \{i/[H+i(k/j)]\}\ (MS'/pj)$

(4) $P = n(y-y') + P'$

Where

H = [1-c(1-t) – m(1-t)] or {1/H) is the conventional Keynesian multiplier

Today's focus is on the macroeconomics of fiscal policy in practice – beyond the model -

- What constrains fiscal policy in stabilizing the economy?
- Can fiscal policy do more harm than good in stabilizing the economy?
- When to use fiscal policy and how? Discretion verses Automaticity?
- What are the emerging consensus among practitioners of fiscal policy – 'science' or 'art', or a bit of both?

Beyond the model – introduction of expectations and future debt-discounting make major differences to the model results and hence fiscal policy in practice

- If the economy is working towards full capacity, the gain in output from fiscal expansion rather small; the inflationary consequences that much larger
- As the price level starts rising (faster), the public will revise their inflation expectations – the ultimate gain in output much lower than the initial gain
- Under adaptive expectations, ever rising inflation (accelerated inflation) required to get smaller and smaller gains in output (Friedman)
- Under RE, even that trade-off vanishes (Lucas).
- Moreover, if *Ricardian equivalence holds* fiscal expansion unable to raise aggregate demand – complete complete crowding out (Barro)
- Are govt. bonds net wealth?

Beyond the model – the level of government debt would matter to the effects of fiscal policy in practice

- Even with significant output gap, if the country has large government debt, fiscal expansion may result in higher inflation and interest rates than higher output
- Large government debt undermines the public's confidence in the government's capability to service the debt (interest payments and repayments)
- Further fiscal deficits would be perceived as worsening fiscal sustainability thus crowding out through cutbacks in private spending
- The higher the share of foreign debt, the higher the probability of worsening confidence causing a 'currency crisis'
- Balance of payments problems would be only an arms length away from a currency crisis

Beyond the model – coincidence of fiscal expansion with an adverse supply shock would also cause perverse effects

- If fiscal expansion also coincides with a significant supply shock, then the output gain may indeed be swamped by the twin-inflationary pressures of a demand pull and a supply shock

- Typical supply shocks – a sudden crop failure (mostly in developing countries) or an energy price shock (sudden rise in international oil prices for an oil importing country).

- Similarly, if a country is already facing a major current account imbalance, a fiscal expansion could further worsen that imbalance

Beyond the model – further practical considerations when using fiscal policies for stabilization

- **Recognition Lag**
  How quickly can policy makers spot economic slack or recessionary possibilities?

- **Action or Decision Lag**
  Once recognized, government spending and taxing decisions require legislature's approval before the executive arm of the government can act on a fiscal expansion

- **Implementation Lag**
  Implementing a fiscal stimulus program, even if after it has been decided and designed, can take time – some times "too little too late" syndrome

- **Impact Lag**
  Even after it is implemented, private consumption may take a while to respond to the fiscal stimulus delaying its actual impact on the economy

Beyond the model – fiscal policy can also do more harm than good in stabilization

- Cases of countries deploying pro-cyclical fiscal policies, due to these inherent difficulties, are thus not uncommon

- Conflict between the stabilization needs and the longer term development objectives of resource allocation and distribution is another constraint

- At times, nesting counter-cyclical discretionary fiscal polices within multi-year fiscal frameworks is another constraint

- Often, fiscal expenditure programs are hard to roll back even after the stabilization need for them expires – making subsequent fiscal consolidation almost impossible

What then are the growing consensus on the macroeconomics of fiscal policy? – fiscal expansion almost a must in a depressed economy

- Fiscal policy an effective stabilization tool, particularly when the economic downturns are severe – large and persistent output gaps
- Hysteresis – persistent output gaps/lower growth can adversely affect potential output itself – (DeLong and Summers, 2012).
- That stabilization role can be played well if the government debt is not too large
- Plus if a TTT (timely, temporary, and targeted) fiscal stimulus can be quickly designed and implemented
- Develop enough fiscal space or buffers for a rainy day while the sun is still shining

What then are the growing consensus on the macroeconomics of fiscal policy? rest of the time keep fiscal policy on an auto-pilot mode

- Short of special occasions - severe and persistent downturns – keep fiscal policy on an auto-pilot mode – rely on countercyclical built-in stabilizers
- Design high quality automatic stabilizers – both on the expenditure and the revenue sides
- Should we have rule-based automatic stabilizers and trigger points in the auto-pilot fiscal policy?
- Can trigger points be used to make ‘fiscal oxygen masks’ to drop automatically when the ‘economic pressure’ drops below a certain level, so the economy can then ‘breath normally’?
- How to do that within medium-term fiscal framework that is anchored on allocative efficiency and growth?
- Or is that too much of science and technology for what is primarily a socio-economic issue?

Next session - Monetary Policy

The Twin Sister of Fiscal Policy

Macroeconomic Policy Analysis
Session 7: Monetary Policy

GDEPFP, Ministry of Economy and Finance, RGC

29 June 2015

Srinivasa Madhur

Senior Economic Advisor

The core macro-model at the backdrop

(1) $Y = 1/H\ [G' + X' + A'] + 1/H\ (ir)$

(2) $r = MS'/p.j - (k/j)\ y$ ……. or

(3) $Y = \{1/\ [H+i(k/j)]\}\ [G'+X'+A'] + \{i/[H+i(k/j)]\}\ (MS'/pj)$

(4) $P = n(y-y') + P'$

Where

H = [1-c(1-t) – m(1-t)] or {1/H) is the conventional Keynesian multiplier

Today's focus is on monetary policy – fiscal policy's sibling; like fiscal policy, stabilization is a major function of monetary policy

- Stabilization – domestic and the external dimensions
- Price stability – keeping low and stable inflation
- Output stability – keeping actual output closer to potential output (hence keep unemployment low – at its natural rate)
- External stability - Keeping the external account in balance – current account and the capital accounts
- Stability, growth, and development - Ultimately, stabilization is likely to contribute to the long-term goals of economic growth and socioeconomic development
- What is monetary policy in the first place? – managing money (and money's cousin - finance?)

The three dimensions of stabilization may not be consistent with each other – tradeoffs have to be struck

- Normally, closing the output gap could result in higher inflation – a closed economy tradeoff
- Lower output gap and higher inflation could also lead to worsening current account balance – an open economy tradeoff
- Lower interest rate (required for achieving a lower output gap) could also worsen the capital account balance (net capital outflow) – another open economy tradeoff
- How best to anchor monetary policy then?
- Should it pursue only one well-defined target, and not many goals?
- Inflation targeting? Output targeting? Exchange rate targeting? Targeting external balance?
- What about financial markets and asset prices? Should it or should it not?

Even in a closed economy, inflation-output trade off is not easy to strike – rules verses discretion

- Milton Friedman – constant money growth rule – at least stave off destabilization that could stem from FED's discretionary policy mistakes Among the four lags – the action lag and the implementation lag - much shorter for monetary policy, but the longer recognition and the impact lags could limit its use in practice
- Friedman's one liner - monetary policy has a 'long and variable' lag
- Therefore, stick to a constant money growth rule – say, equal to the growth of potential output – stable money demand function
- The interest rate rule – or the Taylor rule – an empirical observation on how the FED varied the short term rate in a predictable manner in response to the output gap and the inflation trap
- $r = p + .5y + .5(p - 2) + 2$
- Where, r = federal funds rate; p = inflation rate; y = percent deviation of real GDP from its potential level; 2= FED's inflation target
- Term structure of interest rates and monetary policy

Increasing popularity of inflation targeting – outside the FED

- Mono-target monetary policy (ECB, RBA and many others) - anchor monetary policy on a target rate of inflation
- Inflation targeting can also stabilize output and the balance of payments
- If there is a stable empirical relationship between inflation and output (stable Philips curve) and between inflation and balance of payments.
- Apart from its economy-wide stabilization role, mono-target monetary policy is less difficult to implement for the Central Bank
- Central Bank uses its monetary levers to stabilize inflation letting every thing else to adjust accordingly
- It is also easy to judge the performance of a Central Bank – result-based Central Banking
- Central Bank independence - from the Ministry of Finance and other political pressures
- Soft and hard inflation targeting – accountability of an independent Central Bank – accountable to whom?

Monetary policy and the exchange rate regime – fixers, floaters, and managed floaters

- Fixers outsource monetary policy – advantages and disadvantages of fixing the exchange rate
- Floaters insource monetary policy – advantages and disadvantages of floating exchange rate
- Managed floaters – a hybrid model – transparent, rule-based verses opaque floaters
- The crux of the controversy between fixing and floating – monetary independence to respond to macro shocks
- How well that monetary independence will ultimately be exercised/ used in actual practice is more important than the independence per se!
- Central Bank capability and credibility crucial for the fixed verses floating exchange rate controversy
- Rules of thumb – 'fixing' suited for small open economies (especially with capability and credibility gaps); 'floating' more suited for large, closed economies (especially with not much capability and credibility gaps)

Special occasions when monetary policy struggles

- Interest rate is close to zero or inflexible downwards – liquidity trap
- Extreme recessionary, depressed, or deflationary conditions
- Extreme risk averse conditions
- Unconventional monetary policy – quantitative easing (QE)
- How does QE work, or supposed to work?
- UK 'Funding for lending scheme' and ECB's rigidity (and the Grexit)
- Pitfalls of QE and the need for 'monetary policy assurance'
- Monetary policy and 'explicit forward guidance' through 'monetary policy assurance' (Michael Woodford, 2012)
- Announcement effects - speak up or fold up - speech therapy for Central Bank governors?
- Or just leave to the fiscal sibling – who can do things much better under special occasions?

Asset markets, bubbles and 'irrational exuberance' – rethinking monetary policy

- The great moderation of low and stable inflation and exceptionally low unemployment rate
- Money (and its close cousin – finance) has many uses
- So if not in the goods market, it goes freely to the asset market, so can push up asset prices, not inflation
- How to spot asset bubbles? Look at stock and bond prices, or look at property markets?
- Or look at other indicators - exceptionally low inflation even when credit growth is also exceptionally high?
- Should monetary policy prick asset bubbles? Can it do it well? Or will it prick it prematurely? Or too late?
- Or should asset markets be not in the purview of monetary policy?
- How to manage financial markets and other asset markets? Should it be left to macro-prudential policies?

What then is the growing consensus on monetary policy?

- Under normal circumstances monetary policy should be the preferred policy tool for stabilization (‘do not disturb’ sign for fiscal policy)
- Mono-targeting monetary policy works reasonably well for stabilization during normal cyclical fluctuations.
- Choose from one of the common mono targets – inflation rate; exchange rate”; or output gap
- During a major downturn, use QEs, ‘funding for lending’ or any such unconventional methods
- Beef it up by ‘explicit forward guidance’ through pre-announced policy path
- Call for help from the fiscal sibling early on during a major downturn
- During exceptionally boom conditions, ‘trust but confirm’, and call on the new-born policy cousin – macro-prudential policies

Next Session - Macro-prudential policy – the newborn cousin of monetary policy

Macroeconomic Policy Analysis
Session 8:Macroprudential Policy

GDEPFP, Ministry of Economy and Finance, RGC

7 July 2015

Srinivasa Madhur

Senior Economic Advisor

The core macro-model at the backdrop

(1) $Y = 1/H\ [G' + X' + A'] + 1/H\ (ir)$

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(3) $Y = \{1/\ [H+i(k/j)]\}\ [G'+X'+A'] + \{i/[H+i(k/j)]\}\ (MS'/pj)$

(4) $P = n(y-y') + P'$

Where

H = [1-c(1-t) – m(1-t)] or {1/H) is the conventional Keynesian multiplier

Why regulate the financial system? (source: S. Cecchetti, BIS, undated)

- **Old rationale**
  - consumer protection: disclosure and prohibition
  - competition: maximum size
  - panics: deposit insurance
- **Old response: Microprudential**
  - capital regulation
  - individual institution's failure accepted
- **New rationale**
  - externalities beyond panics
  - Common exposures and interlinkages
  - procyclicality and fire sales
- **New response: Macroprudential**
  - address systemic risk
  - reduce real $\Leftrightarrow$ financial feedback

Why macroprudential policy? And why now?

- The catastrophic collapse of the financial system during the 2008-2009 global financial crisis (GFC) – the driving force or trigger event
- Externalities from interconnectedness of financial institutions
- Propagation of shocks from systematic institutions or through financial markets or networks (contagion)
- Banks and other financial institutions (shadow banking) are closely interconnected – distress or failure in one affects the other
- Interconnected externalities are particularly strong for systematically important financial institution (SIFIs)
- Unlike smaller institutions, distressed SIFIs cannot easily be wound down since they are often complex and operate internationally – 'too big to fail'
- In the absence of MPPs, public interventions to save distressed SIFIs become de facto 'bail outs' using public funds
- Anticipation of such bail-outs introduces perverse incentives (for risk taking) – a race among FIs to becomes SIFIs – one-way bet – 'heads I win, tails you lose'

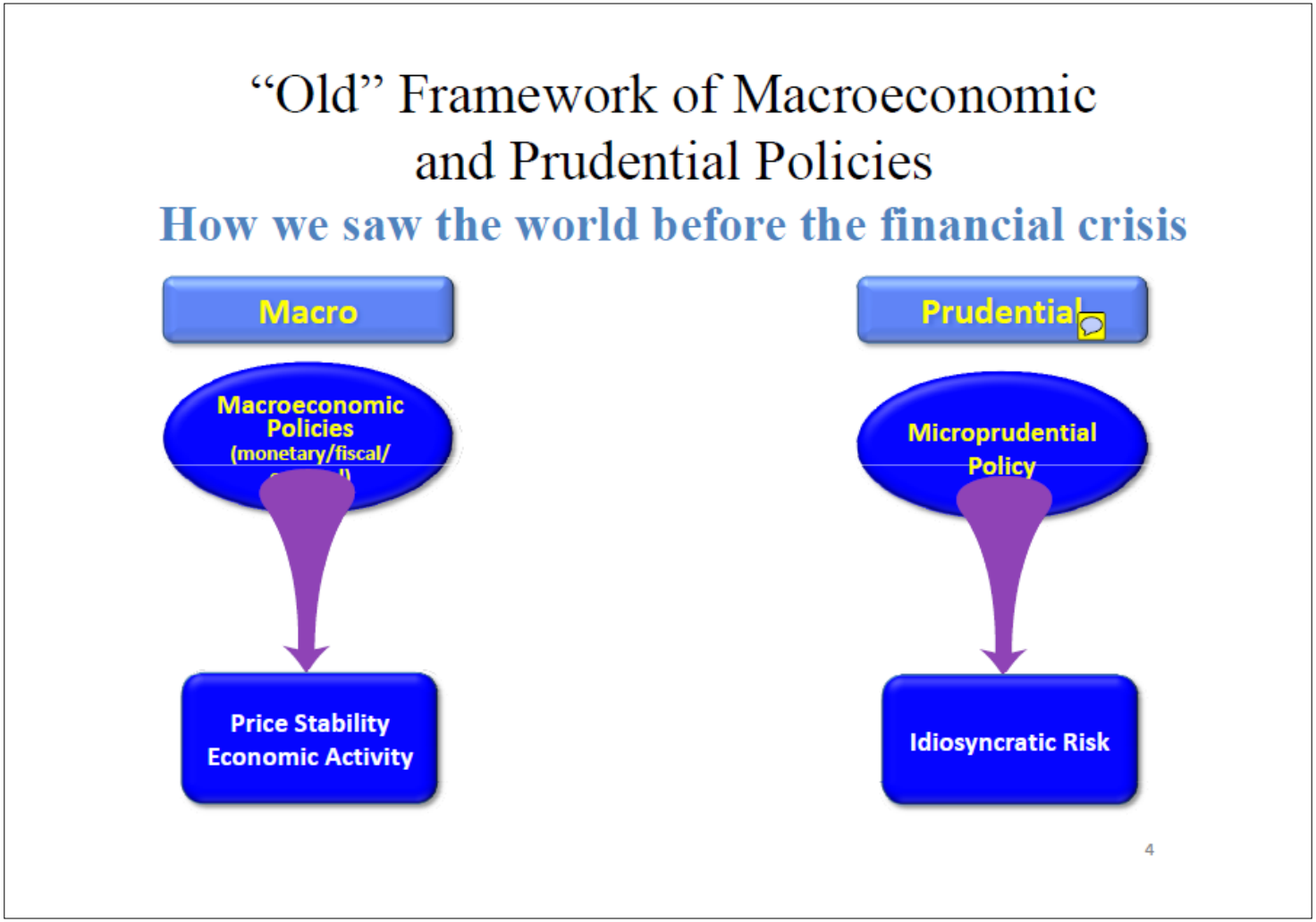
How to spot financial instability?

- Unlike monetary stability – that is now increasingly measured by price stability – financial stability is not as well and clearly defined
- It is a multi-dimensional and more complex concept than price stability – easiest way to look at it as 'irrational exuberance'
- But how to spot 'irrational exuberance'?
- Abnormal rise in asset prices – stocks, bonds, or real estate….
- Persistently large 'missing inflation' – inflation that should normally follow persistently low interest rates, rapid credit growth, (adjusted for output growth/unemployment rate) during an economic upturn.
- Persistently high growth rates of credit growth compared to some benchmark – eg. trend – during an economic upturn
- Huge capital inflows during an upturn – debt or equity - putting pressure on the exchange rate to appreciate
- Finally listen to your 'sixth sense'? That lurking feeling during good times that something is not 'right'?

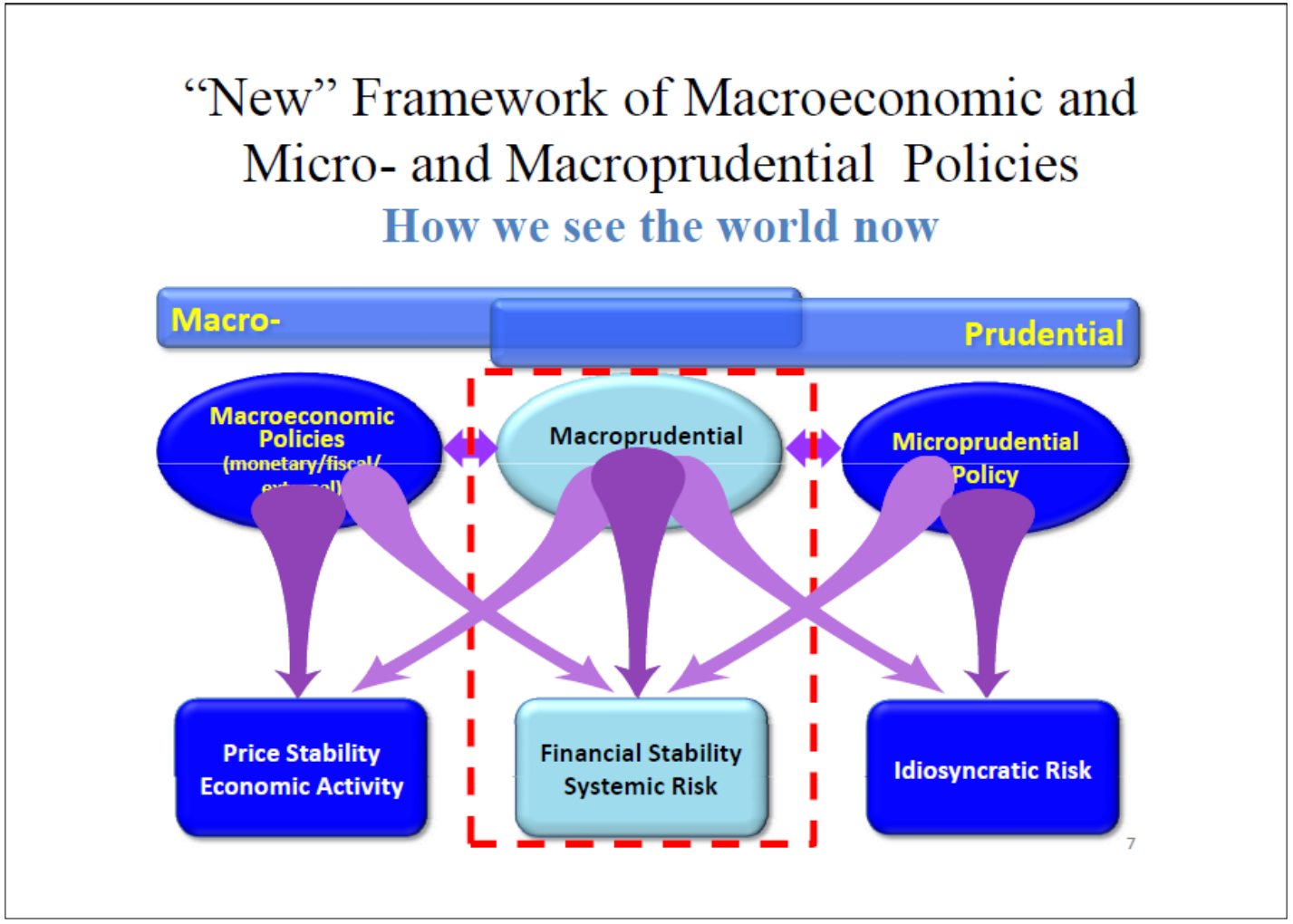
Why not assign the task of financial stability to monetary policy?

- It lacks the sectoral dimension that often accompany financial distortions (excessive lending to real estate or other sector-specific assets).
- Pricking an asset price bubble may need too large an interest rate hike to be practical from other macro perspectives
- The costs of the required interest rate hike may be excessively high compared to its benefits – some results indicated that to reduce house prices by 1 percent, the required increase in interest rate is about 100 basis points.
- Imagine the reduction in GDP (or growth) that huge interest rate hike would lead to!
- Imagine also the increase in external capital flows and the concomitant pressure on the exchange rate deficit that a huge interest rate hike would involve! Sterilization has its own limits too.
- Hence let monetary policy do its job of price stability and leave the job of financial stability to MPP!

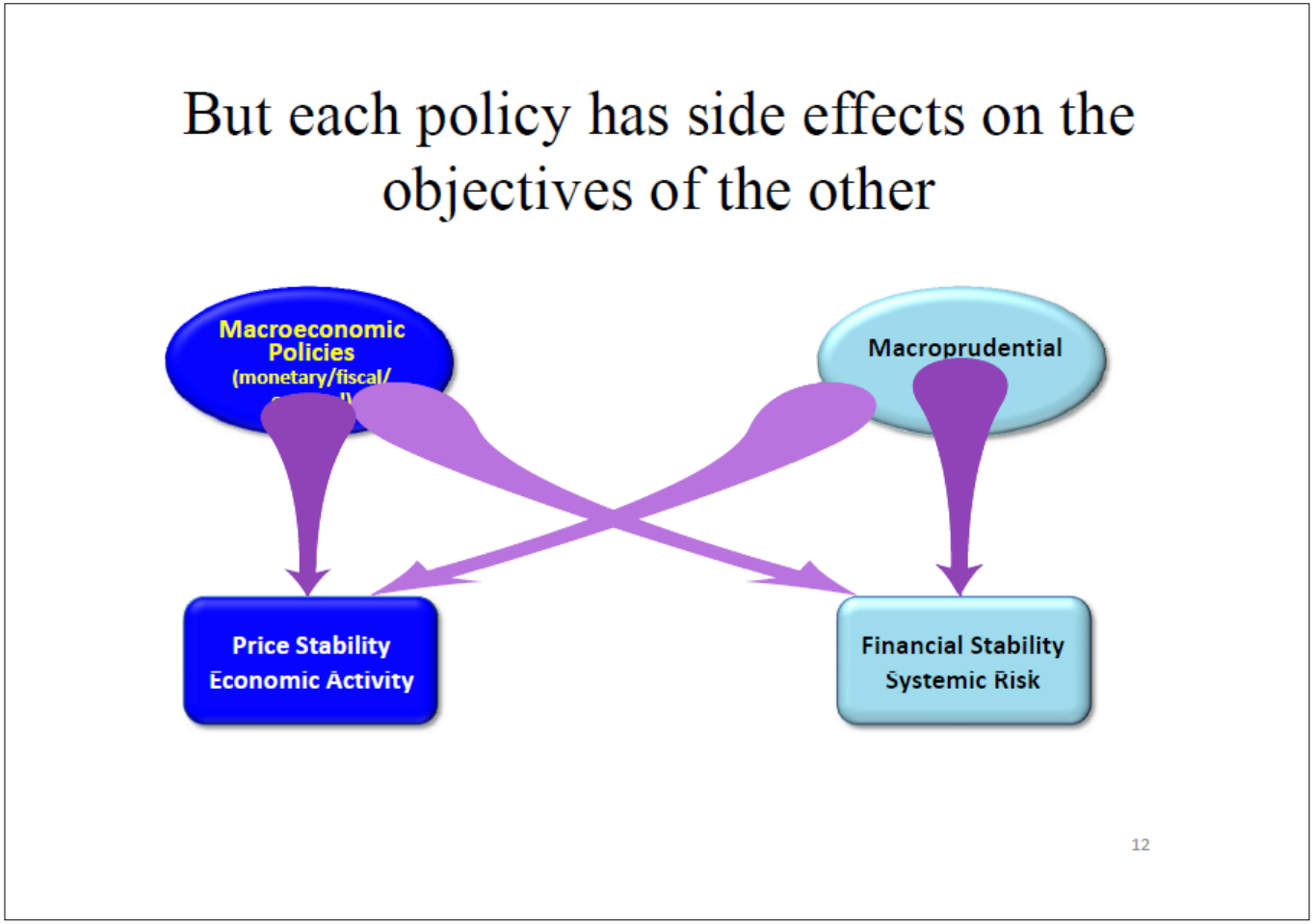
Old framework for macroeconomic and prudential policies (Source: Stijn Claessens 2013)



New framework of macroeconomic and prudential policies (source: Stijn Claessens 2013)



Interactions between macro and prudential policies (source: Stijn Claessens 2013)



Does macroprudential replace microprudential? Or they complement each other?

- Stability of individual FIs alone is not enough to ensure the stability of the system as a whole
- The 'paradox of financial instability' – during good times, the probability of a systemic risk may peak but often the risk assessment of a microprudential supervisor may indeed be highly 'understated'.
- Credit booms not necessarily a source of concern for microprudential supervisor, as FIs taken in isolation look quite healthy during such periods
- Credit booms – credit growth in excess of what economic fundamentals justify - often precede a financial/banking crisis – as banks tend to take excessive risk during good times (evidence from US before the GFC)
- That then justifies taking macroprudential actions during good times
- The two prudential policies could complement each other, as they have different, albeit related, focus
- Not much friction between the two during upturns but it may arise during downturns (macro loosening conflicts with the needed micro-tightening)

What then is the growing consensus on macroprudential policy?

- Generally considered to be a useful addition to the policy toolkit, although it is early days to pass a verdict
- Initial assessments indicate that MPP a good financial system speed-limiter but not as good an igniter
- Using 100 MPP adjustments in 17 economies a March 2015 BIS study concludes - quite effective in containing a financial boom but far less effective in moderating financial downturns (meltdowns?)
- Institutional design – who does what? Micro-macro prudential – one authority or two separate authorities, with or without cross-representation?
- Where does the Central Bank fit in?
- The dangers of each body pursuing their objectives in isolation from the other should be avoided - body responsible for macroprudential pursuing financial 'stability of the graveyard'; the one on microprudential regulation pursuing a 'zero failure objective'; while the monetary authorities not becoming excessive 'inflation nutters'.

Next session - A quick tour of the historical evolution of macroeconomic policy thinking

Macroeconomic Policy Analysis
Session 9: A Quick Tour of the Historical Evolution of Macroeconomic Policy Thinking

GDEPFP, Ministry of Economy and Finance, RGC

7 July 2015

Srinivasa Madhur

Senior Economic Advisor

The core macro-model at the backdrop

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(4) $P = n(y-y') + P'$

Where

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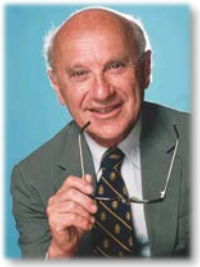
Top 10 macroeconomists who kept macroeconomics going

John Maynard Keynes
1883 - 1946



Milton Friedman
1912 – 2006
Nobel Laureate (1976)

John Richard Hicks
1904 – 1989
Nobel Laureate (1972)

James Tobin
1918 – 2002
Nobel Laureate (1981)

Robert Lucas
1937
Nobel Laureate (1995)

Robert Barro
1944

David Romer
1958

Gregory Mankiw
1958

Thomas J. Sargent
1943
Nobel Laureate (2011)

Edward Prescott
1940
Nobel Laureate (2004)

Top ten one-liners from Keynes and Friedman

- **JM Keynes:**
- Ideas shape the course of history
- The difficulty lies not so much in developing new ideas as in escaping from old ones
- Words ought to be a little wild, for they are the assaults of thoughts on the unthinking
- Markets can remain irrational longer than you can remain solvent
- In the long run, we are all dead!
- **Milton Friedman:**
- When a crisis occurs, the actions that are taken depend on the ideas that are lying around
- It takes a theory to beat another
- Inflation is taxation without legislation
- The government solution to a problem is usually as bad as the problem
- Nothing is so permanent as a temporary government program

The pre-Keynesian ideas – The Classical School

- Mainly Adam Smith (1723-1790); Jean-Baptiste Say (1767-1832); David Ricardo (1772-1823); and their many followers
- Leon Walras (1834-1910); Alfred Marshall (1842-1924); Friedrich Hayek? (1899-1992); Lionnel Robbins (1898 -1984)
- **Adam Smith** – Man is a cold rational calculator – the invisible hand of the market brings order
- **Say's law** – Supply creates its own demand
- **David Ricardo** – It makes no difference whether the government chooses to tax now, or 'borrow now, and tax later'
- **Walras** – a system of free markets is stable (general equilibrium)
- **Marshall** – Firms accept the market price - price takers, not price makers
- **Hayek** – The more the 'state plans', the more difficult planning becomes difficult for the individual.
- **Robbins** – Economics is the science which studies human behavior as a relationship between scarce means which have alternative uses –forerunner of what eventually evolved into neoclassical economics.

The pre-Keynesian ideas – The Classical School – In a Nutshell

- The thrust was on rational economic agents, markets, and the concept of supply – represented by potential output
- The belief that markets would equilibrate temporary deviations of actual output from potential output
- Prices played that equilibrating role - the tendency of an economy to return to long run equilibrium – relied on price flexibility
- Wage – the price of labor – no exception to the invisible market hand
- Firms and households could solve most of their economic problems, if left to themselves
- Governments should take on minimal economic roles – uphold individual freedom, respect and protect private property, control crime, manage pollution, and at best help build basic infrastructure – physical and social
- Beyond these basics, governments are seen as doing more harm than good

Enters Keynes with what he called the "The General Theory of Employment, Interest, and Prices" - 1936

- Unemployment is not a choice, as CEs thought – it is involuntary
- Neither is it a temporary aberration from normalcy – it is more the rule than the exception
- Idle men, idle machines, and unmet demand – lack of aggregate demand can keep actual output 'far' from its potential level for 'long'
- In classical thinking it cannot happen – there are jobs if people are willing to work for lower wages
- Why did it happen then for Keynes? Sticky wages in the labor market
- During recessions, real wages do not necessarily fall or do not fall as fast as is required for the market to equilibrate (downward wage rigidity) – leaving people without jobs
- On 29 October 1929, the US stock market crashed wiping out half the value of US shares – triggering the great depression – anxious crowds gather in the Wall Street
- The depression continued for years – unemployment stayed above 25%

Monetary policy is not good enough to stem a depression, you need fiscal policy

- When animal spirits guided private investment and the latter slumped for years, more money pumped through monetary policy simply were saved under the mattress
- "Governments could dig up holes in the streets and and fill those up again"
- The Keynesian cross and only the fiscal multiplier can save the economy
- The US and the major economies around the world applied Keynesian remedies since early to mid-1940s (post WWII mostly)
- JR Hicks (and Alvin Hansen) then formalized and extended the Keynesian macro-model – the IS-LM model – the workhorse macro-model since
- Up until the mid-1960s, the IS-LM and the Keynesian macro prescriptions gained wide-spread acceptance globally
- Dominant role for fiscal stabilization and monetary policy was relegated to the background, indeed to 'oblivion'
- But the adoption of Keynesian methods was not instantaneous – it took years of resistance in the US – the difficulty of escaping from old ideas

Then comes Milton Friedman and his Monetarist Counter-revolution roughly since the mid-1960s

- Two distinct phases of macroeconomic experience in the 1960s – first the power of Keynesian fiscal policies to close the output gap and subsequently the side effects of the same polices to create an inflation trap
- In the meantime, Friedman's contention - far from being ineffective during the great depression, monetary policy was indeed a major cause of precipitating the great depression
- That then was the beginning of the monetarist counterrevolution
- Friedman went on to argue that it was fiscal policy, not monetary policy, that was impotent in stemming cyclical output fluctuations (flat IS curve)
- Even if monetary policy had short run effects on output, its longer term effect was mainly in inflation (adaptive expectations and long run vertical Philips curve
- Because of the long and variable lags of monetary policy, he nevertheless recommended a rule-based, not a discretionary, monetary policy
- Friedman did not go unchallenged – especially by a whole set of Keynesians - led by James Tobin (and others – Alan Blinder, Willem Buiter etc.).
- Late 1960s and early 1970s was the heydays of this 'monetarist verses Keynesian' controversy

Then came the RE and the New Classicals in the 1970s and the 1980s and Keynesians looked almost down and out

- Lucas showed that there was no tradeoff between output and inflation – either in the short run or in the long run – Philips curve is vertical, period.
- The micro-foundations of the findings were to be found in rational expectations and market clearing price adjustments
- Barro ‘s blow to discretionary fiscal policy – Ricardian equivalence of debt and taxes and Sargent’s empirical support for RE
- Theorizing on the micro-foundations of macroeconomics – Kydland and Prescott for example – from individual behavior to aggregate results
- Time-inconsistency further reduced the usefulness of discretionary demand management policies – fiscal or monetary
- The emergence of the real business cycles school – business cycles were caused not by fluctuations in aggregate demand but by shocks to the supply side of the economy
- Back to the supply side - Say’s law, belief in the markets, and disbelief in government’s ability to do good – New classical school

The Rise of New Keynesianism – Macro-policy Eclecticism

- These are more eclectic than either the conventional Keynesian belief in aggregate demand management or the New classical school's disbelief
- Microeconomics of wage and price stickiness – these could be the result of individual preferences – David Romer and Gregory Mankiw and others.
- Both aggregate demand and aggregate supply shifts can cause economic fluctuations – incorporated ideas of both the schools
- Both fiscal and monetary policies could be used to stabilize output (unemployment) and inflation
- Yet, monetary policy was considered to be best suited for normal times (with some kind of targeting) and fiscal policy for special occasions
- Clear communication of policies and their objectives to the markets emphasized (partly to avoid time inconsistency problems)
- Long period of 'great moderation' – low and stable inflation and low unemployment
- But then comes the next twist in the macroeconomic story – the 2008 GFC

The 2008 GFC: Reversion to Keynesianism? Or still Extended Eclecticism with the addition of macroprudential policy?

- Events do produce new ideas and they also create an environment conducive to win greater support for accepting those ideas?
- When the economy shifts from one 'paradigm' to another, one or the other set of ideas seem to be more relevant than the other
- Some times the economy seems to be closer to the Keynesian model, other times closer to the new classical model, and yet other times closer to the more eclectic new Keynesian model
- Policy makers should not be dogmatic but pragmatic in their understandings about the macroeconomy and thus in their policy responses
- Policy makers need to continuously learn new things too - Eg., GFC is adding a new tool to the policymakers kit, yet they need to learn to use it judiciously over time, as in the case of fiscal and monetary policies

A few takeaways from the quick tour

- There is nothing like ‘the general macroeconomic theory’ (as Keynes claimed his seminal work was)
- Yet there is ‘a general macroeconomic framework’ – a way of thinking, a logical and systematic method of analysis.
- That framework allows us to look at the inherent interconnections across sectors and actors in an economy in an internally consistent way
- And Keynes gave that framework and the attendant language to us; all macroeconomists since him have used it, whether they agreed with him or not on specifics
- Therefore, “We are all Keynesians now; no one is any longer a Keynesian” and “… what a great economist Keynes was” as Friedman famously said
- May be if Keynes had lived longer, he himself would have become a ‘monetarist and a supply-sider’ in the 1970s and the 1980s!
- “When my information changes, I alter my conclusions. What do you do, sir?” – Keynes seems to have once quipped when someone asked him why he changed his position on issues

Next Session - Beyond short run macroeconomics – growth, poverty, and human development

Macroeconomic Policy Analysis
Session 10: Economic Growth and its Determinants

GDEPFP, Ministry of Economy and Finance, RGC

9 July 2015

Srinivasa Madhur

Senior Economic Advisor

From short run to long run - from economic stabilization to economic growth

- What is growth? Moving forward?
- "If you can't fly then run, if you can't run then walk, if you can't walk then crawl, but whatever you do you have to keep moving forward." ~Martin Luther King, Jr.
- Moving forward (growth) in income – aggregate (GDP) and per person (PGDP) – economic growth or simply growth
- That growth can be at different speeds, and growth theories and models try to explain that speed and the speed limits
- Determinants of that speed and speed limits for a given country over time and across many countries
- The focus now is thus on what we have been referring to as 'potential output' and its growth, not so much on the 'output gap'
- The time horizon considered is also not quarterly or yearly but for many years and decades
- As we saw in Session 9, the classical economists had much to say on growth; yet growth theory and models became more common since

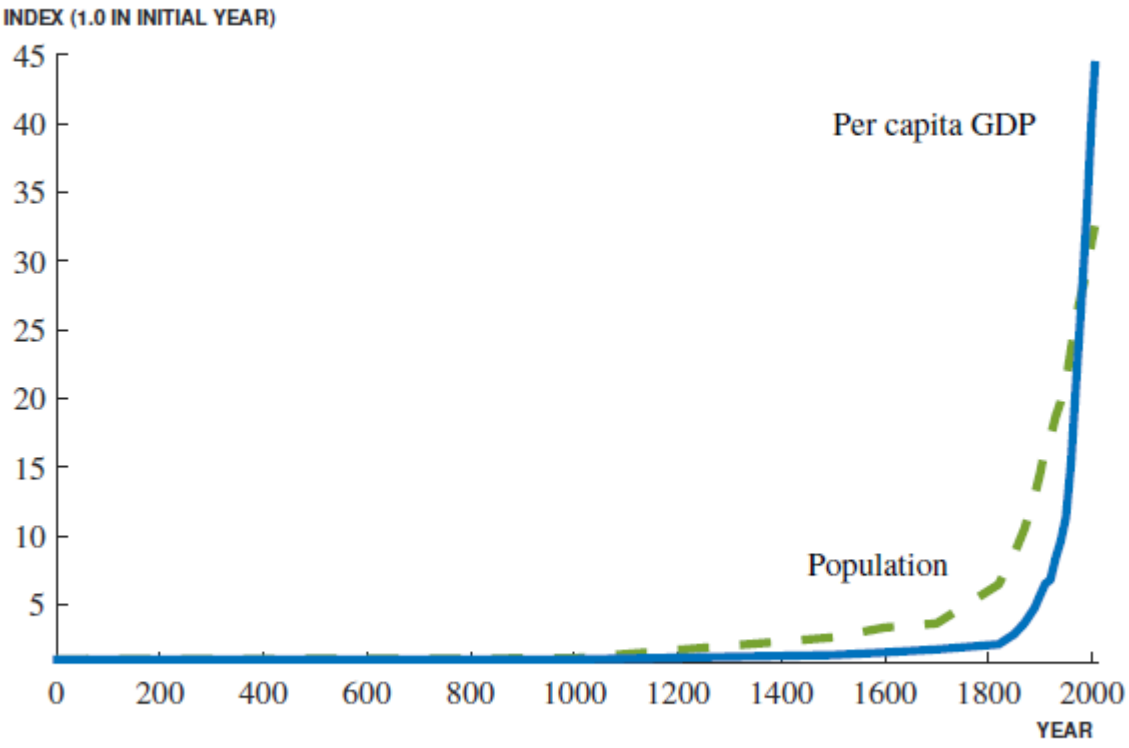
Facts of growth first – World economic growth over the past 2000 years (Source: Jones, May 2015, NBER WP)

Table 2: The Acceleration of World Growth

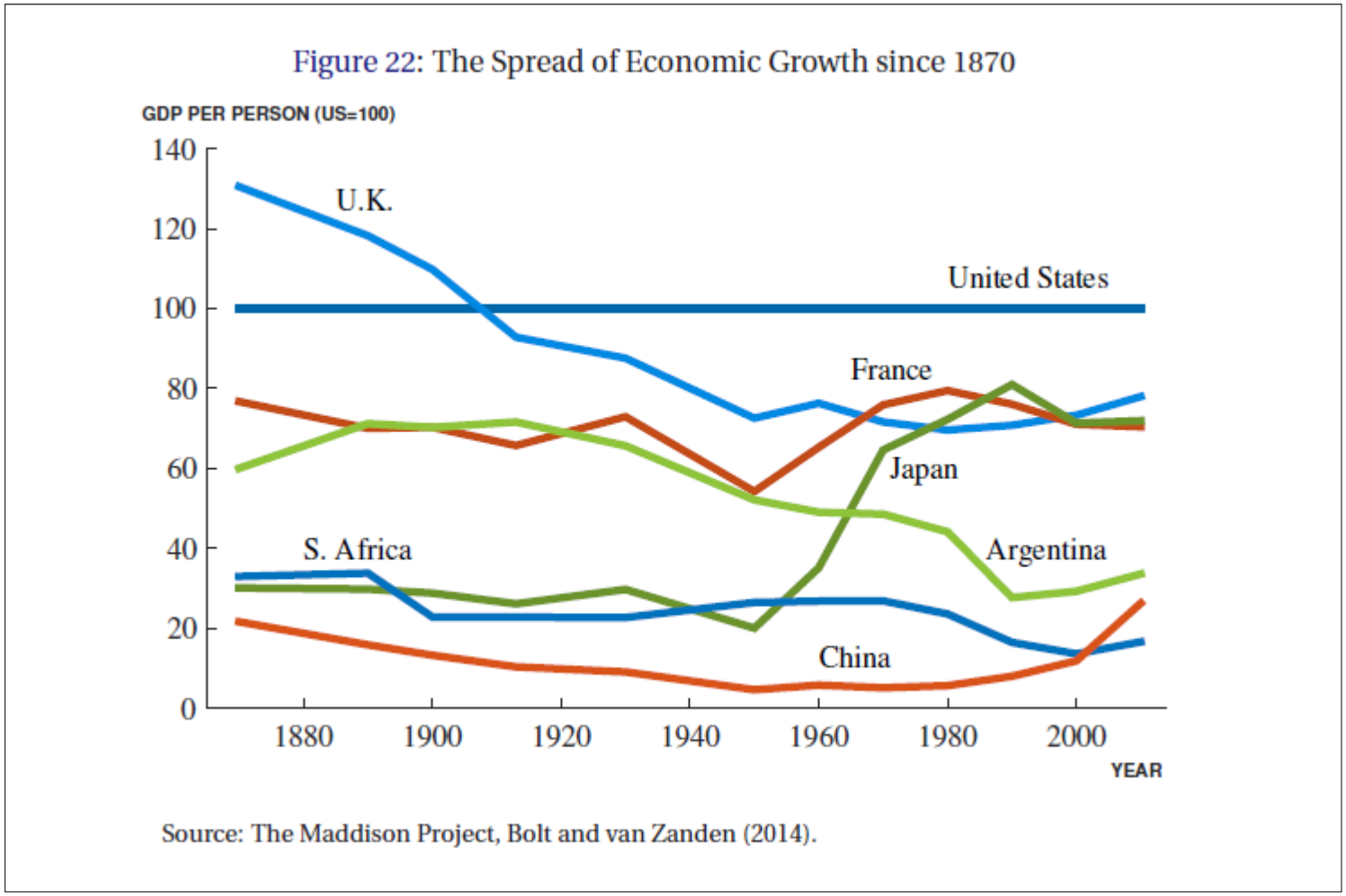
Year	GDP per person	Growth rate	Population (millions)	Growth rate
1	590	...	19	...
1000	420	-0.03	21	0.01
1500	780	0.12	50	0.17
1820	1,240	0.15	125	0.28
1900	3,350	1.24	280	1.01
2006	26,200	1.94	627	0.76

Note: Data are from Maddison (2008) for the "West," i.e. Western Europe plus the United States. Growth rates are average annual growth rates in percent, and GDP per person is measured in real 1990 dollars.

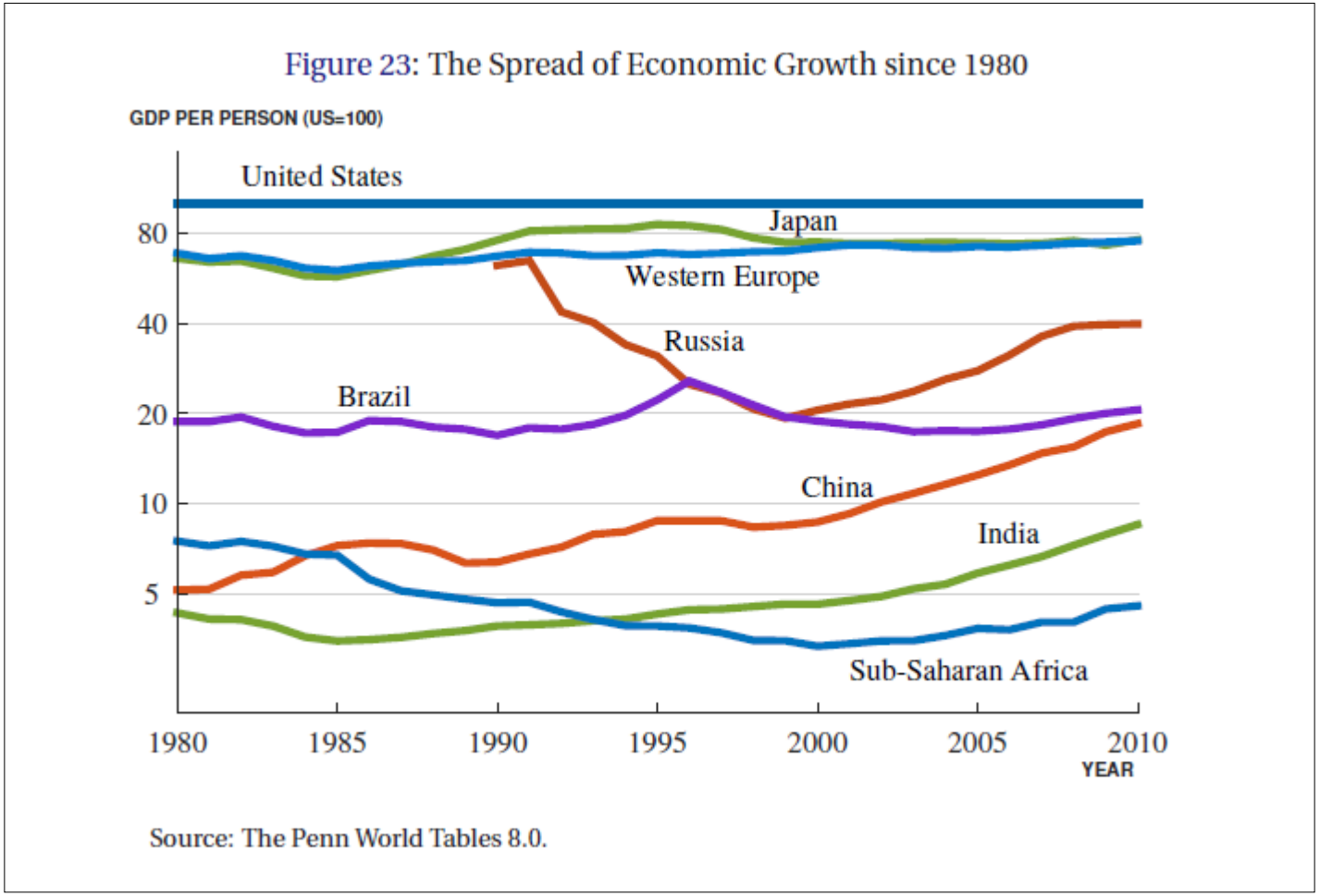
Facts of growth first – Western growth for 2000 years (Source: Jones, May 2015, NBER WP)



Global spread of economic growth since 1870 – 150 yrs (Source: Jones, May 2015, NBER WP)



Global spread of economic growth since 1980 – 3 decades (Source: Jones May 2015, NBER WP)



The basic growth model says that in the long run output depends on – capital stock, labor, and productivity of capital and labor

- Y = f (A, K, L)
- *Y is total output, K is the stock of capital, L is labor input adjusted for hours worked; and A is a proxy for productivity of capital and labor , sometimes referred to as total factor productivity – all dropping the time subscript for simplicity*
- Long run output growth depends on rates of the growth of capital stock, labor, and productivity of capital and labor
- This looks a fairly simple idea but formalizing it by developing formal production functions have taken quite a while since the 1940s to this day
- It is worth understanding this process of intellectual effort – that logical way of thinking, method of analysis - to understand the process of growth
- But before we venture out to that, we need to appreciate the power of the growth rate – small differences in growth rates can make the difference between prosperity and poverty
- Know the rule of 72 – a variable's approximate doubling time equals 72 divided by the growth rate of that variable
- 72/1= 72; 72/2= 36 yrs; 72/4 =18 yrs; 72/6 = 12 yrs; 72/8 = 9 yrs; 72/10 = 7yrs;

What determines K, L , and A and the interactions among them?

- This question has occupied much of theorizing and empirical work on growth in understanding the growth process.
- The production function approach - by now well-known Solow growth model (1956)
- Formalized by the constant returns to scale specification
- K is determined by annual additions to it – net investment (gross minus depreciation), which in turn, depends on savings (patience for prosperity)
- L and A are assumed to be exogenously given (demography plus natural rate of unemployment and exogenous technology)
- Assuming constant returns to scale and declining marginal productivity of capital and labor there was a limit to raising output
- Continuously raising the capital-labor ratio ended up getting less and less output gain, slowing growth rate, finally limiting the level of output
- Patience and hard work – saving, investing, and working longer hours - is good for prosperity but after some time you need luck
- That luck – the unexplained portion in the production function - came in the way of exogenous technological progress – manna from heaven

Algebra of the Solow growth model

$Y = A.K^{a}.L^{(1-a)}$; $0 < a < 1$

$\Delta(\text{Log } Y) = \Delta(\text{Log } A) + a\,\Delta(\text{Log } K) + (1-a)\,\Delta(\text{Log } L)$

Assuming no technological change, $\Delta(\text{log } A) = 0$,

$\Delta(\text{Log } Y) = a\,\Delta(\text{log } K) + (1-a)\,\Delta(\text{Log } L)$;

If $\Delta(\text{Log } Y)=0$ implies $a\,\Delta(\text{Log } K) = (1-a)\,\Delta(\text{Log } L)$

This means growth is 0 when $\Delta(\text{Log } K)/\Delta(\text{Log } L) = [(1-a)/a]$

Even when capital-labor ratio K/L is growing at a constant rate of [(1-a)/a], output stops growing in the absence of technological progress

- Or the same thing, there are limits to growth that can be brought about by simply raising capital per worker
- Ultimately, 'input-driven' growth will come to an end
- Technological change that raises the productivity of the factors of production can, however, help us escape from the limits to growth
- But the Solow model did not address the issue of how to bring about technological change – it was treated as exogenous to the model

Implications of the Solow model – growth convergence across countries

- Developed countries are closer to hitting the output limit through the growth slowdown – extra investment gives less and less output
- Poorer countries have so little (deficient) capital and so much (excess) labor that increasing investment and raising the capital stock should give much higher returns
- Poorer countries could also use this newer capital with newer technologies (leapfrog) to further increase their growth rates
- Moreover, their labor is much less expensive than in richer countries
- Poorer countries should thus doubly grow faster than richer countries, and thus catch up with their richer counterparts – growth convergence

What then constrains global growth convergence, or extremely slow spread of growth?

- Raising savings and investments is easier said than done
- Complex set of factors determine them – institutions, governance, investment climate, capital flows (both FDI and portfolio) etc..
- Political economy of brining about institutional reforms, better governance and a conducive investment climate
- Lack of access to technology at affordable costs by poorer countries (external constraints), and reluctance to openness to trade, technology, and ideas by the poorer countries (domestic constraints)
- Endogenous growth – technology (both innovation and adoption) may itself depend on investment - in human capital (skill development); R&D
- Increasing returns to scale – inherently benefitting early entrants to growth –developed countries
- So rather than growth convergence across countries, growth divergence could very well be the result

Endogenous "luck" and growth – modifying the Solow model

- Kenneth Arrow (1962) – learning by doing or learning about technology prevents marginal product of capital from declining
- Endogenous technology – $A = g(K)$, where $dA/dK > 0$, or specifically
- $\log A = b.\log K$, then if, say, $(a+b) = 1$, the marginal product of capital is constant
- Lucas (1988) – introduced a measure of human capital – skills embodied in workers - in the production function – in addition to the usual K and L, and that then raises the marginal product of capital
- Romer (1990) – introduced endogenous technological change – profit-seeking firms invest in R&D
- R&D raises the firm's profits but also has a positive externality on other firms' R&D productivity – (can have competitive behavior at the firm level, but has industry-wide or economy-wide increasing returns to scale
- In such models 'knowledge spillovers' are vital for technological progress, productivity, and growth
- Governments could help that process by facilitating such spillovers and technological progress – R&D, skill development etc..

The growing growth consensus

- The Solow growth model offered a good starting point as a good analytical framework for systematically thinking about long run economic growth and its determinants – perhaps something similar to the role IS-LM played in short-run macroeconomics
- Some of the key tenets of the Solow model - exogenous technological change, declining marginal productivity, and constant returns to scale – all have been modified over time to make the model more realistic
- Empirical evidence on both the Solow model and the modified models have been quite mixed, partly because of the many difficulties of measuring some of the 'theoretical constructs' such as human capital and skills in aggregate models
- That said, there is a growing consensus that long term growth is underpinned by, higher investment rates (itself determined by a whole gamut of factors, slide 11); better human capital, robust institutions and governance, openness to the external world
- Research on 'economic and financial crisis' highlights that short-run macroeconomic stability is also a key determinant of long term growth – thus tackling the conventional dichotomy between short-run macroeconomics and long term growth

Next Session - From growth to inclusion and human development

Macroeconomic Policy Analysis
Session 11: Beyond Growth – Poverty, Inclusion, and Development

GDEPFP, Ministry of Economy and Finance, RGC

14 July 2015

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Growth and Poverty Reduction – Did Growth Trickle Down? Or Growth plus poverty reduction programs?

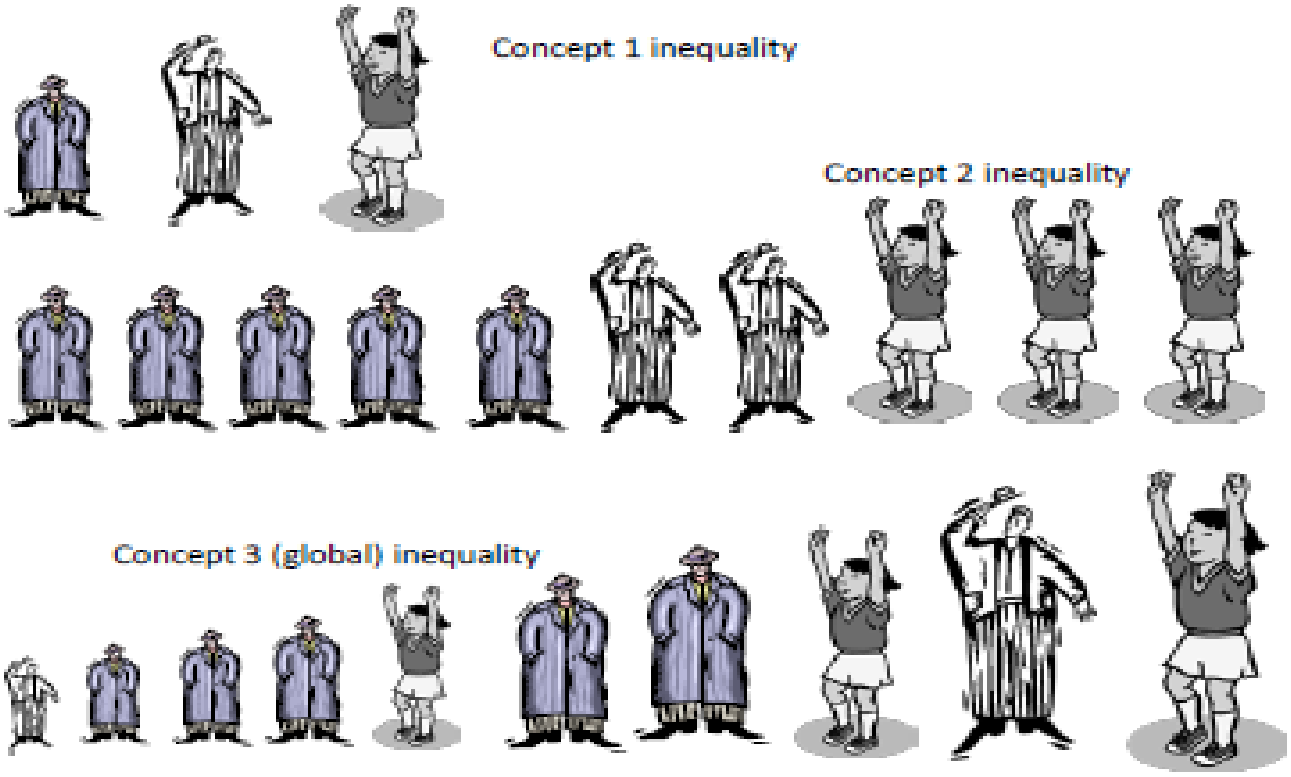
- 1950s and 1960s – dominant view - the trickle-down of growth; the rising tide will lift everyone, including the poor
- 1970s – Redistribution with growth; growth with equity (Brazilian model – strong growth did not reduce much poverty; Many poverty interventions started – free food; food for work; subsidized necessities etc..
- 1980s – Efficiency (hence desirability) of poverty programs were being doubted - India wanted "socialism for the poor and capitalism for the rich" but it got the opposite.
- 1990 s- Emphasis on better targeting, better administration, and effective implementation – and fiscal sustainability
- 2000s – health-education-poverty nexus brought to the fore – Maternal and child health, child nutrition, school feeding programs – food for study, conditional cash transfers (CCTs)
- 2010s – more integrated programs – maternal health and child health (the first 1000days), sanitation and safe drinking water; Income transfers cannot compensate for poor sanitation, unsafe drinking water, inadequate waste management etc..
- Growth plus selected but integrated poverty reduction programs. Global poverty rate – using $1.25 a day - down from 36% in 1990 to 12% in 2015; 1.9 billion people in 1990 to 836 million in 2015 (WB, WDI, April 2015)

From poverty to income inequality – shift in emphasis

- After some sporadic attention the 1970s, income inequality became a scholarly backwater – monitoring income inequality was as boring as 'watching paint dry'!
- But in recent years, there is renewed interest in income inequality – its drivers and economic, social, and political ramifications
- Thomas Piketty – Capital; Anthony Atkinson – Inequality; Joesph Stiglitz – Price of Inequality – a few of the recent volumes on income inequality
- 'GINI' – seems to be out of the bottle, not to mention the heated income polarization debate – the richest 1 % of the population cornering an undue share of the economic cake
- GINI is and the income/consumption shares of the different percentile of the population is now getting much more attention than just about two-three decades ago
- The ADB seems to suggest that a GINI of above 4 portends economic, social, and political problems
- The World Bank seems to suggests that in addition to setting GDP growth targets, countries should also target the growth rate of income of the bottom 40% of the population

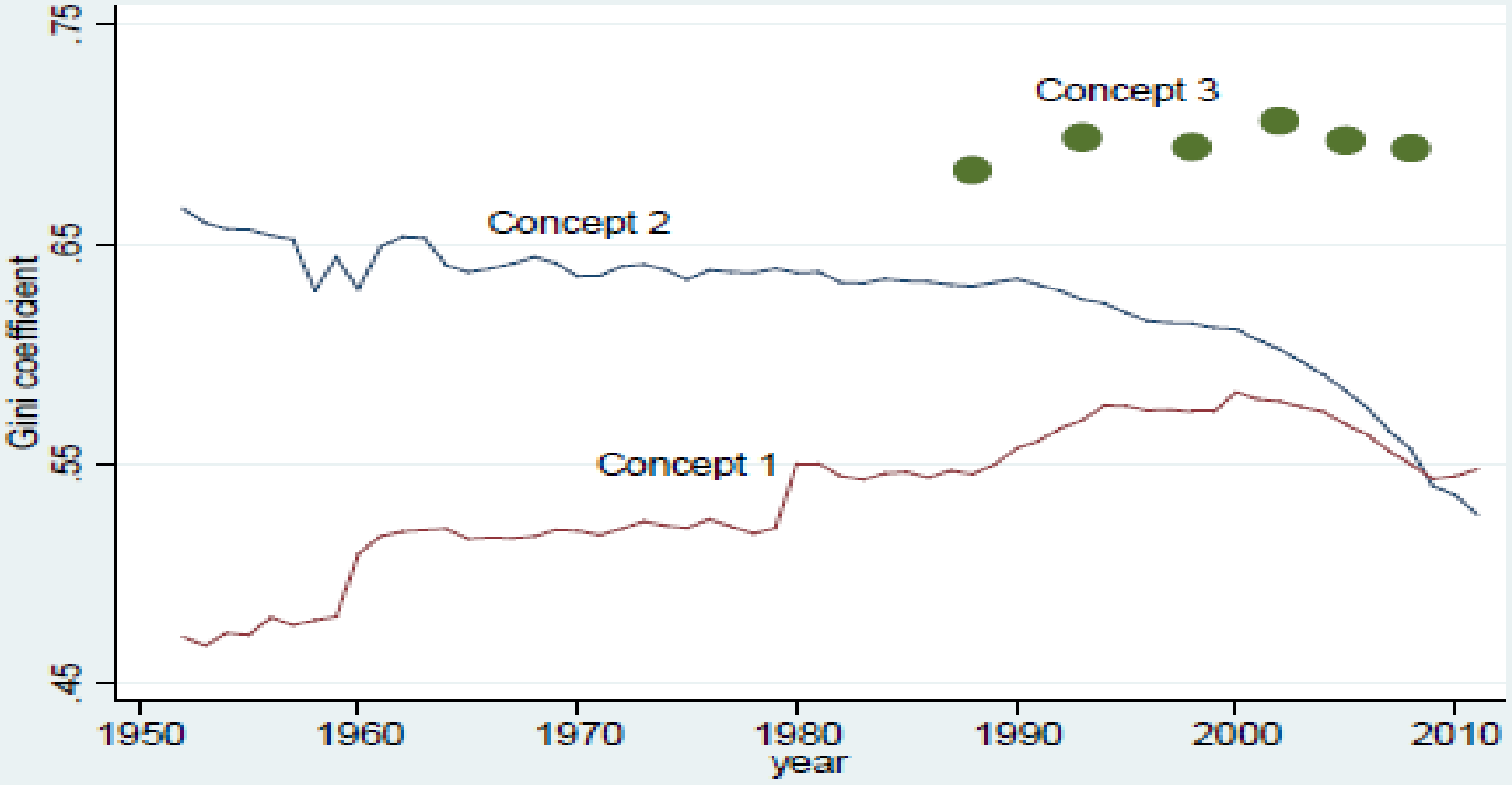
Income inequality – a few concepts (Source, Milanovic, WBWP, November 2012)

Figure 1 Three concepts of inequality defined



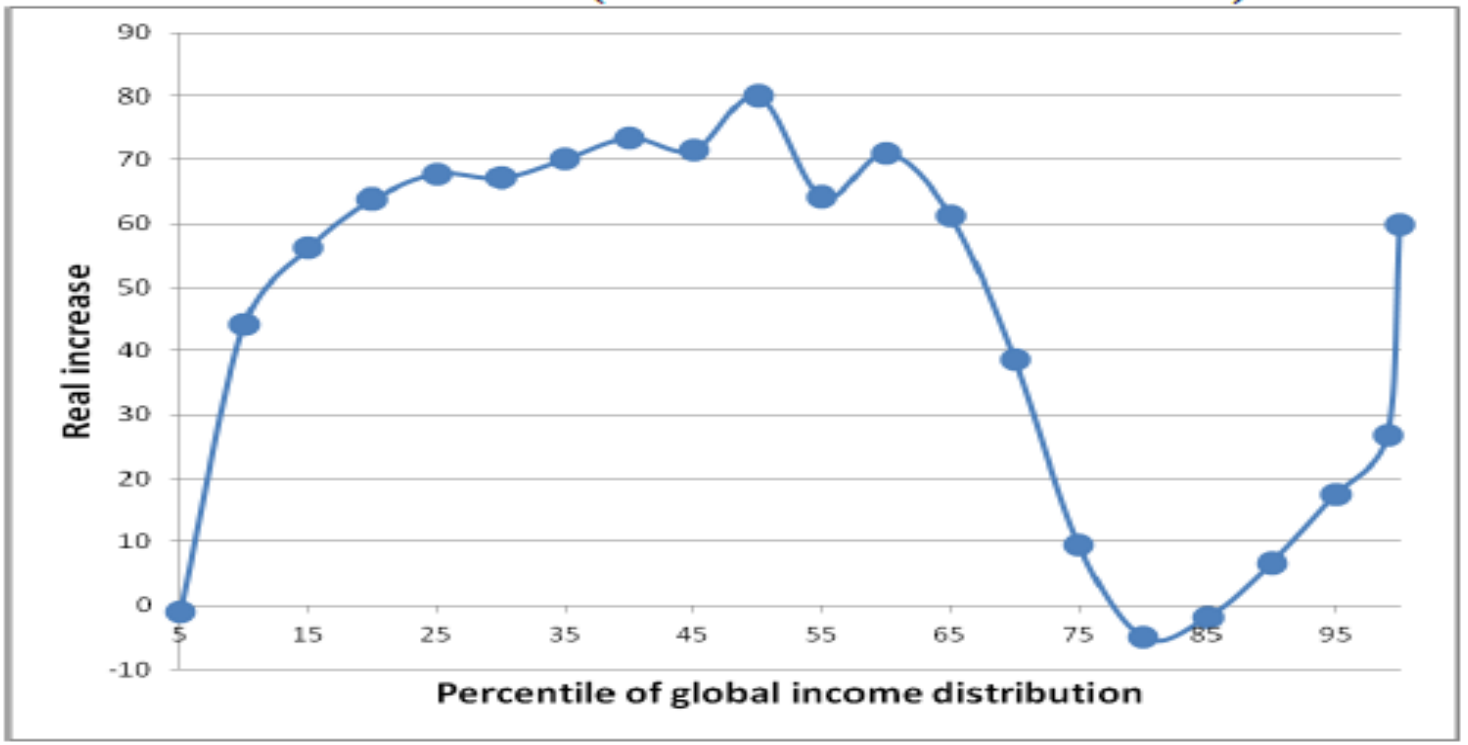
Global measures of income inequality (Source, Milanovic, WBWP, November 2012)

Figure 2. International and global inequality, 1952-2011:
"The mother of all inequality disputes"



Global income distribution across percentiles (Source, Milanovic, WBWP, November 2012)

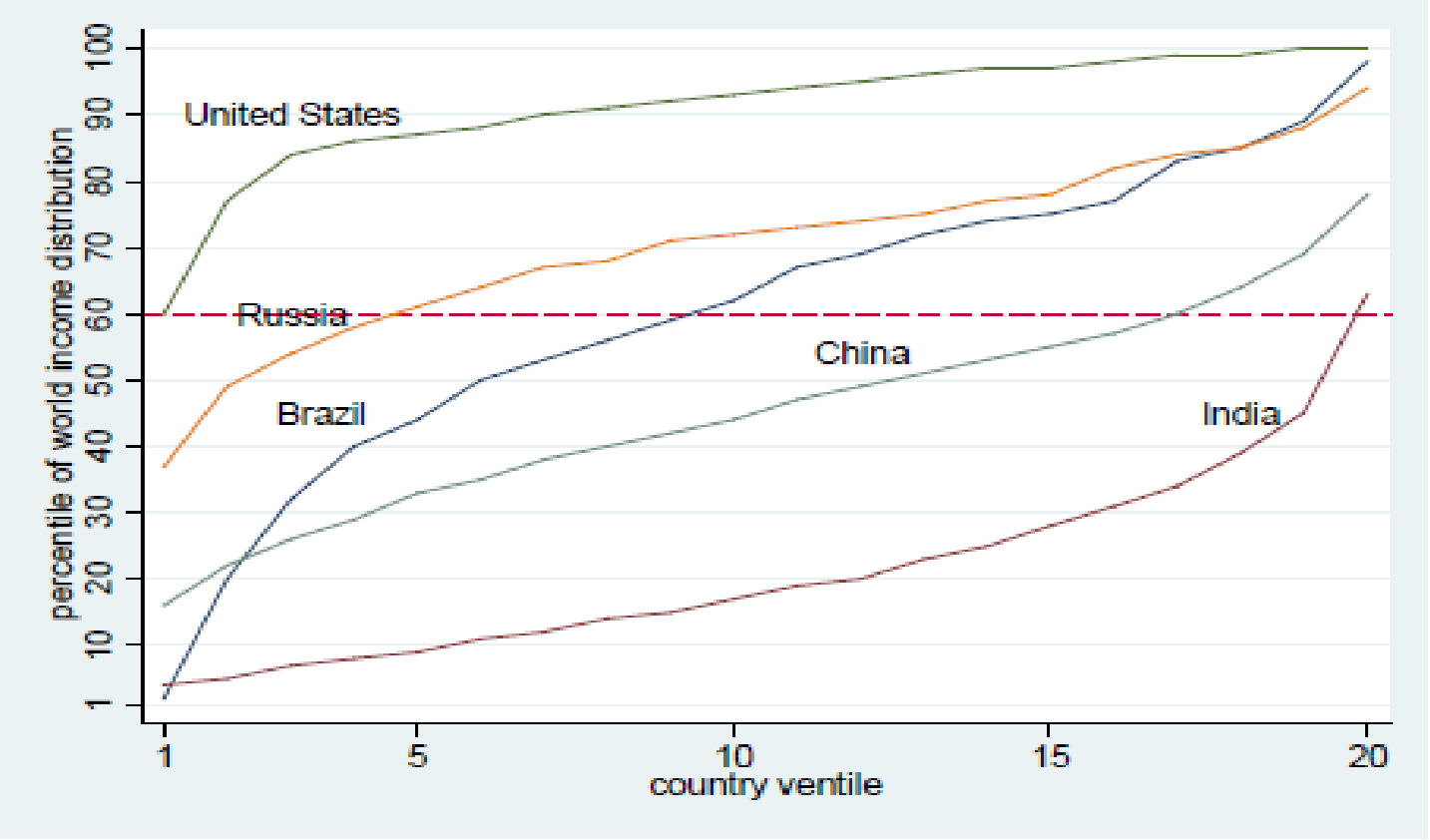
Figure 4. Change in real income between 1988 and 2008 at various percentiles of global income distribution (calculated in 2005 international dollars)



Note: The vertical axis shows the percentage change in real income, measured in constant international dollars. The horizontal axis shows the percentile position in the global income distribution. The percentile positions run from 5 to 95, in increments of five, while the top 5% are divided into two groups: the top 1%, and those between 95th and 99th percentiles.

Global income distribution and the different countries in that distribution (Source, Milanovic, WBWP, Nov. 2012)

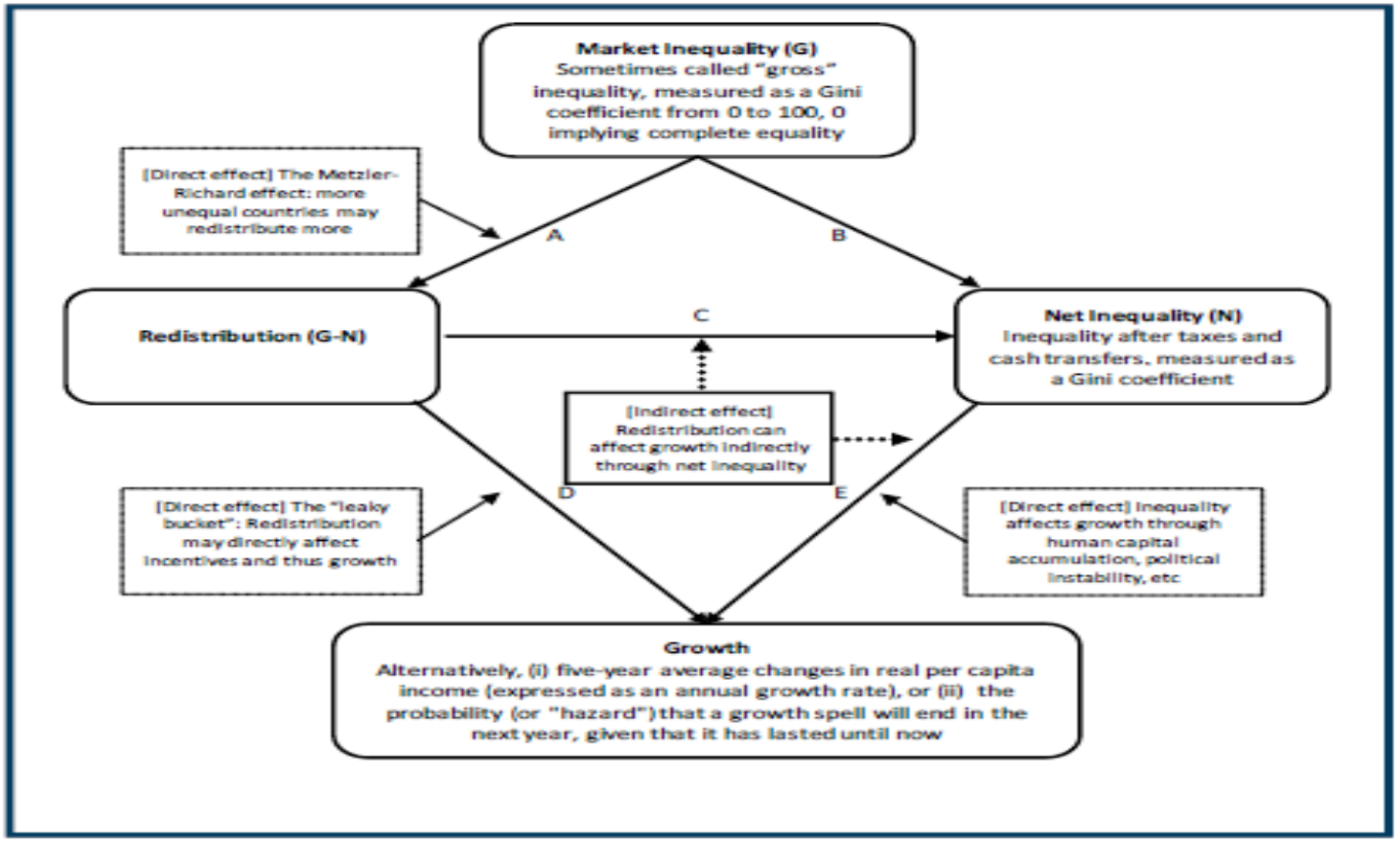
Figure 7. Different countries and income classes in global income distribution, 2005



Note: The line drawn at y=60 shows the global position of the poorest 5% of the US population.

Interactions between inequality and growth (Source, Ostry et al, IMFDN, February 2014)

Figure 1. Interrelationships between inequality, redistribution, and growth



Note: This picture shows the main channels of influence investigated in this paper. We estimate econometrically the direct effects of redistribution (line D) and net inequality (line E). In each case in effect holding the value of the other variable constant. We also calculate the "total effect" of redistribution on growth. We assume that redistribution does not affect market inequality, so redistribution affects net inequality one-for-one. The total effect is thus the sum of the estimated direct effect (line D) and the indirect effect, which is a combination of the effect of redistribution on net inequality (line C) and the estimated direct effect of net inequality on growth (line E). There are many other arrows one could draw in the picture, such as from growth back to inequality and redistribution. In addition, there are possible channels that relate the *levels* of income, inequality, and redistribution. The paper emphasizes those shown here, as discussed in the text.

Income distribution and growth (Source, Dabla-Norris, et al, IMFDN, June 2015)

Table 1. Regression Results of Growth and Income Distribution

	Dependent Variable: GDP Growth					
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Lagged GDP Growth	0.145***	0.112***	0.118***	0.113***	0.097***	0.114***
	(0.033)	(0.030)	(0.031)	(0.031)	(0.030)	(0.031)
GDP Per Capita Level (in logs)	-1.440***	-2.198***	-2.247***	-2.223***	-2.122***	-2.222***
	(0.361)	(0.302)	(0.307)	(0.308)	(0.304)	(0.307)
Net Gini	-0.0666*					
	(0.034)					
1st Quintile		0.381**				
		(0.165)				
2nd Quintile			0.325**			
			(0.146)			
3rd Quintile				0.266*		
				(0.152)		
4th Quintile					0.0596	
					(0.180)	
5th Quintile						-0.0837*
						(0.044)
Constant	17.34***	18.82***	18.12***	17.45***	19.41***	25.32***
	(3.225)	(2.579)	(2.713)	(3.058)	(4.203)	(3.496)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
#. of Observations	733	455	455	455	455	455
#. of Countries	159	156	156	156	156	156

Source: Solt Database; World Bank; UNU-WIDER World Income Inequality Database; and IMF staff calculations.

Note: Standard errors in parentheses, *p < 0.1; **p < 0.05; ***p < 0.01. Estimated using system GMM, which instruments potentially endogenous right-hand-side variables using lagged values and first differences. The regressions include country and time dummies to respectively control for time-invariant omitted-variable bias and global shocks, which might affect aggregate growth but are not otherwise captured by the explanatory variables.

What drives income inequality? (Source, Dabla-Norris, et al, IMFDN, June 2015)

Table 2. Regression Results of Inequality Drivers

Variables	Market Gini (1)	Net Gini (2)	Top 10% (3)	5th Income Decile (4)	Bottom 10% (5)
Trade openness	-0.025	-0.008	-0.011	0.002	0.005
	(0.017)	(0.014)	(0.014)	(0.003)	(0.005)
Financial openness	0.098***	0.047**	0.026**	-0.002	-0.008*
	(0.016)	(0.019)	(0.011)	(0.002)	(0.004)
Technology	56.85*	15.03	31.11*	-3.775	-11.51***
	(31.01)	(30.01)	(15.81)	(3.572)	(3.587)
Financial deepening	0.050**	0.026**	0.022***	-0.004	-0.002
	(0.021)	(0.011)	(0.007)	(0.001)	(0.002)
AEs * Financial deepening	-0.049**	-0.033**	-0.03***	0.007***	0.004*
	(0.021)	(0.014)	(0.008)	(0.002)	(0.002)
Skill Premium	-0.413	-1.351	-0.475	0.063	-0.083
	(0.726)	(0.859)	(0.670)	(0.110)	(0.139)
AEs * Skill Premium	1.165**	0.555	1.184***	-0.131**	0.024
	(0.521)	(0.556)	(0.346)	(0.064)	(0.057)
Education Gini	6.085	-3.245	12.52	-1.906	-3.370*
	(10.94)	(11.39)	(8.104)	(1.364)	(1.721)
Labor Market Institutions	0.803***	0.497	0.338*	-0.045	-0.140**
	(0.291)	(0.320)	(0.195)	(0.036)	(0.063)
Female Mortality	0.021**	0.015*	0.026	-0.005***	0.001
	(0.009)	(0.009)	(0.032)	(0.002)	(0.002)
Government Spending	-0.26	-0.426***	-0.349***	0.046***	0.0332
	(0.162)	(0.145)	(0.103)	(0.017)	(0.023)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Dummies	Yes	Yes	Yes	Yes	Yes
#. of Observations	361	361	220	220	220
#. of countries	97	97	67	67	67
Adjusted R-squared	0.386	0.246	0.491	0.412	0.225

Sources: Fraser Institute; IMF, *World Economic Outlook*; Solt Database; UNU-WIDER World Income Inequality Database; World Bank; World Economic Forum; and IMF staff calculations.

Note: Standard errors in parentheses, *p < 0.1; **p < 0.05; and ***p < 0.01. Estimated using fixed-effects panel regressions with robust standard errors clustered at the country level. Additional controls include lagged GDP growth and share of employment in agriculture and industry. Income shares represent disposable (after tax) incomes or consumption based on household data. AEs = advanced economies.

From pro-poor growth and inequality to inclusive growth and human development - some taxonomy and some unsettled issues

- Pro-poor growth = growth + poverty reduction (poverty being a specific, or extreme form of income equality)
- Inclusive growth = pro-poor growth + lower income inequality + more equal opportunities
- Human development (index) = growth + life expectancy + years of education (growth plus health and education outcomes)
- Adjusted HDI (AHDI) = HDI + reduction in inequality
- HDR - Multi-dimensional poverty (income poverty, sanitation, drinking water, etc..)
- How about the social political dimensions of governance, press freedom, and individual liberty?
- Does the process of growth and development – degree of participation in the process – matter? Or should only focus on the results/outcomes?

Growth and inclusiveness- trade-off or complementary? Should inclusiveness be an end in itself?

- Three key drivers of inequality in Asia in recent decades: technological change, globalization, and market-oriented reforms.
- All three have also been the primary drivers of Asian growth - favoring owners of capital over labor; high-skilled over low-skilled workers, and urban and coastal areas over rural and inland regions.
- Growth and income inequality (the income dimension of inclusiveness) seems to have generally moved together
- But that is only a very time-specific and region-specific experience (Latin America, Africa different?)
- It is perhaps not inevitable that there is a trade-off between the two – ADB (2012a) discusses these issues
- Slide 9 – from the 2015 IMFDN has one assessment from cross-country regressions; yet, the jury seems to be still out on this.
- Should inclusiveness – both in its income and non-income dimensions – be not just seen as 'means to the end of growth' or are these ends in themselves?
- What does the long journey of growth and development literature tell us - from Solow to Sen?

Next Session - Public finance for development

Macroeconomic Policy Analysis
Session 12: Public Finance for Development – Raising Public Resources

GDEPFP, Ministry of Economy and Finance, RGC

16 July 2015

Srinivasa Madhur

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What is public finance?

- **Public finance is about public spending and resource raising** – often called fiscal policy or budgetary policy
- **At all levels of government** - central, provincial (state), and local (districts, communes, cities, and municipalities)
- **The Ministries of Finance, the lead institution - in** this entire process
- **The Budget** – the key annual policy instrument
- **Public Spending** – purchase of goods and services (exhaustive public spending – the G from our macro model – includes both current and capital, or consumption and investment), transfers (interest payments on public debt, public subsidies, and welfare payments)
- **Raising resources** – through tax and non-tax sources, external funds (both grants and debts/loans), and domestic borrowings
- **Tax revenues** – direct taxes (personal income tax, corporate profits tax, property tax etc.), indirect taxes (customs – foreign trade tax, excise, sales, and VAT)
- **Nontax revenues** – user fees on public goods and services – tolls on highways, public education and medical providers, public transportation, and profits from publicly-owned enterprises.
- **The focus of this Session** –on the resource raising side of the budget, mainly tax revenue, as it constitutes the single most important component of government public resources around the world
- **A few basics of public finance** first, before we delve into taxation …

Why public finance? How does it affect, and get affected by, growth and development?

- Resource allocation – between the private and public sectors, and between different types of public spending
- Resource or income distribution – who should get what
- Macro-stabilization – (dealt with in sessions 5 and 6 on the macroeconomics of fiscal policy)
- Overall, allocation, distribution, and stabilization – all affect economic growth and socioeconomic development
- If done well, public finance contributes to growth and development, if done badly could be detrimental to growth and development
- Growth and development also affects public finance – richer more developed countries could 'spend more and better' as well as 'raise more and better resources'
- Public finance and development are thus interdependent
- Nevertheless, there are certain broad guidelines to distinguish good public finance from bad.

What are the guidelines for good public finance?

- Live within the means or raise sustainable resources to spend – inter-temporal budget constraint
- Spend wisely/well – do the right things (allocative efficiency) and do things right (technical/operational efficiency) - and spend countercylically too
- Raise sufficient resources and raise it well – through the right kinds of taxes and nontax sources (volume and the quality of public resources)
- **More technically stated – principles of public finance:**

➢ Cost-benefit equalization - marginal cost of public funds should not be higher than the marginal benefit of the resulting public goods and services (doing the right volume)

➢ Benefit convergence - - the marginal benefits from the public resources spent on different public goods or services should be equalized - benefit convergence across types of public spending (doing the right things)

➢ Technical efficiency maximization - providing a particular public good or service with the highest technical efficiency (doing things right)

➢ Raising resources well – efficiently, equitably, practicably

On to some long term facts – tax revenue to GDP ratio has gone up during the last 100 years (Source, Besley and Persson, 2011)

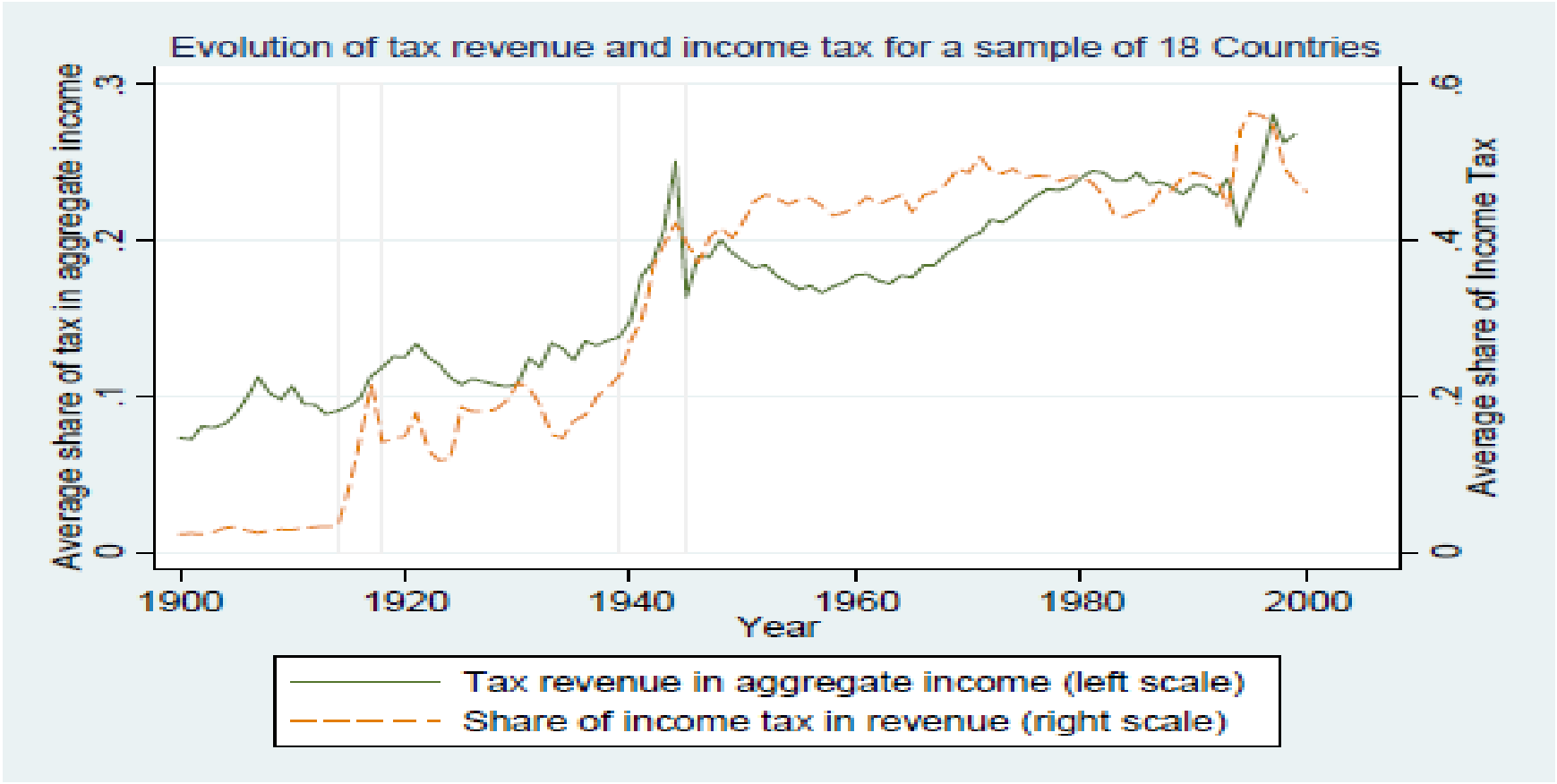


Figure 2: Taxes and share of income tax over time

Richer countries raise more revenues as % of GDP than poorer ones (Source, Besley and Persson, 2011)

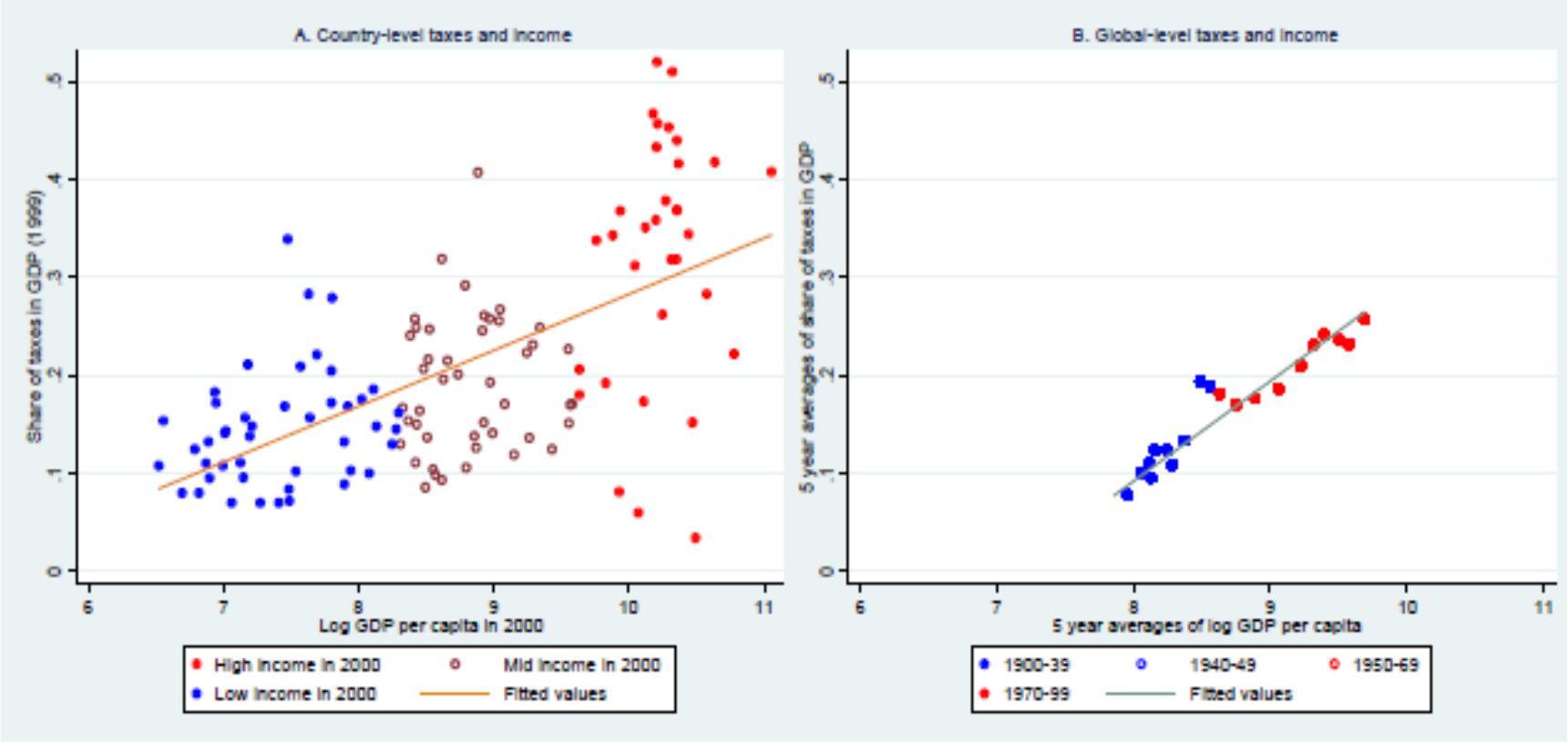


Figure 3: Tax revenue and GDP per capita

Richer countries rely more on income taxes than poorer countries (Source, Besley and Persson, 2011)

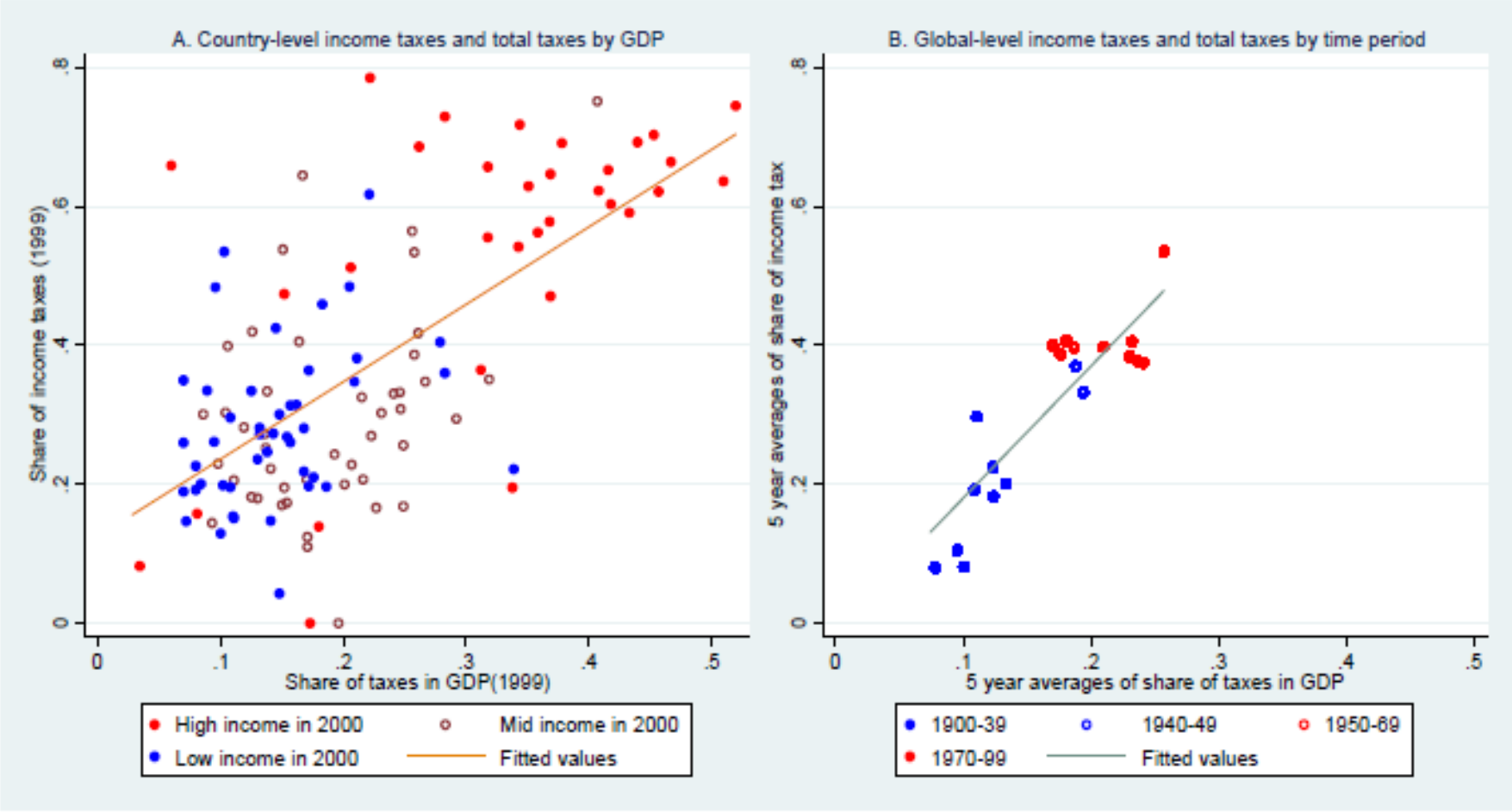


Figure 5: Income taxes and total taxes

Evolution of 'development tax' thinking and the growing consensus now

- 50 years ago, the experts' ideal was a broad based progressive income tax with high rates at the higher end (that included capital gains and a corporate income tax); and indirect taxes were at best seen as a necessary evil
- Tax revenues in the range of 25-30% GDP was considered necessary for development - Nicholas Kaldor after a visit to India in 1963 – for a country to become 'developed' it needed to collect 25-30 % GDP in taxes
- That thinking has undergone a sea change since then. By the 1990s, the model was one of 'broad base with low rate" – a VAT imposed at a low and single rate on broad base
- Income tax moved away from center stage and even for income taxation the guiding principle had become 'broad base but low rate' (Laffer curve)
- Trade taxes had to fall in importance once global trade liberalization accelerated, and even for the remaining trade taxes, the principle of uniform and low rates (not the high and hugely dispersed import tax rates)
- By the first decade of the 21st century, Kaldor's high tax target got lowered too - the 2005 UN Millennium Project less ambitious – developing countries to raise an additional tax revenues worth 4 ppts of GDP by 2015 – from the 17 percent they had to 21% target

Tax-GDP ratio has hardly changed since the 1970s for developing countries but has gone up for developed countries (Source, Bird and Das-Gupta 2013)

Table 1: Tax levels: Revenues as a percentage of GDP[a]

Country groups	1970s	1980s	1990s	2000s[b]
Industrialized	30.1	33.7	35.5	33.4
Developing	16.2	17.3	17	17
Total[c]	19.8	21.6	22.6	21.8

(a) Decade averages for countries for which data available.

(b) Based on data for the early part of the decade.

(c) Including "transitional" post-Soviet countries not included in either of the two previous groups.

Source: Bahl and Bird (2008), calculated from IMF data.

Since 1970s, for the developing countries, the shares of income tax and trade taxes have gone down and that of domestic indirect taxes gone up (Source, Bird and Das-Gupta 2013)

Table 2: Tax structures: Tax categories as a percentage of total taxes[a]

Income tax	1970s	1980s	1990s	2000s[b]
Industrialized	35.5	37.8	38.6	53.8
Developing	29.6	28.6	27.6	28.3
Total	30.7	30.2	29.7	28.5
Indirect taxes				
Industrialized	27.2	29.4	30.5	19.8
Developing	25.2	29.3	34.9	40.1
Total[c]	25.3	28.9	34.2	39.0
Taxes on international trade				
Industrialized	4.6	2.8	1.0	1.0
Developing	32.4	30.7	25.6	19.0
Total[c]	25.2	23.8	18.2	14.1

For table notes and source, see Table 1.

Driving forces behind the changed 'development tax' thinking

- 'Government failure' became as important as 'market failure' - actual implementation of a highly progressive income tax - easier said than done for developing countries
- India – once (late 1970s) had a marginal income tax rate was close to 100 % (not a typo here!) but collected meager revenues from its income tax
- Tax avoidance - Why should people earn an extra dollar if they have to pay almost that entire amount as taxes?
- Tax evasion - why should people declare that extra income to the tax authorities?
- Such high rates of income taxes may be 'legal' but need not necessarily be 'ethical', so why abide by that tax system?
- Tax avoidance and evasion - became a major issue in many, indeed most developing countries in the world
- Administering an income tax system with even more moderate rates of 35-40 percent at the top were found to be beset with a number of difficulties in many developing countries:

➢ a big chunk of informal sector (agriculture as well as outside it)

➢ lax legal systems and hence tax compliance

➢ poor tax administration capabilities (including corruption)

➢ and many other constraints – a weak state?

Raising revenues through income taxes is more difficult with weaker legal framework (Source, Besley and Persson, 2011)

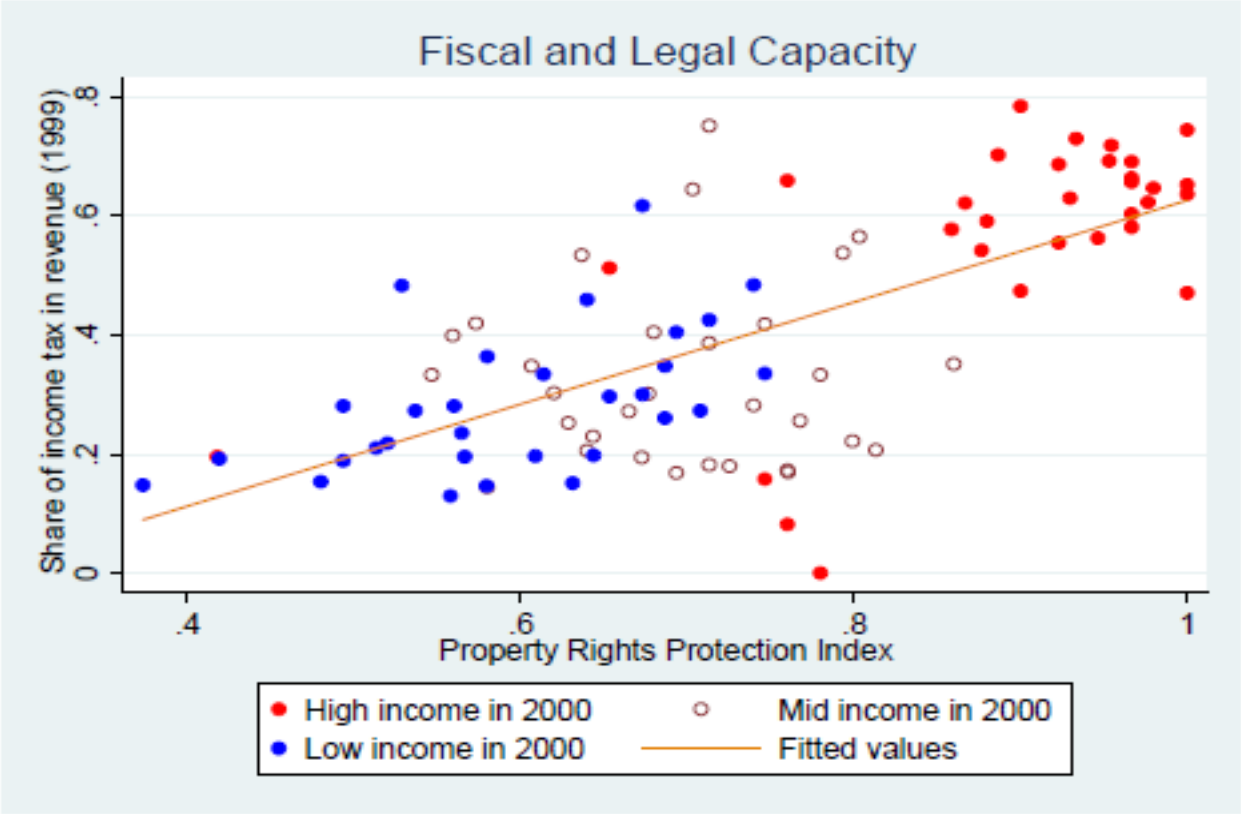


Figure 7: Share of income tax in revenue and protection of property rights

The size of the informal economy makes it more difficult to raise revenues through income tax (Source, Besley and Persson, 2011)

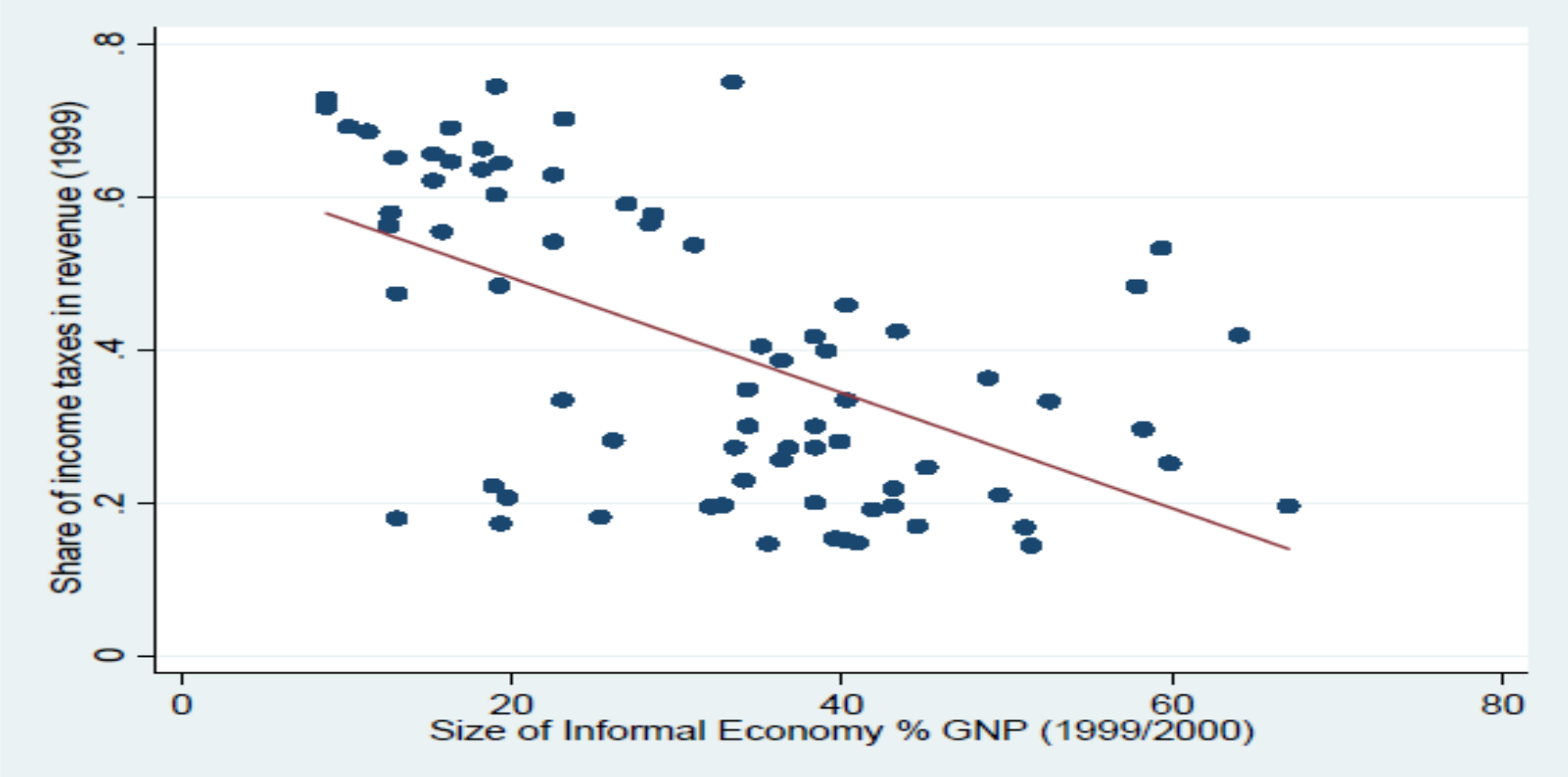


Figure 8: Share of income taxes and informal economy

With hugely progressive income taxation having been increasingly replaced by indirect taxes, especially with broad based VATs with low and close to uniform rates, how about the equity role of public finance?

- The emerging answer - the expenditure side of public finance (and other policies that enhance the equality of opportunities for people) should, among other things, should take care of the equity role
- But before we move on to the expenditure side, a set of more fundamental questions:

➢ Is there a 'natural rate' of taxation, irrespective of the statutory rate (or rates), or the 'optimal rates' of tax literature?

➢ What would that rate be? At different levels of income and stages of development?

➢ How much difference can tax administration make to that rate across different socio-economic-political settings?

➢ Would that rate depend on the public's perception of government efficiency, credibility, and accountability in public good and service delivery?

➢ How best to raise that rate in practice?

Next session - Public expenditure – the other side of public finance

Macroeconomic Policy Analysis Session 13: Public Finance for Development – Public Spending

GDEPFP, Ministry of Economy and Finance, RGC

21 July 2015

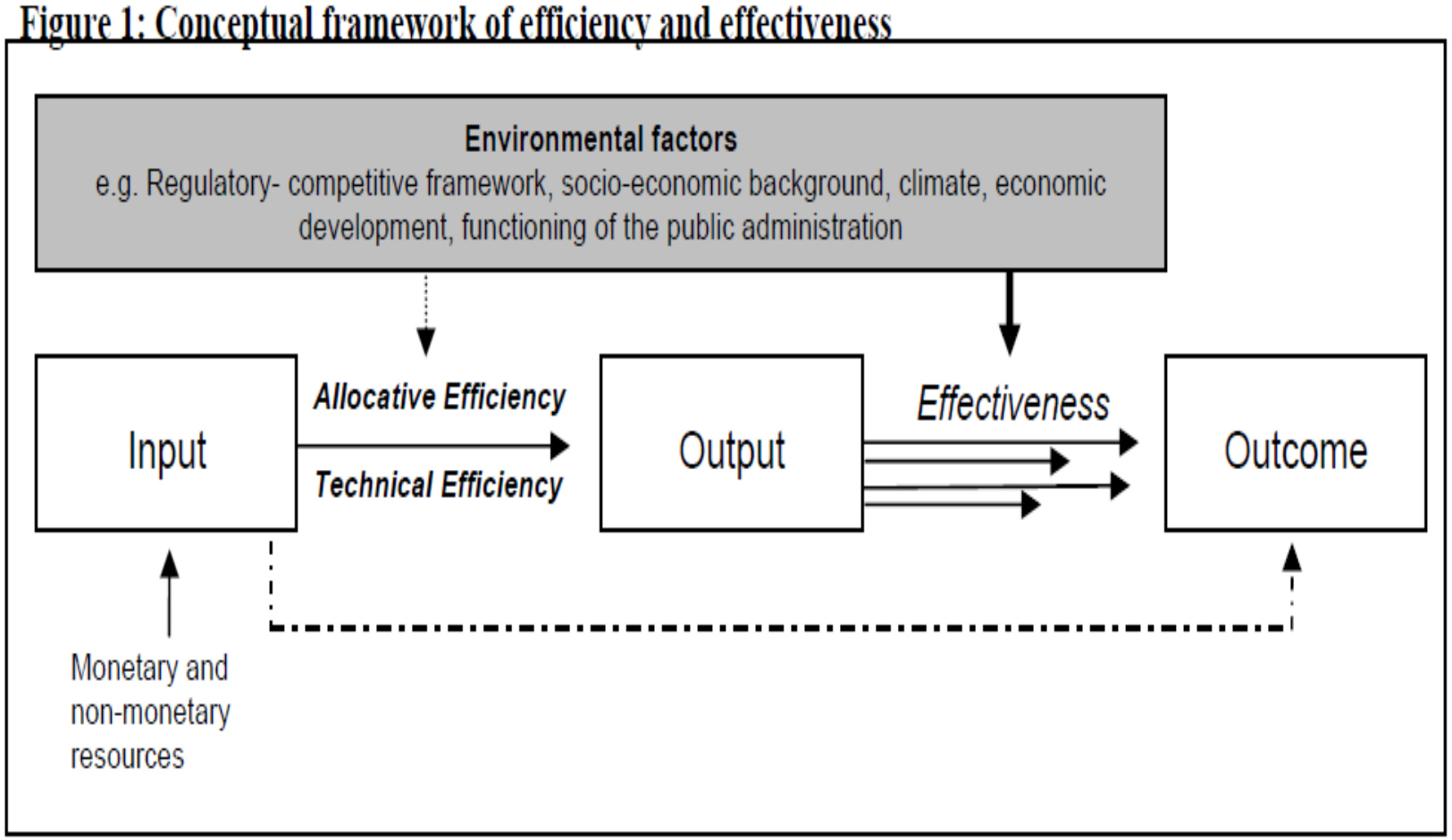
Srinivasa Madhur

Senior Economic Advisor

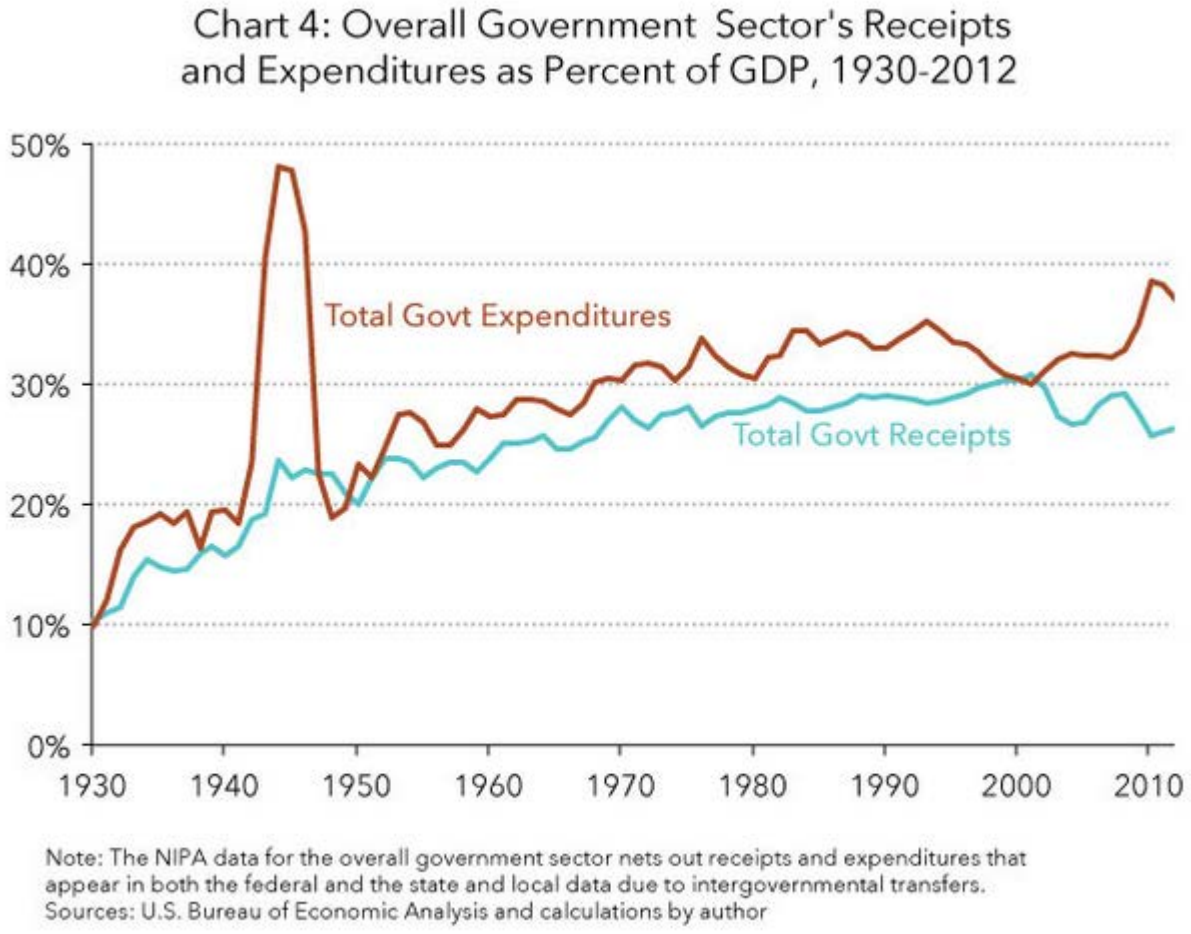
Public spending an input for public goods and services (outputs) and better outcomes as well – its size and efficiency matters thus

- Public expenditure – whether it is exhaustive or transfers – is an input to produce public goods and services
- The input has to produce the outputs first and then lead to outcomes ultimately
- So to judge how useful public spending is for the people and the society, we need to look not just at its size but also its efficiency
- Size of public spending does matter, as too little of public spending could lead to under-provision of public goods and services (something that resulted from leaving it to the private sector and hence the very justification for public spending)
- That said, unlike a private firm whose efficiency is commonly judged by using the common yardstick of profits, there is no commonly used single yardstick of judging the efficiency of public spending
- Public goods are not priced in the market place, and hence alternative measures of outputs and outcomes that are attributable to public spending have to be used to measure the efficiency of public spending
- Take for example, public spending on health – it is an input to lead to better health outcomes for the people – longer and healthier lives, lower mother and child mortality rates, etc..
- For such outcomes to materialize, health expenditure should be used to produce much better health care products and services – more and better health personnel, more and better hospitals and health care centers etc..

Conceptual framework for public spending efficiency (Source, Mandl et al, Feb 2008)

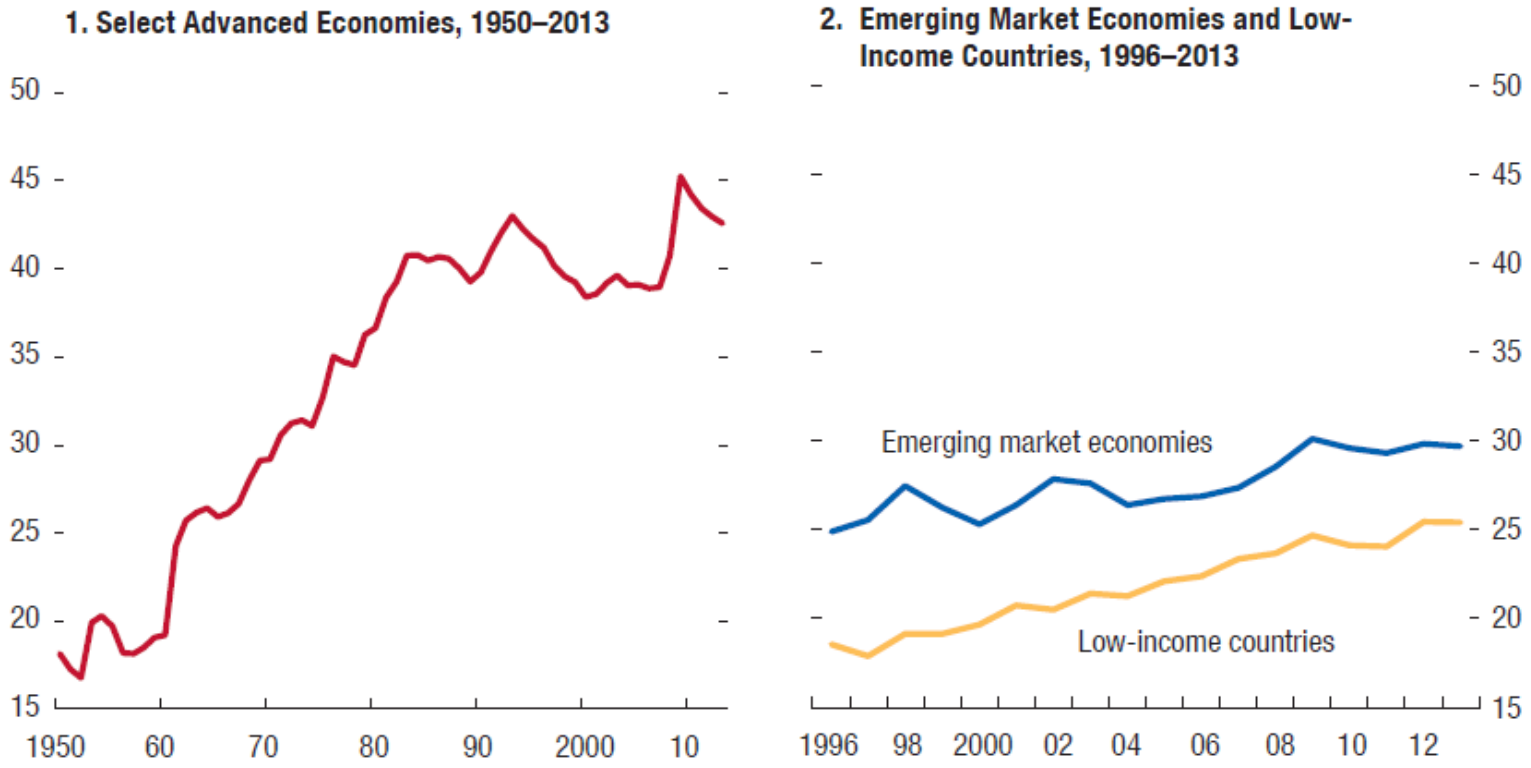


Long term trends in public spending in the US – 1930 onwards – (Chart 4 from Michael Schuyler, Feb.2014)



General government expenditure -% of GDP (Figure 2.1, page 22 from IMF, April 2014)

Figure 2.1. General Government Expenditure
(Percent of GDP)



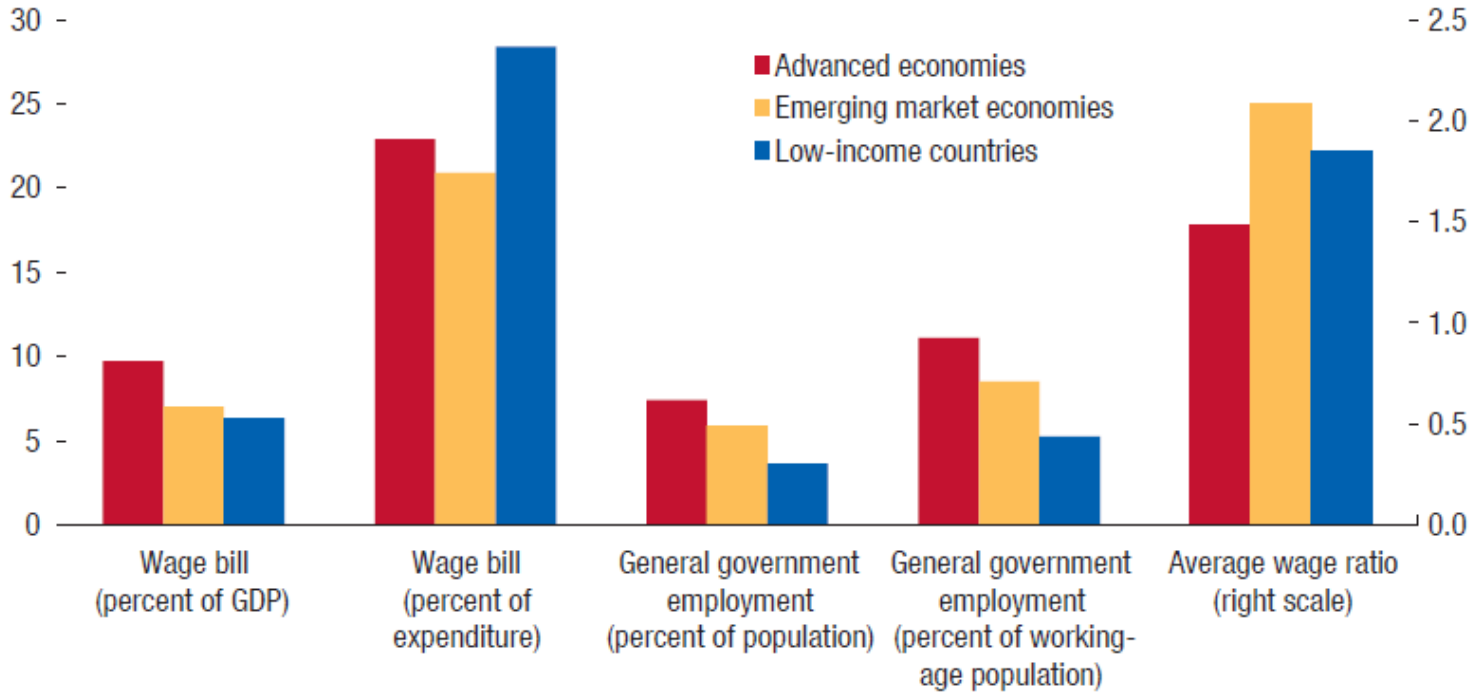
Sources: Mauro and others (2013); and IMF staff estimates.

Public spending has competing demands, economic , social, and political pulls and pressures

- The resources that governments can raise – either from domestic or external sources - are not unlimited
- Session 12 showed the limits of raising the single most important source of public resources – tax revenues
- That means that the size of public expenditures have limits – though it would vary both over time and across countries
- Over time – inter-temporal budget constraint
- Across countries and cultures –between developed and developing countries
- Yet, public spending in both developed and developing countries have been on a long term upward trend.
- Rising government wage bill – a common driver of public expenditure in both developed and developing countries, although the degree varies
- Social spending – another driver of public spending, although the composition of social spending varies a great deal across developed and developing countries
- Public investment too placed modest pressures on public spending, especially in developing countries

Public wage bill and employment (Source, IMF, April 2014)

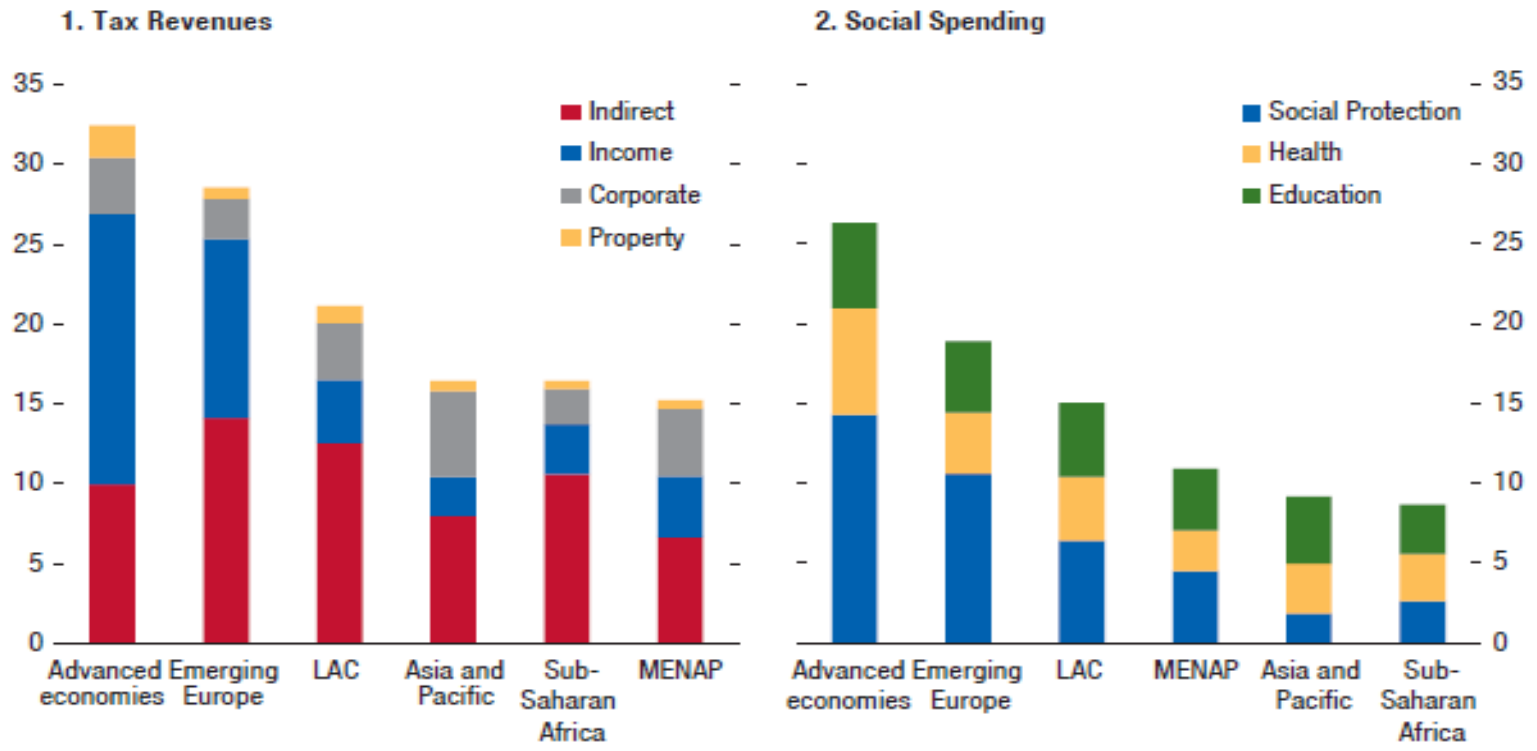
Figure 2.3. Key Facts About the General Government Wage Bill, Employment, and Average Wage, 2010[1]



Sources: International Labour Organization; Eurostat; and IMF staff estimates.
Note: Average wage ratio is defined as the average wage of the general government sector divided by that of the entire economy.
[1] Figures for general government employment refer to 2008 data.

Social spending - % of GDP (Source, IMF, April 2014)

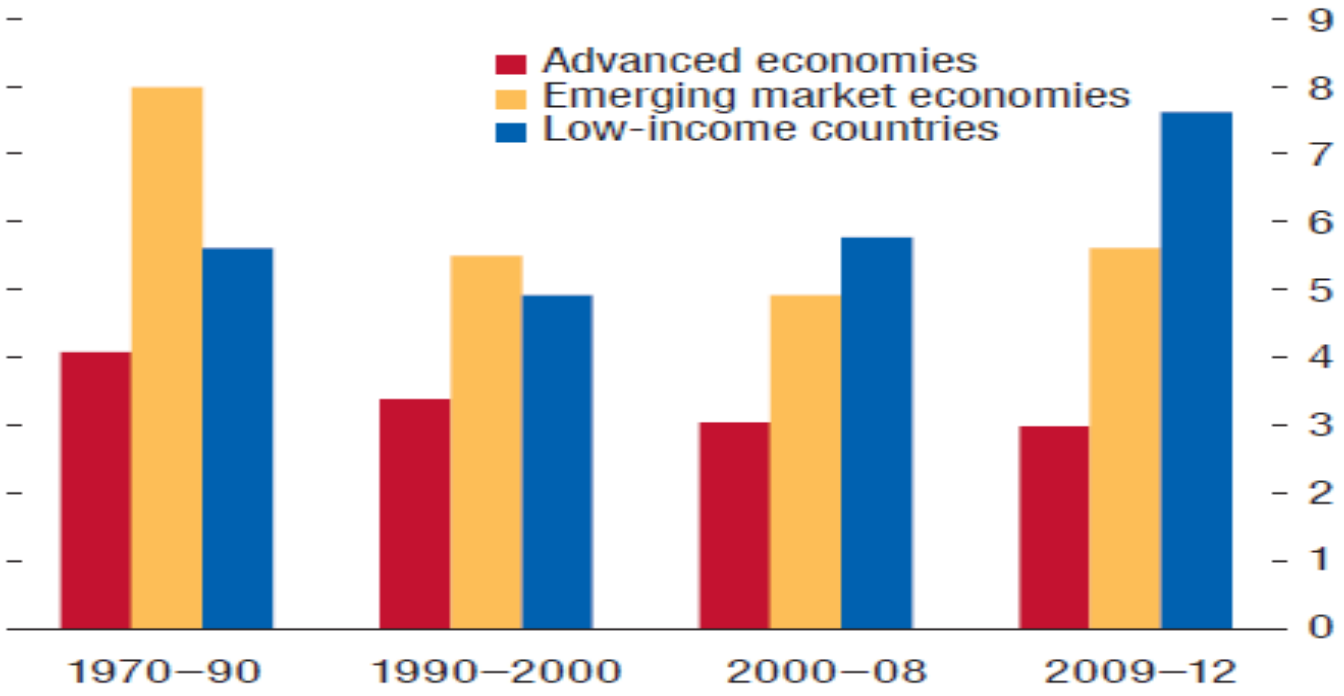
Figure 2.10. Tax Revenues and Social Spending, 2011[1]
(Percent of GDP)



Sources: Asian Development Bank; CEPALSTAT; Eurostat; Organisation for Economic Co-operation and Development; United Nations; World Health Organization; World Bank; and IMF staff estimates.
Note: LAC = Latin America and the Caribbean; MENAP = Middle East and North Africa and Pakistan.
[1] Or most recent year.

Public Investment - % of GDP (Source, IMF, April 2014)

Figure 2.13. General Government Investment
(Percent of GDP)

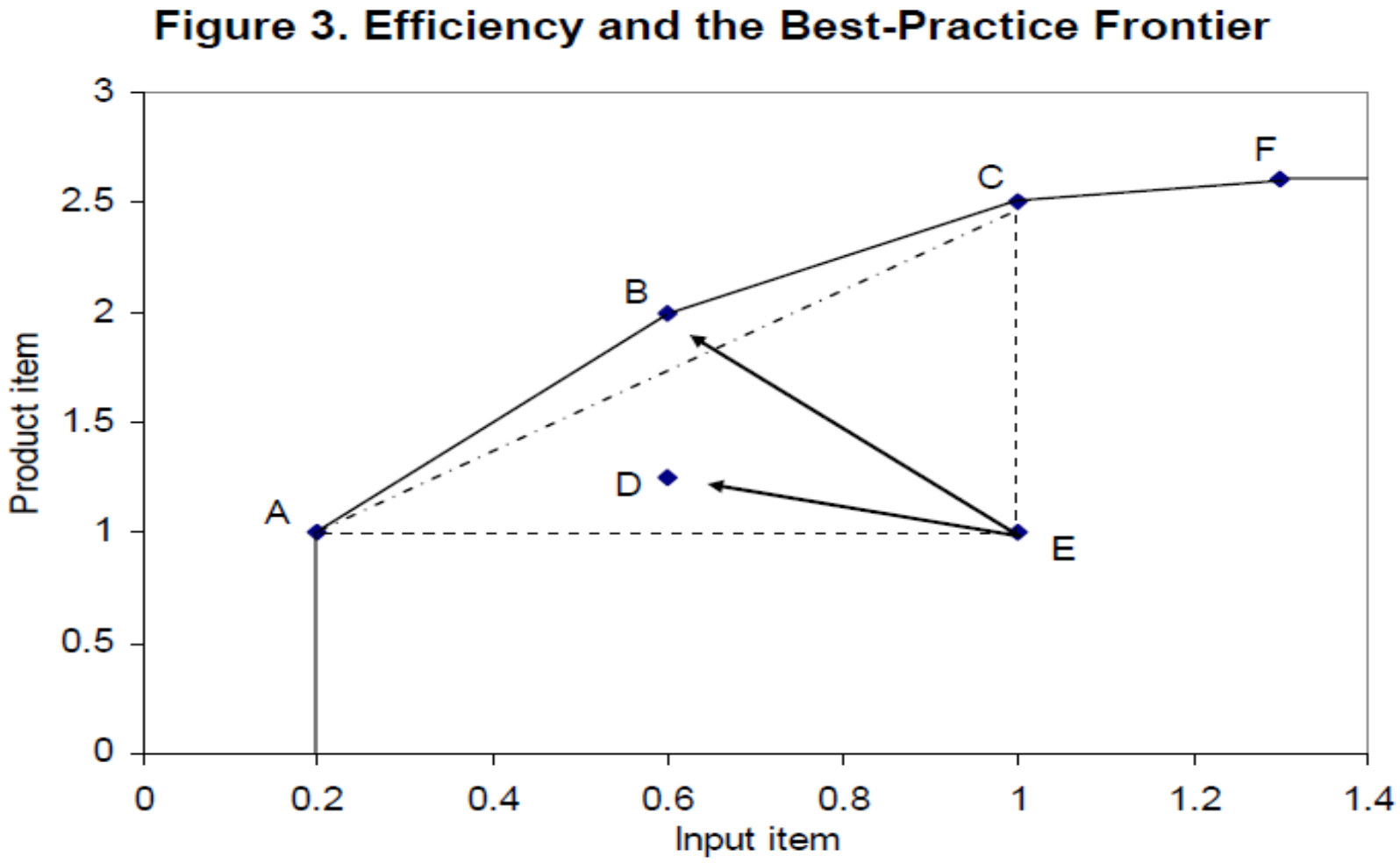


Sources: Center for International Comparisons (2013); Organisation for Economic Co-operation and Development; and IMF staff estimates.

Containing public spending – an emerging challenge everywhere

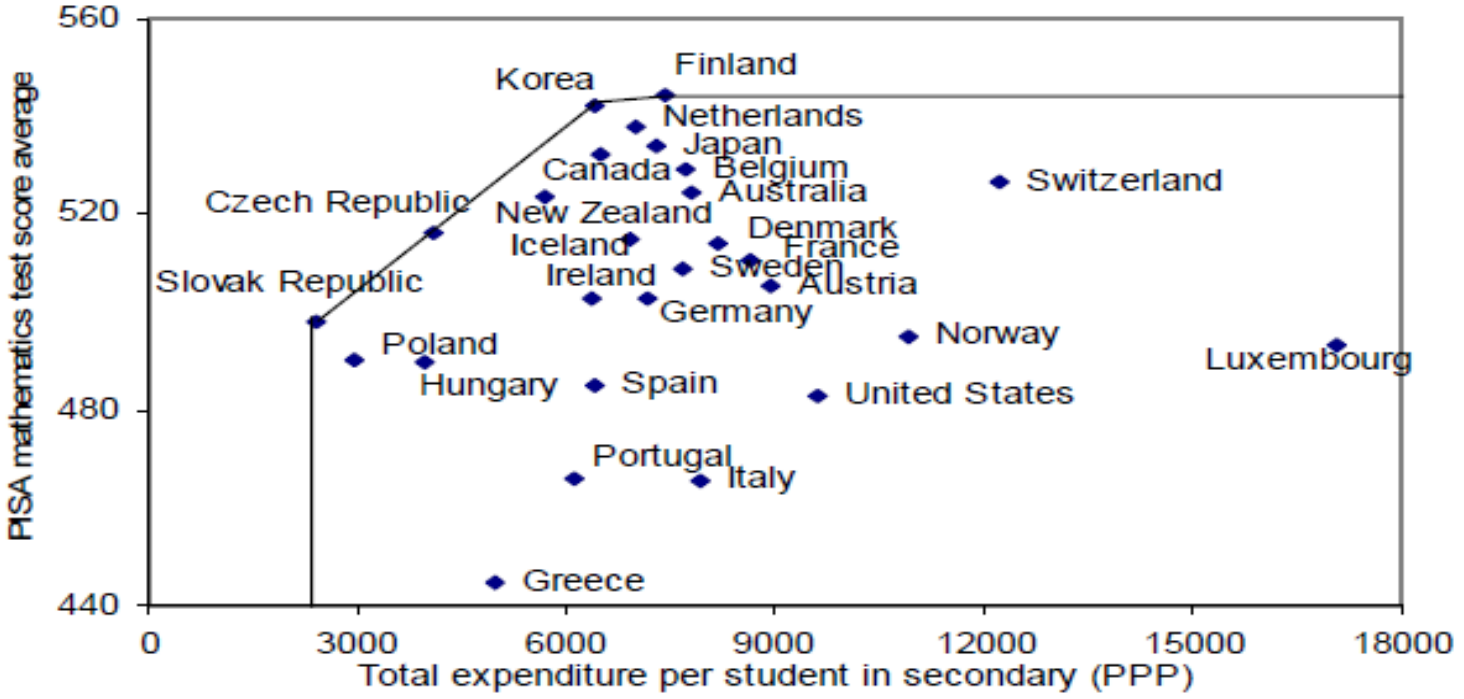
- **Country-specific spending reforms** - the scope and timing of public spending reforms must be in tune with country circumstances
- **Selective expenditure cuts and containment** - Generally, avoid across-the board cuts
- **Tackling major spending item**s - such as the wage bill and social protection spending in developed countries and subsidies in many developing countries
- **Avoiding cutting productive public investment** – in view of the declining government capital stock in developed countries since the 1980s and in developing countries since the 1980s
- **Making adequate provision for operations and maintenance of public assets** – roads, ports, airports, public power plants, water and sanitation sytsmes, public hospitals and schools etc.. (a key problem especially in developing countries)
- **Managing the wage bill** – four scenarios for countries and sectors within countries: overstaffed and overpaid; overstaffed and underpaid; understaffed and overpaid; and understaffed and underpaid
- Generally public wage rigidities and public employment stickiness
- Does voluntary departure schemes work, or simply lead to adverse selection?
- Are there scope for containing health and education spending in developing countries? And how to do it?
- **What scope for getting more out of the public buck? How to identify that? Measuring the efficiency of public spending**

Public spending efficiency – efficient frontier approach (Source, IMF, 2007)



Public education spending efficiency in OECD countries (Source, IMF, 2007)

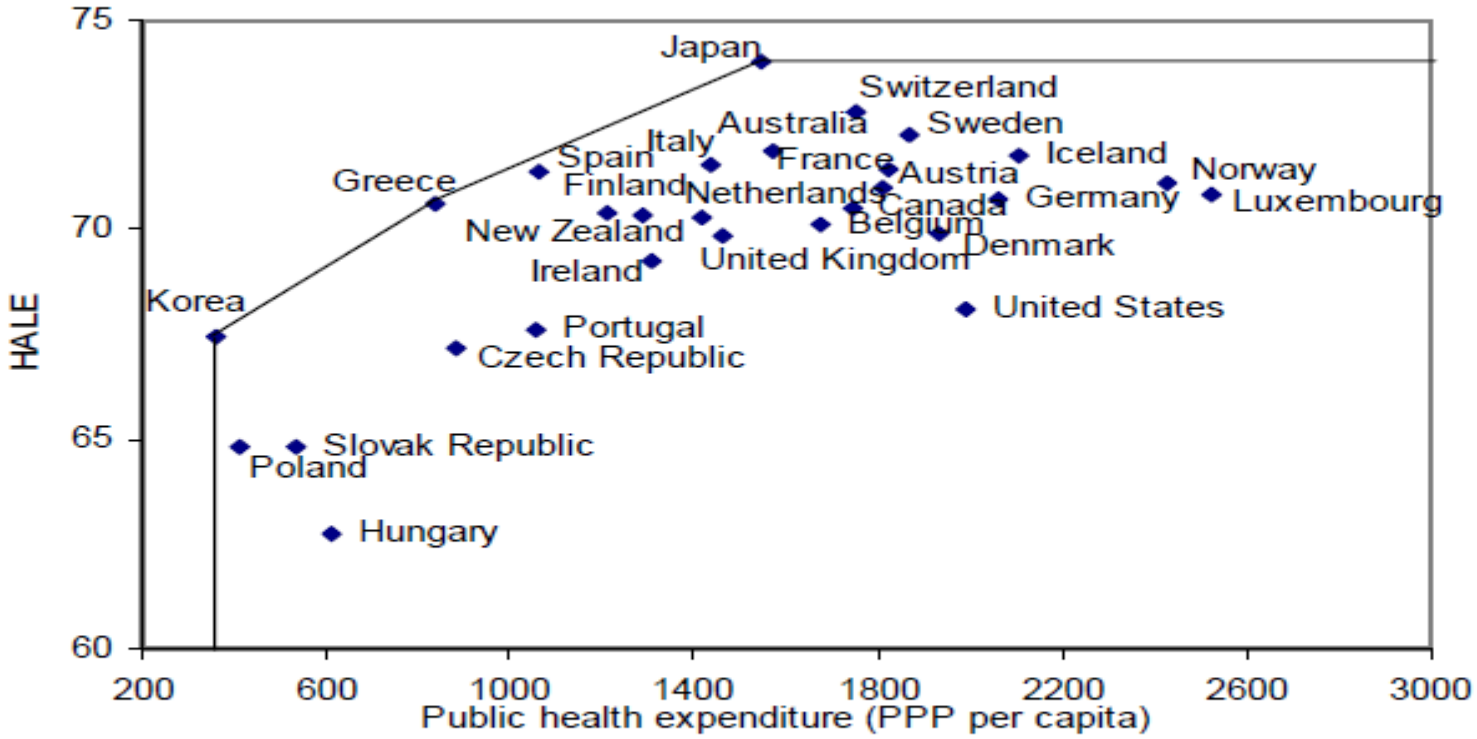
Figure 4. Secondary Education Spending and Average PISA Mathematics Scores 1/



Sources: OECD Education at a Glance 2006, www.oecd.org/edu/eag2006; OECD PISA, http://pisaweb.acer.edu.au/oecd_2003/oecd_pisa_data_s1.html; and IMF staff calculations.
1/ The line connects countries with the highest observed efficiency and depicts the best-practice frontier unadjusted for estimation bias (see Appendix I).

Public health spending efficiency in OECD countries (Source, IMF 2007)

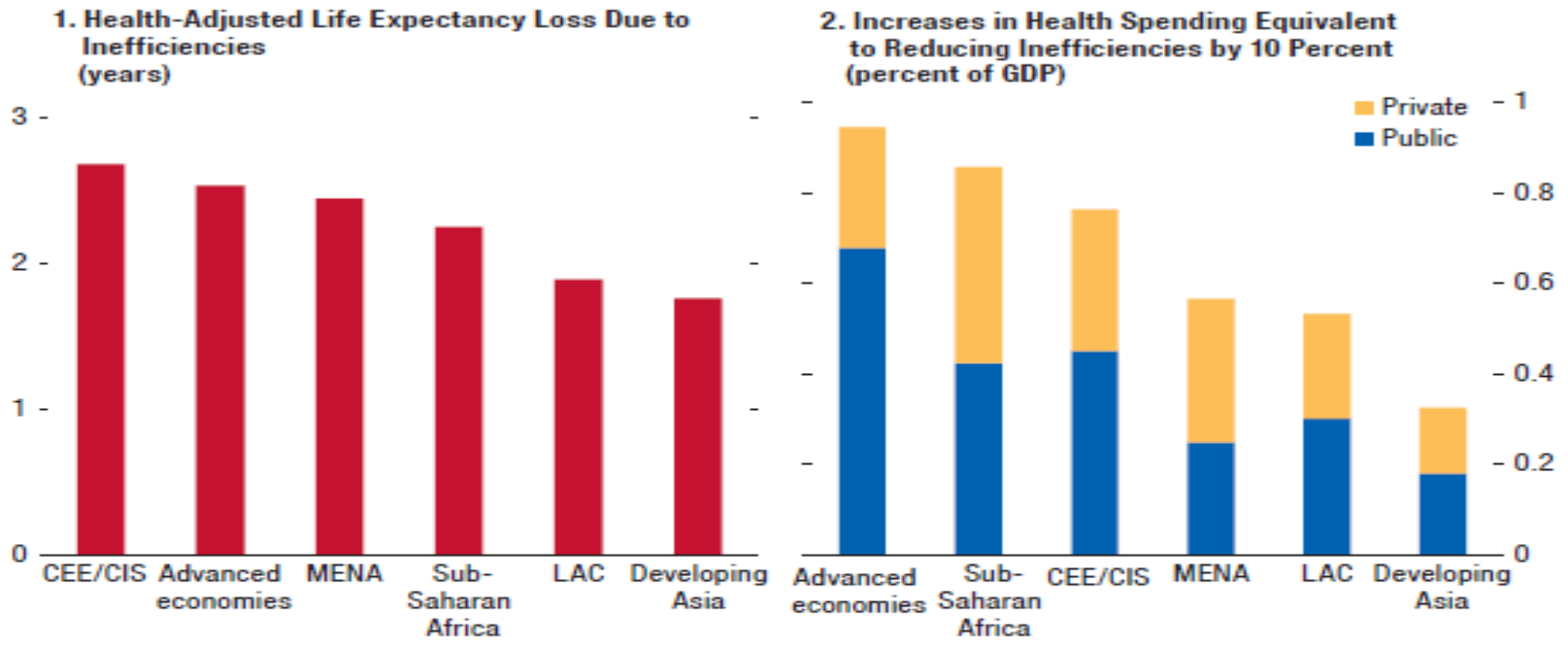
Figure 8. Public Health Spending and HALE 1/



Sources: OECD Health Data 2006, www.ecosante.fr; and IMF staff calculations.
1/ The line connects countries with the highest observed efficiency and depicts the best-practice frontier unadjusted for estimation bias (see Appendix I).

Estimates of health system inefficiencies (Source, IMF, 2014)

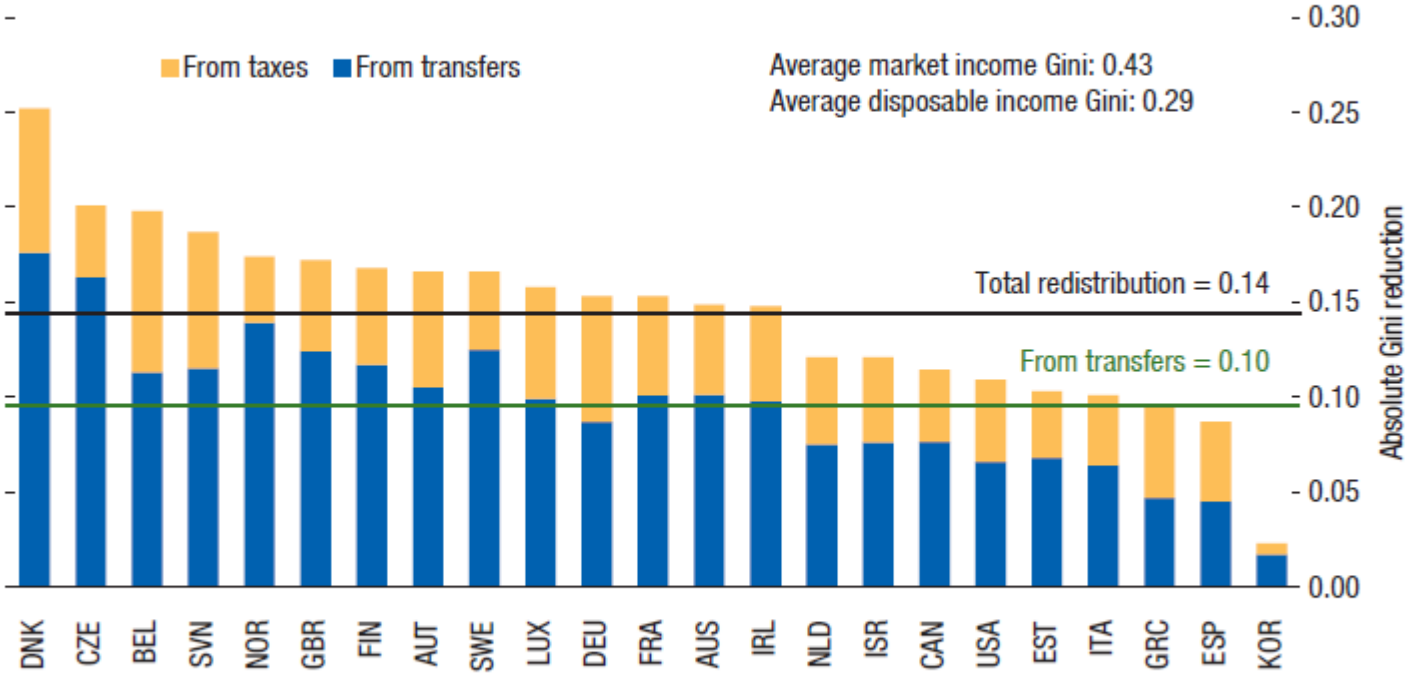
Figure 2.3.1 Estimates of Health System Inefficiencies



Source: IMF staff estimates.
Note: The analysis uses a similar approach to Grigoli and Kapsoli (2013); please refer to it for a detailed discussion of methodology and model specification. It should be noted that the efficiency estimates from this methodology only capture the extent to which health inputs contribute to health outcomes as measured by health-adjusted life expectancy (HALE) data. The population may also benefit from health inputs in dimensions that are valued by patients and their families, but are not captured by HALE. CEE/CIS = Central and Eastern Europe and the Commonwealth of Independent States; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa.

What about better equity through public spending rather than through taxes (Source, IMF, 2014)

Figure 2.9. Redistributive Impact of Fiscal Policy in Advanced Economies, Mid–2000s



Sources: Paulus, Figari, Hegedus, and others (2009), except for Australia, Canada, the Czech Republic, Korea, Norway, Israel, and the United States, for which data are from Caminada and others (2012).

Public expenditure – more, more efficient, and more equitable – the three-some challenge

- How to maintain public spending at robust levels to fund the growing demands for it?
- How to get bigger bang for the public buck?
- How to make public spending more equitable?
- The public spending trilemma?
- The rich country problems – containing social welfare spending and the wage bill and raising public investment – a trade-off, however tough it may be!
- The poorer country problems – raising social protection spending, raising public sector wages, and raising public investment – a 'no-win situation' come what may!
- Unless the efficiency of public spending can be raised hugely – the challenge looks very similar to one of continuously developing more and more fuel-efficient cars
- Institutional restructuring and reforms – key to make public spending more efficient
- Should we decentralize more and more of public goods and service delivery?
- Should we privatize of public-goods and service delivery – contracting out, outsourcing?
- Should we go for public-private partnerships – to fill the public investment gaps? What would it mean for govt.'s contingent liabilities? Basic problem of infrastructure – mismatch between the private sector discount rate and the people's discount rate
- How best to skin the public expenditure cat?

Next session - Fiscal sustainability and discipline

Macroeconomic Policy Analysis
Session 14: Fiscal Sustainability and Discipline

GDEPFP, Ministry of Economy and Finance, RGC

23 July 2015

Srinivasa Madhur

Senior Economic Advisor

What is fiscal sustainability (FS)? and fiscal discipline (FD)?

- **FS**– whether or not the government's intertemporal budget constraint is met
- More specifically, whether the present discounted value of the expected future fiscal surpluses match the existing stock of public debt
- **Key concepts** – intertemporal, present discounted value, expected future fiscal surpluses
- **Intertemporal** – how long should the time period be?
- **Present discounted value** – what discount rate to use?
- **Expected future surpluses**– how to form an estimate of the expected future surpluses?
- **Twin dimensions of FS** – domestic and external – domestic debt and external public debt
- The first one involves future resource transfers within the country – from the rest of the country to the government
- The second one involves future resource transfers from the rest of the country to the government and then on to the rest of the world – exchange rate matters now
- **FD** – whether at any point in time or over time, a government behaves in a way to move the country's public finances towards achieving fiscal sustainability or it does things to move in the opposite direction
- **FD** - is about a government's reaction (function) to emerging and expected trends in public finances

Why are FS and FD important?

- Public finance is about governments raising resources from the people and spending them
- Essentially spending some on else's money – At times, the power to do that is entrusted by the people to the government they have democratically elected
- At other times, that power is not necessarily entrusted by the people to the government but taken over by 'self-appointed' governments – non-democratic governments
- Either of these situations – public finances are in the hands of politicians/political parties and their beurocratic/technocratic officials
- How representative are these governments of the people - even in a democratic form of government, the issue of majority and minority interest come in to reduce their representativeness
- Governments therefore may not run public finances of a country in an inter-temporally sustainable way – that is crucial for people who actually fund the government
- To minimize that risk of violating the intertemporal sustainability of public finances, we need to keep an eye on the FS and FD - even in democracies, not to speak of other systems
- There is a substantial body of evidence spread over centuries across the globe that countries have at times (Reinhart and Rogoff, 2008):

➢ flouted the intertemporal FS (fiscal profligacy, rather than fiscal prudence),

➢ defaulted on their debts,

➢ plunged their countries and the people to devastating economic crises

➢ all with huge social and political ramifications – domestically, regionally, and globally

Some simple fiscal sustainability questions in practice

- The key question is – Can the current course of fiscal policy be sustained, without the government's debt exploding – keeps increasing endlessly
- In practice though like all other macro variables, the absolute level of government debt could keep increasing, without necessarily exploding relative to the size of the economy
- Hence the question that is asked in practice (most of the time) – Can the current course of fiscal policy be able to stop the debt-GDP ratio from exploding – increasing endlessly
- The time period considered for being 'endless' runs in several years, even decades – so the intertemporal nature of debt-sustainability is quite long
- Fiscal sustainability case – starting from an initial debt-GDP ratio, what factors determine the ratio from remaining stable?
- What policy actions are required then to stabilize the debt-GDP ratio (preventing it from rising)?

Assuming all government debt is domestic and abstaining from seignorage from money issuance,

The debt dynamics is given by the simple equation:

(1) d(t) = [(1+ i)/(1+g)(1+p)] d(t-1) – b(t); or

(2) d(t) = h. d(t-1) – b(t) …where h = [(1+ i)/(1+g)(1+p)]

Where, d(t) – debt-GDP ration in t; b (t) – primary-fiscal-balance-GDP ratio; i – nominal interest rate on government debt; g – real GDP growth rate; p – inflation rate; d(t-1) – previous period's debt-GDP ratio

If the nominal interest rate in (1) can be written as: i = r(1+p) – or r = i /(1+p), where r – the real interest rate on govt. debt , we can have equation (1) as:

(3) d(t) = [(1+r)/(1+g)] d(t-1) – b(t), or with h*= [(1+r)/(1+g)], then,

(4) d(t) = h* d(t-1) – b(t)

Some key messages from the debt dynamics equation

From Eq.(1) and (2), beginning from an initial debt-GDP ratio, say, d(t-1)

- For a given initial debt-GDP ratio, higher the h, the higher the primary-balance-GDP ratio required over time to stabilize the debt-GDP ratio
- Higher the nominal interest rate, higher the primary-balance-GDP ratio required over time to stabilize the debt-GDP ratio
- Higher the real GDP growth rate, lower the primary-balance-GDP ratio required over time to stabilize the debt-GDP ratio
- Higher the inflation rate, lower the primary-balance-GDP ratio required over time to stabilize the debt-GDP ratio

Or using Eq. (3) and (4):

- For a given initial debt-GDP ratio, higher the h*, the higher the primary-balance-GDP ratio required over time to stabilize the debt-GDP ratio
- Higher the real interest rate, the higher the primary-balance-GDP ratio required over time to stabilize the debt-GDP ratio
- Higher the GDP growth rate, lower the primary-balance-GDP ratio required over time to stabilize the debt-GDP ratio

Assuming all government debt is foreign and abstaining from seignorage from money issuance

One way the debt dynamics could be formulated is:

(5) d(t) = h.d(t-1) – b(t) **….where h = [(1+ i)/(1+g)(1+p)], but now**

(6) i = i' + i(e)

(7) p = p' + p(e)

Where the exchange rate – local currency in terms of the foreign currency and; i' and p' – the that part of the nominal interest rate and inflation that is independent of the exchange rate, respectively; the second terms in equations (6) and (7) could be interpreted as exchange rate pass-through effects on domestic interest rate and inflation rate

Beginning from an initial debt-GDP ratio, say, d(t-1):

- For a given inflation rate, p, an exchange rate depreciation would require higher primary balances over time to stabilize the debt-GDP ratio
- For a given domestic interest rate i, an exchange rate depreciation would also lower the primary balance required over time to stabilize the debt-GDP ratio
- That said, exchange rate depreciation will simultaneously affect both the domestic interest rate and the domestic inflation rate and domestic nominal interest rate will not be independent of the domestic inflation rate

Interdependencies among the determinants of fiscal sustainability

- The fiscal sustainability guidelines derived from the bare-bones debt-dynamics model are generally used to keep and eye on the fiscal health of a government
- Yet, the debt dynamics, as we have already seen, is much more complex, once interdependencies among the key macro-variables such as GDP growth, interest rate, inflation, and exchange rate are brought in
- To study debt dynamics and fiscal sustainability incorporating those interdependencies in practice, one may need a macroeconomic or more appropriately macreconometric model
- That said, the fiscal sustainainability guidelines or benchmarks derived here are quite useful as a first approximation, indeed often as the best approximation, for policy analysis, macro monitoring, crisis-risk assessment, and formulating policy responses.
- The IMF and other international institutions regularly use these fiscal and debt indicators for assessing the fiscal vulnerabilities of countries, regions, and indeed globally
- IMF's Fiscal Monitor is a recent addition to the institution's fiscal monitoring and vulnerability spotting exercise
- It does bring out a whole set of empirical measures of fiscal sustainability in its Fiscal Monitor

Some parametric tests for fiscal sustainability and discipline? Fiscal Reaction Function

- One way is to simply look at the debt-GDP ratios and see how they have behaved over time
- Another is to look at the behavior of primary fiscal balance
- Yet other way is to look at the difference between interest rate and the GDP growth rate over time
- Henning Bohn (1998) suggested a simple framework for estimating a 'fiscal reaction function' that links the primary balance with the public debt
- Bohn's typical approach was to estimate a 'fiscal reaction function' like:

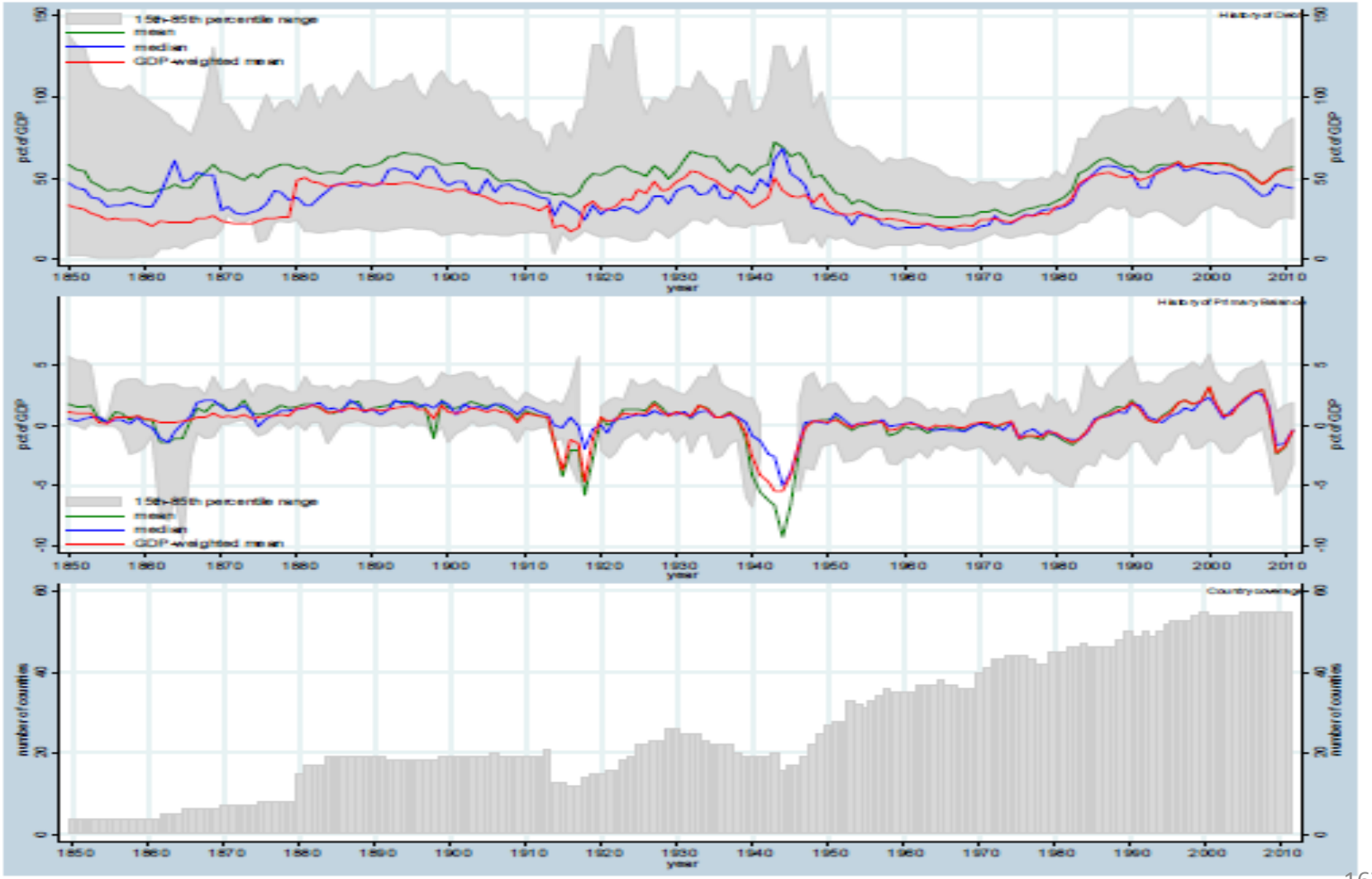
$b(t) = k.d(t-1) + j.\ Z(t) + n$

Where k and j are parameters to be estimated from the data and n, the error term; and Z(t) is a vector of variables – the determinants of b(t) other than the debt-GDP ratio – d(t-1), such as the business cycle or war-related shocks to b(t).

- If the estimated k is positive and significant (and robust to sensitivity tests), then the government's behavior is generally consistent with fiscal discipline - that it is in line with the intertemporal budget constraint

Long term trends in public debt and primary balance (Source, IMFWP, Jan 2013)

Figure 1. Government Debt and Primary Fiscal Balance, 1850–2011, in percent of GDP



Global Public finances – 1950 -2011 (Source, IMFWP, Jan 2013)

Table 3. Summary Statistics for Post-WWII (1950-2011)

All countries

	Mean	Std. Dev.	Min	25%	Median	75%	95%	99%	Max	No. Obs
Revenue	25.1	13.4	2.1	13.9	21.9	34.7	49.8	56.4	60.5	3126
Expenditure	27.3	13.8	1.7	16.1	24.0	37.5	52.6	58.6	71.8	3153
Interest Expenditure	2.6	2.6	0.0	0.8	1.9	3.6	7.4	12.0	24.6	2788
Overall Balance	-2.2	3.9	-31.3	-4.0	-1.8	0.0	2.8	7.0	19.1	3152
Primary Balance	0.3	3.5	-28.2	-1.5	0.3	2.2	5.9	9.6	20.6	2803
Primary Expenditure	25.8	12.8	1.7	15.0	23.3	35.4	48.8	53.8	66.0	2770
Debt	45.1	34.3	0.1	19.7	37.8	60.6	106.7	169.9	289.6	2983
Interest-Growth Differential	-5.9	9.0	-34.9	-10.4	-4.5	0.0	5.7	13.5	34.2	2471

Advanced economies

	Mean	Std. Dev.	Min	25%	Median	75%	95%	99%	Max	No. Obs
Revenue	33.3	12.8	7.6	22.6	33.1	44.0	54.0	57.6	60.5	1481
Expenditure	35.4	13.6	6.8	23.8	35.9	46.3	55.6	62.4	71.8	1479
Interest Expenditure	2.8	2.5	0.0	1.1	2.3	3.7	8.2	11.4	24.6	1467
Overall Balance	-2.2	4.3	-31.3	-4.3	-1.7	0.2	3.3	7.4	19.1	1481
Primary Balance	0.7	3.5	-28.2	-1.1	0.6	2.5	6.0	10.1	20.6	1467
Primary Expenditure	32.6	12.0	5.9	22.8	33.1	42.1	50.8	56.0	66.0	1465
Debt	49.4	34.0	1.6	22.9	44.3	64.6	113.2	166.2	284.0	1458
Interest-Growth Differential	-3.1	7.0	-34.7	-6.8	-2.2	1.4	6.5	12.3	20.2	1360

Non-advanced economies

	Mean	Std. Dev.	Min	25%	Median	75%	95%	99%	Max	No. Obs
Revenue	17.7	8.7	2.1	11.4	15.2	22.1	36.3	43.7	52.7	1645
Expenditure	20.1	9.3	1.7	13.1	18.2	25.2	39.3	48.8	55.8	1674
Interest Expenditure	2.4	2.6	0.0	0.7	1.5	3.4	6.2	13.2	23.5	1321
Overall Balance	-2.2	3.5	-25.4	-3.8	-1.8	-0.2	2.5	6.7	15.2	1671
Primary Balance	0.0	3.4	-22.6	-1.9	-0.1	1.7	5.7	9.0	18.2	1336
Primary Expenditure	18.2	8.6	1.7	11.8	16.2	22.7	36.0	44.0	48.2	1305
Debt	41.0	34.2	0.1	17.6	33.1	54.7	99.8	188.8	289.6	1525
Interest-Growth Differential	-9.3	9.8	-34.9	-15.1	-7.9	-3.1	4.1	16.1	34.2	1111

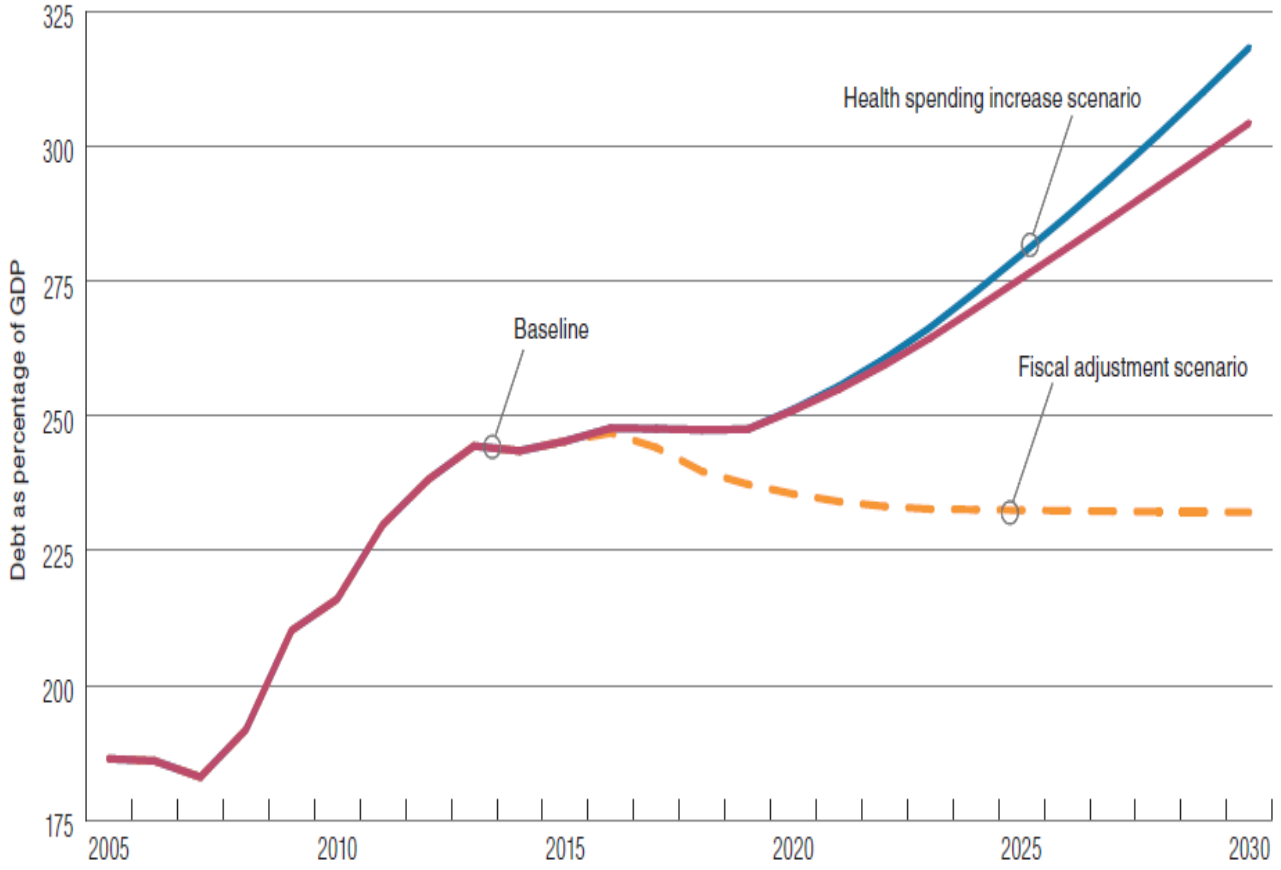
Bohn's 'k' test (Source, IMF Jan 2013)

Table 7. Bohn (1998) Test for Fiscal Policy Sustainability

Country	Full Sample	1919-2011	1950-2011	1950-2007	N
Sweden	0.038***	0.010	0.085***	0.084***	202
United States	-0.006	0.042***	-0.012	0.064***	177
United Kingdom	0.043***	0.005	0.016***	0.017***	160
Canada	0.056***	0.077***	0.077***	0.087***	134
Spain	0.038***	0.069***	0.032*	0.054***	133
Japan	-0.026***	-0.055***	-0.03***	-0.027***	125
Norway	0.268***	0.028***	0.306***	0.283***	124
Denmark	0.077***	0.035***	0.055***	0.056***	123
Italy	0.056***	0.019***	0.055***	0.057***	118
Portugal	0.031**	0.194***	0.020	0.047***	117
India	0.024	0.072***	0.041***	0.047***	99
France	0.037***	0.017**	-0.042***	-0.036***	98
Belgium	0.035***	0.056***	0.074***	0.074***	97
Netherlands	0.027***	-0.03***	0.023***	0.022***	97
New Zealand	0.016***	0.049*	0.005	-0.014	96
Australia	0.026**	0.035***	0.033*	0.023	95
Germany	0.023*	0.012	0.028***	0.03***	91
Finland	0.049*		0.031	0.035	82
Argentina	0.021	0.010	-0.006	-0.011	80
Switzerland	0.017**		0.003	-0.002	76
Ireland	0.062***		0.069***	0.056***	75
Colombia	0.032	0.026**	0.036	0.042	75
Greece	0.037***	0.016***	0.035***	0.05***	70
Venezuela	0.008		0.007	0.033	67
Mexico	0.035***		0.038***	0.047***	63
Iceland	0.012			0.034**	62
Austria	0.005			0.009	59
Philippines	0.092***			0.093***	57
Thailand	0.003			0.005	56
South Africa	0.040			0.041	54
Korea	0.149***			0.148***	53
Pakistan	0.031**			0.029*	53
Panama	0.022			0.025	52
Costa Rica	-0.001			-0.002	45
Ghana	0.008			0.006	42
Paraguay	0.019			0.029**	41
Turkey	0.19***			0.193***	38
Indonesia	0.021			0.018	35
Uruguay	0.035***			0.035***	33
Israel	-0.009			-0.011	32
Honduras	-0.028**			-0.025*	29
Brazil	0.001			0.002	28

Japan's Fiscal Position – Sustainable or Not?

Exhibit 1-17 **Japan Gross Public Debt**



Source: International Monetary Fund.

Next session - Fiscal rules for fiscal sustainability and discipline

Macroeconomic Policy Analysis
Session 15: Fiscal Rules

GDEPFP, Ministry of Economy and Finance, RGC

4 December 2015

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Fiscal Rules (FRs) – an option to ensure fiscal sustainability and fiscal discipline

- FRs – a long-term anchor fiscal policy – objective is to ensure and enable fiscal sustainability and discipline
- "A fiscal rule is a long-lasting constraint on fiscal policy through numerical limits on budgetary aggregates" – IMF Background Paper, Fiscal Rules at a Glance, April 2015
- Rule-based boundaries that cannot be frequently changed
- How to spot an FR? What constitutes 'frequent changes"?
- IMF guidelines – legislated FRs that set numerical targets for budgetary targets.
- Less formal fiscal arrangements that can only be changed on a 'low-frequency' basis – targets that are binding at least for three years.
- Consider those FRs that set 'numerical targets' on budgetary aggregates that capture a large share of public finances, at the minimum covering central governments
- Medium-term fiscal frameworks (MTFFs) and medium-term expenditure frameworks(MTEFs) are not seen as FRs by the IMF , as these provide only medium-term fiscal projections /ceilings that can be changed annually.
- 'De jure' verses 'de facto' FRs (to what degree fiscal rules have been adhered to in practice)

Broadly, four types of FRs (IMFWP, 2012); at the national and regional levels

- Based on the types of budgetary aggregates that are targeted, four common types of FRs:

- Debt Rules (DRs) - that set an explicit target for public debt relative to GDP - targets a stock variable that can be achieved mostly over several years.
- Budget Balance Rules (BBRs) - that set targets for the budget balances – targets a flow variable such as the overall budget balance – either in terms of overall balance, primary budget balance, or structural (or cyclically adjusted) budget balance.
- Expenditure rules (ERs) – that set limits/targets on public expenditures – total, primary, or current spending – absolute levels, growth rates, or as percent of GDP
- Revenue Rules (RRs) – that set targets, either as floors or ceilings, on revenues – total or some major component of the revenues, say, tax revenue.

- FRs could be set by the national governments or by regional groupings of countries such as the European Union, Central African Economic and Monetary Community, West African Economic and Monetary Union, Eastern Caribbean Currency Union.

Pros and cons of the four types of FRs (Source: IMFWP, July 2012)

Table 1. Properties of Different Types of Fiscal Rules

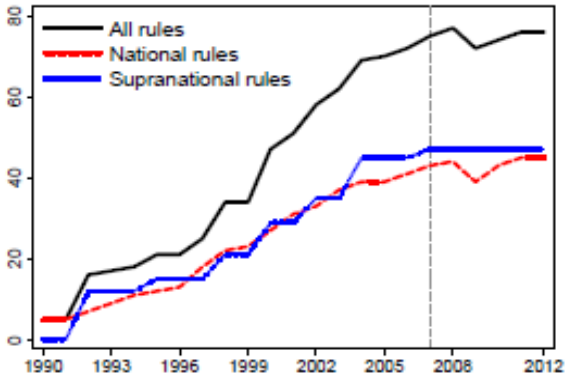
Type of rule	Pros	Cons
Debt rule	• Direct link to debt sustainability • Easy to communicate and monitor	• No clear operational guidance in the short run as policy impact on debt ratio is not immediate and limited • No economic stabilization feature (can be pro-cyclical) • Rule could be met via temporary measures (e.g., below-the-line transactions) • Debt could be affected by developments outside the control of the government
Budget balance rule	• Clear operational guidance • Close link to debt sustainability • Easy to communicate and monitor	• No economic stabilization feature (can be pro-cyclical) • Headline balance could be affected by developments outside the control of the government (e.g., a major economic downturn)
Structural budget balance rule	• Relatively clear operational guidance • Close link to debt sustainability • Economic stabilization function (i.e., accounts for economic shocks) • Allows to account for other one-off and temporary factors	• Correction for cycle is complicated, especially for countries undergoing structural changes • Need to pre-define one-off and temporary factors to avoid their discretionary use • Complexity makes it more difficult to communicate and monitor
Expenditure rule	• Clear operational guidance • Allows for economic stabilization • Steers the size of government • Relatively easy to communicate and monitor	• Not directly linked to debt sustainability since no constraint on revenue side • Could lead to unwanted changes in the distribution of spending if, to meet the ceiling, shift to spending categories occurs that are not covered by the rule
Revenue rule	• Steers the size of government • Can improve revenue policy and administration • Can prevent pro-cyclical spending (rules constraining use of windfall revenue)	• Not directly linked to debt sustainability since no constraint on expenditure side (except rules constraining use of windfall revenue) • No economic stabilization feature (can be pro-cyclical)

Source: IMF staff assessment.

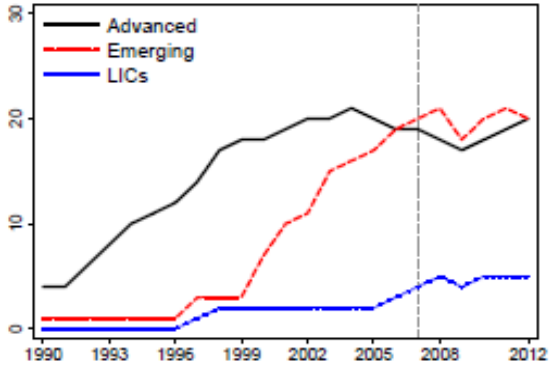
Global growth in FRs since 1990 (Source: IMFWP, July 2012)

Figure 2. Number of Countries with Fiscal Rules

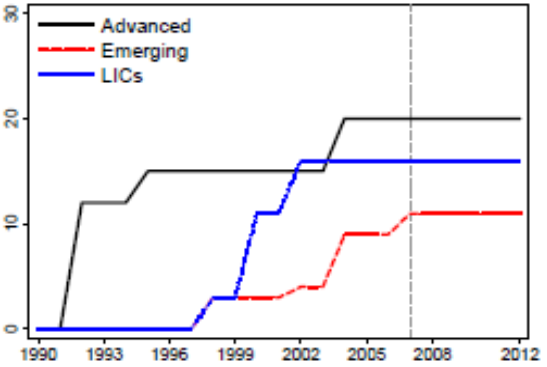
(a) Total Rules



(b) National Rules by Type of Economy



(c) Supranational Fiscal Rules by Type of Economy

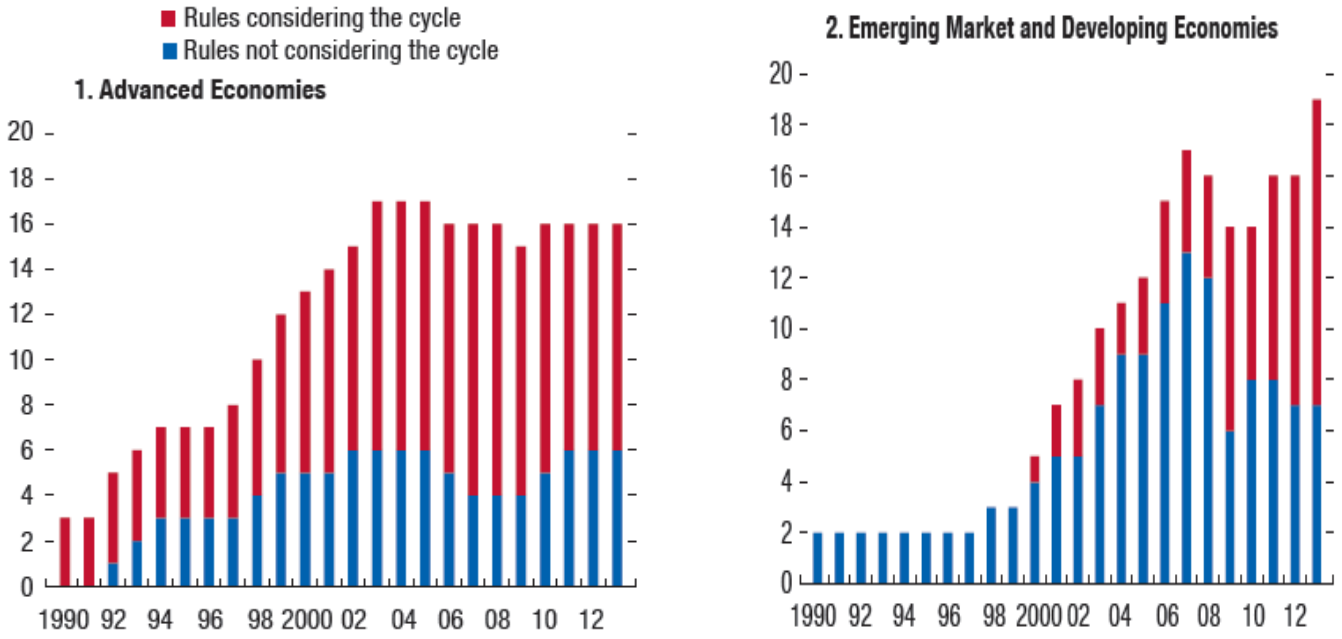


Source: National authorities; and IMF staff assessment.
Note: Based on fiscal rules in effect by end-March 2012.

BBRs (Source: IMF, Fiscal Monitor, April 2015)

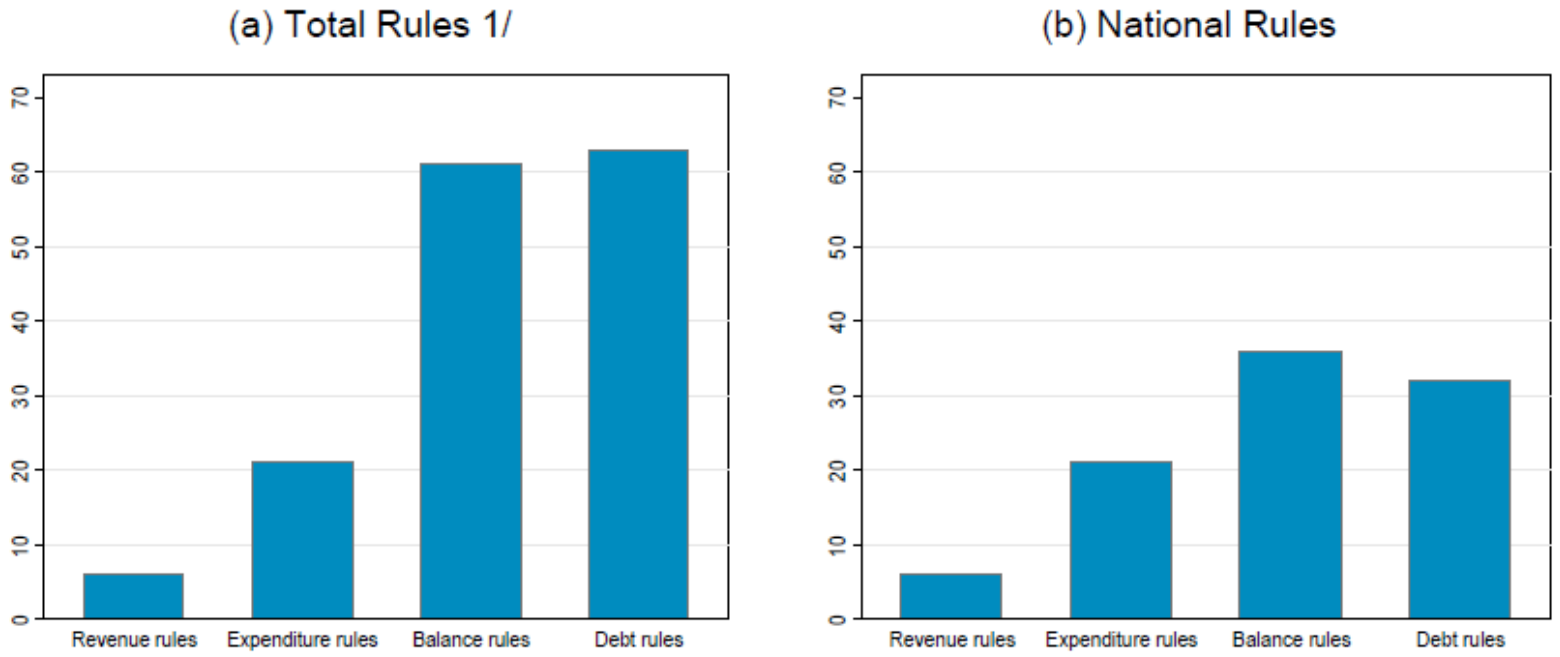
Figure 2.15. Budget Balance Rules: Contingent on the Economic Cycle?
(Number of rules)

In advanced economies, deficit caps embedded in fiscal rules often vary with the state of the economy, leaving room for automatic stabilizers to operate more freely. A similar trend is apparent in emerging market and developing economies after the global financial crisis.



Types of FRs in use in 2012, (Source: IMFWP, July 2012)

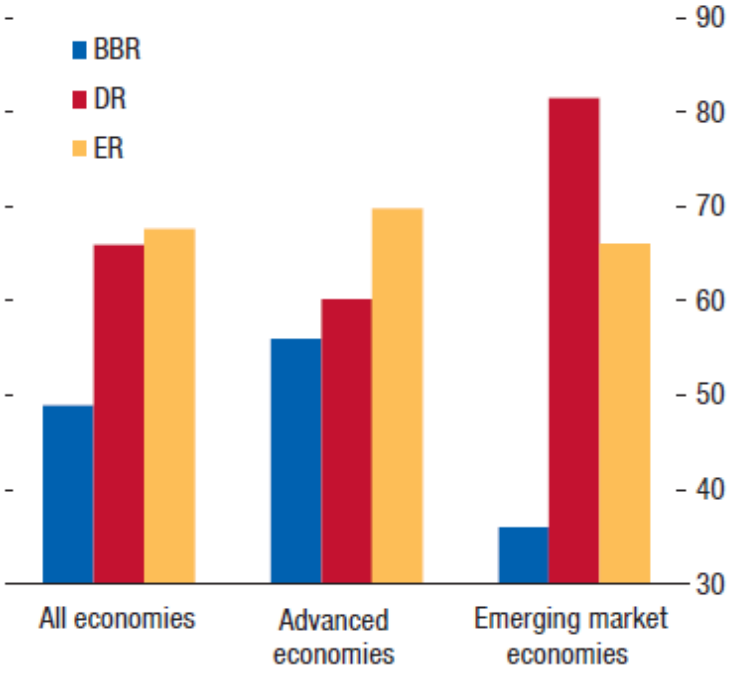
Figure 5. Types of Fiscal Rules in Use, 2012
(Number of countries with at least one fiscal rule)



Source: National authorities; and IMF staff assessment.
1/ Includes national and supranational rules.

Compliance with FRs (Source: IMF, Fiscal Monitor, April 2014)

Figure 2.19. Compliance with Fiscal Rules, 1985–2012
(Percent compliance)



Sources: IMF, Fiscal Rules Database; and IMF staff estimates.
Note: The y axis measures the average compliance rate with Balance Budget Rules (BBR), Expenditure Rules (ER), and Debt Rules (DR) in all years in which an assessment could be made. BBRs and DRs include both national and supranational rules.

FRs and escape clauses (ECs)

- Are the FRs carved in stone or drawn on sand? Somewhere in between in practice.
- ECs are not uncommon in FRs.
- Formal ECs are mostly found in more recently introduced FRs and the trigger events do differ vastly across these FRs.
- ECs provide flexibility to deal with rare events and occurrences.
- At the same time, ECs could undermine the role of FRs and fiscal anchors – ECs may become 'Excuse Clauses'.
- If ECs are many and vague that probability increases in practice.
- German FR an example - Until the 2009 constitutional change in 2009, the FR allowed for deviations in case of 'a disturbance of the macroeconomic equilibrium'
- That ambiguous EC was frequently used to justify the the budget deficit exceeding the FR ceiling.
- The European Unions ECs until 2005 was also quite lax, but even the 2005 reform to its Stability and Growth Pact allows not to trigger the excessive deficit procedure if the deficit is close to its ceiling and the breach is temporary (both conditions to be satisfied simultaneously).

Balancing long-term objectives and short-run imperatives – key to credible FRs

- Six criteria for FRs:

  - Cover at least the major part of the government.
  - Have a statutory basis.
  - Have a formal enforcement procedure.
  - An independent body to set the budget targets.
  - An independent body to monitor implementation.
  - Clear, well-specified ECs.

- In practice, hardly any country with an FR fulfills all these six criteria
- Only 7countries satisfy at least 4 out of the 6 criteria in at least one of their FRs
- Another – Singapore and Romania (5 out of the 6 criteria), Germany, Mongolia, Switzerland, Unites Kingdom, and the United States (4 out of the 6 criteria).
- In Asia, only 8 countries/economies now have FRs: Hong Kong, SAR (1/6), Indonesia (1/6) , Japan (1/6), Malaysia (2/6), Maldives (3/6), Mongolia, Pakistan, and Singapore.
- Outside of Singapore and Mongolia, most the FRs in Asian countries satisfy only 2 out of the 6 criteria (hence are somewhat shallow FRs)

Next session – Wrap-up session: Not-so-good development policy ideas and some big unsettled issues

Macroeconomic Policy Analysis
Session 16: Not-so-good Development Policy Ideas and Some Big Unsettled Issues

GDEPFP, Ministry of Economy and Finance, RGC

11 December 2015

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Some Quotes on Growth and Development, To Begin With

- "A fast-growing economy is a moving target" (Growth Commission, 2009: 29)
- "[G]overnments may fail either because they do too little, or because they do too much." (Sir Arthur Lewis, Quoted in Growth Commission, 2009: 30)
- Some believe that there is 'development/developing country economics' and the 'developed/rich country economics' (Joe Studwell, How Asia Works, 2013:223).
- "Economics of development requires nurture, protection and competition" : "household farming, export-oriented manufacturing, and closely controlled finance that supports these two sectors" (Studwell, 2013: 223) – **Core of the Postwar East Asian model**
- Then there is the economics of efficiency applicable to a later stages of development (developed country economics?)… This requires less state intervention, more deregulation, freer markets…." (Studwell, 2013: 223). – **the core of what is known as the Washington Consensus.**
- The Issue is not one of either or but how to combine elements of the two models.
- "It is hard to know how the economy will respond to a policy, and the right answer in the present moment may not apply in the future. Today's bad policies are often yesterday's good policies, applied for too long. Governing a growing economy is not a static challenge" (Growth Commission, 2009: 29).
- The focus for now is thus what could be broadly considered as 'not-so good development policies for 21st century developing countries', although we do know that 'one size does not fit all'

Do Not Try to Replicate the East Asian Development Model in the 21st Century!

- **To begin, a couple of cautions in interpreting the East Asian model:**

- **Avoid 'survival bias' in development policy prescriptions** – study only the success stories and arrive at prescriptions – this plagues most of development policy discourse
- **Avoid the 'Halo effect'** – arguing that every single aspect of East Asian polices was ultra-exceptional and then jump to the conclusion that every such factor contributed to their remarkable success (Easterly, Yusuf, p. 127).
- **Are East Asian type industrial policies (even if they were the defining factors for East Asian success) still relevant in the 21st Century?**

- Is the jury still out? Consider the following:

- Policymakers ... looked the other way as rapidly growing East Asian countries acquired Western technologies ... through unorthodox policies such as subsidies, local content requirements, reverse engineering, and currency undervaluation. Core countries also kept their domestic markets open
- Rich countries are unlikely to be as permissive towards industrialization policies as they were in the past. Now, however, as rich countries struggle, they will apply greater pressure on developing nations to abide by World Trade Organization rules
- Currency undervaluation à la China has not gone unnoticed, not to mention the 1985 Plaza Accord that pushed Japan to appreciate its currency.
- Retaliation by rich countries through protectionism, even if not in overt form, will be politically difficult to resist
- Integration through investment (both FDI and other) no much more than when the East Asian countries industrialized.

Avoid Thinking on Trade Policy Issues through the 20th Century Lenses - (Source: Madhur, 2015)

- Reciprocal multilateral tariff reduction and market access negotiations of the kind —"I cut my tariffs if you cut yours" or "my market for yours"—are increasingly becoming less important for trade and production integration across countries (Baldwin 2014).
- For both richer and poorer countries, trade and production integration in the 21st century is mainly about becoming part of the regional and global value chains through trade in goods, services, and investment
- You cant export if you don't import. Task trading in both goods and services, not 'product trading' – needs to look at both 'at the border' and 'behind the border' regulatory measures
- The way trade policy is conceived requires adjustment- it is mostly about an integrated package of investment, technology (technical know-how), management practices, and marketing skills moving from higher wage, more industrialized countries to lower wage, less industrialized ones.
- What the latter has to offer in return is not just cheaper labor but also a package of robust infrastructure, investment climate, business environment, trade logistics services, and overall governance standards—many of which are behind-the-border parameters.
- The above deals comes under various brand names/nomenclature - offshoring, fragmentation, vertical specialization, production sharing, global value chains, etc.....[unlike] 20th century trade, where all the sources of comparative advantage are immobile and the goods trade is the only way of exploiting comparative advantage" (Baldwin 2014).
- It is impossible to discuss global value chains (GVCs) without acknowledging the importance of services.
- With cross-border investment flows and digital technology, services are no more to be treated as 'non-tradable' or 'invisible,' or seen mattering solely to developed.
- Services content incorporated in goods is not only large, but also rising; indeed, the dividing line between goods and services is increasingly difficult to draw
- Goods and services are blending together, a process that some call "servitization," "servicification," or the "manuservice" economy (OECD 2014: 15).

‘Bad Ideas’ in Development Policy – the Growth Commission’s negative list… and a Few More…

- ‘Open ended’ protection for specific sectors, industries, and firms, domestic industry, bans on imports and exports, price and interest rate controls, and fiscal incentives for investment.
- Energy subsidy except for a well targeted group of the poor and vulnerable.
- Premature exchange rate appreciation to promote industrial diversification towards higher productivity sectors.
- Cutting public infrastructure investment and social spending to balance the budget
- Resisting urbanization and restricting rural-urban migration.
- Job creation through civil service expansion; underpaying civil servants and teachers, and seniority-based, instead of performance-based, promotion system (jobs without growth is as bad as growth without jobs).
- Measuring progress in health and education by quantitative indicators (teachers, medical professionals, hospital beds, and class rooms) to the neglect of the ‘quality’.
- Inadequate or ‘light-touch’ regulation of the banking/financial system to promote financial development.
- Ignoring environmental implications of growth as an ‘unaffordable luxury’.
- “The list above is illustrative and not exhaustive” – Growth Commission.
- A few more - Aid addiction? Preoccupation with ‘industry’ to the neglect of ‘services’? Financial (portfolio) openness before opening to FDI? Micro-finance, instead of jobs, for the poor?

Growth Commission's 'Negative List' vis-à-vis the of Washington Consensus' 'Positive List'… Do They Gel?

- Key elements of "The Washington Consensus" (John Williamson,1990)

- Fiscal discipline.
- Redirection of public spending from subsidies (especially, indiscriminate subsidies) toward broad-based provision of key pro-growth, pro-poor services like primary education, primary health care, and infrastructure;
- Tax Reform—broadening the tax base and adopting moderate marginal tax rates:
- Market-determined interest rates;
- Competitive exchange rates;
- Trade liberalization—with particular emphasis on the elimination of quantitative restrictions; any trade protection to be provided by low and relatively uniform tariffs;
- Liberalization of inward foreign direct investment;
- Privatization of state enterprises;
- Deregulation—abolish regulations that impede market entry or restrict competition, except for those justified on safety, environmental and consumer protection grounds, and prudent oversight of financial institutions.
- Legal security for property rights.

Some Big Unsettled Issues For the 21st Century – Is There a Development Policy Trilemma?

- **"The political problem of mankind is to combine three things: economic efficiency, social justice, and individual liberty" (John Maynard Keynes)**

- Should governments focus on 'efficiency', 'equity', or liberty?
- How to reconcile when there are trade-offs between them?
- How much participatory should the development process and policy making be?
- Does democracy deliver development?
- Or does it simply encourage too much debate and too few decisions – too high a debate-to-decision (DD) ratio?
- Is there some lessons from China and India – the two most populated countries on the planet, with almost opposite political systems?
- What does the ASEAN experience point to? Before and after the 1997-98 Asian financial crisis?
- Is the Singapore model of 'guided democracy' replicable elsewhere?
- Is it advisable to replicate the Singapore model if it can be, especially since Singapore ranks in among the top 5-10 countries across the globe in a large number of economic, business, and institutional rankings?
- How about the Korean model of development first and democracy next?
- What lessons from Thailand's post-AFC experience?

Some Big Unsettles Issues - How should the 'Fourth Freedom" - the Freedom for People to to Move Across National Borders – be Treated? (Source: Madhur 2015)

- Empirical evidence - breaking the barriers to movement of people across national borders can generate overall economic gains ranging from 50 percent to 150 percent of global GDP –much bigger than the gains from global trade liberalization.
- World Bank estimates that the gains from even a small liberalization of labor migration could result in larger gains than by much more ambitious global trade liberalization (World Bank 2006).
- Not only that. A freer migration policy regime can make a strong dent in poverty in the emigrant countries (through remittances) and at the same time alleviate labor shortages in the host countries (Fernandez-Huertas and Rapport 2011).
- Some experts indeed consider freer cross-border movement of people across as the "fourth freedom" - the other three being free movement of goods, services, and money or capital.

Some Big Unsettled Issues – Why the 'fourth freedom" is Globally Neglected? (Source: Madhur 2015)

- "Migration is the oldest action against poverty…What is perversity in the human soul that causes people to resist so obvious a good?" (Galbraith, 1979).
- "If international policy makers were really interested in maximizing worldwide efficiency, they would spend little of their energies on a new trade round or the international financial architecture. They would all be busy at work liberalizing immigration restrictions" (Rodrick 2001).
- Lack of global appetite for breaking the barriers to migration - no multilateral institution (comparable to the WTO, IMF, or the G7) acting as a premier body that addresses cross-border migration issues.
- Efforts by the International Labor Organization (ILO) or the International Organization for Migration (IOM) or the Global Commission on International Migration (GCIM) focus mainly on protecting the rights of migrant populations mainly by legalizing undocumented migrants than addressing the issue of liberalizing migration per se.
- **"either poor countries will become richer, or poor people will move to rich countries. Actually, these two developments can be seen as equivalent. Development is about people: either poor people have ways to become richer where they are now, or they can become rich by moving somewhere else… there is no real difference between the two options. From the point of view of real politics, there is whole world of difference though" Milanovic, WBWP, November 2012)**

What is Development, After all…? Mean Different Things to Different People… Some One-liners to End on a Casual Note

- An economist - "from poverty to prosperity”
- A sociologist - "from the economy to society/people”
- A politician - "from people to politics”
- A lawyer, “from word of mouth to legal papers”
- A banker – “from barter to money”
- A housewife - "from cooking at home to eating out”
- A gender specialist – “ from gender discrimination to gender equity”
- An educationist - "from illiteracy to literacy”
- A scientist - "from blind belief to science”
- A mathematician - "from intuition to logic”
- A medical doctor - " from malnutrition to obesity”
- An environmentalist - “from clean air to pollution”
- A development policymaker – “ depends on whose company she/he is in”
- “Do she/he is dammed and don’t do she/he is dammed” – difficult but never a boring job.

Annexure to Session 3: A Rock- bottom IS-LM, AD-AS Model

(1) $y = c(1-t)y - m(1-t)y + ir + [G' + X' + A']$ IS Curve

(2) $MS' = P(ky + jr)$ LM Curve

(3) $P = n(y - y')$ + P' Philips Curve

where:

- y – real output
- r – real interest rate
- P – general price level
- y' –potential output
- G' – real government purchases
- X' – real exports
- A' – autonomous component of real expenditure
- MS' – nominal money supply
- P'= a supply shock proxy variable
- t (+) tax rate
- c (+) marginal propensity to consume
- m (+) marginal propensity to import
- i (-) interest responsiveness of private investment
- j (–) interest responsiveness of real money demand
- k (+) the income responsiveness of money demand
- n (-) the price-level responsiveness to output gap

Let's rearrange and simplify (1)

(4) $y - c(1-t)y - m(1-t)y = [G' + X' + A'] + ir$

(5) $y[1 - c(1-t) - m(1-t)] = [G' + X' + A'] + ir$

Let H = $1 - c(1-t) - m(1-t)$
Note that 1/H is the conventional Keynesian multiplier

(6) $yH = [G' + X' + A'] + ir$

(7) $y = \frac{1}{H}[G' + X' + A'] + \frac{1}{H} ir$

Now, we use (2) to solve for r:

(8) $MS' = P(ky + jr)$

(9) $MS' = Pky + Pjr$

(10) $Pjr = MS' - Pky$

(11) $r = \frac{MS'}{Pj} - \frac{Pky}{Pj}$

(12) $r = \frac{MS'}{Pj} - \left(\frac{k}{j}\right) y$

Now, we substitute r into (7):

(13) $y = \frac{1}{H}[G' + X' + A'] + \frac{1}{H} i \left[\frac{MS'}{Pj} - \left(\frac{k}{j}\right) y\right]$

(14) $y\left[H + i\left(\frac{k}{j}\right)\right] = [G' + X' + A'] + i\left(\frac{MS'}{Pj}\right)$

(15) $y = \frac{1}{H+i\left(\frac{k}{j}\right)}[G' + X' + A'] + \frac{i}{H+i\left(\frac{k}{j}\right)}\left(\frac{MS'}{Pj}\right)$,

Equation (15) can be rewritten as

(16) y = {1/ [H + i(k/j)]} [G'+X'+A'] + {i/[H.j+i.k]} (MS'/P).

Equation (16) can be solved for y in terms of exogenous variables, given P, but P depends on y from equation (3). So the two equations – (3) and (16) are now the rock-bottom macromodel with two unknowns – y and P.

Note that the fiscal multiplier, as are the multipliers of X' and A', is smaller in equation (16) than that in eq. (7) – since k is positive, but both i and j are negative, the term i(k/j) is positive, thus increasing the denominator of the multiplier, and hence the value of the multiplie. This is because an expansionary fiscal policy also results in higher r thus reducing private investment (interest-rate-induced crowding out) and thus the value of the multiplier. The second term in (16) gives the increase in output when the supply of money increases but for a given P. And it is positive since i and j are negative, k is positive and H is positive – the entire term {i/[H.j+i.k]} is positive.

Suggested Readings and References
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