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Developing and Transition Economies in the Late 20th Century: Diverging Growth Rates, Economic Structures, and Sources of Demand

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Abstract: This study is about the growth and development performance of non-industrialized regions in the latter part of the 20th century. The key topics are a "great divergence" of regional growth rates of GDP per capita since around 1980 and changes in economic structure that were associated with it. Our most notable findings are: sustained growth among "successful" countries was accompanied by structural change in terms of shifts in output and labor shares, trade diversification, and sustained productivity growth with (in some cases) strong reallocation effects due to movements of labor from low to high productivity sectors. Regions that did not enjoy per capita growth showed little structural evolution apart from a rising employment/population ratio in service sectors. There was a generally positive association of growth rates of capital stock and output, but capital productivity dropped off in the upwardly diverging regions. That group also raised educational levels by several average years of schooling, but so did several slow growers. The implication is that human capital accumulation by itself is not sufficient to stimulate growth. Neither is foreign direct investment (FDI), which appeared to be associated with growth in some regions but had little apparent impact in others. Finally, on the demand side, we examine shifts in net borrowing by the private sector, government, and rest of the world. Mutually offsetting co-movements of government and foreign net borrowing occurred

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sporadically at most. In other words, the widely accepted "twin deficits" view of macro adjustment does not seem to apply, nor does the "consumption-smoothing" behavior postulated by Ricardian equivalence theory. Macroeconomic flexibility, on the other hand, may be very important. Strong fluctuations in private and foreign net borrowing did not derail growth in the upwardly diverging Tigers and (to a lesser extent) Southeast Asia.

This study is about the growth and development performance of non-industrialized countries in the latter part of the 20th century, and in particular about a "great divergence" of their growth rates of GDP per capita since around 1980. Our goal is to explore the factors underlying this pattern, and trace out plausible lines of causation for its diversity. The analysis basically follows Kuznets (1966) in attempting to organize the data in such a way as to highlight salient relationships (or lack of same) among variables.

These changes in growth trends and widening income inequality among developing countries and between developed and most developing countries coincided with important changes in views on economic policies. A major shift occurred worldwide after the 1970s and 1980s when, under the tutelage of World Bank and International Monetary Fund, most developing countries moved to liberalize their external current and capital accounts along with domestic labor and financial markets. They also privatized public enterprises, de-emphasized industrial policy interventions, and encouraged a greater private sector role in general. Emphasis was placed on supply-side "accumulation" processes, for physical and human capital and foreign direct investment. Fiscal austerity figured in many programs sponsored by the Bretton Woods Institutions. More than a quarter of a century has passed

since the first versions of IMF and World Bank macro reforms became the conventional wisdom. Data are now available for a long enough time to enable policy analysts to sort their implications out.

At best, the new orientation had mixed results in either reversing the slowdown in growth that many countries encountered in the last quarter of the 20th century (details below) or helping them break away from their poverty and low level development traps (Taylor, 2001, 2006; Voss et al. 2003). Indeed, income gaps have widened over time.

We begin by investigating economic evolution for the period 1970-2003, studying several indicators to see how they relate to the growth (or non-growth) of per capita GDP. The policy background is then brought in, with emphasis on ideas emanating from the Bretton Woods institutions. Suggestions are offered about other approaches to policy that may help generate more sustained and equitable development than has been the case in the recent past.

To keep the discussion within bounds, the data are organized in terms of 12 regional groups including 57 developing and transition countries: rapidly growing East Asian economies (or the "Tigers"), Southeast Asia, China, South Asia, semi-industrialized "Latin America" (including South Africa and Turkey with economic structures similar to their counterparts in the Western Hemisphere), the Andean countries, Central America and the Caribbean, Eastern Europe, Russia and Ukraine representing the former USSR,

"representative" and "other" countries in sub-Saharan Africa[1], and the Middle East. Nations in each group are listed in Appendix I.

1. Divergence in the 20th Century

To set the discussion, Figures 1 through 3 show levels of per capita GDP by region (log scale) in constant 1990 US dollars[2] . We identify three cohorts of regions and countries that had similar patterns of growth:

There was *sustained growth* in the Tigers, China, Southeast Asia, and South Asia (dominated by India) as shown in Figure 1. Relative to the other regions, South Asia had less robust expansion and Southeast Asia did not bounce back as strongly from the 1997 crisis as did the Tigers. In effect, these regions "diverged upwardly" from the rest of the developing world.

Figure 2 illustrates *late recovery* (often not very strong) in Eastern Europe, Russia/Ukraine, semi-industrialized Latin America, Central America and Caribbean, and representative Africa. Eastern Europe is in an ambiguous situation. Over the period 1970-

[1] The representative group is made up of four countries often discussed in the development literature, and the others are included essentially on grounds of availability of data.
[2] It is customary to make international income comparisons in terms of purchasing power parity (or PPP). However, as explained in Appendix II, PPP estimates distort the macroeconomic relationships that are at the heart of our analysis. When it comes to policy formation, it is far more useful to think about macro relationships in traditional "real" terms.

2003 the region grew slightly faster in per capita terms than South Asia (2.7% vs. 2.6% per year) but because of the transition shock around 1990 it seemed more appropriate to call its case one of "late recovery."

Finally, the Andean group, Middle East, and other Africa (dominated by Nigeria) were basically *stagnant* throughout the period as shown in Figure 3.

Figure 1 here

Figure 2 here

Figure 3 here

2. Identifying Structural Change

Sustained growth in the successful regions was associated with changes in economic structure in several dimensions. The slow growers, on the other hand, did *not* generate such changes. Economists trained in the structuralist tradition hold that development requires economic transformation or the "ability of an economy to constantly generate new dynamic activities" (Ocampo, 2005) characterized by higher productivity and increasing returns to scale. Our evidence supports this point of view. Recognizing the structural shifts that occurred in the regions with sustained growth can help chart future directions that other developing economies may be able to take. Needless to say, any economy is a unique entity which has its own characteristics that require its own policies. But stylized facts show that there are dynamic movements of key macro variables that show up in connection with sustained output growth across different economic systems.

We analyze these movements from several angles, both in terms of formalized decomposition exercises (algebraic details in Appendix II) and more informal analysis of data on foreign trade patterns, human capital accumulation, and foreign direct investment.

One decomposition breaks down labor productivity growth between agricultural, industrial, and service sectors. Overall productivity growth comes out as an average of own-rates of growth (weighted by output shares) for all sectors along with "reallocation effects" which are positive for sectors with relatively low average productivity in which employment falls or for high-productivity sectors in which employment rises.[3]

A second exercise focuses on growth rates of the economy-wide employment/population ratio which is decomposed into an average of growth rates of the ratio by sectors weighted by employment shares. As it turns out, the ratio of a sector's own-employment to total population will rise if the growth rate of its output per capita exceeds its growth rate of labor productivity.[4] An economy can be considered to be performing well if it has *both* sustained productivity growth *and* a rising employment/population ratio overall.

Thirdly, we examine the association between capital stock and output growth. We also contrast growth rates of labor and capital productivity and ask how they feed into widely used (but fundamentally misleading) calculations of "total factor productivity growth." The two productivity growth rates turn out to be linked by a simple accounting identity which helps explain the "Asian" pattern of falling capital productivity over time.

[3] The approach follows Syrquin (1986).
[4] The original insight is Pasinetti's (1981).

Finally, we look at net borrowing flows (incomes minus expenditures) over time for the government, private, and rest of the world "institutional sectors" (normalized by GDP).[5] As an accounting identity, borrowings must sum to zero:

(Private investment – saving) + (Public spending – taxes) + (Exports – Imports) = 0,

with a positive entry indicating that a sector is a net contributor to effective demand. Changing sectoral roles in this equation can be important aspects of the growth process. For example, mutually offsetting co-movements of government and foreign net borrowing occurred sporadically at most. In other words, the widely accepted "twin deficits" view of macro adjustment does not seem to apply. Nor do the data suggest that the "consumption-smoothing" behavior at the heart of mainstream Ricardian equivalence growth theory is empirically relevant. Macroeconomic flexibility, on the other hand, may be very important. Strong fluctuations in private and foreign net borrowing did not derail growth in the upwardly diverging Tigers and (to a lesser extent) Southeast Asia.

3. Output Growth Patterns

Figure 4 shows the sectoral per capita output growth rates underlying the level curves in Figures 1-3. The contrast between Asia and Eastern Europe and the other regions is striking. The Asian regions (even South Asia) had very high growth rates in industry. Service sector growth was strong in Eastern Europe and (to a lesser extent) in Latin America and Central American and the Caribbean.

[5] The approach followed here is a variant on a demand decomposition proposed by Godley and Cripps (1983).

Figure 4 here (sectoral growth rates per capita)

Figures 5-7 present scatter plots of per capita GDP growth vs. percentage changes in sectoral shares (again 1970-2003). The rapidly growing Asian countries identified in Figure 1 showed substantial shifts in shares, in the classic movement from primary toward secondary and tertiary sectors.

Figure 5 (Ag. Share)

Figure 6 (Industry)

Figure 7 (services)

Figure 5 for the agricultural share shows a negatively sloped regression line for the whole 12-region sample. But contrast the results for the five fast-growing regions with those for the others. The former show a clear relationship between faster output growth and a decreasing share, while the lagging seven regions generate a basically random scatter. Among the rapid growers, China's share fell by an astonishing 34 percentage points over the period, with declines of 19 and 17 points respectively in South and Southeast Asia. The rising agricultural shares in the Andean and Middle Eastern regions are anomalous as is the decrease accompanied by negative growth in Russia and Ukraine.

Similar observations apply to the other sectors – clear associations emerge for the rapid growers and ill-defined data clouds for the other regions. Growth is associated with structural change and the absence of growth is not.

The growing regions had rising industrial shares in Figure 6 (less so in Eastern Europe which prior to 1970 had already been pushed toward industrial specialization). Four slow growers suffered long-term deindustrialization, while the industrial share in Russia and

Ukraine scarcely budged. Big shifts in industrial shares in the Middle East and other Africa (with Nigeria as the largest economy included) were driven by developments in the petroleum sector.

The fast growers had increases in the service sector share (to be expected) in Figure 7. The Tiger region service share rose to 64% by 2003 and supported strong job creation as reported below. There was no apparent relationship for the lagging regions.

4. Labor Productivity Growth

Historically, labor productivity increases have been the major contributing factor to growth in real GDP per capita. At the same time, faster productivity increases cut into employment growth unless they are offset by rising effective demand. Figure 8 shows overall productivity growth for the period 1991-2003/4. The five rapidly growing regions had productivity growth rates exceeding (some greatly exceeding) the rich country norm of 2% per year. The others fell well short, and the former USSR had negative productivity growth.

In terms of phasing over time, more detailed results not presented here show that Russia/Ukraine suffered an enormous productivity collapse (-9.7% per year) in 1991-95, but then recovered to 5.6% (1999-2003). Eastern Europe showed a similar though far less violent pattern. The Tiger region rapidly recovered its productivity growth rate of 4-5% per year after the 1997 Asian crisis. Southeast Asia also had 4-5% annual productivity growth prior to the 1997, but rates tailed off thereafter. The other regions had growth rate fluctuations over time but no clear trends.

Figure 8 (overall productivity growth)

Figures 9-11 summarize direct and reallocation contributions by sector to overall productivity increases. Agriculture in Figure 9 evidently did not play a crucial role in the process. In several countries agriculture's reallocation effects were negative. The meaning is that the sector with its relatively low average productivity had positive employment growth. This finding is not surprising in China, South Asia, and Africa, but is a bit discordant in the Middle East.

Figure 9 (agriculture) here

The industrial sector's own productivity growth made a substantial contribution to the total in four of the rapidly growing regions (Figure 10) and there was a strong reallocation contribution in Southeast Asia, the outlier. The direct contribution of nearly 6% per year in China is striking. Industry made a visible contribution in the two poorer Western Hemisphere regions but detracted from overall performance in Russia and Ukraine and the Middle East (the latter gained from reallocation).

Figure 10 (industry)

Services in Figure 11 also added to the total in the rapid growers (as with industry, a negative direct but positive reallocation contribution in Southeast Asia). In other regions, the direct contribution from services was typically negative with modest positive contributions from reallocation. This distinction among regions has implications for job creation, as taken up below.

Figure 11 (services)

Finally, from an alternative data set we were able to do decompositions for the period 1980-2000 for the four Asian regions (the starting year as 1986 in South Asia). The results are in Figure 12. The same general pattern holds as in Figures 9-11, with services playing a more important role in the Tigers.

Figure 12 (Asia productivity)

The bottom line on productivity growth is that the two non-agricultural sectors made solid contributions to the total in the fast-growing regions, even as their overall importance in the economy rose. Elsewhere the results were a mixed bag, with no clear patterns emerging. Insofar as it is measured by average labor productivity growth, technological advance was evident in the growing regions and absent or at best sporadically present in other corners of the world.

5. Employment Growth Patterns

Figure 13 summarizes our results regarding shifts in sectoral employment/population ratios in terms of their contributions to changes in the ratio economy-wide. Regional growth rates of the overall ratio hovered around zero, with more positive than negative values. As noted above, at both the sectoral and national levels, the ratio(s) will grow when the growth rate of output per capita exceeds labor productivity growth. The ratio(s) will also tend to rise when population growth is negative, as was the case in Eastern Europe and the former Soviet Union.

Figure 13

The most striking outcome in Figure 13 is the apparent *similarity* of all 12 regions in the sense that services showed a rising employment/output ratio everywhere, rather strongly except in Other Africa, the Middle East, and (to an extent) South Asia. The details, however, differed between fast- and slow-growing regions.

For the rapid growers, the positive contribution of services to employment growth shows that output per capita grew faster than the sector's rising productivity levels that underlie its positive contributions to growth overall (darker bars) in Figure 11. Positive reallocation gains were due to the fact that services have relatively high average productivity. In the slower growing regions, direct contributions of services to economy-wide productivity were weak but jobs were still created because of rising demand. Productivity did not increase rapidly within the sector but via reallocation effects the shifts in employment toward it reflected in Figure 13 added to productivity growth overall.

Agriculture was a source of employable labor in nine regions (very strongly in Southeast Asia) and a sink only in (especially) the Andean region, Other Africa, and the Middle East. Except in (especially) Southeast Asia, Latin America, and Representative Africa, the industrial sector was not a strong provider of jobs. Consistent with Figures 4 and 10, its rate of productivity growth tended to exceed its growth in demand per capita. An old observation in development economics is that industry is the main motor for productivity increases but not for job creation.

6. Capital Productivity and TFPG

The next topic is the role of capital accumulation in growth. We computed capital stock growth rates for the regions by cumulating real gross fixed capital formation over time from a postulated initial level of the capital stock (capital-output ratio of 2.5) and depreciation rate of 0.05. After a decade or two, the resulting estimates of the capital growth rate should be insensitive to these parameters because of virtually complete depreciation of the estimated capital stock in the initial year.[6]

Figure 14 compares growth rates of output and the capital stock. In contrast to most other indicators discussed herein, there is a pretty clear positive association between the two growth rates across *all* regions. This relationship is usually thought to emerge from the supply side (as discussed immediately below) but it also could be attributed to demand. If investment grows at a certain rate, then output and the capital stock will end up growing at that same rate as well in a simple model based on effective demand. Indeed, the fact that the slope of the putative relationship between the two growth rates in Figure 14 is close to one argues more for a demand- than supply-side story. In the latter, the slope would exceed 45 degrees, with a less than one-for-one partial impact of faster capital growth on output growth.

Also note that the capital growth rate exceeded output growth in the Tigers, China, Southeast Asia and the former USSR. These regions had *falling* capital productivity. Such an outcome can easily be expected. As demonstrated in Appendix II, the difference between

[6] A caveat: our capital stock series for the former USSR and Eastern Europe begin in 1990, so the estimated growth rates are less reliable than those for other regions

labor and capital productivity growth rates must be equal to the difference between capital and labor growth rates as a "theorem of accounting." If capital grows faster than labor, then labor productivity has to grow faster than capital productivity.[7] If the capital/labor ratio rises very rapidly, then capital productivity growth may even have to be negative. This outcome is sometimes said to characterize an "Asian" pattern of growth, or a "Marx bias" in technical progress. It can also result from negative labor force growth as in the former USSR and Eastern Europe.

Figure 14

Capital and labor productivity growth rates are plotted in Figure 15. Again note the contrast between regions. The rapid growers all had negative or (nearly) zero capital productivity growth rates and rising labor productivity. Detailed data show that China's capital productivity fell more rapidly over time. The former USSR lost on both fronts and the rest had small, mostly positive growth of both indicators.

Figure 15

Most of the productivity literature focuses on "total factor productivity growth" or (better) the "residual." TFPG turns out to be a weighted average of labor and capital productivity growth rates, with the weights being the labor and non-labor shares of value-added at factor cost. The question then becomes, what is the labor share? In developing countries, the share of *remunerated* labor in GDP is likely to be less than 40%. Most economically active people don't get paid wages but rather toil within unincorporated

[7] This sort of "decreasing returns" to more capital is built into many mainstream and heterodox growth models, which mostly serve to rationalize the accounting identity described in the text.

proprietorships, labor on peasant farms, etc. The value of their work must be imputed in one way or another, with all the calculations being extremely dubious.

Figure 15 shows estimates of TFPG for labor shares of 0.4 (realistic?) and 0.7 (the standard number) respectively. Either way, because of their negative capital productivity growth, TFPG in the rapidly growing regions fell well short of labor productivity growth. For the lower labor share, TFPG in the Tigers and Southeast Asia was close to zero. Such findings are often used to portray the failings of the "Asian model," but mostly they reflect an accounting identity and the arbitrary nature of the TFPG indicator.

7. Diversification of Trade

Regional diversity persists when we take up changes in patterns of foreign trade which nevertheless accompany structural changes of the economy. Figure 16 shows shifts in the technological composition of exports, and Figures 17-18 present changes in sectoral compositions of exports and imports[8].

The main outcomes were (i) the fast-growing regions generally had increases in manufactured export and import shares of the total, with imports taking a greater role in places like Southeast Asia in which assembly manufacturing is important; (ii) the rapid growers typically also had rising technological content of exports; (iii) technological

[8] "Final years" are in the early 2000s for the technology shifts. "Initial years" in most cases are in the late 1970s and early 1980s, except for 1993 in Eastern Europe and 1997 in Africa (data are not available for the former USSR). The initial and final years for the export and import compositions are 1980 and the early 2000s.

upgrading was less evident in slow-growing regions; (iv) several slow growers maintained or even enhanced traditional patterns of specialization (mining products and/or agriculture).

Figure 16 (technology content)

Figure 17 (exports)

Figure 18 (imports)

8. Human Capital (Education)

Mixed results also come out with regard to accumulation of human capital, which we measure by average years of schooling. The output growth rates summarized in Figure 4 have no clear connection at the regional (and country) level with more education since all regions raised their levels, some quite substantially. In 2000, the highest attained levels of education by far were in the Tigers, Eastern Europe, and the core of the former USSR (9-10 average years of schooling; skilled workers making up about 2/3 of the labor force). The lowest were in Africa, with a bit more than three average years of schooling (other Africa's numbers were a bit better than in the representative region).

Figure 19

How about relationships between *growth* of education and output growth? Figure 19 presents a scatter plot of GDP growth per capita vs. growth in average years of schooling. The regression line shows a putative positive relationship between output expansion and educational growth, but it really only holds for the fast-growing regions (and not that strongly for Eastern Europe and South Asia). As in Figures 5-7 and in contrast to the picture for physical capital accumulation in Figure 14, the slow-growing regions inhabit an

amorphous data cloud. They did no worse at accumulating human capital than the others but they saw scant returns in growth. Education is a public good that should be supported for many reasons, but over the medium run its contribution to more rapid real income growth appears to be weak. More human capital may be a necessary or enabling condition for sustained output growth, but it is clearly not sufficient.

9. Foreign Direct Investment

Foreign direct investment (FDI) is often touted as a potential source of technologically upgraded physical capital and managerial know-how more generally. But it is not obvious what is a "significant" level of FDI. As a share of GDP (say), how large does it have to be or how rapidly should it grow to generate important repercussions on output growth?

FDI also tends to fluctuate over time. As a share of GDP between 1970 and 2001, it went from 1.6% to 3% (1997) to 3.1% (2004) in the Tigers. Somewhat similar patterns appeared in Southeast Asia and China. FDI/GDP in South Asia peaked at 0.9% in 1997, fell back, and then up to 0.8% in 2004. So aside from South Asia, the rapidly growing economies got some inflows, with China absorbing a very substantial share of the worldwide total. Eastern Europe resembled Eastern Asia in seeing the FDI share of GDP rise from 0.4% in 1990 to 4.8% in 2000 and 4% in 2004.

Russia received relatively little foreign direct investment (it peaked at 1.7% of GDP in 1999). Central America and the Caribbean had strong fluctuations – nearly 4% in the

1970s down to 0.4% in 1982, back up above 4% in the 1990s with the assembly/tourism boom, and then some decline. Latin America saw 2% toward the end of the period. Some members of the slow-growing group of economies did little worse than the fast-growers in garnering FDI, without a lot of apparent pay-off. The Andes were up to 5.5% in 1993 and 3% in 2004, with no positive impart on growth. Africa and the Middle East got negligible quantities of FDI.

Figure 20 shows a scatter of per capita growth rates vs. shares of FDI in GDP. A positively sloped relationship shows up for Asia, as usual. The remaining regions demonstrate their usual blob of data points. A relatively large FDI inflow may possibly have a slightly stronger association than rising education with growth, but the relationship is still very weak.

Figure 20

10. Open economies and their patterns of net borrowing

Next we take up interactions between demand and supply. The focus is on the balance of payments, often the fulcrum for both short- and long-term limitations on growth in developing economies. There are at least three incompatible contemporary doctrines regarding how open macroeconomies operate. Twin deficits (TD) and Ricardian equivalence (RE) dogmata are widely spread in mainstream literature, while development and heterodox economists often favor a structural gap (SG) explanation of external balance.

In development macroeconomics, the twin deficits hypothesis traces back at least to the International Monetary Fund economist Jacques Polak's (1957) blueprint for the

"financial programming" exercises that to this day are the linchpin of IMF stabilization packages worldwide. The recipe for action is to cut the fiscal deficit which is supposed to improve the economy's external position. Polak, of course, was drawing on a long tradition of monetarist analysis of the balance of payments. In one variant, unless the private sector chooses to increase its saving (or, more precisely, reduce its net borrowing as discussed below) then a higher fiscal deficit must be paid for by domestic money creation. Aggregate demand consequently goes up. Under tacit assumptions that all resources are fully employed and the domestic price level is tied to foreign prices by arbitrage in foreign trade (purchasing power parity or PPP applies), the higher demand has to spill over into a bigger trade deficit.

Ricardian equivalence (Barro, 1974) emerges from dynamic optimal savings models postulating that all resources are fully employed and that households smooth their consumption over time. It plays a far more central role in contemporary mainstream macroeconomics than Polak's somewhat dated monetarism (though, as we will see below, Polak sans PPP can help explain recent interactions between public and private sector deficits in several developing regions).

Along Say's Law lines, RE broadly asserts that a change in fiscal net borrowing will be offset by an equal shift in private net lending. In an open economy context, any one country's external position then has to be determined by inter-temporal trade-offs between consumption and saving with all countries in the world producing the same good (Obstfeld

and Rogoff, 1997).[9] Traditional counter-cyclical fiscal policy does not play a role in this context.

However TD and RE stories are not compatible because they assign different roles to private and foreign net borrowing. Under TD, private borrowing is "neutral" in that it does not respond to shifts in the foreign or fiscal positions. Under RE, the current account is neutral with regard to fiscal shifts while private and government borrowing dance the trade-offs.

Finally, causality can also be interpreted as running the other way – from the foreign to the fiscal and/or private sector financial gap. Perhaps the external deficit is "structural" and will persist in the face of plausible domestic policy changes. In this sense, structure is built into foreign trade. Within "reasonable" ranges of real exchange rate values and the level of economic activity, the trade deficit (or surplus, say for China or Germany) will not change by very much. It need not be close to zero because of lacking (or excess) competitiveness of domestic producing sectors.

SG analysis resembles full employment RE in that its binding external gap imposes a supply constraint on the system. Particularly in a developing country context, the question becomes how does effective demand adjust to meet the commodity supply permitted by available imports? To hold demand stable, any shift in the private or public sector net borrowing position has to be reflected into an offsetting change in the other domestic gap (as

[9] A post Keynesian variant is Thirlwall's (1979) "law" which asserts that the growth rate of output is equal to the export growth rate divided by the income elasticity of import demand. This formula follows easily from the accounting developed in Appendix II, on the sufficient conditions that trade is balanced and that the members of two pairs of variables – private investment and government spending, and private saving and tax revenues – respectively crowd each other out 100% just as under RE.

under RE). Mechanisms that can make this happen are sketched below. If private net borrowing is neutral, than a shift in the external gap will be reflected into the fiscal deficit – TD with causality reversed.

It becomes interesting to see what patterns emerge from the data.

Several borrowing styles can be identified. In Figure 21 the Tigers, China, and Southeast Asia had opposing co-movements between private and foreign net borrowing with government borrowing maintaining a relatively constant (Tigers), mildly fluctuating (Southeast Asia), or slightly trended (China) share of GDP. The private and foreign co-movements were relatively large, with swings up and down exceeding 10% of GDP in the Tigers and Southeast Asia. Maintaining very high per capita income growth over a 25-year period with the macro economy subject to such extreme fluctuations is a feat perhaps unprecedented historically. In East Asia, the fiscal role was rather passive, with major adjustments taking place between private and foreign net borrowing. Big reductions in external deficits were forced from abroad in the 1997 crisis, but upswings tended to be associated with falling private saving and rising import propensities.

Figure 21

Figure 22 shows the history for two regions with persistently high levels of government net borrowing – rapidly growing South Asia (dominated by India) and economically stagnant middle income Latin America. All three series in South Asia remained nearly flat with a government deficit, sustained private net lending (negative net borrowing), and a balanced external account. The private net lending share resembles China's, except that

in South Asia the private surplus financed a fiscal deficit while in China the external account was in surplus. The region's large fiscal deficit (largely driven by India), evidently did not create an equally large external gap because until very recently hard currency was not available to pay for expanded imports along SG lines. The private sector was the only possible source of finance for the fisc's net borrowing.

Seemingly structural current account deficits or surpluses characterize other developing and transition regions, again forcing a trade-off between private and government net borrowing. Reductions in the latter (often courtesy of the IMF) did not lead to a better balance of payments but rather to a bigger private financial deficit. For example, except for the latter part of the recessionary "lost decade" of the 1980s, Latin America appeared to have a more or less structural external deficit. Note the wide offsetting swings in the government and private borrowing flows along East Asian lines, unfortunately associated with a long period of economic stagnation as opposed to the other region's rapid growth. A massive dose of fiscal austerity in the late 1980s had a very modest impact on the external deficit but was met by increased private borrowing, in a pattern that subsequently partially reversed.

Figure 22

In Figure 23, the Andean economies, Central America and the Caribbean, Eastern Europe, and representative Africa all appear to have structural external deficits. In all cases the fiscal deficit was cut back (in the 1980s in Latin America and Africa and the 1990s in Eastern Europe) as IMF-sponsored stabilization programs were wheeled into place. Rather

than reductions in external deficits, there were increases in the private net borrowing, with subsequent oscillations between private and government positions.

Figure 23

Finally in Figure 24, in the Middle East from around 1980 until the mid-1990s a trend reduction in the fiscal deficit was accompanied by a falling foreign deficit; a similar pattern showed up in the former USSR after the mid-1990s. In both regions, the "structural" factor was almost certainly the external position, with the fiscal accounts accommodating. In other words improvements in the fiscal position as in Russia/Ukraine and the Middle East were probably driven by a better balance of payments, rather than the other way `round. The ex-Soviet private sector was a net lender, while private net borrowing rose in the Middle East. The pattern in the African region, dominated by Nigeria is less clear, with apparent co-movements of private and foreign borrowing.

Figure 24

Crowding-out of private demand by higher public demand under a binding external constraint that holds output roughly constant is a familiar story. Harking back to Polak's monetarist stance, if prices are *not* stabilized by PPP then they may begin to rise in response to higher effective demand. Inflation tax and forced saving mechanisms can kick in, reducing real demand by the private sector (Taylor, 2004). In Figures 22 and 23, such processes also appeared to work in reverse. Austerity relaxed the squeeze on the private sector, and its

demand went up by enough to keep output close to the limit imposed by a structural external gap.

With regard to RE, there is scant evidence suggesting the presence of consumption-smoothing in the sense of rising private sector net lending rose in response to higher output. In four of the five rapidly growing regions, private net borrowing went up as a share of GDP (net lending fell) during periods of sustained, rapid growth. The exception is China after the mid-1980s. But there it is at least as plausible to argue that the rising external surplus drove the observed rise in private net lending than the reverse.

10. The Policy Background

As noted at the outset, there was major policy shift that occurred worldwide beginning in the 1970s and 1980s – a move on the part of most countries to deregulate or liberalize their external current and capital accounts along with domestic labor and financial markets. Our empirical results help trace out its implications.

As Figures 1-3 illustrate, growth performances deteriorated after 1980 in many parts of the world. Clear success cases at the country level – various Tigers, China, Vietnam in Southeast Asia, and more recently India – are scarcely paragons of neo-liberalism. Some Eastern European policy-makers think of themselves in that way but many vestiges of the old order remain.

Moreover, the fact that structural change in several dimensions – output and labor share shifts, trade diversification, sustained productivity growth with (in some cases) strong

reallocation effects – showed up strongly in the fast-growing economies and sporadically elsewhere may carry an implicit message that intelligent sector-level policies can facilitate the development process. To an extent, structural change can be planned.

In macro terms, austerity was supposed to lead to improvement in external balances along IMF financial programming lines. That clearly was not the common outcome. Even falling government deficits and rising external surpluses in the Middle East and Russia are better explained from the external than domestic side. More typical were co-movements of private and foreign or (less frequently) private and government borrowing flows. These have to be examined in terms of the specific macro behavior of each economy concerned.

Macroeconomic flexibility, although difficult to define and probably even harder to attain, also appears to be important. Witness the wide swings in net borrowing flows between 1980 and 2000 in the Tigers and Southeast Asia. Through it all, they continued to grow.

Stated goals of the liberalization package were to enhance labor productivity and employment growth. Outside the consistently expanding economies, this did not happen. Productivity movements across sectors differed in detail across slow-growing and stagnant regions but did not add up to very much. Employment/population ratios rose in the Andean and Middle Eastern regions.[10] Elsewhere, liberalization did not help create jobs -- industrial jobs in particular.

[10] A rise of the ratio in Russia/Ukraine can be discounted because of negative population growth.

Privatization and financial deregulation were followed by financial crises (sometimes repeated) in many countries, associated with vulnerability and under-regulation of the financial sector, speculative behavior on both sides of financial markets which led to national balance sheets dangerously short on foreign assets and long on domestic holdings including real estate and equity (usually newly created through privatization), and cycles of real exchange rate appreciation. The crises help explain the erratic performances in Latin America, Eastern Europe, and Russia. As noted above, Southeast Asia did not recover as strongly as the Tigers from the 1997 crisis. China and India to a large extent evaded its impacts by maintaining capital controls.

Finally, the supply-side emphasis of the new policy package – austerity supposedly leading to higher saving and investment rates, an emphasis on human capital accumulation, and opening economies to foreign direct investment – did not seem to bear fruit outside the rapidly growing regions. There was a clear association between capital stock growth and output growth across all regions, but here the supply-side interpretation is not compelling. The results in Figure 14 can just as well (or better) be explained by rapid capital stock growth contributing to labor productivity growth and driving output growth from the side of demand with saving adjusting endogenously, rather than by higher saving leading to more capital which fed into output via some sort of aggregate production function.

Results across the regions *differed.* Fast-growing regions were less zealous about applying the liberalization philosophy, and performed better. Elsewhere, there was enough variety to suggest that specific aspects of each region and its economies were important in

shaping outcomes. *Structure matters.* The policy analysis challenge is to figure out just how and why.

11. How should policy change?

One important point, strongly enunciated by Nayyar (2005), is that policy makers in developing countries have had their hands tied by the liberalization process – in the areas of macroeconomics and industrial policy among others.

An idea tracing back to Adam Smith and recently restated by Reinert (2006) and formalized by Rada (2006) is that the economy can usefully be viewed as a combination of dynamic increasing returns sectors and more plodding constant or decreasing returns activities. The goal is to stimulate the former while shifting resources (especially labor) from the latter. Figures 4-13 illustrate how the rapidly growing regions succeeded at this task. The question is how to design policies that will facilitate similar processes elsewhere.

Indeed, charting institutional changes that could open up degrees of freedom for the pursuit of developmentalist policies may be a a fruitful approach. Some examples:

Does the open economy "trilemma" really bind? That is, can independent monetary/fiscal policies, exchange rate programming, and open capital markets all be combined? In the land of textbooks it is straightforward to show that they can be, or in other words that the Mundell-Fleming "duality" between a floating exchange rate and control of the money supply does not exist. A central bank in principle has enough tools at its disposal to control monetary aggregates regardless of the forces determining the exchange rate.[11]

[11] For the gory textbook details see Chapter 10 in Taylor (2004). Frenkel and Taylor (2006) present a more institutionally nuanced discussion.

In practice, however, arbitrary changes in monetary and exchange rate policies may be attacked by markets. Along Nayyar's lines, the question then becomes one of how other policies may be deployed widen boundaries on feasible maneuvers. Frenkel and Taylor (2006) argue that under appropriate circumstances a weak exchange rate can be desirable for developmentalist reasons. The "circumstances" include a productive sector which is responsive to price signals, a monetary authority willing and able to maintain a weak rate for an extended period of time (perhaps supported by capital market and other interventions), and political willingness to bear the (conceivably high) initial costs of devaluation including potential inflation and output contraction. Getting away from the recent obsession with using the exchange rate for "inflation targeting" could be a useful step toward making it a more developmentally useful policy tool.

In the area of industrial/commercial policy, the impact of the WTO has been to rule out interventions involving tariffs and trade while up to a point different forms of subsidies (witness Airbus vs. Boeing!) are still considered kosher. How can developing and transition economies operate effectively in this new environment? The Smithian prescription to stimulate increasing returns sectors did not cease to apply when the WTO was born. The question is how to implement it under present circumstances.

At the macro level, a question implicit in Figure 13 is also relevant: how can economies avoid the "jobless growth" that has been characteristic of the liberalization period? Evidently, productivity growth must be positive for per capita incomes to rise but demand growth must be stronger for employment to be created. It remains to be seen in many

countries whether they will be able to program rapid growth in demand under a regime of liberalized international capital markets.

Appendix I: Countries in the Regional Groups

1. Representative Africa: Ghana, Kenya, Uganda and Tanzania
2. Other Africa: Cameroon, Ethiopia, Ivory Coast, Mozambique, Nigeria, Zimbabwe
3. Central America and the Caribbean: Costa Rica, Dominican Republic, El Salvador, Guatemala, Jamaica
4. Andean Region: Bolivia, Ecuador, Peru
5. Semi-Industrialized Latin America (with Turkey and South Africa as additions): Argentina, Brazil, Chile, Colombia, Mexico, Venezuela, Turkey, South Africa
6. South Asia: Bangladesh, India, Pakistan, Sri Lanka
7. China
8. Southeast Asia: Indonesia, Philippines, Thailand, Vietnam
9. Tigers: Korea, Malaysia, Singapore, Taiwan
10. Middle East: Algeria, Egypt, Morocco, Tunisia, Iran, Iraq, Jordan, Saudi Arabia, Syria, Yemen
11. Former USSR: Russian Federation, Ukraine
12. Eastern Europe: Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia

Appendix II: Decomposition Techniques

It is often illuminating to trace through how macro aggregates shift over time by temporally "decomposing" accounting identities that link them together. In appendix we present procedures for investigating changes in labor productivity across producing sectors, employment generation by sectors, interactions between labor and capital productivity growth at the economy-wide level, and net borrowing by major institutional sectors.[12]

Available data on output and employment come at yearly intervals. Growth rates have to be computed in discrete time, with formulas that can become quite complicated. To simplify an algebraic presentation as much as possible, we consider only observations at times 0 and 1. The growth rate of (say) the variable X is "X-hat" or $\hat{X} = (X_1 - X_0)/X_0$ with the subscripts standing for points in time. At time 0, the relevant identity for decomposing labor productivity growth is $\sum_i X_0^i = X_0$ with the X_0^i as output levels by sector ($i = 1,2,....,n$). Let $\theta_0^i = X_0^i / X_0$ be the share of sector i in real output in period zero. Similarly for employment: $\varepsilon_0^i = L_0^i / L_0$ with $\sum_i L_0^i = L_0$. The level of labor productivity in sector i is X_0^i / L_0^i with an exact growth rate $\xi_L^i = (1+\hat{L}^i)^{-1}(\hat{X}^i - \hat{L}^i) \approx \bar{X}^i - \hat{L}^i$. In the literature, terms such as $(1+\hat{L})^{-1}$ are often said to represent "interactions."

After a bit of manipulation, an exact expression for the rate of growth of economy-wide labor productivity emerges as

$$\xi_L = (1+\hat{L})^{-1} \sum_i [\theta_0^i (\hat{X}^i - \hat{L}^i) + (\theta_0^i - \varepsilon_0^i)\hat{L}^i] \quad . \qquad (1)$$

[12] More detail on the analysis to follow is in Rada and Taylor (2005) and Taylor and Rada (2005).

Aside from the interaction term $(1+\hat{L})^{-1}$, ξ_L decomposes into two parts. One is a weighted average $\sum_i \theta_0^i(\hat{X}^i - \hat{L}^i)$ of sectoral rates of productivity growth as conventionally measured. The weights are the output shares θ_0^i. The other term, $\sum_i(\theta_0^i - \varepsilon_0^i)\hat{L}^i$, captures "reallocation effects." If $\theta_0^i > \varepsilon_0^i$ sector i has a bigger share in output than employment, implying that it has relatively high average productivity. Positive employment growth in that sector (or a negative $\hat{L}^i$ in a sector with $\theta_0^i < \varepsilon_0^i$) will increase productivity overall, in line with established theories about dualism in development economics.

For the record, another expression for ξ_L emerges after some rearrangement of (1),

$$\xi_L = (1+\hat{L})^{-1}\sum_i[\varepsilon_0^i(\hat{X}^i - \hat{L}^i) + (\theta_0^i - \varepsilon_0^i)\hat{X}^i] \quad . \qquad (2)$$

In (2), sectoral productivity growth rates are weighted by employment shares, and the reallocation effect is stated in terms of output growth rates. The message is basically the same as in (1).

Turning to employment generation, a fundamental insight is that if a sector creates jobs over time, then (if interaction terms are ignored) its growth rate of output per capita must exceed its growth rate of labor productivity. To see the (rather gory) details we can start with the identity $\phi_0 = L_0 / P_0 = \sum_i (L_0^i / X_0^i)(X_0^i / P_0)$ in which P_0 is the population at time zero. That is, ϕ_0 is the share of the population employed at time 0. Labor-output ratios (inverse average productivity levels) by sector are $b_o^i = L_0^i / X_0^i$ and sectoral output levels per capita are $\chi_0^i = X_0^i / P_0$.

After grinding, the growth rate of ϕ can be expressed as

$$\hat{\phi} = \sum_i \varepsilon_0^i (\hat{\chi}^i + \hat{b}^i + \hat{\chi}^i \hat{b}^i)$$

with the ε_0^i being the sectoral employment shares introduced above and $\hat{\chi}^i \hat{b}^i$ as a (presumably small) interaction term. Each sector's growth rate of labor productivity is $\xi_L^i = (1+\hat{L}^i)^{-1}(\hat{X}^i - \hat{L}^i)$ so that it is related to the growth rate of the labor/output ratio as $\hat{b}^i(1+\hat{X}^i) = -\xi_L^i(1+\hat{L}^i)$. A final expression for $\hat{\phi}$ becomes

$$\hat{\phi} = \sum_i \varepsilon_0^i [\hat{\chi}^i - \xi_L^i (1+\hat{\chi}^i)(1+\hat{L}^i)(1+\hat{X}^i)^{-1}] \quad , \tag{3}$$

with the terms multiplying ξ_L^i capturing the interactions.

The lead term (typically accurate to two or three significant digits) is

$$\hat{\phi} = \sum_i \varepsilon_0^i (\hat{\chi}^i - \xi_L^i) \quad .$$

The growth rate of the employment/population ratio is a weighted average of differences between sectoral growth rates of output per capital and productivity. Sectors with higher shares of total employment ε_0^i contribute more strongly to the average. One might expect that $\hat{\chi}_i > \xi_L^i$ in a "dynamic" sector, with the inequality reversed in one that is "declining" or just "mature."

Next we consider labor and capital productivity in tandem on an economy-wide basis. Exact expressions for the growth rates of the two variables are $\xi_L = (1+\hat{L})^{-1}(\hat{X} - \hat{L}) \approx \bar{X} - \hat{L}$ and $\xi_K = (1+\hat{K})^{-1}(\hat{X} - \hat{K}) \approx \bar{X} - \hat{K}$. The growth of capital stock is given by the standard equation $\hat{K} = (I_0 / K_0) - \delta$ in which I_0 is gross fixed capital

formation and δ is a "radioactive" depreciation rate (approximately equal to the inverse of the average lifetime of a capital good).[13]

Usually, labor and capital productivity growth rates are lumped together into a number called "total factor productivity growth" (TFPG) or, more realistically, the "residual" ξ. It is defined from the equation

$$\hat{X} = \alpha_0(\hat{L} + \xi_L) + (1-\alpha_0)(\hat{K} + \xi_K) = \alpha_0\hat{L} + (1-\alpha_0)\hat{K} + \xi \qquad (4)$$

in which α_0 is the share of labor in total factor payments. Evidently, ξ is a weighted average of capital and labor productivity growth rates,

$$\xi = \alpha_0\xi_L + (1-\alpha_0)\xi_K \quad . \qquad (5)$$

Equation (4) can be derived by taking the first difference of the factor payments identity built into the national accounts, $X_0 = \omega_0 L_0 + r_0 K_0$ (in which ω_0 and r_0 are real wage and profit rates respectively), or else from the usual mainstream mumbo-jumbo about an aggregate production function and associated marginal productivity factor demand equations.

Also, because

$$\frac{X_0 / L_0}{X_0 / K_0} = \frac{K_0}{L_0}$$

the expression

$$\xi_L - \xi_K = \hat{K} - \hat{L} \qquad (6)$$

[13] We estimated the capital stock growth rates in the text by running this equation forward through time from an initial guess at the level of capital (from a capital/output ratio of 2.5) and a depreciation rate of 0.06. After a decade or so, the computed growth rates were insensitive to these parameters. This outcome is more or less built into the algebra. If investment grows at a rate *g*, for example, then the capital stock growth rate will converge to that value, independent of initial conditions and the value of δ.

will hold to a good approximation. In words, if growth rates of labor and capital are pre-determined then the growth rate of labor productivity implies the growth rate of capital productivity or vice-versa. If capital grows much more rapidly than labor and there is positive labor productivity growth, then the growth rate of capital productivity may well be negative. Empirical implications of this observation are discussed in the text.

A final topic is how different institutional sectors contribute to effective demand. Growth analysis based only on supply-side factors does not capture the impacts on demand patterns of changes in institutions and policy such as liberalization. We focus on the three main institutional sectors: government, the private sector, and the rest of the world.

One approach involves a decomposition of shifts in aggregate demand due to changes in "injections" (investment I, exports E and government spending G) and parameters for "leakages" (saving rate s, import rate m, and tax rate t). One can identify the sector or sectors that lead output growth through high demand as signaled by large ratios of their injection levels to leakage rates. The exercise in its essence identifies each sector's own-multiplier effect on output growth.

A variant representation which we use here emphasizes levels of net borrowing by sector, defined as the difference between investment and saving ($I - sX$) in the case of private sector, government spending less tax revenues ($G - tX$), and exports minus imports for the rest of the world ($E - mX$).[14] Private positive net borrowing means that the sector is running

[14] The supply or output concept (X) here is implicitly equal to GDP at factor cost plus imports of goods and services.

up net liabilities by investing more than it saves while at the same time it is contributing to higher demand-side output growth. Similar statements apply to the other two sectors.

The aggregate accounting balance

$$(I - sX) + (G - tX) + (E - mX) = 0 \qquad (4)$$

must necessarily hold, so net lending by the government or foreign sector (or both) would be required to compensate for a private sector deficit.

One final point worth emphasizing is that all the discussion is framed in terms of macro aggregates measured in real market prices, *not* in terms of purchasing power parity. The rationale is to keep the analysis as close as possible to normal macroeconomic discourse.

When used in international comparisons, PPP calculations basically revalue the labor content of output by sector. For example, the dollar cost of an up-market haircut in Mumbai at the current rupee/dollar exchange rate might be $5. A similar service in New York City could run $50. A PPP re-computation of Indian GDP raises the labor cost for the Mumbai barber to something closer to that of her New York counterpart.

Comparisons of income levels in these terms have been become the accepted methodology, as in the results reported in Figure 1. However, PPP computations also move macro aggregates far away from their "normal" market price levels. Non-traded goods are revalued in comparison to traded goods, the residential capital stock rises and non-residential falls, imports change relative to exports, and so on. We want to focus on standard macroeconomics as much as possible in the discussion that follows, and for that reason we eschew PPP.

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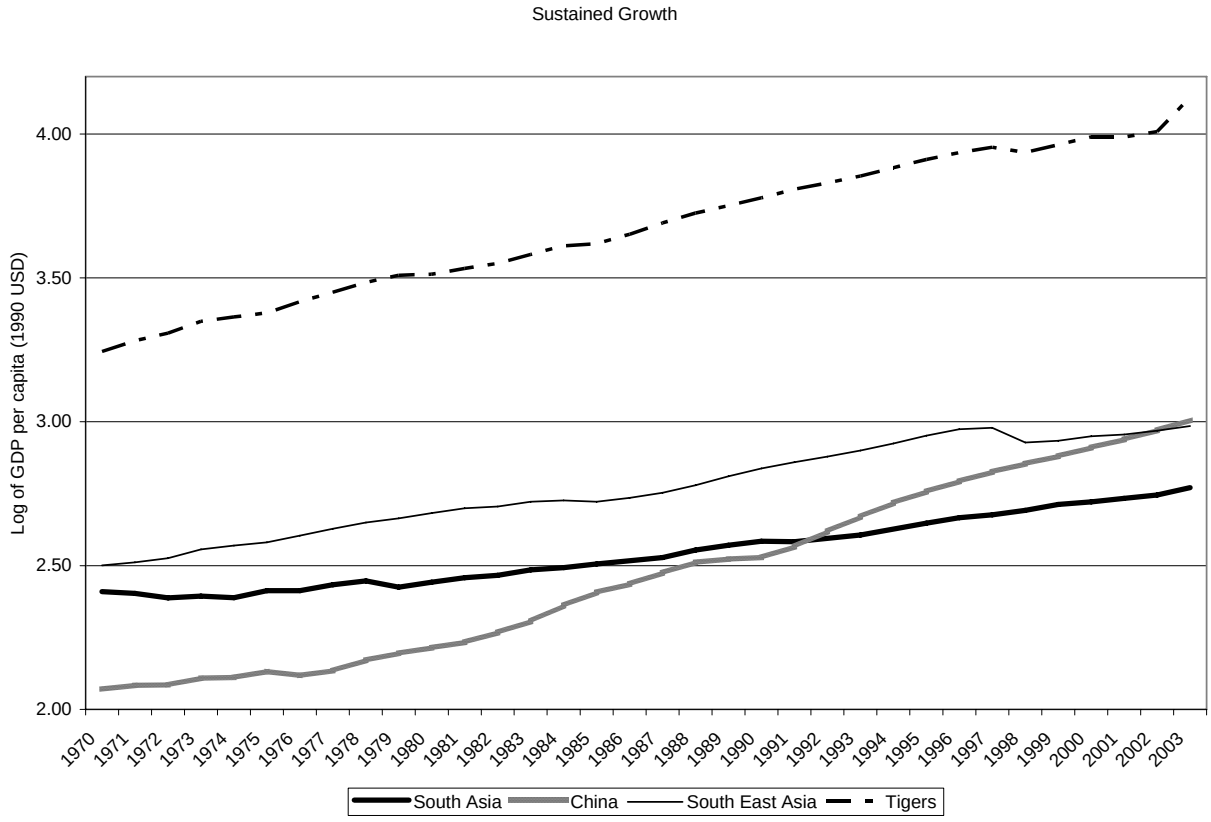


Figure 1: Log of GDP per capita for sustained growth regions

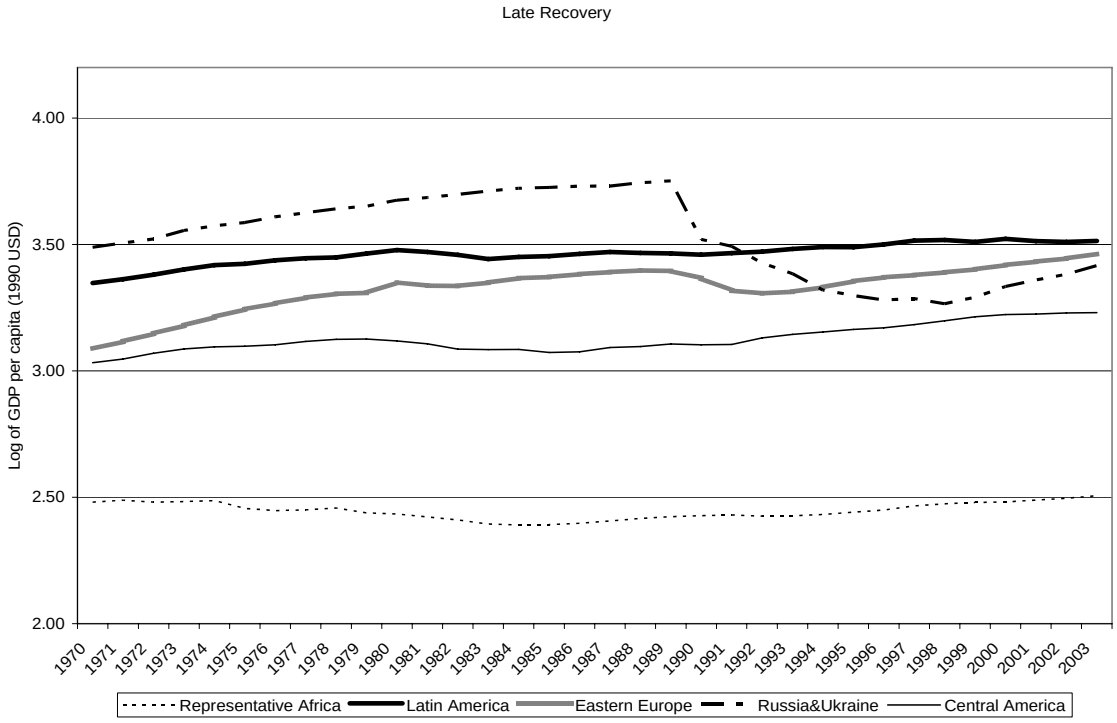


Figure 2: Log of GDP per capita for late recovery regions

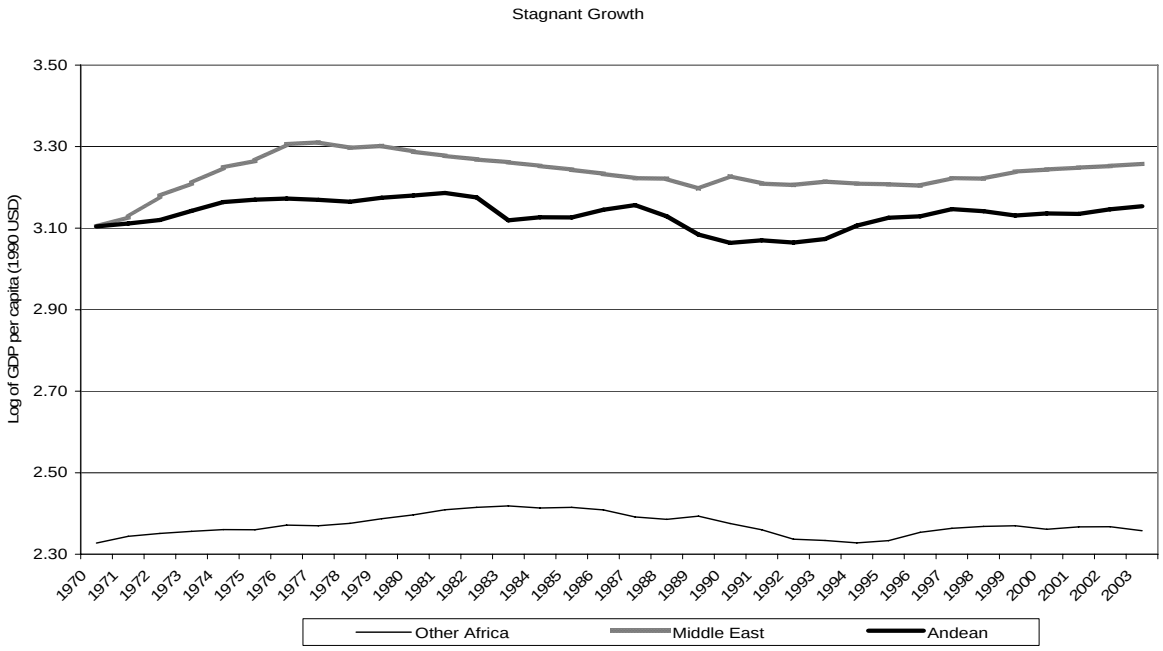


Figure 3: Log of GDP per capita for stagnant growth regions

Source: Data for figures 1-3 is from World Development Indicators 2005 database

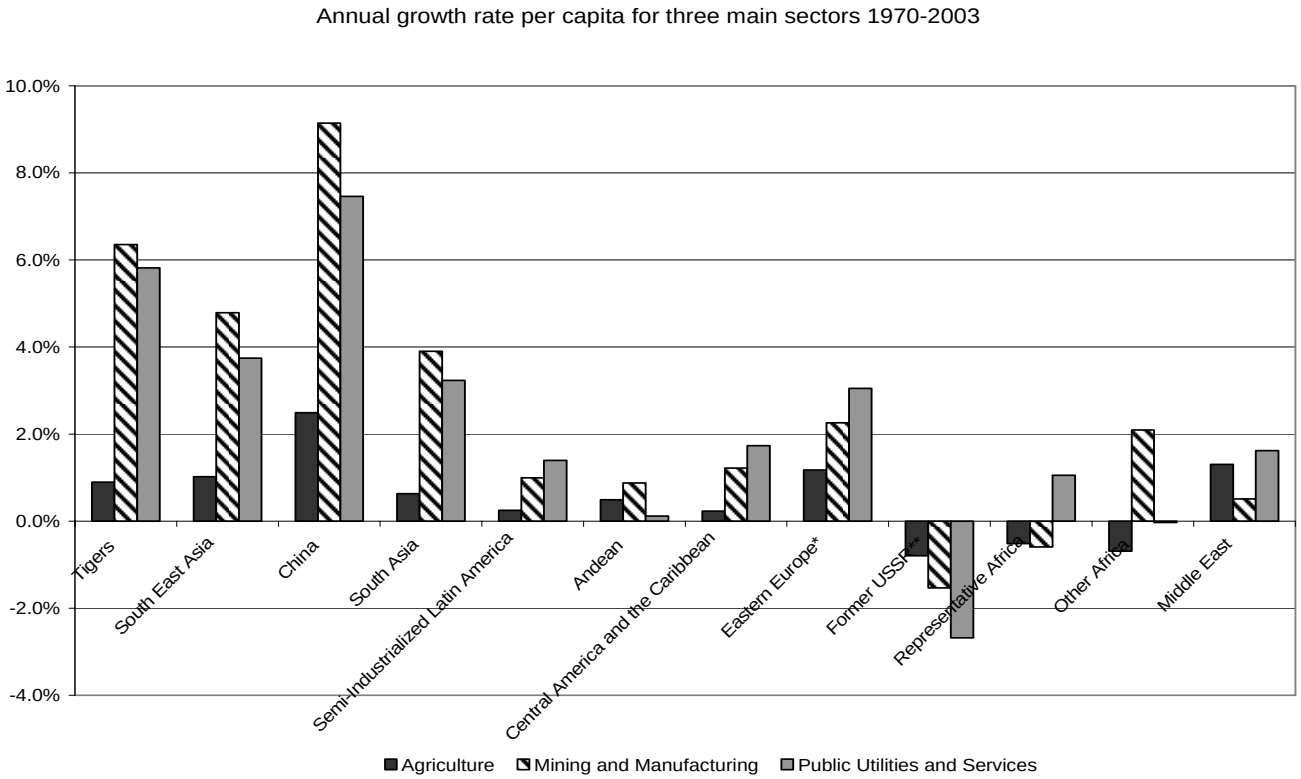


Figure 4: Sectoral growth rates 1970-2003

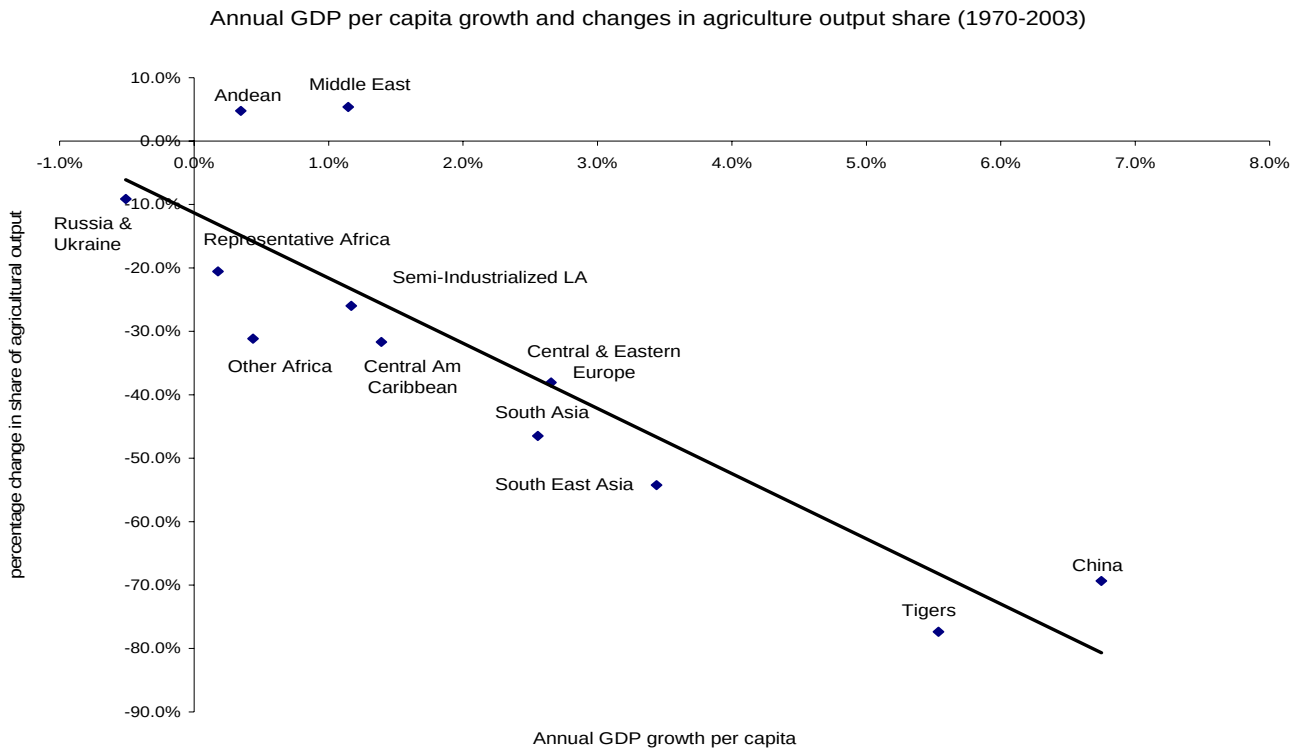


Figure 5: Growth performance and structural change in agriculture

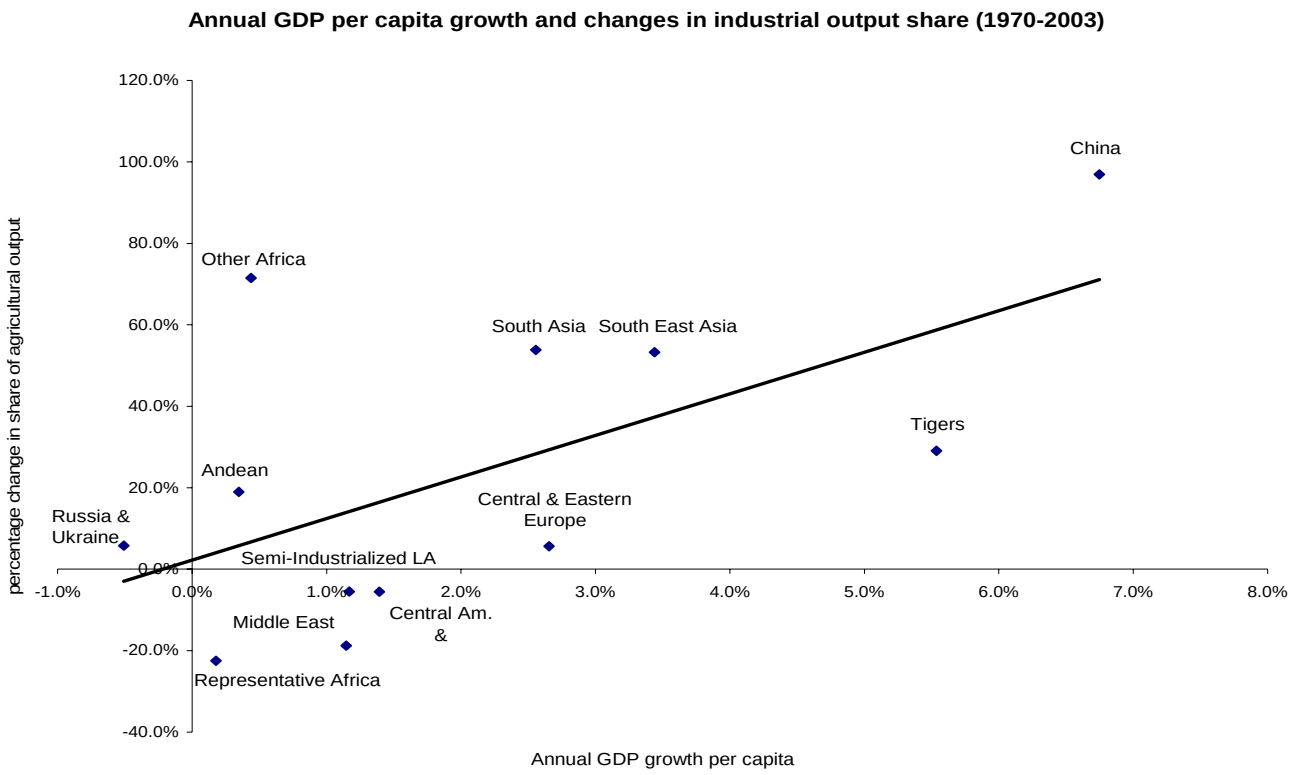


Figure 6: Growth performance and structural change in industry

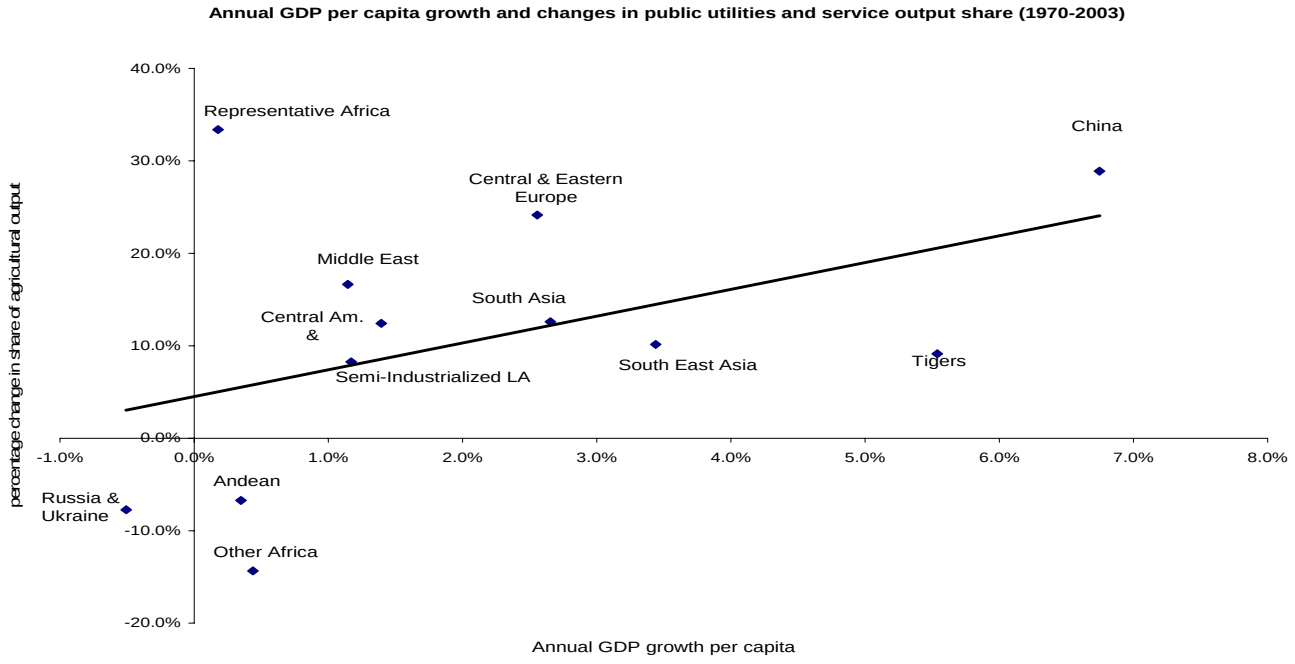


Figure 7: Growth performance and structural change in the service sector.

Source: Data for figures 4-7 is from UN National Accounts

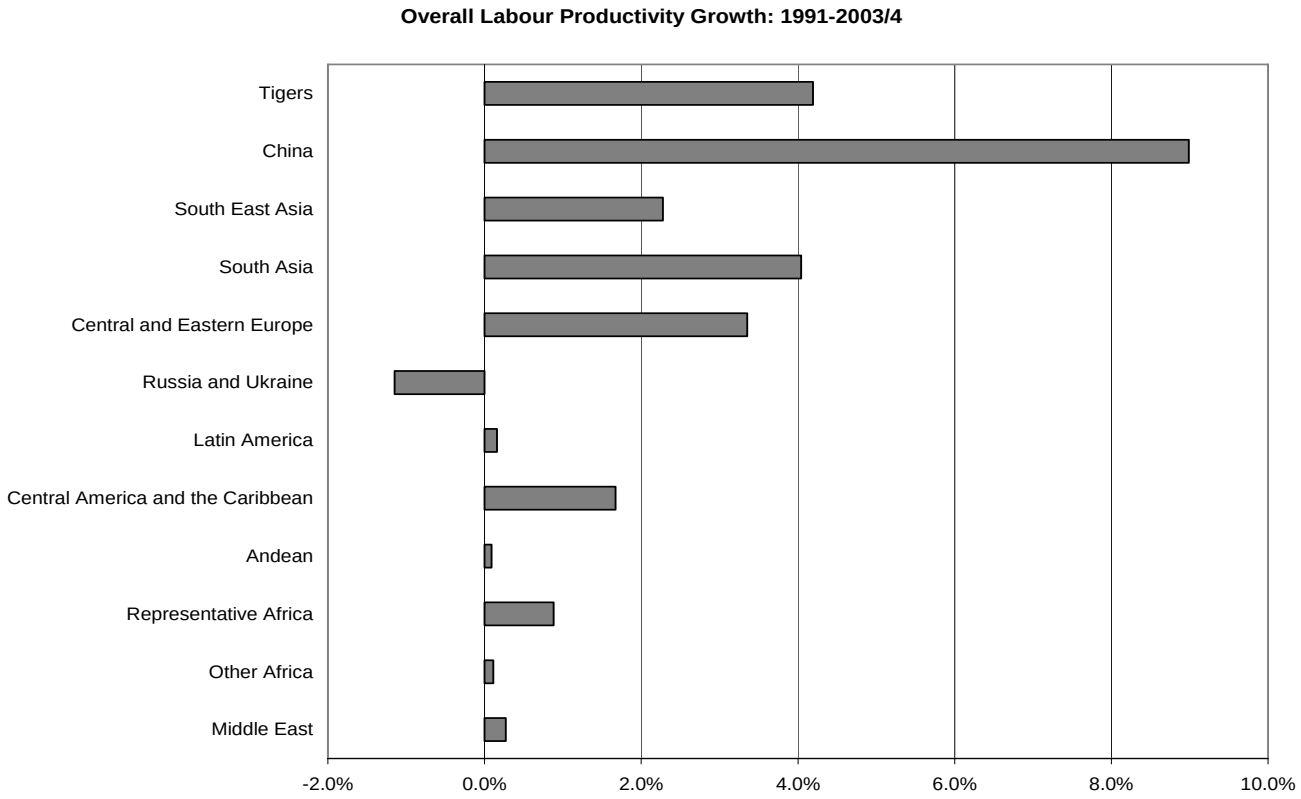


Figure 8: Overall productivity growth

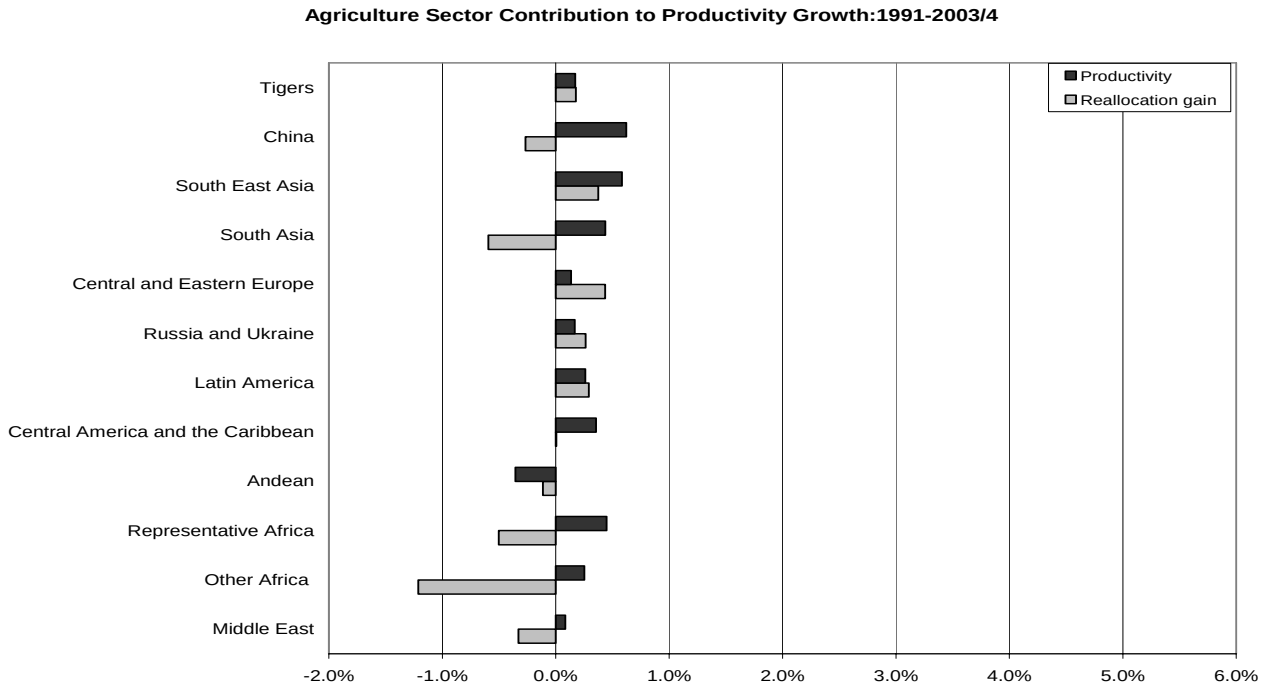


Figure 9: Contribution of agriculture sector to productivity growth

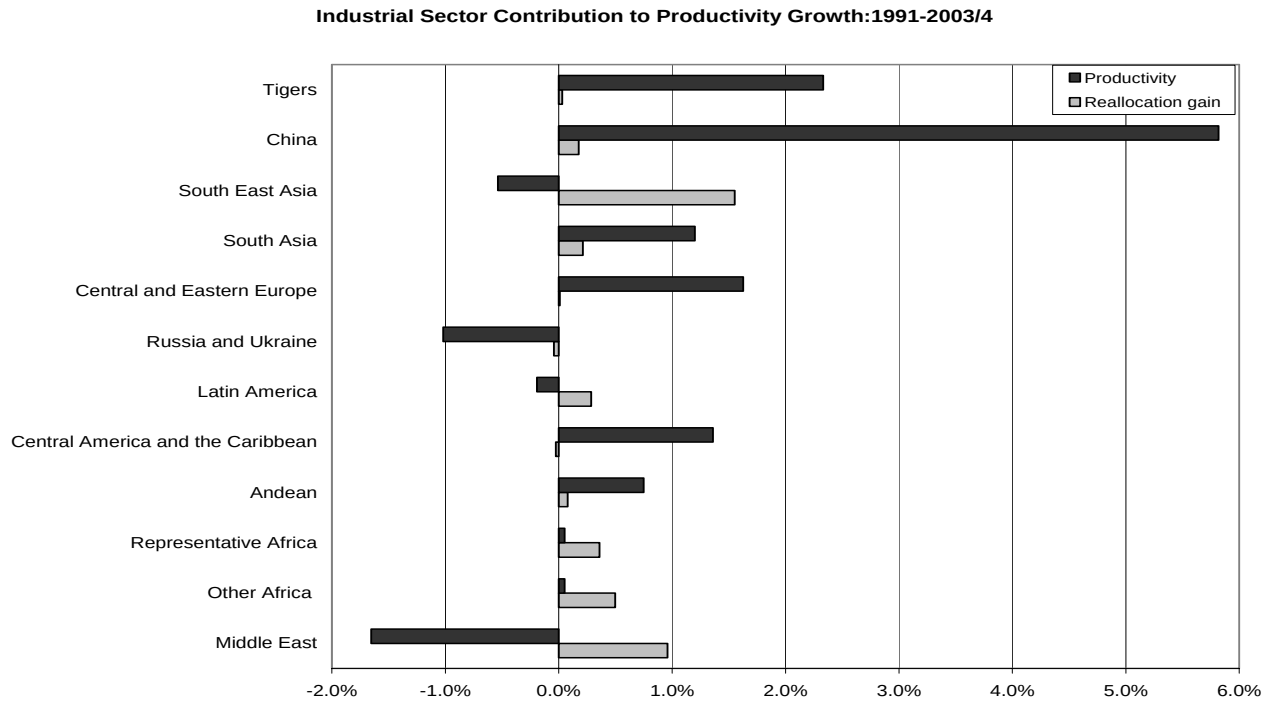


Figure 10: Contribution of industrial sector to productivity growth

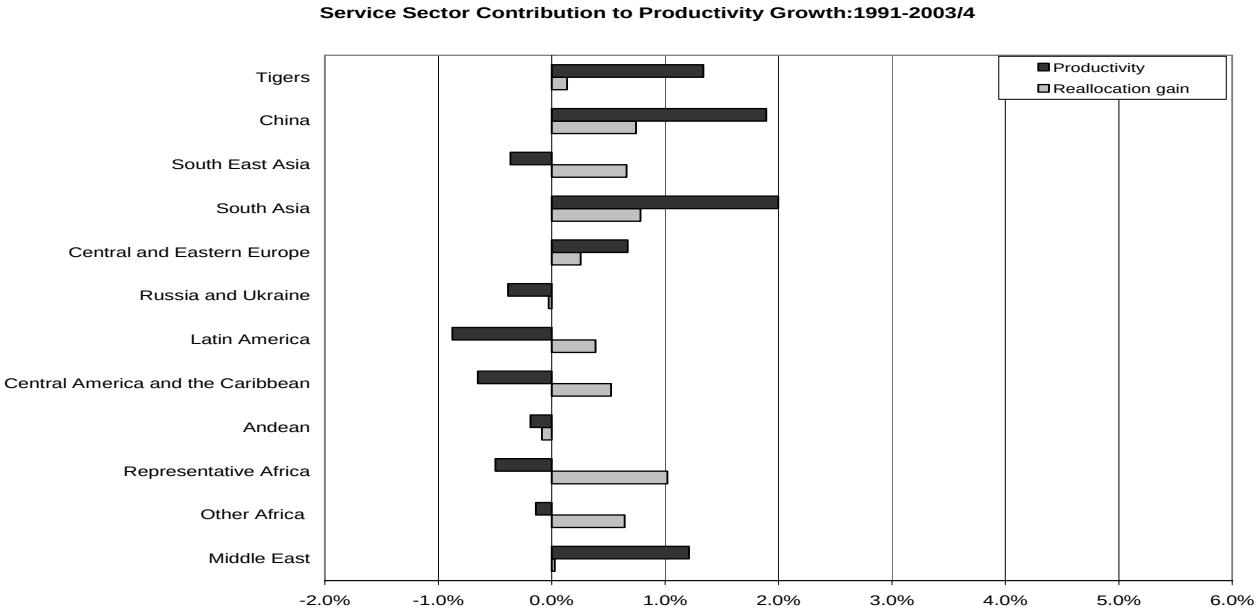


Figure 11: Contribution of service sector to productivity growth
Sources for Figures 8-11 and 13: International Labour Office, GET database, for employment and World Bank, World Development Indicators 2005 database, for output.

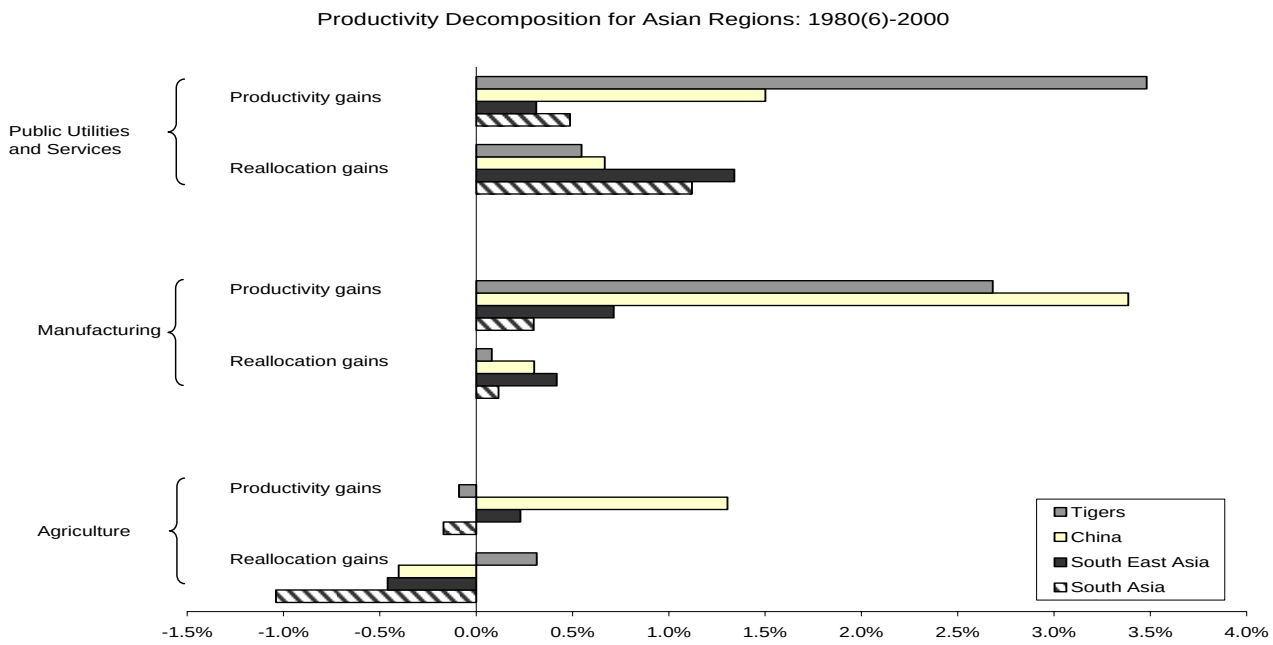


Figure 12: Productivity decomposition for selected Asian regions
Source: Employment data is from the International Centre for the Study of East Asian Development http://www.icsead.or.jp. Data for sectoral output is from UN National Accounts database.

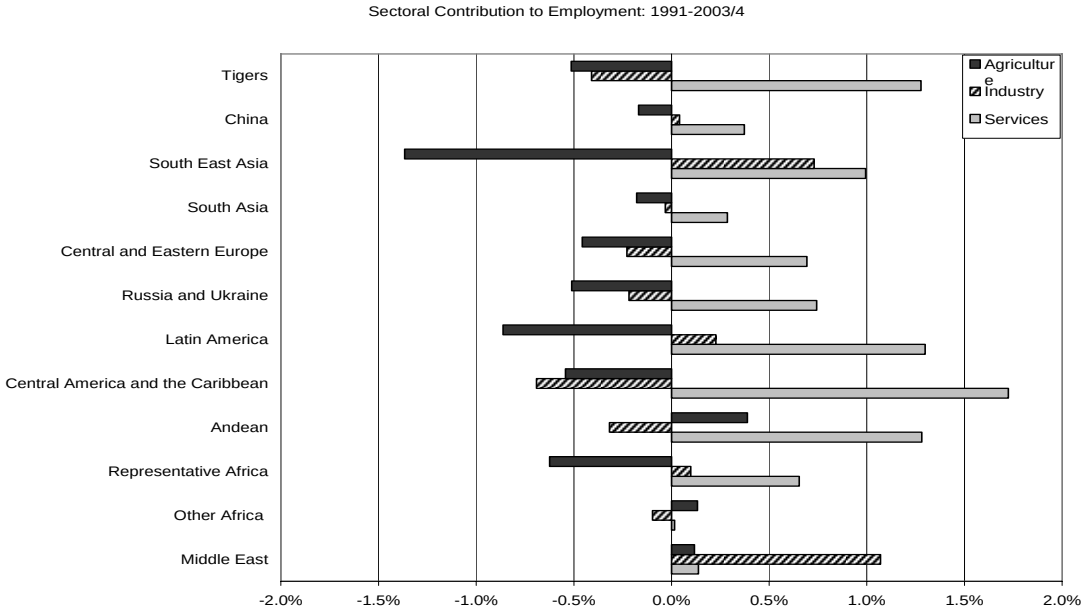


Figure 13: Sectoral shifts in employment/population ratios.

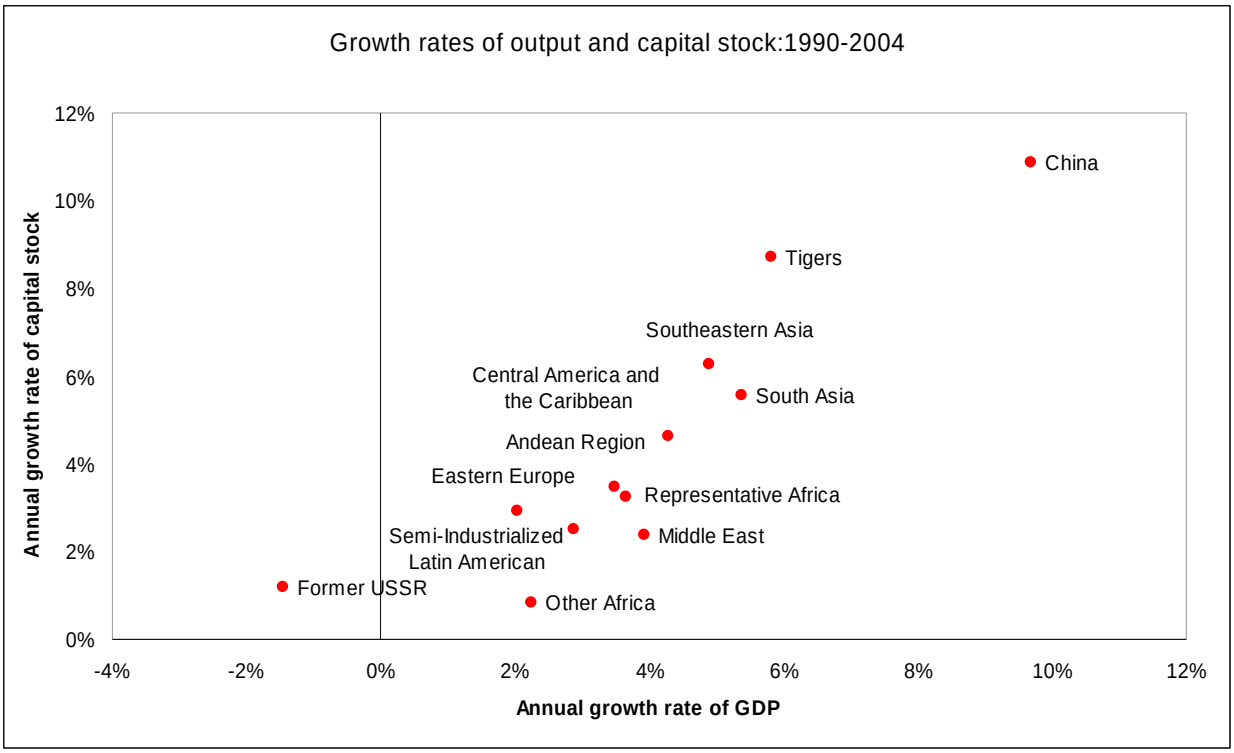
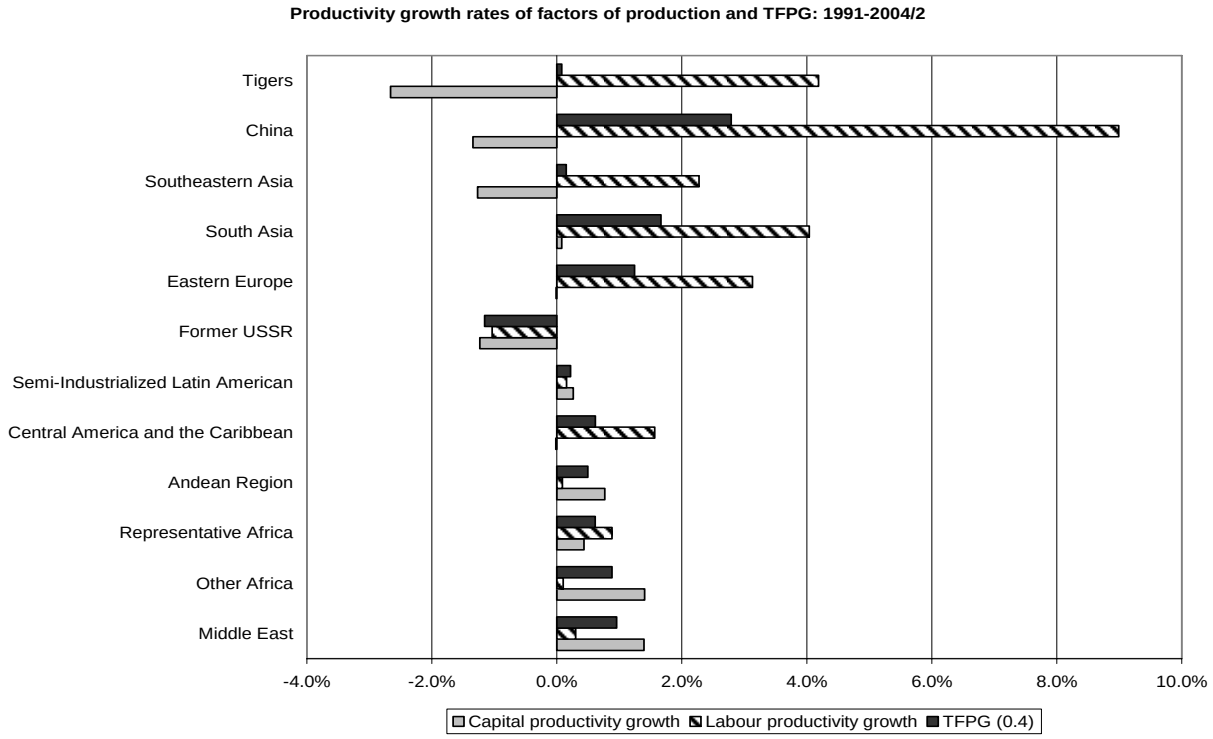


Figure 14: Output and capital stock growth rates, 1990-2004



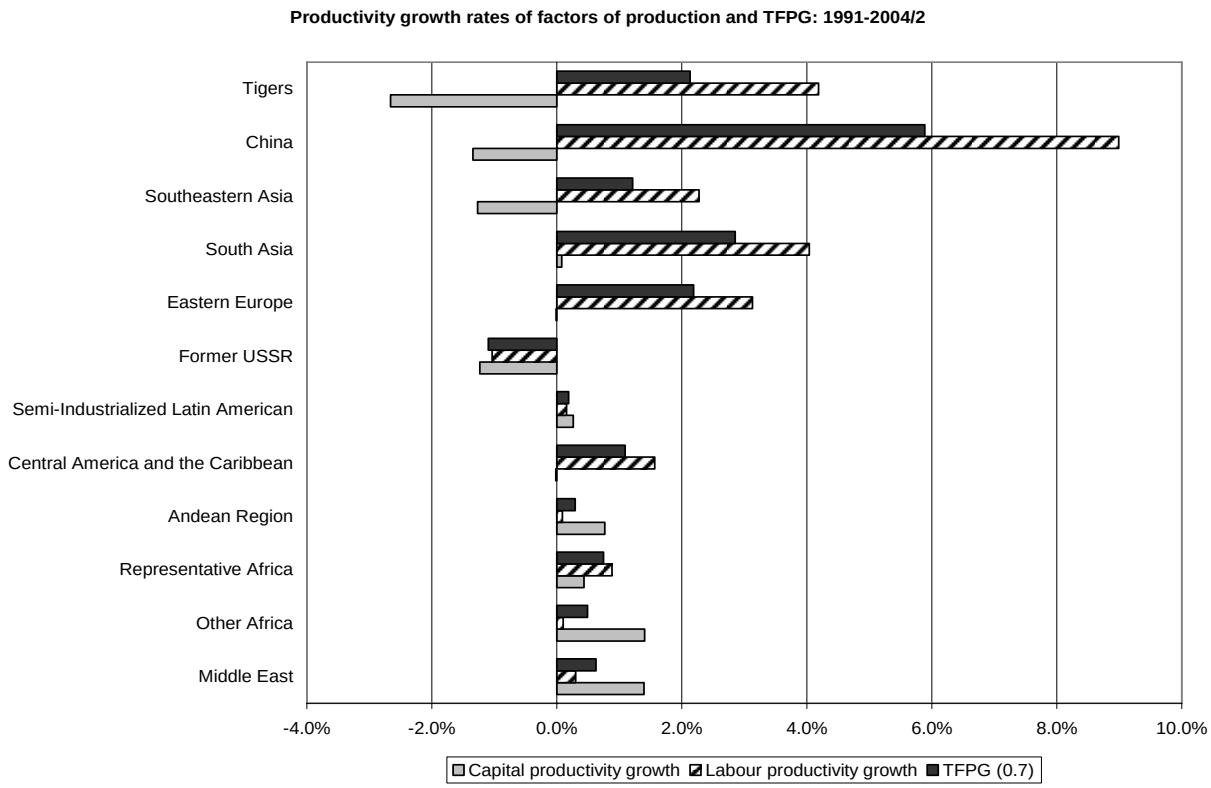


Figure 15: Capital and labor productivity growth rates and TFPG.
Sources: GFCF and GDP data comes from World Development Indicators 2005 database; employment data is from International Labour Office, GET database

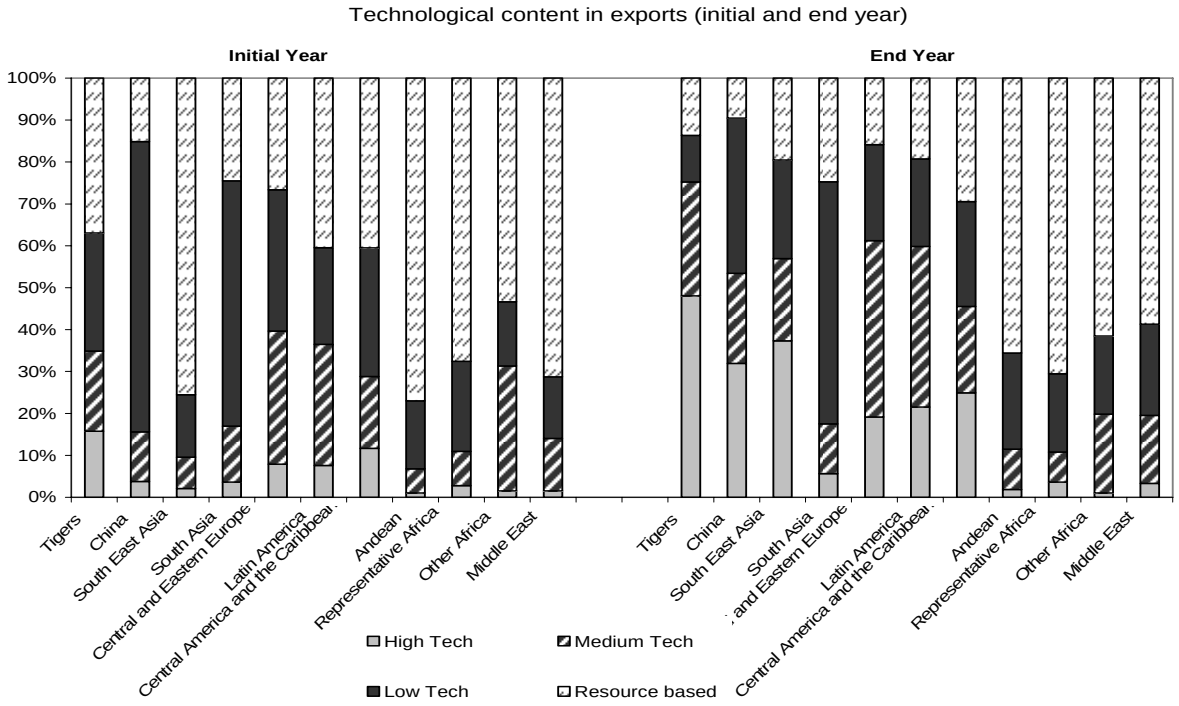


Figure 16: Technological content in exports (years vary for different regions)
Source: COMTRADE database.

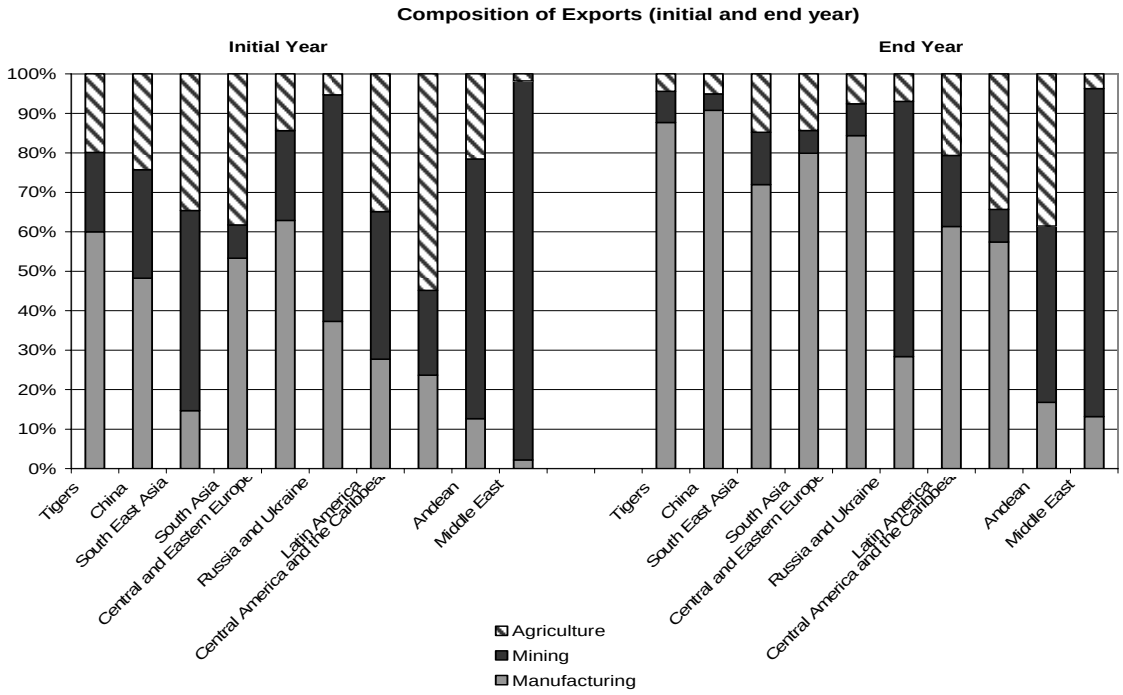


Figure 17: Composition of exports by commodity

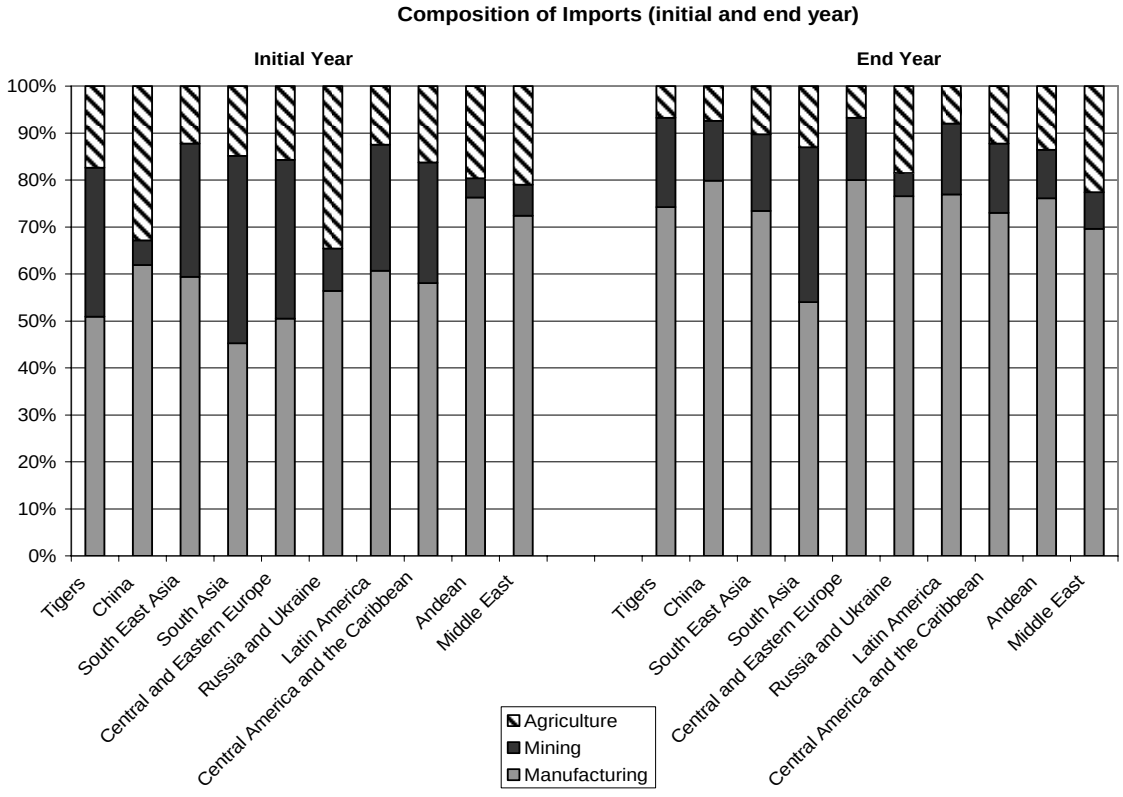


Figure 18: Composition of imports by commodity
Source: Data for figures 19-20 is from World Trade Organization database.

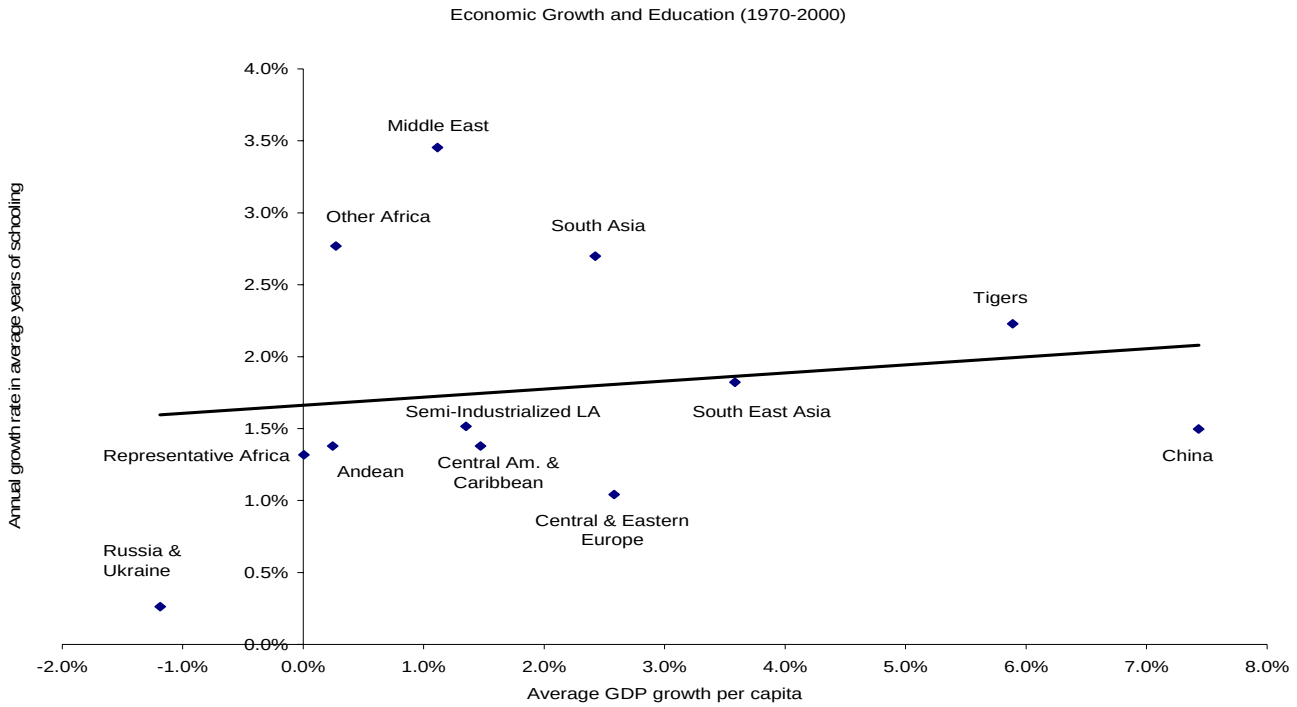


Figure 19: Economic growth and educational improvements
Sources: Data on education is from Barro and Lee (2000) http://www.cid.harvard.edu/ciddata/ciddata.html; data on growth rates of GDP per capita is from UN National Accounts.

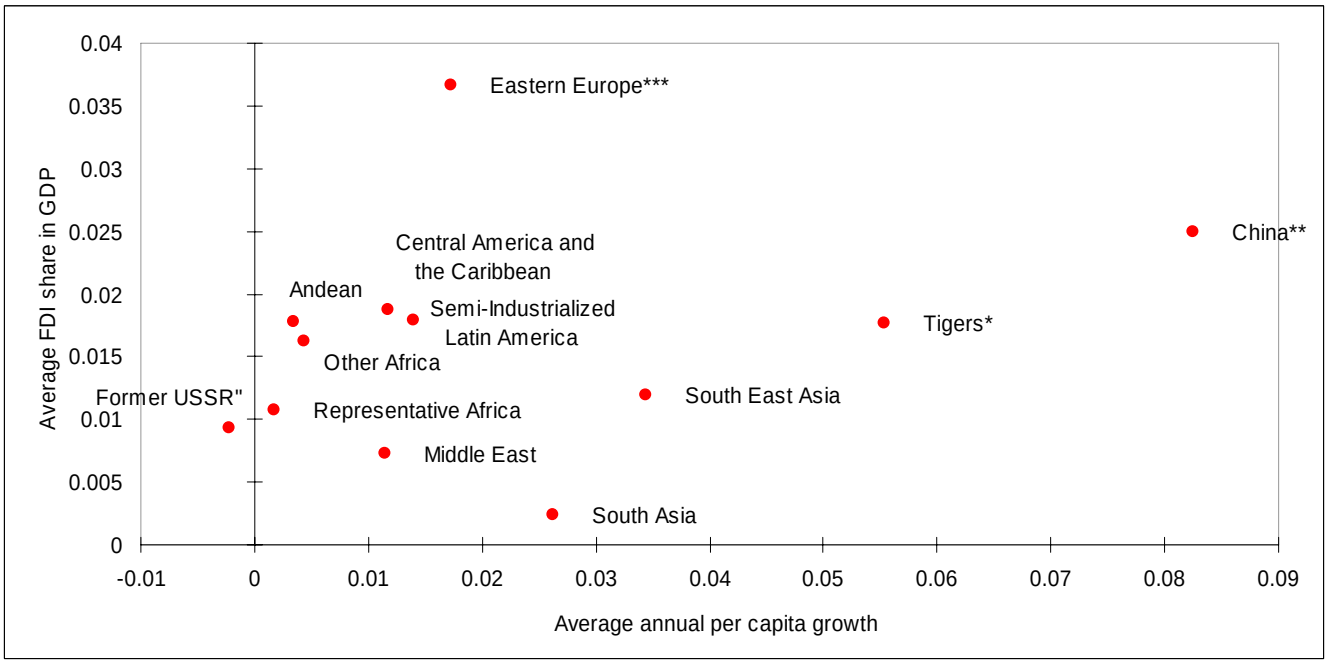
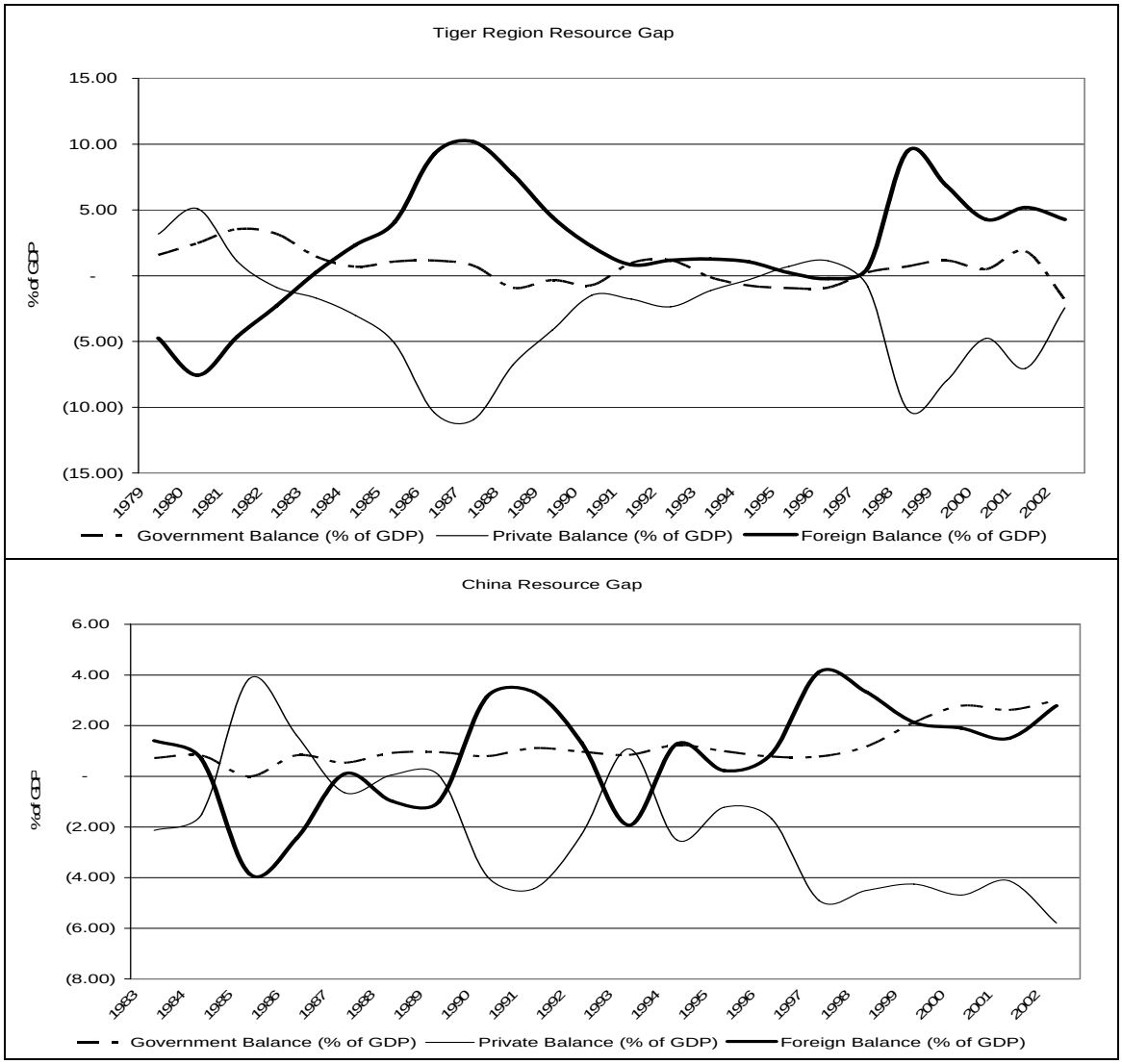


Figure 20: Economic growth and foreign direct investment
Source: UNCTAD Handbook of statistics, 2005.



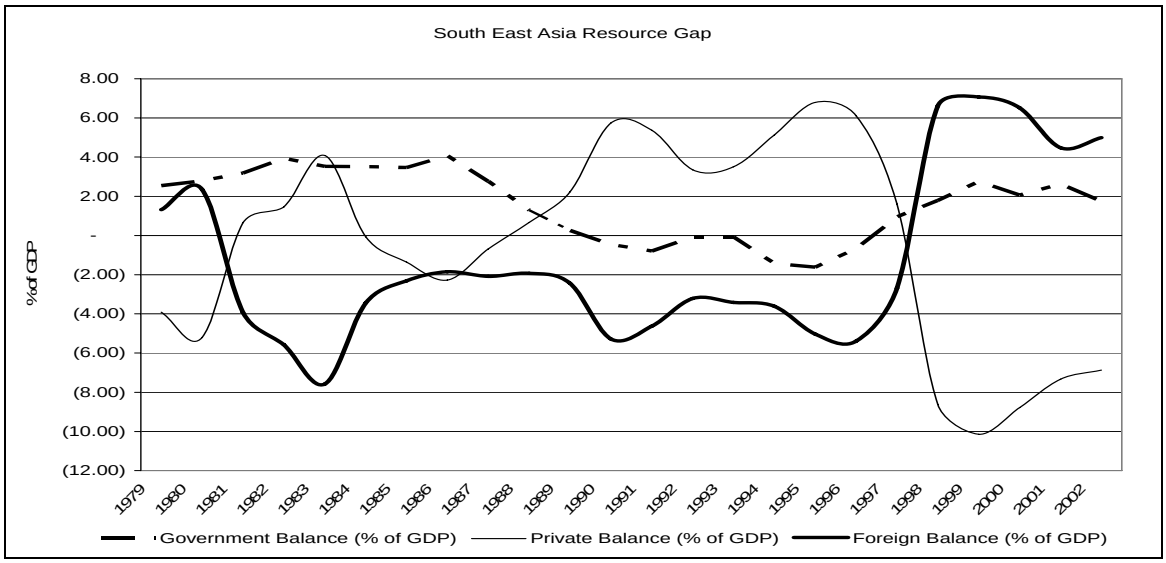
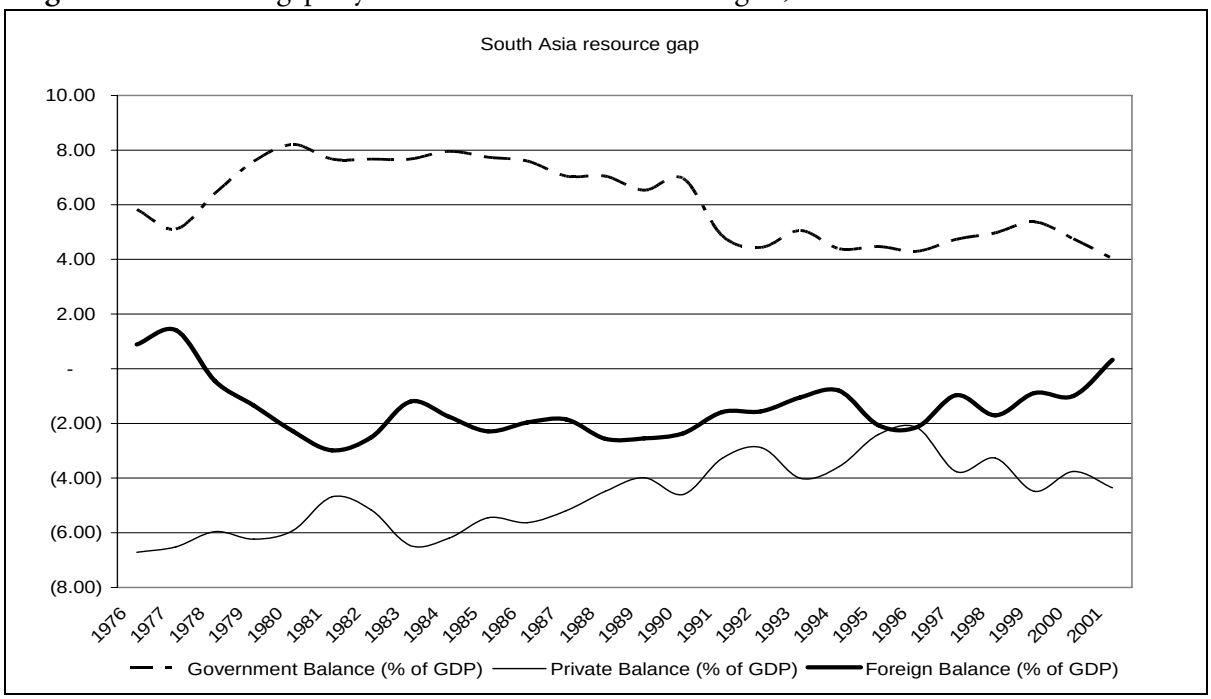


Figure 21: Resource gaps by institutional sectors in the Tigers, China and South East Asia



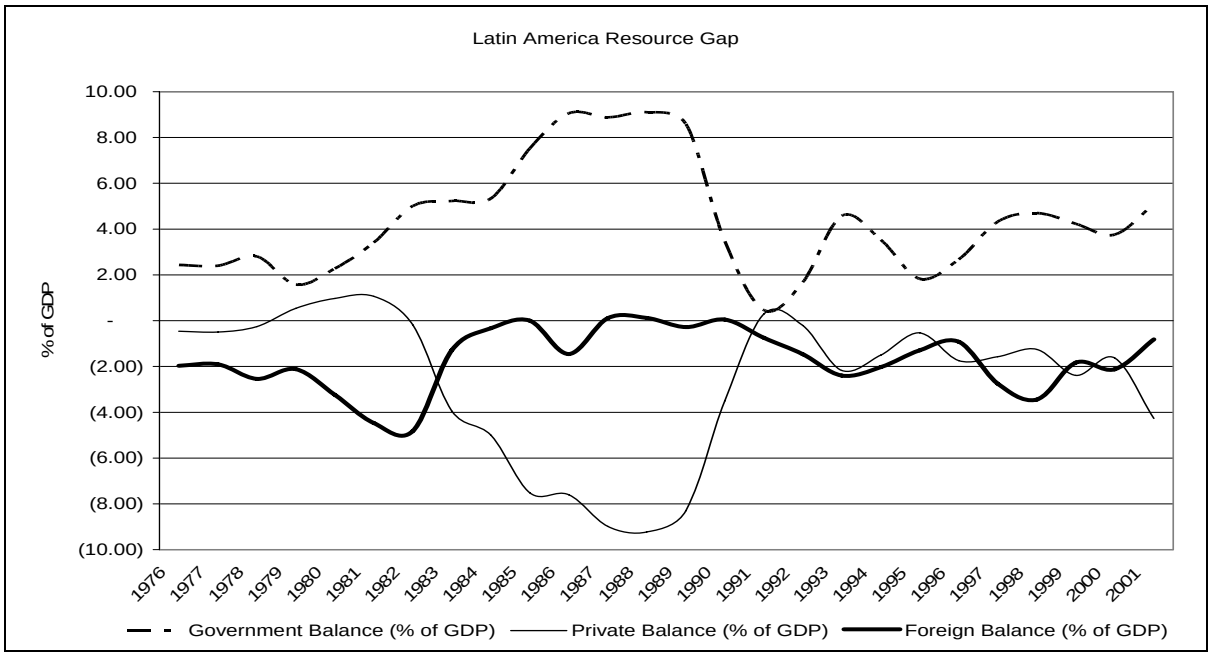


Figure 22: Resource gaps by institutional sectors in South Asia and semi-industrialized Latin America

Figure 23: Resource gaps by institutional sectors in Central and Eastern Europe, Central America and the Caribbean, Andean region and Representative Africa

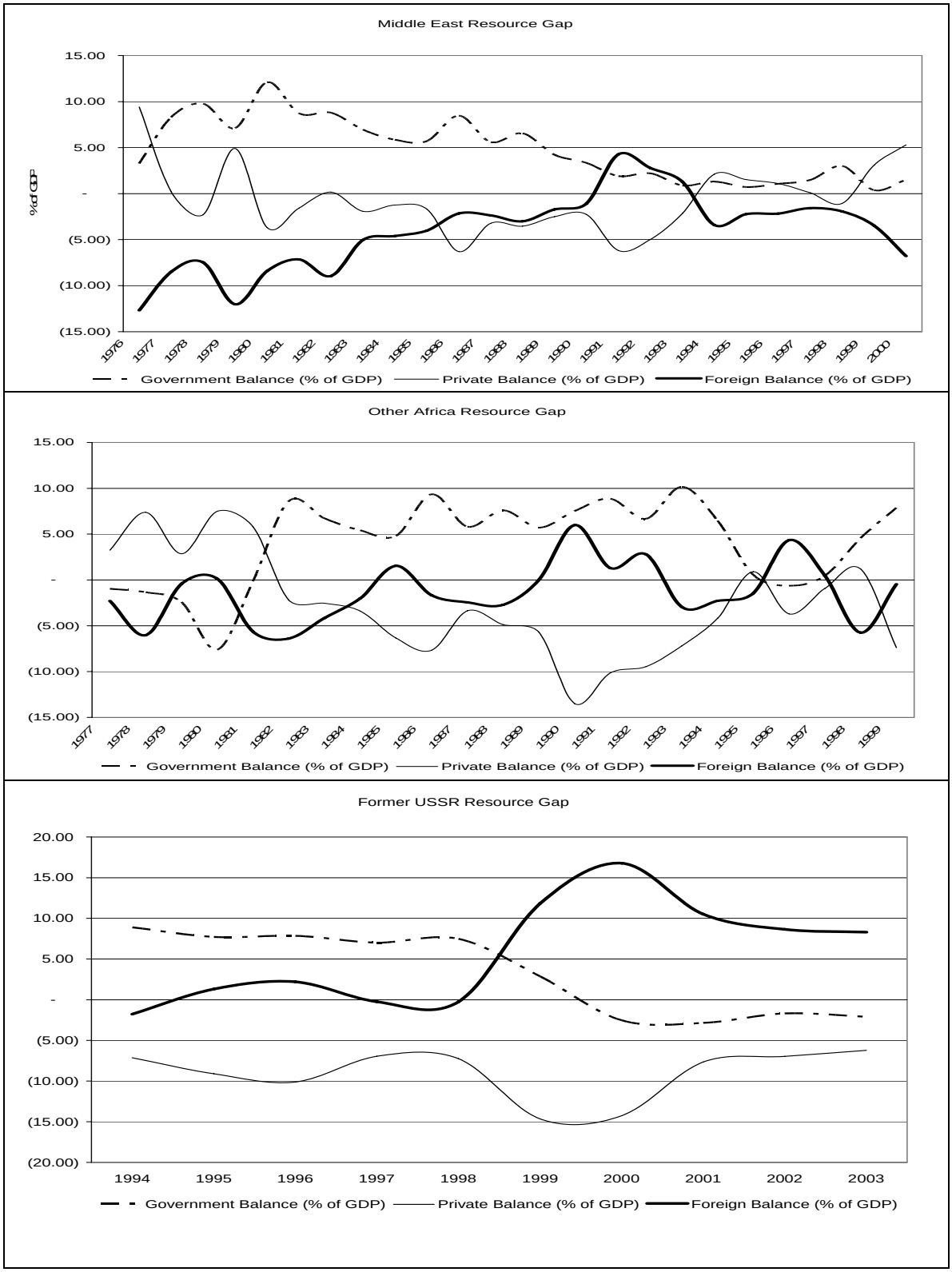


Figure 24: Resource gaps by institutional sectors in the Middle East, Other Africa and Former USSR
Source to figures 19-22: United Nations Common Database