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Role of economists in policy-making

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Abstract: This paper reviews the many areas in which economists play an important role in policy-making, including the quantification of objectives set by political processes, formulation of macroeconomic policy where economists have a dominating role, and also the formulation of sectoral policy where they work in combination with sector experts. It emphasizes that economics is not a sufficiently precise science to ensure that there is wide agreement among economists on all aspects of economic analysis but an articulation of these differences helps policy makers and the public to make more informed decisions. It also highlights the importance of independent review of the effectiveness of policy programmes as an essential support for policy-making.

Keywords: multi-dimensional objectives, macro policy, sectoral policy

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1 Introduction

> Practical men who believe themselves to be quite exempt from intellectual influence are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back (John Maynard Keynes 1936).

The well-known quotation from Keynes reproduced above paints an unflattering picture of the role of economists and indeed, of the policy makers they advise. It may seem particularly relevant today given the highly dysfunctional state of economic policy both at a global level and in many countries, but the situation today is actually quite different because the quotation seems to imply that the problem arises because politicians are being advised by defunct economists of yesteryear. The crisis of economic policy today is that contemporary economists of great individual distinction differ sharply on many critical issues of policy.

Witness for example the unresolved debate on whether a fiscal stimulus is a good way of restarting growth in industrialized countries today. Nobel Laureates, Paul Krugman and Joe Stiglitz, both argue that a fiscal stimulus is the best way out for a world facing a clear deficiency of aggregate demand, with actual output significantly below potential and unemployment at very high levels. This view is vociferously opposed by others. Advocates of austerity, dubbed 'Austerians' by Paul Krugman, argue that given the sharp increase in debt/GDP ratios following the financial crisis, increasing the fiscal deficit will lead to a further weakening of confidence, whereas more austerity now will create confidence that fiscal imbalances are being addressed and thereby lead to a sustained revival of growth, albeit with a lag. Some argue against fiscal stimulus on the grounds that the expansionary impact will simply leak out in the form of imports, which is another way of saying that in an open economy a fiscal stimulus must be coordinated with other countries to yield results. Yet others take a more fundamentalist view and invoke Ricardian equivalence, which holds that the higher deficit will generate expectations of higher taxes in future when the deficit is sought to be reduced, and private consumers will curtail current consumption in anticipation of lower disposable incomes in future.

Politicians are not necessarily confused by the fact that economists of indisputable distinction take very different positions on crucial policy issues. Instead, they realize that they can always find a contemporary economist who will provide an economic justification for whatever position they are predisposed towards or which seems politically most attractive. This highlights an important difference between economics and technical subjects such as engineering, where there is usually a very wide professional agreement about what will work, with some scope at the margin for doing things a little differently. Economists may seem similar to engineers because they conceptualize the economy as a system of quantifiable behavioural relationships, which interact with each other to produce some equilibrium result, and policy interventions are then modelled as influencing some elements in the system to shift it to a new equilibrium. However, the underlying relationships that economists build into their models are much less precisely known than in engineering. These relationships are subject to many influences the relative impact of which is not well known, and some of which are often even excluded from consideration in order to simplify the analysis. The net result is that judgements about how the system will respond to a particular policy intervention can differ greatly, depending on the particular simplifications that have been built into the system. Since different economists choose very different simplifications, it should not surprise us that they can come to very different conclusions.

This working paper reviews different aspects of the role of economists in practical policy-making keeping in mind the limitations mentioned above. Section 2 discusses the role of economists in defining the social goals that economic policy must pursue. Section 3 presents an assessment of the role of economists in formulating macro-level policies affecting the economy as a whole. Section 4 deals with their role in sector-level policies. Section 5 deals with some miscellaneous factors that are also relevant in defining the role of economists.

2 Defining the objectives of policy

The first stage in policy-making is to determine the social objectives to be pursued. These have to come from a political process reflecting the system within which government works. In an open democratic system, it is likely to involve many participants, including governments, political parties, and politicians; representatives of economic interests such as farmers, business, labour, and consumers; social leaders, including NGOs, intellectuals, and the media. Economists have no special competence in determining what the objectives should be, but they can help in translating the objectives into a more operational form.

Social objectives emerging from political processes are often expressed in broad qualitative terms, such as 'achieving a broad based improvement in living standards of the population', 'giving each individual and social group an equal opportunity to improve their material conditions', 'ensuring a minimum level of living for all within a specified time frame', or 'assuring every child access to good quality education'. The Sustainable Development Goals (SDGs), which were approved by the UN General Assembly in September 2015, are similarly broad. SDG No 3 for example talks of 'ensuring healthy lives and promoting well-being for all at all ages' (UNDP 2015) and SDG No 8 talks of promoting 'sustained inclusive and sustainable economic growth, full and productive employment and decent work for all' (UNDP 2015). These broad formulations have to be translated into a set of measurable and monitorable targets that are precise enough to design policies that will achieve these objectives. Economists have a big role to play in this process.

In the early years, GDP growth was widely accepted as a summary measure of development, and it was assumed that rapid growth of GDP would lead to a broad-based improvement in the living standards of the population. Over time, it became clear that this might not happen if the income generated is not distributed sufficiently equitably. This led to multi-dimensional definitions of goals to include various aspects of inclusiveness, notably the elimination of poverty, and subsequently a fairer distributional outcome, and more recently, protection from environmental degradation. Some of the problems in defining meaningful and quantifiable indicators that reflect the new goals, in which economists can play useful roles, are discussed below.

2.1 Absolute poverty

Poverty elimination is an important national target in many developing countries and is enshrined as Goal No 1 of the 17 SDGs, which states: 'End poverty in all its forms everywhere' (UNDP 2015). The extent of poverty is normally defined in terms of the number or percentage of the population below a fixed poverty line, but there are numerous problems with this approach. Any fixed poverty line is inherently arbitrary based on some notion of an objectively designed minimum level of living. Even if agreement can be reached at any given time on what this level should be, it is relevant to ask whether the poverty line should increase over time as incomes and consumption levels in the economy increase and this could easily be done by setting the poverty line at a fixed percentage of average income or consumption.

While this helps to generate a suitably dynamic measure of poverty, it takes into account the need to revise poverty lines as incomes rise. There is also a broad consensus that poverty should not be defined solely on the basis of monetary values of income or consumption, but should also include access to essential services, such as education, basic health services, clean drinking water, and sanitation, which should normally be provided by the local government either free or at heavily subsidized rates. Lack of access to such services can mean that a household is effectively poor even if its income is above the level needed to purchase the bundle of goods that defines the poverty level.[1] It is also possible to use multiple indicators of poverty, some of which may be objective measures of outcomes as proposed by Sabire et al. (2014). Whatever the method chosen, economists can help to define an agreed upon metric by which the extent of poverty can be measured and which can then be used to measure progress.

2.2 Inequality

Governments seeking broad social support—whether they operate in a democratic or other political environment—would be well advised to ensure that their policies are not only seen as delivering benefits to the poor, but are also seen to be fair by a large majority. Any conception of fairness must include concern about relative inequality. Goal No 10 of the SDGs talks of 'reducing inequality within and among countries' (UNDP 2015) as a commitment to be undertaken by all countries.

Setting objectives in terms of reducing inequality implies the need to adopt acceptable measures of inequality. There are many candidates to choose from and economists can help in this area. The Gini coefficient and the Theil index, which measure inequality across the entire range of the distribution, are the best-known measures of overall inequality. There is also the Palma ratio, usually defined as the ratio of the share of the top 10 per cent to the bottom 40 per cent but other percentages could be chosen for both ends. This measure focuses not on the overall level of inequality but on the difference between the top and the bottom, which is more easily understood by the general populace. However, what percentages we should focus on is a matter of choice. In the United States (US) in recent years, attention has focused on the income share of the top 1 per cent, or even the top one-tenth of 1 per cent, on the grounds that excessive concentration of income at the very top is both morally and socially objectionable. It can be argued that it is also politically dangerous since it allows capture of the political system by the very wealthy, with the danger of discrediting the system itself.

2.3 Inequality and growth

Changes in income inequality over time cannot be viewed independently of what is happening to the growth of incomes at different levels of the distribution. An increase in inequality, which occurs in an environment in which real incomes at the lower levels are rising faster than earlier, but incomes at higher levels are rising even faster, may be socially acceptable but the same increase in inequality may be unacceptable if incomes at the lower levels are not growing, or even falling. The recent concern about rising inequality in the US has some aspects of this phenomenon because inequality has been increasing steadily for the past 25 years, but a strong negative reaction surfaced only after the 2008 crisis, when overall growth collapsed and unemployment increased sharply.

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[1] Without adequate access to such services, the household either is deprived of an essential part of a minimum standard of living, or may be forced to resort to the market to supply them, as for example resorting to high priced private health care, or private education. These expenditures obviously make the income of the household insufficient to purchase all the elements in the minimum consumption bundle, effectively pushing the household below the poverty line.

2.4 Social mobility

Static measures of inequality at a point in time, such as the Gini coefficient or the Theil index, do not tell us about the extent of social mobility in the system in terms of the extent of movement by successive generations across the income spectrum. Yet this is clearly relevant from a fairness perspective because any given level of inequality in the system may be more acceptable if it is accompanied by a larger degree of social mobility so that the children of those in the lower income levels today have a larger chance of moving up the ladder based on their merits. One can readily believe that a system that generates a little more inequality today, but displays much greater social mobility over time, might actually be preferred over a system that generates lower inequality today, but with little social mobility. Unfortunately, the data available in most countries do not allow reliable measures of social mobility across income classes to be constructed. Economists should focus attention on this critical dimension and generate pressure to collect data on a panel basis that could help throw light on this critical issue.

2.5 Other dimensions of inequality

Fairness considerations also direct attention to issues of inequality going beyond interpersonal inequality to inequality across regions, inequality between urban and rural areas, inequality between distinct socially disadvantaged groups, and gender inequality. Each of these can become a politically charged issue, especially in a democratic environment and it follows that governments cannot be indifferent to them.

2.6 Environmental sustainability

A country may achieve higher levels of GDP as conventionally measured, and the income generated may also be relatively fairly distributed, but this may not represent a commensurate welfare gain if it also has a large negative effect on the environment. We know that expansion of GDP can generate environmental stress in many ways, including deforestation, encroachment on natural water bodies, air and water pollution, poorly managed municipal waste, etc. The costs imposed by these negative impacts are neglected in the calculation of GDP, as is the fact that they have strong distributional consequences, since the costs are borne disproportionally by the poor. In the case of air pollution for example, the impact is often greater in low-income areas and it is particularly severe on young children since exposure to a polluted atmosphere in early childhood does permanent damage. There are also longer-term costs, such as loss of forest cover that reduces the rate of recharge of ground water, which actually lowers agricultural GDP itself over time.

Accumulation of CO2 in the atmosphere leading to climate change is another example of a negative externality that is likely to have highly damaging effects in the future on both GDP and health. Available evidence also suggests that poorer countries will be the worst affected. For all these reasons it is important to track what is happening to environmental sustainability in order to build environmental protection concerns into the development strategy.

2.7 Dealing with multiple indices

The brief review above establishes that governments will typically have a multiplicity of social objectives, which can be expressed in a suitable index measuring progress in that particular dimension. Economists have an important role to play in helping define an operational framework in which these multiple social objectives, and their possible conflicts, can be understood.

An obvious problem is that the multiplicity of goals and indices could lead to very different conclusions on what is happening, with progress in some dimensions and regress in others. For example, it is perfectly possible for income poverty to be reduced with relatively little improvement in poverty measured in terms of access to essential public services. Equally, there could be progress in both dimensions while the Gini coefficient, which is a measure of overall inequality, shows a worsening of inequality. Furthermore, the extent of the deterioration in inequality may look much worse if we look at the income share accruing for the top 1 per cent. Moreover, it is possible for all income-related measures to show an improvement, but for gender equality or regional equality to be unaffected. Movements in various sustainability indicators may also give different signals. The conventional economist's solution to this problem would be to recommend that it be handled by giving weights to different objectives, thereby enabling the construction of some composite index of social welfare. However appealing in theory, this may not be a workable approach in practice as agreeing on relative weights is extremely difficult.[2]

The best we can expect is that economists can help to define a set of measurable indicators reflecting various aspects of inclusiveness and sustainability, taking into account availability of data on these indicators, and the scope for improving data availability over time. We could then set targets for each of these indicators and hope that they would be accepted by different stakeholders as representing significant improvement in each dimension. India's Twelfth Plan covering 2012-13 to 2016-17, which was subtitled 'Faster, More Inclusive and Sustainable Growth' (Planning Commission 2013), adopted this approach. Instead of focusing on a target growth of GDP, it identified targets for 25 different indicators of which the growth rate of GDP was only one. The indicators adopted and the targets for each are listed in the Annex.

This is also the approach followed in the case of the SDGs. There are 17 SDGs broadly defined (UNDP 2015), which are further broken down into a number of targets. These targets are expected to be elaborated into 169 quantitative indicators for which target levels of achievement can be set. Targets can be set globally and for individual countries. Even if we cannot aggregate all these indices into a single composite index, we would at least be able to see whether substantial progress has been made across a wide range of indicators, though it leaves open the question of how much progress would qualify as being commendable. A potentially beneficial outcome of this approach is that it focuses attention on what can be achieved within a limited horizon and with the existing resource constraints, which might help in prioritizing government action to focus on the most important objectives.

3 Macroeconomic policy-making

Once objectives have been set, policies have to be put in place that can achieve these objectives and this requires an analytical understanding of how the economy works and how it will respond to different types of interventions. Some of these policies operate at the macro-level and others at the sectoral level. Macroeconomic policy-making is the area where economists have carved a dominant position for themselves. They also have a role in sectoral policies, which are discussed in the next section, but in those, they are not necessarily dominant players, as they have to compete with sector experts.

[2] Many stakeholders concerned about a particular issue are unwilling to accept the notion that there are unavoidable trade-offs between different objectives in the sense that one can always do more in one dimension at the expense of doing less in another. They prefer the establishment of targets, which do not allow for any trade-offs but this is also impractical because in a world of scarce resources, some trade-offs are unavoidable.

Policy analysis at the macro-level is usually based on a set of quantitative projections of how the economy is likely to evolve in the short to medium term, taking into account the likely developments in the world economy and domestic constraints. These projections are usually based on some formal macroeconomic models but a great deal of judgement is also used to modify model results. These exercises can throw light on whether macroeconomic projections that would meet social objectives are consistent with known constraints in vital areas. For example, is the investment level projected consistent with the domestic savings capacity and net availability of foreign inflows? Similarly, will the likely growth in exports combined with the expected growth in imports generate a balance of payments deficit that can be financed by the likely levels of capital flows? Is the medium-term growth of GDP on which the achievement of many social objectives depends, consistent with the supply side assessment of potential growth, which typically decomposes potential growth of GDP into the contribution from the growth of capital, the contribution from labour, and most importantly the likely growth in total factor productivity? If these consistency checks reveal serious imbalances, they must lead either to a revision of growth ambitions, or to the identification of specific policy interventions that will help achieve balance.

Identifying the policy changes that are needed to achieve the stated objectives and persuading policy makers to implement them is a major role that economists can play. We illustrate the problem first in the context of short-term macro-stability and then in the context of longer-term growth prospects. On all the issues, there can be considerable differences of view, but an articulation of these differences among economists of different persuasions can at least help clarify the position for policy makers and thereby generate more informed decision-making.

3.1 Short-term macroeconomic stability

Macroeconomic stability is a prerequisite for achieving any longer-term objective for the simple reason that instability will disrupt investment, generate negative expectations, and throw an economy off course, making longer-term objectives impossible to achieve. Macroeconomic stability encompasses internal stability, which usually means a fiscal balance that is reasonable and a monetary policy consistent with low levels of inflation, and external stability, which usually means a current account deficit that can be financed by stable, long-term flows. Some of the policy issues that arise, and the controversies associated with them, which policy makers have to navigate, are discussed below.

The **size of the fiscal deficit** is important for two somewhat different reasons. The first is that it is a measure of resources pre-empted by the public sector, possibly crowding out private investment and reducing growth. The second is because fiscal deficits add to the total public debt, which can raise concerns about debt sustainability, which in turn can lead to a loss of confidence. Both aspects are relevant and governments have to ensure that the fiscal deficit is seen to be reasonable on both counts.

There is no rigid formula to determine the level of the fiscal deficit that is appropriate in any particular case. In an environment where private investment is otherwise buoyant, a high fiscal deficit may well be crowding out some private investment in the sense that reducing the deficit will lead to an increase in private investment. However, the social benefit of that outcome depends upon how the fiscal deficit is reduced. If it is reduced by cutting wasteful and untargeted subsidies, as a result of which private investment expands, the economy may actually be better off. However, if the deficit is reduced by cutting public investment, the outcome depends upon whether the public investment foregone is more productive than the private investment crowded in. If the cut in public investment reduces investment in infrastructure, and the private investment that is now crowded in takes the form of speculative investment in real estate

development, the economy may be worse off, since infrastructure is a key constraint in most developing economies holding back private investment. Paradoxically, a policy of cutting investment in infrastructure to control the deficit and reduce crowding out, may actually crowd out private investment to a much greater degree over the longer term.

If on the other hand the fiscal deficit is reduced through an increase in tax revenues, the net effect may be favourable, provided the increased tax revenues are not achieved by the imposition of distortionary taxes or taxes that are seen as discouraging investment. Reductions in the fiscal deficit achieved by reducing expenditures in the social sectors, especially health and education, or in well targeted subsidies that are otherwise socially justifiable, may undermine the objective of inclusiveness and possibly also the longer-term prospects of growth itself. A key role that economists can play is to ensure that when deficits have to be cut—and there are circumstances where they do have to be cut—the cut is achieved in the least damaging way possible.

If the cut in the deficit is less than the market has come to expect, because of the need to avoid damaging cuts, the logic underlying the government's decision needs to be well explained, both to the public and to international investors and rating agencies. A smaller cut in the deficit in the interest of a better quality of the deficit could be acceptable if the reasons are properly explained and especially if the fiscal trajectory over the medium term is seen to be satisfactory. This was a critical issue in the industrialized economies in the post-crisis years. Many economists argued that if the return to fiscal consolidation after 2009 had been more gradual, while ensuring credibility about the medium-term fiscal trajectory, it might have led to a less prolonged slowdown, especially if the fiscal space had been used to undertake much needed investment in infrastructure.

Part of the problem is that public perceptions about the fiscal deficit are based on simplistic notions propounded by financial journalists. There is need for greater understanding that the fiscal deficit is not a policy instrument that the government sets directly. It sets tax rates and makes plans for discretionary expenditure and these decisions are calibrated to achieve a target fiscal deficit. However, the fiscal deficit that is actually realized is an endogenous outcome, dependent on the growth of the economy and the growth of tax revenues. An exogenous shock, such as a fall in export demand, could lead to lower growth, lower revenues, and the fiscal deficit as a percentage of GDP could end up much higher than targeted. It is not clear that in such a situation, the government should respond by cutting expenditure, or even raising taxes, to bring the deficit back on target, as this would only exacerbate the contractionary effect of lower export demand.

Industrialized countries have automatic stabilizers in the form of social security payments that come into play in a cyclical downturn, creating countercyclical increases in expenditure. There is also a corresponding concept of a 'structurally adjusted fiscal deficit' that becomes the relevant basis for judging performance. This concept needs to be introduced in developing countries also, though to carry credibility, the concept must be symmetrically applied in good years and bad. In other words, if the fiscal deficit is to be allowed to exceed the original target in unexpectedly bad years, it must by the same token be brought lower than the target in unexpectedly good years. Ignoring the need for a contraction of the deficit in good years, but pushing for countercyclical expansion in bad years makes no sense.

In the absence of automatic stabilizers, if it is decided to counter a cyclical downturn by consciously expanding aggregate demand, a choice has to be made between doing this through higher capital investment through the budget, or through boosting consumer spending by lowering tax rates. Higher investment is usually a preferred alternative, especially if it takes the form of investment in infrastructure where most developing countries have large gaps to be

overcome. However, it takes a long time to turn on the expenditure tap in desired areas, because of the lags involved in preparing new projects or even in accelerating the pace of expenditure in existing projects. Economists have an important role to play in advising governments on these issues, including building a degree of flexibility to be able to expand expenditure on selected infrastructure projects when the opportunity arises.

Turning to debt sustainability, there can be no doubt that any government managing an economy open to capital flows, must convince investors that it is committed to ensuring that the debt/GDP ratio will not become unsustainable. As with the fiscal deficit, there is no rigid rule to determine what a sustainable debt-to-GDP ratio is and how strictly it should be maintained. It used to be said that since industrialized countries could sustain debt-to-GDP ratios of 60 per cent, and since developing countries were inherently weaker, their debt ratios should be closer to 40 per cent (though strictly speaking the terms of borrowing are also relevant). However, following the global financial crisis, industrialized country debt ratios shot up to 100 per cent and more, but no corresponding adjustment was made in the rule of thumb for developing countries.

India for example has a general government debt-to-GDP ratio of 67 per cent. This used to appear high but it now appears relatively modest compared to debt ratios in many industrialized economies after the crisis. India's fiscal deficit is much higher than most developing countries but it also has a relatively high growth rate (averaging 7.7 per cent over the last 12 years and widely expected to stay in that range) (IMF 2015). A high growth rate ensures that the debt/GDP ratio will fall even if the fiscal deficit is not reduced sharply. In other words, a higher than desirable fiscal deficit may be acceptable as long as the growth rate of the economy is high and not seen as being jeopardized by other developments, but it is useful to keep in mind that market expectations can change suddenly. Developing countries are particularly vulnerable to sudden changes in market confidence, at times for reasons unconnected with their own policies and quite often to a degree disproportionate with shortcomings in their policies that may arise. All this argues strongly for erring on the side of caution and not risking a loss of confidence.

Price stability is another important aspect of internal balance and one that resonates with politicians because inflation is usually a highly sensitive issue in most countries. There is much discussion in this context of the need for placing monetary policy in the hands of an independent central bank, which is also given an inflation target. Two distinct issues are involved here. The first, advocating an independent central bank, is almost certainly valid. An independent central bank can contribute to macroeconomic stability and be a source of independent advice to governments.

Whether inflation targeting by an independent central bank is a panacea for controlling inflation is more questionable, what is needed for achieving a moderate rate of inflation is for fiscal and monetary policy to work in tandem to achieve a combination of price stability and a good outcome on growth and employment. If a responsible fiscal policy cannot be assured, it is not clear that inflation targeting will produce a good outcome. Economists are likely to have different views on these issues for the reasons outlined earlier, but their active involvement, and even articulation of differences, will help promote a better understanding of the complexity of the issues involved and, hopefully, increase the probability of reaching better conclusions.

External stability is about ensuring that the balance of payments can be effectively managed within the constraints imposed by external financing available on a stable basis. When the current account deficit widens beyond the level of capital flows available, it puts pressure on the currency that shows up in a drain of reserves. A prolonged drain is an indication that the problem is not temporary, in which case corrective action becomes necessary. This would normally require a combination of demand compression, using both fiscal and monetary policy,

and a real exchange rate depreciation. Weakness in responding quickly in this area can soon lead to a loss of confidence, generate excessive currency volatility, and overshooting. Developing countries would be especially well advised to err on the side of caution in this area and take corrective action earlier rather than later. I am reminded of something I heard at the time of the East Asian crisis: 'confidence grows at the rate a coconut tree grows, but it falls at the rate a coconut falls' (see e.g. Smith 2010: 3). Economists can help alert policy makers to these dangers.

A somewhat different challenge arises when the current account deficit widens, but is supported by buoyant capital flows so the larger deficit is easily financed. Often, the widening of the deficit may itself be a consequence of a large capital inflow, which leads to inflation and a real exchange rate appreciation that, in turn, supports the widening of the current account deficit. If the larger capital flow represents a permanent increase in the level of capital flows, a real exchange rate appreciation and an expansion in aggregate demand may well be a reasonable outcome. However, the problem arises when, in the judgement of the central bank/government, the inflow is not a permanent increase and could easily be reversed. If the outcome is left entirely to the market, the currency is likely to appreciate sharply during periods of inflows and depreciate equally sharply during periods of outflows. Few today would recommend letting the real exchange rate be buffeted by the ebb and flow of the global capital market, which may be responding to developments outside the country. The balance of wisdom lies in countering these pressures through some combination of tightening of controls on short-term capital inflows and insulating the exchange rate from inflows by building up reserves.

The International Monetary Fund (IMF) has effectively sanctified this view by giving up its earlier strong preference for free movements of capital, with the exchange rate being allowed to float as freely as possible. However, the IMF has not endorsed any clear guidelines laying out best practices in this area. Economists have an important role in spelling out how the government should respond in such situations and this is useful not just as an input into policy, but also to achieve greater public understanding of the issues involved. This is especially important in the area of exchange rate management because governments are unlikely to be totally transparent, preferring the privilege of ambiguity.

To summarize, the maintenance of internal and external balance requires judicious deployment of tax and expenditure policy, monetary policy, exchange rate intervention, and controls of varying degrees on capital flows. Since these policies affect both internal and external balance, their deployment needs to be assessed in terms of a holistic and comprehensive assessment of the situation, and not on the basis of rules of thumb by which each policy intervention is judged.

3.2 Policies to accelerate growth

Once that macro-stability is assured, the focus of policy must be on delivering rapid growth that is both inclusive and sustainable. The policies that can deliver rapid growth are often derived from a supply-side 'sources of growth' analysis in which growth of output depends upon (a) the growth of capital; (b) the increase in total labour availability, adjusted for the quality of labour; and (c) total factor productivity growth (TFPG) (e.g. Easterly and Levine 2001). Empirical work shows that the contribution from capital inputs may be around 30 per cent, from human capital around 20 per cent, and from TFPG around 50 per cent. Some of the policy issues that arise in each of these areas are briefly summarized below.

Growth of capital depends upon the rate of investment, and high rates of investment obviously help to accelerate growth. An issue that needs to be clarified is the relative role of domestic investment versus foreign direct investment (FDI). Policy discussions often focus disproportionally on policies towards FDI, but it is worth noting that except in small mineral

rich economies, FDI is generally a small part of the total investment in fast growing emerging market countries. The real importance of FDI comes from the fact that it serves as a vehicle for transfer of closely held technologies that cannot be bought, it can be an important source of market access, and it can be essential for integration into global supply chains. These considerations justify policies that are supportive of FDI, but such policies are not substitutes for a broader set of policies that will stimulate total domestic investment.

Since domestic investments are typically constrained by domestic savings, policies to encourage investment must be accompanied by policies that will encourage savings, and ensure that savings are efficiently allocated to the most efficient firms and sectors. This is best achieved by the following: (1) a modest rate of inflation, which encourages savings in financial assets; (2) a stable and well-regulated financial sector comprising banks, non-bank finance companies, and insurance companies, along with effective capital market institutions; and (3) a modest fiscal deficit that will not pre-empt a large part of domestic savings to finance government expenditures.

As mentioned earlier, infrastructure is a critical constraint in most developing countries and special efforts must be made to ensure that investment in this area is adequate. Public investment has been the traditional mechanism for building infrastructure even in industrialized countries, but the ability of the public sector to do so on a large enough scale in developing countries is limited by fiscal constraints. Private investment in infrastructure through some form of public-private partnership (PPP) is an option. It reduces the burden on scarce public resources, and offers the possibility of private sector efficiencies. PPP has worked reasonably well in many countries, but it has also run into numerous problems. India's recent experience illustrates this phenomenon since, after attracting substantial volumes of PPP in infrastructure, the experiment ran into implementation problems and a proliferation of disputes. Economists need to work closely with lawyers and sector regulators to resolve these problems.[3]

Earlier development strategies paid insufficient attention to the supply of labour as a determinant of growth, probably because developing countries were seen as having surplus labour in any case. However, what matters is not the total supply of labour irrespective of skill levels, but the availability of labour with the right skills. Developing countries seeking to transition from moderate to high growth trajectories can encounter serious skill shortages. This is now well recognized and many developing countries are actively engaged in developing programmes to improve skill levels through some combination of better general schooling, introduction of vocational training in schools, and the development of parallel systems of vocational training, including short courses aimed at developing skills needed in particular areas.

Economists are not experts on skill development strategies—there are others who are more qualified on this subject—but they can contribute by emphasizing two aspects. The first is the need to encourage direct involvement of the private sector in skill development. This will help to align skills being imparted with the perceived current need in the market, a factor often ignored

[3] The effectiveness of PPP as a mechanism for infrastructure development in developing countries depends crucially on many preconditions being met. Consumer willingness to pay reasonable user charges is obviously essential to provide a revenue model to attract private investors. These revenues may not suffice in many cases and may need to be supplemented by some form of government support, but this may well be cheaper than bearing the entire cost of the investment. There are problems of regulatory uncertainty and dispute resolution that need to be overcome. The absence of long-term finance for infrastructure in the absence of government guarantees is another problem. Finally, there is often deep suspicion of the private sector entering into areas that were earlier operated by public entities. A credible system for monitoring performance by PPP operators to ensure that they come up to service standards promised would reassure users that they will not be left at the mercy of operators and is probably essential to build trust. Economists need to work closely with regulators and lawyers to ensure a comprehensive approach is taken.

in public skill development programmes. The second point economists could emphasize is that the pattern of demand for skills is likely to change considerably in future because of the emergence of new technologies that will have to be adopted by developing countries wishing to integrate into global supply chains. The extent to which new technologies that are now available and increasingly being deployed will change skill requirements is inadequately understood even in industrialized countries. Careful thought is needed to determine how this phenomenon would impact on skill requirements in developing countries.

Finally, we come to TFPG, which according to empirical estimates makes the largest contribution to growth. The traditional way of thinking about TFPG is as an exogenous technical progress of the 'manna from heaven' type, as conceptualized in early text books (see e.g. Jorgenson and Griliches 1967). In the case of industrialized countries, which operate at the technological frontier, TFPG refers to the steady but modest changes that push out the frontier over time. This can perhaps be thought of as an exogenous development, though it is in fact endogenous depending upon internal investment in research and development (R&D), albeit with long time lags from inputs into R&D to the development of usable technologies. In the case of emerging market countries, the situation is quite different. Since they are at a much lower level of technology than advanced countries, there is a large 'technology gap' that they can hope to bridge, which holds out the prospect of much faster TFPG than in industrialized countries. This phenomenon offers the possibility of convergence enabling emerging market countries to move from relatively low levels of per capita income to higher levels much faster than today's industrialized countries were able to do.

The cross-country experience thus far does not indicate that all low-income countries are benefiting from a process of convergence. However, some of the fast-growing developing countries have been successful in achieving high rates of TFPG to accelerate growth. This suggests that convergence is conditional: it occurs only when other conditions are ripe; i.e. there are good infrastructure facilities in place, human skills have reached a level sufficient to enable the absorption of new technology, and the general levels of investment and entrepreneurial capacity are high. The policy conclusion usually drawn from this is that high levels of TFPG can be achieved if the appropriate preconditions are established. Some of these relate to infrastructure development but there are many other policy initiatives that would be conducive to rapid TFPG if appropriate reforms are undertaken. Identifying these reforms is an essential role that economists can play.

Since developing countries are at an early stage of development and their institutions fall short of what is desirable in many ways, the list of reforms that can be contemplated is very long. However, as Haussman et al. (2006) have pointed out, instead of advocating a very long list of reforms, it is better to undertake a 'growth diagnostics' approach and identify the reforms that are likely to make the most difference. Such an approach is also appropriate because policy makers have a limited amount of political capital they can spend on pushing reforms and they would do well therefore to focus on the reforms that are likely to have the biggest impact, with a reasonable assessment of the time frame in which benefits can come. The composition of the short list would vary from country to country depending on country specific circumstances and constraints.

At times, the need for reforms has to do with the country having reached a particular level of development, which makes reforms in some areas more important than they were earlier. The so-called 'middle-income trap' is an illustration of this problem (Aiyyar et al. 2013). Countries may have grown quite rapidly at an earlier stage, but the old models that generated rapid growth run out of steam when countries reach middle-income levels, somewhere between annual incomes of USD10,000 and USD15,000 a head. Continued rapid growth at this stage is possible

but it often requires deeper institutional reforms. Diagnosing the nature of this problem, and drawing attention to the key reforms called for in country specific situations, is a role that economists are well equipped to play.

4 Sectoral policies

Generally, policies for individual sectors should be based on an application of general principles of good economics to the sector concerned. Some general prescriptions are obvious: there must be a positive environment for investment, including foreign investment in the sector (unless for some reason foreign investment in that particular sector is unwelcome); there must be good infrastructure support including general infrastructure, such as good quality power supply from the grid and good transport and logistics relevant for all sectors plus some sector specific infrastructure which may be relevant; market conditions must be competitive both domestically and in terms of global integration; credit institutions should function efficiently; and labour markets should function well.

In addition to these general preconditions, there are sector-specific challenges that need to be addressed through sectoral policy. One of these relates to the allocation of scarce public funding for publicly funded programmes in each sector. The role of these programmes varies. It is very large in education where there is a presumption that government must ensure access to basic education free of cost and in health through some form of universal health care. Government also has a large funding role in providing other public goods such as basic research in health, agriculture, and technology development, though in these areas the issue arises whether the research should be in government run institutions and laboratories or whether some form of public-private partnership might be better. In either case, scarce resources have to be distributed across sectors and this is a classic economic problem where economists can play a very useful role.

4.1 Market failures and sector policy

Sector-specific policies often consist of recommendations to remove market-distorting interventions (e.g., price controls, or policies that close the market to certain entrants, including imports). As a general rule, there is considerable merit in allowing markets to function freely, and many interventions are ill designed and have unintended adverse consequences, it should not be assumed that the free functioning of markets will always produce better results. Sector policies also need to pay attention to the need to correct for market failures. If markets were perfectly efficient there would be no need for government intervention, but we know that there are market failures and these failures justify interventions to ensure efficient outcomes. Some of the important areas of market failure, which can be addressed through sector specific policies, are listed below.

(1) Markets will only meet those demands that are backed by purchasing power, and this means many demands of poorer individuals that are socially desirable will not be met. The wrong way of responding to this problem is to control market prices to make them 'affordable'. The right way of dealing with this problem is to devise mechanisms that will help identify target groups to meet these essential needs, with the cost being met either through the budget by an overt subsidy, or in some cases through cross subsidy (e.g., low electricity tariffs for the first portion of consumption made up by higher rates for higher portions). Over the longer run, if the development strategy is sufficiently inclusive, the population needing such support will decline, but in all probability, there will always be a core of really poor people who need some support. This is why food stamp systems exist in many industrialized countries. Most countries also have

publicly funded education systems and some form of universal health coverage, which are not targeted but made universally available. In these cases, there is a choice between direct provision of the good or service by the government, e.g., provision of subsidized food, or provision of free education and health services through government run schools and hospitals, or indirect provision by government in the form of giving cash transfers, school vouchers, insurance where government meets the premium payment. Economists have much to contribute to the design of systems best suited to the circumstances of the country.

(2) Markets will also not produce optimal results in the presence of externalities. There are negative externalities as when the use of an automobile generates air pollution, or a chemical industry produces toxic effluents. These activities impose costs that are not borne by the individual engaging in the activity and if we want to limit these costs, we need to intervene either directly through regulatory control, or indirectly by introducing fiscal disincentives that would change behaviour. Taxing private motorized transport heavily while subsidizing public transport is a good way of dealing with such externality. Some activities generate positive externalities, such as policies that promote research or improve the human capabilities of the population. Incentivizing such activities should be a part of sector policy in all sectors where such positive externalities exist. Economists can play a useful role in designing mechanisms that incentivize activities that generate positive externalities and discourage those that generate negative externalities.

(3) Markets will produce efficient outcomes only if full information is available and there are many situations where consumers lack full information. Examples illustrating this point range from misleading advertisements to ignorance of side effects of medicines. An essential response in such cases is to make the information much more widely available through compulsory labelling and a vigorous education programme, e.g., on the harmful effects of tobacco, of excessive consumption of processed foods, or the inferiority of processed milk for babies compared with breast milk from the mother. In addition to making information more freely available, there is also a case for legal intervention as, for example, making harmful drugs illegal.

(4) Financial markets are vulnerable to market failures owing to asymmetries of information and the principal-agent problem, whereby the incentives of bank managers are not aligned with those of shareholders. This in turn generates moral hazard or a tendency to take excessive risk. This can have very serious consequences as the financial crisis of 2008 demonstrated. That crisis was in large part caused by the absence of effective regulation and consequently improved regulation and supervision of the financial sector is now high on the list of priorities of most governments.

(5) Finally, markets can be manipulated by dominant players in a way that negates the benefits of competition. Adam Smith, the father of market economics, was fully aware of this problem, which is why he famously remarked 'People of the same trade seldom meet together, even for merriment and diversion, but the conversation soon turns into a conspiracy against the common weal or some contrivance to raise prices' (Smith 1776). A common conspiracy against the common weal is lobbying for high levels of domestic protection. This is relatively easily handled by lowering tariffs and being vigilant about demands from vested interests for excessive protection. Less obvious are situations where dominant domestic players engage in anti-competitive behaviour. Most developed market economies have statutory competition commissions that can intervene to overturn such arrangements and similar institutional arrangements are necessary in developing countries. Often in developing countries, the dominant player is a public sector entity and there is inadequate understanding of the need to protect consumers in such cases. Economists would do well to push sector policies that ensure competitive behaviour.

These considerations suggest that economists can contribute to sectoral policy formulation by identifying and correcting market failures. In general, intervention at the sectoral level should be viewed as desirable if it deals with a market failure and if there are no significant market failures, there is no need for a sector specific policy. This is not to promote uncritical reliance on markets. It is simply to advocate a rule for when to intervene in the functioning of markets. Application of this rule will point to different types of interventions in different sectors. A comprehensive review of such interventions is beyond the scope of this paper. We therefore focus on two sectors, energy and water resource management, to illustrate how market failures need to be corrected to improve outcomes. The discussion draws upon India's experience, but the issues raised are of general relevance for many developing countries.

4.2 Energy policy

The energy sector consists of a number of sub-sectors such as the sub-sectors producing primary energy sources including coal, petroleum, natural gas, hydro power, nuclear power, and renewable energy (solar and wind). There is also the electricity sector, which uses coal, petroleum fuels, and other primary fuel sources to generate electricity, which has to be transmitted and distributed to final users. Many of these sub-sectors are dominated by public sector monopolies and are subject to varying degrees of price control. In the case of coal, there are also strong negative externalities arising from high levels of CO2 emissions. Petroleum based fuels also have negative externalities, but much less than coal. Since most developing countries are net energy importers, they are concerned about limiting their dependence on imported energy on grounds of both energy security and viability in the balance of payments. This calls for a combination of reducing the demand for energy and increasing domestic supply. Since they are also concerned about the need to shift to cleaner fuels to reduce emissions as much as possible, they should especially incentivize clean domestic fuels.

The broad outline of policy that can meet these objectives can be summarized by reference to the equation below:

$$(\mathrm{Em/GDP}) = (\mathrm{E/GDP}) \times (\mathrm{Em/E}), \qquad (1)$$

where *Em* stands for total emissions and *E* for total energy of all types converted to a common measure. The energy intensity of GDP, which is written *E*/*GDP*, measures the extent of energy of all types needed to sustain a given level of GDP. The emissions intensity of energy, which is written *Em*/*E*, measures the extent to which any given level of energy use generates emissions. Since the emissions from different energy sources are different, a change in the composition of energy sources towards cleaner sources will reduce the emissions intensity of energy. The equation reproduced above shows that if we want to mitigate emissions because of the threat of climate change, we can do this by some combination of a reduction in the energy intensity of GDP (*E*/*GDP*) and a reduction in the emissions intensity of energy (*Em*/*E*). The former involves adoption of more energy-efficient technologies and appliances to reduce the total energy used per unit of GDP whereas the latter implies a shift in the composition of energy towards cleaner energy sources thus reducing *Em*/*E*.

Reducing the energy used for any given level of GDP has to be an important objective for a developing country trying to reduce import dependence and reduce emissions in view of climate change considerations. Energy sector policy should focus heavily on whether the policy is geared

to reduce energy used per unit of GDP. Several policy initiatives can help achieve this objective. These include the following.

(1) Legal enforcement of minimum efficiency standards for major appliances and machines (e.g., refrigerators, air conditioners, cars, thermal generation stations, etc.), which would force manufacturers to upgrade efficiencies and force inefficient machines out of the market.

(2) Compulsory introduction of energy efficiency ratings on major appliances to 'nudge' consumers in the right direction.

(3) Raising energy prices to appropriate levels to give consumers an economic incentive to shift to more energy efficient appliances. This calls for the removal of energy subsidies that are pervasive in many countries and moving ultimately to an energy pricing system that will not only reflect costs fully but also price in the effect of externalities such as production of harmful CO2 by imposing a carbon tax on such fuels. The carbon tax should be applied on all fuels producing carbon dioxide and should be proportional to the carbon dioxide produced. The revenue from such a tax could be earmarked to subsidize cleaner fuels or carbon capture mechanisms.

(4) Introducing building standards that would improve the energy efficiency of buildings, a particularly important initiative in developing countries where most of the building stock has yet to be built.

(5) Better land use planning in cities to reduce the need for transport and thus reduce energy use.

(6) Providing well-functioning public transport systems, which could encourage a shift from personalized transport to public transport, which is much more energy efficient.

(7) Shifting freight movement from roads to railways, reversing a long-observed decline in the share of railways in carrying freight. This will require massive investment to upgrade the railway system as part of India's strategy for upgrading infrastructure. It will also require reforming the tariff structure, which has relied on overcharging freight in order to subsidize passenger traffic, a strategy that was in part responsible for the steady erosion in the railway's share of freight traffic.

(8) Actively discouraging reliance on personal transport within cities by charging higher licence fees for cars and imposing parking charges that would incentivize people to use public transport.

The list can be expanded but two points are worth noting. First, a very diverse set of policy interventions are needed in a large number of areas and not all the instruments are under the control of the same level of government. In India for example, the policy actions needed span over all three levels, the central government, the state governments, and the local governments. An example of local level policies that will support energy efficiency is better policing in urban areas, which gives women the feeling of security needed to rely on public transport including especially the last mile problem of getting safely from the bus stop or metro stop to their homes, especially at night.

A second point is that many of the steps listed are likely to face resistance and will be politically unpopular. Economists can help to generate a broader public appreciation that action in these directions is necessary if the overall objective of reducing energy use is to be achieved.

A reduction in energy use per unit of GDP is one element of the effort to reduce the total volume of emissions associated with any given level of GDP. A further reduction in emissions is possible by operating on the second term of Equation 1, i.e., by altering the composition of

energy sources to cleaner fuels. There is substantial scope for doing so by shifting to hydropower (where possible), solar power, wind power, and nuclear power. Each of these sources has its own technical problems, but these are amenable to technical solutions. In the case of solar power, one of the problems has been its higher cost, but fortunately, the costs have been falling sharply. There is a good possibility that continuing technical advances combined with cost reductions because of larger scales of production, will lead to further declines. However, in comparing solar power with conventional power, we have to take into account the fact that solar power (like wind power) is intermittent and integrating variable power sources into the grid will involve some extra costs to ensure grid stability. When this is done, it is very likely that solar power will be costlier than conventional coal-based power for some time, even if it will ultimately converge. Some mechanism must therefore be found to encourage the absorption of higher cost solar power by the system.

Direct government intervention forcing electricity distribution companies to purchase a fixed percentage of their total power purchase from renewable sources is one way of forcing the shift. This should be combined with tradable purchase certificates so that distribution companies that cannot directly purchase renewable power can purchase a tradable certificate in fulfilment of their requirement. Whatever the method chosen, the higher cost has to be passed on to final consumers, which brings in the issue of political acceptability. Another solution could be to introduce a substantial carbon tax on coal and petroleum-based fuels, depending on their respective carbon content, and use the proceeds to subsidize renewable energy. However, even this will imply that the cost of electric power to consumers will have to rise.

The inability of the poorest consumers to bear higher electricity tariffs is often advanced as argument against raising electricity prices and this is indeed an important consideration in a developing country. However, it is less compelling than its made out because it is always possible to charge a low 'affordable price' for the first block of electricity consumption for households, representing some sort of minimum 'lifeline access', to be followed by progressively higher prices for higher blocks of consumption. Higher prices are also needed for gasoline and diesel if the quality of these fuels is to be raised to Euro VI standards, which would involve much less pollution. Here again, the switch will involve some increase in the prices consumers have to pay for the fuel. In India, the switch is also resisted by automobile manufacturers who would have to modify engines to accept the higher quality fuel. An important role economists can play is to explain to the public that air pollution imposes large, hidden-health costs, which are borne disproportionately by the poor. Shifting to higher standards of automotive fuels is fully consistent with the 'polluter pays principle' being applied to fuel pricing.

4.3 Water resource management

Management of water resources is a major problem for many developing countries as population increases, and GDP expands, both leading to growing demand for water. The traditional response has been to look for ways to expand the supply of fresh water, but in many countries, the scope for harnessing unutilized fresh water resources is very limited. The largest part of the solution will have to come from increased efficiency of water use and encouraging reuse of water.

Fortunately, there is scope for increasing the efficiency of water use. In India for example, about 80 per cent of the available supply of fresh water is used in agriculture and it is estimated that water use efficiency in agriculture is very low and could easily be doubled. However, farmers would have to change from their traditional methods, e.g., from flood irrigation of paddy to the system for rice intensification (SRI), and they would also need to be incentivized to make the change. This is difficult to achieve because water is massively underpriced at present and water

pricing is a politically sensitive issue. Canal water charges in India typically cover only 10 to 15 per cent of operating and maintenance (O&M) cost. This generates massive excess demand for canal water, which cannot be met. From an economic point of view, if water is underpriced but available supplies are equitably distributed to all farmers, the desired level of water efficiency can be enforced. What actually happens is that scarce water is appropriated by those most able to do so. For example, farmers at the upper end of the canal network take most of the water to grow highly water intensive crops such as sugar cane, leaving very little water for downstream farmers. Effective rationing could be enforced in a canal irrigation system by volumetric measurement of water released in every channel, leaving it to the farmers serviced by each channel to ensure fair distribution. However, this is often made impossible because the lower end of the canal network is typically not constructed.

While canal water can at least be rationed in principle, it is difficult to use rationing in the case of ground water because the existing law in India gives any landowner the absolute right to draw as much ground water as he likes from bore wells constructed on owned land. Since electricity to run the pumps is heavily underpriced—in some states electricity for agriculture is actually free though availability is uncertain—farmers have an incentive to draw excessive amounts of water. Typically, richer farmers who can afford stronger pumps appropriate most of the ground water lowering the water table and causing traditional dug wells, used by poorer farmers, to dry up. The steady fall in water levels also leads to deterioration in water quality, which leads to health problems. Eliminating the subsidy on electricity would automatically ensure greater water use efficiency, but it would run into serious political resistance.

Ideally, water charges should reflect not only the full cost of delivering the water, but also an implicit scarcity charge for water itself, keeping in mind the willingness of other users to pay for water. This would increase the costs of growing water intensive crops and produce a change in the cropping pattern in favour of less water-intensive crops consistent with the state of water availability. In India for example, paddy growing in the Punjab, which is water scarce, should be discouraged and production should shift to Eastern India, which has much more ground water, but it does not have a sufficiently strong power infrastructure to allow effective utilization of ground water.

Meeting the demand for water for non-agricultural uses will also pose serious problems in India as urban demands increase and there is resistance from farmers against what they see as diversion of 'their' water to meet the needs of distant urban areas. Many cities are therefore relying more and more on ground water to meet urban water demands, leading to excess withdrawal of ground water. Growing urban populations are also contributing to water pollution because of inadequate treatment of sewage. The total sewage treatment capacity in India is only about 30 per cent of the sewage generated and even that capacity is underutilized because many urban areas are not connected to the sewers. As a result, only about 20 per cent of the sewage generated in urban areas is actually treated. Industrial pollution is also a major problem because pollution control regulations designed to control industrial effluents are poorly administered. Enforcement is particularly difficult when the pollution is caused by small producers who often claim that they cannot afford the cost of modern effluent treatment.

A rational strategy for water resource management in urban areas requires an all-encompassing approach, which would have to include the following elements.

(1) Water resource management for urban areas should cover the whole cycle from the initial extraction of water from a natural source to its final return to natural water bodies. The basic principle should be that the water quality at the point of return should meet minimum standards

to protect against pollution of natural water bodies. This is a logical extension of the principle that negative externalities must be controlled.

(2) No sewage should be allowed to drain untreated into a natural water body. This requires extending the sewerage system into currently unconnected areas. Where an underground sewer system cannot be extended without disrupting existing habitations, recourse can be had to the system being tried in Delhi, which is to build interceptor drains that capture the sewage before it gets to a natural drain and convey it to a sewage treatment plant.

(3) Since the approach outlined above will involve substantial investment, the higher costs must be passed on to urban water users. The problem of affordability of essential water needs for the poor can be addressed, as in the case of electricity, by having a sufficiently low charge for the first minimum consumption block, with correspondingly higher prices being charged on larger volume consumers as a form of cross subsidy. This illustrates the point that low-income populations may need some support but that can be provided in a targeted manner while for the rest the polluter pays principle must apply.

(4) Industrial effluents discharged by industrial units must be treated to a sufficient degree before being returned to natural water bodies. This is often resisted by smaller units that claim to be unable to afford such treatment. However, avoiding treatment should not be an option. Where these units are in clusters, it may be possible to set up community effluent treatment plants with a number of smaller units sharing the costs. However, isolated units should not be exempted from adherence to pollution control norms. If possible, they can be helped to relocate to locations where community effluent treatment plans exist.

(5) Serious efforts must be made to recharge ground water through water conservation methods both within the city and in its periphery. The increased dependence of cities on ground water makes this essential if the needs of an expanding urban population are to be met.

(6) All sewage does not need to be treated to a high degree. Partially treated sewage water can be used for horticulture in and around cities as a low-cost irrigation option. This is an example of reuse of wastewater.

(7) Large commercial establishments within the city can be forced to install their own sewage and wastewater treatment plants for horticulture and other cleaning purposes. This is another example of reuse of wastewater.

(8) About 80 per cent of the water demand of the non-agricultural sector is for power plants and these are highly water inefficient. Cooling towers do not use the closed loop system, which could cut water demand to a fraction of what it is today. There is a strong case for introducing a regulatory requirement to insist on closed loop systems and build the additional cost into the electricity tariff. This of course brings back the issue of political acceptability.

It is evident from the above that water is a sector that poses many challenges. Economists have an important role in evolving acceptable solutions to these problems, but they have to work in close consultation with technical experts, representatives of the local administration and, indeed, other stakeholders.

5 Other dimensions

In this section, we touch on a few other areas where economists can play a major role in the evolution of sensible economic policies.

5.1 Independent evaluation of policies and programmes

A common experience for many developing countries is that there are government programmes that fail to achieve the desired outcome, but there is insufficient systematic analysis of why this is so, and an unwillingness to undertake a basic restructuring of programme design that might yield different results. Einstein defined insanity as repeating the same thing over and over again and expecting different results, and yet that is precisely what often happens with poorly performing government programmes.

One reason for this is that ministries responsible for these programmes tend to explain non-performance by reference to external factors, most commonly inadequate funding. Funding may well be inadequate, because in a resource-constrained situation, all programmes are probably underfunded. However, this does not mean that if additional funds were available in a particular programme, the performance would necessarily improve. Often the problem lies in inherently poor design and better outcomes can only be expected if the programme is comprehensively redesigned, including changes in administrative structures through which it is implemented. These problems are best handled by subjecting all programmes to independent and rigorous evaluation, with mechanisms to ensure that the findings are fed into a process of periodic redesign of programmes.

Economists have a big role to play in this process along with other professionals. One of the problems is that it is difficult to determine the effectiveness of a programme in delivering a particular outcome. This is because the intervention envisaged in a particular programme is only one of many factors that impact a particular outcome and performance (or lack of it) so improving the outcome cannot be unambiguously attributed to the particular programme. For example, countries concerned with child malnutrition often have supplementary nutrition programmes aimed at improving the nutrition status of children. However, nutritional status depends on a number of factors including income levels of parents, education of the mother (including knowledge of child-rearing practices), and various other factors that affect the health of children such as access to clean drinking water, the state of sanitation, and vaccination coverage. Many of these determinants may be the subject of other programmes run by other ministries. Ideally, the impact of supplementary nutrition programmes should be determined taking into account the impact of other factors on nutritional status. One can envisage situations where malnutrition could be more effectively reduced by operating on factors other than supplementary nutrition and in a resource-constrained situation, extra funding aimed at improving nutrition should be distributed across different programmes according to the relative impact they have on nutritional status. Only very careful and sophisticated independent evaluation will bring out these aspects.

Apart from evaluating individual programmes, it is also necessary to undertake a critical evaluation of broader policies and strategies to ensure that the correct lessons are learned from the successes and the failures, and appropriate follow-up action is taken. India's experience in the 1960s and 1970s with poverty-reduction strategies illustrates this point. The India Planning Commission (2008) conducted a study on how to bring everyone above the then established poverty line and concluded that it could be done if growth could be accelerated to 7 per cent per annum over a 15-year period. This conclusion was qualified by the observation that because of the expected deterioration in the distribution of income in this growth process, the lowest fifth

of the population would not benefit sufficiently from growth to move above the poverty line, but they could be brought above the poverty line through some targeted programmes. As it happened, the actual growth rate achieved in this period was only about half the target level and, not surprisingly, there was very little progress in reducing poverty. Unfortunately, critics from the Left argued that this outcome demonstrated the ineffectiveness of the growth-based strategy, and called for a reorientation to rely less on growth and more on programmes targeted specifically at the poor. What was completely ignored was that the real failure lay in not achieving the growth that was envisaged. Much more attention should have been devoted to discovering why that was so, and whether the growth target was inherently unachievable or whether the fault lay with the policy framework envisaged for achieving higher growth.

We know in retrospect that the policy framework for achieving faster growth was indeed at fault. The strategy recommended was a continuation of the old strategy of increasing investment and especially public investment, with no reconsideration of policies of excessive control and protection from foreign trade. Systematic questioning of the validity of this approach may have accelerated the policy rethinking and liberalization that ultimately began in the mid-1980s and was more vigorously pursued in the 1990s with very positive results both in accelerating growth and in reducing poverty.

5.2 Educating the public about the importance of policy

Economists can also play a major role by simply creating greater awareness among all stakeholders that the attractive outcomes that are usually projected as targets of a development strategy depend upon implementing the policy initiatives identified as part of the strategy. What often happens in practice is that attractive targets for achieving rapid, inclusive, and sustainable growth are widely applauded by both the political leaders and the wider public, but political resistance at the time of implementation leads to political backtracking and compromising on policy reforms. The resulting failure to achieve the targets is then attributed to faulty planning or to failures of implementation, for which the blame can be spread widely.

To emphasize this point, the Government of India, in its Twelfth Plan covering 2012-13 to 2016-17, resorted for the first time to the technique of scenario analysis. Instead of setting national targets and laying out the policies that were needed to achieve the ideal outcome, the Plan sought to highlight the consequences of not adopting the policies recommended by identifying three scenarios. Scenario 1, called 'Strong Inclusive Growth', represented a situation in which (a) Plan programmes would be funded on the scale envisaged while maintaining macroeconomic stability, and (b) the many policy initiatives identified to raise productivity in different sectors and to ensure inclusiveness would be substantially implemented (Planning Commission 2013). This scenario was projected to generate 8 per cent growth over the five-year period while also ensuring that the growth would be sufficiently inclusive. Scenario 2 was called 'Insufficient Action' and represented a situation where the policies outlined in the Plan were implemented only partially. This would yield growth of between 6 and 6.5 per cent. There was also a third Scenario 3 called 'Policy Logjam', where it was assumed that the impediments to implementing policies continued and there was relatively little success in bringing about reforms. This scenario was projected to yield a growth rate of between 5 and 5.5 per cent.

It is too early to judge which of the three scenarios will describe the performance of the Indian economy, but a systematic review of shortcomings in policy implementation compared to what was proposed in the Plan would help create a climate supportive of the policy changes that are needed to reach India's full potential. The dilemma of the political decision makers also needs to be understood. Jean-Claude Juncker, then Prime Minister of Luxembourg, put it pithily when he said, 'We all know what to do, we just don't know how to get re-elected after we've don't it' (see

e.g. *The Economist* 2007). Economists cannot solve this problem for politicians, but they can at least help to create an environment in which there is greater public understanding of the need for action in many otherwise sensitive areas. This could be a first step towards creating support and even building pressure for good policy.

5.3 Warning against bad policies

Thus far, we have focused on how economists can build consensus in favour of good economic policies at the macro or sectoral level. An equally important role is to raise a red flag against bad policy choices, which surface surprisingly often in ways that politicians often find difficult to resist. The World Bank Commission on Growth and Development, chaired by Nobel Laureate Michael Spence, and of which I was a member, recognized the dangers posed by bad policies and included in its report a list of about a dozen 'bad policies' that should be avoided. The list is sufficiently relevant even today to merit recounting (Commission on Growth and Development 2008):

(1) Subsidizing energy except for very limited and highly targeted subsidies aimed at the most vulnerable sections.

(2) Dealing with joblessness by expanding civil service employment (except for rural public works programmes, which act as a safety net). The Report does not mention this, but could have added that, if well managed, such programmes could also contribute to building rural infrastructure thereby increasing land productivity.

(3) Reducing fiscal deficits for short-term reasons by cutting expenditure on infrastructure or other public expenditure that yields high social returns in the longer term, e.g., health and education.

(4) Providing open-ended protection for sectors, firms, and jobs when necessary (by which the Commission meant politically impossible to resist) such protection should be for a limited period only.

(5) Imposing price controls to combat inflation—inflation is best handled by macroeconomic policy.

(6) Banning exports for long periods to keep domestic prices low.

(7) Resisting urbanization and as a consequence under investing in urban infrastructure.

(8) Ignoring environmental issues at the early stages of development on the grounds that they are an unaffordable luxury.

(9) Measuring progress in education solely by the creation of school infrastructure.

(10) Underpaying civil servants and combining this with strict promotions by seniority.

(11) Poor regulation of the banking system combined with excessive direct control and intervention.

(12) Allowing the exchange rate to appreciate excessively before the economy is ready to transition towards high productivity industry.

As pointed out earlier in this paper, economists often disagree on what is good policy and they may disagree on whether some policies are unambiguously bad in all, or at least most, situations. The Growth Commission was careful to say that just as there is no one size fits all for good policies, there may be unavoidable circumstances where some resort to the bad policies listed, at least for a short while. However, even recognition that these polices are generally bad would help inform public debate and create an environment where governments may be discouraged from resorting to them unless absolutely unavoidable and then too only as brief departures.

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Annex

Twelfth Plan Indicators for Rapid, Sustainable and Inclusive Growth

Economic growth

1. Real GDP growth rate of 8 per cent.

2. Agriculture growth rate of 4 per cent.

3. Manufacturing growth rate of 10 per cent.

4. Every state must aim for an average growth rate in the Twelfth Plan higher than that achieved in the Eleventh Plan.

Poverty and employment

5. Head-count ratio of consumption poverty to be reduced by 10 percentage points over the preceding estimates by the end of Twelfth Five-Year Plan.

6. Generate 50 million new work opportunities in the non-farm sector and provide skill certification to equivalent numbers during the Twelfth Five-Year Plan.

Education

7. Mean Years of Schooling to increase to seven years by the end of Twelfth Five-Year Plan.

8. Enhance access to higher education by creating two million additional places for each age cohort aligned to the skill needs of the economy.

9. Eliminate gender and social gaps in school enrolment (that is, between girls and boys, and between SCs, STs, Muslims, and the rest of the population) by the end of the Twelfth Five-Year Plan.

Health

10. Reduce the infant mortality rate (IMR) to 25 and maternal mortality rate (MMR) to 1 per 1,000 live births, and improve Child Sex ratio (0-6 years) to 950 by the end of the Twelfth Five-Year Plan.

11. Reduce total fertility rate (TFR) to 2.1 by the end of Twelfth Five-Year Plan.

12. Reduce under-nutrition among children aged 0-3 years to half of the NFHS-3 levels by the end of Twelfth Five-Year Plan.

Infrastructure, including rural infrastructure

13. Increase investment in infrastructure as a percentage of GDP to 9 per cent by the end of Twelfth Five-Year Plan.

14. Increase the gross irrigated area from 90 million hectare to 103 million hectare by the end of Twelfth Five-Year Plan.

15. Provide electricity to all villages and reduce AT&C losses to 20 per cent by the end of Twelfth Five-Year Plan.

16. Connect all villages with all-weather roads by the end of Twelfth Five-Year Plan.

17. Upgrade national and state highways to the minimum two-lane standard by the end of Twelfth Five-Year Plan.

18. Complete eastern and western dedicated freight corridors by the end of Twelfth Five-Year Plan.

19. Increase rural tele-density to 70 per cent by the end of Twelfth Five-Year Plan.

20. Ensure 50 per cent of the rural population has access to 40 lpcd piped drinking water supply, and 50 per cent gram panchayats achieve Nirmal Gram Status by the end of Twelfth Five-Year Plan.

Environment and sustainability

21. Increase green cover (as measured by satellite imagery) by 1 million hectare every year during the Twelfth Five-Year Plan.

22. Add 30,000 MW of renewable energy capacity in the Twelfth Plan.

23. Reduce emission intensity of GDP in line with the target of 20 per cent to 25 per cent reduction over 2005 levels by 2020.

Service delivery

24. Provide access to banking services to 90 per cent of Indian households by the end of Twelfth Five-Year Plan.

25. Major subsidies and welfare-related beneficiary payments to be shifted to a direct cash transfer.