Alfred Marshall Lecture

Public policy and the economics of development

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1. Introduction

There will be three themes in this lecture. First, I shall argue that both theory and the experience of developing countries suggest that there should be a substantial role for the state in economic affairs. Its activities, however, should take a direction different from those emphasised by many of the early post-war writers on development who proposed extensive government involvement in the process of production through both public ownership and physical controls. Second, we shall see that this recommendation is founded largely on microeconomic theory, on a broad concept of standard of living and on historical experience rather than on theories of growth, where a priori one might have looked for some guidance on how policy might influence development. Whilst those growth theories have provided a useful framework for discussion and a number of insights, they have not as yet been very helpful on the crucial positive question of what determines the rate of growth. Thus normative questions on policy concerning growth have not been easy to pose in that context. There have been some limited, though welcome, advances more recently but I shall argue that the models have yet to come to grips with some key issues of great importance for developing countries. Third, the activities for the state to be proposed will have to be financed and government revenue, as opposed to borrowing or printing money, is the only viable long-term source. It will be argued both that here developing countries have made considerable progress with their ability to tax and that theory has a lot to contribute on how that revenue should be generated.

Broad as these themes are, they are but a narrow selection from the possibilities under the title of public policy and the economics of development and I should like to digress briefly to draw your attention to some of the contributions of the economics of development and give a general indication of my understanding of what the subject entails. The economics of development cannot be defined through its focus on a particular market (such as labour economics), type of institution (such as the economics of the firm), or set of techniques (such as econometrics). I would prefer a broad definition such as 'the use of economic analysis to understand the economies of poor countries with a particular reference to how the standards of living in the population are determined, how they change over time, and how they can be influenced by policy'.

Broad as that definition is, the contribution of the economics of development is, nevertheless, still broader than simply its analysis of the problems of poor countries. It provides many lessons of theory, technique and history for developed countries. Major parts of the theories of efficiency wages, share contracts and of migration, for example, were first constructed for developing countries. The theories and techniques of cost-benefit analysis and of taxation have made substantial strides in work on developing countries, as have computable general equilibrium models. These ideas and the historical lessons of the successes and failures of developing countries over the last half century have much to teach us, particularly for policies in Eastern Europe, but also much more generally. I hope to convince you of the importance and the fascination of the issues being examined. All too few of us are working on the problems of development.

At the same time as drawing attention to the potential of economic analysis for the understanding of the problems of development, one must recognise that prescription without an understanding of the countries under study is perilous. The stuctures of markets and institutions are different in different parts of the world and our economic analysis must be sufficiently flexible to take this into account. We must be able to develop and adapt our economic theories, to learn from economic history, and to understand the relevant institutions and incorporate them into the analysis.

Notice that the strategy I have described differs sharply from the Chicago approach with its one model which purports to explain everything from murder through marriage to government and which views all institutions as endogenous. Can this approach really explain the difficulties of taxation in Peru relative to Chile, the special responsibilities of the Chinese firm, the role of the Indian caste system, the counting in the U.K. but not in France of the borrowing of the electricity supply industry in the PSBR, the difference between the union structure in Germany and in the U.K., and so on? Each of these institutional phenomena has important economic consequences. The maxim that 'all that exists is efficient because were it not efficient it would

not exist' is often suggestive but not always helpful. At the same time we cannot abandon economic analysis and regard everything as being determined by exogenous institutions. And neither is the bespoke tailoring or 'a special model for every eventuality' approach to be wholly encouraged. We need the right blend of models, serious applied analysis, institutional awareness, and judgement based on the understanding of the countries involved. There are now many good examples of what I have in mind which together provide the core of the economics of development. They range from the grand issues such as the role of the state to the very detailed village study. I have recently reviewed them elsewhere [Stern (1989)] and will not rehearse them again here.

2. Some key indicators

Before embarking on the discussion of the three themes it will be useful to have in front of us some central indicators of growth and standard of living to which we can relate the analysis. Some basic statistics for the world's economies are set out in table 1. These are drawn from the World Development Report 1990, with the exception of calculations of real GDP per capita provided by Summers and Heston (1988), which are based on purchasing power parity. The figures are presented with four aims in view:

(i)   to illustrate the enormous diversity – aggregated blocs can be misleading;
(ii) to draw attention to the problems of income measurement;
(iii) to demonstrate that a perception of standard of living which is different from simply income gives rise to a very different picture; and
(iv) to report on how figures such as these have been used in the analysis of growth and development.

The countries are ranked in terms of income per capita as conventionally measured [World Bank (1990)]. It is immediately clear that we have a distribution which is fairly evenly spread over the spectrum of income per capita measured in this way. There are 12 countries with income per capita of between 100 and 200 (U.S. dollars per capita for 1988), 6 between 200 and 300, 9 between 300 and 400, 9 between 400 and 500, 18 between 1,000 and 2,000, 9 between 2,000 and 3,000, and so on. Whilst it is true that there is a group of very rich countries (just 17 between 10,000 and 27,500) it is nevertheless misleading to see developing countries as a homogeneous group of poor countries called 'the South', to be contrasted with the rich countries called 'the North'. That kind of simple dichotomy does not provide a plausible description of most of the relevant indicators of well-being and economic structure that one could imagine and does not, in my judgement, provide a helpful basis for modelling the world economy.

Table 1
Basic indicators.

Country	GNP PC	RGDP	POP.	POP. Growth	IMOR	LEB	CSPC	PEDU	GDS	ODA	Growth
Low income economies											
Mozambique	100	528	14.9	2.7	139	48	1,595	68	−15	70.6	–
Ethiopia	120	310	47.4	2.9	135	47	1,749	37	4	17.4	−0.1
Chad	160	254	5.4	2.4	130	46	1,717	51	−12	28.8	−2.0
Tanzania	160	355	24.7	3.5	104	53	2,192	66	−5	31.2	−0.5
*Bangladesh	170	647	108.9	2.8	118	51	1,927	59	3	8.2	0.4
Malawi	170	387	8.0	3.4	149	47	2,310	66	8	30.6	1.1
Somalia	170	348	5.9	3.0	130	47	2,138	15	3	42.9	0.5
Zaire	170	210	33.4	3.1	96	52	2,163	76	8	9.0	−2.1
Bhutan	180	–	1.4	2.1	127	48	–	24	–	14.0	–
Lao PDR	180	–	3.9	2.6	108	49	2,391	111	21	14.4	–
Nepal	180	526	18.0	2.6	126	51	2,052	82	10	13.0	–
Madagascar	190	497	10.9	2.8	119	50	2,440	–	8	16.2	−1.8
Burkina Faso	210	377	8.5	2.6	137	47	2,139	32	−4	16.0	1.2
Mali	230	355	8.0	2.4	168	47	2,073	23	−4	22.0	1.6
Burundi	240	345	5.1	2.8	73	49	2,343	67	5	17.1	3.0
Uganda	280	347	16.2	3.2	101	48	2,344	70	5	8.4	−3.1
Nigeria	290	581	110.1	3.3	103	51	2,146	77	15	0.4	0.9
Zambia	290	584	7.6	3.7	78	53	–	97	14	12.0	−2.1
Niger	300	429	7.3	3.5	133	45	2,432	29	4	15.5	−2.3
Rwanda	320	341	6.7	3.3	120	49	1,830	67	6	11.0	1.5
*China	330	2,444	1,088.4	1.3	31	70	2,630	132	37	0.5	5.4
*India	340	750	815.6	2.2	97	58	2,238	98	21	0.8	1.8
*Pakistan	350	1,153	106.3	3.2	107	55	2,315	52	13	3.7	2.5
Kenya	370	598	22.4	3.8	70	59	2,060	96	22	9.4	1.9
Togo	370	489	3.4	3.5	92	53	2,207	101	14	14.7	0.0
Central African Rep.	380	434	2.9	2.7	102	50	1,949	66	−1	17.5	−0.5
Haiti	380	631	6.3	1.8	116	55	1,902	95	4	5.9	0.4
Benin	390	525	4.4	3.2	115	51	2,184	63	0	9.0	0.1
Ghana	400	349	14.0	3.4	88	54	1,759	71	6	9.1	−1.6
Lesotho	420	771	1.7	2.7	98	56	2,303	113	−73	26.3	5.2

Table 1 (continued)

Country	GNP PC	RGDP	POP.	POP. Growth	IMOR	LEB	CSPC	PEDU	GDS	ODA	Growth
*Sri Lanka	420	1,539	16.6	1.5	21	71	2,400	104	13	8.5	3.0
Guinea	430	452	5.4	2.4	143	43	1,776	30	19	10.3	—
Yemen PDR	430	—	2.4	3.0	118	51	2,298	—	—	7.2	—
Indonesia	440	1,255	174.8	2.1	68	61	2,579	118	25	2.1	4.3
Mauritania	480	550	1.9	2.6	125	46	2,322	52	10	18.4	−0.4
Sudan	480	540	23.8	3.1	106	50	2,208	49	7	7.8	0.0
Afghanistan	—	609	—	—	—	—	—	—	—	—	—
Myanmar	—	—	40.0	2.1	68	60	2,609	—	—	—	—
Kampuchea Dem.	—	—	—	—	—	—	—	—	—	—	—
Liberia	—	491	2.4	3.2	130	50	2,381	35	—	—	—
Sierra Leone	—	443	3.9	2.4	152	42	1,854	—	17	—	—
Vietnam	—	—	64.2	2.4	44	66	2,297	102	—	—	—
Lower-middle-income economies											
Bolivia	570	1,089	6.9	2.7	108	53	2,143	91	6	9.1	−0.6
Philippines	630	1,361	59.9	2.5	44	64	2,372	106	18	2.2	1.6
Yemen Arab Rep.	640	978	8.5	3.4	128	47	2,318	91	0	3.8	—
Senegal	650	754	7.0	3.0	78	48	2,350	60	9	11.4	−0.8
Zimbabwe	650	948	9.3	3.7	49	63	2,132	136	24	4.3	1.0
Egypt Arab Rep.	660	1,188	50.2	2.6	83	63	3,342	90	8	4.3	3.6
Dominican Rep.	720	1,753	6.9	2.4	63	66	2,477	133	16	2.5	2.7
Cote d'Ivoire	770	920	11.2	4.0	95	53	2,562	70	22	4.5	0.9
Papua New Guinea	810	1,374	3.7	2.4	61	54	2,205	70	21	10.8	0.5
Morocco	830	1,221	24.0	2.7	71	61	2,915	71	23	2.2	2.3
Honduras	860	911	4.8	3.6	68	64	2,068	106	11	7.3	0.6
Guatemala	900	1,608	8.7	2.9	57	62	2,307	77	8	2.9	1.0
Congo People's Rep.	910	1,338	2.1	3.5	117	53	2,619	—	20	4.1	3.5
El Salvador	940	1,198	5.0	1.3	57	63	2,160	79	6	7.7	−0.5
Thailand	1,000	1,900	54.5	1.9	30	65	2,331	95	26	1.0	4.0
Botswana	1,010	1,762	1.2	3.4	41	67	2,201	114	—	7.8	8.6
Cameroon	1,010	1,095	11.2	3.2	92	56	2,028	109	14	2.2	3.7
Jamaica	1,070	1,725	2.4	1.5	11	73	2,590	105	19	6.0	−1.5
Ecuador	1,120	2,387	10.1	2.7	62	66	2,058	117	21	1.3	3.1
Colombia	1,180	2,599	31.7	2.1	39	68	2,542	114	22	0.2	2.4
Paraguay	1,180	1,996	4.0	3.2	41	67	2,853	102	23	1.3	3.1
Tunisia	1,230	2,050	7.8	2.5	48	66	2,994	116	19	3.2	3.4
Turkey	1,280	2,533	53.8	2.3	75	64	3,229	117	26	0.4	2.6

Table 1 (continued)

Country	GNP PC	RGDP	POP.	POP. Growth	IMOR	LEB	CSPC	PEDU	GDS	ODA	Growth
Peru	1,300	2,114	20.7	2.2	86	62	2,246	122	24	1.1	0.1
Jordan	1,500	2,113	3.9	3.7	43	66	2,991	–	-3	9.3	–
Chile	1,510	3,486	12.8	1.7	20	72	2,579	103	24	0.2	0.1
Syrian Arab Rep.	1,680	2,900	11.6	3.6	46	65	3,260	110	13	1.3	2.9
Costa Rica	1,690	2,650	2.7	2.3	18	75	2,803	98	26	4.0	1.4
Mexico	1,760	3,985	83.7	2.2	46	69	3,132	118	23	0.1	2.3
Mauritius	1,800	1,869	1.1	1.0	22	67	2,748	106	25	3.0	2.9
Poland	1,860	4,913	37.9	0.8	16	72	3,336	101	35	–	–
Malaysia	1,940	3,415	16.9	2.6	23	70	2,730	102	36	0.3	4.0
Panama	2,120	2,912	2.3	2.2	22	72	2,446	106	–	–	2.2
*Brazil	2,160	3,282	144.4	2.2	61	65	2,656	103	28	0.1	3.6
Angola	–	609	9.4	2.5	135	45	1,880	–	–	–	–
Lebanon	–	–	–	–	–	–	–	–	–	–	–
Nicaragua	–	1,989	3.6	3.4	60	64	2,495	99	–	–	-2.5

Upper-middle-income economies

Country	GNP PC	RGDP	POP.	POP. Growth	IMOR	LEB	CSPC	PEDU	GDS	ODA	Growth
South Africa	2,290	3,885	34.0	2.3	70	61	2,924	–	25	–	0.8
Algeria	2,360	2,142	23.8	3.1	72	64	2,715	96	31	0.3	2.7
Hungary	2,460	5,765	10.6	-0.1	16	70	3,569	97	28	–	5.1
Uruguay	2,470	3,462	3.1	0.6	23	72	2,648	110	14	0.5	1.3
Argentina	2,520	3,486	31.5	1.4	31	71	3,210	110	18	0.2	0.0
Yugoslavia	2,520	5,063	23.6	0.7	25	72	3,563	95	40	0.1	3.4
*Gabon	2,970	3,103	1.1	3.9	101	53	2,521	–	33	3.2	0.9
Venezuela	3,250	3,548	18.8	2.8	35	70	2,494	107	25	0.0	-0.9
Trinidad & Tobago	3,350	6,884	1.2	1.7	16	71	3,082	100	21	0.2	0.9
Korea	3,600	3,056	42.0	1.2	24	70	2,907	101	38	0.0	6.8
Portugal	3,650	3,729	10.3	0.7	14	74	3,151	124	21	0.2	3.1
Greece	4,800	4,464	10.0	0.5	12	77	3,688	104	11	0.1	2.9
Oman	5,000	7,792	1.4	4.7	38	64	–	97	–	–	6.4
*Libya	5,420	–	4.2	4.3	80	61	3,601	–	–	–	-2.7
Iran	–	3,922	48.6	3.0	64	63	3,313	114	–	–	–
Iraq	–	2,813	17.6	3.6	68	64	2,932	98	–	–	–
Romania	–	4,273	23.0	0.4	24	70	3,373	97	–	–	–

Table 1 (continued)

Country	GNP PC	RGDP	POP.	POP. Growth	IMOR	LEB	CSPC	PEDU	GDS	ODA	Growth
High-income economies											
Saudi Arabia	6,200	5,971	14.0	4.2	69	64	3,004	71	20	0.0	3.8
Spain	7,740	6,437	39.0	0.5	9	77	3,359	113	22		2.3
Ireland	7,750	5,205	3.5	0.5	7	74	3,632	100	27		2.0
Israel	8,650	6,270	4.4	1.7	11	76	3,061	95	10	2.8	2.7
Singapore	9,070	9,834	2.6	1.1	7	74	2,840	–	41	0.1	7.2
Hong Kong	9,220	9,093	5.7	1.5	7	77	2,859	106	33	0.0	6.3
New Zealand	10,000	8,000	3.3	0.8	11	75	2,463	107	26		0.8
Australia	12,340	8,850	16.5	1.4	9	76	3,326	106	23		1.7
United Kingdom	12,810	8,665	57.1	0.2	9	75	3,256	106	17		1.8
Italy	13,330	7,425	57.4	0.2	10	77	3,523	95	23		3.0
Kuwait	13,400	14,868	2.0	4.4	15	73	3,021	94	15	0.0	−4.3
Belgium	14,490	9,717	9.9	0.0	9	75	–	100	21		2.5
Netherlands	14,520	9,092	14.8	0.5	8	77	3,326	115	23		1.9
Austria	15,470	8,929	7.6	0.0	8	75	3,428	101	27		2.9
United Arab Emirates	15,770	12,404	1.5	4.8	25	71	3,733	99	36	−0.1	–
France	16,090	9,918	55.9	0.4	8	76	3,336	113	21		2.5
Canada	16,960	12,196	26.0	0.9	7	77	3,462	105	23		2.7
Denmark	18,450	10,884	5.1	0.0	8	75	3,633	99	21		1.8
Germany Fed. Rep.	18,480	10,708	61.3	−0.1	8	75	3,528	103	26		2.5
Finland	18,590	9,232	5.0	0.5	6	75	3,122	101	27		3.2
Sweden	19,300	9,904	8.4	0.2	6	77	3,064	100	21		1.8
United States	19,840	12,532	246.3	1.0	10	76	3,645	100	13		1.6
Norway	19,990	12,623	4.2	0.3	8	77	3,223	95	28		3.5
Japan	21,020	9,447	122.6	0.6	5	78	2,864	102	33		4.3
Switzerland	27,500	10,640	6.6	0.3	7	77	3,437	–	31		1.5

GNP PC: GNP per capita (1988 $)
RGDP: Real GDP per capita as defined by Summers and Heston (1988)
POP.: Millions in mid-1988
POP. Growth: Average rate of growth 1980–1988 (%)
IMOR: Infant mortality rate (per thousand live births) 1988
LEB: Life expectancy at birth (years) 1988
CSPC: Daily calorie supply (per capita) 1986
PEDU: Percentage of age group enrolled in primary education in 1987
GDS: Gross Domestic Saving (% GDP) 1988
ODA: Net Disbursement of Official Development Assistance (%GNP) 1988
Growth: Average annual growth rate of GNP per capita (%) 1965–1988
Asterisks denote countries whose specific statistics are discussed in the text. For technical information see sources described.
Source: World Development Report (1990) except RGDP, Summers and Heston (1988).

I must also be recognised that there is enormous variability within the coun ies. Many developing countries have groups which are colossally rich and, further, many of them have a substantial middle class whose conditions of life are very different from those of the poor. In countries as vast as India, China and Brazil, regional as well as social variation can also be highly significant. China and India are, of course, the two most important examples in their own right, with a combined population of 1.9 billion in a total world population of around 5 billion, and one cannot think of them as just another drawing from a sample of world countries. They deserve special study.

The Summers and Heston (1988) recalculation of income per capita using an approach based on purchasing power parity (PPP) shows that the income figures must be treated with a good deal of circumspection. The adjustment for purchasing power parity is only one of the many problems associated with comparing income across countries, but making just this one change can have very substantial effects. Changes at the bottom end are particularly dramatic (although notice how Japan's ranking is lowered and Kuwait becomes the richest country – she was purchasing services at Indian and Pakistani prices). For example, China, India and Pakistan are all ranked fairly closely under conventional national income measures, whereas in the Summers and Heston data the income per capita of Pakistan is more than 50% above that of India and the income per capita of China is more than twice that of Pakistan. These are three countries on and in which I have worked over the last few years and I should say that my simple participant observation is more consistent with the Summers and Heston figures than those following the standard World Bank conventions. Other indicators such as the consumption of housing, health care, food, television sets, washing machines and so on do not sit comfortably with the picture painted by the conventional measures. The Summers–Heston figures are subject to revision as more information becomes available and judgements are changed. The Penn World Table (PWT) figures for 1985, as published in Summers and Heston (1988), are the fourth collection from the valuable research programme of the University of Pennsylvania and are known as PWT4. The figures for PWT5 will soon become available (Summers and Heston, 1990, provide an early form) and I understand (from private communication with the authors, for which I am grateful) that the provisional figure for China for 1985 is 1904 (U.S. dollars) as compared with the published figure (PWT4) of 2444. A reduction of this magnitude in the China figure reduces the estimate of world income by more than 500 billion dollars. The size of the changes and the discussions which surround them surely show that we must treat income measures with some suspicion.

There is much more to standard of living than income. The great variety of conditions in developing countries is further illustrated in some of the other dimensions summarised in table 1. Further, the variations in the other

indicators are far from perfectly correlated with income per capita whether measured in the standard or PPP manner. For example, infant mortality rates (in terms of deaths of children under one year of age per thousand live births) are, respectively, 31 and 21 for China and Sri Lanka (with conventionally measured income per capita of $330 and $420 respectively in 1988), whereas those for Brazil, Gabon, and Libya are 61, 101 and 80, notwithstanding their incomes per capita of $2,160, $2,970 and $5,420. Life expectancies in China and Sri Lanka are 70 and 71, figures exceeded only by Jamaica amongst countries with income per capita less than $1,500, and by only a handful of countries with income per capita less than $5,000. The reasons for this high performance on this critical dimension appear to be closely associated with public action concerning food, education, health services, water supply, sanitation, and so on – we return to these issues in the next section of this lecture.

There is a long history of using cross-section data of the type displayed in table 1 to describe, or test theories of, growth, including Kuznets (1971), Chenery (1979), Chenery et al. (1986), Reynolds (1983), Morris and Adelman (1988). Chenery and his collaborators have been particularly concerned with cross-country regressions 'explaining' the rate of growth in the tradition of Solow (1957) and Denison (1967). More recently the wide availability of the Summers and Heston data together with a rekindling of interest in growth theory has generated a further spate of cross-country regressions, notably from Barro (1989a, b). These have shown a worthy concern to bring in more theory and to take account of possible simultaneity.

The problems of simultaneity in this context are, in my view, almost insuperable – what *are* the exogenous variables? Problems of measurement are rampant as we have seen. And there is something about seeing China and Zaire as just two outcomes generated by the same underlying process that leaves me a little uncomfortable. Nevertheless the results can be suggestive and we give a flavour for some of them here [drawn from Barro (1989a, b)]. Growth is positively related to initial human capital. Growth is positively related to investment and the division between public and private appears unimportant. So-called 'mixed economy' systems have slightly higher per capita growth rates than 'free enterprise' economies but the difference is not statistically significant. An index of price distortions appears to be negatively associated with growth, as is initial GDP per capita and government consumption (as a share of GDP). Measures of political instability (proxied by figures on revolutions, coups, and political assassinations per capita per annum) are inversely related to growth although when these proxies are introduced the indicator for political freedoms (otherwise positive) becomes insignificant [thus the association between liberty and growth emphasised by Dasgupta (1990, pp. 27–28) must be treated with some circumspection]. The shares in GDP of government spending on education

and defence appear to be insignificantly related to the growth rate. In all these cases we are speaking about the signs of coefficients in a structural equation designed to explain a per capita growth rate (1960–1985) where some simultaneities are taken into account.

3. The role of the state

Early writers on development, governments of recently independent developing countries and many Western countries facing reconstruction after World War II saw a major role for the state in the production process. Behind these judgements were a pessimism about the market's ability to deliver economic change in key dimensions with the speed deemed necessary. This was coupled with, at least in the U.K., a favourable judgement on the efficiency of wartime planning [see, for example, Little (1982)]. More recently the pendulum has swung the other way with a sizeable fraction of the herd of both politicians and economists charging in the direction of minimalist government, privatisation, and so on. I shall argue, on the basis of theory, of rights and of experience, that the state's role should not be minimal. The state's emphasis however, should not be on production. It should rather be on health, education, protection of the poor, infrastructure and providing the right environment for entrepreneurial activity to flourish. When we add to the list basic administration, law and order, and defence, we see that a substantial fraction of GDP will be involved. Its finance is discussed in section 5. It should be emphasised that the organisation and finance of this expenditure can take many forms, particularly concerning the tier of government and the relationship between government and community, but the discussion of these important issues would take us too far afield.

I begin with a brief review of what standard microeconomic theory has to say about market and government failures. First note that it would be a mistake to see the issue of the role of the state in terms of finding an appropriate balance along a single dimension such as the fraction of productive capacity owned by the state. Many activities and institutions have public and private aspects to them and many of the crucial policy issues involve finding an effective integration of the market and the government. Some of the more dynamic aspects of market and government failure are discussed in the next section.

Five groups of arguments for state intervention in the economy may be distinguished:

(i)   market failure, which may arise from many possible sources including externalities, missing markets, increasing returns, public goods, and imperfect information;

(ii) a concern to prevent or reduce poverty and/or to improve income distribution;

(iii) the assertion of rights to certain facilities or goods such as education, health and housing;

(iv) paternalism (relating, for example, to education, pensions and drugs); and

(v) the rights of future generations (including some concerns relevant to the environment).

The first two groups of arguments arise from standard welfare economics but the others arise rather differently. Strands from all five provide grounds for government action for both developed and developing countries although they are perhaps stronger for the latter. Together they point fairly directly to particular areas of government expenditure, notably education, health, social support and the environment.

There is a further substantial role for government in improving market functioning and private sector activity through such measures as building infrastructure, providing a regulatory and legislative framework which allows competition to work effectively, and intervening selectively in industry and agriculture. The market failure arguments are especially persuasive concerning infrastructure, where increasing returns, public goods and externalities can all be of considerable importance. The arguments therefore help identify important areas for state activity, but, as we have remarked, the case for direct state activity in the production of ordinary producer and consumer goods such as steel, cars, shoes or ice cream does not appear to be strong, at least from the perspectives included here.

Until now, we have assumed implicitly that the government is well-intentioned, well-informed and competent. Governments, however, may be craven or manipulated, they may be very badly informed and they may be incompetent. In recent years much of the profession seems to have swung towards an emphasis on government failures in contrast to market failures [see, for example, the symposium in the June 1990 issue of the *Journal of Economic Perspectives*, in particular Krueger (1990)], and this shift in the climate of opinion has gone hand-in-hand with the reduction of government activities in a number of countries, although it is not clear that it is economic analysis that has led the way. There is no doubt, however, that failures of government are indeed important and are particularly severe for developing nations.

In the recent past there has been substantial attention in development economics given to the generation by government action (including quotas, prohibitions, restrictions and the like) of rent-seeking and unproductive activities. It has been argued that this type of economic loss associated with government activity can be very large, relative to traditional calculations of

deadweight losses (usually associated with government action in the form of taxes) of the 'triangle' variety (or suitable general equilibrium generalisations) which have often been viewed as quite small (1% or so of GNP is a common figure for these losses).

Rent-seeking is no doubt important, but in my judgement the empirical evidence on its magnitude has been weak. Attempts, however insecure, to measure the size of rents are generally far more secure than estimates of the resources used in the pursuit of those rents. Those resources are usually estimated simply by the magnitude of the rents themselves. This rests on the rather dubious assumption that the competition for rents takes place in a manner which is perfect in an important sense. Indeed, one of the complaints about the generation of rents is precisely that they are allocated in ways which favour certain groups (such as close relations of the President) and the market for them is not competitive. Whilst this causes aggravation, it may imply that efficiency losses are much smaller than the rents themselves. The effects, however, of the creation of special privileges for certain groups by government may be rather more pernicious and long-term than is portrayed in the simple static descriptions embodied in the arguments just described. Rent-seeking is not limited to developing countries, of course. The New Yorkers see Washington as the rent-seeking capital of the world and the Milanese have a similar view of Rome.

Let us now turn to an examination of empirical evidence. Consideration of the expenditure figures shown in table 2 indicates that health and social security receive relatively less attention in developing than in industrial nations whilst defence and general public services show a greater share. It is reasonable to ask why it is that industrial countries attach greater (proportional) weight to social security expenditures when problems of poverty are clearly far greater in developing nations [World Bank (1990)]. One can also argue that the share of expenditure on infrastructure (proxied by Transport and Communications in table 2) is too low given its backward state in many LDCs and its central role in generating growth and aiding market functioning. There appears to be considerable scope for alteration of the composition of expenditures in order to improve living standards and market functioning in developing countries. In support of this view evidence is provided on the impact of various types of interventions drawn from a wide range of countries.

3.1. Health and nutrition

We have already seen that the performance of China and Sri Lanka in reducing mortality rates and increasing life expectancy has been outstanding in relation to their incomes. This high performance appears largely to have been the result of public action. I shall describe some central elements briefly.

Table 2

Central government expenditures by type (% total expenditure, 1986–1987).

Area	General public services	Defence	Education	Health	Social Security	Transport and communication	Other economic services	Other	Central expend. (% GDP)	Central revenue (% GDP)
Industrial	8.05	7.34	8.45	9.61	37.71	5.12	7.15	16.57	31.46	26.99
Developing	16.94	11.97	14.11	6.21	12.60	7.19	16.04	14.94	25.40	21.10
Africa	18.54	8.85	15.97	5.51	8.25	7.12	17.49	18.27	25.63	21.23
Asia	17.87	12.99	14.39	5.18	7.14	11.23	19.41	11.79	19.89	17.25
Europe	16.88	13.63	7.26	6.26	23.07	6.53	21.18	5.19	29.15	28.46
Middle East	13.29	26.69	12.54	4.85	13.22	3.71	11.06	14.64	33.12	25.82
Western Hem.	16.09	7.53	13.98	8.32	18.77	6.80	11.88	16.63	25.04	19.64

Source: IMF Government Finance Statistics Yearbook (1989).

China's life expectancy of 70 and infant mortality rate of 31 may be compared to India's of 58 and 97, respectively. It seems reasonable to relate this to the extensive social support system in China. Through, in large part, a strong focus on the food supply and distribution system China has attained a high level of food consumption per capita (2,630 daily calories per person in 1986) as compared with India at 2,238 (*World Development Report, 1990*, table 28, and see table 1 above). In 1984 there were 1,000 people per physician in China as compared with 2,520 in India and much greater attention was paid to maternal and child health care and support of the elderly.

Aggregate income would not appear to be the main issue here. Brazil with an income per capita of $2,160 (conventionally measured), as compared with $330 for China, has only managed a life expectancy of 65 and an infant mortality rate of 61, and the gains in life expectancy and infant mortality rate in China were achieved prior to the very rapid growth since the reforms began in 1979. The crude comparisons of aggregates understates the achievements of China's support system. Whereas China provides a fairly universal system of support, reaching all parts of the country, coverage in India and Brazil is haphazard. For example, the poorest part of Brazil, the north-east which contains most of the country's poor (but only a quarter of the population) receives few social services. Indeed, Brazil's population per physician (1,080) and food consumption per capita (2,656 calories) are similar to China's but the distribution is much worse. The distribution of services probably plays a major part in explaining the higher life expectancy and lower infant mortality rate – the weak and the old in China receive much better support than in most developing countries. Further, China has placed a great emphasis on preventive measures including education, the provision of pure water supply and adequate sanitation.

The explanation behind Sri Lanka's outstanding performance is similar to that of China although Sri Lanka's advance came rather earlier (primarily prior to 1960). The subsidised rice system was introduced in 1942 and the promotion of primary education goes back to the early part of this century [see Drèze and Sen (1990, ch. 12)]. Like China, Sri Lanka has long had an emphasis on public health – a particularly important example being the eradication of malaria. Chile reduced its infant mortality from 103 per thousand in 1965 to 20 per thousand in 1988 in large part as a result of reforms begun in the early 1970s including an expansion of primary health care with an emphasis on vulnerable groups [World Bank (1990, ch. 5)].

Improved health and nutrition are important in their own right. They may also improve economic performance and there are a number of cases from, for example, Indonesia, Kenya and India [see Berg (1987, ch. 6)] where it has been claimed that improved nutrition in manual workers led to higher productivity.

3.2. Protection of living standards

To a major extent the reduction of age-specific mortality rates and the lengthening of life expectancy are achieved by protecting the poor from death and illness, by, for example, providing clean water, adequate sanitation and ensuring that they can obtain food. The protection of health and nutrition constitutes a central aspect of social support in developing countries. Over the last ten years or so we have come to understand much more about how protection can be provided [see, for example, Sen (1981), Drèze and Sen (1990) and Ahmad, Drèze, Hills and Sen (1991)]. These authors have argued persuasively for careful integration of public action with the market. An important example is the employment-based famine prevention and poverty reduction schemes which have been effective where applied in India throughout this century – see Drèze (1988). The Employment Guarantee Scheme in Maharastra, as well as providing longer-term support, was also effective in meeting the threat of famine in the early 1970s. The cash-for-work element in these schemes embodies both the self-selection device of presentation for work and the provision of purchasing power to buy food. Markets seem effective in ensuring that the supply becomes available to meet the demand. Cash allows that demand to manifest itself.

3.3. Education

We have already discussed the Barro (1989a,b) results relating growth rates to human capital measured in terms of education. The *World Development Report 1990* (chapter 5) reports similar statistical relationships (although between the level of the real GDP and average years of education – Box 5.2) plus estimates of social returns to primary education in sub-Saharan Africa (26%), Asia (27%) and Latin America (26%) based on Psacharopoulos (1985).

3.4. Infrastructure

Looking back over the World Bank's successes and failures (as seen through the eyes of its Operation Evaluation Department) in different areas of activity, Pohl and Mihaljek (1989) found investments in roads and irrigation to have been particularly productive. The *World Development Report 1990*, p. 85, indicates an economic rate of return, on average, for agricultural infrastructural projects of 17%. The *World Development Report 1987* noted a study of the Indian economy which put the costs of power cuts in the mid-1970s at 2% of GDP. In Bangladesh a study of sixteen villages found that those which had benefitted from public programmes for infrastructure (roads, power, and so on) displayed an increase in average

household income approaching one-third (*World Development Report 1990*, p. 60).

In the light of the theoretical arguments and empirical evidence concerning the need for and productivity of government investment in infrastructure it is not surprising that the European Community is concentrating on infrastructure in its massive aid programme (Structural Funds) to the poorer regions. For example, Spain is to receive more than 1 billion dollars a year over the next 4 or 5 years from the European Community Structural Funds, and 40% of this will be spent on improved communications, particularly roads [see European Commission (1989)]. This compares with the World Bank's total annual expenditure on all projects and programmes worldwide of around 20 billion dollars or the projected budget of the European Bank for Reconstruction and Development of one to two billion dollars and the structural funds are grants, whereas the two banks provide loans.

3.5. The environment for economic activity

Health, education and infrastructure all play critical role in the economic environment. So too does competition. Indeed one of the critical lessons of the British privatisation experience has been that competition seems to be of greater importance than whether an industry is publicly or privately owned [see Vickers and Yarrow (1988)]. A number of discussions of agriculture and the environment in Africa [for example, Platteau (1990)] point to the importance of the establishment of clear property rights if investment and land development are to be encouraged. A similar interpretation may be attached to the substantial negative effect of political instability on growth in the Barro analysis. Reynolds (1983), in a study of comparative growth from a perspective of 100 years or so, suggests that the single most important explanatory variable is 'political organisation and the administrative competence of government' (p. 978).

The role of government in encouraging private industry can involve much more than defining property rights and promoting a competitive environment. The governments in each of Japan, Germany and France have all played an active role in coordinating regional economic activity. To take some examples from developing countries which have exhibited rapid growth, the government has been very actively involved in channelling credit to selected industries in South Korea, Singapore and Taiwan. It is interesting that in most of the countries just cited the strategies have involved neither the command economy nor the free market. In some cases international trade has been substantially less than free. One should not view the apparent collapse of the Eastern European economies and the success of Hong Kong together with the (strong) evidence on the beneficial effects of trade-oriented strategies [see, for example, Papageorgiou et al. (1990)] as establishing an

overwhelming case for minimalist government and a free trade policy. Looking to agriculture we see that governments, such as those of Mexico, India, and Indonesia, have been very influential in developing and disseminating the new technologies which created what is sometimes called 'the green revolution'. Economic coordination and the encouragement of new ideas and adoption do seem to be areas where the state can play a productive role in assisting the market.

We must conclude here our rapid look at the theory and evidence supporting our contention that there should be a major role for the state in the areas we have described. Notice that it has been based largely on microeconomic theory and empirical evidence. It has been mostly unrelated to theories of growth and it is interesting to look at these theories to see what they might be missing.

4. The determinants of growth

The questions of what determines the rate of growth and how it can be influenced by policy have always been central to development economics. Growth theory has played an important part in structuring the discussion. I shall argue, however, that notwithstanding their important insights both older and newer theories do not yet give us much guidance on the determinants of long-run growth rates for developing countries and thus do not yet provide a great deal of help in the design of policy to influence growth in the long run. However, it will be suggested that the emphasis on the long run is excessive and greater attention should be focussed on the short and medium term, for which the theories can be instructive. Whilst many of the newer ideas are welcome, and are focussing on important elements, key issues are still omitted and I shall try to identify some of them.

The simple Harrod–Domar expression for the growth rate of the capital stock, s/v where s is the savings rate and v the capital–output ratio, (or s/v for the growth rate of output where v is the incremental capital–output ratio) has been particularly influential and still lies at the heart of the formulation of general strategy for and discussion of planning models [see, for example, World Bank (1985) on China and Gupta (1989) on the Indian Five Year Plans]. Early discussion concentrated on raising the growth rate by increasing s and holding v down.

Cross-country analyses have sought to explain differences in growth rates between countries in terms of growth accounting, i.e. by adding the different contributions of the growth of basic factor inputs, particularly the growth rates of capital and of labour together with an 'unexplained' element or residual. To remind those of you who may have forgotten, the simple Solow (1957) decomposition of growth into factor contributions and a residual was

based on the differentiation of a production function, $Y = F(K, L, t)$, where Y is output, K capital, L labour and t time, to form

$$\frac{\dot{Y}}{Y} = \left(\frac{F_K K}{Y}\right)\frac{\dot{K}}{K} + \left(\frac{F_L L}{Y}\right)\frac{\dot{L}}{L} + \frac{F_t}{Y}. \tag{1}$$

The 'contribution' of capital accumulation to growth is measured by $(\dot{K}/K)$ multiplied by the share of capital in national income (the assumption being that this is competitively determined).

Chenery (1983) and Chenery et al. (1986), in their cross-country empirical work for the 1960s and 1970s, found that the contribution of factor inputs to growth seemed to be higher for developing [generally more than $\frac{3}{4}$ of the growth rate, see Chenery (1983)] than for developed countries, where the residual was correspondingly greater (being generally more than $\frac{1}{2}$ of the growth rate). This might suggest that developing countries would be well advised to focus on capital accumulation, whilst developed countries might concentrate their energies on improving the rate of technical progress, although I shall argue that this is much too simplistic a story, at least for developing countries.

The growth accounting analysis can be suggestive, but it should not be taken too literally, since the joint hypothesis of a constant-returns-to-scale aggregate production function and competitive integrated factor markets at the economy-wide level is surely better suited to examining theoretical principles than guiding detailed applied calculations intended to represent crucial aspects of particular economies. The hypothesis seems to be rejected where tested (at least for the short run), see, for example, Hall (1989), for the U.S.A. Certainly for developing countries, the variations across sectors in institutional arrangements and market structures should make us circumspect about the hypothesis and caution against reading too much into an aggregate calculation.

A central problem with the growth theories developed in the 1950s and 1960s, and exemplified by those we have just been discussing, was that they could say very little about the determinants of the long-run rate of growth. If we embed the above analysis of the Harrod-Domar model into the long run we see that if capital grows faster than labour (s/v greater n, where n is the rate of growth of the labour force), then with constant returns to scale in an aggregate production function the rate of growth of output will lie between the rate of growth of capital and of labour. Thus the capital-output ratio will rise and s/v will fall, eventually bringing s/v into equality with n. The long-run rate of growth then is determined by the rate of growth of the population and, in this sense, there is no role for policy. Technical progress has sometimes been added to the story, but, whether embodied or disem-

bodied, that technical progress, whilst increasing the rate of growth, has generally been left unexplained.

Perhaps the most important contribution in the early growth theory to the modelling of technical progress was the work by Arrow (1962) on learning by doing. In this model the growth of output per head in the long run arises from the lessons learned from accumulated investment in physical capital. Nevertheless, in the Arrow model, the long-run rate of growth of output per head is a function of the rate of growth of the labour force, and if the rate of growth of the labour force were zero, then the long run would show no growth in output per head. Arrow's was not the only contribution which attempted to treat the problem of making technical progress endogenous through learning. Kaldor (1957) pursued related ideas based on the technical progress function. Indeed, Arrow (1962) acknowledges his debt to Kaldor [see also Kaldor and Mirrlees (1962)]. Others such as Uzawa (1965) and Shell (1973) sought to explain advances in knowledge in terms of investment in knowledge-producing activities. Nevertheless by the late 1960s or early 1970s research on the theory of growth more or less stopped and the explanation of technical progress was left in a fairly unsatisfactory state.

The latter half of the 1980s saw a rekindling of interest in growth theory, particularly in the work of Romer (e.g. 1986, 1989, 1990) and Lucas (1988). Their models follow the two approaches, described above, to technical progress which, for convenience, we will term Arrow and Uzawa. Many of the insights associated with this new work lie in its taking more seriously the microeconomic stories underlying the growth models. In this respect the substantial development of micro theory that took place in the 1970s and 1980s has been of great assistance. Central in the micro discussion are the problems associated with embedding increasing returns and public goods in the theory. In the Arrow–Romer framework there are constant returns at the level of the firm (and so competitive equilibrium is sustainable) but there are increasing returns in the economy as a whole, because a 1% increase in both capital and labour results, through the augmentation of knowledge in the investment process, in an increase of output by more than 1%. In the Uzawa framework (to which Lucas and, again, Romer have contributed) the ideas-producing sector, if it is to sell its output at a positive price, must be allowed to embody its ideas in patents or the equivalent. The ideas lead to increasing returns (they can be used again and again). The exercise of these patents will lead to imperfect competition in the sector which produces standard outputs.

Have these newer theories provided us with the raw material for a substantial advance in our understanding of the determinants of long-run growth and the influence of policy in that process? In my judgement they have not yet reached that position. Advance in the Arrow framework has essentially involved only a borderline case amongst those presented by Arrow. The aspect of the Romer (1986) model which gives results different

from Arrow is simply as follows. Labour is augmented by a factor (associated with technical progress) to generate 'effective units of labour' which in turn are interpreted as product input. This factor is related to the accumulation of knowledge from physical investment. It is given in Romer (1986) by accumulated investment (i.e. capital), whereas in Arrow it is capital to some power γ less than 1. Sheshinski (1967) provided a non-vintage version of the Arrow story which we may sketch as follows,

$$Y = F(K, AL), \tag{2}$$

where $A = K^\gamma$ and $\gamma = 1$, Romer, and $\gamma < 1$, Arrow–Sheshinski. It is this feature (i.e. $\gamma = 1$) which allows a positive long-run rate of growth of output, even if there is no growth in the labour force – because at the level of the whole economy output is proportional to capital (from constant returns to scale). Long-run growth in output per head is possible, even if n is zero, at a rate (see the Harrod–Domar expression) determined by the overall savings rate. It is easy to check that in the Arrow–Sheshinski framework with a Cobb–Douglas production function that the long-run growth rate is $n/(1-\gamma)$. In the Romer case, if the level of investment is chosen by private entrepreneurs in the pursuit of future profits, tax policy which affects the rate of return on investment will affect the rate of investment and thereby the long-run rate of growth. Thus the model does indeed provide a role for policy in influencing the long-run rate of growth. However, a borderline case such as this is surely too fragile a peg on which to hang a whole new story.

The long-run growth rate in models of the Uzawa type can be influenced by policy insofar as that policy will alter the returns to, and therefore investment in, the knowledge-producing sector. There are major problems, however, if we try to tell empirical stories. It is extremely difficult to identify in real economies anything approximating a distinct knowledge-producing sector.

In neither of the groups of models should we expect the market economy to deliver efficient growth. In the Arrow–Romer group of models investment shows externalities and in the Uzawa group externalities arise from the publicness of ideas. In both cases some encouragement to the knowledge-producing activity (be it investment or research) is required. But one hardly needs an elaborate growth model to make this point.

As far as further research goes I think we shall need both the Arrow and Uzawa strands. I confess, however, to finding the Arrow–Romer route more promising both since R&D is so hard to define and identify and because I do not see knowledge as arising only where it is deliberately sought through the application of resources to that sole end. Both Scott (1989) and King and Robson (1989) have argued persuasively that it is the act of investment itself that generates the ideas and this indeed is the notion Arrow and Kaldor

were seeking to capture in their earlier models. It was common in the 1960s to criticise Kaldor [in his paper of 1957 and with Mirrlees (1962)] for basing his models on something, the technical progress function [$\dot{Y}/Y = f(\dot{K}/K)$], which was not clearly related to a familiar production function. Perhaps, however, we should loook [as King and Robson (1989) have done] at this concept again. King and Robson speak of learning-by-watching and there may be some of this phenomenon in the rapid growth of South Korea, Taiwan, Hong Kong and Singapore. It is, however, surely only part of the story and the experience of the four dragons tells us that the watching extends beyond the single economy [see, e.g., Amsden (1989)].

How does this very brief review of theory and empirical work leave us as regards the agenda for understanding the determinants of growth in output per head and how they might be influenced? The growth theories have emphasised three (related) determinants:

(i) capital accumulation,
(ii) human capital (including learning) and
(iii) research, development and innovation.

We may associate all three determinants with the augmentation of input, notwithstanding that we include an input called knowledge. From this perspective we should go beyond the standard theory and add a fourth, concerning management and organisation, which may provide a better output from given inputs. It may not be unreasonable to apply all four of these ideas at an aggregate level.

If we go beyond the aggregate, however, there are two further crucial issues which arise. The first concerns infrastructure and the second the allocation of output across directly productive sectors. We have already emphasised the importance of infrastructure. Its deficiencies together with the weakness of management and organisation are likely to account for a substantial part of low factor productivity in developing countries. A central aspect of this low productivity is likely to be poor capital utilisation. Unfortunately it is difficult to obtain comparable data on capital utilisation across countries. Measurement problems abound. Hours worked per day, for example, in poorer countries tend to be longer than in richer and in this sense capital is used more intensively, as one might expect from a scarce factor. On the other hand equipment is often poorly designed, constructed and maintained and complementary inputs such as power and water are unreliable. Crucial spare parts are frequently unavailable. These features may explain why scarce capital can be unproductive and why countries such as India which have succeeded in raising their savings rate have not seen this flow into a higher growth rate. It is interesting that in the last five years India has seen growth rates of GDP per capita around 3%, compared with an average of 1% or so in earlier periods and this appears to have coincided

with increased capacity utilisation [UNIDO (1990)]. For further discussion of capital utilisation see Bautista et al. (1981), Betancourt and Clague (1981) and Phan-Thuy (1981).

Different sectors in developing countries may have different institutional arrangements and there may be a number of distortions preventing the allocation of resources in such a way that marginal products in different sectors are equalised. In this context the shift of resources from one sector to another may have an important effect on the overall level of output. Chenery (1969) and Chenery et al. (1986) found some evidence in support of this view. Thus close study of the institutional and other impediments to the movement of resources from one sector to another could have a substantial pay-off (in addition to the arrangements within the sector which we include under management and organisation).

I would argue, therefore, that whilst growth theory has both contributed to our understanding of how growth is determined and how it might be influenced, it has in many ways missed some of the crucial issues for developing countries. It may well be possible to model these productively, and I am sure that careful applied study of the role of management and organisation, the improvement of infrastructure, and sectoral transfer in developing economies could have a real pay-off to our understanding of the determinants of growth and to the design of policy. They are not directly concerned with the long-run rate of growth in the sense of the steady-states in some of the models we have been discussing, but these issues are, at the very least, important for a medium term of some considerable duration.

5. Public finance

I have argued in the preceding sections that both theory and experience tell us that there is an important role for government in crucial sectors of the economy. Any commitment of expenditure by the government has, however, to be financed, and any judgement of the appropriate size of the public sector must take into account its ability to raise revenue. We will review briefly here what experience and theory have to tell us about the ability of developing countries to tax. We shall see that developing countries now raise substantial amounts of tax revenue. Further, economic theory provides helpful guidance on how that revenue can be generated in a manner which is efficient, equitable and consistent with administrative constraints.

Let us suppose here that taxation would provide the main source of revenue. There are a few countries for which aid is large in relation to national income but, with the exception of Bangladesh, they are generally rather small countries (see table 1). In Africa, however, aid does remain very important, at least in comparison to savings. Compare, for example, the columns in table 1, giving savings and overseas aid as a proportion of GDP.

Borrowing (domestic or external) and the inflation tax have played a major part in public finances in some countries but again we may assume that their potential is limited in the longer term.

Non-tax revenue (for example, from oil royalties) is important for many countries and in most cases acts just like a tax. For analytical purposes we shall include it together with tax revenue for this discussion. In many countries non-tax revenue also comes from public-sector firms. In China prior to the economic reforms profits of public-sector enterprises were indeed the main source of revenue as was the case for Eastern Europe prior to the reforms. Interestingly, it does not seem to have been immediately appreciated in China that decentralisation of production decisions with profits going to private individuals requires a system of public finance to be put into place in order to substitute for the forgone profits. Whilst my suggested guidelines for state activity assign a limited role to public firms, pricing policy for publicly-provided goods and services is, and will remain, a crucial issue for many developing countries. Similar principles apply as for indirect taxation and the effect on revenue of pricing policy is a key issue. We should also take a broad view of the relationship between government and community in providing and financing public services [see e.g., Burgess and Stern (1991)].

Generally speaking, then, the main source of finance for government expenditure will be government revenue. Writing in the early 1960s, Nicholas Kaldor posed in a famous article the question 'Will underdeveloped countries learn to tax?' [Kaldor (1963)]. He pointed to tax revenues of 25–30% of GNP in developed countries and 8–15% in developing countries. Unfortunately in his enthusiasm to encourage developing countries to raise revenue in what he regarded as an efficient and equitable way, he appeared, in his role as adviser, to leave in his wake considerable social unrest. As a result his proposed tax reforms were rarely implemented – he paid, for example, insufficient attention to administrative problems and political opposition. Developing countries have, however, given their own answer to Kaldor's question. As table 3 shows, developing countries now raise considerable fractions of GDP in tax revenue – 15–20%. Further the figures in the table understate the extent of taxation in the sense that they omit some local taxes as well as a number of sources of non-tax revenue – profits of marketing boards, government land sales, profits from public-sector firms, mineral royalties, and so on. Non-tax revenue has a larger share in total revenue in developing than developed countries. It comprises around 7% of GDP for developing countries bringing them close to, or in, the 25–30% range Kaldor mentioned (see table 3).

The fact that many developing countries have been successful in raising revenue should not delude us into thinking that the problems of public finance are straightforward. Taxation does depend on a certain strength of government and a certain acceptance by the population of taxation. It

Table 3

Source of total revenue by geographical area (% of GDP, 1986–1987).

Area	Average GNP per capita	Total nontax	Total tax	Income taxes				Domestic taxes				Foreign taxes				Social secur.	Wealth and property	Other
				Total	Indi-vidual	Cor-porate	Other	Total	General sales, turnover, VAT	Excises	Other	Total	Import duties	Export duties	Other			
Industrial	13,477	6.26	31.22	10.96	8.45	2.37	0.14	9.43	5.58	3.02	0.83	0.72	0.70	0.01	0.01	8.50	1.11	0.10
Developing	1,241	6.50	18.05	5.52	2.08	3.29	0.40	5.20	2.46	2.06	0.68	5.13	4.32	0.62	0.20	1.30	0.45	0.50
Africa	614	4.93	20.29	6.86	2.30	4.31	0.33	5.11	3.09	1.55	0.47	6.73	5.60	0.96	0.20	0.78	0.42	0.32
Asia	749	4.57	14.84	4.46	2.37	2.64	0.09	4.55	1.59	2.23	0.72	5.46	4.82	0.48	0.15	0.04	0.16	0.18
Europe	3,424	8.90	20.02	5.33	2.99	1.63	0.72	6.08	2.96	2.18	0.94	2.68	2.67	0.00	0.01	4.64	0.66	0.95
Middle East	2,403	13.23	13.98	5.15	0.51	5.11	0.06	2.02	0.03	1.28	0.71	4.40	4.37	0.03	0.00	0.00	0.74	1.67
Western Hem.	1,634	5.05	17.15	4.41	1.48	2.38	0.67	6.13	2.41	2.82	0.89	3.40	2.54	0.50	0.36	2.18	0.57	0.66

Source: IMF Government Finance Statistics Yearbook (1989).

appears, for example, that it has been possible for Chile to keep up government revenue (now around 30% of GDP), but not for Peru whose revenue has declined from around 17% in the late 1970s to less than 10% in the late 1980s. It has been argued that the reason for this is that the Chileans are like the Germans. Whilst this is offered as a somewhat lighthearted suggestion, there does appear, for whatever reason, to be acceptance of taxation in Chile which is unusually high by Latin American standards. Further, governments must be in a position to control expenditure. Frequently there is extreme pressure on the government from a number of sources to increase that expenditure. For example, in Pakistan in the recent past military expenditure (comprising probably around one-quarter of the budget and 6% of GDP – see also table 2) has been very hard to control and the government has been sufficiently fragile that it has not felt confident in raising taxation. The upshot is substantial borrowing and public deficits which have reached worrying proportions [see Ahmad and Stern (1991)].

Having seen that governments can raise revenue, we must ask what economic theory has to offer on how they should do it. Let me suggest the following seven principles, all of which are essentially based on theoretical results in public economics – see Ahmad and Stern (1989, 1990) for references. I emphasise them because in my experience it is common to encounter practices, approaches and aphorisms directly counter to them. They focus on indirect taxes, the main source of revenue for most developing countries.

(i)   Where possible, lump-sum taxes and transfers, or close approximations should be used to raise revenue and transfer resources. Examples are land taxes (although incentives to improve land must be considered) and subsidized (infra-marginal) rations. Rations can be quite large, for example for urban households in China they may amount to $\frac{1}{4}$–$\frac{1}{2}$ of real income.

(ii) It can be very misleading to look at one set of tax tools in isolation from what is happening elsewhere in the tax system. For example, we should eschew simplistic rules such as allocating redistribution to the income tax and revenue raising to indirect taxes.

(iii) The focus of indirect taxation should be final consumption. This means that intermediate goods should not be taxed unless there is some difficulty in the way of taxing final goods or there are special distributional reasons for taxing these intermediates. This applies also to tariffs, which should be reduced as and when the revenue from final goods taxation can be built up. In the short term, it is generally preferable to replace quotas by tariffs so that the rent from the quota is replaced by a direct flow to the government rather than accruing to those agents who allocate or receive the quota.

(iv) Public-sector prices should be set according to the same principles as indirect taxes: price equal to marginal social cost for intermediate goods (except for the cases noted in (iii) above) and marginal social cost plus a contribution to revenue in the case of final goods.

(v) The appropriate microeconomic criterion for the expansion of industries is profitability at shadow prices of the incremental output. Other indicators (such as effective protection rates or domestic resource costs) are reliable only where they coincide with shadow prices. Similarly a reform rule based on the other indicators, such as adjusting tariffs to move towards uniform protection, is incorrect.

(vi) Indirect taxes should be guided by a trade-off between efficiency and equity and in the absence of well-functioning schemes for income support there is no prescription for uniformity of indirect taxation.

(vii) There are important examples of externalities as a basis for taxation. These include road usage, energy consumption, tobacco and alcohol. As with other taxes, income distribution and revenue effects elsewhere (and not simply marginal externality costs) should enter into the judgement of the appropriate tax.

In the long run an appropriate comprise between theory and administrative capabilities for indirect taxes might look as follows.

- a VAT with exemptions for food and a basic rate possibly supplemented by a luxury rate
- luxury excises on a few goods if the income tax system is weak
- no trade quotas; tariffs only where justified by well-substantiated learning arguments
- excises on petroleum, alcohol and tobacco.

These principles can indeed provide a firm basis for a design of tax systems, and a number of us at the London School of Economics have been attempting to apply them in terms of practical policy advice for Pakistan, India and Bangladesh [see Ahmad and Stern (1987 and 1991)]. Success is, as ever, limited, but I think it is fair to say that crucial points, such as the need, as regards indirect taxes, to shift from import taxation to consumption taxation, have been taken on board and to some extent implemented.

One can ask whether tax systems in developing countries are generally moving in the direction which theory would suggest. Broadly speaking I would argue that, as far as indirect taxes are concerned, theory and practice are becoming increasingly harmonious. There is increasing dependence on VAT and domestic sales taxes on final goods and services. VAT systems have been introduced into over 20 developing countries and further introductions,

especially in Asia and Africa are planned. The importance of VAT in Latin America has been increasing over time. It now accounts for between 1 and 5% of GDP in Uruguay, Peru, Mexico, Guatemala, Colombia, and Argentina and for (around) 9% of GDP in Chile. VAT is also central in many countries outside Latin America including, for example, Turkey and Indonesia. At the same time the importance of trade taxes, and in particular import duties, has been declining worldwide though dependence on this source of revenue in Africa is still uncomfortably high, representing close to 7% of GDP for Africa as a whole and being as high as 28% in Lesotho [International Monetary Fund (1989)].

On direct taxes, however, there is little conformity between theory and the direction of change. Compared to the position in industrial countries, progressive individual income taxation and social security contributions are of minor importance in developing countries (and in a number of countries have been declining) where the bulk of income tax is collected in the form of corporation tax. Generally equity and efficiency considerations suggest an individual should be assessed on income from all sources put together. However, in developing countries it is common for people to have income from a number of sources and it is extremely difficult to put them together to find out what an individual's global income really is. In addition there are difficulties with measuring correctly income from any particular source. Increasingly, then, developing countries are looking to tax income at source on a schedular basis, i.e. there are individual schedules for different sorts of income.

6. Conclusions

I hope enough has been said to show that economic theory and empirical analysis can make a substantial and constructive contribution to providing well-founded policy prescriptions in economic development. The impression should not be left, however, that there is a single set of prescriptions which can be applied to all countries. There are indeed basic principles and methods of analysis from economics but what they will yield in any particular application will depend in a very important way on the economic structure, institutions, political framework, and administrative capability of the countries involved. There is no substitute for detailed work in the countries themselves.

The discussion on the role of the state in section 3 has suggested that health, education, infrastructure, the legal and regulatory framework and protection of the poor are all areas where the state should take an active role. Further, although it has not been a major theme here, policies for the protection of the environment may involve considerable government activity. Add to these the conventional tasks of defence and law and order, and the

role for state activity is substantial. It was shown that there is strong evidence that government activity in the areas identified can be very effective (although the marginal product of defence activity I leave to your imagination). Further we saw that within given total expenditure there is substantial scope for moving the balance away from defence and 'general public services' towards the areas identified.

I have not argued, and would not argue, that the state should take an active role in the production of standard outputs, such as steel, cars and ice-cream. Here the state should concentrate on providing a constructive and competitive environment. There is no contradiction (consider South Korea, Thailand and Indonesia) between a major state commitment in the areas I have described and a vibrant private sector. Indeed we would expect an important positive connection. The areas identified do provide a major role for governments. It would be a great pity if the modish enthusiasm for rolling back the frontiers of the state were to result in an abandonment of government responsibilities in the crucial areas indicated.

The discussion of growth was more ambiguous as regards conclusions: we still have much to learn about the determinants of growth, and my own view is that many of the most important aspects are currently left out of our models, including, particularly, the efficiency with which physical capital and human capital are used and allocated. I think some of the issues I have just mentioned would be critical here, particularly infrastructure, health, and education. Capital utilisation is likely to be low where the electricity supply goes off frequently, the road system is weak, and it is difficult, or impossible, to get a telephone (or if you can get one, to have your calls connected). Similarly, if the workforce is unhealthy and uneducated, capital utilisation is also likely to be affected. Concentration on the long run can lead us to miss these issues.

Finally, I argued that many developing countries have been quite successful in raising the public finance which is required for the government activities described. In this, and throughout the story, however, there has to be a certain strength and acceptability of government. Without this none of the economic policies which I have described can be made effective.

Let me conclude with some brief comments on the relevance of this discussion for the countries of Eastern Europe. I would suggest that most of the conclusions drawn have some direct application to those countries trying to change their economic systems. However, much of the discussion has been in terms of where we would like to be, rather than how we get from where we are to where we would like to be. These problems of transition are severe and I would argue that economic theory, for understandable reasons, has been fairly limited in its contribution on how to change systems. This is not to denigrate the achievements because to have a view of where one would like to go is itself of importance. However, the starting point is crucial. For

example, the Chinese firm has substantial social responsibilities in terms of the health, housing and pensions of its workers and their families. To allow bankruptcy of firms and the freeing of labour markets in China would then lead to major social problems. It is not easy to replace these institutional obligations instantaneously, and just how they should be embodied in new institutions, market or otherwise, is something which cannot simply be left in the air. I know the economic and social structure in Eastern European countries less well but I would be surprised if there are not similar examples.

Some appear to think that structural change is best achieved at maximum speed and that the only way to solve the difficulties such as those embodied in reforming Chinese enterprises is to solve all problems at once. It may be that inflation is best dealt with very quickly, rather than gradually, but that is a simple problem compared to structural change. Those who would believe that economies can be restructured overnight would be well occupied in devoting more of their energies to the study of economic development.

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