

GROWTH VERSUS DISTRIBUTION: DOES THE PATTERN OF GROWTH MATTER?

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ABSTRACT

Despite the fashion for pro-poor growth there remains no consensus as to its meaning. This paper proposes three possible definitions, based on comparing the poor's share in incremental income with their existing share, their population share and an international norm, and examines the pattern of growth over time and in different regions. The growth of the poor's income can be decomposed into a growth effect and a distribution effect. Using data from 143 growth episodes it is found that the growth effect dominates, but that distribution is important in a significant minority of cases. In over a quarter of cases distribution played a stronger role than growth in increasing the income for the poor. Moreover, if there is no systematic relationship between growth and distribution, then it is clearly better to have growth that is pro-poor rather than not in order to achieve international poverty reduction targets. Econometric analysis of growth regressions for each quintile support the idea that openness benefits the whole population. However, it is not associated with progressive changes in distribution. Moreover, modelling the determinants of the poor's share in incremental income finds a robust perverse relationship with governance – less liberty leads to a more pro-poor pattern of growth. There is also evidence of a trade-off between growth and distribution suggesting that attention to distribution will be better for the poor than going for growth. The sectoral pattern of growth also matters.

1. INTRODUCTION

Broad-based growth was the first prong of the 1990 *World Development Report's* two (later, three) prong strategy to reduce poverty. However, the meaning of broad-based growth was never defined being variously interpreted to refer to the labour-intensity of growth, its geographical or distributional impact, or the sectoral pattern of growth. During the course of the 1990s the terminology shifted to 'pro-poor growth', which is the wording used in the 1997 UK *White Paper on International Development* and the *World Development Report 2000/1*.

But there is no agreed definition of the meaning of pro-poor growth.¹ And critics have questioned the differences between growth and pro-poor growth. If so, what policies

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¹ There have been few attempts to define it. McCulloch and Baulch (1999) is one exception.

promote pro-poor growth rather than growth *per se*? Indeed, the international community continues to put the emphasis on growth. Several papers from the World Bank (e.g. Demery and Squire, 1996; Bruno *et al.*, 1997 and Dollar and Kraay, 2000) have argued that distributional changes are both too small and too slow to be relied upon to bring about substantial reductions in poverty – the main driving force for eliminating poverty is growth. Moreover, they argue that there is no evidence of any systematic relationship between distribution and growth, so that we should expect the poor to be able to enjoy the benefits of growth.

Much of the above argument is supported by the evidence presented in this paper. But it remains the case that growth associated with progressive distributional changes will have a greater impact in reducing poverty than growth which leaves distribution unchanged. Moreover, in a significant number of cases (around a quarter) distribution has been as important as growth in explaining income growth of the poor. Besides which, the fact that the record of growth shows distribution not to have played too great a role in the majority of cases is in at least in part a consequence of the fact that distribution has been ignored. The most pressing questions are thus, which policies affect the pattern of growth, and are these policies favourable or harmful to overall growth (i.e. what is the extent of any trade-off)? This paper addresses these questions.

Part 2 begins the analysis with a discussion of the possible meanings of pro-poor growth, and classifies country experiences by the various definitions. Part 3 presents the results of decomposition analysis to examine the relative contributions of growth and distribution to changes in the income of the poor and regression analysis of the determinants of the poor's share in income growth. Part 4 concludes.

2. THE MEANING OF PRO-POOR GROWTH

Definitions

Whilst the meaning of pro-poor growth has not been agreed, it is likely that one of the following three things must be meant:²

1. The poor's share of incremental income exceeds their current share
2. The poor's share of incremental income exceeds their share of the population
3. The poor's share of incremental income exceeds some international norm³

² A possible alternative may seem to be, as suggested in comments on this paper, "growth which reduces the headcount". Such a definition is sensitive to where the poverty line is drawn (as indeed are the definitions given here) and so, to be useful for international comparisons, requires the data to apply an international standard poverty line (which the definitions given here do not). Moreover, growth will reduce the headcount provided the income of those just below the poverty line grows regardless of both what happens to the income of those further below the line and the overall distribution of the benefits of growth. Alternatively income growth among those further below the line does not affect the headcount, but does improve the measures suggested here. It is difficult to reconcile these features of the headcount with a common-sense understanding of pro-poor growth. Growth which reduces the headcount may be called 'poverty-reducing growth', but this is not a very stringent test.

³ The definition was suggested by Michael Lipton (personal communication).

The first of these definitions is equivalent to the condition that growth increases the poor's share of income.⁴ This interpretation follows intuitively from the definition, but can be formally demonstrated by writing it algebraically:

$$\frac{Y_t^P - Y_{t-1}^P}{Y_t - Y_{t-1}} > \phi_{t-1} \quad (1)$$

where Y is income, t a time sub-script, the P super-script indicates the income of the poor and ϕ is the income share of the poor. Equation (1) can be rearranged as:

$$\phi_t > \phi_{t-1} \quad (2)$$

This condition is equivalent to the notion of a progressive tax, and so is likely to be favoured by economists. However, it has some counter-intuitive properties. "Pro-poor growth" by this definition can give an undue amount of money to the non-poor. Suppose the initial income share of the bottom 20 per cent is six per cent and that of the top 20 per cent 35 per cent. Then if 7 cents of a dollar's worth of growth goes to the poor and 34 cents to the rich, this is pro-poor growth! Second, if we were to compare the case just given with another case in which the bottom 20 per cent also get 7 cents from each dollar of growth, but their initial share was 8 per cent, then this latter case is called anti-poor growth.⁵

The far more demanding second definition is equivalent the condition that the gap between mean income of the poor and overall income must close.⁶ That is:

$$\frac{Y_t^P - Y_{t-1}^P}{Y_t - Y_{t-1}} > P_0 = \frac{N^P}{N} \quad (3)$$

where P_0 is the population share of the poor (i.e. the headcount, which we write as P_0 in accordance with the convention given by the FGT poverty measures), N^P is the absolute number of poor and N the total population. Equation (3) can be re-arranged as:⁷

$$\frac{Y_t^P}{N^P} - \frac{Y_t}{N} > \frac{Y_{t-1}^P}{N^P} - \frac{Y_{t-1}}{N} \quad (4)$$

This means that growth that does not qualify as pro-poor under this most stringent of conditions (and it is shown below that few growth episodes do so) causes a widening of the gap between the incomes of the poor and the non-poor.

⁴ At the margin, when the poor's share of incremental income equals their current income share, then their income is of course growing at the same rate as total income.

⁵ The expression "anti-poor growth" is not much used, but is clearly the opposite of pro-poor growth and so the term we use in this paper.

⁶ Another way of stating this is that under definition 1 the PPG closes the relative gap between rich and poor whereas under 2 it closes the absolute gap.

⁷ We abstract from population growth and changes in population share as people move out of poverty.

The final definition may seem more generally appealing, although it has no algebraic relationship to country-specific distributional shifts. Application of this measure requires identification of an “international norm”, for which there is no agreement. We have taken to be the median income shares of the bottom 20 and 40 per cent (which are 5.6 per cent and 16.7 per cent respectively). But the measure has the counter-intuitive property that if the poor’s share currently exceeds the international norm, then their share of incremental income can be less than their current share and this qualify as pro-poor growth.

A numerical illustration

An illustration of these different definitions can be given with a numerical example. We simulated two income distributions, A and B. They have approximately the same mean income, but differing degrees of inequality. A is relatively unequal with a Gini coefficient of 0.42; the initial share of the bottom 20 (40) per cent is 5.2 (16.0) per cent (Table 1). The Gini for distribution B is 0.31, with the income shares of the bottom 20 and 40 per cent being 7.8 and 20.4 per cent respectively.

Table 1 shows the result of a 10 per cent growth in overall income distributed according to three rules corresponding to the marginal conditions for the three definitions. That is, the poor receive an increment equal to (1) their current income share, (2) their population share, and (3) international norms of 5.6 and 11.1 (16.7 less 5.6) per cent for the first two quintiles respectively.

Table 1 Poverty impact of growth under different distributional assumptions

		Gini	Income share		Incremental income share		Poverty measures			Mean
			Bottom quintile	Second Quintile	Bottom Quintile	Second Quintile	P0	P1	P2	
Initial distribution	A	0.42	5.2	15.0	n.a.	n.a.	0.52	0.22	0.12	9,741
	B	0.31	7.8	20.4	n.a.	n.a.	0.42	0.13	0.06	9,754
<i>Incremental share..</i>										
1. Equal to current income share	A	0.42	5.2	15.0	5.2	15.0	0.46	0.19	0.10	10,715
	B	0.31	7.8	20.4	7.8	20.4	0.35	0.11	0.04	10,729
2. Equal to population share	A	0.38	6.5	17.2	19.9	39.8	0.45	0.15	0.07	10,715
	B	0.28	8.9	22.2	19.9	39.8	0.33	0.08	0.03	10,729
3. Equal to international norm	A	0.40	5.2	15.2	5.6	16.7	0.43	0.18	0.10	10,715
	B	0.30	7.6	20.1	5.6	16.7	0.37	0.11	0.05	10,729

Consider first what happens to the income share of the poor. Clearly under definition 1 it remains the same, and under 2 it rises since the poor’s population share exceeds their current income share. But in simulation 3 it falls for distribution B whilst rising for distribution A. This happens since in the more equal distribution A the poor’s share exceeds the international norm in the initial distribution, hence their share falls when their share of the increment from growth equals this international norm. Similarly the Gini coefficient is unchanged by simulation 1 and falls in both cases for simulation 2. It also falls in both cases in simulation 3, though by more for distribution A.

Next consider the poor's share of incremental income. This is the variable used to construct the three scenarios and so for the second and third simulations is given by definition as 20 and 40 per cent (with rounding error) for the bottom 20 and 40 per cent respectively in simulation 2, and at the norms of 5.6 and 16.7 per cent respectively in simulation 3. In simulation 1 the incremental share equals the current share, so clearly the poor get a larger share of growth the more equal the initial distribution. This last point has implications for modelling: the incremental share of the poor (or the change in the income share of the poor) of course depends on the change in distribution (by definition) *but also* on the initial distribution.

Finally consider what happens to the poverty measures. The headcount falls in all cases. Ten per cent growth uniformly distributed delivers a larger fall in the headcount if income is initially more equally distributed, though the striking thing is that the headcounts do not vary too greatly between the three simulations. But the same is not so of the other poverty measures. Once we take account of how far people are below the poverty line, then the more progressive patterns of growth – most notably simulation 2 – deliver far greater reductions in poverty for the same aggregate growth.⁸

Historical experience of pro-poor growth

The data set is constructed from the Deininger and Squire database. We have restricted our analysis to national level data deemed to be of high quality using observations at least five years apart. This selection procedure leaves 150 growth episodes. Seven of these were deleted as periods of negative growth.⁹ There are thus 143 growth episodes in all, of which about half are from developing countries. Coverage of Africa is weak, with only Zambia appearing from continental sub-Saharan Africa. Data for the countries of the Former Soviet Union and Eastern Europe are only until the 1980s, thus pre-dating the large increases in inequality which have taken place in the 1990s. Figure 1 shows these data, plotting income growth of the poor against overall growth.

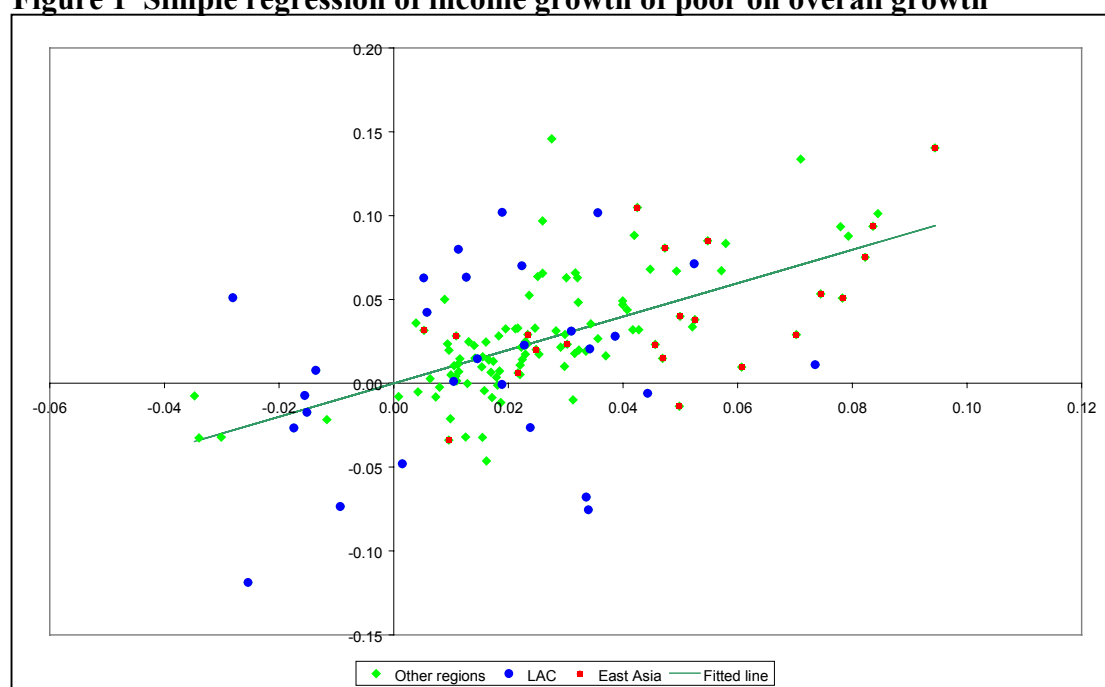
Table 2 classifies these 143 episodes by the pattern of growth according to each of the three definitions given above. The following ranges were used:

Extreme pro-poor growth	$y_t^p > x_t + 1.5s.e.$
Pro-poor growth	$x_t + 0.25s.e < y_t^p < x_t + 1.5s.e.$
Neutral growth	$x_t - 0.25s.e < y_t^p < x_t + 0.25s.e.$
Anti-poor growth	$x_t - 1.5s.e < y_t^p < x_t - 0.25s.e.$
Extreme anti-poor growth	$y_t^p < x_t - 1.5s.e.$

⁸ These results also illustrates the point that the headcount, with its focus on what happens to those just below the poverty line, is not a good guide to policy.

⁹ Although what happens to the income of the poor during period of negative growth is of interest it is curious to speak of “pro-poor growth” when overall income is declining (the definitions would need to be reversed so that the requirement is that the income of the poor has changed by *less* than the reference level).

Figure 1 Simple regression of income growth of poor on overall growth



where y_i^p is the share of the poor in incremental income, and x_i is either the share of the poor in initial income (Definition 1), the share of the poor in the population (Definition 2), or the world median share of the poor in initial income (Definition 3); $s.e$ is the standard error of the mean share of the poor in incremental income (calculated across the whole sample).

Table 2 The pattern of growth over 143 growth episodes

	Extreme PPG	PPG	Neutral Growth	APG	Extreme APG	Total
<i>Bottom 20 per cent</i>						
Definition 1	36	22	16	37	32	143
Definition 2	4	1	1	4	133	143
Definition 3	37	28	16	35	27	143
<i>Bottom 40 per cent</i>						
Definition 1	30	29	19	33	32	143
Definition 2	4	5	1	4	129	143
Definition 3	27	39	15	27	35	143

Very few episodes qualify as pro-poor growth under the definition that the incremental income share of the poor should exceed their population share (only 5 and 9 for the bottom 20 and 40 per cent respectively). Indeed, the vast majority of cases – 132 (92 per cent) and 129 (90 per cent) – qualify as extreme anti-poor growth. To reiterate the point made above, these results mean that in less than five per cent of cases is the gap in mean incomes between the poor and non-poor narrowing, in all other cases it widens with growth.¹⁰

¹⁰ There is one case of neutral growth for which the gap may be judged to have stayed the same.

The other two definitions yield relatively symmetrical groupings, with roughly the same number of episodes qualifying as pro and anti-poor growth (and a smaller number in each case as neutral growth). From the first definition it can be seen that the income share of the bottom 20 (40) per cent has increased significantly during 58 (59) episodes and fallen in 69 (65); i.e. the poor have benefited from both a larger cake and a larger share of that cake in just over 40 per cent of cases.

Since under the first definition a country's classification depends on the poor's initial share some "unfair" results emerge. For example, Honduras (1968-92) qualifies as having extreme pro-poor growth with an incremental income share for the bottom 20 per cent of only 6 per cent, as their initial share was just 2 per cent. By contrast Poland (1981-86) appears as extreme anti-poor growth although the poor's share of incremental income was 7 per cent, since their initial share was 10 per cent. Using the international comparison (definition 3), Poland appears as pro-poor growth and Honduras as neutral growth (i.e. their rankings are reversed).

Which definition is the most appropriate depends on our purpose. Definition 2 classifies virtually all cases as extreme anti-poor growth, and so is not of much use (although serving as a useful reminder that growth widens the absolute income gap in virtually all cases). Definition 1 is useful for summarising which growth episodes have been associated with progressive shifts in distribution. But it is of less use in making international comparisons for the reasons outlined above.

The fact that half the countries lie above a 45 degree line and half below reflects the finding that cross-country data show no systematic pattern between growth and distribution. But this does not mean that distribution does not change in particular countries or across time (Ravallion, 1997). Also, even if the level of poverty is unchanged "churning" means that people are still moving in and out of poverty (Ravallion, 2000a).

How has the picture presented above changed over time, or does it vary between regions? Tables 3 and 4 present on evidence on this in two different ways; Table 3 presents summary statistics of the poor's share in incremental income and Table 4 summarises the number of episodes classified under the various patterns of growth used the third (international norm) definition by decade and region, presented as percentages of the period or region total.¹¹ The tables show data for the bottom 20 per cent; those for the bottom 40 per cent tell a similar story.

Growth has clearly been more pro-poor in EECA (remember that these data do not cover the 1990s) and least so in LAC where two-thirds of all growth episodes have been extreme/anti-poor. The developed countries show an even split between pro and anti-poor growth, and Africa is slightly progressive, though recall there are few observations in this sub-sample.

Table 3 allows us to look at changes across time within regions, with sufficient sample size to do this for Asia, LAC and developed countries. The story varies

¹¹ An episode is classified in a decade as long as at least two years from the episode occur in that decade. Some episodes span more than one decade, so the total exceeds 142.

between these three regions. For developed countries the 1960s was the most progressive period, with the median value of the incremental income share of the bottom 20 per cent being 7 per cent, declining to around 5 per cent in subsequent decades. In Latin America, the share was at its highest in the 1990s, but the preceding decade had a median of only 3 per cent (and a negative mean, indicating some extreme cases in which the income of the poor was falling even though overall incomes were rising). In Asia the decade medians have fluctuated in the range 6 to 8 per cent.

Overall changes across time are less marked than regional differences. At the aggregate level the 1960s appears to have been the most progressive period and the 1970s the least. These differences are analysed more formally below.

Finally, for several countries in the data set there are three or more observations so that the change in the pattern of growth over time can be examined (Table 4). Three developed countries – Japan, UK and US – show a shift from pro-poor to anti-poor growth over time. By contrast, growth in Asian countries has become more pro-poor over time (even in Thailand, which is the only one of the Asian countries to sustain anti-poor growth). The series for Hungary picks up the shift from pro to anti-poor growth in the 1980s as Hungary was an early liberaliser. But in general there is not a clear relationship between political shifts and changes in the pattern of growth. The UK began its period of anti-poor growth under a Labour government, and Sri-Lanka during the interventionist rule of the SLFP during the 1970s.¹²

¹² In both these cases the last two years are covered by the new regime. In principle it is possible – though in practice extremely unlikely – that a progressive period was immediately and sufficiently reversed for the whole period to be characterised as anti-poor growth.

Table 2 Share of incremental income of bottom 20 per cent by region and decade (per cent)

		1960s	1970s	1980s	1990s	All periods
<i>Africa</i>	Mean	5.9	129.3	47.0	68.3	47.0
	Median	5.9	129.3	6.2	7.6	6.2
	Std.	-	174.5	100.8	122.9	100.8
	N	1	2	6	4	6
<i>South Asia</i>	Mean	9.9	7.2	9.3	8.1	8.7
	Median	8.8	7.6	8.5	8.1	8.3
	Std.	2.7	1.9	4.9	-	3.9
	N	3	7	7	1	14
<i>East Asia/Pacific</i>	Mean	4.7	5.0	6.4	4.6	5.7
	Median	2.6	4.5	6.0	3.1	5.0
	Std.	4.4	2.4	3.1	4.6	3.1
	N	3	12	17	3	24
<i>LAC</i>	Mean	3.2	4.4	-5.3	5.8	-2.1
	Median	2.9	4.9	3.0	5.5	3.1
	Std.	1.6	4.0	36.6	10.1	28.4
	N	6	16	18	5	30
<i>EECA</i>	Mean	11.2	15.3	12.0	-	11.9
	Median	11.2	13.1	11.0	-	13.0
	Std.	2.6	7.3	9.1	-	6.6
	N	2	3	4	0	7
<i>Developed</i>	Mean	7.8	3.6	6.1	1.8	5.3
	Median	7.0	5.0	5.2	5.1	5.2
	Std.	4.0	14.5	10.0	8.5	12.0
	N	14	30	34	5	61
<i>All countries</i>	Mean	6.9	8.5	7.2	18.5	6.3
	Median	7.0	5.3	5.9	5.7	5.5
	Std.	4.0	31.3	32.3	58.8	26.0
	N	29	70	87	18	142

Notes: Some periods span more than one decade, hence sum of decade totals exceeds overall totals. One observation for Middle East not included in the regional totals.

Table 3 Pattern of growth for bottom 20 per cent by decade and region (number of episodes as a per cent of decade/region total)

	EPPG	PPG	NG	APG	EAPG	Total
<i>As per cent of period total</i>						
1960s	31	21	24	14	10	100
1970s	20	20	16	29	16	100
1980s	29	20	11	22	18	100
1990s	28	17	22	11	22	100
Total	26	20	11	24	19	100
<i>As per cent of regional total</i>						
Africa	17	33	33	17	0	100
South Asia	36	50	0	14	0	100
East Asia	25	13	13	38	13	100
LAC	13	13	7	30	37	100
EECA	71	14	0	14	0	100
Developed	25	18	15	21	21	100
Total	26	20	11	24	19	100

Notes: Percentages may not sum exactly to 100 because of rounding.

Table 4 The changing pattern of growth in selected countries

	Episode					
	1	2	3	4	5	6
Bangladesh	PPG 63-73	PPG 73-78	PPG 78-83	EPPG 83-89		
Canada	EPPG 61-67	NG 67-73	NG 73-79	PPG 79-84	EPPG 84-89	
Hungary	EPPG 62-67	EPPG 67-72	EPPG 72-77	EPPG 77-82	APG 82-87	
India	PPG 65-70	PPG 70-77	EPPG 77-83	EPPG 83-88		
Japan	PPG 62-67	PPG 67-72	NG 72-77	APG 77-82		
Korea	EPPG 65-70	APG 70-76	EPPG 76-82	PPG 82-87		
Malaysia	EAPG 70-76	NG 76-84	NG 84-89			
Mexico	EAPG 63-68	EAPG 68-75	PPG 75-84	EAPG 84-89		
Pakistan	PPG 69-79	PPG 79-85	PPG 85-91			
Sri Lanka	EPPG 63-70	APG 70-79	APG 79-87			
Sweden	EPPG 67-75	EAPG 75-80	PPG 80-85	EPPG 85-90		
Thailand	EAPG 62-69	APG 69-75	APG 75-81	APG 81-86	APG 86-92	
United Kingdom	EPPG 61-66	EPPG 66-71	EPPG 71-76	EAPG 76-81	APG 81-86	EAPG 86-91
USA	PPG 60-65	PPG 65-70	NG 70-75	APG 75-80	EAPG 80-85	APG 85-90

3. EXPLAINING THE PATTERN OF GROWTH

Introduction

Our concern here is to model the pattern of growth. There is no general theory of distribution on which we may draw and the empirical literature is a very mixed bag. Hence we adopted three strategies. The first is a decomposition of income growth of the poor into growth and distribution effects. Second we estimate growth regressions for each quintile separately. The final method are regressions for two pattern of growth variables.

Decomposition analysis

The income of the poor (Y_p) can be expressed as a share (ϕ) of overall income (Y), where that share depends on income and other variables (X):

$$Y_p = \phi(Y, X) Y \quad (5)$$

A straightforward decomposition thus gives:

$$\hat{Y}_p = \hat{\phi} + \hat{Y} + \hat{\phi}\hat{Y} \quad (6)$$

Table 5 Decomposition of income growth of the poor

	ϕ	Y	Y_p
Period 1	0.085	100	8.5
Period 2	0.090	108	9.7
Change (%)	5.9	8.0	14.4
Contribution to income growth of poor	41.0	55.7	3.3

Table 5 gives a simple example, in which 41 per cent of the income growth of the poor comes from their increased share, and 56 per cent from overall growth (leaving 3 per cent for the residual = $0.059 \times 0.08 / 0.144$).

To apply the decomposition analysis we normalised equation (6) by growth in the income of the poor; i.e.

$$\frac{\hat{\phi}}{\hat{Y}_p} + \frac{\hat{Y}}{\hat{Y}_p} + \frac{\hat{\phi}\hat{Y}}{\hat{Y}_p} = 1 \quad (7)$$

where the first two terms on the left-hand side thus correspond to the figures in the bottom row of Table 5.

Table 6 summarises the results of the analysis. The two main results are that the growth term is dominant, with a median of 86 per cent and that the residual is small. For over one quarter of the observations the growth effect is over 100 per cent, as a negative distributional shift (anti-poor growth by definition 1) has resulted in a negative share term (and hence residual). On the other hand there are around one

quarter of cases in which the growth effect accounts for only around one half of the growth in the income of the poor – so that in a substantial number of cases the change in income share has played a significant role in the poor’s income growth. In over one quarter of cases distribution is more important than growth in explaining income growth of the poor.

Table 6 Decomposition of growth and distribution effects

	Change In share	Growth	Residual
<i>Bottom 20 per cent</i>			
First quartile	45	41	14
Median	12	86	1
Third quartile	-24	130	-6
<i>Bottom 40 per cent</i>			
First quartile	31	59	10
Median	4	94	2
Third quartile	-17	121	-5
Notes: The quartile observations are those arising when the data are sorted by the growth effect; the quartile change in share and residual effects are those which correspond to those observations (rather than the quartile values which arise when the data are sorted by the change in share and residual effects). This ensures that the three effects sum to one hundred (except for differences due to rounding).			

For poverty reduction what matters is the growth in the income of the poor. Suppose overall growth is 4 per cent. Then, if the poor’s share is unchanged their income grows at 4 per cent. But if there is no growth, then their share needs to go up by 4 per cent to achieve this 4 per cent growth. Calculations show that in many countries growth of 8 per cent is needed to achieve the International Development Targets of halving poverty. So if overall growth is 4 per cent a redistribution of 4 per cent is needed. Assuming the poor’s current income share is 6 per cent (the international median), this is a redistribution of 0.24 per cent of national income. Very small changes in distribution can make substantial changes to the income of the poor (see also Ravallion, 2000a, on this point).

There are thus good policy grounds for being concerned with the analysis of distribution. If distribution can be improved with no detrimental impact on growth, then such changes will be of great help in achieving the international development targets. But if there is a trade-off between growth and distribution, it is necessary to know “how steep” this trade-off is in order to determine the appropriate policy mix. Hence the next section analyses the determinants of the pattern of growth.

Existing literature

As noted by Atkinson (1997), there is no unified theory of income distribution. Most modellers have resorted to an empiricist approach, i.e. just looking at what works. The main empirical debate has revolved around the so-called ‘Kuznets curve’, the hypothesis that income inequality first rises and then falls with economic

development.¹³ Tests of the hypothesis usually involve the regression of a measure of income distribution (normally the Gini coefficient) on GDP per capita and its reciprocal, i.e.:

$$Gini_{it} = \alpha + \beta y_{it} + \gamma \frac{1}{y_{it}} + v_{it} \quad (8)$$

with the expectation that $\beta < 0$ and $\gamma < 0$. Despite previously being widely held as a stylised fact, the most recent studies find either no support for the hypothesis (Deininger and Squire, 1998) or only weak support (Barro, 1999).

According to neo-classical theory, the share of income received by the poor is a weighted average of the share of each productive factor (or asset) owned by the poor, the weights being the share of each factor in total income. Algebraically, the income of any individual i is:

$$y_i \equiv w_1 E_1 \omega_{i1} + \dots + w_j E_j \omega_{ij} \quad (9)$$

where w_j and E_j are the prices and endowments of each of the economy's j factors, and ω_{ij} is the share of the j^{th} factor owned by individual i . Then dividing each side by total income and summing over the poorest individuals we obtain:

$$\phi_p \equiv \lambda_1 \omega_{p1} + \dots + \lambda_j \omega_{pj} \quad (10)$$

where ϕ_p is the share of income received by the poor, λ_j is the share of factor j in total income, and ω_{pj} is the share of factor j owned by the poor.

The expression (10) can guide us to the variables which affect the income share of the poor.¹⁴ Factor shares are determined by factor endowments and openness to trade. Greater trade openness raises the share of income going to the abundant factors, and reduces that going to the scarce factors.¹⁵ The effect of changing factor endowments is, however, ambiguous, depending on elasticities of substitution in production and consumption. An increase in a factor's abundance will lead to a rise in its share of income if its elasticity of substitution with other factors exceeds one, and a fall if its substitution elasticity is less than one. Evidence in support of these predictions has been found in recent work by Edwards (1997), Spilimbergo *et al.* (1999), and Leamer *et al.* (1999). Dollar and Kraay (2000) find that trade openness does not affect the poor's share of income, but they do not test whether the effect depends on initial endowments.

¹³ The theoretical justification for such a relationship is typically derived from dualistic (or two-sector) models of development. See Barro (1999 pp. 7-9) for a discussion.

¹⁴ (2a) is an identity rather than a relationship, and as such more amenable to decomposition than regression analysis. For instance, one could ask whether increases in the poor's share of income have been driven by increases in their share of assets or by increases in the share of income going to assets with which they are relatively well endowed. However, the data requirements of such a decomposition are very large, and we do not attempt it here.

¹⁵ Assuming factor endowments are fixed. The effect may be different if factor supplies respond to changing factor prices.

The distribution of assets among individuals can be influenced by many variables. These may include public-good interventions (improving the distribution of human assets); the scope of credit markets (creating opportunities for the poor to accumulate assets); previous asset inequality (restricting accumulation opportunities for the poor when collateral is required); secure property rights (improving the functioning of credit markets), and a potentially wide range of geographical, historical, and cultural influences. These variables tend to be hard to measure and there is much less empirical evidence on their impact. Nevertheless, Li *et al.* (1999) find that initial land inequality is positively related to future income inequality, and that financial development is negatively related to income inequality. Dollar and Kraay (2000), however, find that neither total government spending or ‘social’ government spending (as a % of GDP), or the strength of property rights, have statistically significant effects on the poor’s share of income.

Additional insights derive from political economy models, regarding the likelihood that governments attempt to redistribute assets and income. One hypothesis is that the existence of political and civil liberties, and/or high levels of education, restrict the ability of a rich minority to influence economic policy in its own interest, and therefore lead to lower income inequality. Support for this hypothesis is found by Li *et al.* (*ibid.*). A similar hypothesis is that ‘good governance’ (defined as institutions and policies that enforce property rights and restrain government corruption) is associated with lower income inequality, because corruption acts as a disproportionate tax on the poor. Knack and Anderson (1999) find some support for this hypothesis: they show that income inequality tends to be lower, the lower are international investors’ perceptions of political and other risks.

Our approach

Our concern is with the *change* in income inequality. To see this, note the similarity between the share of incremental income received by the poorest 20% or 40% (which in Section 1 we called SH20 or SH40):

$$\frac{Y_t^P - Y_{t-1}^P}{Y_t - Y_{t-1}}$$

and the change in the share of income received by the poorest 20% or 40% (which we call DQ20 or DQ40):

$$\frac{Y_t^P}{Y_t} - \frac{Y_{t-1}^P}{Y_{t-1}}$$

The correlation between the two variables is high. The main difference is that extreme values of SH20 and SH40 can occur when there has been a small change in aggregate income. In our regressions we try using both SH20/40 and DQ20/40 as dependent variables, excluding the extreme values when using the former. But in

both cases the regressors must be expressed as changes.¹⁶ A description of each regressor variable is provided in Table 7.

Table 7 List of explanatory variables

Variable	Description	Source
GDP	GDP per capita	Penn World Tables
LAND	Land per person (square kilometres of land area divided by total population)	World Development Indicators
SKILL	Skill per person (average years of schooling among population aged 25 and above)	Barro and Lee (1993)
OPEN	Trade openness dummy	Sachs and Warner (1995)
GOV	Total government spending (% of GDP)	World Development Indicators
PR	Political rights	Freedom House
CL	Civil liberties	Freedom House
INF	Annual inflation, %	World Development Indicators
URBAN	Urban population, % of total	World Development Indicators
Q20/Q40	Income share of poorest 20%/40%	Deininger and Squire (1996)

The variable Δ GDP tests the Kuznets hypothesis, that the effect of growth on the income share of the poor depends on the initial level of income. The variables Δ LAND and Δ SKILL test the prediction that factor endowments affect inequality. Assuming that land and skills are less equally distributed than labour, increases in their abundance would increase inequality if elasticities of substitution are greater than unity, and reduce inequality if elasticities of substitution are less than unity.

The variable Δ GOV tests whether the size of government affects the share of the poor; if public spending improves the distribution of human and physical assets, the coefficient should be positive. Δ PR and Δ CL test the prediction that political rights and civil liberties affect inequality; if they do restrict the ability of governments to serve the interest of a rich minority the coefficients should be negative (the variables are measured such that an increase in their value corresponds to a reduction in rights/liberties).

Δ INF tests whether macroeconomic conditions affect income inequality. One hypothesis is that inequality tends to be lower when aggregate demand is higher (Castaneda *et al.* (1998) find support for this prediction using time-series evidence from the United States). An alternative prediction, however, is that inflation adversely affects the poor relative to the rich, perhaps because a greater proportion of their assets are monetary. (Dollar and Kraay (2000) find support for this prediction). Q20 tests the hypothesis that levels of inequality among developing countries are

¹⁶ Expressing dependent and explanatory variables in first differences can be justified econometrically, in terms of reducing multicollinearity and eliminating fixed effects. There is, however, a danger that the loss of information and the possibility of increased measurement error will result in few statistically significant coefficients.

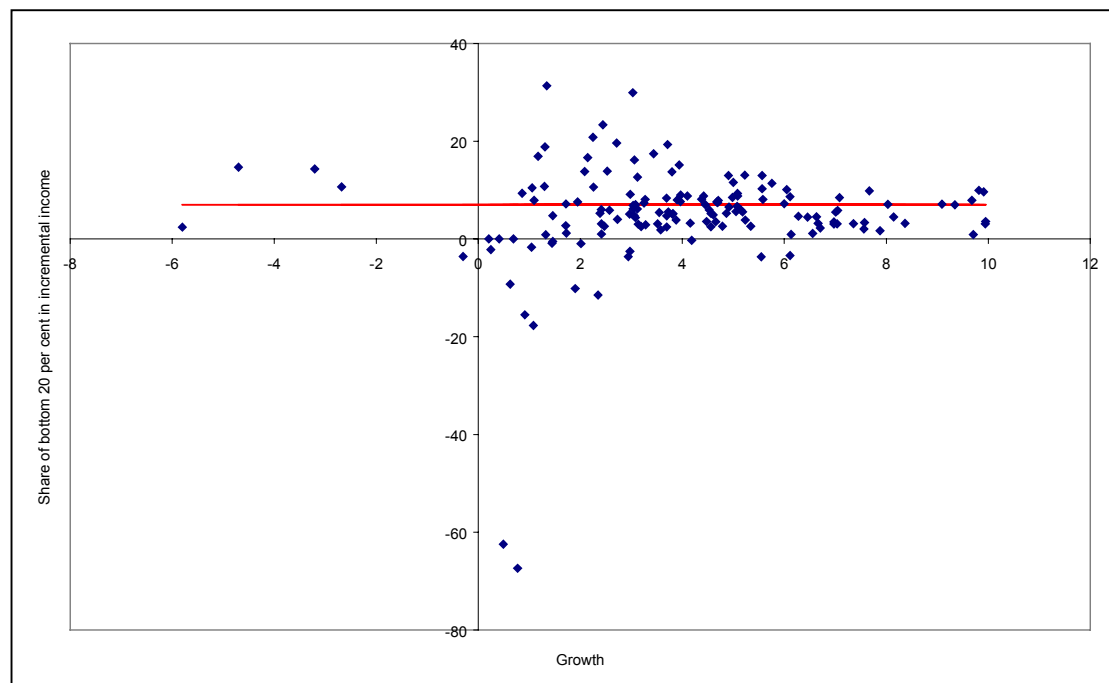
converging (Ravallion, 2000b). Finally, in our extended specification we add decade and regional dummies.

Pattern of growth regressions

The first finding to report is only limited success in modelling the determinants of the incremental income share of the poor.¹⁷ In the general models (i.e. those including all explanatory variables), the R^2 s were in the range 0.29-0.36, with few significant coefficients.¹⁸ Partly because of multicollinearity, but also because some of the variables seem to have genuinely little explanatory power, it is possible to move to a far more parsimonious model.

First we can observe a reason for the difficulty of modelling the variables is because of the “conical” relationship the dependent variables have with several of the regressors. Figure 2 illustrates this relationship in the case of growth. At growth rates of less than 4 per cent there is considerable variation in the incremental income share of the poor, including extreme cases in which they suffer large falls in income at a time of general increase. As growth moves above this value, there is far less variation in the poor’s share, with the majority of cases falling below the sample median of seven per cent (shown by the horizontal line), although there are three cases of growth of ten per cent and above average incremental share’s for the poor (two of these are for Korea and one for China).

Figure 2 Scatter plot of incremental income share of the poor against overall growth



¹⁷ Since variable selection also determined sample, a preliminary analysis was conducted on all variables. The data set was then restricted to the variables having the strongest effects (those in the general equation) and then systematic modelling applied over a single sample.

¹⁸ Higher R^2 and more significant variables can be obtained by retaining the influential extreme points, but such results are of course not a good summary of the data.

Since the proportion of the pattern of growth variables explained is quite low there are clearly important factors affecting the economic wellbeing of the poor which are not included in our model. But some quite strong results do emerge (Table 8):

- A higher initial gini, as is to be expected, reduces to poor's share of growth, though this result is not always significant.
- The coefficient on growth is always negative, significantly so where the bottom 40 per cent are concerned, providing evidence of a trade off between growth and distribution. Current thinking (e.g. World Bank, 2001, rejects the idea of such a trade off in general but recognises that this depends on how redistribution occurs).
- As with the quintile regressions, the governance variables work in opposite directions. Less civil liberty seems to increase the share of income going to the poor, whereas political freedom is good for the poor (both the level and the change). However, ethnic fragmentation seems good for the share of the poor in growth.
- Inflation is bad for the share of the poor, although this is rarely significant.
- There is no strong message for or against globalisation: openness has a negative sign, but is never significant, a high level of FDI seems to increase the poor's share, but an increase in FDI decreases it.
- A strong result is that the change in urbanisation is good for the poor.
- The human capital variable, life expectancy, has a perverse negative sign, perhaps reflecting its inappropriate use

Although the “perverse” relationship between civil liberties and the incremental income share of the poor is made stronger by some influential points at both ends of the scale, the finding does indicate a general pattern in the data. The countries with an average civil liberties score of five or higher – Bangladesh, Indonesia, Hungary, Korea, Morocco, Pakistan, Poland and Thailand – are (with the exception of Thailand) from growth episodes from which the poor benefited more than average. The median incremental share for this group was 8.5 per cent. This compares with 5.7 per cent overall and only 3.1 per cent for the countries with a civil liberties score of one.¹⁹ The latter group includes some extreme values of low growth in which the income of the poor fell, so that the incremental share is a large negative number. But it also includes periods of reasonable growth (e.g. 6 per cent in Costa Rica) in which the income of the poor also fell, or of growth from which the poor received a small benefit (again Costa Rica is an example, the other countries in this category are all developed ones). Hence this perverse finding must stand as a result to be pursued in further research. It is consistent with the recent finding of Moore *et al.* (1999) that countries with “worse” governance are better at turning income into social welfare.

¹⁹ For the incremental income share of the bottom 40 per cent these figures are 22.1, 16.7 and 13.0 per cent respectively.

Table 8 Regression results for change in share and share of incremental growth

	DQ40	DQ20	SH40	SH20
	Coefficient	Coefficient	Coefficient	Coefficient
Constant	-0.001	0.000	0.364 *	0.087 **
	-0.76	-0.40	1.89	2.58
Growth	-0.056 **	-0.011	-4.728 **	-0.007
	-2.03	-1.03	-2.13	-0.02
Initial gini			-0.007	-0.002 *
			-1.22	-1.74
Civil liberties	0.001 *		0.134 *	
	1.78		1.87	
Political freedom			-0.103	
			-1.38	
Change in political freedom	-0.006 *	-0.002	-0.464 *	-0.069
	-1.97	-1.53	-1.86	-1.33
Change in openness	-0.001	-0.001	-0.161	-0.029
	-0.94	-1.30	-1.51	-1.32
Inflation			0.000	0.000 *
			-1.40	-1.95
FDI	0.000 ***			
	2.86			
Change in FDI	-0.001 ***	0.000		
	-3.01	-1.40		
Ethnic fragmentation	0.003	0.002 **	0.356 **	0.038
	1.41	2.26	2.49	1.36
Change in urban	0.003 **	0.002 ***		0.033 *
	2.41	3.41		1.95
Change in life expectancy	-0.006 *	-0.002		
	-1.85	-1.57		
Africa	0.005 **			
	2.06			
LAC			0.274 **	
			2.20	
R-squared	0.31	0.23	0.23	0.24

Notes: *** significant at 1 per cent, ** significant at 5 per cent, and * significant at 1 per cent; n=68.

However, against this result is the positive impact had by political freedom. One might imagine that the things defined as civil liberties give voice to interest groups who are not amongst the poor, whereas political freedom has a more broad-based effect. Similar arguments may be used for the positive impact of ethnic fragmentation (i.e. political necessity ensures a widespread of benefits).

There is some evidence of a trade off between distribution and growth, the coefficient on the latter being negative in all cases, but significant in only some specifications and samples. For a smaller sample for which data on sectoral growth were available, Table 9 reports the results of estimating the unrestricted model in which sectoral growth is used rather than GDP growth. The restriction (using aggregated GDP growth) is only invalid in one case (i.e. F-test rejects null). Which sectors are pro-poor is probably country-specific so that cross-country analysis cannot pick up strong effects.

However, perhaps surprising differences emerge. Agriculture is usually negative, though not significantly so.²⁰ This is a surprising result, since one would usually expect agricultural growth to be pro-poor. On the other hand, services are significantly negative in one case, but positive in another. It has been found that adjusting economies have a growth pattern which is biased toward the service sector (e.g. White and Leavy, 1999), but that little is known about whether this is “a good thing”. These results at least suggest that growth of the service sector may have been pro-poor.

Table 9 Disaggregating sectoral growth effects

	sh40	sh20	dq40	dq20
Growth	-7.10	0.02	-0.05	-0.02
	-2.51	0.03	-0.05	-1.33
R-squared	0.289	0.267	0.366	0.215
Agricultural growth	0.72	-0.14	-0.01	-0.01
	0.43	-0.41	-0.34	-0.91
Industrial growth	0.59	-0.45	-0.02	-0.02
	0.33	-1.23	-0.85	-2.39
Service growth	-5.99	0.61	-0.03	0.01
	-2.25	1.13	-0.85	0.98
R-squared	0.295	0.302	0.387	0.307
F-test	0.18	1.05	0.74	2.84

Note: estimated equations are those shown in Table 11, but only growth coefficients shown

Quintile growth regressions

Three growth regressions were estimated for overall growth and the income growth of each quintile. In each case equations (1) and (2) contain the same regressors and equation (3) different regressors for each quintile. Equation (1) is a standard growth regression which performs reasonably well with some usual results. Namely, the convergence effect is confirmed, with a negative coefficient on initial GDP, there is a non-linear relationship with inflation,²¹ openness is good for growth, a high dependency ratio bad and East Asia has had faster growth than accounted for by these factors (hence a positive intercept dummy). The other included variables are not significant. Equation (2) is a more parsimonious form of this general equation in which some insignificant variables have been dropped. The results of this equation for overall growth broadly confirm those from equation (1). Finally equation (3) is a yet more parsimonious model, in which variable elimination is quintile specific.

²⁰ In determining the model most consistent with the data the negative relationship for agriculture was observed to be quite robust, and very marked in some samples.

²¹ Only the squared term is individually significant; but the linear and squared term are jointly significant. A linear term alone has a much lower t-statistic than the linear term when the squared term is included.

The growth equation works best for overall growth; it also works well for the top quintile and least well for the bottom quintile (Table 10). That is, the majority of income growth amongst the poor is unaccounted for by the standard growth equation (40 per cent is explained for the first quintile, whereas 40 per cent is left unexplained for the top quintile). Whilst the shortcomings of cross-country analysis should be noted, the results appear robust in that the estimated coefficients mostly vary over a small range for the different specifications for each quintile. Turning to the results the following main conclusions emerge:

- Openness is always positive for all quintiles, always significantly so in the most restricted equation, except for top quintile.
- The signs on the inflation terms are always as in the overall growth equation, but only significantly so in the estimates for the top quintile.
- There are positive growth effects from both the East Asian and South Asian dummies (of varying significance), and each of these increases through the quintiles; i.e. are stronger for lower quintile, indicating the progressive nature of growth in those regions.
- Ethnic fragmentation is virtually always negative, though only significantly so for the third quintile (though also close for first and fourth).
- The governance variables are only significant in one case and work in opposite directions (civil liberties are good for growth but political freedom bad, remembering that coefficients are insignificant).
- The convergence term is significantly negative in most estimates

Table 10 Growth regressions by income quintile

	Overall growth			First quintile			Second quintile		
	Eq. 1	Eq. 2	Eq. 3	Eq. 1	Eq. 2	Eq. 3	Eq. 1	Eq. 2	Eq. 3
	Constant	0.07 *	0.08 **	0.09 ***	0.05	0.00	-0.01	0.086 *	0.06
Initial GDP (x10 ⁴)	1.97	2.61	3.46	0.62	-0.01	-0.86	1.71	1.54	2.13
Initial gini (x10 ³)	-0.03 **	-0.03 ***	-0.04 ***	0.05	0.01		-0.02	-0.03 **	-0.03 **
Inflation (x10 ²)	-2.43	-3.26	-4.44	1.43	0.25		-1.19	-2.21	-2.60
Inflation squared (x10 ²)	0.26			-0.81			-0.31		
Openness	0.52			-0.69			-0.44		
Schooling	0.35	0.32	0.28	0.70	0.39		0.31	0.26	
Dependency ratio	1.41	1.48	1.31	1.17	0.71		0.86	0.81	
Civil liberties	-0.02 *	-0.02 *	-0.02 *	-0.03	-0.02		-0.02	-0.01	
Political freedom	-1.78	-1.86	-1.80	-0.99	-0.59		-0.97	-0.93	
Ethnic fragmentation	0.02 *	0.02 *	0.01	0.02	0.03	0.04 ***	0.02	0.02	0.02
East Asia	1.78	1.83	1.43	0.91	1.29	2.73	1.30	1.64	1.75 *
South Asia	0.000			-0.009 **			-0.002		
R ²	-0.06			-2.10			-0.99		
	-0.08 **	-0.07 **	-0.09 ***	-0.06	-0.05		-0.08	-0.08 *	-0.08 **
	-2.16	-2.19	-3.03	-0.73	-0.60		-1.65	-1.76	-2.13
	-0.007	0.00		-0.004	0.00		-0.001	0.00	0.01
	-1.05	-1.08		-0.26	-0.15		-0.14	0.86	1.57
	0.004			-0.007			0.004		
	0.66			-0.47			0.44		
	-0.02	-0.01		-0.03	-0.04	-0.04	-0.01	-0.01	
	-1.33	-1.28		-1.22	-1.44	-1.63	-0.61	-0.77	
	0.03 **	0.03 **	0.014 *	0.10 ***	0.07 **	0.05 ***	0.015	0.01	
	2.07	2.41	1.73	3.06	2.24	3.36	0.76	0.43	
	0.03	0.02		0.08 *	0.08 *	0.07 ***	0.01	0.01	
	1.49	1.53		1.98	2.30	2.87	0.44	0.68	
	0.62	0.62	0.59	0.43	0.35	0.33	0.50	0.48	0.45

Table 10 Growth regressions by income quintile (ctd.)

	Quintile 3			Quintile 4			Quintile 5		
	Eq. 1	Eq. 2	Eq. 3	Eq. 1	Eq. 2	Eq. 3	Eq. 1	Eq. 2	Eq. 3
Constant	0.09 *	0.08 *	-0.00	0.07 *	0.07 **	0.02 *	0.07 *	0.09 ***	0.10 ***
Initial GDP ($\times 10^4$)	1.82	1.82	-0.27	1.78	2.10	1.75	1.70	2.86	4.65
Initial gini ($\times 10^3$)	-0.03	-0.03 *		-0.04 **	-0.03 ***	-0.02 *	-0.04 **	-0.04 ***	-0.03 ***
Inflation ($\times 10^2$)	-1.36	-1.80		-2.30	-2.72	-2.00	-2.50	-3.11	-3.73
Inflation squared ($\times 10^2$)	-0.38			0.03			0.76		
	-0.54			0.05			1.42		
	0.12	0.17		0.10	0.14		0.50 *	0.43 *	0.45 *
	0.33	0.52		0.34	0.55		1.85	1.79	1.96
	-0.01	-0.01		-0.01	-0.01		-0.03 **	-0.03 **	-0.03
	-0.56	-0.73		-0.73	-0.93		-2.23	-2.19	-2.43
Openness	0.015	0.017	0.028 ***	0.017	0.017 *	0.028 ***	0.011	0.008	
Schooling	1.14	1.40	3.36	1.58	1.71	3.60	1.15	0.84	
	0.000			0.000			0.001		
	-0.18			0.23			0.37		
Dependency ratio	-0.06	-0.07		-0.05	-0.05		-0.11 ***	-0.09	-0.12 ***
	-1.20	-1.50		-1.13	-1.24		-2.82	-2.63	-4.62
Civil liberties	-0.007	-0.006		-0.010	-0.005	-0.007 *	-0.007	-0.004	
	-0.73	-1.15		-1.28	-1.28	-1.71	-1.02	-1.06	
Political freedom	0.001			0.006			0.005		
	0.15			0.92			0.74		
Ethnic fragmentation	-0.03	-0.03 **	-0.04 **	-0.02	-0.02		-0.00	0.00	
	-1.89	-2.11	-2.40	-1.42	-1.44		-0.13	0.19	
East Asia	0.05 **	0.05 **	0.04 ***	0.03	0.03	0.03 **	0.03	0.03 **	0.02 ***
	2.26	2.55	4.22	1.51	1.97	2.27	1.65	2.06	3.00
South Asia	0.04 *	0.05 **	0.06 ***	0.03	0.03	0.03 **	0.02	0.01	
	1.78	2.48	3.86	1.24	1.58	2.40	0.96	0.39	
R ²	0.50	0.50	0.43	0.52	0.50	0.43	0.59	0.56	0.54

5. SOME CONCLUDING COMMENTS

Should we worry about distribution, or let growth do the work of reducing poverty? There are good arguments for worrying about the pattern of growth. Either there is no relationship between growth and distribution – in which case, whilst growth is good for the poor, growth with redistribution is unambiguously even better. Or there are potential trade-offs between growth and distribution, in which case the poor may well be better off with a redistributive strategy rather than a growth one. This argument is reinforced by the fact that in a significant minority of cases it is redistribution which has driven income growth of the poor rather than growth.

Hence, distribution matters. Unfortunately our understanding of the determinants of the pattern of growth is weak. This paper develops empirical analysis of the issue in two ways. First we examine the determinants of income growth for different quintiles, which provides support for the idea that openness indeed benefits all sections of the population. Second we estimate the pattern of growth, which has some rather mixed messages including on governance.

Perhaps our major finding is how much is unexplained. Our analysis has found many results not to be robust – and we have tried to be as open as we can about this. We would be suspicious of any study which found clear links from policy variables to the pattern of growth without independent confirmation.

REFERENCES

Atkinson, A. (1997). 'Bringing income distribution in from the cold'. *Economic Journal* 107, 297-321.

Barro, R.J. (1999). 'Inequality, growth and investment'. NBER Working Paper 7038, [National Bureau of Economic Research: Cambridge, MA].

Barro, R.J. and Lee, J (1993) 'International Comparisons of Educational Attainment', *Journal of Monetary Economics*, 32(3), 363-94.

Bruno, M., Ravallion, M. and Squire, L. (1996). '*Equity and growth in developing countries: old and new perspectives on the policy issues*', Policy Research Working Paper 1563, World Bank: Washington D.C.

Castaneda, A. Diaz-Gimenez, J. and Rios-Rull, J.V. (1998). 'Exploring the income distribution business cycle dynamics'. *Journal of Monetary Economics* 42 (1), 93-130.

Deininger, K. and Squire, K. (1996). 'A new dataset measuring income inequality'. *World Bank Economic Review* 10 (3), 565-591.

Demery, L. and Squire, L. (1996). 'Macroeconomic adjustment and poverty in Africa', *World Bank Research Observer*, 11 (1) pp.39-59.

Deininger, K. and Squire, L. (1998). 'New ways of looking at old issues: inequality and growth'. *Journal of Development Economics* 57, 259-287.

Dollar, David and Aart Kraay (2000) "Growth is good for the poor", *Macroeconomics and growth working paper 2587* [Washington D.C.: World Bank].

Edwards, Sebastian (1997) 'Trade policy, growth and income distribution' *American Economic Review Papers and Proceedings* 87(2) 205-210.

Gallup, Radelet and Warner (1998) “Economic growth and the income of the poor”, mimeo, HIID.

Knack, S. and Anderson, G. (1999). ‘Is “Good Governance” progressive? Institutions, inequality and poverty reduction’. Manuscript. The World Bank and University of Maryland.

Leamer, E.E., Maul, H., Rodriguez, S. and Schott, P.K. (1999). ‘Does natural resource abundance increase Latin American income inequality?’. *Journal of Development Economics* 59, 3-42.

Li, H., Squire, L. and Zou, H. (1998). ‘Explaining international and intertemporal variations in income inequality’. *Economic Journal* 108, 26-43.

McCulloch, Neil and Bob Baulch (1999) ‘Assessing the poverty bias of growth: methodology and an application to Andhra Pradesh and Uttar Pradesh’ *IDS Working Paper 98* [Brighton: IDS].

Moore, Mick, Peter Houtzager, Jennifer Leavy and Howard White (1999) ??? *IDS Discussion Paper* [Brighton: IDS, University of Sussex].

Pissarides, C.A. (1997). ‘Learning by trading and the returns to human capital in developing countries’. *World Bank Economic Review* 11 (1), 17-32.

Ravallion, Martin (1997) “Can High Inequality Developing Countries Escape Absolute Poverty?” *Economic Letters* **56** 51-57

Ravallion, Martin (2000a) “Growth and Poverty: making sense of the current debate”, mimeo.

Ravallion, M. (2000b). ‘Inequality convergence in the developing world’. Manuscript. The World Bank and Université des Sciences Sociales, Toulouse.

Roemer, M. and M.K. Gugerty (1997) “Does economic growth reduce poverty? Technical paper.” CAER *Discussion Paper No 5*. Cambridge, Mass.: Harvard Institute for International Development.

Sachs, J.D. and Warner, A. (1995). ‘Economic reform and the process of global integration’. *Brookings Papers on Economic Activity* (1), 1-118.

Spilimbergo, Antonio, Juan Luis Londoño and Miguel Székely (1999) “Income distribution, factor endowments and trade openness” *Journal of Development Economics* **59** 77-101.

Vandemoortele, Jan and Enrique Delamonica (2000) “Growth is good for the poor: a comment”, mimeo [New York: UNICEF].

White, Howard and Jennifer Leavy (1999) “The Impact of Adjustment Policies: a literature review” *Sida Evaluation Report* [Stockholm: Sida].

Wood, A. (1994). *North-South Trade, Employment, and Inequality*. Oxford: Oxford University Press.