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2008

Online at <https://mpra.ub.uni-muenchen.de/64748/>
MPRA Paper No. 64748, posted 04 Jun 2015 05:46 UTC

CAPABILITIES, GROWTH AND NON-AGRARIAN VILLAGES

Second Phase of the Kerala Model

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Abstract

Kerala's image of a low growth state with high social indices has come up against some striking empirical trends. Its growth rate has taken off, it has become vastly less agrarian and has yet refused to urbanize. This paper seeks to explain these patterns as a result of the state's limited use of the capabilities approach. We use a combination of a simple mathematical model and the experience of Kerala to argue that the capabilities approach can affect patterns of growth as well as the transition of agrarian economies into non-agrarian ones. This in turn can affect the process of urbanization, contributing to the creation of non-agrarian villages.

The experience of Kerala has often been cited as an example of the capabilities approach. The prominent role provided by the state for the social sectors has brought to the fore the ‘variation between our real incomes and the advantages – the well-being and freedom – we get out of them’ (Sen, 2000, p70). There are, no doubt, elements of the experience of the state that supporters of the capabilities approach would decry. Kerala’s record with gender issues, particularly domestic violence, has not always been laudable (Kodoth and Eapen, 2005). Yet the state’s experience does provide evidence of the effects of specific initiatives in education or health. And it has been felt that since resources are being

concentrated on improving social opportunities, it reduces the investment available for other sectors and hence dampens the growth rate.

While this picture of social opportunities with low growth did characterise Kerala's economic performance for several decades, it has been quite dramatically reversed. It is now fairly well established that Kerala has, after Independence, experienced two distinct economic phases, one of low growth and the other of high growth. Different studies have used different cut-off points to distinguish the two periods. Sachs *et al* point out that the Net State Domestic Product of the state "grew at 2.5 percent between 1980-1990 and 5.2 percent between 1992-1998" (2002, p 15). A more detailed analysis of these growth patterns puts the turning point at 1987-88. Kannan's 'graphical analysis of the growth of net state domestic product ... showed a kink in 1987-88 not only for the net state domestic product (NSDP) but also for the three broad sectors' (Kannan, 2005, p 548). With the transition coinciding with the early years of liberalisation and gathering momentum after Indian economic reforms took off in 1991, it is natural to attribute it to the reform process. But while the reforms certainly would have had a role to play, they do not explain why Kerala's per capita NSDP growth rates moved from being far below the national per capita GDP growth rates in the years before 1987-88 to being well above them in the later period (Kannan, 2005, p 549). Since the reforms were meant for the country as a whole, there were clearly some elements of Kerala's economy that enhanced the potency of the reforms. The two periods then need to be explained not only in terms of changes in the policy regime at the national level but also in terms of the specific conditions in the state.

Understanding the nature of this growth becomes particularly important in the light of another, not adequately emphasised, transformation in Kerala. In states across the country as agriculture declines, the population tends to gravitate towards urban centres. This fits in with the classical expectation that as an economy becomes less agrarian, it will become more urbanised. Kerala provides a striking contrast to this trend. As Table 1 shows us, Kerala has seen a very substantial decline in the proportion of workers in agriculture. The share of cultivators and agricultural labour in total main workers in the state has declined from 37.7 percent in the 1991 census to 19.5 percent in 2001. And yet, it is one of only two major Indian states that have registered a decline in the proportion of urban population between 1991 and 2001. Kerala's marginal decline in urbanization has been despite the most dramatic decline in the proportion of agrarian workers in the major states of the country. In other words, the growth pattern that has resulted from an education led growth has also thrown up non-agrarian villages.

In this paper we explore the impact on patterns of growth of an economic strategy that emphasises social opportunities through mass education within a framework that assures adequate social security. We first outline the potential impact of the capabilities approach on growth, before developing a simple algebraic model to capture the process through which development of the freedom to be educated can influence the growth process. We then go on to compare the relations this model throws up with evidence from Kerala.

CAPABILITIES AND GROWTH

The role played by growth in the capabilities approach has several dimensions. At the core of this approach is the insight that the benefits of economic growth can be offset by

other restrictions on capabilities, such as gender discrimination or physical disabilities (Nussbaum, 2006). At the same time there is also the recognition that economic growth can be a useful tool in improving other capabilities. Dreze and Sen speak of a ‘growth-mediated security’ that allows us to tap ‘the potentialities released by greater general affluence, including not only an expansion of private incomes but also an improved basis for public support’ (1989, p 183). And several of the instrumental freedoms listed by Amartya Sen (2000, pp 38-40) too can influence the patterns of growth. The political freedom to belong to trade unions would influence wage rates; keeping the focus of state investment on social opportunities like health care and education would affect the availability of investment elsewhere; improvements in gender relations could affect the composition of the workforce; and so on.

An improvement in well-being and freedom, could also affect the choices a worker makes. With adequate social security, an educated person may well decide it is against her self-respect to work in professions dominated by an illiterate workforce. An educated worker would also have greater options to choose from, both within and outside the country. And they may even be willing to wait to tap those opportunities. It has been argued that workers “enter unemployment in order to engage in a repeated attempt to secure foreign employment” (Fan and Stark, 2007, p 77). The ability and willingness to make a choice of job on the basis of a larger number of options could have at least two implications for the economy. First, if workers are willing to prefer unemployment to taking up jobs they believe are below their educational status, the workforce would be segmented according to levels of education. There is then the possibility of unemployment in some sectors coexisting with the inadequate availability of labour in

other sectors. Second, with options emerging for educated workers in other economies, those seeking jobs outside the local rural economy need not move only to local urban centres. They could choose to move outside the local economy itself. The local economy can then remain substantially rural even as it becomes non-agrarian.

THE MODEL

Before we go into the algebraic model, the role it plays in our argument may need some elaboration. There is now some recognition that mathematics is used in economics in somewhat diverse ways. There have even been attempts to classify the different reasons to use mathematics such as the distinction between ‘the procedural defence and the book of nature defence’¹ (Mirowski, 1994, p 61). While we cannot enter that debate here, it is important to state at the outset that the purpose of our model is to identify specific economic relationships in the abstract, thus making explicit the assumptions involved. This approach keeps open the possibility that reality may be determined by more elements than our model captures. The working of the economic relationships identified could be affected in specific situations, as we shall see later, by issues such as gender. The existence of such additional factors does diminish the predictive capacity of the model, but the analytical value of identifying clearly defined relationships is not to be underestimated. In order to capture its analytical potential without laying claims to comprehensiveness, the model first identifies a broad relationship and then introduces assumptions designed to capture specific situations as they change over time. For the sake of simplicity, and since we are not seeking precise predictions, the assumptions are stated in extreme form.

Let K be the total capital employed in an economy, L_t the total number of workers the economy employs, L_a the total number of workers available for employment and V the average amount of capital required to employ one person. Then,

$$K/V = L_t$$

If all the available workers are to be employed, we require $L_t = L_a$, ie.,

$$K/V = L_a$$

Let L be the total number of people in the local population who are able and willing to work and M be the number of those out of L who migrate out of that economy. Then if the economy is to absorb all the workers available

$$L_a = L - M$$

$$\text{ie., } K/V = L - M$$

$$\text{ie., } K = (L - M) V$$

$$\text{ie., } K = LV - MV$$

Over time

$$K' = V L' + L V' - (V M' + M V')$$

$$K' = V L' + L V' - V M' - M V'$$

$$K' = V L' - V M' + (L - M) V'$$

Into this basic model we can now introduce assumptions designed to capture specific situations. Consider an economy passing through two distinct policy regimes over two periods.

Period 1

In the first period there is a policy regime in which, for ideological reasons, private investment of any kind is strongly discouraged. The same policy regime prioritises education, health care and other social benefits over all other investment. It also successfully implements a policy of population control. If these policies are strictly implemented the following three assumptions would be in order.

1. The state prioritises education, health care and other social benefits to the point where all the increase in capital is only to these areas. The investment in the other areas is kept at the level of depreciation so that there is no net increase in capital stock in those sectors.
2. For ideological reasons any increase in capital can only come from state investment. Private investment is strongly discouraged to the point where the private sector can only maintain existing levels of capital.
3. The family planning programme is taken to be successful enough for a sufficiently long period of time to ensure that the size of the local population does not change and the proportion of that population that is willing and able to work also remains constant.

The substantial increase in investment in education, health care and other social benefits will have its impact on the labour force. As workers get educated they will be less willing to work in jobs that use illiterate labour. And as they get higher education they will be less willing to take jobs that require only a basic level of education. The availability of health care and other social security would also reduce the pressure on them to take on occupations that they believe are below their status. Over time then the labour in the economy will gravitate towards distinct groups based on education. We can, for convenience, consider three distinct groups of workers: those with very low levels of education, including being illiterate; those with basic education; and those with higher levels of education. L then consists of three parts.

$$L = l_1 + l_2 + l_3$$

and

$$L' = l'_1 + l'_2 + l'_3$$

Where

l_1 = Number of workers with low levels of education

l_2 = Number of workers with basic education

l_3 = Number of workers with higher levels of education

We can now classify the economy into three sectors, each using a distinct type of labour. These sectors can consist of a variety of economic activities, as long as they share the same distinct group of labour. As education and health services require persons with high

levels of education, most of these activities will be in Sector 3. Capital too can then be classified into which of these sectors it is invested in. That is,

$$K = k_1 + k_2 + k_3$$

Where

k_1 = Capital in economic activities using workers with low levels of education

k_2 = Capital in economic activities using workers with basic education

k_3 = Capital in economic activities using workers with higher levels of education

Over time

$$K' = k_1' + k_2' + k_3'$$

The labour required by k_1 must be met entirely by l_1 , k_2 by l_2 and k_3 by l_3 .

We can also define

m_1 = migration of workers with low levels of education

m_2 = migration of workers with basic education

m_3 = migration of workers with higher levels of education

and

v_1 = the average amount of capital required to employ one worker with low levels of education.

v_2 = the average amount of capital required to employ one worker with basic education.

v_3 = the average amount of capital required to employ one worker with higher levels of education

Hence,

$$k_1' = v_1 l_1' - v_1 m_1' + (l_1 - m_1) v_1'$$

$$k_2' = v_2 l_2' - v_2 m_2' + (l_2 - m_2) v_2'$$

$$k_3' = v_3 l_3' - v_3 m_3' + (l_3 - m_3) v_3'$$

Ceteris paribus we have the following

Following our assumption that all fresh net investments are made only in Sector 3

$$k_1' = 0$$

and

$$k_2' = 0$$

Hence

$$K' = k_3'$$

Following our assumption that a strong programme of population control has kept the total number of workers constant,

$$L' = 0$$

that is

$$0 = l_1' + l_2' + l_3'$$

If education makes $(l_2' + l_3') > 0$, then

$$l_1' < 0$$

If we further assume an emphasis on mass education, even as there is an increase in higher education, then

$$l_2' > l_3' > 0$$

Each of the three sectors will then have a distinct pattern

Sector I

$$k_1' = v_1 l_1' - v_1 m_1' + (l_1 - m_1) v_1'$$

From the above discussion

$$k_1' = 0$$

Hence

$$0 = v_1 l_1' - v_1 m_1' + (l_1 - m_1) v_1'$$

Since $l_1' < 0$, either $m_1' < 0$ or $v_1' > 0$ or both. At one extreme, if the average amount of capital required to employ one worker is kept constant,

$$v_1' = 0$$

so that

$$v_1 l_1' - v_1 m_1' = 0$$

or

$$v_1 l_1' = v_1 m_1'$$

Dividing both sides by v_1

$$l_1' = m_1'$$

Since l_1' is negative, m_1' must also be negative. In other words, if the average amount of capital required to employ a worker in this sector remains constant, this sector will see an immigration of workers with low levels of education.

At the other extreme we can assume that migration does not change.

So that

$$m_1' = 0$$

and

$$v_1 l_1' + (l_1 - m_1) v_1' = 0$$

Since l_1 and m_1 are both taken to be constant and as long as $l_1 > m_1$, (that is local labour is greater than migrant labour in this sector), $(l_1 - m_1)$ will be a positive constant. As l_1' is negative, v_1' has to be positive. In other words, this sector will then choose technologies that absorb less labour per unit of capital. This could happen either through a change in

the technology used to manufacture the same product or through a change in the composition of the products manufactured in this sector.

In reality it is likely that neither migration nor the average amount of capital required to employ each worker would remain constant. What we are more likely to see is both the processes that we have described in extreme form working concurrently. That is to say, if the demand for labour is to be met, the decline in labour has to be compensated by a combination of immigration of workers with low levels of education as well as shifts towards more capital intensive methods. The shift to greater capital intensity could come either through technological change or through shifts towards economic activities using the same type of labour but more capital.

Sector 2

$$k_2' = v_2 l_2' - v_2 m_2' + (l_2 - m_2) v_2'$$

From the assumption of all net investment going into sector 3, we have

$$k_2' = 0$$

and hence

$$v_2 l_2' - v_2 m_2' + (l_2 - m_2) v_2' = 0$$

If the amount of capital required to employ one worker is held constant we have

$$v_2' = 0$$

so that

$$v_2 l_2' - v_2 m_2' = 0$$

or

$$v_2 l_2' = v_2 m_2'$$

Dividing both sides by v_2

$$l_2' = m_2'$$

Since l_2' is positive, m_2' will also have to be positive. That is, if the amount of capital required to employ a worker with basic education is held constant, workers with this educational background will be under pressure to migrate out of the economy.

At the other extreme, if migration is held constant we have,

$$v_2 m_2' = 0$$

and

$$v_2 l_2' + (l_2 - m_2) v_2' = 0$$

Since l_2 is assumed to be constant and m_2 is also now assumed to be constant, and l_2' is positive it has to be offset by v_2' being negative. That is to say, if migration of workers in this sector is not possible the amount of capital required to employ one worker with basic education will have to decline. This would involve moving towards more labour intensive technologies or products that are more labour intensive.

In theory here again two possibilities – migration and increasing labour intensity – are possible. But if technologies become more capital intensive over time, this sector cannot,

on the average, use less capital to employ a worker. The more likely outcome then is that workers with school education will be forced to migrate out of the economy. And this pressure will increase if technological change is increasing the amount of capital required to employ one worker with basic education.

Sector 3

$$k_3' = v_3 l_3' - v_3 m_3' + (l_3 - m_3) v_3'$$

From the discussion

$$k_3' > 0$$

$$l_3' > 0$$

v_3' will come under conflicting pressures. The average amount of capital used in this sector can move in both directions. For instance, in the field of education, if teaching facilities become more expensive it would increase the capital spent per educated person employed. If, on the other hand, technological change results in, say, jobs being outsourced to the local economy from abroad, it is possible that the same capital can provide more employment for educated manpower.

If we assume a balanced growth in this sector so that these two trends cancel each other in terms of the overall effect on the sector, the capital spent on each person employed can be taken to be constant,

$$v_3' = 0$$

then

$$k_3' = v_3 l_3' - v_3 m_3'$$

The capital in this sector will then have to be large enough to absorb a growing educated manpower minus the migration due to a brain drain.

The overall growth pattern that emerges in the first period is then one in which education reduces the labour available in Sector 1. If this sector is not to leave the capital available unutilised, it will either have to shift to products that require greater capital intensity or attract labour from outside the economy. In contrast, the problem in Sector 2 is one of an inability to absorb the labour available, thereby encouraging the migration of workers with basic education. Sector 3 has the advantage of increasing investment and an increase in the availability of workers with higher levels of education. But the availability of workers could be constrained by a brain drain. With two of the three sectors facing severe constraints on growth and the third having the potential to be hurt by a brain drain, the economy as a whole in this period may well be characterised by low growth.

Period 2

The migration generated in the first period will, over time, lead to remittances coming into the economy. These remittances generate a demand for items of current consumption of both goods and services, like more expensive education and health care. At the same time a portion of these remittances goes towards investment in providing goods and services, whether it is through production of goods like housing, trading of consumer goods or providing services like education. Two of our earlier assumptions will then have to be altered,

1. The pressure on the state to provide social security in the first period without rapid growth results in the development of fiscal pressures to the point where it cannot continue its investments in education, health care and other social benefits. But there is now a portion of remittances going into investment. While in the first period the state was assumed to be the sole source of increases in capital, that role is now played by remittances.

2. The prioritisation of investment through remittances is on goods and services that can be generated through sectors that use workers with at least a basic education. Sectors requiring a basic education are taken to include construction and trade. While educational institutions are taken to require higher levels of education.

The other assumption will remain, i.e.

3. The family planning programme is taken to be successful enough for a sufficiently long period of time to ensure that the size of the local population does not change and the proportion of that population that is willing and able to work also remains constant.

Retaining ceteris paribus,

If

R = total remittance and c the proportion of that remittance spent on capital goods and

c_1R = proportion of total remittances that is invested in sector 1

c_2R = proportion of total remittances that is invested in sector 2

c_3R = proportion of total remittances that is invested in sector 3

then

$$K + cR = k_1 + k_2 + k_3 + c_1R + c_2R + c_3R$$

Over time

$$K' + (cR)' = k_1' + k_2' + k_3' + (c_1R)' + (c_2R)' + (c_3R)'$$

Then the pattern in each sector would be as follows:

Sector I

$$v_1 l_1' - v_1 m_1' + (l_1 - m_1) v_1' = k_1' + (c_1R)'$$

since labour continues to get educated and move to other sectors,

$$l_1' < 0$$

since state and private investment continue to stagnate

$$k_1' = 0$$

and since agriculture is not a priority area for investment from remittances

$$(c_1R)' = 0$$

$$v_1 l_1' - v_1 m_1' + (l_1 - m_1) v_1' = 0$$

In other words, the earlier trends in this sector get accentuated. As more labour gets educated and moves out of this sector, there will be even greater pressure to get labour from outside to migrate into this sector of the economy or to move towards activities that

are more capital intensive so that the average amount of capital required to employ a single worker in this sector increases.

Sector 2

$$v_2 l_2' - v_2 m_2' + (l_2 - m_2) v_2' = k_2' + (c_2 R)'$$

Since education continues to increase and thus increases the number of workers entering this sector

$$l_2' > 0$$

since state investment continues to elude this sector

$$k_2' = 0$$

since some proportion of remittances is invested in construction and trade, which are taken to be a part of this sector

$$(c_2 R)' > 0$$

then

$$v_2 l_2' - v_2 m_2' + (l_2 - m_2) v_2' = (c_2 R)'$$

If technology does not change

$$v_2' = 0$$

that is,

$$v_2 l_2' - v_2 m_2' = (c_2 R)'$$

To the extent that investment from remittances absorbs the additional labour entering this sector, the pressure on labour in this sector to migrate out of the economy will decline.

Sector 3

$$v_3 l_3' - v_3 m_3' + (l_3 - m_3) v_3' = k_3' + (c_3 R)'$$

Since state investment in areas like education and health also ceases to grow

$$v_3 l_3' - v_3 m_3' + (l_3 - m_3) v_3' = (c_3 R)'$$

The only difference in this sector is that it will become more dependent on the priorities of those providing remittances rather than the state. This could see a rise in the growth of educational and health institutions developed more as a commercial activity rather than the traditional emphasis on mass education and health facilities.

In the second period Sector 1 would see a continuation of the same pressures towards greater capital intensity and attracting workers from outside. Once the potential to increase the overall amount of capital required to employ a worker with low education is exhausted, the resultant shortfall in the availability of this labour would have to be met by migration or simply by leaving capital and other non-labour resources unutilised. In Sector 2 the pressure to migrate would ease if the proportion of remittances invested in this sector increases. Migration then would be a reflection of the relative opportunities at home and abroad. The growth in remittances together with state investment would provide an even greater boost to Sector 3, though the possibility of those with higher education finding migration an attractive alternative would remain.

THE KERALA EXPERIENCE

The deliberately limited nature of our mathematical model defines our use of evidence from Kerala. We first use the evidence to justify the assumptions made – in an extreme form – in the model before going on to see whether the relationships identified in the model help us understand overall patterns of growth and urbanization in Kerala, particularly the emergence of non-agrarian villages.

The first period was in many senses defined by the historical fact of the state having the first democratically elected communist government in the world in 1957(Lieten, 1980). While that government itself did not last very long, some of its priorities continued in succeeding decades to make Kerala an oft-cited example of a development strategy that focused on improving social opportunities, especially education and health care facilities, at a time of low growth (Sen, 2000). The ‘Kerala Model’ as it has come to be known has thrown up a variety of narratives (for instance, Parayil, 1996). It is often the cornerstone of arguments against a preoccupation with growth alone and forms a part of Amartya Sen’s case for seeing development as freedom. The conditions during this phase of the Kerala experience match the assumptions we have made for Period I in our model. The state’s emphasis on education can be seen in the increase in enrolment in primary education from 2.49 million in 1956-57 to 4.28 million in 1980-81, even as enrolment in secondary education over the same period grew more rapidly from 217,000 to 1.31 million and in university education from a mere 22,000 to 242,000 (Mathew, 1999, p 103). This focus on education was accompanied by improvements in health care and other social opportunities. ‘Kerala’s relatively high level of human development is largely the outcome of the State’s achievement in education and health’ (Krishnan, 2000).

At the same time there was also a very strong trade union movement (Kannan, 2002). This made it very difficult to generate a significant growth in private investment (Sachs *et al*, 2002, p 17). The growth in mass literacy helped programmes aimed at population control with the state recording the lowest crude birth rates among Indian states by 1991 (Retnaraj, 1999, p 155).

In checking the performance of individual sectors in terms of the relationships the model envisages, we run into the problem of our basis for demarcating sectors being very different from what is usually used to present evidence. The sectors in our model club together activities based on the levels of education of the labour employed, while most, if not all, information is based on sectors defined in terms of their output. In a broad indicative sense, we could try to bridge this gap, to some extent at least, by looking at the education levels in different output sectors. If we use the twin criteria of sectors having an illiterate population of over 10 percent, and those with an education of Matric (ten years of schooling) and above accounting for less than 20 percent, Table 2 tells us only two sectors met these conditions in 2001. Agriculture, hunting, forestry and fishing formed the first broad sector while mining and quarrying formed the other. These sectors can then be treated as an approximation to our sector with low levels of education. At the other extreme, Table 2 also tells us that three broad sectors met the twin criteria of less than 5 percent of their workforce being illiterate and over 70 percent of their workers having been educated to the level of Matric and above. Electricity, gas and water supply; Financial intermediation, real estate and business activities; and public administration, defence, etc correspond to the sector with high levels of education in our model. All other sectors including construction; retail and wholesale trade; hotels and restaurants;

transport, storage and communication; would form a part of the sector in our model that uses workers with basic levels of education.

The unwillingness of workers to accept employment that they consider below their educational status is recorded in village studies. MK Sukumaran Nair found in his study of five villages in Kerala's Pathanamthitta district in 1989 'that the educated are not available for farm work, despite being unemployed' (1999, p225). The success in mass education has thus resulted in a steady decline in availability of labour for agriculture, which accounts for much of our Sector 1. Table 3 tells us that the proportion of agricultural labour to total main workers declined from 28.2 percent in 1981 to 25.5 percent in 1991 and that of cultivators from 13.1 percent to 12.2 percent. Our model had suggested that faced with a shortage of agricultural labour the land owners could either shift to less labour intensive crops or encourage migration. There is evidence that the shortage of agricultural labour contributed to a shift in cropping patterns away from labour intensive crops like paddy to tree crops requiring less labour, particularly coconut and rubber. The proportion of paddy area to total cropped area declined from 27.8 percent in 1980-81 to 16.5 percent in 1994-95. Over the same years the proportion of area under coconut rose from 22.6 per cent to 29.9 per cent, that under rubber from 8.2 percent to 14.5 percent (Thomas, 1999, p 171).

This period also saw a major boost to migration out of the state. As Zachariah *et al* (2002a) have pointed out, until 1947 Kerala attracted more migrants than those who left the state. It was only after that year that people from the state began to migrate in significant numbers to other states in India. And after the 1970s migration out of India became an even larger phenomenon. In the decade between 1981 and 1991, 555,000

persons migrated from Kerala to places outside India in addition to 189,000 who migrated to other states within the country. That the main thrust of this migration came from our Sector 2 – those with basic education – is reflected in evidence available about the educational profile of the migrants. A survey of migrants from Kerala conducted in United Arab Emirates in 2001 found only 8.5 percent of the workers with levels of education at the primary and below primary levels, while 61 percent had education levels above primary but below a degree, and 30.5 percent had education levels of a degree and above (*Zachariah et al*, 2002b, p 164). While our Sector 2 may have provided the bulk of the migrants the significant proportion of those with higher levels of education suggests that our Sector 3 was also not without a brain drain.

The evidence of the years before 1987-88 thus suggests a process similar to the patterns outlined in our model. The movement of labour away from agriculture without a corresponding development of industry and services to attract that labour contributed to a substantial migration out of the economy and a low overall growth rate.

The most striking feature of the second period – the years after 1987-88 – is that the migration of the earlier decades began to lead to substantial inflows of remittances. As Figure 1 tells us, remittances that were growing very slowly during the earlier period began to gather momentum by 1987-88 and took off after 1991. The magnitude of these remittances clearly benefited from the currency reforms and the resultant significant devaluation of the rupee. The exchange rate of the rupee against the dollar increased from 17.943 in 1990-91 to 30.649 in 1992-93 and then kept growing over the next decade to reach a peak of 48.395 in 2002-03 (Economic Survey, 2007-08, p A78). The strikingly similar patterns of growth noted in the Net State Domestic Product and remittances do

suggest that the latter did play a significant role in the spurt in growth. This argument is strengthened by the fact that the Marginal Propensity to Save of remittances was not just higher than that of domestic income, but also doubled over the period 1991-92 to 1999-2000 compared to the period 1980-81 to 1990-91 (Pushpangadan, 2003, p 13).

This growth was accompanied by patterns in each sector that were not very different from what was suggested by our model. In Sector 1 the movement away from agriculture gathered momentum. As can be seen from Table 3 the proportion of agricultural labourers to total main workers declined dramatically from 25.5 percent in 1991 to 12.4 percent in 2001. Cultivators too began to move out of agriculture in larger numbers with their proportion among total workers dropping from 12.2 percent to 7.1 percent over the same period. The additional momentum in the movement away from agriculture may have been provided by investments from remittances, in addition to the now established options of migration. This can be seen in the significant increase in the proportion of total main workers who were now in construction, transport and other services between 1991 and 2001. While the share of construction increased from 4.0 percent to 9.3 percent, that of transport, storage and communication increased from 6.0 percent o 9.2 percent and that of Other Services increased from 15.2 percent to 17.2 percent. While the activities such as construction and transport may have required workers with some basic education, the growth of Other Services suggests that the economy was now also absorbing substantial numbers of those with higher levels of education.

Non-agrarian Villages

The Kerala experience of educated workers being able to migrate out of the state has its implications for urbanization within the state. As educated workers exercise their option

of using migration to achieve higher levels of status, they could move directly to their places of work outside the state or country rather than first move to local urban centres. The rural roots in Kerala are also strengthened by, among other things, the role of gender. As women get more educated they are less likely to get work that they would find acceptable. Based on data for 1983 and 1987-88 Mathew argues that ‘moving from “not literate” to “graduate and above” categories, the female labour force has higher rates of unemployment than their male counterparts, regardless of rural-urban differences’ (Mathew, 1999, p 96). This gender bias is also reflected in migration from Kerala with the migration out of India being heavily in favour of men. The extent of this difference does vary across communities. Zachariah *et al* put the proportions of females among those migrating out of India as varying from a low of 4.7 percent for Muslims and to a high of around 20 percent for Christians (2002a, p 22), but the generally low levels highlight the extent to which migration out of the country is heavily dominated by men. This pattern of leaving the women behind has a number of implications, including the so-called ‘Gulf Wives’ syndrome (Zachariah *et al*, 2001). But what is of relevance to us here is that the families remain where they are. If the migrants are from rural areas, the families remain and receive their remittances in their villages. The demand generated from these remittances thus tends to be rural, whether it is for commodities bought in shops or for housing. The direct and indirect impact on economic growth that results from this demand then also has a strong rural orientation. Not surprisingly, Table 2 tells us that rural workers account for more than half the workers in any category. While it is highest in activities like agriculture and mining, over 65 percent of the workers in a variety of sectors including the rapidly growing ones of construction and transport are in rural areas.

There is then little pressure from rapid growth rates for massive shifts in population towards urban areas.

SOME IMPLICATIONS

The experience of Kerala and the underlying processes that we have tried to capture through our model have several implications for the relationship between capabilities and growth. The development of an individual's capabilities through the provision of social opportunities would make her seek new occupations that are more in line with her newly acquired status. The individual's movement from an agrarian occupation to a non-agrarian one is the result of a positive choice created by the availability of education and other social opportunities, rather than one of being forced out of an agrarian economy. The options available also increase quite substantially with the possibility of economically beneficial migration. The effect of this migration on the rural economy is strengthened by family ties, particularly when only the male member of the family migrates and sends his remittances back to his village. The rural economy receives a further boost when the demand for commodities generated by remittances increases the scope for trade in the increasingly non-agrarian villages. And the expenditure from remittances on improving housing ensures that the growth in construction too has a strong rural bias. The village economy then develops a growing non-agrarian character. As a consequence there is much less willingness to move into neighbouring urban centres, especially if that involves moving into urban ghettos.

It is important, however, not to generalize too quickly on the relationship between capabilities and urbanization. Implicit in this whole process of education led growth

creating non-agrarian villages is the fact that there are centres elsewhere that can absorb the migration from the local economy. To the extent that these points of absorption of an educated migrant workforce are urban centres, the process does not necessarily work against urbanization. All that it says is that the points of urbanization that attract labour away from agriculture need not be in the economy being considered. The realisation of the opportunities provided by a capabilities led approach has, in the Kerala case, been made possible by both urban centres outside the state but within India, as well as by an increasingly globalised economy. Processes that have traditionally been seen as a part of individual economies, including the transition from an agrarian economy to a non-agrarian one, can now take place involving different urban centres across the world.

A critical element in the process is the access to global urban centres. In the initial phase workers have to be able to migrate to these centres. This would require the removal of restrictions, if any, on the movement of labour. These restrictions may be in the form of legal barriers to entry, but could also be cultural, with urban centres sometimes tending to be more hospitable to people from some cultures rather than others. In the second phase, for there to be a free flow of remittances back to the home economy, it should be possible to easily overcome whatever currency and other barriers that exist on the transfer of funds. Globalisation, in the sense of the removal of national barriers to both labour and capital movement, thus aids this process. Conversely, the absence of globalisation could act as a major barrier to the full realisation of an education led strategy.

The Kerala example reminds us that the significance of the capabilities approach lies not just in taking a broader view of development, but also in helping us better understand the

political economy of growth, especially new dimensions to the transition from an agrarian economy to a non-agrarian one.

(This paper benefited a great deal from discussions with Rajesh Kasturirangan, Tim Poston, Prabhakar Vaidya, Nitin Nagaraj and Kishore Bhatt. None of them are responsible for the errors that remain.)

Notes

¹ The procedural defence hinges ‘upon the ideal of rigour which is independent of the uses and purposes in which mathematics is embedded’ (Mirowski, 1994, p 62). The book of nature defence treats the use of mathematics in economics as a natural process that would happen in due course.

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Table 1 : Proportion of Main workers Engaged in Agriculture and Level of Urbanization 1991-2001 in Major States in India (%)

	Cultivators		Agricultural labourers		Proportion of Urban population	
	1991	2001	1991	2001	1991	2001
India	38.7	33.1	26.1	20.3	25.7	27.8
Andhra Pradesh	27.7	25.5	40.9	33.8	26.9	27.3
Arunachal Pradesh	60.4	56.6	5.1	2.6	12.8	20.8
Assam	50.9	37.7	12.1	9.0	11.1	12.9
Bihar	43.6	32.2	37.1	42.8	10.4	10.5
Gujarat	33.4	27.7	22.9	17.9	34.5	37.4
Haryana	38.8	35.9	19.0	9.8	24.6	28.9
Himachal Pradesh	63.3	55.6	3.3	1.8	8.7	9.8
Karnataka	34.2	31.9	28.9	19.5	30.9	34.0
Kerala	12.2	7.1	25.5	12.4	26.4	26.0
Madhya Pradesh	51.8	46.6	23.5	20.3	25.3	26.5
Maharashtra	32.8	29.4	26.8	22.1	38.7	42.4
Manipur	61.8	43.3	6.7	6.3	27.5	25.1
Nagaland	72.6	65.2	1.4	1.7	17.2	17.2
Orissa	44.3	36.0	28.7	22.0	13.4	15.0
Punjab	31.4	24.3	23.8	13.6	29.5	33.9
Rajasthan	58.8	55.0	10.0	5.8	22.9	23.4
Sikkim	57.8	47.5	7.8	4.3	9.1	11.1
Tamil Nadu	24.8	20.0	34.6	25.6	34.2	44.0
Tripura	38.1	28.0	23.4	18.7	15.3	17.1
Uttar Pradesh	53.3	47.0	18.9	15.2	19.7	20.8
West Bengal	28.4	19.8	24.6	19.6	27.5	28.0

Source: Tabulated from Census of India, 1991 and 2001

Table 2: Main Workers and Level of Education in Kerala 2001

Industrial Category of Main Workers	Proportion of Illiterate workers	Proportion of literate but below matric	Proportion of matric and above	Proportion of total rural workers
Agriculture, Hunting, Forestry and Fishing	12.62	68.25	19.14	82.99
Mining And Quarrying	12.13	74.54	13.33	85.56
Manufacturing and Repairing	10.54	65.43	24.02	71.83
Electricity, Gas and Water Supply	0.72	21.12	78.16	60.96
Construction	5.00	69.53	25.47	67.05
Wholesale and Retail	3.99	53.96	42.05	61.20
Hotels and Restaurants	5.24	71.06	23.70	71.16
Transport, Storage and Communication	2.37	61.21	36.41	65.71
Financial Intermediation, Real Estate Renting and Business Activities	0.66	17.62	81.72	51.19
Public Administration, and Defence, compulsory etc...	3.23	24.71	72.05	63.60

Source: Tabulated from Census of India 2001,
http://www.censusindia.gov.in/Census_Data_2001/Census_Data_Online/Economic_Data/Nic_Classification.aspx extracted on 29/01/2008

Table 3 : Percentage Distribution of Main workers in Kerala 1981 to 2001

	1981	1991	2001
Cultivators	13.6	12.2	7.1
Agricultural Laborers	28.3	25.5	12.4
Livestock, Forestry, Fishing, Hunting, plantation, Mining and Quarrying etc	10.4	10.2	13.8
Total Primary	52.3	47.9	33.3
Household Industry	3.7	2.6	3.3
Other than Household Industry*	12.2	11.6	12.2
Construction	3.0	4.0	9.3
Total Secondary	18.9	18.2	24.9
Trade and Commerce**	11.1	12.6	14.9
Transport, Storage and Communication	5.0	6.0	9.2
Other Services***	13.4	15.2	17.2
Total Tertiary	29.5	33.8	41.3

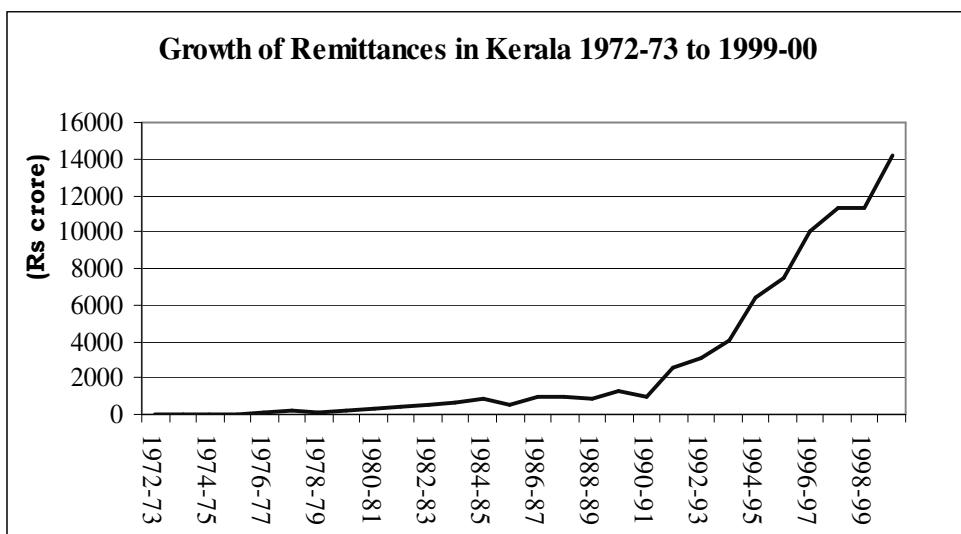
Source: Figures for 1991, 2001 tabulated from Census of India and 1981 from Prakash (1999)

*includes Electricity, gas, and water supply

** Includes wholesales and retail trade, hotels and restaurants

***includes financial intermediaries, real estate activities and categories from 'L' to 'Q' according to National Industrial Categories 2001

Figure 1



Source: Kannan K P and K S Hari (2002)

Note: Total remittance includes remittance and remittance in kind.