# Globalisation, Population and Ecology

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NOTA DI LAVORO 112.2003

**DECEMBER 2003**
ETA – Economic Theory and Applications

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**Summary**

This paper deals with some variables that are not generally included as economic or market variables in order to show how these affect the question of population growth, which is after all the core of resource allocation.
It shows that population growth may also depend on better medical treatments, higher productivity, less local violence and the decline of customary restraints (i.e. social and family pressures), and not only on the evaluation of the benefits and losses of having more children in relation to limited property resources.
On the other hand, as far as demographic transition is concerned, there is one essential factor that affects family size throughout the world. This is education..
School has decreased mortality by the emphasis on personal and household hygiene. It has then decreased fertility by the increased costs of bringing up children in a school situation, i.e. demographic transition is set in progress without urbanization, industrialization and scarcely without modernization, except for the school itself.
Education, as we know it, preceded industrialization and intrusive urbanization in Europe too. It was not until very late (1870) that attempts at introducing compulsory education were made, and it was mass schooling that made a marked difference.
Widespread education may also accomplish the control on fertility, i.e. later marriage. Education promotes consumerism and when there is a large gap between achievement in the economic and educational domains, major difficulties arise.
Despite earlier hopes the economy has not expanded *pari passu* with education. There is a gap between the literates and the number of jobs. This discrepancy has produced a floating population of the young who are a threat to political stability. The other outlet is migration overseas. For good or for bad the globalisation of education releases a potent force in the globalisation of the family.

**Keywords:** Globalisation, Population, Ecology

**JEL:** D1, J1

*This paper has been presented at the "International Conference on Theoretical Topics in Ecological Economics", Trieste, Italy, February 10-12, 2003, a joint initiative of the Abdus Salam International Centre for Theoretical Physics - ICTP, the Beijer International Institute of Ecological Economics, and Fondazione Eni Enrico Mattei – FEEM.*

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Globalisation, population and ecology

This paper wants to deal with some variables that are not generally included as economic or market variables in order to show how these effect the question of population growth, which is after all the core of resource allocation. Resources, including ecological resources, are often limited and have to be divided out among the people they sustain. That's sustainable growth.

I want to begin historically, simply because this is a point of polemic orientation. A writer at the end of the 18th Century who had a huge influence on economists, historians and demographers, the Rev. Robert Malthus (1766-1834). Malthus was concerned with the growth of population in relation to resources but he thought there were two main ways by which this was achieved in human societies. The first was by what he called negative checks, restraint, the second by positive checks, war, famine, disease. Europe followed the first course with late marriage, postponing gratification. The East was governed by the second, by natural disasters.

The problem about this notion of restraint, as with the Weberan notion of Protestant savings involved in the rise of capitalism, is that it is very Eurocentric. It was indeed developed to try to account for Europe's greater achievements in the modern world, but it is in fact mistaken.

First regarding savings, putting wealth aside clearly that was essential in any long-distance trading, whether from Western Europe, from Venice or from the Near East or India. Savings had to be accumulated to acquire the means of transport, ships, as they did for the trade-goods themselves. We know of plenty of ship owners by name, in India for example, as well as in other parts of Eurasia. They had complex trading systems in the Indian Ocean and China Sea and over many centuries. As for goods, the producers had normally to be paid for these beforehand, as with Indian cottons, and these costs of purchases were often shared by the merchants in proportions that were reflected in the returns

they received at the end of the voyage. These arrangements, such as the *commenda*, the *colleganza* or the *fraterna* (if brothers were involved), were fore-runners of later joint-stock companies.

Each of these arrangements meant restraint in the sense of postponing immediate gratification, and hence the delayed use of resources, as of course did any system of banking, loans and credit, throughout the Eurasian continent, whether in Japan or in Antwerp. There is no evidence that such arrangements were linked unilaterally to Europe, except in assumptions made after the onset of industrialisation – which called for post-facto explanations about the earlier state of affairs.

The same is true for the Malthusian hypothesis. Why did Malthus get it so wrong? Because he thought that only in Western Europe did people show restraint, did they evaluate the benefits and losses of having more children in relation to limited property resources. If you have just enough land to farm and maintain a small family, than to have more than one surviving male child, will lead to a division of the land (presuming that daughters have no entitlement to land but rather to a dowry of moveable property, to wealth). Only sixty percent of pre-industrial families will end up with one or more sons, twenty percent having girls alone; another twenty percent will have no surviving children. Of the sixty percent, only 7% will have more than one son. Even then it is not inevitable that the second or subsequent sons will end up having no farm, since some of the childless families will adopt sons, while those with enough females may encourage a male to make what I call a filiacentric union, 'faire le gendre' in French, that is, come and reside with his heiress wife (like the Duke of Edinburgh in Britain) and manage her estate. Of course they may find new land.

What I am saying here is that restrictions of resources will enter into the calculations of enough parents (there will be some free-riders) to make the population grow at less than the maximum rate.

How is this accomplished? Malthus thought that restraint took the form of delaying the age of marriage. Support for the existence of restraints came from the pioneering demographic work of Peter Laslett and the Cambridge Group when he showed during the 1960s that in England there never had

been large, extended families of a conjugal kind, but that ever since parish records had been kept in the sixteenth century the average MSH had been around.

On the basis of figures like this Hajnal posited a European marriage pattern which consisted of a late marriage age for both men and women, a significant number of never-marrieds as well as the phenomenon of in-living servants. As youths did not marry until an average age of 25 for men and 23 for women, as adolescents those surplus to the requirements of the household went to work as in-living servants, both male and female, on other properties where labour was required.

What he meant by the European marriage pattern was the Western European pattern and he saw the dividing line as running between Trieste and (Moscow). And he, like Laslett and his associates, saw this small family, characterized by restraint as well as by love (but that is quite another matter which I discuss later) as being implied in the uniqueness of capitalism. The notion of capitalism turned out to be rather vague, or perhaps one should say ambiguous, meaning different things to different commentators. But we can perhaps settle for the notion of industrialisation, which seems fairly straightforward and did first occur in the West, in England in fact. But it was quickly taken up in the rest of Western Europe that had similar demographic regions.

This thesis was very persuasively argued and Laslett's data very convincing. In a magisterial work, Wrigley and Schofield, fellow members of the Group, showed that from the eighteenth century differences in the age of marriage were to be correlated with variations in economic conditions; when things were bad, people had less children since they had less resources.

In this way, Western Europe had an advantage as against all other regions which were characterized by a non-European marriage pattern of early marriage for men and women and therefore it was assumed by larger families, that is numbers of children, with a larger household size believed to hold in earlier times (extended families) as well as in other places, as in India with joint families and in China with grand families. These larger groups were considered to be inimical to capitalism where the

sociologist Talcot Parsons, and many other scholars had seen a compatibility, an elective affinity, between the development of entrepreneurship and the small family (or small NSH), which enabled one to be free in a Robinson Crusoe like way and to have greater mobility.

The problem was that the figures for household in other regions didn't really support the theory. Despite early marriage in China, for example, average MSH was not substantially larger than in Europe. Of course, the rich had larger households and lived in bigger houses with more dependents but the bulk of the people did not. Freedman's aphorism was rich households, joint families, poor households, stem families. A stem family was one in which the numbers of children (at least of heirs) was limited at each generation, typically giving you a stem type genealogy (rather than a branching one) of this shape.

Hajnal accepted that there was a problem but continued to draw a dividing line between West and East on the basis of different procedures of household formation. In the West a man became household head of a family at a relatively late age, since marriage was later and the generations longer; in the East, a man became a household head earlier, the generations were shorter. Nevertheless the difference in the sizes of households and in the numbers of children were small.

How did this come about if the ages of marriage were so different? The answer had been provided by some American Chinese demographers working in US (Lee and Wars) who in a book entitled <u>One Fifth of Humanity</u> have shown that Malthus was quite wrong in his assumptions about China. While they married earlier, as he announced, their marital fertility rates were less than in the West, so that the total fertility by rates (numbers of children) turns out to be the same in the East and West. The population of China might be high, but it started off that way partly because of a very efficient agriculture, and is not the product of insensate copulation but of the attempt to marry resources to population, that is, with the numbers of children at the household level.

In other words both in the East and in the West, under the conditions of plough agriculture, the available arable land was limited. That is not to say, that some did not have more than others. By using the plough and animal traction, a man can cultivate a much larger quantity of land than he needs (if he has rights of legal ownership or simply possession rights) and thus produce a surplus to pay others to cultivate even more land. Moreover to maintain the status and standard of living of himself and his family he will need to retain the quantity of land he has. So will his children. Hence even for the rich there must be some kind of reckoning of how many children for how much land. And in the major Eurasian societies, there is often some tendency to reduce the number of particularly female children in order to continue the status of the rest, even by infanticide, especially in China. All this indicates if not restraint in the procreative sense, at least some reckoning of the profit and the loss, some attempt at control. And I have argued that, after the initial acceleration in population that modern medicine and hygiene brought about, these countries would take up the restrictions on population that household resources, and in some cases community resources promoted. There was an incentive to take up new methods. And indeed we have seen just that happening in East Asia, as recent reports of the East-West Center in Hawaii have shown. All countries in East and South Asia, including India, are beginning to show signs of the demographic transition.

Let me explain what that is. An initial population experiences a fall in mortality (a rise in fertility is also possible), leading to high growth, followed by an adjustment of fertility to produce a slow growth.

The demographic transition is taking place throughout the continent of Asia. Death rates drop first, leaving fertility high and therefore with great increase in population. But fifty or sixty years later, fertility declines to bring a relatively stable population, a replacement rate of 2.1 (which allows for deaths, otherwise of course 2.0).

"Over the past 50 years, many Asian countries have experienced a remarkable pace of economic development and social change. Modernisation has progressed most quickly in the countries of East Asia. At 81 years, Japan now has the highest life expectancy in the world. In South Korea, the average annual income rose nearly ten-fold between 1960 and 1999. In the Philippines, more than three-fourths of girls now attend secondary school, and about one-third attend university. In India, fertility has dropped from about six to just over three children per woman." (Westley et al 2002:1).

The change in East Asia has been more dramatic than anywhere else. In South Korea in 1950 a woman could expect to bear more than five children, in 2000 less than two. Over the same period, life expectancy in China has increased from 40 to 71 years. One result has been a very different life for women (especially regarding the reduced time spent in childbearing) and a dramatic increase in the number of aged.

The transition involves the subsequent move to fertility decline which has happened throughout Asia. It is argued that since child mortality has declined, so fewer children are needed in any one family. Then with education and changes in work patterns, children became a liability rather than an asset. Also the new economies compete for parents' time which especially affects women and child bearing.

One other major result is that dependency ratios will change both for young and for old dependents. They will fall for the young, then rise for the old. The temporary fall in ratios is known as a 'demographic bonus'. If properly exploited, this change can lead to an opportunity for economic development.

Reher's data have the effect of generalizing this Asian picture to a global scale. He points out that from the perspective of the twenty-first century, the global nature of this transformation is hard to dispute. Within a period of one hundred and sixty years, decisive demographic change has taken place throughout the world; fertility decline has commenced in all but twelve of the hundred and forty-five

nations used in his sample. It took place in two phases. From the latter part of the nineteenth century until about 1930, most European countries implemented ‘conscious fertility control’. During the second half of the century, the process spread throughout the world.

The problem with the demographic transition and with domestic change in general is that it doesn’t know where to stop. It used to be thought that we were experiencing a process of a shift from extended to narrow kin relations, the attenuation of kinship ties, or more controversially from the extended to the nuclear family. And that the nuclear or conjugal family according to most sociologists, demographers and others was eminently suitably functionally and ideological (the Cornflake packet family) to the process of capitalism, the market, industrialisation. But the process didn’t stop there. We have now an increased number of

1. one-child families, so that European populations are not reproducing themselves.
2. One-parent families resulting from the decline of long-term cohabitation or increased divorce.
3. Increase in celibacy.

Consider some of the social implications of this shift:

1. smaller active workforce in relation to the retired – raising the problem for pensions and in general for upward dependency ratios;
2. hence migrants are needed;
3. a dramatic increase in housing stock is required (quite apart from the question of more housing space and second homes which the rising standard of living makes possible. Hence more ecological space is constantly required – for housing immigrants, for one-person households. Which raises the question, should ‘additional’ housing be taxed at much higher rates in interest of the environment?

4. Smaller households also require more heating, more services, more resources generally

In earlier times it was suggested that only Europe, Western Europe, had seen a demographic transition, because that was the area that exercised restraint, that calculated the cost of the over-production of children, of rapid population growth, as against the growth of productivity for example. However now this process has occurred throughout the Eurasian continent (indeed is doing so throughout the world) showing that, in this respect, the East was not so different from the West from the standpoint either of interests or of attitudes. The East may have been later adapting to industrialisation but there is little evidence that they were backward at any earlier point in time. A recent account of 'The Great Divergence' by the sinological historian Kenneth Pomeranz (2000) claims that as far as the most 'advanced' centres of production and consumption were concerned, this divergence only began around 1800, that is after the onset of the Industrial Revolution. Moreover in these Asian cases, the demographic transition has occurred more swiftly than in the West; that is, the adjustment to growth has been more rapid, indicating at least an equal readiness to calculate the profit and the loss, to think of population in relation to resources.

The situation in the East is of little surprise to me and is analysed in the recent report of the East-West Center as well as in a more general article by David Reher for a recent millennial conference of the IUSSP which raises the discussion to a new level. For I have argued that the differences between East and West were much less than most historians, economists and others in the West (and many in the East too) have supposed. That is the general theme that I pursued in a book entitled The East in the West (1997). My argument is certainly supported by the data now coming out on the demographic transition, not to mention those on the economic and other cultural achievements of the contemporary East in relation to the West, first of all in Japan and the Little Tigers of Hong Kong, Singapore, etc, but now the largest Tiger of them all, mainland China, still under communist rule, which in terms of the

demographic transition and the use of energy seems to be following the pattern shown in the post-industrial West. These developments represent not the decline of the West but the rise of the East, which is not simply a matter of imitation, of mimesis, of the acceptance of a foreign notion of capitalism, but of encouraging what were 'sprouts of capitalism' beginning many centuries ago.

Where my own hypothesis has gone wrong in relation to resources was in Africa (and other parts of the non-Asian Third World). I lived in rural Africa as a fieldworking anthropologist over many years, and was struck by the limitations placed on these societies by the fact that neither the plough nor animal traction ever reached the south of the Sahara. Or if they reached there, these were never taken up. Men and women cultivated by means of the hoe, and hence did not use animals (let alone petrol-driven tractors) for farming. They were limited (limited from a Eurasian standpoint) to the use of the hoe and to the back-breaking labour that it entailed. Men were always complaining to me of their back problems. The use of the hoe meant that, given the limitations of the rainy season in the savannahs, people only had the time and techniques to cultivate a limited amount of land. That obviously could produce only a limited surplus (and often a deficit) to what the household consumed. Unlike plough cultivation there was little left over to support urban or indeed village specialists, at least full time ones. Indeed of those there were very few. Most people, even artisans and chiefs, had to maintain their own farm.

Since people could cultivate only small quantities of land but needed large reserves under their system of shifting cultivation, there was a lot of apparently unused land. On these tropical soils people had to move because when they farmed without any manure (but some got from burning the bush) and only rarely with some simple irrigation; so they had to shift to new land if they were going to maintain their yields. And yields was something that everyone understood, in their stomachs, since they made the difference between sufficiency and hunger. In the latter case the granary would be empty earlier in the year, leaving the household to eak out an existence during the hunger period using a diet which

included more marginal products, wild roots, seeds and berries, more watery soups, less solid ‘porridge’ or gruel which was the favourite dish throughout the region. This was the hunger diet which supplemented farming in the lean years.

This farming system provided a rather precarious existence, given the many local variations in rainfall, but meant that there was plenty of bush land (supplying wild game and foods) that was not at any particular moment cultivated by or allocated to individuals but which remained as a pool under the control of a wider group, perhaps defined by kinship criteria such as lineage or clan, perhaps by a local groups as a village. In any case there was no overall shortage of land. Densities could be quite high in some places, such as the LoDagaa village of Birifu where I first worked, but in other places, such as areas in the Gonja Kingdom to the south, the density was very much less. When I asked where I could make my farm in Gonja, I was told to look anywhere I liked. Immigrants from more crowded areas came there in large numbers and paid no rent, giving perhaps a nominal chicken to the local chief or owner of the land who was not in fact a landowner at all.

This form of land-holding meant that individuals had no difficulty in finding a plot to cultivate. When I once asked my cook-steward, Timbume, what he would do if I sacked him (he had arrived back drunk from the market for the umpteenth time), he replied, ‘Well, I would go back to my village and farm’. Land would have been made available for him. In other words the relationship between individuals and land, the allocation of resources in the basic means of production, was relaxed. People’s status did not normally depend upon the amount of land they held, since they only had temporary restricted rights in what they were cultivating at any one time, and that was a limited parcel. If new claimants came along, like Timbume, a village member who had been a long-time migrant, he would be shown some lineage or village land. In other words land was virtually a free good, like water.

I argued that under these conditions there was less incentive for individuals to limit their children’s holdings since all could be assisted, except in the far distant future. I was wrong but we

need to learn from our errors. The background is this. One of the most remarkable transformations that has been taking place not only in Ghana, but throughout Africa and throughout the world, is the demographic transition. Throughout the world, though more slowly in Africa, we have evidence that the demographic transition is occurring at a rhythm much faster than happened earlier in Europe. The demographic transition is characterized by an initial decline in mortality, leading to considerably higher rates of population growth, but followed eventually by a decline in fertility, and leading in the west not simply to replacement but to yet lower levels, marked by increases in the number of one-child and no child families. That decline in fertility means that the child-dependency ratios initially improve the number of children per adult, opening up the probability of fewer or better schools and what has been called the 'demographic bonus' which, if managed well, can lead to considerable socio-economic development. Eventually dependency ratios for the old will increase, posing problems in developing countries without advanced national welfare programmes who have already experienced a decline in the three generational family. Or will such considerations lead to fewer no-child families than in the economically advanced countries? Young adults may well have to bear this consideration in mind. The latter development has not yet happened in Africa, but if it does (it's rather a matter of when) it will have important repercussions on society since they cannot like Europe meet replacement with immigration (in Sweden they are talking of legitimising porn videos on the TV to encourage fertility). We have to try and explain this extraordinary state of affairs, which I had thought would be very delayed in Africa, not in particularistic terms but in the most general ones.

I had thought the progress of the demographic transition would be tied to economic factors, that it would eventually occur in Asia as in Europe, and that is correct. Not as the result of Government, NGO or UN policies; these had success only where they went in the direction that things were going anyhow. China's one-child policy was successful because it was in accordance with a general movement.

However, the general movement was not related to the economy. Otherwise why was Africa included? But it was relative to another world-wide (globalising) factor. It should be said that the problem itself, of higher population growth, was related to other globalising factors, including colonial production.

1. better medical treatments (e.g. the vaccine for malaria),
2. higher productivity, resulting from
   a) better crop varieties
   b) improved tools – because of iron imports,
3. less local (but more national?) violence which insulated production and increased child and female mortality,
4. the decline of the significance of customary restraints e.g. post-partem sex taboo which had meant lower marital fertility (these declined especially in towns – where life was more anonymous) and social and family pressures meant less to individuals.

These are qualitative, descriptive factors and we need always to combine these with quantitative data to bring us back from abstraction to the real world.

All this increased the number of surviving children leading to population growth, which we can say was in accord with people's individual and biological desires to increase their holding of children. Also it met the wishes of political leaders, who wanted bigger nations. Btu demographic change is taking place not simply in industrialized and in the urban settings (of the West) but everywhere, even in Africa where economic change has been very much slower than many expected. Mortality fell for a number of external reasons, the lessening of local feuds and wars, increased production even with the hoe (as a result of the importation of cheap iron), some medical facilities and sanitary measures. I want to add one other element to this list that seems to have affected not only the drop in mortality but the

later decline in fertility, as well as radically altering the family, marriage and kinship in other ways. I refer to education, which unlike the economy has been spectacularly successful in Africa (as elsewhere in the world since the Second World War).

Africa is still mainly agricultural. You may not find much economic growth in African villages and only sparse medical facilities. By definition urbanisation and industrialisation which were the factors that were seen as promoting the demographic transition in Europe, have been of limited significance. But one almost universal factor in Africa's villages is an institution that everyone will immediately recognize, the school, imported in its present form from Europe, although of course all written civilisations had their own. These are important, not only because of the content of the lessons but because of the school furniture, the lay-out of the classrooms, playground and wash room, the school books and above all the neatly dressed school children, whose parents have had to find the money to pay for a uniform of, for example, khaki trousers, blue skirt, white shirt or blouse.

I want to illustrate the impact that this development has had on two aspects of life, hygiene and family relations, from a recent autobiography I have edited of my late friend and co-author, S.W.D.K. (Kum) Gandah of Birifu in northwest Ghana (to be published by the Institute of African Studies, Legon).

He attended the new boarding school of Lawra in the northwest in 1943. The day began with exercise and a bath (that happened twice a day). 'When the roll was taken at the flagstaff, Mr Henkel (the Headmaster) inspected each child's nails and hair to see that they were cut short and also that each child's teeth and uniform were kept clean… Everyone's teeth were inspected to see they had been properly cleaned after breakfast and after lunch'. If they were not clean, then the compound prefect was in trouble – and so were you. 'Canings all around'.

The pupils were in bed by 8 p.m., and awake at 5.30 a.m. 'On Saturdays we washed clothes at the pond'. Nor did it stop with personal cleanliness. The school compound had to be kept clean and

free from all rubbish, especially when there was any festival or ceremonial like the Coronation of George Vth. That insistence on cleanliness even applied to the home. When the headmaster came to visit Kum's father, he was always on the look out. 'If he came to our house and found the surrounding area or the top of the palace dirty, we were in trouble. He would ask us to return to school the next day even though the others were still enjoying their freedom. Knowing that he was likely to visit our house at any time during our holidays, we did all we could to clean the top of the palace and its surroundings reasonably well every morning'.

During this particular holiday, Mr Henkel had visited Birifu and found that the palace was littered with leaves and rubbish blown about by the harmattan wind. 'He immediately ordered us to return to school the following day. As the result of my father's plea, he gave us three days to pack up and return to school… When we arrived we were the only pupils there and every morning we were asked to clean the entire school grounds as well as to fetch some fire-wood'. Later on he writes: 'Although Mr Henkel was no longer in Lawra to interrupt our holidays if we did not keep the palace clean, the habit of getting up at dawn to sweep the entire surroundings of the palace stayed with us. So early on this particular morning, just before dawn, I got up and went down with some of my illiterate members of the family'. There were over two hundred children of the chief who participated in the same rituals of cleanliness as the schoolboys. School had a halo effect on the behaviour of all their generation, which was particularly effective when the example was being set by the children of the chief.

Two points about this incident. There were no servants in LoDagaa compounds. The women and children had to do most of the chores around the house, and here the school children played a prominent role, spurred on by the example of the school and the possible disapproval of their headmaster. The school children were even taught to monitor each other, some being appointed as 'prefects' or rather as 'chiefs', thus mimicking the political systems itself. Discipline was strict, not

only because of the masters but even more so because of their peers, who took the place of siblings and even of parents. Non-school children would be pressed to follow their example of regular baths, of cleaner clothes, of tidier compounds.

Secondly, the incident illustrates the change school had wrought upon the family. The father no long wielded the same authority over his children as before. Clearly this was the case when they were actually attending primary boarding school but even at home an authoritarian father like the chief of Birifu had his authority affected by the standards drilled into the children at school (cleanliness, for example) as well as by the actual interference of the school teachers, though this was more likely in rural rather than urban areas. The father's authority was over-ridden by the school teacher's; it was the latter that ordered them back to school before their mates and the father that had to beg for a little leniency. Moreover the treatment at school was much harsher than in the house, especially as far as being beaten was concerned. Hence the efforts of some children to run away and reclaim their 'freedom'.

It was not dissimilar when Joe Appiah, the lawyer and leader in the Independence movement, attended the long-established Methodist Secondary School of Mfantsipim at Cape Coast. He was separated from his maternal grandmother to whom he was very close but his grandfather came to take up residence in a home he possessed nearby. The discipline was very much like an English boarding ('public') school and placed an enormous emphasis on uniform, hygiene and cleanliness.

As this institution was already established in 1861, one may ask why was there no influence on mortality, fertility and the family of the kind I am postulating? It certainly did have an influence but it affected only a small minority of the population in the coastal areas. It was mass schooling that made the great difference.

Another major feature of schooling was the division of the sibling group or the peers into educated and un-educated. As I have remarked, the educated ones certainly influenced the others. But

there was a considerable division between the two. The uneducated could not aspire to any position in the government or in the bureaucracy generally. They were destined to remain as farmers, usually hoe farmers, or to be labourers of one kind or another. The 'educated' could be MPs, teachers, lawyers, doctors, army officers and so on. A 'class' structure began to emerge within the sibling group.

So there was inevitably some who felt superiority on the part of the educated and some jealousy or resentment on the part of the others. For example, when Kum was teaching in Lawra, the headmaster 'suggested to the teachers that we should give some of our spare time in the evenings to teach the unfortunate people of the town who could neither read nor write'. Initially a lot of enthusiasts enrolled. They were divided into those who could speak English and those who knew ABC, and others. I took a class of about four or five, who, due to their Koranic training, could be considered literate but not in the English or Western style'. The newly educated tried to raise up their colleagues.

But the solidarity between brothers was also drastically affected by the subsequent differentiation of jobs and the growing consumerism. The educational system broke up the solidarity of the family, reducing the authority of the father, splitting brother from brother, perhaps husband and wife. It did that because the jobs it had to offer did not exist and village level. The educated had to go away to work.

Of course the mobility was not only caused by education. The non-literates travelled to jobs in mines, in cocoa farms, in labouring work throughout the country, and this activity, promoted by colonial penetration, had similar effects. Except that the non-literates were more likely to go on short-term migration and in any case could easily return to the village where they could claim land for farming. Education dispersed the population in a more definitive way, indeed not only within the country but internationally too.

The obvious problem with the decrease in mortality and initial population growth is that the process begins by increasing dependency ratios for the young. That is to say, children increase relative

to the adult population. So if you want to maintain the same proportion of children at school, the country is faced with a greater expense but the same number of adults are there to tax. And parents have to support more children. Equally the eventual decline in fertility will release resources for improving schools and hence the ‘quality’ of the work force, if that is a significant factor.

Parents and governments may of course react to the increasing growth by reducing the number of children at school. But because of the superior status of school children, both in a sibling group and in the world at large, there is likely to be pressure from some children themselves to attend, as happened in Kum’s case. Not from all. Some will resent the loss of freedom that school involves, as is clear from the same narrative. But on the whole parents will be forced into increasing sacrifices, giving up on the help which even young children can offer and, even without school fees, spending more on clothing, books, food and the consumer items which children in a competitive school environment require. The result is likely to be a decision to limit the number of children.

In other words, schools have decreased mortality by the emphasis on clean clothes and personal and household hygiene, then decreased fertility by the increased costs of bringing up children in a school situation. The demographic transition is set in progress without urbanisation, industrialisation and scarcely without modernisation, except for the school itself. When that happens, there will be a decrease in the child dependence ratios, since there is a larger number of adults from the earlier fertility rise while the aged population has not yet begun to swell. This promises a ‘demographic bonus’. In the following phase, the dependency ratio for the old will increase, partly because of greater longevity, partly because there are less younger folk to assist in looking after them. In Africa, that will be particularly problematic since there is too little economic strength to build up the extra-familial systems of old-age care which characterize the developed economies. It will be another difficult phase for the extended family which will have to be encouraged to cope. Education as we know it preceded industrialisation and intrusive urbanisation in Europe too. But it was not until very late (1870) was any

attempt made to introduce compulsory education and it was the wide spread nature of schooling that made a marked difference.

Widespread education may also accomplish what western demographers, trained on Malthus, have advocated to control the rise in fertility, that is, later marriage. Later marriage means longer adolescence, with all its problems and its own sub-culture. (In fact as Lee *et al* have recently shown, it is quite possible for 'traditional' societies to control growth within marriage). Education promotes consumerism and expands the role of money in children's lives. When there is a large gap between achievement in the economic and educational domains, major difficulties arise.

For there is another factor to be brought into the picture. I have indicated that throughout the world education has been very successful in establishing schools and recruiting children in a whole variety of socio-economic situations. The new leaders of independent, ex-colonial nations were all educated men, some highly so, like Jomo Kenyatta or Kwame Nkrumah, both authors of books. They wanted their peoples all to be schooled partly for general reasons, partly so they could participate in national politics which were based not only on literacy but on being able to read and write in a language, the colonial language, of major circulation, English, French, Spanish or Portuguese.

Despite earlier hopes, the economy did not expand *pari passu* with education. It could not provide the jobs which school or university leavers anticipated, since it was unlikely that they could return to what was still basically a hoe economy in many rural areas, with low levels of production and plenty of back-breaking labour (Cocoa plantations were different because with hired labour they produced cash crops whose value varied with the world market). This meant there was a gap between the literates being turned out by the school system and the numbers of jobs. The administration expanded in a variety of fields but this just meant there was less government money to go round and wages fell. I would suggest that from this point of view, the programme, pursued by the governments, the UN, by religious bodies and other agencies, had its very serious problems.

As Adjepi points out, the discrepancy produced a floating population of the young who were basically a threat to political stability since they would follow anyone who, realistically or not, promised the jobs. The other outlet was overseas. Some migrated from Ghana to oil-rich countries where wages were better. Others, because they had been educated in an international language, attempted to emigrate abroad, legally or illegally, to developed countries who had increasingly failed to reproduce their population. As a result they often filled jobs the locals would not take and which were lower than their qualifications entitled them. Fifty per cent of trained personnel are reckoned to be working abroad. The result was an enormous loss to the exporting country, which had spent large resources on training the personnel, and a considerable gain to the developed world.

Even when there were no jobs the educated would tend to go to towns, predominantly male in composition. The men would leave wives, children and other family behind them and the women might turn to prostitution as well as to petty trading. Later marriage which resulted from education (and from injunctions from the West) can also be seen as related not only to the quality of the workforce, where relevant, but also to extending adolescence with its drug taking, alcohol abuse and risk behaviour. I say where relevant because it must always be remembered that the major civilizations of Eurasia achieved their earlier advances while literacy was acquired only by a minority. That situation of minority (if you like, of elite) literacy lasted some 5000 years. The new nations of Africa are pursuing quite a different and unexplored course of widespread if not universal schooling. Their adaptation to urban life would encourage many of the problems Oppong has recently pointed out in a paper on increasing infant malnutrition. Delayed marriage (later marriage) equalled greater illegitimacy, reduced birth-spacing and the spread of disease. Increased divorce or separation and one-parent (usually mother-centered) families are in there too. Not all these ills are to be attributed to education but it is as well to recognize that we are dealing with a package of plusses and minuses as far

as education and the family are concerned. For good or for bad, the globalisation of education releases a potent force in the globalisation of the family.

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(l) This paper was presented at the Workshop “Growth, Environmental Policies and Sustainability” organised by the Fondazione Eni Enrico Mattei, Venice, June 1, 2001
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(lii) This paper was presented at the International Conference on “Economic Valuation of Environmental Goods”, organised by Fondazione Eni Enrico Mattei in cooperation with CORILA, Venice, May 11, 2001
(liii) This paper was circulated at the International Conference on “Climate Policy – Do We Need a New Approach?”, jointly organised by Fondazione Eni Enrico Mattei, Stanford University and Venice International University, Isola di San Servolo, Venice, September 6-8, 2001
(liv) This paper was presented at the Seventh Meeting of the Coalition Theory Network organised by the Fondazione Eni Enrico Mattei and the CORE, Université Catholique de Louvain, Venice, Italy, January 11-12, 2002
(lv) This paper was presented at the First Workshop of the Concerted Action on Tradable Emission Permits (CATEP) organised by the Fondazione Eni Enrico Mattei, Venice, Italy, December 3-4, 2001
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(lviii) This paper was presented at the Workshop on “Game Practice and the Environment”, jointly organised by Università del Piemonte Orientale and Fondazione Eni Enrico Mattei, Alessandria, April 12-13, 2002
(lix) This paper was presented at the ENGIME Workshop on “Mapping Diversity”, Leuven, May 16-17, 2002
(lx) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications”, organised by the Fondazione Eni Enrico Mattei, Milan, September 26-28, 2002
(lxi) This paper was presented at the Eighth Meeting of the Coalition Theory Network organised by the GREQAM, Aix-en-Provence, France, January 24-25, 2003
(lxii) This paper was presented at the ENGIME Workshop on “Communication across Cultures in Multicultural Cities”, The Hague, November 7-8, 2002
(lxiii) This paper was presented at the ENGIME Workshop on “Social dynamics and conflicts in multicultural cities”, Milan, March 20-21, 2003
(lxiv) This paper was presented at the International Conference on "Theoretical Topics in Ecological Economics", organised by the Abdus Salam International Centre for Theoretical Physics - ICTP, the Beijer International Institute of Ecological Economics, and Fondazione Eni Enrico Mattei – FEEM Trieste, February 10-21, 2003

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