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The economic benefits of increased literacy

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2006 EFA GLOBAL MONITORING REPORT

THE ECONOMIC BENEFITS OF INCREASED LITERACY

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ABSTRACT

This report reviews the evidence on the economic benefits of increasing adult literacy, focussing mainly on developing countries. It introduces a framework for understanding the various ways in which literacy could impact on livelihoods, and reviews recent studies of adult literacy and basic education interventions, showing how they relate to this framework. It argues that, although numerous claims for economic benefits have been made in studies of literacy interventions, these have not generally been backed up by formal economic analysis which would enable strong conclusions to be drawn on the economic benefits. In particular, there has been a lack of attention to the opportunity costs involved in providing adult literacy, as well as a lack of rigorous measurement of the outputs and outcomes.

The report then reviews the findings of cross-country growth studies and of the microeconomic returns to education literature, and discusses how these may relate to adult literacy. Both literatures have generally focussed on formal education rather than literacy per se, and so caution is needed in drawing inferences about adult literacy¹. The report emphasises that the economic returns to literacy at both the macro- and microeconomic levels appear to be highly dependent on other aspects of the economic context. However, there is evidence that literacy benefits at least some individuals, and also that the literacy of one individual can benefit others in his or her household.

Finally, the report discusses some of the conceptual shortfalls to conventional economic analysis, including the livelihoods discourse, for understanding literacy. It proposes a capabilities approach, drawing on the work of Amartya Sen, as a way forward for future research. The report concludes by highlighting the difficulty in drawing specific conclusions from such a small and disparate set of research findings, and pointing to the practical need for more systematic monitoring and evaluation of literacy interventions.

1. INTRODUCTION

This report aims both to review evidence on the economic benefits of literacy and to provide a framework for better understanding and reporting on the economic dimension of literacy in future research.

It must be said at the outset that formal economics analysis has been little used in monitoring and evaluating literacy interventions. Even simple cost-

¹ See Overview and introduction to social benefits paper for further discussion about this.

effectiveness indicators of literacy outcomes are difficult to find (Burchfield et al, (2002) on Bolivia provides the best example we found of an intellectually rigorous evaluation of literacy programmes and is summarised in Annex A to this report). Programmes can look very different in terms of activities, both in qualitative form and quantitative duration. Facilitators may be paid or unpaid, materials may be locally generated or imported, and degrees of support/supervision vary greatly. In formal economics language, there is much room for social “shadow” pricing of inputs to assess the real opportunity costs of resources used in even simple literacy interventions. No research of this rigour was found in the material consulted.

Comparative drop out rates from programmes are frequently treated as an effectiveness performance indicator, though they are not compared to differing unit costs. Drop out rates of up to twenty five to thirty percent are considered internationally acceptable and this rather wide margin for drop outs is claimed to be widely achieved. Therefore no comparative analysis was considered to be required even in the authoritative World Bank reports on this indicator (Lauglo, 2000: 24).

There appears to be very little data even at the most basic economic level: how much do literacy interventions cost per participant? Unit costs to indicate simple efficiency are patchy and usually compared to costs of primary schooling to achieve an equivalent standard. Thus two reports drawing on a range of case studies find that adult literacy programme unit costs are lower than primary schools by factors of eight or more (Comings et al, 1997: 17; Oxenham et al. 1999). But, as the authors acknowledge, making such comparisons is highly controversial given the absence of data on comparative skills acquired.

A relatively recent World Bank report is willing to make the assumption that literacy interventions are self-evidently, sufficiently low cost and socio-economically valuable to merit high subsidies with no quantified economic analysis (Lauglo, 2000). But in technical economics terms, there are significant joint production problems with literacy inputs combined with other inputs, including vocational training, and also immediate economic outputs combined with social outputs, including increased school attendance by the next generation, so that identifying the precise role of the literacy component and attribution of costs and benefits is empirically impossible.

“Attempts to quantify economic benefits and separating out those that derive from literacy acquired in ABE [Adult Basic Education] ... remains a challenge in the economics of education” (Lauglo, 2000, 21)

But there are frequent general references to livelihoods in the literacy literature. Therefore the first analytical section of this report introduces a livelihoods framework to indicate the variety of ways in which literacy interventions could help realise economic benefits. This section places the literature on adult literacy programmes within this framework to show how more careful specification can help better understand outcomes of literacy interventions. We hope this will help the reader interested in particular

economic outcomes find appropriate case studies. But this exercise is necessarily somewhat speculative. There are shortfalls in the available data when it comes to covering the whole range of possibilities suggested by the livelihoods framework. There is clearly much scope for more systematic monitoring utilising the livelihoods framework.

The second and third analytical sections consider how two major parts of the economic literature on education – macroeconomic growth studies and studies of returns to education at the household level – could shed light on literacy. Two major flaws emerge: First, few studies within these approaches refer specifically to adult literacy or attempt to separate literacy conceptually from other education-related variables. Second, they mainly focus on only one of the many ways in which literacy could enhance livelihoods, namely increases in the labour productivity of individuals.

The fourth analytical section raises questions about the universalistic functional “black box” or “autonomous” view of literacy implicit in the livelihoods and other economic approaches. The section aims to connect with the view of socially contextualised, multiple literacies. A more ethnographic discourse drawing on qualitative data stresses the need to consider the contextualised processes in which various forms of multiple literacies are acquired. The section proposes using Amartya Sen’s conceptual framework combining entitlements, capabilities and functionings, as a way of assessing the economic benefits of literacy within a wider discourse on benefits in which the economics dimension is valued but not dominant.

The concluding section points to the practical need to improve the monitoring and evaluation of literacy interventions.

2. A LIVELIHOODS FRAMEWORKING OF ACTUAL AND POTENTIAL LITERACY IMPACTS

A number of challenges arise in using conventional economic analysis to measure the benefits of literacy, stemming from the complexity of the linkages between literacy gains and economic development. In particular, Windham (1999) notes that:

- there may be difficulties in deciding which language(s) count for literacy and on the standard which someone has to manifest to be called literate
- a large portion of benefits of women’s literacy may be unmeasured because they affect activities in the home, or work by indirectly affecting the economic activity of other household members
- similar problems with measurement exist in agriculture, other rural businesses, and parts of urban economies
- benefits may be in terms of the probability of employment; of employment in different activities; or in remuneration within a particular activity

- the jobs taken by newly literate workers may provide fewer non-monetary advantages than those taken by more highly educated workers; if only the monetary benefits are taken into account then this may over-estimate the relative benefits of literacy
- the greater ability and propensity of literate workers (relative to non-literates) to continue to invest in themselves once on the job, makes it necessary to take a long-term view when estimating the benefits.

A further complicating factor is that literacy training in practice is often intermeshed with other development programmes. Box 1 considers this issue briefly, more theoretical discussion forms part of section 5.

[BOX 1 – see end of document]

The livelihoods framework is a commonly used bridge between economics and wider development studies, and is broad enough to encompass some of these complications which are liable to be ignored in more conventional cost-benefit analysis. The framework has also recently risen in prominence amongst development agencies as a way of connecting literacy to the wider context of the lives and aspirations of poor people (e.g. DFID, 2002). In the livelihoods framework, all households are seen as utilising changing patterns of natural, produced, human, financial, and social wealth to create livelihoods:

- people can also develop their capabilities into skills whose expression over time as **human** wealth is both means and end to long term development;
- the relatively modified physical environment is a reservoir of **natural** wealth important to human well-being in itself and capable of self-development;
- human activity in the natural environment can generate **produced** wealth, such as equipment and cooking utensils, that has a physical life and productive potential beyond immediate human consumption;
- some wealth is held in **financial** forms as money or near money, such as jewellery, due to properties of liquidity and high fungibility with other forms of wealth;
- societies have collective histories of building trust, confidence and mutual security into relationships that constitute a **social** wealth.

The framework becomes a behavioural theory when it proposes that most people utilise their assets to reduce vulnerability and increase certainty as coping strategies seeking sustainability. Only a few can afford to take risks and seek to accumulate. The focus in most livelihoods monitoring by literacy researchers is how does a literacy gain improve vulnerable people's capabilities to manage their livelihoods in a very challenging global economy.

Literacy interventions can be linked to this framework through a matrix that considers each asset in itself and also allows considerations of paired relationships (see the following Table). The fifteen linkages opened up in the Table are sufficient to show the astonishing range of ways in which literacy

can improve economic livelihoods in theory, and our lack of knowledge of how literacy interventions do this in practice.

TABLE: A livelihoods framework for monitoring the impact of literacy interventions

	Social	Financial	Produced	Natural	Human
Human	More effective and transparent principal/agent relationships	Insurance and income smoothing, higher remittances from migration	Safe and efficient use	Claims to ownership/control of natural resources plus better health	Income raising vocational skills and more cost-effective schooling of next generation
Natural	Effective natural resource user groups	Mortgage indebtedness management	Environmental sustainability	Improved fertility and lower degradation/pollution	
Produced	Group sharing/leasing/hiring arrangements	Investment financing	Technological innovation with accurate specifications		
Financial	Micro-credit group stability	Cash flow management			
Social	More effective co-operation for advocacy and fairer competition				

Each of these linkages can be examined in terms of whether it works to improve livelihoods through either market force or political advocacy. They also can be disaggregated for gender, social status, and disability analysis.

In the discussion of each cell in the matrix that follows, we do not attempt to separate the pure reading and writing components from other aspects of adult basic education or literacy programmes, and so some caution is needed in estimating benefits. In particular, it should not be assumed that what works in one programme can be generalised to others, since the programmes may in fact be very different in terms of both content and approach.

- Human - Human: the clearest link, most literacy gains improve human assets in terms of potential productivity in current activities and increasing access to new activities. In this dimension, livelihoods analysis comes close to the analysis of conventional vocational training. Oxenham et al. (2002) report that across studies in several countries, there was virtual unanimity that people who had completed literacy courses tended to be more confident and more willing to take initiatives in developing their livelihoods².

² See Patel's and Stromquist's papers for examples of increased self-esteem associated with literacy programmes.

- Human - Natural: some literacy gains can improve advocacy capability to secure rights over natural assets – but no examples of this were found in the literature consulted for this report. They may also improve awareness of health threats in the physical environment. Oxenham and Aoki (1999) report that studies from seven countries suggest that at least some of the graduates of basic adult education programmes change habits that affect health; and literacy may enable people to benefit from HIV/AIDS education campaigns (DFID, 2002)³. Comings et al. (1997) report that illiterate people in Nepal had difficulty understanding messages broadcast by radio, including health-related announcements, and that women who had completed basic education courses improved markedly in their comprehension of these messages.
- Human – Produced: some literacy gains assist making safe and efficient use of equipment, other produced inputs, and consumer durables. Car mechanic apprentices on a training course in Nigeria wanted to improve their literacy skills in order to read manuals and to enhance their knowledge after the course (DFID, 2002). Participants in a programme in Senegal offering both literacy and technical training for agriculture and livestock raising, were 6 per cent more productive than a control group of illiterate farmers, although it cannot be determined whether this outcome was due more to the technical content or to the literacy skills (Oxenham et al., 2001).
- Human – Financial: literacy gains can improve access to insurance, other income smoothing financial instruments, and strengthen channels for remittances. Diagne and Oxenham (undated) report that participants in an enterprise management training and basic education programme for women in India became less hesitant about using credit facilities to invest in income-enhancing activities (although these authors do not attempt to analyse which aspect of the programme led to this change in attitudes or confidence).
- Human – Social: literacy gains can help achieve greater equality in principal/agent social relationships by removing the advantage of the more literate party. “Not being cheated” was one of the benefits listed by participants in an evaluation of adult literacy education in Uganda (Okech et al., 1999). Oxenham (undated) argues that potential entrepreneurs can generate more employment when they are sufficiently literate and numerate to deal with the complexities of laws, regulations, negotiations and contracts in a modern economy. DFID (2002) describes the case of the women’s savings and credit groups established by SOLVE, a Nepalese NGO. Though the groups were led by the small number of women with basic reading, writing and numeracy skills, introducing literacy and book keeping skills training within the groups helped to challenge differential power relations in the

³ See Robinson-Pant and Farah for further evidence of the impact of literacy on health attitudes and practices.

community and enhanced the groups' contribution to small enterprise development.

- Natural – Natural: literacy gains may improve knowledge of how to improve fertility of natural assets and decrease environmental degradation/pollution – no clear examples of this were found in the literature consulted for this report.
- Natural – Produced: literacy gains may help choose more appropriate technologies to sustain the natural environment. An Integrated Pest Management training programme in Sri Lanka was enhanced when an NGO offered some of the farmers involved in the programme an opportunity to improve their 'agricultural literacy,' such as identification, measurement, record keeping and form filling skills (DFID, 2002). Participants in the Functional Adult Literacy programme in Rukungiri, Uganda, reported that the knowledge they had gained on fuel saving stoves had helped to reduce the amount of wood fuel they used (Katahoire, 2001). Archer and Cottingham (1996) give examples from projects in Bangladesh, El Salvador and Uganda, of how adult education programmes stimulated participants to reconsider and improve their uses of land, water, crops.
- Natural – Financial: literacy gains may improve capacity to make fairer mortgage contracts and manage the resulting indebtedness – no clear examples of this were found in the literature consulted for this report,
- Natural – Social: Nepal has many examples of widely observed gains from greater literacy in the effective running of forest and water user groups.
- Produced – Produced: literacy gains may help record experiments in technological innovation as well as more accurately specify requirements for new technology. Carron et al. (1989) for Kenya, and Carr-Hill et al. (1991) for Tanzania, find that literacy acquired through adult literacy programmes assisted the spreading of modern agricultural techniques. In particular, Carr-Hill et al. (1991) suggest that new techniques were taken up first by richer, literate farmers, but this process also generated enthusiasm for the techniques amongst poorer farmers.
- Produced – Financial: literacy gains can open up seeking new ways of financing productive investment. Archer and Cottingham (1996) report an example of women in REFLECT circles writing away to raise money to have a tube well dug.
- Produced – Social: literacy gains may encourage collective approaches to investment to include group leasing and hiring arrangements. Following participation in a combined technical and literacy training programme in Senegal, a number of producer organisations emerged which were capable of marketing cotton crops, managing agricultural

credit, improving community food security, and organising village stores for veterinary medicines and other supplies (Oxenham et al., 2001)

- Financial – Financial: literacy gains can help a household record and carry through improved cash flow management and take advantage of saving opportunities – household budget management appears frequently as a side effect in women’s literacy projects in many locations.
- Financial – Social: There are many examples of group micro-credit programmes being intermeshed with literacy training, such as the Women’s Empowerment Programme (WEP) in Nepal described by Ashe and Parrott (2001).
- Social – Social: there are many examples in which literacy gains increase capabilities in social co-operation leading to improved advocacy and/or ability to compete in markets. Diagne and Oxenham (undated) report that participants of one programme in India became more self-confident, more involved in group decision-making, and increased their involvement in community associations. Ashe and Parrott (2001) argue that the success of the WEP in the Terai of Nepal can be explained partly by the way it built on an existing strong tradition of savings and credit associations in the region. These authors also note some of the diverse ways in which the programme strengthened cooperation, not all of which related directly to the literacy gains. For instance, WEP groups exchanged visits and collaborated on joint advocacy campaigns. In fact, the greatest effect on the lives of WEP members was judged to be increased self-confidence, greater role in decision-making, and cooperation among group members, rather than increased literacy or education per se. Comings et al. (1997) found that women who had completed a nine month course, in comparison with those who had only completed the first six months of the course, were more likely to be members of community organisations such as mothers’ groups. There is a question of cause and effect here: it may be that women who were more active in such organisations were more motivated or more able to complete the literacy course. Perhaps the most likely answer is, as Oxenham and Aoki (1999) suggest, that there were “interaction effects” between pre-existing aspirations and educational experience; there are likely to have been causal links in both directions.

The livelihoods framework opens up a rich array of possibilities for assessing the economic benefits of literacy gains. The framework can be seen as providing a checklist for ex ante targeting of literacy interventions and/or ex post evaluating interventions.

3. MACROECONOMIC BENEFITS OF LITERACY

Looking at possible impacts of literacy on economic growth at the level of whole countries or regions is a somewhat crude way of understanding the aggregate benefits of literacy on people's livelihoods. But a larger scale approach obviously has its own merits for policymakers and researchers, in terms, for instance, of understanding how literacy could potentially raise government revenues. This section describes the growth theories that have formed the basis for many of these studies; considers how these intersect with the livelihoods framework; and briefly overviews some results from the empirical growth literature.

Economic growth theories, whether they are within the neoclassical (Solow model) tradition or the newer endogenous growth school, have widely posited an important role for education, although the exact way that education is seen as improving growth has varied. In the "augmented Solow" model of Mankiw, Romer and Weil (1990) education is incorporated as a form of capital in the production function. As with physical capital in the neoclassical model, an increase in the stock of literate adults is expected to lead to a one-off *ceteris paribus* increase in a country's *level* of output per worker, but with no long-run impact on economic *growth*. However, in the context of neoclassical economics models the long run may refer to a period of several decades in which all other factors adjust to the new literacy level. The economic short run, during which the economy shifts to a new equilibrium with other factors remaining constant is favoured as an approach by many economists seeking to inform policy making.

By way of contrast, endogenous growth theories focus on the long run, dynamic relationship between education and technological progress. A more educated population is more likely to invent (or import from other countries) improved methods of production, so that more output can be produced with the same quantity of inputs driven by a more educated population. This creates the possibility, absent from neoclassical models, of higher *levels* of education leading to higher *growth* of output per worker. A more literate population may be much better equipped to adopt new technologies.⁴

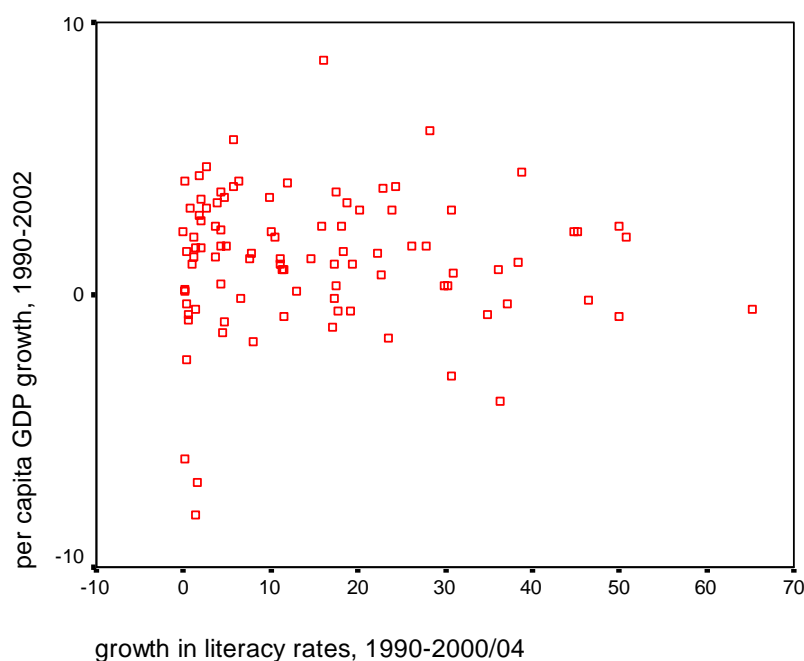
Within our livelihoods framework, then, both sets of growth theories focus on the relationship between human and produced wealth. We can roughly characterise the differences by saying that human capital-augmented Solow theories place more emphasis on human wealth alone operating with a given technology, whereas endogenous growth models emphasise interactions between human and produced wealth.⁵

⁴ Foster and Rosenzweig (1996), examining India during the Green Revolution, argue that areas in which average schooling attainment was highest were most able to benefit from the introduction of new farming technologies; the returns were particularly high at primary level.

⁵ They may also imply that literacy, by improving aggregate economic growth, could afford households better access to social wealth, although the danger here is that the growth literature privileges national support systems – for instance a country with higher per capita income can provide better social security schemes – whilst neglecting the possibility of social wealth at more local levels – which may even be harmed by the social upheaval sometimes involved in economic modernisation.

A significant empirical economics literature has grown around both these theories, and has explored other, indirect channels through which education could increase growth. Increased human capital may increase the profitability of physical capital, creating incentives for higher investment, which in turn raises growth; this can be seen as a relationship between human, produced and financial wealth. And if education lowers fertility rates, thereby increasing the size of a country's capital stock relative to its population size and reducing pressure on natural resources; this may bring natural wealth into consideration as well, but in such a long run that empirical evidence is impossible to find.

Figure 1. Per capita GDP growth and growth in literacy rates during the 1990s



Source: UNESCO Website. Note: Growth rates are shown as percentages.

Turning to the empirical support for these propositions, however, reveals a somewhat ambivalent pattern of results. Figure 1 shows an attempt to detect a relationship between country-level economic growth rates, and literacy growth rates, during the 1990s. This graph suggests no clear immediate relationship. But more variables need to be brought in before concluding that literacy growth has no effect on economic growth. Various studies have attempted to do this, using regression models based both on the theories above and on more general considerations of factors likely to influence growth⁶. These studies include (in date order):

⁶ Few of these studies have focussed directly on literacy. Rather, literacy rates have been seen as just one of several possible measures of human capital, with years of schooling or enrolments as the preferred measure. Although we hope the reader will continue to bear this in mind, we proceed to disregard this problem in what follows, relying for now on the assumptions that (i) school (especially primary school) is the main way through which literacy has been attained and (ii) that one of the main ways in which schooling impacts on the national economy is through literacy.

- Adelman and Morris (1968) very much in the spirit of post-WW2 modernisation include literacy as an outcome of primary schooling in a simple, multi-variable econometric model of development processes and claim to identify a significant role for literacy operating as a pre-requisite for gaining more productive skills and attitudinal change valuing market forces.
- Barro (1991), testing the impact on growth of various human capital measures using cross-country data for 1960-85, finds that both school enrolment rates and adult literacy rates yield a significant positive impact on growth.
- Lau, Jamison and Louat (1991) find that primary education had a negative effect on growth in Africa and Middle East and North Africa, insignificant effects in South Asia and Latin America, and were only positive and significant in East Asia.
- Dasgupta and Weale (1992), using data on changes in adult literacy during 1960-80 and changes in per capita income growth during 1970-80, for the 51 poorest countries in 1970, find no significant association.⁷
- Bashir and Darrat (1994), using cross-country data from 32 Islamic developing countries during 1960-85, found that human capital, measured either as primary school enrolment or adult literacy rate, had a significant positive impact on output growth.
- Benhabib and Spiegel (1994) find no effect of human capital changes (changes in average schooling years) on growth using a neoclassical production function, but do find that the level of schooling facilitates the adoption of knowledge from abroad and the creation of domestic technologies.
- Pritchett (1996), using cross-national data for 1960-85, finds that increases in average years of schooling had no positive impact on the growth of output per worker.
- Sachs and Warner (1997) test a number of measures of human capital, including adult literacy for their effect on growth and find a statistically significant S-shaped relationship with maximum effect when literacy

⁷ However, they do find significant correlations between changes in literacy and changes in life expectancy, and between changes in life expectancy and changes in per capita income. These two relationships are suggestive of an indirect channel through which adult literacy could affect per capita income.

rates are neither very low or very high, suggesting small improvements at very low or very high literacy rates may not have a significant impact on economic growth.

- The IALS Final Report (OECD / Statistics Canada, 2000) documents a number of other correlates of high literacy: countries with higher literacy scores had higher labour force participation; shorter work hours. Countries which have a high proportion of adults with low prose skills, and (conversely) those which have a low proportion with high prose skills, had lower GDP per capita. The higher the proportion of adults with low prose skills, and the lower the proportion with high prose skills, the lower that country's GDP per capita.
- Hanushek and Kimko (2000), criticising the failure of earlier cross-country studies to account for differences in the quality of schooling, use international tests of student achievement in mathematics and science as their indicators of labour force quality. They find the relationship between these indicators and economic growth to be consistently strong across the 31 countries for which data were available.
- Loening (2002), using time series data from Guatemala for 1950-2002, finds that increases in the average number of years of schooling had a positive and significant impact on the country's economic growth, and that this operated both through factor accumulation and through total factor productivity.
- Naudé (2004), using panel data for 1970-90 for 44 African countries, and including variables on institutional quality and geographical features, finds that literacy was among the variables with a positive effect on GDP per capita growth.
- Coulombe, Tremblay and Marchand (2004), using data from the International Adult Literacy Survey (IALS), find that literacy scores had a positive and significant effect on both short-run growth and long-run levels of GDP per capita, and on labour productivity. However, their dataset is even more limited than that of Hanushek and Kimko (2000), covering only the 14 OECD countries.

Thus we are left with a rather mixed picture of the macroeconomic effects of literacy and closely associated years of schooling, especially if we try to take into account doubts about data mining and the econometrics methodology underpinning the specifications of many such regression exercises (e.g. Levine and Renelt, 1992; Temple, 2000; Hoover and Perez, 2004). Measurement errors, and the fact that educational attainment is likely to be

affected by, as well as affecting, economic growth, have been particularly persistent problems (Krueger and Lindahl, 2000).

A way forward may be for the macro literature to concentrate on more tightly specified experiments. One study that suggests how this could be done is Anh and Meyer's (1999) study of joint venture investment in Vietnam (see the Box 2), which highlights the operation of a particular channel through which literacy might affect economic growth, namely through attracting foreign investors.

[BOX 2 – see end of document]

An important caveat to the results from this study is that it does not show that Vietnam as a whole has benefited from its relatively high literacy rates; it may be that literacy affected the spatial distribution, but not the total amount of foreign investment. It suggests a channel through which social wealth (in the form of knowledgeable government officers), financial wealth, produced wealth and human wealth may all interact in order to increase regional growth. But to what extent has this investment increased the (various forms of) wealth of Vietnamese regions, and which households or individuals have been able access this wealth? Clearly, this study leaves much room for further research on the consequences of investment in literacy before we have anything like convincing evidence.

This section has concentrated on growth rates as the main indicator of economic benefits at the national level, overlooking the question of which groups benefit within each country. One way of delving deeper is to consider inequality and poverty indicators. Ahluwalia (1976) using a cross section of 62 developed and developing countries, reports that increases in national literacy rates had a positive impact on the income share of the poorest 40 per cent, whereas increases in secondary school enrolment had a beneficial impact on the income share of the middle 40 per cent. Since both these effects were at the expense of the income share of the richest 20 per cent, they both implied a reduction in inequality, but the increase in literacy would have the larger effect on inequality (by most measures) and poverty.

Unfortunately, more recent studies focussing on literacy and inequality are rare. OECD / Statistics Canada (2000) reports that (amongst OECD countries) higher levels of prose inequality were associated with greater inequality in the distribution of income, but admit that the causal relationship could run in either direction. Gregorio and Lee (2002), using panel data covering a broad range of countries for 1960-1990, examine the relationships between average educational attainment, educational inequality, and income inequality. They report that, as average education increases, income inequality at first worsens, then improves. Perhaps more important for literacy research is their finding that income inequality increases with inequality of educational attainment. This suggests that literacy interventions, by pushing up educational levels amongst the least-educated groups and reducing the dispersion of educational attainment, is likely to ameliorate income inequality.

4. ECONOMIC RETURNS TO LITERACY

This section reviews evidence from the microeconomic rates of return to education literature that may cast light on the benefits to adult literacy, and at the same time attempts to relate these back to the livelihoods framework presented in section one. As in the macroeconomic literature, rigorous economic studies focussing specifically on adult literacy are relatively rare. In the period of confidence in modernisation theory dating from WW2 to the early 1970s, most development economists accepted the broad proposition that literacy gains would significantly increase labour productivity in agriculture as well as prepare people for industrial employment (e.g. Hayami and Ruttan, 1970). Literacy was seen as a necessary, if insufficient, condition for modernisation and of little interest theoretically and empirically. Little effort was made to measure adult literacy and the statistical base for estimating the micro-economic impact of literacy remained weak well into the 1990s (Srinivasan, 1994: 241).

Boissiere et al (1985) provide a rigorous study of the direct impact of literacy-derived cognitive skills. Their research with 384 individuals in Kenya and Tanzania enabled them to isolate cognitive skill gains and compare their impact on earnings to those from years of schooling (a proxy for a credentialist screening factor) and differences in innate reasoning ability. They found:

“The direct returns to reasoning ability in the labour market are small, those to years of education are moderate, and those to literacy and numeracy – dimensions of human capital – are large. The returns to cognitive achievement are not significantly lower for manual than for nonmanual workers.” (Boissiere et al, 1985: 1028)

But in order to estimate the comparative economic benefits of literacy compared with non-literacy, it is much more common to use proxies for literacy, from data on schooling. Therefore we draw on findings concerning (in order of relevance) the first years of primary school; primary schooling generally; and schooling generally. The section also looks at ways in which adult literacy programmes may differ from schooling in terms of rates of return.

The private rate of return to a particular level of education is defined as the discount rate that equalises the present value costs, including opportunity costs, of acquiring that level of education to the individual (often contributed by their family), with the present value of the increase in future income to the individual that results from being more highly educated. Often, however, the term is used to refer simply to the proportional increase in average future salary associated with one level of education compared to a lower level.

An important distinction needs to be made between private and social rates of return: the former refer to the costs incurred and benefits enjoyed by individuals and their households in obtaining more education, whereas the

latter depend upon the total costs to society of providing education and the total benefits that stem from having a more educated individual in the population. The differences between private and social rates of return are often significantly gendered with high social rates of return to educating girls primarily due to the effects on reducing fertility and health costs.

The returns to primary education are conventionally found to be very high, whether compared to other investments, or to secondary or tertiary education. Psacharopoulos and Patrinos (2002) present international averages of 27 per cent for the private returns to primary schooling and 19 per cent for the social returns. For low-income countries, the private returns appear slightly lower (26 per cent) while the social returns are slightly higher (21 per cent) than the world averages. Bennell (1996) provides a critique of the methods used in the conventional returns to education literature, pointing out the problems caused by omitting variables such as unemployment amongst the relevant youth group and the failure to account properly for the costs of education. The result is that such studies appear to have seriously overestimated the returns to education.

Another of Bennell's criticisms focuses on the use of outdated figures, arguing that the scarcity values of education have declined quite appreciably since the 1960s and 1970s, especially in sub-Saharan Africa. Box 3 considers this argument and asks whether the returns to education have declined in developing countries in recent years.

[BOX 3]

The conclusion may be that the returns to basic education in the wage labour market have remained relatively high in countries such as Uganda that have only recently seen large expansions in their education systems, but have tended to decline in countries like Kenya. We can speculate that the decline would tend to be less for self-employment (whether in agricultural or other sectors) than for wage employment, since the self-employed do not have to compete with other workers for a limited number of jobs. A more general conclusion to bear in mind is how easily the potential benefits of literacy can be swamped by macroeconomic changes. Thus, for instance, findings such as those of Burchfield et al. (2002) for adult literacy programmes in Bolivia, have to be interpreted in the context of the economic crisis that was affecting the country at the time that the study was conducted.

Despite these issues surrounding estimation of returns to education, Harmon, Oosterbeek and Walker's (2003) recent review concludes that the effect of education on individual earnings is unambiguously positive, and large relative to returns on other investments. Similarly, Appleton and Teal (1998), reviewing evidence from studies incorporating previously omitted variables such as parental background and cognitive skills, suggest that the returns to human capital as conventionally estimated may be overstated, but not by very much.

An important point to bear in mind is that income differentials may not result from differences in wages between differently educated workers; rather, it may be that individuals need a certain level of education in order to gain waged employment at all. Blunch and Verner (1999) argue that, in Ghana, functional literacy is a prerequisite to entering the labour market, and that the increased income associated with income can be largely explained by selection into the labour market rather than by monetary returns within it.

The returns to education literature very much falls within the human capital tradition of economic theory, and so within our framework relates chiefly to *ceteris paribus* human wealth with other inputs assumed to be constant. When we turn from private to social returns, however, this may change. Typically, estimates of the social returns to education simply incorporate the total costs of providing education, and so are by definition lower than private returns, which exclude some of these costs. Measuring externalities – the positive benefits that the education of one individual may have for the economic situation of others – is complicated precisely because it relates to several of the endogenous livelihood-enhancing linkages referred to above. As was noted in the previous section, if literacy boosts national economic growth, then there are a number of channels through which this could improve the livelihoods of individuals, families or communities, although it is by no means assured that such improvements will appear. In the livelihoods framework, this depends on the linkages between human, natural, produced, financial, and social wealth.

Including some of these complications on the benefits side, some insights can be gained from studies of positive externalities of literacy within households, based on the idea that more literate individuals may provide literacy services to less literate people in their society; services that raise incomes of less literate members. In livelihoods language this can be seen as a linkage between human and social wealth. Basu, Narayan and Ravallion (1999) find evidence for intrahousehold benefits of this kind using data on wages in Bangladesh in 1995/96. Gibson (2001) finds similar externalities using data on child height-for-age in Papua New Guinea.

Oxenham (2003) provides what appears to be the only attempt to calculate the specific returns to adult literacy programmes, using what data is available from three such programmes. For a programme in Indonesia, the returns to the investment – measured as the rate of growth of individual income compared to the rate of growth of the cost of training – were around 25 per cent, comparing favourably to 22 per cent for primary school education. Data from the Ghana National Functional Literacy Program of 1999 yielded a private rate of return of 43 per cent for females and 24 per cent for males, and social rates of 18 per cent for females and 14 per cent for males, based on differentials in earnings profiles.

Oxenham (2003) suggests that adult literacy programmes can be seen as roughly equivalent to less than full primary education. While this may be more or less true in terms of the content that gets taught, there are several reasons to think that the returns may be different. First, education imparted to children

is only likely to pay off in several years time, when the child has entered the labour market⁸. If schooling is seen as an investment then it is an extremely risky one, since families have little information on how the labour market is liable to change over the following years. Adult education, by contrast, is given to individuals who are already working. If free adult literacy programmes are available, they are in a position to make a series of relatively small investments of time in acquiring literacy skills, continuously monitoring the effects these investments have on earnings in current occupations and access to new labour markets.

Adult literacy programmes are less likely than children's schooling to involve impediments to participation such as physical insecurity and credit constraints. On the other hand, the ability to monitor the financial gains to such programmes more easily means that there is a need to design them in ways that ensure an immediate financial pay-off, in order to maintain demand for them. This is in line with the findings discussed above, suggesting that adult literacy programmes have been more successful when they were combined with contextual understandings of the operations of local labour markets.

A second difference between schooling and adult literacy programmes lies in the relative opportunity costs of attending them. If adults can earn more than children, then the opportunity costs of spending an hour not working is higher for adult literacy programmes. The costs could be lowered, however, if the programmes are scheduled to fit in with the students' working lives (normally a key feature of non-formal education programmes). Opportunity costs are also likely to be lower if the rates of unemployment and under-employment amongst illiterate adults are high.

These aspects of adult literacy programmes make it clear that, whilst the use of rates of return analysis to decide public spending priorities may be problematic, it does provide a framework within which to consider likely implications of the design of any educational programme for the private demand for it.

Box 4 describes Blunch and Pörtner's (2004) study of the effects of participation in adult literacy programmes in Ghana on household consumption. This study does not attempt to calculate returns as such, but is nevertheless relevant, not least because it provides some insights into the ways that the interactions of household members with different levels of education may determine consumption levels.

[BOX 4]

⁸ This assumes that children do not work. In practice, schooling may increase productivity in the various productive activities in which children are involved, either within or outside the household, and schooling may increase their productivity in these activities. The finding of Basu, Narayan and Ravallion (1999) that having at least one literate person in a household also raises earnings for other household members, even if the literate person is a child, suggest that child literacy may also have productive value for the household in the short term.

Finally, there is a need to consider in which languages an adult is literate. The debate on whether there should be literacy tests for immigrants in the dominant language of their destination country can be dated back to pre-WW1 debates in the *American Economic Review* (Fairchild, 1912; Ross and Cudmore, 1912). More recently, Carnevale et al (2001) find that reading and writing skills in English raise wage rates significantly after speaking and listening capabilities in English have been achieved, though speaking and listening skill gains do have an immediate substantial effect without literacy in English⁹. This takes us naturally to consideration of social literacies and more general capabilities.

5. A CAPABILITIES APPROACH TO THE ECONOMICS OF SOCIAL LITERACY

In this final section, we make an effort to connect analysis of the economic benefits of literacy gains to the wider discourse on literacy. Most of the argument so far has treated literacy as an objectively observable, universal “banking” knowledge distinguished clearly from a state of illiteracy. Also the process of moving from illiteracy to literacy has been treated as a technically ordained “black box”. This is consistent with conventions in economics ontology and epistemology in which physical inputs are converted into physical outputs using an engineering technology leaving the economist to assign monetary values to the inputs and outputs. The economist then has no need to understand the engineering process.

But the more ethnographic discourse on literacy distinguishes between the “autonomy” model of literacy (which has the universalistic, engineering characteristics very attractive to mainstream economics) and a “social” model of literacy that is very concerned with both context and process in which various forms of multiple literacies are acquired (for an excellent review of the differences see Street (undated). Yates’s (1997) critique of the discourses employed by donors in the context of the functional literacy programme in Ghana, highlights some of the problems inherent in the technocratic paradigm. The question we wish to reflect upon here is what conceptual framework might underpin an economics of multiple social literacies.

Amartya Sen’s conceptual framework combining entitlements, capabilities and functionings is a candidate, though not without its critics (e.g. Srinivasan, 1994). The framework originated in research into the social causes of famines in the 1970s, and blossomed into a general approach to human development in the 1980s and 1990s (see Gasper and Cameron, 2000). The language of capabilities is entering the general education discourse primarily through feminist and disability research; recent applications of it include a study of functional adult literacy and empowerment of women in Turkey (Kagitcibasi, Goksen and Gulgoz, 2005). This language connects with the more commonly used educational concepts of access and exclusion, though through a critique

⁹ The issue of language policy and choice in literacy acquisition and practice is also discussed in relation to cultural benefits by Farah.

of the complacency implied in an “inclusion” approach in that it treats mainstream education as unproblematically desirable¹⁰. The capabilities approach also links closely to the livelihoods framework, though again critically in the tendency for the livelihoods framework to emphasise technical skills without considering the social context in which they have to be exercised.

So what light does the capabilities approach, cross-cutting with the livelihoods framework, throw on the economics dimension of social literacies and what indicators could assist monitoring the economic benefits from adult literacy programmes?

Entitlements

All people possess sets of rights and responsibilities that entitle themselves and others to portfolios of resources. Some entitlements rest upon individual property rights recognised in law, others may be received as public services (e.g. education), others may be guaranteed as access to common or pooled property by social conventions or membership organisations (e.g. forest or water user groups), and some may arise through trade and the actions of market forces. There are clear parallels here with the asset profile in the livelihoods framework. For vulnerable people, any entitlement may be enhanced or gained by improvement in an appropriate form of literacy. Multiple interconnected literacies in the law, advocacy for improved services, running of membership organisations, and dealing with merchants and/or money lenders may all reduce vulnerability and improve economic well-being.

Capabilities

Capabilities are enhanced when people gain skills they can use to employ their entitlements in new ways. Gains in factual, “banking” knowledge induced by joint literacy/vocational education programmes may enhance capabilities, though only in the weak sense of additional technical skills. All successful literacy programmes inevitably improve general skills in information collection, organisation, and storage. They may also have implications for modifying how people relate to each other in logical and emotional ways as aspects of communicative actions. Literacy interventions for adults are almost always group activities, partially as a matter of simple economic, unit cost efficiency. Many literacy interventions (e.g. Actionaid’s REFLECT) make an explicit social virtue out of creating groups and emphasise improving social relationship capabilities. Other interventions passively accept the economic logic and institute a didactic, class-room style familiar from conventional schooling and do little in really increasing capabilities. The degree to which an explicit objective is to improve interactive capabilities may have implications for the types of economic activities that a literacy intervention may stimulate. For instance, there are widespread associations between literacy interventions and Grameen-style micro-credit group formation on a global

¹⁰ This relates to the critique of schooling and health correlations cited in the paper on social benefits. Research has now explored the nature of that relationship, challenging the assumption that mainstream education is always a positive force for change (see Robinson-Pant, p.2 & 4).

scale. These interventions need to be monitored in terms of how far that have created new collective economic capabilities using new literacy skills actively or merely acted as account-keeping, disciplining mechanisms to ensure higher rates of repayment. The World Bank also acknowledges that an open, interactive pedagogic style is of indirect economic benefit in reducing poverty and that individual economic capabilities are inextricably intermeshed with social deliberative capabilities (Lauglo, 2000, 16).

Functionings

Functionings in the Sen framework are what people actually decide to achieve by using their time, energy and capabilities. They are revealed in the activities that we empirically observe to calculate rates of return to a literacy gain or to describe a change in livelihood profile arising from a literacy intervention. The links between capabilities and functionings reveal the real choices and freedoms that people possess. A literacy intervention may increase the range of its participants' capabilities and be judged as successful in this respect, but the participants may feel they have no choice but to continue with the same pattern of functionings. There is an issue of agency involved, with a very strong social dimension. Feminist research has identified stages in empowerment that include self-valuation, valuation in immediate, familial/clan relationships, activity in more formal organisations, and collective achievements in structural change. A literacy programme is arguably incomplete as a socio-economic intervention if it does not assist its participants through all these stages and finally improve their foundational entitlement profiles. The economics of literacy should be very much concerned with processes by which people negotiate with powerful "outsiders" and claim entitlements to resources, and sees a responsibility for literacy interventions in building appropriate deliberative literacy capabilities and facilitating the development of organisational forms in which those acquired literacy skills can be expressed.

6. CONCLUSION

In this report, we have analysed the limited data available in four different economics frameworks – livelihoods, a macroeconomics overview, microeconomics rates of return, and capabilities. In all four cases, the information available has weaknesses. Data on livelihood changes is very patchy in terms of revealing precise relationships between literacy changes and livelihood outcomes and making generalisations. Comparability between definitions of variables and causality between them raise questions at the macro-level. The assumptions surrounding interpreting cross-sectional data as longitudinal data in rate of return analysis and the use of data on children and schooling as proxies for adult rates of return are highly questionable at the microeconomic level. And the capabilities approach though arguably much more compatible with state-of-the art conceptualisations on multiple literacies has virtually no dedicated data base.

Throughout this report we have been very conscious of the limited quantity and quality of data available on the economic benefits of literacy interventions.

As the monitoring and evaluation system develops for the current FAO/UNESCO global initiative in Education for Rural People (www.fao.org/sd/erp) with its very impressive network of organisations, we hope that it will map economic linkages of efforts in increasing literacy using both livelihoods and capabilities frameworks systematically. This would mean improved monitoring of the adult literacy dimension of EFA and immensely improving the evidence base for future analysis.

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Box 1: Multiple literacies and literacy training as part of broader development programmes.

Literacy programmes increasingly incorporate literacy within other activities such as credit and savings groups. Training in areas other than basic reading and writing skills has also often been introduced, for example in vocational skills, health, and political awareness. Such interventions are often described in the language of “multiple literacies,” emphasising that these other skills may be just as fundamental for an individual to be able to function and to improve their position in society.

The aim of incorporating literacy into wider development programmes is generally to improve the connection between programme participation and livelihoods generation. Programmes that have incorporated livelihoods skills training have generally been found to have higher attendance rates, lower drop out rates, and received better ratings on average from their participants than programmes that focussed solely on literacy and numeracy skills (e.g. Mwangi, 2001).

But from an analytical point of view the breadth of these programmes poses some difficulties, in that it becomes harder to distinguish which part of the programme is responsible for any measured benefits. For instance, Katahoire (2001) reports that ActionAid REFLECT programmes in Uganda led to improved agriculture, participants becoming better able to participate in business transactions, and becoming more motivated to start income generating activities – but notes that it was not clear to what extent these impacts were a result of adult literacy or of the overall ‘integrated’ approach of the ActionAid programmes.

Similarly, participation in literacy programmes has often been cited as bringing gains in social cooperation, which in turn improve the livelihoods of the participants. But these impacts on participants’ social skills could have resulted from the social context of the programmes as well as the literacy skills gained, especially given that building social cooperation has been an explicit aim of many programmes.

These issues are important because there are likely to be trade-offs, as well as sometimes synergies, between the different activities offered. For instance, Ashe and Parrott (2001) note that for the WEP in Nepal, a much simpler curriculum would have been needed to build the literacy skills of those who were initially completely illiterate. But with a simpler curriculum, those who already had some literacy skills would not have learned as much about running a group and managing a business.

Katahoire (2001) gives an illuminating example of literacy training being added on to an existing livelihoods programme, the Functional Adult Literacy programme started in Rukungiri, Uganda in 1996. The literacy programme was adopted by existing women’s groups which engaged in income generating activities, and partly responded to particular needs identified within these activities. For instance, some of the groups offered savings and credit

facilities, and in order to make use of these participants often had to be able to understand written agreements.

The interconnectedness of the groups' literacy and other activities may explain the fact that learners were willing to invest more than the participants in other Ugandan literacy programmes: many paid for basic materials and some made contributions to the (unpaid) instructors. Learners in this programme also scored highest in comprehension and numeracy tests, and in tests of functional knowledge of issues such as HIV/AIDS and governance. Katahoire (2001) concludes that programmes that start with livelihoods and later incorporate literacy may stand a better chance of success than those that start with literacy, and have advantages in terms of organisation, management, and learners' motivation.

A further difficulty in analysing the benefits of these programmes comes from self-selection of learners: programmes offering income generating opportunities are likely to attract learners who already have strong literacy skills as well as, or instead of, those who are illiterate or semi-literate. For instance, the integrated literacy and basic education programmes examined by Burchfield et al. (2002) primarily attracted learners who were already literate. And Oxenham et al. (2001) acknowledge that the Rukungiri discussed in women's groups in Katahoire's (2001) paper were an exceptional example of self-selection, and that many of the women involved already had some primary schooling.

Box 2: Investment and literacy in Vietnam

Low wages combined with high literacy have the potential to make Vietnam attractive as an investment destination. Anh and Meyer (1999) analyse how regional variations in investment in Vietnam related to differences in literacy rates. Joint-venture investors in Vietnam during 1988-93 concentrated heavily on metropolitan centres. But controlling for income, they were also sensitive to human capital: more investment capital was committed to provinces with higher levels of literacy. The authors argue that the variation between regions in training and educational attainment means that they differ in the capacity of their labour forces to participate in the modernised sectors represented by foreign direct investors.

Holding other factors (urban versus rural location; North versus South; number of people of Chinese origin living in the area) constant, the literacy rate significantly affected the total level of investment. It also affected the level of manufacturing investment, but not the level of non-manufacturing investment. When large centres were removed from the sample, the effect of literacy rates was significant in all three cases (total, manufacturing and non-manufacturing).

However, these effects may have depended upon the close involvement in the investment programmes of government officials with good access to data on human resources in different regions, an aspect of investment in Vietnam that may not be readily generalised to other countries.

Box 3: Have the returns to basic education as a proxy for adult literacy in developing countries declined?

Private economic returns to education depend crucially on the demand and supply for educated labour in the labour market. It has been suggested that the massive expansion of education systems in many developing countries is likely to have outstripped industrial growth. Connectedly, primary education is usually considered to be the most important level for agricultural productivity, whereas post-primary education may be more important for non-agricultural wage employment (Appleton and Teal, 1998). As a consequence, as countries try to move away from agricultural and towards manufacturing or services industries, the returns to primary schooling (and presumably, literacy) could drop, as more advanced skills become relevant. In practice, the message regarding the benefits of primary education and literacy is rather ambiguous, as the studies discussed below indicate. Several other factors including informalisation of the economy and the timing of educational expansion may also be important.

Patrinos and Sakellariou (2004) find that the private returns to schooling in Venezuela fell up to the mid-1990s then increased during 2002-04, and explain this by arguing that until recently, the supply of human capital in the labour market has been expanding at a faster rate than demand for human capital. Their data show that, when the formal and informal sectors are separated, the returns to schooling in each remained roughly constant over the 1980s and 1990s; and yet the overall returns declined. This can be explained by the decline in the Venezuelan formal sector during the period: larger numbers of workers entered the informal sector, in which returns to education were lower, until the decline levelled out around 2000.

Sharma, Kumar and Meher (2002) discuss the possibility that economic liberalisation and globalisation in India, and the consequent slow-down in the expansion of employment opportunities, especially in the organised sector, might have led to a decline in returns to education. They examine the proportions of workers employed in the regular, casual, and self-employment. Their findings show that, while workers at all educational levels were pushed out of regular employment and towards casual and self-employment during the 1980s and 1990s, illiterate individuals (who were already less likely than other groups to be in regular, and more likely to be in casual, employment) were the worst affected. For instance, the proportion of illiterate rural males who were in regular employment declined from 6 per cent in 1987 to 3 per cent in 2000, whereas the proportion of literate rural males with less than secondary education dropped from 10 to 9 per cent during the same period. Thus, although returns to primary education in India appear to have dropped during this period (Duraismy, 2000), it appears that literate individuals have continued to enjoy an advantage over illiterate individuals in the labour market, avoiding being totally pushed out of the regular employment market.

Appleton, Bigsten and Manda's (1999) study shows that properly accounting for the costs of schooling can make a large difference to the picture that emerges. Using data from Kenya for 1978-95, they find that although the

wage benefits to schooling have dropped, the costs of schooling have also dropped. As a result the returns to schooling have stayed the same over this period. However, they also find that, for manufacturing employees, the returns to primary education fell dramatically, from 10 per cent in 1978 to only 2 per cent in 1995. Returns to primary education were much higher for years 5-8 than for years 1-4, leading the authors to argue that primary education “appears to pay off mainly after Standard 4, often thought to be the minimum required for functional literacy” (p. 15).

Appleton (2001) finds that, in Uganda during the 1990s, primary education did not have large effects on income via access to wage employment but did bring substantial income effects by increasing access to non-agricultural self-employment, and find that the returns to primary education showed a marked rise during the decade: private returns rose from 15 to 30 per cent and social returns from 13 to 24 per cent during 1992-2000. They argue that the failure of Uganda to expand its education system prior to the 1990s meant that education had remained relatively scarce compared to countries like Kenya.

Box 4: Literacy and household consumption in Ghana

Blunch and Pörtner (2004) examine the effects of participation in adult literacy programmes in Ghana on household consumption, using data covering rural areas from a 1998/99 national survey.

It finds that, in general, consumption was no higher among households in which one or member had participated in an adult literacy programme. But when the focus was restricted to those households in which no member had attended formal education, the effect of having participated in adult literacy programmes became positive and significant. Their results suggest that per capita consumption was 57 per cent higher in participating households, holding other relevant variables constant.¹¹

The authors of this study argue that it points towards the potential importance of adult literacy programmes for those sections of the population which have not participated in the formal education system. Considering why the programmes did not appear to affect consumption in general, they put forth three possible explanations:

- (i) that the skills taught in the programmes may not have had very high returns in the rural areas which their study examined
- (ii) the income generating activities promoted in the programmes may have been of a poor quality; or may have been suggested to so many people that the market prices attached to the activities in question dropped
- (iii) participants' consumption may have dropped because of foregone earnings during programme participation or because they are diverting resources towards the new income generating activities in the hope of deriving a larger benefit later.

The fact that participation in the programmed *did* affect consumption in households with no formally educated members can be explained in terms of household members providing literacy services to each other and (Blunch and Pörtner argue) is consistent with Joliffe's (2002) finding that only the most educated household member's level of education matters for income generation in Ghana.

If (for most households) there were no consumption benefits to the literacy programmes, then why were so many individuals willing to invest time and other resources in participating? The answer may well lie in the non-economic benefits discussed in the other sections of this report. However, Blunch and Pörtner also suggest that participation in adult literacy programmes could have increased the bargaining power of participants *within* their households. This idea finds some support in the findings from other studies of literacy programmes (e.g. Ashe and Parrot, 2001) that participants report having increased decision making power after taking part in literacy programmes.

¹¹ Our calculation, based on Table 3 in Blunch and Pörtner (2004).

ANNEX A

Women's integrated literacy and basic education programmes in Bolivia.

Burchfield et al. (2002) provide a detailed study of the socio-economic effects of integrated literacy and basic education programmes run by several nongovernmental organisations in Bolivia. It draws on quantitative data collected over three years from 717 programme participants and a control group of 224 non-participants as well as in-depth interviews and focus group discussions with a sub-sample of the participants.

The initial focus of the participating NGO programmes was not literacy but training in other areas, such as health and reproductive health, micro-credit and microenterprise, and technical skills. These programmes were also unusual in that their participants had relatively high literacy skills to begin with.

The study uses a 56-point index of social and economic development consisting of key indicators such as literacy, education, family and reproductive health, income-earning activity, household decision making, community participation, and legal rights.

Women who participated in the integrated literacy and basic education programmes showed greater progress than women who did not participate, both on a number of individual indicators, and on the composite index. This result held even when other relevant factors such as location and educational level were controlled for.

The time spent in different activities varied widely between the programmes. On one project, Pro Mujer, participants spent 60 per cent of their time involved in income-earning activities, and this programme did not involve any reading, writing or mathematics training. The other programmes in the study dedicated between 5 and 20 per cent of participants' time to reading, writing and mathematics, but each of these also allocated a larger proportion of time (between 10 and 30 per cent) to income-earning activities. The rest of the participants' time was spent in activities relating to health, community participation, legal rights, child education, decision making or empowerment, and water treatment.

Three measures of literacy skills were used, based on women's perceptions of their own ability to read and write; whether the women could write their names and addresses; and the extent to which they were able to read three sentences at different levels of difficulty, respectively.

Most (around 80 per cent) of the women in the sample reported that they knew how to read and write at the beginning of the study, and the proportional increase in the number of women who reported that they had these skills was actually smaller amongst participants than amongst non-participants in the NGO programmes. Participants consistently had slightly higher levels of reading and writing skills across the three years, compared to non-participants.

Participants earned slightly more than the national average income in the third year of the study, whereas the non-participants interviewed earned slightly less.

The number of working hours and weekly incomes declined between the first and second year of the study but increased again between the second and third year. At the end of the study both participants and non-participants were working longer hours but earning less. These fluctuations over the period might be explained by saturation of the marketplace, which could occur when many similar income-earning activities are initiated in the same area.

Women in PLAN/CRECER, a rural NGO with little focus on income-earning activities, did not increase their income-earning activities to the same extent that participants in the other programmes did.

(p. 101) The experimental group scored more highly on the social and economic index during all three years of the study than the control group, and the gap widened slightly (from 6 to 7 percentage points) during the three years.

(p. 102) Larger gains in the social and economic index were made by women in the lowest income quartile who participated in the programmes, than by participants in the highest quartile, suggesting that the most disadvantaged women were able to catch up over time. However, the change over three years in the difference between the highest and lowest quartiles, was larger for the control group than the experimental group.

(p. 104) The authors also conduct regression analysis to examine the effects of participation in the education programmes given the level of education, marital status, urban/rural location, and level of material possessions. They find that participating in the programmes had a significant positive effect on social and economic scores, and conclude that a woman who participates in one of the NGO programmes will achieve, on average, 11 percentage points more in their composite index than a woman who does not participate.