Methodological Issues in Identifying the Impact of Research Projects: A Review of the Literature

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2003
1. **Introduction**

Impact assessment is becoming increasingly popular. Not only are development interventions in general coming under scrutiny in terms of the impact they are having on eradicating poverty or achieving the other millennium goals¹, but also development research is increasingly subject to such an examination. Indeed, the only justification for the expenditure of development funds on research is that it should achieve a developmental impact, however this might be conceptualised. As Balzer and Nagel somewhat disarmingly comment,

> Donors are becoming more and more interested in learning about utilisation and direct impact of agricultural research within an overall developmental process. Arguments which can plausibly demonstrate such effects will therefore greatly strengthen the position of CGIAR centres in the dialogue with the donor community (Balzer and Nagel 2003: 3).

But one does not need to be as cynical to recognise that there is an onus on the development industry to show that research expenditures do have a positive developmental impact, and that an effort has to be made to ensure that this developmental impact is maximised.

Not surprisingly, there is a substantial literature which claims to measure the impact of research. The most frequently quoted (and probably most ambitious) paper is by Alston et al. (1998). This is concerned with measuring the returns from agricultural research and development in both the developing and developed world, and whilst admitting that there are problems with the data, claims that the annual rate of return to research is over 70%. Even though agricultural research in the developing world shows a lower return, it is still extremely respectable. Other writers make similar claims for the developmental impact of research (e.g. Anandajayasekeram et al. 1997; Beynon et al. 1998).

This literature, and the individual studies on which it is based, are in the main concerned with output and not with development or poverty *per se*. Only recently have attempts been made to assess the impact of research on poverty, and some of these contributions will be discussed below. But more importantly, there has been little attempt to analyse in any detail the methods which might be suitable for assessing impact in different situations, and how these methods can be incorporated into the design of research projects in order to assist later impact assessment.

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¹ Donecker and Green (1998) supply an overview of impact assessment in the multilateral development institutions.
The objectives of this paper are two-fold:

- To identify the methods which might be used to identify the impact of research projects. A robust methodology is essential if the gains from research are to be identified and the lessons of successful research projects integrated into the development research arena. A range of methods is discussed and the situations in which one or other is appropriate is identified.

- To consider how the requirements for successful impact assessment can be incorporated into research design. As will be shown later, one of the problems facing impact assessment is that it tends to be done in a post hoc fashion, little attention being paid to the requirements of impact assessment at the research planning and implementation stages.

Section 2 of this paper is concerned with different conceptions of poverty. In a sense, to talk of 'impact' can open up an uncontrollable and unmanageable Pandora's box. Impacts of a research project can in theory be infinite, and clearly as far as the development community is concerned not all impacts are of interest. From a developmental point of view the prime concern is poverty and how research impacts on poverty. Yet there is little agreement on what poverty is and there are competing definitions of poverty. These in turn not only generate different forms of relevant research but also imply different strategies of impact assessment.

This is followed in section 3 by a discussion of the concept of 'research'. Here a number of epistemological issues will be examined as to what research might be and how these forms of research have different developmental implications. A simple typology of research is used which at least offers a starting point for examining impact.

Section 4 seeks to directly address the first major issue: what methodologies should be used to examine impact. A number of different approaches are examined and suggestions are made as to the conditions under which different approaches are legitimate or appropriate. This builds upon the previous sections which offer a broad grid for assessing what methods might be useful.

Then in section 5 the discussion moves on to examine how the requirements of successful impact assessment can be written into research project design and implementation. It is suggested that much more attention has to be paid to the 'assumptions' column of logframes in that the key to successful or unsuccessful impacts are often the result of unanalysed factors in the context in which research takes place.

But before turning to the body of the report, there are two issues which should be briefly addressed.
The first of these is the relationship between 'evaluation' and 'impact assessment'. For some writers there is little if any difference between the two and an evaluation of a research project (or indeed any sort of development intervention) covers impact. This is the approach adopted by, for instance, the World Bank (Baker 2000; World Bank 2002). However, there is often an implicit (and at times explicit) distinction made between the two. This sees evaluation as being concerned with whether or not any intervention achieved its planned outputs whilst impact analysis is seen as analysing the effects of those outputs. Put in logframe terms, evaluation concerns the lower two rows of the logframe whilst impact analysis is more concerned with the upper two levels of the logframe. Thus an evaluation of a research project could conclude that it was highly successful in that it generated the outputs planned for it and that these were highly rated by the research community, whilst an impact analysis of the same project could conclude that it had an insignificant or even a negative impact in developmental terms. In this paper the emphasis is upon impact rather than evaluation, and this has certain methodological implications which will be examined below.

The second issue which has to be mentioned here is the coverage of this report. It is primarily concerned with reviewing the literature on agricultural and related research. There is an increasing literature on the impacts of other non-research orientated development interventions but no attempt is made to cover that literature in any detail. Nor is there any attempt to cover the literature on other areas of research (e.g. health; education) in any detail. The literature covered derives primarily from a small set of institutions, the most important being the CGIAR group and the publications deriving from their Standing Panel on Impact Assessment. Literature from the World Bank, from DFID and various satellite institutions (e.g. ODI) and from other Development Banks is also discussed.²

2. Changing Concepts of Poverty

In theory, any intervention can have an infinite number of impacts. Thus whilst it might be interesting to know the whole range of impacts from any one research project it is in practice impossible to identify them all. Nor is it necessary. Rather, there has to be some sort of agreement as to what is to be impacted on. Given that in the broadest sense development interventions are concerned with alleviating or eradicating poverty then poverty must be the focus of impact assessment. And following from this, as concepts of what

² IFPRI (nd) traces the history of 'The Standing Panel on Impact Assessment (SPIA) on the Impact of Agricultural Research on Poverty' which is sponsored by the CGIAR group. The first phase of its work was completed in 1999 and culminated in Kerr and Kolavalli's important report (Kerr and Kolavalli 1999). The second phase was launched in 2002 and consists of seven case studies, 5 of which 'employ the sustainable livelihoods conceptual framework as a means of integrating social and economic assessment'. This has given rise to the paper by Adato and Meinzen-Dick (2002).
poverty is change, so too does the focus of interest in any impact analysis. This in turn relates to differences in the methods employed for impact analysis as they, at least in part, are defined by how poverty is defined.

Clearly a full-scale analysis of the changing meaning of poverty is beyond the scope of this paper. But at the most general level the literature on the impact of research uses three broad approaches to poverty. The first implicitly defines it in terms of low productivity; the second defines it in terms of a statistical measure, usually an income of a dollar a day, and the third adopts a more complex approach which views poverty as more than just a matter of income.

The 'low productivity' approach to poverty sees poverty as a result of technological barriers. Improvements in the technology of production will lead to increases in output which in turn will lead to economic growth and development and thus a decline in poverty. Such an approach underlies much of the past work of the CGIAR group of research institutions and their interest in modern crop varieties. It also underlies most technical research concerned with crops and livestock which is concerned with maximising output. It is also the basis for claims that the rates of return to agricultural research are high (Alston et al. 1998; Kerr and Kolavalli 1999: 38).³

Yet the problem with such an approach to poverty is the assumed link between rising levels of productivity and reduced levels of poverty. There is no clear link between the two except at the most general and long-term level and there are many cases of poverty increasing following the adoption of technical innovations. Any measures of the impact of research interventions in terms of productivity tell us little about the impact of the research on poverty. But the attraction of such an approach is that it is relatively easy to design large-scale statistically impressive methods for measuring the impact of research.

The second approach is to define poverty not in terms of production but in terms of income. This is the approach adopted by the World Bank (and associated institutions) which defines extreme poverty as being an income of less than $1 per day per person. Such a definition of poverty has its advantages: it does set a global standard and allow comparison and it does form the basis for large-scale statistical exercises. Again, there is a certain attraction in such a definition of poverty because in theory at least it allows for statistical measurements relating research activities to reductions in poverty.

However, such a simple measure of poverty has been increasingly under attack over the last decade or so - primarily because it is too simplistic. 'The concept of human poverty is much bigger than the measure' (UNDP 1998).

³ There is a host of examples of this sort of assessment. See for instance Ochmoke and Crawford 1996; Manyong et al. 2000; Prabhu 2000; and Bonte-Friedheim and Sheridan 1997.
Whilst organisations such as the UNDP have attempted to generate numerical indicators such as the Human Development Index, increasingly the most generally accepted approach to understanding poverty has become the Sustainable Livelihoods (SL) framework used by DFID and various other organisations.\(^4\) Such an approach shifts the focus away from externally determined and measurable indicators of poverty to definitions which are ideally generated by the poor themselves and which give weight to factors such as risk, gender differentials, social exclusion and sustainability.

It must be noted there are major theoretical problems with the concepts underlying an SL approach. It tends towards a formulaic approach to the complexities of the social, and some of the basic concepts involved are, to put it mildly, extremely questionable.\(^5\) Yet even so, it does have many advantages. It recognises the complex nature of poverty in the developing world and that there are no simple linkages between technical research, technical change, increases in output, increases in income and a decline in poverty.

Clearly, if we are interested in assessing the impact of research on poverty, then the way in which poverty is defined will have a major impact on the methods we use. Each of the three broad ways in which poverty is defined has its advantages. A focus on production gives rise to relatively easy methods. Both a focus on production and on a ‘dollar a day’ poverty measures allow large scale statistical investigation. The SL approach allows for the complexity of poverty to be addressed. But the different approaches also give rise to major problems. The first two oversimplify poverty and may indeed disguise its reality. The SL approach is difficult to operationalise as the basis for generalisations and comparisons and is extremely difficult to use in the context of large-scale statistical analysis.

These issues will be returned to in more detail in section 4. But before addressing the issues of how to analyse impact we need to look at the nature of research itself.

### 3. Types of Research

Precisely what is research is a moot point. In a sense all development interventions involve research to a greater or lesser extent, and the research element has become increasingly important as process approaches to development interventions have become more popular. Furthermore, where the distinction between research and policy analysis lies is unclear. Whilst it

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\(^4\) Other organisations which use a ‘sustainable livelihoods’ approach include IFAD, UNDP and CARE.,

\(^5\) This is particularly true of ‘social capital’. Although hailed as the ‘missing link’ in development (Grootaert 1997), it has been heavily criticised by authors such as Fine (2001) and Harriss (2002). See also Stirrat n.d.
could be argued that the participatory turn in development thinking or the establishment of an SL approach to poverty are based on 'research'. It could equally well be argued that they owe little to research and much more to shifts in the policy environment which are independent of the outcomes of 'research'. Indeed, most of the significant research into participation or sustainable livelihoods has come after they have been adopted as orthodoxy by the development industry. And the way in which poverty is defined has a major influence on what is seen as being relevant or irrelevant research. Thus the shift from viewing poverty in technical terms to viewing it in terms of an SL framework has led to a shift in the research agenda.

There is also the problem of what is 'knowledge'. DFID policy statements talk about knowledge creation and management and 'knowledge systems'. Without entering into the major debates about the nature of knowledge and whether one can talk about 'knowledge systems', it has to be noted that from a philosophical point of view there are major problems in conceiving of knowledge in this way - as systematic and as somehow external to the contexts in which it is generated. Rather, research into the nature of knowledge indicates how it is fashioned by social and political contexts and can not be seen as existing in an absolute sense. This is most easily seen in the context of 'knowledge' about the social, for instance the conflicting knowledges concerning the nature of poverty. But it is also arguably true for more 'technical' research. Thus at the most general level, much research is concerned not with creating 'new knowledge' but with reinforcing existing ways of seeing and understanding the world. \[6\]

Whilst such issues must be born in mind, for the purposes of this report they are probably too recondite and a less radical approach should probably be taken. \[7\] As far as definitions of research, that offered by the OECD (the Frascatti definition) is probably as good as any. It suggests that,

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\text{Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man (sic), culture and society, and the use of this stock of knowledge to devise new applications.}
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Even so, this definition does not include policy research and as Surr et al. (2002) argue, it is probably better to use a very loose definition of what research might be.

Although there are other ways of classifying research, one common way is to group research activities into three broad categories: 'hard' technical research

\[6\] For one example of such an approach, see Phillips and Edwards (2000) who argue that all knowledge is socially constructed and that impact assessment of development projects is a matter of producing an 'acceptable story'.

\[7\] Here a useful summary of the DFID position is given in the recent DFID research policy paper (Surr et al. 2002: 2-6)
(e.g. new cultivars; new techniques of dealing with pests); 'soft' research (e.g. research on gender; on management of common property resources) and 'policy research' (e.g. research on policy management). Of course such a classification is not ideal and there are overlaps, but for the moment it is of some use in highlighting the major implications for impact analysis of different forms of research.  

'Hard' technical research has been at the core of the development research agenda for the last few decades. It is concerned with generating new technical forms of knowledge - new crop varieties; modified animal species; more efficient forms of irrigation and water conservation - which are usually, although not always, of a general rather than a specific nature. The object of this research has primarily been to increase productivity either through the more efficient use of existing resources or access to new resources. Ultimately it is based on a Promethean theory of development: that development is based on technical change and innovation. Most CGIAR-backed research has taken this form.

In contrast, other forms of research focus on what might be called 'softer' issues. Here, a rather different definition of development is at stake. Rather than see development being the result of technical innovations and implementation, social issues (in their broadest sense) are seen as central. This sort of research seeks to encourage poverty eradication through addressing the social, political and economic context which makes people poor. In extreme forms such an approach to development makes technology a secondary issue, driven by social forces. Thus research on gender relations, research on distribution of income or the role of credit all fall at the softer end of the continuum. Whilst there are research areas which are of general importance (e.g. the impact of primary level education on economic growth) research with a softer focus is often more specific to particular regions, countries or even parts of countries.

Finally there is 'policy research'. This overlaps with what I have called 'soft' research in that it is not concerned with 'technical fixes' but with the context in which technologies are used. Policy research deals with such matters as the role of subsidies, taxation, the place of the separation of the private from the public, the role of NGOs in development, the role of research in development and so on.

Now of course these distinctions between 'hard', 'soft' and 'policy' research are only heuristic and in many cases particular research projects involve elements from all three forms of research. But using this framework does allow us to recognise that there are different forms of research and that different methods may be appropriate for assessing their impact. The

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8 An alternative frame would be that made by DFID between 'enabling', 'inclusive' and 'focused' activities (see below, footnote 18). For an example of how this might be used in the research context, see Cox et al. 1998.
methods which have been and are developed for assessing the impact of -say- research into new cultivars are unlikely to be appropriate for an examination of the impact of research on participatory management of common resources. Methods which are developed in one epistemological space (e.g. epidemiology) are unlikely to be suitable for examining activities which are developed in another epistemological space (e.g. gender relations).

4. Assessing impact

4.1 Preliminaries
Whether or not the impact of research can be satisfactorily assessed is a matter of some debate. Some writers argue that in the end it is not possible to come to any firm decision. Thus Gardner (1999:19) argues that identifying the gains from policy research is 'highly conjectural', and Norton and Alwang (1998) come to similar conclusions. Casley and Kumar argue that in the end there can be no certainty and that all that can be expected is a 'reasonable indication of a strong association between a set of variables in a temporal sequence, which is logically justifiable' (1988:151).

Broadly speaking, the literature distinguishes two methods of assessing the impact of research projects. The first depends on the use of quantitative data and attempts to show through statistical analysis how certain research inputs lead to certain developmental outputs. Such methods are suitable for certain types of research projects mainly (although not all) at the 'hard' end of the continuum and where poverty is defined either in terms of productivity or in terms of a numerical measure (e.g. $1 per day). The second depends on qualitative data where causal chains rather than statistical correlations are seen as important. These methods are more suitable in contexts where poverty is defined in terms of the SL framework and where research is at the 'soft' end of the continuum, although once again there are exceptions. As poverty is increasingly defined in SL terms, more attention will be paid to qualitative than to quantitative techniques.

4.2 Quantitative techniques
Quantitative techniques of impact assessment depend upon numerical representations of 'before/after' or 'with/without' scenarios. The first involves the collection of baseline data on particular indicators before the research project commences (or more likely before the findings of the

9 In development more generally, these comments fit in with those put forward by Pronk (2001) who argues that there is no meaningful relationship between aid and development and that at best aid can only act as a catalyst
10 There are also arguments as to what the unit of impact appraisal should be. Whilst in general the focus is upon individual research projects, some writers argue that appraisals should be at the level of the research programme (e.g. Maredia et al. 2000) whilst others work at an even more general level (e.g. the impact of new strains of rice on poverty in South Asia)
research project are disseminated) which can then be compared with data collected at a later stage. The second method involves comparing selected indicators in an area which has experienced the outputs of the research from another area which has not.\footnote{There are many descriptions and textbooks which describe in detail these methods of assessing impact not just of research projects but of projects more generally. The World Bank is a regular producer of such manuals. A recent example of these is Baker 2000. Others include World Bank 2002; Prenushi \textit{et al.} 2001.}

In principle such a method is extremely attractive because it is logically so simple and can generate data which are transparent and which can give a clear measure of the impact of research. So for instance the impact of a new rice cultivar can be measured in terms of the cost of developing that cultivar in relationship to the increased value of output or the increased household income of those who use it. Or the impact of research into grain storage can be measured by comparing the incomes of those who have adopted the outputs from the research with those who have not.

Now of course, such methods are subject to the limitations that they depend on particular definitions of poverty: it is difficult to imagine this sort of analysis taking place in a context where poverty is defined in SL terms. But leaving that aside for one moment, even if one uses a narrower and more quantifiable definition of poverty, there are major problems with such methods. These include:

- \textit{Expense}. Such methods are notoriously expensive in that they depend in the main on the collection of large bodies of data suitable for statistical analysis.
- \textit{Confounding factors}. It is often extremely difficult to determine what were the impacts of a particular piece of research and what was the result of other factors. So for instance much of the argument over the impacts of the 'Green Revolution' in India depends on how far one sees them as simply the result of new cultivars and how much the result of other factors.
- \textit{Pre-designation of indicators}. Indicators have to be chosen which are measurable. Furthermore, for 'before/after' analyses they may well turn out to be the wrong indicators: the impact may well not be what it was expected to be and the wrong indicators may have been chosen.
- \textit{Where does one stop?} What is clear from many impact studies is that there are not just direct and secondary impacts but often a whole chain of impacts which can result from the successful implementation of a research project. How far down this chain of causation one goes is in the end arbitrary.
- \textit{Randomisation}. For such methods to have the robustness that are often claimed for them, data sources have to be randomised. This is often extremely difficult at a practical level. For instance, there are often good
reasons why certain areas or groups of households have not adopted research outputs.

- **What can't be quantified.** There are impacts which can't in any simple sense be quantified. The tendency is to leave such impacts out of consideration.

Yet despite these major problems, there are situations in which large scale quantitative techniques are of value. An obvious example consists of the studies of the impact of improved rice and wheat cultivars in South and Southeast Asia. But it seems that they are of most use in relatively simple situations and in examining the direct and immediate impact of research. When the number of variables begins to increase; where the impacts of a piece of research have multiple impacts (e.g. on production levels; on employment; on gender relations; on land holding; on credit relationships) then it becomes increasingly difficult to assess impact using quantitative methods.

The basic problem with these methods is that ultimately they derive from the natural sciences where controlled experiments can take place. But as one moves away from highly controlled environments then it becomes more and more difficult to ensure the 'scientific' or 'objective' nature of the exercise. As long as the assessment is concerned with relatively simple variables (e.g. income or levels of production of a few crops) then such methods remain plausible but once one introduces more and more variables the more unwieldy and expensive it gets. Yet such is the strength of the quantifiable model (to count it is to control it...) that it remains the dominant model of impact assessment.

### 4.3 Qualitative techniques

It is difficult to give a simple definition of 'qualitative techniques' and the oft used distinction that the latter use 'words' whilst quantitative techniques use 'numbers' does not hold up to much examination. Quantitative research may involve more than just the collection of numerical data on output and income and involve much less tangible phenomena whilst qualitative research may be presented in a quantitative fashion. Rather what characterises a qualitative approach is a radically different epistemology from that which underlies quantitative methods. So whilst the latter is derived from a positivist tradition, the former is much more grounded in the humanities. To quote Hulme,

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12 Thus frequently these methods are referred to as 'quasi-experiments'. For a useful critique of the 'scientific method' in the context of impact assessment (in this case of micro-finance projects) see Hulme 1997.

13 'Numbers give one a feeling of facts; qualitative stories give one a feeling of truth'. Quoted by Adato and Meinzen-Dick 2002: 32

14 This distinction could be used to distinguish different types of research as well as impact studies. Thus the 'hard/soft' distinction is more properly a distinction between two traditions of research one rooted in a positivist and empiricist tradition; the other in a humanist tradition.
Its main features are an inductive approach, a focus on key informants, recording by notes or image and the data analyst is usually directly and heavily involved in data collection. This tradition does not try to 'prove' impact within statistically defined limits of probability. Rather, it seeks to provide an interpretation of processes involved in intervention and of the impacts that have a high level of plausibility (Hulme 1997:16)

The distinctions between qualitative and quantitative methods have been elaborated by Chung (1997 - quoted in Kerr and Kolavalli 1999: 155-6) and are summarised in Figure 1 below.

It is not a matter of qualitative research being less 'rigorous' than qualitative research but rather that it employs a different sort of rigour more concerned with interpretation than with 'proof'. Theoretically, it is much more open to alternatives to simple 'cause and effect' or correlational arguments and opens up the possibility of analysing the complex impact scenarios which are frequently the result of research initiatives.

**Figure 1: A comparison of quantitative and qualitative approaches**

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<tr>
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<th>Structure</th>
<th>Role of respondents</th>
<th>Role of models</th>
<th>Conclusions</th>
</tr>
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<tbody>
<tr>
<td>Quantitative</td>
<td>Highly structured research methods</td>
<td>Respondents as sources of pre-sorted data</td>
<td>Externally determined models</td>
<td>Generalised statistical conclusions</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Highly flexible research methods</td>
<td>Respondents engaged with and have role in defining sorting of data</td>
<td>Respondents involved in creating models</td>
<td>Analytical and causative conclusions</td>
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</tbody>
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(Based on Chung 1997 as summarised in Kerr and Kolavalli 1999)

Increasingly, qualitative and quantitative methods are seen as complementary to one another and there is evidence of a general consensus emerging as to the importance of using both methods (e.g. Kerr and Kothavalli 1999; Adato and Meinzen-Dick 2002; Kilpatrick 1998, to mention but a few). The argument is put forward that qualitative methods allow the assessor to identify research issues or hypotheses which can then be used to frame the
more narrowly focussed quantitative research. Furthermore, it is also argued that a qualitative approach allows the assessor to understand what the quantitative research ‘means’.

Yet it could be argued that qualitative analysis alone is often sufficient to allow conclusions to be reached and that the use of quantitative methods only produces a spurious scientificity. Often such data simply legitimise conclusions already reached through qualitative analysis. There is also the problem of how one marries two very different approaches, one ultimately deriving from the physical sciences and the other from a humanist tradition. Simply bolting one onto the other is no answer.

Whatever the arguments concerning the potential complementarity of qualitative and quantitative methods, it is clear that qualitative methods are more suitable to approaches which are based on an SL approach to poverty. Furthermore, they are also more suited to an examination of research which focuses on the ‘softer’ end of the continuum and they open up means by which impact assessment can be more ‘participatory’.

4.3. Participatory approaches to impact assessment

‘Participatory’ approaches to development have become the orthodoxy, and increasingly there are calls for a ‘participatory’ approach to impact assessment. It is argued that ‘top down’ approaches fail to uncover the realities of poverty and the processes that give rise to poverty and that through ‘participation’ and the armoury of techniques associated with ‘participation’ a more effective approach to poverty can be developed. Thus the present group of IFPRI impact analyses are in part based upon a participatory approach (Adato and Meinzen-Dick 2002). This obviously is not the place to go into an extended discussion of participatory methods in general. There is a vast and ever-increasing literature which covers participatory approaches in general and participatory techniques for monitoring and evaluation, the latter often overlapping with impact assessment.15 Proponents of a participatory approach to impact assessment are damning of the ‘scientific’ method. To quote Hulme once more,

> According to this line of argument the scientific method fails as it: ignores the complexity, diversity and contingency of winning a livelihood; it reduces causality to simple unidirectional chains, rather than complex webs; it measures the irrelevant or pretends to measure the immeasurable; and it empowers professionals, policymakers and elites. (Hulme 1997:17)

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Hulme goes on to quote Chambers (1997: 123):
...conventional baseline surveys are virtually useless for impact assessments... The question now is how widely local people can be enabled to identify their own indicators, establish their own participatory baselines, monitor change, and evaluate causality.

These are noble sentiments indeed, but how far they can be realised in practice is another matter. What is clear is that much of what passes as participatory research in no way measures up to the ideals outlined by Chambers. Simply labelling research which involves talking to people as 'participatory' in no way moves the locus of enquiry into the agenda of the poor. At present, the term is used to cover such a wide range of situations - from a few random discussions with the rural poor through focus groups and village meetings to situations in which the rural poor are truly empowered that the term 'participatory' is almost devoid of any general meaning.

At the same time, there is an increasing literature which raises major questions as to the nature and efficacy of participatory methods (e.g. Mosse 1994; 2001, Cooke and Kothari eds. 2001). The few detailed studies of participation in action (as distinct from studies which claim to use a participatory approach) show that the methods are easily hijacked by local elites and that the voices of the poor are frequently ventriloquised by those elites or by researchers (Whitehead and Lockwood 1999). More generally, the skills and analytical abilities which are necessary for successful local level research are at least as sophisticated as those required in the 'scientific' approach. Finally, there is an increasing number of theoretical discussions which indicate that from an analytical point of view participatory methods frequently involve the imposition of a particular way of thinking on the participants, in effect denying the 'bottom up' pretensions of much participatory research. 16

Clearly, any study of the impact of research on poverty has to address the experience of the poor and clearly this has to involve in some form or other their involvement both as sources of information and as analysts of the situation. Furthermore, such an approach does not necessarily have to involve only qualitative data: it can also be used as the basis for obtaining quantitative data. Any effective assessment of impact has to involve the participation (at some level) of those who are supposed to be its beneficiaries. However the populist turn, the glorification of the local, and the claim that there are 'multiple realities' are dangerous tendencies in that they are ultimately anti-analytical. Whilst a participatory approach may generate a valuable body of information as to how the impact of research was experienced (or not), if it is restricted to the local level it will tell us very little about the chains of influence, power and knowledge flows which link

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16 For an example of this see Adato and Meinzen-Dick 2002: 31. See also Cooke and Kothari 2001.
research to people’s lives. Impact assessment is not just about whether or not the poor became less poor but how the knowledge generated by research has an effect on the poor.

4.4 Causal linkages

At the risk of over-generalising, quantitative methods of assessing impact tend to be associated with a 'top-down', technologically driven approach to development. Categories of data are derived from the outside and imposed upon local situations. On the other hand, participatory and qualitative methods of impact assessment are associated with 'bottom up', supposedly user-driven research agendas. Yet what is perhaps crucial is the excluded middle: how do the outputs of research get to the supposed beneficiaries of that research? What are the chains of communication and dissemination and in what situations are they effective or non-effective? In assessing the impact of research these processes are crucial not only in understanding what impact has occurred but also how research can be made more effective in achieving developmental goals.

This approach to IA has been taken up by a number of writers. For instance, Spilsbury (2000) argues that IA should focus on 'impact pathways' - the routes through which research findings travel to their ultimate users - and the effects they have on poverty at the local level. Balzer and Nagel (2000) use the same term although they fail to define it in any detail. Davidson (2000) argues for a similar approach which he labels 'causative strategies': the 'cause and effect' links between research and its impacts, whilst Grahn (2002) uses the phrase 'tracking impact and uptake'.

Despite different terms, what all these writers are advocating is that impact analysis should focus on a process rather than on the end result. As Grahn puts it, impact and uptake can not be precisely measured but what can be observed is an ongoing process which involves continuing social relations and continuing impacts on poverty.

Such an approach does not rule out the use of quantitative techniques, nor does it rule out local level participatory impact assessment. But what it adds is an examination of the ways in which new knowledge or new techniques have a continuing effect. This may be direct, for instance how a new technology is disseminated through an extension system, how particular users adopt and others reject it, how it has a positive impact on poverty or not. Or it may be less direct, for instance how findings from research are disseminated at a national level; how they change policy and the impact that change has on poverty.

In effect what this approach involves is an 'ethnographic' approach which seeks to place research within a social and political context not just at the
local level but also within national (and potentially international) contexts. This involves a more correct use of the term 'holistic' than is commonly used. One of the problems with 'participatory' approaches is that they tend to reify the local 'community' setting it apart from and in opposition to the larger social and political formations in which they lie. This approach seeks to show not just the impact which research has had but also how it achieved that impact or failed to achieve the expected impact. The result is (or should be) a greater understanding of the role of 'confounding factors' which may well cease to be confounding and rather be seen as crucial to whether or not any particular piece of research has an impact.

4.5 Poverty, research and impact assessment

At this point it may be worthwhile trying to bring together some of the points made in the previous sections. Broadly speaking, it has been argued that there are differences in how poverty is defined and differences in the nature of research. These in turn have implications for the methods which can be used for impact assessment, and these are summarised in figure 2.

Figure 2: Impact assessment strategies

<table>
<thead>
<tr>
<th>Concept of poverty</th>
<th>Production/Income</th>
<th>SL Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Technical' Research</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>'Soft' Research</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Policy Research</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. This cell denotes the use of large-scale quantitative methods to assess the impact of 'hard' technical research. Such methods can be appropriate where the produces a general output which can be taken up (or rejected) widely. It is possible to measure the impact primarily in terms of changes in output but also in terms of a quantified income figure. Examples of this are obviously those which involve the development of new cultivars and modern crop varieties. Examples of such assessments abound, particularly in the context of the Green Revolution. Yet even here there is evidence of difficulties in employing such a methodology as evinced by the debates on the actual impact of the Green Revolution.

2. This cell denotes attempts to measure the impact of 'hard' technical research where the measure of poverty is in terms of the SL framework. Here large-scale quantifiable methods are probably unsuitable and qualitative methods more appropriate. Even though the research is technical, teasing out the detailed non-quantifiable impacts requires much
more qualitative approaches, almost certainly involving the use of a 'causal linkages' approach

3. This cell denotes the assessment of the impact of 'soft' research in a context where poverty is defined in quantitative terms. Here probably both qualitative and quantitative methods are appropriate. Although the research is 'soft', the focus on a statistical measure of poverty encourages the use of quantifiable methods.

4. This cell denotes the assessment of the impact of 'soft' research in terms of the SL model. Qualitative methods are appropriate. The research is 'soft' and the SL poverty frame encourages such methods.

5. This cell denotes the assessment of policy research in a context where poverty is measured in quantitative terms. Here, a quantitative approach to impact assessment can be attempted, but the general consensus is that it is very difficult to come to any firm conclusion using these methods.

6. This final cell concerns the assessment of policy research in the context of an SL approach to poverty. Quantitative methods will be of limited use in such assessments.

Overall, qualitative methods would seem to be generally more suitable for situations where poverty is defined in SL terms. The exceptions are research projects which are highly technically orientated or policy research which works at a macro level (e.g. research into taxation policy). But given that increasingly the SL framework is defining not only the nature of poverty but also what sorts of research should be supported to eradicate poverty, there will be a decreasing interest in large scale quantitative research into the impact of research and more interest in developing tools for qualitative analysis using both participatory methods and methods which focus on causal chains.

So far, relatively little work has been done on assessing the impact of any sort of development intervention in terms of an SL framework. Outside research, one pioneer effort is Ashley and Karim (2000) whilst another is Wakelin and Basheer's preliminary work on the impact of new technologies (2000). One of Ashley and Karim's conclusions, however, is that whilst the SL framework is useful at the local level, they find it difficult to operationalise at higher levels. In the field of research impact assessment the only work so far is the ongoing work by IFPRI reported on by Adato and Meinzen-Dick (2002). They too report difficulties (some of which have been alluded to above) and point to some of the conceptual problems in the SL approach to development in general. These include issues concerning the nature of social capital and an absence of power as a significant dimension in the framework.

One of the major implications of this conclusion is that the ways in which impacts are measured and compared will have to change. Traditional
quantifiable measurements focusing on a few key indicators have the
advantage that comparisons can be made between different types of research
and between research and other forms of development intervention. The
shift towards an SL approach to poverty coupled with (and implying) the use
of generally non-quantifiable and qualitative approaches to impact assessment
makes comparison much more difficult and less 'objective'.\(^{17}\) Indeed it
involves the rejection of the traditional scientific paradigm and a willingness
to accept interpretative and evaluative impact assessments. The widespread
adoption of an SL framework coupled with a stress on participation also
implies that the distinction between 'research' and 'development'
interventions will become increasingly blurred, what is presently seen as
research becoming increasingly defined by developmental objectives (Surr et al. 2002).

5. Writing assessment needs into research project design

It is one thing to consider how one might go about assessing the impact of
existing or past research projects: it is another to consider how one might
write 'impact' more clearly into the design of research projects. The present
'A to H' scale used to assess the performance of projects is only a beginning
for what it attempts to measure is dissemination and uptake, surely poor
indicators of impact. But at the same time, simply to favour supporting
projects which produce an easily measurable impact is dangerous. As
Spilsbury points out, this would bias research programmes towards short
term, incremental research with cumulative impacts rather than the systemic
impact which he sees as being of more lasting importance (Spilsbury 2000).

One approach to this issue is outlined by Cox, Farrington and Gilling (1998).
This paper is primarily concerned with determining what sort of research
should be supported in order to decrease poverty.\(^{18}\) Using an
'enabling/inclusive/focused' set of categories\(^{19}\), they argue that in terms of
the numbers of poor people who stand to benefit, research into 'enabling'

\(^{17}\) Put rather differently, it also implies a movement away from types of research which are
biased towards short-term incremental outputs which can be measured towards longer-term
projects which have systemic impacts but are less amenable to measurement. See Spilsbury
2000.

\(^{18}\) See Hazell and Haddad (2001) for a parallel discussion of what sorts of research might
help the poor.

\(^{19}\) Enabling actions are those which underpin policies for poverty reduction and lead to
social, environmental or economic benefits for poor people; inclusive actions include sector
programmes which aim to benefit population groups (including poor people) and address
issues of equity, barriers to participation or access of poor people, and focused actions focus
on the rights, interests and needs of poor people (Cox et al. 1998: 17).
issues and strategic focused research is likely to have the greatest impact. But even so, they argue that,

NR research is a blunt instrument for achieving social objectives: whilst it can promote broad patterns of growth from which the poor can and often do benefit, it is difficult to target in such a way that the poor disproportionately benefit. Its impact is highly dependent on a range of demand and supply based variables which often do not favour the poor (Cox et al. 1998: 43)

In other words, no matter how 'good' the research is, its impact will depend on factors extraneous to the research project itself, and they go on to develop a 'toolkit' to assess the potential poverty focus of NR research.

The general conclusions reached by Cox et al. - that the impact of research is determined in large part by the wider context in which the results of research are implemented or disseminated - is supported by a number of other observers. One particularly striking example of this is in Freebairn's discussion of the impact of the Green Revolution on inequality (Freebairn 1995: 23). He shows not only that different conclusions appear to be reached by different writers using different methods, but also that whilst a technology may be 'scale neutral' its impact depends on the particular context into which it is introduced. And he goes on to quote Pearse who claims that,

It is not possible to disassociate the social and the economic effects of the technology from the social system in which it is functioning. The structure of the social system determines both that the technological package will be implemented and how the benefits will be distributed. It is not possible to isolate one from another (Pearse 1980: 276)

And this implies that if we are going to support effective research projects and if we are going to be able to assess their impact in any persuasive fashion, much more attention has to be paid to these contextualising factors.

Cox et al. were primarily interested in attempting to define in advance the sorts of project which would help the poor and not with how one might measure impact per se. Perhaps the only writers to face up to this issue directly in any detail are Balzer and Nagel (2000), although they are concerned with 'impact monitoring' (an internal management tool) rather than 'impact assessment' (Balzer and Nagel 2000: 4). However, one of the crucial points

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20 They are particularly dismissive of other forms of focused research: 'their (generally) applied nature often makes them highly photogenic... they therefore tend to feature strongly in public relations material - and some would argue that they receive publicity out of all proportion to their overall impact on poverty' (Cox et al. 1998: 28)
21 Although fairly elementary, this could form a basis for writing impact assessment needs into project design.
they make is that much more effort has to be made into 'unpacking' and more closely specifying the nature of the statements made in the 'assumptions' column of the logframe.

Statements like 'favourable political environment', 'availability of funds', 'interested decision-makers', 'target group willing to cooperate' are too unspecific for monitoring purposes. (Balzer and Nagel 2000:11).

And indeed, they are also too vague for effective impact assessment. For if the aim of the assessment is to understand successes and failures, then it is not just a matter of understanding the success or failure of the research in its own terms that has to be undertaken. Research does not take place within a vacuum. The success and failure of a project within the social, political and institutional context in which it is being carried out has also got to be assessed. This would in part deal with the problem of the 'confounding factors' which bedevil issues surrounding attribution.

Directly linked to this is the need for a greater specification at the planning stage of how the research will actually impact on the poor. At present, the specific and detailed links in project planning are at the activities and outputs levels and the relationship between them. These are relatively easy to define and as they are directly under the control of project staff it would be surprising if goals at these levels were not achieved. But what is much vaguer, much less specific, and much less detailed, are the purpose and objectives levels of the logframe and the links between them. In order to assess impact there has to be much greater specification at these levels and the generation of causative models which, in conjunction with much more clearly delineated sets of assumptions, provide the basis for post project impact assessment.

Clearly there are problems of proportionality and expense in the matter of building impact assessment into research design. As Balzer and Nagel point out, the use of sophisticated data collection and processing is not feasible in normal cases (Balzer and Nagel 2000: 10). Furthermore, with the increasing use of the SL framework for the analysis and understanding of poverty, the large scale use of control groups, baseline studies and quantifiable indicators is probably unwarranted and unsuitable.

Yet as research becomes more SL-orientated, an argument could be mounted that before research, especially technical research, takes place, much greater note has to be taken into the context in which this research is taking place and the supposed impacts that it is going to have. This would do two things: first it would act as a viability check on the relevance of the research project's outputs for poverty alleviation objectives, and secondly, it would provide the sorts of data which would become the basis for assessing impact.
6. Conclusions

1. It is clear that it is impossible to produce precise and 'proven' assessments of the impact of research except in a few very specific situations. Even then, the cost and complexities of doing such assessments is probably prohibitive.

2. If poverty is defined in terms of an SL approach then research will tend to have a 'softer' focus. This requires a more nuanced and interpretive approach where judgement rather than proof is central.

3. The best approach to assessing the impact of research is through tracing the dissemination of research outputs and identifying where they have had (or have not) had an impact on the poor. This will involve an 'ethnographic' approach based on interviews, case studies, perhaps oral histories and possibly some quantitative work. What will be crucial here is 'plausibility': does the story which emerges make logical sense and ring true to the various stakeholders involved.

4. Straightforward 'participatory' impact assessments will be of limited use by themselves as such methods fail to address central issues of power, hierarchy and social exclusion.

5. In planning future research projects there is a need to develop fuller models of how the proposed research will impact on poverty and much greater specification of the assumptions that link outputs with poverty.

6. In planning future research projects there is an argument that any 'technical' research project will have to be preceded by what amounts to an SL research project in order to identify whether or not the preconditions for the successful dissemination of the research can take place, and whether or not the outputs of the research project will address real rather than imagined research needs.
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