Charles Cooper and Raphael Kaplinsky in collaboration with R. Turner, **Second-hand Equipment in a Developing Country,**—International Labour Office, Geneva, 1974. pp. 145, 17.50 Swiss Francs.

G. W. Irwin, assisted by B. Nilsson, L. Karlsson, and R. Eriksson, **Roads and Redistribution,** International Labour Office, Geneva, 1975, pp. 162, 25 Swiss Francs.

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Today the arithmetic of doom is well-known to economists dealing with underdevelopment. It is impossible to absorb into employment more than a fraction of the labour entering the labour market with existing capital stocks, even when assuming a very low capital/output ratio, a very high average propensity to save, a low rate of captial inflow, and a very low capital/labour ratio.

Solutions are sought with increasing desperation. Increase capital inflows say some, only to realise that such 'help' demands its pound of flesh in the form of claims on future income, and in an uncertain world that sooner or later leads to crisis. Decrease capital/output ratios by investing in human capital say others, only to realise that the schools produce masses of unemployables. Increase the savings ratio say others, only to realise that the rich make the rules and the poor haven't the resources to save. Decrease the number of people say yet others (confining themselves to population growth for the time being), only to find that this is hard to do, very expensive, and if at all effective, then effective only in the very long run.

Finally, there is the appeal to the capital/labour ratio and its transformation through intermediate technology or less capital-intensive methods. The two books under review address themselves to this particular avenue to salvation, but show that this too is a 'solution' fraught ultimately with ambiguities and subject to severe limitations.

Unfortunately neither book has the scope to use its material to significant purpose, and while the conclusions are unexceptionable they are hardly surprising—i.e. that second-hand machinery is sometimes a 'good buy' and sometimes a disaster, and that given a (more or less arbitrary) set of weights, a social cost benefit analysis can put a value on labour-intensive methods in road construction.

On the whole the Cooper/Kaplinsky book is an interesting addition to the debate on how to achieve lower capital/labour ratios. It examines the technical and economic performance of two types of jute-processing machinery operating in

Kenya, comparing the performance of machines bought new and second-hand. While its major conclusion seems to be aimed at an absurdly weak straw man—an improbable man who says second-hand machinery is always superior—it does generate some potentially useful 'principles' such as: that the performance of the machine deserves more attention than its purchase price; that robust and technically simple machines are a lesser risk; that in general the performance of second-hand machines is more variable than that of those purchased new; that it is generally safer to buy second-hand equipment when it comes into the market due to demand fluctuations rather than due to obsolescence or old age; and that relatively high transport and installation costs reduce the capital cost benefits of second hand purchases. The book is refreshing because the authors were clearly willing to get their hands dirty by learning about the technologies involved and by studying their operation directly.

Unfortunately the book has severe limitations. Most worrying of these is the failure to treat the issue of second-hand machinery sufficiently broadly to recognise that its major potential advantage must surely be the contribution it could make to the domestic development of skill, technology and machine-tool production. If, as is argued, the performance of the machine is more important than the price difference in most cases, then these broader issues would normally overshadow the performance of the particular machine. But unfortunately these questions are only touched upon in passing (p 124). Naturally such broad possibilities are also indeterminate in their impact, but a discussion of their limits and possibilities is surely the most interesting and important aspect of the entire question of second-hand machinery.

Such a discussion would point up the need for a primary distinction to be made between second-hand machines which are simply 'used' machines, and those which embody a different technology. Although this distinction is made in discussing the reasons why firms would sell their machines, it is not made systematically in considering their impact, except in as far as their different technology might affect their performance. The possibility that such a difference could affect the process of technical transfer seems in the end to be excluded, since it is asserted that the use of second-hand machinery will provide no more than a once-for-all gain in the 'technological' sense, since subsequently the 'technology' of the second-hand machines will develop one step behind the current technology. The conclusion is that efforts to develop 'alternative' technologies must not be diminished because of the availability and use of second-hand machinery. While this is a perfectly reasonable suggestion, it surely misconceives the relationship between research and second-hand technology, since the point is not merely that the one does not displace the other, but rather that the significance of the one (the use of second-hand machines) is largely determined by the benefit the other (research) is able to derive from its use.

There are a few points of detail which create some unease. The organization of the book is unfortuate. Since the study was narrowly conceived it should have been located more firmly in the wider debate from the outset. This means that many of the points which now appear in chapter 10 should have come at the beginning. A case in point is the assurance that this discussion concerns only 'arms length' transactions and excludes all tied or intra-firm dealings. The absence of this critical qualification for most of the book is a serious matter, especially since the most negative views of second-hand machinery use are derived from just these excluded cases.

Finally, the impact of rapid technical change on the decision to buy second-hand machinery is repeatedly stated to be negative on the grounds that such innovations reduce its expected life. Yet under such circumstances the shorter life of second-hand machines would often be a distinct advantage.

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By contrast, **Roads and Redistribution** promises more but produces less. Once one has worked through the ponderous and obscurantist presentation one is left with the feeling that what was said here could have been said with much less heavy breathing.

The book is a very slightly modified application of the UNIDO guidelines on social cost-benefit analysis. Aficionados of this particular parlour game will find the book of interest. People concerned about the distortions and disparities of underdevelopment will come away rather empty-handed. Their chagrin will be increased by the expectations raised by the introductury pages. These state that the presentation explicitly recognises that "the relative value of factors of production . . . . are shown to vary as an explicit function of inter-class and inter-temporal distributional preferences", and go on to point out that "a government, having once decided on distributional weights (sic) . . . would determine not only the price of equipment and labour in road construction, but the price of all goods and factors throughout the economy in a manner consistent with the realization of the plan." A not insubstantial undertaking one would have imagined. But to latter-day Don Quixotes armed with the techniques of 'social cost-benefit analysis' such tasks are but a few quiet days' work, less onerous even than jousting windmills. One need only posit certain time preferences, certain 'class preferences' (?), certain exchange rate valuations and already one has established in weighted consumption units, the true social cost of building roads labour intensively. It only remains then to assert the need for an appropriate level of commitment by the planners to make it all come true. Implicit in all of this is a vision of the process of social and political change in which exercises such as these are seen as being of sufficient importance to justify the time and resources spent upon them. In other words, the defence rests on the claim that one is merely setting out the choices to be made and that this is an 'objective' process, which can be usefully dealt with through the kind of quantification practised here. I am certainly not more convinced about the general proposition after reading this application of it. Surely margins of error (uncertainty) in such calculations are so great that one could as well forgo the cumbersome and misleading quantification.

What is worse, the most crucial ingredient in this strange soufflé is probably the information on the nature and efficiency of the alternative technologies envisaged. Their technical parameters have been derived from 'other countries', even though the author tells us that such parameters are notoriously variable as between countries, and ". . . . their application to a small number of road construction sites without prior testing" must raise serious questions about the validity of the conclusions. Indeed.

Moreover this study also treats 'its' problems from the narrowest perspective. Not even employment in maintenance is considered, let alone linkage effects to supplier industries or potential influences on the development of more labour-intensive technologies. The trouble is that without consideration of these issues it is misleading to draw any conclusions.

The ultimate conclusion actually reached is that the net subsidy (financial cost) per full-year equivalent job created is Rls 40,000 or Rls 56,000 (67.50 Rls=$1 US). These very high figures do not seem to give pause to the analysts who press on to tell us that this is an option so long as the Government has the necessary commitment. They even point out that this figure compares favourably with the average cost of creating one job in the economy, but these costs are hardly comparable. The latter is the cost of creating one job which will contribute to production. The former is the additional cost for an alternative which produces no additional output. When the cost of this subsidy exceeds the annual gross wage paid to a worker earning the average unskilled wage and working eight hours a day, six days a week and 52 weeks a year, the reasoning behind this guarded recommendation is not at all clear. Why would it not be preferable to channel this money into agriculture to assist the small farmers who would otherwise move to the road sites, to improve their productivity and to alleviate their poverty directly and more permanently. In any case the unreality and the obviousness of the entire discussion appears very clearly in the last couple of pages where the source of the subsidy is finally considered. Not surprisingly it is said that "social saving in road construction would be maximised . . . . if the full amount of the subsidy were removed by reducing current consumption of the modern sector (minimum wage earners too?) without affecting investment. However, it is realistic to assume that in the short term at least, the Government will be reluctant to finance the subsidy by recourse to new taxes. This implies diverting finances from existing low priority areas or using Government windfall gains. In either event it will be necessary to assess the social opportunity costs of the use of such funds carefully." Surely this conclusion could have been reached much more directly from the assumption (highly unrealistic) that consumption by the wealthy is not valued by the Government and that some of it should thus be channelled to employment creation—preferably involving some net increase in output.

Furthermore, the conclusion of the study according to its own evidence ought to be quite different. Namely, that when social costs and benefits are considered very narrowly with respect to road construction as such, the switch to labour-intensive methods appears to be relatively costly, and is in any case probably impossible because of the structure of the industry. (This latter discussion is easily the most interesting of the book). On this basis there is little doubt that better uses could be made of such funds. However, the entire question must hinge in the end on the wider impact which such a switch might have.

On balance this study does not make its case that the way in which it treats choices is an objective ordering of alternatives, that the quantification in which it engages is a useful basis for making the choice it addresses, or that the choice it derives from that data is optimal.

In conclusion one might say that if the World Employment Programme wants to get at the heart of the problem it is studying, it will need to commission studies with a wider analytical perspective than that used in these examples. The most depressing example of just how mystifying such blinkered analysis can be occurs in **Roads and Redistribution** when the alternative of a broad mobilization of rural self-help labour is dismissed on the grounds that this would not constitute redistribution. Worst of all, within the constraints accepted by the study, this is true. To be sure, it is no accident that most studies do not pull those strings which might have unravelled the puzzle. But so long as the mass mobilization of labour can be so lightly dismissed, and so long as increasing people's productivity increases poverty, solutions to the 'employment problem' will come only when the last shall be first and pigs shall fly in the sky.