TECHNOLOGICAL CHANGE
AND YOUTH EMPLOYMENT
PROSPECTS:
THE WESTERN AUSTRALIAN CASE

Garry Rodan
Lecturer
School of Social Inquiry
Murdoch University

This article was based on a survey of manufacturing and service companies in WA. The purpose of the survey was to ascertain the contribution of technological processes to economic growth and employment, and especially the implications of such developments for youth. The article discusses the prospects and the problems for youth employment in the prevailing pattern of technological change in Australia.

Introduction

The problem of high youth unemployment has long been recognised as one of considerable political importance by Australia’s major parties. Successive governments have supported a range of costly schemes to provide temporary employment and training for youth. The current Federal government’s attempted introduction of traineeships, and more generally its Priority One program, shows its concern for the problem.

Of the various factors influencing employment prospects, one of the least understood is technological change. There is no disagreement amongst those studying technological change that, one way or the other, the impact of technological change on employment will be even more drastic in the future than has already been the case. It is therefore imperative that policy-makers develop an appreciation of the pattern of technological change and its determinants. This would not only inform training programs geared towards unemployed youth, but make a major contribution to the development of a much-needed, long term economic plan and strategy for employment creation, to which such programs must be linked.

How then should we approach the question of technological change and its implications for youth employment? What sorts of problems and prospects for youth employment are associated with the prevailing pattern of technological change in Australia? Drawing on research conducted into the Western Australian case, attention will be focused on findings which suggest areas fruitful to a more complete answer to such questions. In particular, certain features of the private sector’s conception and application of technology, as well as the associated perception of labour force requirements, contains significant implications for any economic strategy concerned with employment generation.

Technology, Industry and Employment

It is not the intention here to examine the detail and nature of the deteriorating employment position of youth in general over the last decade and a half. The fact of this deterioration is clear enough in Table 1 and the causes of this pattern are adequately discussed elsewhere (Department of Employment and Training, Western Australia, 1985).

The discussion below focuses on the results of a survey of Western Australian companies in both service and manufacturing sectors. The survey, conducted in late 1985, concentrated on those companies most advanced in the adoption of modern technological processes in their respective industries (Finn, 1984). The assumption behind this was that the experiences of these companies would tend to mirror the future technological direction of other companies. The purpose of the survey was to ascertain the contribution of technological processes to economic growth and employment, and especially the implications of such developments for youth.

Companies surveyed in the service sector belonged to the banking and finance, hospitality and retail industries. These will be discussed separately before drawing out some of the themes pertaining to the sector as a whole.

The Bulletin of the National Clearinghouse for Youth Studies
bling of their workforces in the last ten years — much of it taken up in part-time positions occupied by women aged between 25 and 35 years. Significantly though, the expansion in management and professional staff was far greater than the growth in supervisory and clerical positions. Teenagers comprised approximately 1 per cent of the total workforce of the surveyed companies but were heavily concentrated in clerical positions. Increasingly, however, the formal educational prerequisites demanded for such jobs have risen. Beyond these opportunities, respondents felt that the main avenue for young people to enter the industry in the future would be through the attainment of formal computing and systems training and keyboard skills.

Responses from the hospitality industry revealed less dominant themes. Some points can nevertheless be made. Employment levels have changed little in the last decade, even though during the last five years computerisation has been systematically introduced. Such technological developments, however, have tended to improve information flow and a range of customer services rather than displace labour. This trend is projected to continue. In contrast with banking and finance there have been disproportionate gains in part-time employment, but this has always been high at around 35 per cent. Such positions are increasingly going to university and other tertiary students. Comments about teenage employees, who comprised roughly 10 per cent of the full-time positions in surveyed companies, were decidedly negative. The largest single number of these people is employed as apprentice chefs, others in semi-skilled jobs in the hotels, restaurants and stores.

Technological change in the retail industry has led to quite dramatic re-organisations of work processes and employment in the last decade. As early as 1980, The Committee of Inquiry into Technological Change in Australia identified five main forms of technology responsible for significant changes in the retail (and wholesale) industry: computers employed to enhance inventory control and re-ordering; computer controlled conveyor stacking-retrieving systems; microfilms and microfiche stock records, electronic product coding and scanning; and electronic cash registers, point-of-sale terminals and weighing devices (Myers, 1980). So fast is the pace of technological change that since the committee’s report was submitted, another two important innovations have occurred. The first is the introduction of electronic funds transfer at the point-of-sale (EFTPOS). The second is the introduction of view-data or computer network based communications and computing systems. As Stewart Carter has pointed out, a number of accelerated structural developments in this industry in Australia, not the least of which is the acute concentration and centralisation of ownership and control, could provide the conditions for a qualitatively new phase of technological change. The prospect of genuine retail automation is considered real, that is, the mechanisation of the complete production or distribution process so that all aspects are linked without human intervention needed to control the process. This leads Carter to argue that future employment projections cannot be extrapolated from past patterns (Carter, 1985).

Future Employment Prospects

Reflecting much of the above, respondent companies were most unsure about future directions and possible employment prospects. Given that all respondent companies belonged to either national or international groups, some of which were undergoing ownership changes at the time of the survey, it was understandably easier for respondents to talk generally about the industry than their own company’s projections. Decisions about forms of technology tended to be taken by head-quarters elsewhere.

Companies surveyed in the retail industry included department stores, electronic goods retailers, fast food chains and supermarkets. The highest percentages of youth employment were located in the fast food and supermarket areas, the bulk of which was part-time work and casual, and female. There was just five per cent youth employment in electronics goods retail, partly because specialised product knowledge is required to be an effective salesperson. None of the respondents demonstrated any real foresight about the likely changes in personnel in the future as a result of technological developments. Significantly though, a majority of respondents indicated they saw serious obstacles to the expansion of youth employment due to the associated wage costs. This of course appears incongruous with the levelling of productivity in the workforce with automation is continually bringing about in the areas occupied by youth.

The survey of the manufacturing sector incorporated such industries as food processing and beverage, furniture, electronics, shipbuilding, foundries, agricultural equipment, mining equipment and fabricated structural steel. It is not necessary to detail the findings of each industry, however, to draw out the central points to emerge. Indeed, with little exception, the results showed a technologically progressive electronics industry on the one hand and on the other, a far more defensive application of technology by the remaining industries.

Recently completed studies of the Western Australian electronics industry have already provided indications of the strength, problems and prospects of the industry. The survey confirmed some of this understanding, notably the importance of innovation in maintaining product advantage as the basis of competitiveness. Thus, all surveyed firms were heavily involved in research and development (R & D). A sound knowledge of the technology enacting in production was essential to good management, and it was also emphasised that this is not in plentiful supply.

In addition to these findings, however, the survey revealed some interesting points about the workforce and the perception of opportunities for youth in the future:

1 Although most jobs in the industry have traditionally required a high level of skills, the maturation of the industry over the last 10 years has necessitated a greater degree of formal training, notably tertiary qualifications, to gain entry into the workforce. This is not a form of credentialism. Rather, the more sophisticated nature of the technology now employed has meant that even in the assembly positions some product knowledge is a distinct advantage.

2 Very few teenagers are employed by the sample companies. Where they are employed they are in the least skilled positions, notably in assembly, as switchboard operators or general factory hands. There would appear to be little scope for significant expansion of semi-skilled positions since those companies which employed apprentices would, in the event of considerably higher production volume, find pick-and-place robots a cost-effective substitute for labour. Almost by definition teenagers are ruled out of the skilled jobs in this industry because of the pre-requisite of tertiary qualifications.

3 In terms of existing skill shortages, there was a consensus that suitable marketing expertise was scarcest. With greater market expansion opportunities lying outside Australia, especially in Asia, this could prove a serious bottleneck. Two of the respondents also period-ically experienced difficulty in finding engineers. Again, the specialised nature of the individual company’s operations help explain this.

4 In projecting possible skill shortages as a result of technological developments within companies, only one respondent identified a particular shortfall. This related to Very Large Scale Integration (VLSI) technology. In-house courses were being planned to meet this need. Generally, though, there was concern that any dramatic change in technology might expose the lack of depth, though not quality, of the technical workforce available in Western Australia in electronics.

As with previous work, the above findings suggest that what changes in skill requirements are likely to occur in the industry will, for the most part, involve further upgrading. Unskilled youth would therefore, have even less chance of attaining a share of future jobs. However, more needs to be understood about the indirect effects of the industry in generating jobs, and to what extent this has implications for youth in particular.

Compared with the electronics industry, the rest of the manufacturing sector respondents indicated new technology as a defensive, rather than offensive measure. The overwhelming purpose is to reduce the costs of the production process to maintain or enhance competitiveness. Significantly, this enhanced competitiveness almost certainly is restricted to the Western Australian and Australian market. It is arrived at by being quicker to incorporate overseas technological developments than local competitors. There appears to be little or no appreciation of, or commitment to, the development of technology to create new products as a means of expanding production and increasing competitiveness. This
was underlined by the generally modest resources devoted to research and development by the surveyed companies which are, after all, the most progressive in Western Australia.

This finding is in line with the results of a 1985 survey carried out by PA Technology, a subsidiary of the British consulting firm (Drury, 1985). PA Technology surveyed chief executives of Australia, USA, West Germany, Britain and Japan. Amongst the survey findings were the following points:

1. Australian manufacturing companies underestimate the strategic importance of technological investment and resources by comparison with their competitors overseas.
2. Hence, there is little commitment to research and development.
3. Australian executives lack the concern about shortages of creative, qualified staff of Japanese management.

This third point is echoed in the general results to the question in the survey about projected skilled labour shortages. Few respondents saw any emerging shortfalls, possibly a function of the reactive rather than innovative view of technological investment. It is also significant that only in one case did a respondent attribute importance to the harnessing of computerisation or advanced technology as a management skill. There was a distinct absence of responses drawing on the significance of technology as a process capable of stimulating new imaginative ways of realising objectives.

Alongside these findings, the survey found that business often had a negative perception of teenage employees. Youth were believed to exhibit poor work attitudes and, to a lesser extent, unstable work practices. Few constructive ideas emerged. Rather, there was a tendency to make suggestions to improve the attractiveness of prospective employees in ways which were unrelated to the perceived barriers to employment which respondents had already identified. For example, respondents urged improvements in literary and numeracy skills to promote youth employment, yet had elsewhere explained how technological changes in their industry had reduced the need for such skills.

**Conclusions**

What conclusion then can we draw from the above discussion of the survey of service and manufacturing companies? Essentially there are two major findings. First, because most respondents had no clear idea of technological direction, projected skill requirements are largely vague. Where perceived technological developments do suggest expanded employment opportunities, such as in banking and finance and electronics, these are likely to favour formally qualified and skilled persons. Almost by definition this prejudices early school leavers.

Second, as a process capable of stimulating new growth opportunities and, therefore, potential employment, technology is grossly underexploited. The tendency, most prevalent in the manufacturing sector, is for companies to respond to innovations by overseas competition. The implications of such findings, even taking into account the limitations of such a sample survey, are serious for strategies to promote either employment in general or youth employment in particular.

If we assume that economic growth is a fundamental prerequisite for employment, then quite clearly an upgrading of the technological base is desperately needed. Manpower development is but one, though a fundamental, component of such upgrading. It is in this context that youth training programs could be appropriate. From what we have seen above, however, without a commensurate overhaul of the private sector, there would be little point in such initiatives.

**References**


