
Economic Perspective 1

UNION RECOGNITION IN SCOTTISH ELECTRONICS

by

Alan Sproull, Department of Economics, Glasgow College of Technology
John MacInnes, Department of Social & Economic Research, University of Glasgow

"More people in Scotland are now employed in the electronics industry than in heavy engineering, steel and coalmining. Scotland has somehow got its act together... (and) we want that magic to be spread more widely throughout the country."

Kenneth Baker - former Minister of Information Technology, February 1984 (1)

This quote illustrates the widely held view that the electronics industry will be a key engine of growth in the next 25 to 50 years. The government clearly sees the industry as a major source of wealth and employment creation which will play an increasingly important role in the Scottish economy as oil declines in the 1990s.

The priority given by government to the industry is reflected in the extensive promotional activity undertaken by the Scottish Development Agency (SDA) and Locate in Scotland (LIS). The latter is an umbrella organisation set up in 1981 to coordinate efforts to promote Scotland as an industrial location. Significantly, the main focus of LIS activity has been the American market and the target market segments are electronics, energy and health care.

In promoting Scotland as a location for foreign electronics firms, stress has been placed on the size of the existing community of electronics companies, the broadening range of high quality electronics sub-contract and support services, the close links between the

industry and Scottish universities and colleges, the package of financial incentives available, and a stable skilled labour force with "positive" attitudes towards incoming electronics companies.

The stress given to this last factor in promotional activity partly reflects the industry's need for specialised staff, graduates etc. and partly the fading but widely held image of Scotland as an area of labour radicalism suffering frequently from industrial unrest.

Much is made by the SDA, LIS and government spokesmen of the relatively low level of unionised plants in the industry, of the low strike record, and of the "progressive" and positive attitudes of unions in those plants in which they are recognised.(2) In these attempts to attract (especially) US companies the SDA adopts the attitude that as these organisations appear to prefer non-union arrangements they should be advised how to follow this route. (3) Whether the image of Scottish electronics promoted by the SDA has influenced the development of the industry and attracted foreign investment is difficult to say. Companies rarely admit to anti-unionism, or see their policies as non-union, rather they speak of 'dealing directly with the workforce' or lack of workforce demand for union services.

This image of electronics as a 'sunrise' fast-growing, hi-tech, low unionised industry is pervasive in the media. Even organisations that see major benefits in union recognition, such as Scottish Education for Action and Development,

recently estimated that "perhaps 30 per cent" of the total Scottish electronics labour force is unionised (4) a past president of the STUC put the figure at "well below 50 per cent" (5) and speaking at the start of recruitment campaigns in 1985 ASTMS officials commented that "ironically the electronics industry, one of Britain's few growth areas, has been virtually untapped by the unions.... the crucial fact is there has been very little union organisation". (6)

The development of this image of a poorly organised industry with a "non-union culture" has undoubtedly been stimulated by the existence of a number of well-known American multi-national enterprises (MNEs) which have very actively and publicly resisted unionisation. These companies operate a variety of personnel policies including employee share ownership schemes, extensive fringe benefits, payment by individual performance, provision of staff facilities, social affairs and communications systems which inhibit union organisation. The companies argue that they simply render unions redundant by providing superior employment conditions, while union officials recruiting in the industry brand these policies a form of sophisticated indoctrination.

The origin of this anti-union stance can be traced to a strategy devised in the mid-1950s by a group of young technical entrepreneurs, dubbed the 'Fairchild 8', who founded Fairchild's semiconductor division in the original 'silicon valley' in California. They sought to avoid outside control of their business, whether from government, union or banks. Their attitude is summed up by Philip Petersen, a member of the American Electronics Association's labour relations committee. He is on record as stating "we are united in believing there is no place for unions in this industry. We will resist a (unionisation) campaign and we see no need for third party intervention with our employees." (7)

In some sections of the industry non-unionism is total worldwide. The Semiconductor Industry Association, the chip manufacturers trade association whose 52 members account for 95% of US output have no union contracts. None of the five US chip makers in Scotland, Motorola,

National Semi, Hughes, General Instruments or Burr-Brown are unionised. In computer manufacture the US companies such as IBM, Hewlett Packard and Wang are non-union. As a result the impression has grown up that unionism in Scottish electronics is weak, and that this may represent part of a wider problem for unions of adapting to new technologies, new industries and new 'greenfield' plants.

The present government's views on the workings of labour and product markets asserts that only flexible markets, responsive to changes in technology and product demand can provide the growth in employment and wealth creation so necessary to the economic regeneration of the UK. Unions are identified as one of the main barriers to such flexibility and much of the employment legislation introduced since 1979 has been geared to reducing the power and influence of the unions. It is therefore unsurprising that government ministers cite the electronics industry as an example of the way forward industrially.

But how realistic is the image of low unionisation in the Scottish electronics industry? Is the union's apparent failure in electronics symptomatic of an inability to keep pace with economic change and a portent of future union decline? Can the record of electronics output and employment be partly explained by its flexibility and responsiveness free from the "constraints" imposed by union recognition?

In an article in the February 1987 **Commentary** we showed that the employment growth of electronics in Scotland was not as strong as many commentators have assumed. This paper attempts to throw some light on union organisation based on the results of a survey of every electronics company in Scotland which employed 11 or more people in 1984. Before the results are presented and conclusions drawn it is necessary to briefly outline the characteristics of the industry.

Electronics in Scotland

Tables 1 and 2 show the distribution of employment in the industry by subsector and the ownership of the industry by

country of origin. It can be seen that over 75 per cent of the employees in the industry are employed in the 4 largest product areas: Defence Electronics, Information Systems, Industrial, Commercial and Telecommunications and Components (including the production of semi-conductors). Despite the fact that the four product areas are currently of almost equal importance in employment terms, popular analysis and discussion of the industry has focused mostly on semi-conductor manufacture, an activity which accounts for approximately 10 per cent of employment. As the production of integrated circuits lies at the heart of the industry the attention devoted to developments in semi-conductor production is understandable, and to some extent justified, but it is far from being typical of the industry as a whole. A main feature of the sector is that it is entirely foreign owned. Five American MNEs, Motorola, National Semiconductor, General Instruments, Hughes Micro-electronics and Burr-Brown supply 90 per cent of the employment, with the Japanese firm NEC supplying the remainder. Each of these US corporations adopts a strongly anti-union stance in all operations worldwide and they have successfully resisted recruitment campaigns and recognition claims in Scotland and abroad. As noted above they all adopt progressive personnel policies which remove many of the traditional causes of shop-floor friction, and by closely monitoring local labour market terms they offer competitive wages and conditions.

Table 1 The Scottish electronics industry: employment by sector

Sector	Number employed	% employed
Defence electronics	9,000	22
Industrial, commercial and telecomms	8,950	21
Information systems	9,300	22
Semiconductors	4,600	11)
Other components	5,200	12)
Sub contract	3,700	9
Consumer	1,250	3
Total	42,000	100

Source: SDA (1985) "Industry Profile"

While similar conditions apply in many establishments in other sectors of the industry there is no evidence to suggest that such managerial strategies are typical or representative. The formation of employment policies and the form of employee representation adopted by firms are influenced by both the general characteristics of the industry and the special characteristics of the firm.

Table 2 Number of plants in electronics in Scotland in 1984 : by country of ownership

Country of Ownership	Electronic plants* Number	%
U S A	46	22
Netherlands	7	3
Rest of world	8	4
Total overseas owned	61	29
UK	149	71
Total	210	100

* Includes only plants with over 10 employees

The survey of recognition in Scottish electronics plants

(a) Methodology

A short self-completion questionnaire was sent to the 213 firms with more than 10 employees in the SDA's 1984 published list of electronics companies in Scotland. 83 usable returns were received representing almost two thirds of total employment. Response was lower from foreign-owned companies, so that while the Industry Department for Scotland estimated that such companies accounted for 49% of employment in 1984, they accounted for only 32% of the survey respondents employment. Response was also higher from larger establishments, as one might expect: the average employment size of

our respondents was 357 employees, while the IDS figure is 218 (8). Generally the fit between the characteristics of the survey respondents and the published data on the industry was close.

(b) Union recognition

Of the 83 establishments responding to the survey 79 supplied information on union recognition. Table 3 gives the main results.

Table 3 Union recognition (survey respondents)

	No. of estabts.	Associated employment	% of employees
Recognition for manual & staff employees	27	18,679	66
Recognition for manual employees	8	1,198	4
Recognition for staff employees only	3	270	1
No trade union recognised	41	8,070	29
No information	4	1,436	-

While the majority of establishments did not recognise unions, recognition was strongly correlated with employment size, so that over 70 per cent of employment was in the plants which recognised unions. Recognition usually covered both staff and manual employees. The most widely recognised unions were the AUEW, TASS, EEPTU, ASTMS and TGWU. Most groups had more than one union. This showed that multi-unionism was widespread. Only one plant recognised the EEPTU for both staff and manual employees. One plant recognised MATSA for both groups and four plants, employing about 650, recognised TASS in this way. Three plants, employing about 200 workers recognised the EEPTU for manuals and no union for staff employees, and four plants employing about 700 workers recognised only the AUEW for manual workers. Unionisation in Scottish electronics is therefore much higher than has usually been assumed and this is not

the result of the widespread incidence of single union agreements or of new style agreements such as those used by the EEPTU in the Welsh electronics industry.

(c) Patterns of recognition

Initial results showed that recognition varied with size of establishment, ownership, age and location. No establishment with 25 employees or less recognised unions, but over two thirds of those with 100 employees or more did so. Just over a third of both Scottish and foreign owned establishments had recognition, but whereas in Scottish plants the relationship with size remained strong, so that over a half of employment was in unionised plants, there was a significant number of large American non-union plants, so that nearly three quarters of foreign-owned employment was in non-union plants. Table 4 shows the relationship between age, ownership and recognition. The 1960s saw a massive influx of jobs in US-owned establishments, virtually none of which recognised unions. This explains the low recognition figure for establishments opened then. Recognition in foreign owned plants has continued to be low, but this does not explain the fall in the coverage of recognition in plants opened in the 1970s and 80s. The explanation here is a fall in the coverage of recognition in Scottish owned and Rest of UK plants which in turn is associated with an increase in the number of small plants in these ownership groups. There were substantial differences in the employment growth over the previous three years of establishments with and without recognition. The growth rate for unorganised plants at 90 per cent over the 3 years 1981-84 was some three times that for those where recognition existed. But since recognition was closely associated with several other factors which strongly influence growth such as size, age, ownership the differences in growth attributable to recognition itself were not clear. Recognition was also lower in new towns, but this was also the location of many of the types of establishments which one would expect to be non-union because of their size, ownership or age. In order to untangle these effects we used logit analysis - a type of statistical analysis that helps distinguish the strengths of each of the overlapping factors that appeared relevant to recognition.

Table 4 Recognition by age and ownership of plant

	Scottish		Rest of UK		Foreign	
	% jobs in ests. with recog.	Jobs no.	% jobs in ests. with recog.	Jobs no.	% jobs in ests. with recog.	Jobs no.
Before 1950	80.9	173	100.0	10,424	100.0	720
1950-59	100.0	650	100.0	1,175	100.0	577
1960-69	9.0	379	90.2	2,551	0.6	5,497
1970-79	46.2	1,136	68.0	857	91.2	845
1980-84	41.3	1,087	87.0	1,437	0.0	182

(d) Factors affecting recognition in the surveyed plants

Work by Daniel & Millward (9) on data from the Workplace Industrial Relations Survey of 2,000 workplaces found that recognition varied with the size of the establishment, the size of the enterprise and the proportion of women working in the establishment. In addition to these general factors it has been widely assumed in the public debate on Scottish electronics that the age and nationality of ownership of a plant also influence the chances of recognition. We tested for ownership, age, size, the proportion of part-timers in the workforce, the proportion of women in the workforce and the proportion of employees on staff conditions. The results indicated that only two factors from this list had a significant impact (at the 5% level): the size of the establishment and the proportion of part-timers. Other things being equal the larger the size of an establishment the greater the probability that unions will be recognised; and the higher the proportion of part-timers in the workforce the lower the probability of union recognition.

Due to the very large overlap between the percentage of part-time employees and the percentage of female employees (over 85%

of part-timers are female) we tested the impact of these two factors separately. Our results confirm those from the 1984 Workplace Industrial Relations Survey, (10) that the percentage of part-timers is more important than the percentage of women in influencing the chances of unions being recognised.

The importance of size is unsurprising. It is a result found in all UK studies on the determinants of union recognition. The larger the establishment the lower is the likelihood of employees being treated individually in the determination of their wages and conditions. They tend to be treated as members of groups with little scope for the modification of decisions to take account of specific individual circumstances. Given this situation employees are more likely to come to the conclusion that the only way to influence the nature of decisions affecting them is to bargain collectively rather than individually. Thus the demand for union representation is likely to be greater in larger establishments. Conversely employers in large organisations are more likely to value the role unions can play as a collective voice of employees' interests, objectives and grievances.

The response to this demand by unions is also affected by the size of the organisation. To the union the economics of recruiting and servicing members is crucially linked to the size of the bargaining unit. The larger the number of members in a single bargaining unit (at one or more establishments) the lower is the per capita cost involved and the greater is the likelihood of sufficient bargaining power to allow effective representation. Thus the larger is the establishment the more likely it is that employees will seek collective representation and the more likely it is that unions will be keen to provide such representation.

The negative relationship between the proportion of part-time employees and likelihood of union recognition is less clear cut. A number of possible explanations can be offered. Part-time workers have a higher turnover rate than

full timers; they are more likely to work unsocial hours and split shifts and may be less aware of the benefits that arise from union membership. These factors make it more difficult for unions to recruit and service part-time members, thus if a union is recognised in a plant it may resist the growth of part-time employment leading to lower part-time work in unionised plants. It is also possible that a high proportion of part-timers is indicative of a style of management that seeks maximum flexibility via the use of peripheral labour forms (such as temps, part-timers and self-employed) and is also anti-union for that reason. However the more likely reason is that a high percentage of part-timers reflects the employment policies pursued in particular sectors of the industry, such as chip manufacture, which have been traditionally anti-union.

Union recognition and employment change

One of the most striking results that emerged from the survey was the difference in the rate of employment growth reported by unionised and non-unionised establishments. To see whether recognition was an independent factor in employment growth regression analysis was conducted to examine the relationship between employment growth and establishment characteristics available. These were age, ownership, size, proportion of part-timers, proportion of employees on staff conditions, proportion of females in the labour force and whether the establishment recognised unions. None of these factors proved to be significant (at the 5% level) in affecting employment growth.

Again, this is not a surprising result. The extent to which an establishment increases its labour force is mainly determined by any technical change it introduces and the buoyancy of the market for its products. The economic environment facing establishments in Scottish electronics varied substantially from one sector of the industry to another. For example, the market facing the defence sector is determined almost exclusively by public expenditure policy as it affects MOD spending. The market facing the micro chip manufacturers is

influenced by technical change which allows the incorporation of their products into an ever wider range of goods. The market facing producers of consumer electronics goods is heavily influenced by the sterling exchange rate as it affects the price competitiveness of imported rival products, and so on. The economic environment is the key determinant of employment growth and whether an establishment is unionised or not appears to be largely irrelevant.

Conclusions

The most important finding in the study is that low unionisation in Scottish electronics is a myth. According to our survey, seven out of ten electronics workers in Scotland work in factories and offices where unions are recognised. As we noted above, foreign firms were slightly under-represented in our respondents and Rest of UK firms slightly over-represented. This is likely to mean that the overall figure for union recognition is slightly below our survey result. However, even if every firm which did not reply to our survey was non-union, (a proposition unsupported by our secondary information on non-respondent firms) 50 percent of the workers in Scottish electronics would still work in plants with recognition. In turn this finding reflects the complexity of 'sunrise' industry which the survey has highlighted. Electronics is not all new, not all private sector, not all high tech and certainly not all small businesses. In Scotland it dates back to the Second World War. The public sector, through direct intervention in the early days and through defence contracts and regional policy today, has been vital for its development. Small businesses do exist in Scottish electronics, but the industry is dominated by large MNE's and large plants.

The results suggest that the semiconductor sector of the industry is indeed non-unionised, and that only a minority of workers in US owned plants are unionised, but what must not be done is to confuse these two sectors of the industry, important as they are, with the industry as a whole. Defence electronics in particular is heavily organised. It might

be argued that since it is this older sector of electronics that is best organised, and that this in turn may reflect its relationship to public sector contracts, that the relationship between high technology sunrise industry and non-unionism stands. Against this, two points can be made. The first is that there is no clear trend for recognition over time: the 1960s was by far the worst period for the unions and the extent of recognition has increased strongly since then, albeit not to the very high levels found in older plants. Secondly, the presence of unions in the defence sector also places the unions in the centre of high technology, at least as measured by emphasis on research and development, or the number or percentage of graduates employed.

The survey also suggests that union recognition in electronics is related not just to size but also to management style both in particular sectors and in particular periods or waves of investment. In other words high levels of recognition now do not necessarily imply continued high levels in the future. It could be that if investment (most of it from overseas) increases, then the non-union sector in Scottish electronics will grow. However, to predict this on the basis of reports of the arrival of non-union firms would be to ignore the less public but no less real growth of unionised employment in Scottish electronics. In fact it would be making the same mistaken assumption that has given rise to the myth of low unionisation in the past: that the activities of a small number of high profile foreign companies in particular sectors of the industry are typical of the industry as a whole.

Readers interested in further details of our analysis, including the full statistical data on which this article is based, can find these in our research paper **Union Recognition in the Electronics Industry in Scotland** available from the Centre for Research in Industrial Democracy and Participation, University of Glasgow and in a forthcoming Research Note in the **British Journal of Industrial Relations**.

Notes and References

1. Quoted in **Silicon Glen** by A Hargrave, Mainstream Publishers, 1985. The claim in the quote is not in fact accurate. In 1983/4 employment in shipbuilding was 29,000, coal 26,000 and steel 19,500. (J R Firn and D Roberts) "High Technology Industries" in **Industry, Policy and the Scottish Economy** edited by N Hood and S Young, Edinburgh University Press, 1984.
2. "Electronics in Scotland. Industry Profits". Locate in Scotland 1984 **Labour Performance of US Plants in Scotland**, SDA, 1984.
3. Glasgow Herald, 25/7/85.
4. "Electronics and Development" Scottish Education for Action and Development p20, 1985.
5. Quoted in A Hargrave, Mainstream Publishers, op.cit.
6. Scotsman, 10/5/85
7. Quoted in **The Guardian**, 7 July 1983.
8. Industry Department Scotland (1986) Employment in the Scottish Electronics Industry, 1978-85, **Statistical Bulletin** No C2.1
9. Daniel W W and Millward N (1983) **Workplace Industrial Relations in Britain**, Heinemann.
10. Millward N and Stevens M (1986) **British Workplace Industrial Relations 1980-84**, Gower.