

## The growth of the teleservices sector in Ireland

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### **Abstract**

The movement of routine back office activities from the central business districts of metropolitan regions in advanced economies to remote locations is leading to a distinctive global division of labour in office employment. While facilitated by the development of information and communication technologies, this process of relocation is primarily driven by the desire to reduce operating costs, mainly by moving to sources of cheap female workers. This reflects a classic gender segmentation process in patriarchal societies whereby back office work is mainly done by women and, accordingly, involves relatively low levels of remuneration. This provides direct parallels with the offshoring of routine manufacturing work associated with the new international division of labour. Ireland has been to the forefront in acting as a host for internationally-mobile routine office work, initially involving mainly data processing and, more recently, teleservices. As elsewhere, teleservices employment in Ireland is characterized by a combination of female predominance, low pay, difficult working conditions and high turnover rates. However, the Irish teleservices sector is unusual in its foreign language requirement, the high education levels of workers and its concentration in a prosperous metropolitan location. The resultant labour shortages, combined with growing use of Internet-based business-to-consumer transactions, are likely to place the sustainability of the sector under increasing pressure. Plans to upgrade the types of back office functions being located in Ireland may pose further challenges for women workers due to male dominance of the higher-level jobs involved.

### **Keywords**

back offices, gender segmentation, teleservices, Ireland

### **INTRODUCTION**

Since the 1960s, there has been a growing tendency towards the spatial separation of routine and non-routine office activities in advanced economies. The former

include not only traditional back office work mainly involving data processing (e.g. payroll, accounting, subscriptions, billing, credit card services, claims processing and word processing) but also those elements of front office work (i.e. involving direct contact with customers and clients) that can be effectively conducted by telephone from remote locations (e.g. information, sales and reservations, and technical support).<sup>1</sup> These 'programming' activities, involving standardized and automated procedures, contrast with higher-level 'orientation and planning' functions, which involve frequent face-to-face contacts with colleagues/customers/clients (Thorngren 1970). While the latter have largely remained located in the central business areas of the major urban centres, routine office functions have been increasingly relocated to more remote places.

Information technology has played a key role in facilitating this relocation process. However, the main driving force behind the process has been the cost savings that relocation makes possible. This paper argues that the predominance of women workers in routine back office employment, and the desire to gain access to suitable reservoirs of cheap female labour, have been of crucial importance in explaining the movement of back office activities to remote locations. This argument is supported by the recent growth in the Republic of Ireland of teleservices functions serving international markets.

The paper begins by examining the rationale for the spatial separation of back and front office activities in advanced economies. This separation is shown to involve increasingly long-distance movement, culminating in the emergence of a global spatial division of labour in office work comparable in some respects to the earlier 'new' international division of labour in manufacturing industry (particularly in terms of the central role played by women workers in both divisions of labour). The paper then focuses particularly on the case of the Republic of Ireland, where an initial phase of inward investment in remote data-processing operations was superseded in the 1990s by the rapid growth of international teleservices activities. The principal characteristics of the teleservices sector in Ireland are outlined, with particular attention being paid to the role of relatively poorly paid, albeit skilled, women workers in the sector. Labour shortages arising from the current Irish economic boom and growing use of the Internet are likely to challenge the future sustainability of the sector in Ireland. However, the Irish government's longer-term aim to replace routine teleservices with more sophisticated back-office functions may pose problems for the maintenance of female employment levels due to the tendency for male workers to predominate in the functions in question.

**LOCATIONAL TRENDS IN BACK OFFICE  
ACTIVITIES**

The movement of routine back office activities out of the central business districts of metropolitan areas has been facilitated by two key technological developments (Castells 1989). The first of these has been the reorganization (mainly in the 1950s and 1960s) of office work, which created a new technical division of labour among office workers – the most central element of which has been the clear distinction between decision-making and routine execution tasks (Greenbaum 1995). The second has been the development of new information technology that allows both a high degree of automation of information processing and the integration of remotely-located back offices with either head offices or the outside world through high-speed and high-volume telecommunications networks (Nelson 1986; Warf 1989; Graham and Marvin 1996).

While the restructuring of office work and the development of information technology have made the spatial separation of routine and non-routine office activities feasible, they do not in themselves explain the large-scale movement of the former from central-city locations, which first appeared in North American cities in the late 1960s (Castells 1989; Graham and Marvin 1996). While a complex set of factors appears to have been involved in this relocation process (Huang 1989; England 1993), two particularly important considerations have been the desire to avoid the high land and other operating costs involved in central locations and the wish to access supplies of female labour residing elsewhere.

Initially, such movement was mainly to the metropolitan suburbs where significant reservoirs of women workers could be found who, for a variety of reasons, were not prepared to commute to the city centre for employment (Kroll 1984; Ross 1985; Nelson 1986; Castells 1989). More recently, there has been a growing tendency to relocate routine office work out of metropolitan regions altogether to more remote locations (Castells 1989; Warf 1989; Howland 1993). Again, the main motivating factor involved has been the search for locations with lower land costs and cheap but diligent labour, prepared to put up with the routine, boring and demanding work that these activities entail. Initially, the tendency was to have a number of such locations serving different regional markets. However, with the growth of high-volume long-distance telecommunications networks and significant reductions in the cost of long-distance telephone calls, many firms have found it more economical to centralize national or even international customer-contact offices in a single location where significant economies of scale can be achieved (Richardson 1994).

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A logical further step in the relocation of back office activities out of the major urban centres has been movement to overseas destinations (Castells 1989; Apte and Mason 1995; Wilson 1995). While the amount of such movement to date has been modest, it does, as Wilson (1995) suggests, provide an important pointer to future trends in the organization of globalized services production. The 'offshoring' of back offices, while facilitated by falling international transport and communications costs, has been mainly motivated by the prospect of accessing labour supplies which are cheaper, more stable (in terms of turnover) and frequently of higher quality (in terms of training, reliability and motivation) than those available in the countries of origin of these overseas movements (Graham and Marvin 1996). With English-language proficiency being a particular requirement for US firms, favoured overseas destinations for back office relocation from the USA have included Caribbean islands such as Jamaica and Barbados as well as India, the Philippines and Ireland.

## THE INTERNATIONAL DIVISION OF LABOUR IN OFFICE WORK

There are clear parallels between the offshoring of back office activities and that of manufacturing branch plants which typified the so-called 'new' international division of labour (Fröbel *et al.* 1980), in that it also involves routine labour-intensive work mainly done by women (Pearson and Mitter 1993). Workers in offshore back offices are, for the most part, young, flexible and female (Wilson 1995), mainly as a consequence of socialization and gender stereotyping processes that steer mostly women towards this type of work. The resulting gender segmentation in turn facilitates the utilization of social control processes similar to those which apply to female-intensive manufacturing operations (Breathnach 1993).

However, a significant difference between the offshoring of back office work and that of manufacturing assembly is that, despite its routine nature, much back-office work requires higher skill levels, including literacy, numeracy and computer skills (Greenbaum 1995). Those functions that involve direct contact with the public (such as sales and technical support) also require interpersonal communications skills. Where such contacts are of an international nature, foreign language proficiency may also be required. However, remuneration levels for back office work are not correspondingly higher. This may be attributed to the general tendency to ascribe low pay levels to what is considered to be 'women's work' (Nelson 1986; Christopherson 1995; Greenbaum 1995) – a reflection, in turn, of the ideological orientations of male-dominated patriarchal society (Hanson and Pratt 1995; Crowley 1997).

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Gender segmentation in office employment originated at a time when a key requirement of secretarial work was (as in clothing and electronics assembly) manual dexterity, a skill that tended to be acquired informally as part of female socialization processes. Similarly, a crucial skill required of teleservice work – good interpersonal communications – also tends to be inculcated informally. In patriarchal societies, formally-acquired skills (which, at least in the past, were mainly a male domain) have generally been ascribed higher remuneration levels than the informally-acquired (and perhaps equally valuable) skills which many women bring to the workplace (Jenson 1989). As Walker (1989: 84) puts it: ‘the skill content of work is raised or demoted ideologically according to the bearer of the job, so that many of the jobs typically held by women [and] branded unskilled may have a considerable skill content’. While the advent of information technology has greatly raised the skill level involved in much modern office work, traditional patterns of gender segmentation and inferior remuneration continue to characterize the sector. Thus, Howland’s (1993: 194) prediction that ‘Today’s suppliers of low-skill, cheap labour will ... be the providers of tomorrow’s high-skill, low-cost labour’ would already appear to have been realized in the realm of back office work.

## INTERNATIONAL BACK OFFICE DEVELOPMENT IN IRELAND

While a relatively recent phenomenon, the creation of an international back office sector in Ireland derives from a general policy of attracting overseas investment, which has been pursued by the Irish government since the late 1950s. The main attractions offered to inward investors have been low corporate taxes, capital and training grants, and the availability of plentiful supplies of cheap but educated labour. Up to the late 1980s, the branch plants set up under this policy tended to be heavily oriented to unskilled manufacturing assembly and packaging operations employing disproportionate numbers of women workers (Breathnach 1988, 1993). Ireland offered foreign firms a large latent reserve labour force arising from traditionally low female participation rates and strongly patriarchal social structures involving a high level of gender stereotyping in relation to education and employment, and a predominance of women in low-paying occupations (Barry 1998; O’Connor, 1998).

In the 1980s, the Irish government – through its overseas investment promotion agency, the Industrial Development Agency (IDA) – began to tap into the growing internationalization of service activities (Daniels 1993; Dicken 1998) by attracting back office functions of overseas (and especially American) firms to

Ireland. A major investment programme in an advanced telecommunications infrastructure gave Ireland an important additional advantage as a location for such functions. According to Apte and Mason (1995), the availability of such an infrastructure and suitable supplies of cheap labour are the two main considerations that influence firms when deciding whether to relocate back offices overseas or not.

### **Data processing activities**

Howland (1993) has pointed out that countries seeking to establish themselves as a base for offshore back office activities will initially tend to pursue relatively low-risk, low-tech operations. Once it has been demonstrated that these can function satisfactorily, the focus will switch to upgrading to higher-skill activities. Thus, in the Irish case, the IDA at first targeted routine data entry and data processing operations, especially of US-based insurance companies.

An added attraction of Ireland as a data-processing location is the ability to take advantage of the time-zone difference between the USA and Ireland in order to access US-based mainframe computers online from Ireland outside US office working hours. Completed insurance claims forms and similar documents are flown into Ireland and forwarded by road to data processing centres.

A number of such projects, typically employing between seventy-five and 100 workers, were established in the 1980s in small towns located within one to two hours drive from Shannon Airport in the west of Ireland, into which insurance claim forms were flown from the USA. These operations bear strong similarities to manufacturing assembly plants, in that the vast majority of workers are both young and female, performing very repetitive work in a tightly controlled environment where the performance of each worker is strictly monitored (Quinlan 1992). However, these activities have been particularly susceptible to technological progress, especially direct data entry on the part of clients, and the development of optical scanning equipment (Christopherson 1995; Wilson 1995; Illeris 1996), and indeed many of them have since ceased operation.

### **Teleservices operations**

In the 1990s, the IDA switched its focus to the attraction of teleservices operations to Ireland. These involve services such as marketing, sales, reservations, information provision, technical support and banking, which are provided to a dispersed customer base by means of telephone. There has been a marked growth in such activities in recent years, motivated partly by increased attention among

firms to customer service and the drive to direct marketing, and partly by the growing availability of low-cost and high-volume long distance telecommunications services (including freephone facilities). This latter factor has also encouraged firms operating in multiple regional and national markets to service these markets from a single location where significant economies of scale can be achieved (Richardson 1994).

The IDA has been specifically targeting firms operating across Europe, which – in response to the general process of European economic integration and standardization – have been rationalizing their teleservices operations into ‘pan-European’ centres. In promoting Ireland as a pan-European call centre location, the IDA has, in addition to the existing grants and tax incentives, been able to offer the cheapest rates in Europe for high-volume international freephone calls as well as high-calibre, flexible bilingual staff with good communications/customer-relations skills at salary levels below those prevailing at most competing locations – in the late 1980s, both clerical and professional wages in Ireland were typically about a half of those prevailing in both the USA and Germany (Apte and Mason 1995). The significance of these attractions may be gauged from the fact that, in Great Britain, according to a *Financial Times* report (5 June 1998), wages and telecommunications account, on average, for 58 per cent and 35 per cent, respectively, of telephone call centre costs.

Such has been the success of this strategy that the IDA claims that, by the end of the 1990s, Ireland had become the leading location for pan-European call centres, with a 30 per cent market share. By the end of 1999, according to information supplied to the author by the IDA, some fifty-nine foreign-owned call centres had been set up in Ireland. The forty-four for which employment data were available employed a total of 9,300 people. While the remainder were, for the most part, small operations, this indicates an overall employment level in the sector of the order of 10,000. US firms accounted for two thirds of all the centres and 85 per cent of employment in those centres for which employment data were available. The six largest centres, each employing 500+ employees, between them accounted for over half (53 per cent) of all employment (an average of 823 each). These were all operated by American firms: four computer companies (Dell, Gateway, Compaq and IBM) along with Xerox and Hertz. The seven centres employing between 200 and 500 accounted for a further 20 per cent. Thus, one quarter of the centres accounted for three quarters of the employment. By contrast, the twenty-one centres that each employed less than 100 persons, between them employed just 12 per cent of the total, or an average of fifty-three each.

In contrast to the earlier phase of investment in data processing operations, the

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great bulk of call centre employment is located in the Dublin area (86 per cent for those centres for which data were available). This disproportionate concentration of call centre employment in the national capital goes against the evidence from the UK and the US, where – as with other forms of back-office work – such centres are more likely to be found in non-metropolitan areas, where land and labour costs are lower (Richardson 1994; Richardson and Marshall 1996). The main reason for Ireland's divergent experience in this respect is the particular requirement for foreign language skills in the type of call centre that has been attracted to Ireland. A study of international call centres conducted in 1996 by Forfás (the Policy Advisory and Coordination Board for Industrial Development) and made available to the author found that 55 per cent of call centre employees used a non-English foreign language in their work; 43 per cent of these, in turn, were themselves foreign nationals. Incoming firms are understandably concerned that employees (especially non-nationals) with the desired levels of linguistic proficiency will not be available in sufficient quantities in smaller urban centres. This applies particularly to the six large call centres identified above, all of which are located in the Dublin area.

## WOMEN WORKERS IN THE TELESERVICES SECTOR

Female employment dominates the Irish call centre sector, accounting (according to the Forfás study) for 70 per cent of all jobs. This is comparable to the 75 per cent figure reported by Richardson and Marshall (1996) for call centres in the Tyne & Wear region of England. Apart from the clerical nature of the work involved, a major reason for the high proportion of female labour is the central importance of foreign language skills in the pan-European call centre sector, as women are much more inclined to take language courses in Irish schools and colleges. At the National University of Ireland, Maynooth, for example, of those taking French and German at degree level in 1997/98, only 8 per cent were male.

Women workers are particularly predominant in the customer care and sales segments of call centre work, but are less prevalent in the technical support segment (Table 1). This reflects the fact that few women take educational courses leading to the technical qualifications required for the latter kind of work. In 1993, only 14 per cent of full-time electrical and electronic engineering undergraduates in Irish universities were female (Higher Education Authority 1997), while in 1984 the corresponding proportion for those completing non-degree higher education courses in these disciplines (leading mainly to qualification as



technicians) was a mere 5 per cent (Wickham and Murray 1987). While call centre workers in customer care and sales do not, strictly speaking, require a higher education qualification, in fact only language graduates tend to have the required level of foreign language proficiency among Irish nationals. As a result, the bulk of call centre workers in all areas of employment have higher education qualifications.

The high level of educational qualification among call centre workers, however, is not reflected in remuneration levels. Table 1 (based on a survey of sixty-eight predominantly foreign-owned teleservices firms employing 3,000 people) shows that entry-level salaries are lowest in the customer services sub-sector, which is overwhelmingly female. In 1998, these ranged from IR£10,000–12,000. This compares with average earnings of industrial workers of about IR£14,000 and salaries well above this for most professional workers. For telesales and technical support, entry-level salaries are about IR£1,000–2,000 higher than this. The highest entry-level salaries are paid in the technical support sub-sector, where the proportion of male workers is highest. A typical gender segmentation process is

Table 1 Subsectors, starting salaries and female presence in the Irish teleservices sector

Customer services reps	Entry level salary (IR£)*	Female(%)
Customer services		
English-speaking	10,000	70
Bilingual	11,000	83
Multilingual	12,000	92
Telesales		
Telesales executives		
English-speaking	12,000	78
Bilingual	14,000	70
Technical support		
1st level English speaking	12,000	23
1st level bilingual	12,500	49
1st level multilingual	13,000	50
2nd level English speaking	12,500	50
2nd level bilingual	16,000	40
2nd level multilingual	16,000	60
3rd level English speaking	14,000	25
3rd level bi-/multilingual	n.a.	n.a.

Notes: \* IR£1 = Stg£0.85; US\$1.40 (August 1998). Source: Computer Staff Recruitment (1998).

apparent here, with forms of work that are predominantly done by women attracting remuneration levels that do not correspond with the skills and qualifications that these women possess.

It is hardly surprising, given these low remuneration levels, that high labour turnover is a distinct feature of the Irish teleservices sector, reaching as high as 37 per cent per annum for telesales workers, 25 per cent for customer services and 17 per cent for technical support (the best-paid and most male-oriented sector) (Computer Staff Recruitment 1998). There are a number of reasons for this high turnover, in addition to low pay levels. One – which has been reported for back office activities everywhere – is the strenuous and pressurized nature of the work (Belt *et al.* undated; Nelson 1986; Garson 1988; Greenbaum 1995). Workers are required to reach certain performance targets, in terms of the number of customers dealt with per hour/day and how well they are dealt with. Performance is monitored assiduously, both quantitatively and by routine listening-in by supervisors. As with the data-processing work reported earlier, this highly-regimented working environment has been likened to that in traditional electronics and clothing factories. This tends to be accentuated by the fact that many call centres are located in factory-type buildings in industrial parks. Given these conditions, the burnout factor is understandably high.

A second additional reason for high labour turnover is the fact that most workers in the sector are young graduates whose career and salary aspirations generally are not met from call-centre work. The Forfás call centre study found that, typically, call centre workers had got their jobs straight from college, partly because in many cases they will already have worked part-time in the sector, partly because getting jobs in the sector is easy, and partly in order to get useful work experience, especially working with information technology. They then move on to other jobs (usually outside the teleservices sector) after a couple of years. An important factor in this context is that, because Ireland is currently going through a sustained economic boom, there are plenty of job opportunities outside the call centre sector. The call centre sector in Ireland thus differs from the pattern of suburban back offices in the USA reported by Nelson (1986), where the workforce tends to consist of older women with limited alternative work options due to their need to stay close to home because of domestic responsibilities, giving rise to a situation where, despite poor pay and working conditions, labour turnover tends to be low.

Many companies are responding to the high turnover problem by offering various incentives for workers to stay. Apart from higher pay, these include a better working environment and better working conditions, financial support for further education and training, heavy investment in social activities, and gimmicks

such as 'jeans days' (usually Fridays) when informal dress is encouraged. Thus, according to a report in *The Irish Times* (17 August 1999), Compaq's call centre in Dublin places great emphasis on social occasions and developing team spirit, including a gym/sauna, sports clubs, social clubs, a cinema and cyber café. Similarly, the Dell call centre organizes barbecues, family days, get-togethers in the canteen, staff and team nights out and social clubs. The latter, while common in work places in the USA itself, also appear to parallel devices such as beauty contests and sports events, frequently used to boost morale and productivity in Third World manufacturing branch plants (Mitter 1986).

### THE FUTURE SUSTAINABILITY OF THE IRISH TELESERVICES SECTOR

The prevalence of poorly-paid work in the Irish teleservices sector stands in marked contrast with the general trend in recent inward investment in Ireland, which has been characterized by much higher skill – and pay – levels than was typical of the previous inward investment period (Breathnach 1998; Duffy *et al.* 1999). This reflects not only a diversification into other, relatively high-skill, services sectors such as financial services and software, but an upgrading of the established manufacturing sectors of electronics, pharmaceuticals and healthcare in terms of increasing sophistication of production and incorporation of research and development functions.

As has also been reported elsewhere (Bowlby and Preston 1985; Bowlby *et al.* 1989), in Ireland the upgrading of manufacturing processes among foreign firms has had a negative impact on levels of female employment through the automation of the routine manual assembly work in which women workers were mainly concentrated (Wickham and Murray 1987). Meanwhile, women are poorly represented among the scientific, engineering and technical workers who comprise a large proportion of the substantial growth in manufacturing employment that has occurred in Ireland in the 1990s. Thus, in 1996, women accounted for just 5.4 per cent of electrical and electronic engineers whose numbers quadrupled in the previous five-year period (*Census of Population 1996*). For electrical/electronic technicians and software engineers, whose numbers also grew strongly in the same period, the female share was one tenth and one fifth, respectively.

It is possible to envisage a similar process of female displacement affecting the teleservices sector. Much attention has been paid to the potential which new technologies offer for replacing the human element in providing teleservices. Speech recognition technology is already sufficiently developed to allow computers to

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replace 'live' agents in handling basic order taking and customer services functions. As this technology is further improved to handle more complex transactions and extended to less widely spoken languages, both the geographical breadth and functional depth of its application will be extended. However, the impact of the Internet on the call centre sector seems likely to be more profound, as growing numbers of consumers move online in conducting business. Already the Internet is widely used in making airline, hotel and car-hire reservations and in purchasing computers. Because it is much cheaper than live telephone calls, Internet use by customers will be actively promoted by firms through such devices as providing standardized answers to the most frequently asked questions, with less routine queries being answered by agents through electronic typing rather than via the telephone. Women teleservices workers would be particularly vulnerable to such developments, since (as with electronics assembly work) the segments of the call centre sector most susceptible to automation are the most routine activities that are mainly done by women.

However, on the basis of over 1,000 interviews with managers in seven countries, Datamonitor, the market analyst, estimates (according to a report in *The Irish Times*, 22 January 2000) that while the Internet will slow down call centre employment growth, it will continue to grow in Europe by 12 per cent per annum over the period 1999–2003. A similar growth rate over the same period is projected for the USA and Canada by the Boyd Company, a firm of corporate location consultants (*The Irish Times*, 18 February 2000). In Europe, according to Datamonitor, the proportion of call centre contacts made by e-mail will grow from 5 per cent to 18 per cent by 2003, but the great majority of contacts will still be made by telephone. Thus, in the short-to-medium term at least, call centre employment appears likely to experience continued vigorous growth.

Teleservices are also liable to relocation: as Wilson (1995) points out, back office operations such as teleservices are potentially very mobile, since they represent very little sunk capital investment (apart from moveable office equipment which has a limited useful life anyway), especially if they are based in rented or leased buildings. There is particular concern in Ireland at the prospect of growing competition emanating from Eastern Europe, where in many countries there is an emerging combination of modern telecommunications facilities and well-educated workers available at pay rates that currently are only a fraction of those being paid in Ireland. With growing labour shortages driving wage inflation in the teleservices sector in Ireland, and a number of Eastern European countries likely to secure European Union membership in the coming decade, the prospect of both existing and future investments being diverted to these countries will become increasingly real.

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However, for the immediate future, the IDA expects Ireland's early-mover advantage to generate a significant share of further growth in call centre employment. And, while recognizing that much teleservices work is relatively poorly paid, the IDA has argued that teleservices projects frequently represent the first investments in Ireland by foreign companies who may then be amenable to subsequent expansion into more sophisticated services activities (such as software and accounts). By the end of 1999, there were twenty-seven such 'shared services' centres (which provide centralized back-office support functions for a number of units in a company) in operation in Ireland, employing 6,000 people (much of this overlapping with call centre employment). According to information supplied by Forfás, 60 per cent of these workers had higher education qualifications, the majority to degree level. However, with women providing just one quarter of Irish accountants and one fifth of software engineers (the two main graduate occupations in existing shared service centres), male workers are likely to be the principal beneficiaries of the further growth of this sector.

## CONCLUSION

This paper has traced the development of an international division of labour in office-based, information-handling, activities in advanced economies, focusing on the spatial separation of back offices from their front office counterparts within large corporations. It has been argued that this spatial division of labour has been mainly driven by the search for new reservoirs of suitably skilled but inexpensive female labour. Just as Ireland's early branch plant economy fitted neatly into the stereotypical pattern associated with the 'new' international division of labour, so in its modern form it has been to the forefront in acting as a leading destination for inward investment in back office activities, particularly teleservices, which employ a preponderance of relatively poorly-paid, albeit skilled, female workers.

However, in the Irish case, there is a growing incongruity between the employment situation in these activities and that in other sectors of recent inward investment where significantly higher remuneration levels apply. In a situation of growing labour shortages, remuneration levels in teleservices will come under growing pressure. Already there is evidence that Dublin's attractiveness as a call centre location has been diminishing, due primarily to rising labour and property prices (Allen 1999). At the same time, the IDA's expectation that call centre work will be augmented (or even replaced) by more sophisticated back office work raises questions regarding how this is likely to impact on female employment. The upgrading of electronics manufacturing in Ireland in the 1990s involved the

widespread replacement of female assembly workers by more highly-skilled male technical workers. It seems likely that the attraction of more sophisticated forms of back office work will similarly exclude women as a result of the continued operation of gender segmentation processes that channel female workers into areas characterized by inferior pay and working conditions.

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## NOTES

- 1 While the term 'back office' strictly speaking refers only to the first type of routine activity identified here (i.e. data processing), it will be used in this paper to refer also to office establishments involved in direct customer contact via telephone.

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