

Lámh Dearg, Lámh Dofheicthe:
Economic Growth and Persistent Unemployment in Ireland

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Abstract

The Irish economy in the 20th century has seen more than its share of downturns, from unsuccessful protectionist policies to a decade-long recession under export-oriented policy in the 1980s. With its economic problems has traditionally come a level of unemployment much higher than its European peers, including pervasive long-term unemployment. The 1990s saw Ireland's economy skyrocket, but the economic miracle dubbed the 'Celtic Tiger' has not brought an end to Ireland's problems of unemployment. Despite active, well-managed employment policy, certain features of the Irish economy prevent the Irish state from resolving the problem of employment: dominance of transnational corporations, small and poorly competitive indigenous industry, overestimation of the magnitude of the 'Celtic Tiger' economy, and the existence of poverty and unemployment traps. Policy recommendations to address these areas are suggested and evaluated.

Lámh Dearg, Lámh Dofheicthe: Economic Growth and Persistent Unemployment in Ireland ¹

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In the past decade, the Republic of Ireland has received great international praise and attention for the rehabilitation of its economy, having gone from an underdeveloped, nearly agricultural state to being the pride of Europe, a ‘Celtic Tiger’ with a skyrocketing Gross Domestic Product (GDP), firmly established in in the European Union and international economies. But while newly-rich Dubliners celebrate their gains in Temple Bar pubs, great numbers of Irish have little to celebrate, living in poverty in the poor parts of Dublin and in the parts of Ireland prosperity never reached. Despite its supposed economic boom, unemployment in Ireland remains its most serious problem; structural and policy features based primarily on its reliance on the international economy has made Irish unemployment levels some of the highest in the European Union. This paper looks beyond the Tiger to determine how Irish unemployment is being sustained, why existing measures are not working, and what needs to be done to begin to remedy it.

Pre–Celtic-Tiger Ireland The history of economic development in Ireland is a disheartening tale. Even prior to its independence from Britain in 1921, Ireland had tried and failed to become self-sufficient often enough to prompt Marx to note that “every time Ireland was about to develop industrially, she was crushed and reconverted into a purely agricultural land” (O’Hearn 1998: 33). For its early industrial history, Ireland was an export-oriented economy serving Great Britain; as Britain became a major industrial power, Ireland was left with its less profitable and cottage industries such as textiles and agriculture, the products of which went directly to Great Britain (O’Hearn 1998: 35).

The newly independent Republic was anxious to develop an economy separate from Great Britain, however, and under de Valera instituted a harsh set of protectionist policies in 1932. In order to force the development of indigenous industry, de Valera’s government imposed heavy tariffs on the import of finished goods and entirely outlawed foreign investment in Irish industry (O’Hearn 1998: 37). Unfortunately, the policy was somewhat short-sighted; it failed to block raw material imports and thus the promised new producers never appeared. Money continued to flow to Great Britain; by 1955, Ireland had seen a

¹The *Lámh Dearg* (Red Hand) is the symbol of the clan O Neill and of the nine counties of Ulster; the *Lámh Dofheicthe* (Invisible Hand) is, of course, that of Adam Smith.

net drop in population due to emigration (Tansey 1998: 33) and an accompanying drop in state funds. Reacting to the unstable economy created by the protectionist measures, the Irish state cut expenditures harshly in 1951, but failed to exempt productive expenditures from the cuts; by 1955, production had dropped by 3%, gross national product (GNP) by 1.3%, and employment by a full 10% (O’Hearn 1998: 38). The seeds of the Irish employment problem had been planted.

As the 1960s approached, Ireland was desperate to find a way to turn the economy around, and took advantage of the opportunity presented by the infusions of American aid in the European Recovery Act, or ‘Marshall Plan’ (O’Hearn 1998: 39). With U.S. aid came a requirement to implement liberalized trade policies, and Ireland rapidly executed a complete policy reversal—what had been an isolated and protectionist import-substituting state had become strongly export-oriented. Pressure from the United States to encourage exports and foreign investment laid the groundwork for the modern Irish economy, and Ireland established an Industrial Development Agency (IDA), as well as An Foras Tionscal (FAS) which provided grants to investors (O’Hearn 1998: 39). By 1957 Ireland had joined the World Bank and IMF; 1965 saw the re-establishment of free trade with Britain, and 1973 brought full membership in the European Economic Community (Tansey 1998: 13). Postured as the entrance point to European markets for non-European firms, the 1970s saw foreign investment rise by 27%, the majority from the American electronics and pharmaceutical industries (O’Hearn 1998: 40).

Ireland’s enthusiastic adoption of neoliberal policy was soon found to be premature. In the early 1980s, the trans-national corporations (TNCs) which brought the boom of the 1970s stopped growing (O’Hearn 1998: 41), undoubtedly in response to economic pressures back home. The Irish economy stagnated, and unemployment rocketed. In the 1970s, suggests Tansey (1998: 13), Ireland had “mortgaged the future to pay for the present,” but the future arrived in the 1980s. By then, imports had taken over Irish markets in nearly every category, and the fledgling indigenous industry was nowhere near robust enough to carry the economy. Despite the booming 1970s, Irish GNP growth from 1960 to 1986 was a meager 2% (O’Hearn 1998: 42). Unemployment had surged to over 20%, one of the highest in the industrialized world (Barry 1991: 91), and nearly half a million Irish emigrated during the decade (O’Hearn 1998: 50). Irish unemployment problems in the past paled beside the recession of the 1980s, a sure reminder that Ireland

had not yet made it into the ranks of developed Europe. As Marx had observed nearly a century previous, the Irish had reached the brink of modernization only to fall back yet again.

The Celtic Tiger As the global economy recovered from the 1980s, investment money began flowing back into Ireland. In 1991, Intel announced that it was considering setting up its European production facilities in Ireland, and the IDA jumped on the opportunity: Intel would come to Ireland, and the Irish state would pay I£70 million of the I£1 billion cost (O’Hearn 1998: 71). There has since been much debate as to whether this was a good deal for Ireland, which I won’t enter into here, but there is no disagreement that this was the beginning of a new era for the Irish economy; Ireland had bought an entrance ticket to the global economy.

With Intel thus established, other TNCs followed. O’Hearn (1998: 71) lists no less than a dozen major American computer firms which followed Intel to Ireland; similar patterns occurred in the pharmaceutical and chemical industries. On 31 August 1994, Ireland’s position was brought to the world’s attention when US investment bank Morgan Stanley published a bullish report on the Irish economy, comparing it to the Asian tiger economies and coining the term ‘Celtic tiger’ (O’Hearn 1998: 1). The first half of the 1990s gave Ireland the fastest growth and lowest borrowing rates in Europe; 1993 saw a 4% rise in GDP, 1994 a 5.3% rise, and 1995 a surprising 7.5% (O’Hearn 1998: 1). The Irish economy was taking off, and transnational corporations were directly responsible for 45% of its growth (O’Hearn 1998: 72) and certainly more through indirect means.

The unemployment problem Yet as I mentioned earlier, none of this exceptional growth has solved Ireland’s unemployment problems. The number of unemployed jumped from around 100 000 to 226 000 in the 1980s (Tansey 1998: 58), and Ireland has experienced difficulty in managing unemployment ever since. The Irish employment problem has three faces: the conventionally unemployed, the long-term unemployed, and the underemployed.

The *conventionally unemployed* are those whose numbers appear on the government registers—that is, those who are out of a job and are actively looking for work. Ireland’s conventional unemployment rate has hovered around 15% for nearly fourteen years (Clark 1998: 23), and is surprisingly nondiscriminatory: women make up two-fifths of the conventionally unemployed, and a full three-quarters are between 25 and 44 years old (Tansey

1998: 59). The equal distribution of conventional unemployment—that little evidence suggests a particular group is receiving the brunt of it—suggests a structural problem.

But conventional unemployment is far from Ireland’s greatest concern. The recession of the 1980s left a firmly-established population of the *long-term unemployed*—those that have been without work for over a year, who have from discouragement stopped actively searching for work, but who do not consider themselves retired. Tansey (1998: xix) calls long-term unemployment “the most serious structural defect of the Irish economy,” and as recently as 1990, the long-term unemployed made up 67% of the Irish jobless (O’Hearn 1998: 108). While these numbers have decreased slightly in the mid-1990s—from 128 200 in 1994 to 86 300 in 1997 (Tansey 1998: 60)—the remaining numbers and the difficulties in reintegrating the long-term unemployed with work makes Tansey’s evaluation of the situation an accurate one.

Merely having a job does not mean a lack of employment problems. Ireland suffers further from *underemployment*, where workers are not employed to the level of productivity that they wish to be and are capable of. Part-time work is the primary form of underemployment when it is used for reasons of efficiency instead of for the convenience of employees (Wickham 1997: 139). From 1990 to 1995—the boom years of the ‘Tiger’ economy—the proportion of part-time work grew by 66%, and in 1995 a fifth of Irish workers had atypical (i.e., not full-time permanent) work arrangements (O’Hearn 1998: 105). Compared to the rest of Europe, Ireland has a very high rate of part-time employment for its incidence (Wickham 1997: 139); that is, in the firms in which part-time labour is employed, an unusually high proportion of its staff are part-time. Including the underemployed and the long-term employed along with conventional unemployment, Ireland’s unemployment level has in the mid-1990s reached as high as 25% (Clark 1998: 25).

How can the Celtic Tiger be facing such a bleak employment situation? The predominance of the TNC in the Irish economy created three major obstacles to successfully solving the employment problem: the sort of jobs that TNCs create, the effect of TNCs on indigenous industry, overestimation of the strength of the Irish economy. Further, flaws in Irish social welfare policy reinforced these effects by creating unemployment and poverty traps, and by miscalculating the nature of the Irish employment problem. I shall address each of these determinants in turn.

The nature of TNC labour The traditional problem with relying upon TNCs for job creation is that the social welfare of the citizens of the host country is not the concern of the TNC. While Charles Wilson believed that that which was good for General Motors was good for America, the days of national industry have long passed, and what is good for Intel need *not* be good for Ireland. By importing raw materials, extracting cheap labour, and exporting finished goods, TNCs exist alongside, rather than within, the domestic economy. The nature of work within TNCs in peripheral countries clearly demonstrates the international division of labour mentioned previously. While the products of these firms were high-tech, the required labour was far from it. Rather, employment in Ireland's TNCs was relatively unskilled, such as assembly of finished parts into consumer products, or subassembly for export to final-assembly work elsewhere (O'Hearn 1998: 79). Even then, much of that unskilled work that could have been done by local labour was automated, leading to not only bad jobs, but *few* jobs.

But even these low-tech jobs in a high-tech sector contribute little to employment figures; job growth in Ireland was primarily marked by the expansion of the service sector. Service jobs tend to be low-skill and low-pay, with little job security and high incidence of atypical employment (Tansey 1998: 37). The number of workers employed in the Irish service sector gained on the manufacturing sector at a rate of nearly 4% per year through the 1990s (O'Hearn 1998: 97), and in 1997 the service sector accounted for more than half of Irish jobs (Tansey 1998: 36). Furthermore, the number of women working in the sector has grown steadily; the period from 1985 to 1996 saw a growth of 45% for women but only 9% for men (Murphy and Walsh 1998: 22). This itself suggests a sizeable proportion of 'pink-collar' jobs in the service sector, which concurs with Tansey's observations about the quality and productivity of work within the sector.

The nature of TNC labour and the predominance of the service sector in a TNC-dominated economy directly contributes to underemployment through the heavy utilization of part-time and other atypical work, and to conventional employment due to the preponderance of automated processes, in that massive levels of production can be met without similarly-scaled employment. But less obviously it contributes to long-term unemployment as well—after being out of work for a long period of time, the low-pay and low-challenge jobs of the manufacturing and service sectors provide little incentive to resume the job search, leading to discouraged workers.

Indigenous industry Having established that foreign-based industry presented few solutions to the unemployment problem, we might naturally look to Irish firms for help. After all, Irish firms don't have the problems of TNCs which make for bad jobs. In particular, they don't locate high-skill research and development activities abroad, they have reason to care for the social welfare of the Irish, and money made through them and spent with them remains within the Irish economy—factors for employment and domestic investment which recall Keynes' identification of unemployment as a problem of aggregate demand and encouragement of domestic production and consumption as a remedy (Keynes 1973). And indigenous Irish industry could indeed have played such a role—but there was far too little left. Since, through the 1980s, the Irish government saw the TNC as the route to rapid Irish development, Irish policy encouraged their growth at the expense of Irish firms (O'Hearn 1998: 129).

In fact, the seed of the employment problem of the 1980s was rooted in the decimation of Irish industry; while TNC employment fell only 7% in the period, indigenous industry, forced into vulnerable non-traded sectors of the economy, saw a 26% employment decline (Barry 1991: 91). Profit figures from the period reflect the fall of indigenous industry as well: while even in the recession of the 1980s TNCs realized profit levels of 20%, indigenous industries realized an inefficient 3% (O'Hearn 1998: 46) and were quickly crowded out of the market. The employment problem could be said to have begun when labour-intense but inefficient indigenous industry was replaced with efficient but automated transnationals, and by the time the 'Tiger' rolled in, there was no Irish industry left to start creating jobs again.

Overestimation of growth Despite its massive growth figures and despite financial pundits' claims, Ireland's tiger is a mere kitten. Ireland's growth figures are impressive for Ireland, especially compared to the Continent—in the 1990s, Ireland's 4.5% growth was met with only 2% in Europe—but they fail to impress on a world scale. The Asian economies for which the 'Tiger' label was coined witnessed 8-9% growth in the same period (Tansey 1998: 12). While Ireland was performing far better than it had in a long time, its performance was not outstanding on a world scale. Despite the establishment of scores of TNCs, Ireland saw few economic gains.

To understand why Ireland's growth figures seem small compared to its level of devel-

opment, it is necessary to understand the organization of the multinational firm. O’Hearn (1998: 14) describes *commodity chains*, an international division of labour spanning developed core nations and developing peripheral ones. Ireland, in the commodity chains of the global market of the 1990s, is a peripheral economy (O’Hearn 1998: xi), one in which intermediate production takes place; raw materials are imported, production takes place, and the results are then brought back to the corporate base, or, especially in the case of Ireland, exported into markets at lower expense—by locating production in Ireland, American firms have a low-tariff entrance point to the European Union (Hughes and Nolan 1997: 2). But peripheral work is not profitable work; the technological innovations belong to the TNCs, after all, who locate high-profit research and development in their home nations. The ‘investment’ into Ireland by these firms doesn’t necessarily lead to development *in* Ireland; instead, it enables international firms to extract cheap labour and take the profits home. In the case of Ireland this is particularly prominent; Ireland is unique in Europe to the extent that GDP exceeds GNP (O’Hearn 1998: 62), indicating a high level of economic *activity* with very low economic *returns*.

This overestimation of growth had both direct and indirect effects on the Irish unemployment situation. The direct effects were straightforward—the Irish job market was one of a country with mediocre growth, and it showed. Similar to its GNP figures, Irish employment intensity was only tigerlike in comparison to Europe. Ireland jumped from 0.08 jobs per unit of GNP growth in the period from 1960 to 1990, to 0.40 jobs per unit (Tansey 1998: 44). While that figure looks impressive compared to the EU average of 0.12 jobs per unit of GNP growth, both the United States and Canada realized about 0.60 jobs per unit, and the entire OECD average was 0.31 (Tansey 1998: 45). Irish growth was far from exceptional, and the unemployment situation which began in the 1980s simply had no rapidly-increasing job creation to quell it. But the overestimation of the nature of the Irish economy had a particularly diabolic indirect effect: it made the Irish diaspora want to come home. Emigration halted for the first time in over fifty years, and in the period from 1992 to 1997, Ireland saw 23 000 more immigrants than emigrants (Clark 1998: 15). Ireland has traditionally relied upon emigration as a safety valve for its unemployment problems; in the middle of the century, it was so certain that a family member leaving for America would never return that an “American wake” would be held the night before his departure. The unprecedented reversal of migration meant that the Irish unemployed had

even more workers with which to compete for jobs.

Unemployment and poverty traps The above should not lead one to think that solving unemployment problems is a simple matter of creating good jobs that match workers' skills. In cases such as Ireland—where much of the long-term unemployed have only a Leaving Certificate (equivalent to a high-school diploma) or no formal educational qualifications at all—creating jobs which match the skill sets of the unemployed can create unemployment traps and poverty traps, situations in which, despite the existence of a job, the unemployed have little incentive to take employment.

Unemployment traps occur when financial circumstances create a situation in which an unemployed person is better off remaining unemployed than taking an entry-level job (Tansey 1998: 227). Barry and Bradley (1991) extensively document the existence of unemployment traps in the Irish economy, so far as to consider domestic policy—especially income tax—to be one of the primary determinants of Irish unemployment. Unemployment assistance (the equivalent to Canadian employment insurance) pays half of the income one would receive at an average labourer's job (Tansey 1998: 232); combining family and noncash incentives often means that the long-term unemployed would take a loss upon regaining employment. The end result is an income floor of around I£6000 at which a worker would be indifferent to being employed or unemployed notwithstanding the problems of reintegration; an annual income of I£9000 would leave the same worker with I£1 per week more than he would receive if he remained on government assistance (Barry and Bradley 1991).

Poverty traps follow the same principle, but affect those already employed. We saw earlier that a large proportion of Irish are in low-paying jobs as a result of part-time work, low-skill jobs, pink-collar ghettos, or a combination of factors. A poverty trap occurs when an increase in gross income amounts to a decrease in net income (Tansey 1998: 227). In response to a question in parliament, the 1997 Minister of Finance reported that a married man with one child, who earned I£167.50 per week (a typical service-industry income of around I£9000 per year) would find himself making I£10 less per week were he to receive a I£20 raise in pay, due to the loss of benefits based on income levels (Tansey 1998: 226). Even outside of the welfare system, simple income taxes can create poverty traps: the difference between an I£7000 job—towards the middle-low-end of the service sector—and

an I£14000 job ends up only I£23 per week (Barry and Bradley 1991).

Unemployment traps and poverty traps are, in all probability, an unintentional side effect of short-sighted policy management, especially that directed at the middle class. But Ireland's propensity for sharp cutoff points for those receiving state benefits, for low-pay entry-level service and low-skill manufacturing positions, and for difficult-to-reintegrate long-term unemployed, the lack of incentive to re-enter the workforce remains an important aspect of the Irish unemployment problem.

Irish social programs None of the above should suggest that Ireland has not been trying to solve its unemployment problem. Ireland has an extensive social services network, with policies targeting education and training, job creation, indigenous enterprise, and employment subsidy.

The FAS attempts to deal with unemployment directly. It offers job placement through a network of employment services offices, offers subsidies for unemployed persons wishing to start their own businesses, and operates Community Employment programs which offer the long-term unemployed opportunities for part-time work and personal development. The Irish government also provides training for unemployed workers, both for specific work-related skills and for general literacy, as well as reintegration for the long-term unemployed (Kavanaugh 1998: 53).

But training and placement programs rely on a number of assumptions. They are primarily directed at solving a supply problem; the primary assumption is that unemployment rates are high because of a mismatch between supply and demand, and training and placement try to fix the mismatch. There is little evidence to suggest that such a mismatch exists in the Irish economy; instead, there is a shortage of jobs, and a large number of discouraged workers for whom returning to work would put them at a relative disadvantage to their current situation. The Irish problem is too constrained by issues of demand for supply-side policies to have an effect of proper magnitude.

Irish employment policy does try to address the issue of demand, but it does so primarily through subsidy: an Enterprise Scheme which assists those starting new businesses to create jobs, an Employment Incentive Scheme which subsidizes the creation of new positions in established firms, and the Levy Grant Scheme which pays firms to implement on-the-job training in the fields of textiles, clothing, electronics, food and drink, and

chemicals (Kavanaugh 1998: 54).

While addressing demand is certainly appropriate in intent, it has startlingly little effect on the employment numbers. The primary explanation for this is that it targets indigenous Irish industry. The TNCs are already receiving payments from the government, and are in a position where they do not wish to do what they are told, so the government turns to Irish firms; but as explained earlier, there are nowhere near enough Irish firms left to make an impact. While Irish employment policy is well-intentioned, the structure of the economy heavily limits any impact it might have.

Discussion What, then, is Ireland to do? The difficulty of answering this question is to a great extent reflective of the difficulty of undoing thirty years of liberalized policy. It is unreasonable to expect that Ireland can reverse the TNC trend; instead, it needs to work on building up an *Irish* economy alongside, or better yet, intermeshed with the high-growth but low-return international segments.

The primary problem that Irish employment policy needs to address is that of long-term unemployment. Frank Barry and Aoife Hannan (1998: 75–77) describe the problem as *hysteresis*: a temporary economic shock leads to high unemployment, which then reaches equilibrium and is difficult to fix. Ireland is currently in a low-pay, high-unemployment equilibrium established in the 1980s recession. The implications of hysteresis are profound: high unemployment continues, *but the conditions which established high unemployment no longer exist*. There is nothing that explicitly needs fixing; instead, a particular wage equilibrium needs to be intentionally disturbed in such a way that it will settle at a new equilibrium with better outcomes.

Upsetting the current equilibrium is a dangerous proposal. There is no shortage of developing nations, and with the fall of Communism in eastern Europe, there may soon be no shortage of developing nations providing entrance-points to the European market. Investment from TNCs is easy to stimulate, but once they arrive they are the proverbial 400-pound gorilla; the terms that attract them often involve exemptions from explicit employment policy, as they do not want to have their management decisions made by the state in which they locate their peripheral operations (Barry 1991: 94).

The solution to the Irish unemployment problem, then, must rest in indigenous industry. While the scope of indigenous industry makes stimulating it seem an impossible task,

the manner in which Irish firms are tied to Irish policy makes them a potentially effective vehicle for implementation of re-employment programs. But before any of that can happen, Irish firms need to re-establish themselves. The Irish government needs to pay closer attention to its own books rather than the words of the American investment pundits, and stop riding the Celtic Tiger wave in favour of working to establish a reliable, indigenous industrial sector that can operate alongside the already-established TNCs. Were the Irish government to encourage the establishment of niche markets for indigenous firms, while at the same time subsidizing the production of raw materials so as to make local buying as attractive to transnational producers as importing, then the foundation of a strong employment policy would be set. With that established, existing employment services might begin to show effectiveness—but only if they are matched with social welfare policy aimed at eliminating the unemployment traps and poverty traps that keep the unemployed out of the programs in the first place, and an immigration policy that realizes the harsh reality of the resident citizens of Ireland over the romanticism of the return of the Irish diaspora.

Ireland has an formidable task in its future but the component pieces are there; only with an actively managed fiscal, employment, investment, immigration and social welfare policy will Ireland be able to gain the self-sufficiency it has pursued for nearly a century, and finally prove Marx wrong.

References

- Barry, Frank (1991). "Industrialization Strategies for Developing Countries: Lessons from the Irish Experience." *Development Policy Review*, 9, 85–98.
- Barry, Frank and Bradley, J. (1991). "On the Causes of Ireland's Unemployment." UCD Centre for Economic Research, Working Paper No. WP 91/1, January.
- Barry, Frank and Hannan, Aoife (1998). "Education, deprivation, hysteresis, unemployment." *Unemployment in Ireland: alternative perspectives*, ed. Charles M.A. Clark. Hants, England: Ashgate Publishing Ltd. 75–86.
- Clark, Charles M.A. (1998). "Unemployment in Ireland: a Post-Keynesian institutionalist perspective." *Unemployment in Ireland: alternative perspectives*, ed. Charles M.A. Clark. Hants, England: Ashgate Publishing Ltd. 1–20.
- Kavanaugh, Catherine (1998). "A review of the role of active labour market policies in Ireland." *Unemployment in Ireland: alternative perspectives*, ed. Charles M.A. Clark. Hants, England: Ashgate Publishing Ltd. 43–67.
- Keynes, John Maynard (1973). *The General Theory of Employment, Interest, and Money*. Cambridge: Cambridge University Press.
- Hughes, Gerard and Nolan, Brian (1997). "Segmented Labour Markets and Earnings in Ireland." *The Economic and Social Review*, January, 28(1), 1–22.
- Murphy, Anthony and Walsh, Brendan M. (1998). "Unemployment, non-participation, and labour market slack among Irish males." *Unemployment in Ireland: alternative perspectives*, ed. Charles M.A. Clark. Hants, England: Ashgate Publishing Ltd. 21–42.
- O'Hearn, Denis (1998). *Inside the Celtic Tiger: The Irish Economy and the Asian Model*. London: Pluto Press.
- Tansey, Paul (1998). *Ireland at Work: Economic Growth and the Labour Market, 1987–1997*. Dublin: Oak Tree Press.
- Wickham, James (1997). "Part-time Work in Ireland and Europe: Who Wants What Where?" *Work, Employment & Society*, March, 11(1), 133–151.