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De-industrialization: a case study of Dundee, 1951-2001, and its broad implications

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Abstract

Using a case study of one Scottish city, Dundee, this paper addresses some of the tensions involved in the use of the concept of ‘de-industrialization’. Widely used to try and understand economic and social change in the post-war years, this term is complex and controversial. This paper unravels some of this complexity, arguing that the term is potentially very helpful, but needs careful definition, nuanced application and recognition of its limits. The focus here is on the impact of changing industrial structures on the labour market. After analysing the processes of firm births and deaths, the paper looks at the decline of the ‘old staple’ industry, jute manufacturing in Dundee. The next sections assess the role of multinational enterprises in re-shaping the employment structure of the city, before looking at the contraction of some of the city’s other industries. Attention then turns to the impact of all these changes on the economic welfare of the city. The final section draws conclusions about our general understanding of de-industrialization from the Dundee case.

Keywords DE-INDUSTRIALIZATION; EMPLOYMENT; DUNDEE; SCOTLAND; JUTE; TIMEX; DECLINE; INDUSTRIAL CLOSURES; CAPITAL FLIGHT; MULTINATIONAL CORPORATIONS

De-industrialization is a term increasingly deployed in attempts to understand economic and social change in the advanced economies in the post-war years. A variety of approaches to this phenomenon are evident in the literature, ranging from political economy to cultural history.¹ This paper uses a broadly defined political economy approach to the de-industrialization of one city, Dundee, to address some of the complexities and tensions involved in the use of the term, and to challenge some of the interpretations commonly put upon it. It starts from the basis that the term is indeed very helpful, but needs careful definition, nuanced application and recognition of its limits if it is to be employed to best enhance our understanding.² In particular, its productive use requires close attention not only to changes in industrial sectors, but also those at the level of the individual firm.

Concern with de-industrialization in public discourse materialized in Britain in the 1970s. At that time it was mainly perceived as linked to macroeconomic issues, especially the balance of payments and national economic growth.³ This debate drew on two distinct strands of older economics literature, which either saw manufacturing as the key to high overall growth rates, or worried about the long-run productivity consequences of the rise of services.⁴ The debates of the 1970s and subsequent decades that focussed on these macroeconomic matters were by no means all based on the belief that de-industrialization was a problem, with both journalists and academics arguing (from differing perspectives) that its dangers were, at a minimum, being exaggerated.⁵

But while this macroeconomic concern has periodically re-surfaced in public debate, since the 1980s most of the de-industrialization literature has focussed on the labour market impact,

and very much emphasized the negative effects of the process on industrial workers and the communities in which they lived.⁶ The emergence of such a literature in the 1980s, notably in North America and Britain, was in the context of the industrial contractions experienced in those countries at that time, and the major increases in unemployment that followed. In turn, a feature of this literature was the linking of those contractions to ‘declinist’ tropes, which saw them, not as some passing cyclical or contingent event, but evidence of a deep-seated pathology of the national economy.⁷

The ‘declinist’ approach to twentieth-century economic and industrial change is deeply embedded in Scotland, and the history of the country as an ‘Industrial Nation’. That history is, in the words of Morton and Griffiths, ‘a largely familiar one of a prolonged retreat from the heights of heavy industrial success and the problems encountered by an economy in which, for much of the period, average income lagged behind those for Britain as a whole...’.

⁸ The declinist narrative generally centres on a story of historic ‘over-commitment’ to the old staples (coal, iron and steel, shipbuilding, textiles), the attempts to ‘modernize’ this structure towards lighter, consumer-oriented, sectors after 1945, but with an emphasis on the limited and transient nature of the success of such endeavours. Knox and McKinlay’s characterisation is typical: ‘Scotland, where a narrowly integrated industrial structure based on shipbuilding, engineering, coal, and iron and steel inhibited the emergence of new industries for most of the twentieth century.’⁹

Transience is usually seen as the result of an over reliance on inward investment by multinational companies. So the economic history literature of the late twentieth-century tended to see the structural change that occurred as failing to correct the long run problems of

the Scottish economy, though the culprits for this continuing ‘decline’ varied according to ideological taste.¹⁰

Unsurprisingly, given the hugely damaging effects of industrial contraction on many parts of Scotland from the 1970s onwards, the story of de-industrialization of that country has become both part of a declinist national narrative, and focussed attention on the immediate economic and social harms inflicted by that process.¹¹ This approach has gone along with a tendency for accounts of de-industrialization in Scotland (and, indeed, elsewhere) to focus on industrial *closures*.¹² Again, while the concern with closure is fully explicable given the political charge of such events, this focus misleads as to the underlying processes at work in de-industrialization. As noted by Dickson and Judge in the introduction to their book on closures in the 1980s: ‘Admittedly, the experience of closure is not new, and has been a recurrent feature of capitalist development...What is new is that whereas in the past old plants closed to be replaced by new factories, production methods and new jobs, in the 1980s closure and job loss are no longer counteracted by plant openings and job gains’.¹³

The focus on closure within accounts of de-industrialization has tended to be accompanied by a concern with *resistance* to such closures.¹⁴ Of course, such episodes of resistance are important to our understanding of the recent political and social history of Scotland, particularly where these involved workers articulating a sense of ownership of factories in moral economy terms.¹⁵ On the other hand, in studying the longer-run process of de-industrialization we need to be clear that, just as closures are not the main mechanism of decline in industrial employment, organized resistance to such closure is highly atypical of the response to job loss.¹⁶

Focussing upon the dynamics of sectoral and firm-level changes, this article contributes to understanding of de-industrialization by emphasizing that it was a complex and long-running process rather than a chronologically-compressed sequence of inherently contentious events. The analysis proceeds as follows. Section one discusses the ‘demographics’ of de-industrialization, and some of the data problems which arise from seeking to understand this process. Section two looks at the decline of ‘juteopolis’, while section three analyses the role of multinational enterprises and their significance for the structural changes of the period. Section four looks briefly at some other industries in Dundee. Section five summarizes the consequences of de-industrialization for Dundee. The final section draws general conclusions about our understanding of de-industrialization from the Dundee case.

I

De-industrialization is defined here as a trend reduction in the share of industrial in total employment, and such a trend is the effect of a number of components. First, of course, such a trend is compatible with *some* industrial sectors expanding, as the designation ‘industrial’ covers a set of heterogenous components, which may have quite different trajectories. In most literature ‘industrial’ covers mining, manufacturing, and construction. In the case of Dundee, the first of these is not relevant, and construction has experienced sharp cycles but no long-term trend in the numbers employed.¹⁷ So in Dundee manufacturing has always quantitatively been the great bulk of ‘industry’, and where changes have been concentrated, as Table 1 makes clear. (There are problems with variation in the precise definition of sectors at these different dates, but these are not sufficient to undermine the broad evidence of change). This overall trajectory of that change, it can be noted, is broadly similar between Scotland as a whole and Dundee.¹⁸ (In this paper ‘Dundee’ is taken to mean the local

authority area, which was subject to a significant boundary change in 1996 when approximately 15,000 people were allocated to neighbouring areas. But the losses were overwhelmingly from residential suburbs, so the impact on figures for employment was limited. Between 1975 and 1996 Dundee was part of Tayside region, but data continued to be produced for the Dundee city local authority area).

Table 1. Industrial distribution of employed population in Dundee, 1951, 1971, 2001

	1951 (aged over 15)	1971 (aged over 15)	2001 (aged 16-74)
Manufacturing	51.6*	42.0	15.2
Construction	5.8**	7.8	6.7
Utilities	1.3***	1.4	0.9
Transport, storage and communication	7.4****	5.2	6.1
All 'industry'	66.1	56.4	28.9

*Minimum List Headings 20-199 ** MLH200-202 *** MLH 210-212 ****MLH
220-239

Sources: 1951: calculated from *Census 1951. Scotland vol. V. Occupations and Industries* Table 13 'Dundee city' ; 1971 calculated from *Census 1971. Scotland Economic Activity* (10 per cent sample), Table 3 'Dundee city'; 2001: *Census 2001. Scotland. Key Statistics for Settlements and Localities in Scotland*, Table KS11a

But if de-industrialization is deemed important because of its impact on the labour market, and especially in bringing the collapse of manual work for those with relatively poor formal educational qualifications, it follows that some occupations outside strictly-defined ‘industry’ need to be included in our discussion. There are no easy dividing lines here, but certainly jobs in transport (railways, docks and road transport) would seem obvious cases for treating as ‘industrial’.

Changes in the labour market are not just driven by sectoral change. Lots of change in the composition of work is driven by changing occupational patterns *within* industries, and there is good evidence that in the long-run such changes have been very significant. A pioneering Ministry of Labour study for the period 1951-61, looking at the UK as a whole, argued that ‘whilst different rates of employment growth among industries have had an influence on the occupational pattern of the economy, a stronger influence was the fundamental change in the occupational structure of individual industries’.¹⁹ This study was an early recognition of the growth of administrative, clerical, and technical employment in all sectors of industry, and, conversely, the decline of manual work. For Scotland, sociologists have made a similar argument for the importance of within-industry occupational change, focussing upon the years 1981-2001.²⁰

This paper focuses on sectoral change and the associated analytic framework of de-industrialization, but it is important to acknowledge that this framework is imperfect for capturing the shifts we are concerned with, and other aspects of occupational change need to be part of the discussion. This point is returned to in the concluding section.

In line with the terminology adopted by the ONS, the decline in industrial employment can be thought of in demographic terms—as a population whose size is the consequence of both births and deaths.²¹ ‘Births’ encompasses both new firms opening and expansion of existing plants; ‘deaths’ covers both closures and contractions. The balance of these elements may shift over time, though as general point it is important to note that even in periods of marked overall contraction lots of new jobs will be being created. Table 2 below shows the data for Dundee in the 1980s. This makes clear that closures, while very important, were only one component of the loss of manufacturing employment. We lack comparable data for other periods, but it is possible that the contribution of closures to the overall pattern was especially high in the 1980s, given the huge impact of the economic contraction at the beginning of that decade, so Table 2 may overstate their significance in other periods.

Table 2. Changes in manufacturing employment in Dundee 1981-1990

Openings	+		Closures	-	5,883
	2,504				
Expansions	+		Contractions	-	3,479
	4560				
Gross job gains	+		Gross job losses	-	9,362
	7,064				
Net change				-	2,298
			Of which:	+	
			companies		2,396
			with 0-10 employees		

		11-25	+265	
		26-50	-71	
		51-100	+32	
		101-200	+357	
		201-500	-981	
		501+	-4,296	

Source: K. Glancey, 'Components', pp.39, 41.

So in trying to understand de-industrialization, we need to understand, on one side both shrinkage and closure, and on the other, the entry of new firms and their expansion. This was clearly recognized in John MacInnes's pioneering study of Glasgow, where he noted that the city's 'major problem is its low rate of job creation: less than half that of the New Towns and one which has declined in the course of the 1970s and 1980s'.²² In principle, job creation covers expansion of existing firms, the movement in of firms from elsewhere, and the creation of new firms. Sections II and III below look at the first two of these elements, but it is important to note how much emphasis both academic analysis and policy have put on facilitating the birth of firms.

While specialists in industrial relations and industrial sociology have focussed on job loss, the substantial literature on 'births' has come mainly from economists.²³ Policy encouragement of small firm creation has been important across the UK since the 1970s, despite a degree of

ideological contention that has been attached to these firms.²⁴ Such encouragement was a central focus of the Scottish Development Agency, established in 1976, and an important part of its activities in Dundee, not least by building factories, or sub-dividing existing ones, for renting to small business.²⁵ A key problem for analysis and policy is that small firms have generally been important net creators of jobs, but also suffered a high failure rate, so that increasing births by policy encouragement will also to lead to higher death rates.²⁶

The partial evidence we have for Dundee provides some support for the importance of small firms in generating manufacturing employment. Table 3 shows the net change in employment by size band for the 1980s. On the other hand, there is evidence (from a somewhat earlier period) that small firm (below 25 employees) birth rates were well below the Scottish average in Tayside (with an associated lower death rate), and, importantly, that this could not be accounted for by the industrial composition of local industry; there seem to have been specific locational factors present in the area.²⁷

But new firms do not of course have to be small. An important feature of Scottish and Dundee industrial history was the entry of multinationals as major job creators from the 1940s, but, as discussed further below, major problems arose in the 1970s which involved not only the contraction and closure of existing MNEs, but the failure of new MNEs to come to Scotland.²⁸

II

The jute industry dominated Dundee from the middle of the nineteenth until well into the twentieth century, though the industry reached its peak employment before 1914, and shrank,

unevenly, thereafter before its final demise in 1998. The story of this decline may seem a straightforward one, of an industry squeezed and eventually eliminated by low wage competition. Up until 1939 such a narrative would be largely appropriate. Drawing on raw jute from Bengal, and selling its products all over the world, ‘Juteopolis’ was a striking example of the process of ‘imperial globalization’ which characterised much of the British economy in the decades before 1914.²⁹ The industry was subject to increasingly serious competition from India’s jute manufacturers from the 1880s, but was hit especially hard in the 1930s, and by the end of that decade the industry had shrunk to a fraction of its pre-1914 size.

Table 3. Employment in jute in Dundee, 1948-1999 (to nearest thousand).

	Women	Men	Total
1948	12,000	8,000	20,000
1954	12,000	9,000	21,000
1959	9,000	8,000	17,000
1964	9,000	9,000	18,000
1969	7,000	9,000	16,000
1974	3,000	6,000	9,000
1979	2,000	5,000	7,000
1982	1,000	3,000	4,000
1991	300	1,000	1,300
1999	0	0	0

Source: Tomlinson, Morelli and Wright *The Decline of Jute*. p.21.

Protection organised under the Jute Control from 1939 helped to stabilise the industry, with employment peaking in 1954, and thereafter falling only slowly until the late 1960s contrary to the expectations of much more rapid shrinking at the time of the Working Party *Report* on the industry in 1948, which emphasized the likely effects of Indian competition.³⁰

Protectionism, and the local ‘Gentleman’s Agreements’ which underpinned its operation, were the focus of great deal of attention at the time, and by subsequent analysts.³¹ But the broader forces shaping the industry’s destiny were the global decline in the traditional uses of jute as bags and sacking for transport, in the face of bulk carrying and containerization, and insofar as bags and sacks were still used, the increasing substitution of paper and later polypropylene for jute.³²

The protection afforded the industry, by increasing the price of jute products, may have hastened the rise of competitive products, but it does not seem to have inhibited significant investment in the industry, considerable technical progress, and the search for new uses for jute. Investment was substantial, and accompanied by increased firm level concentration in the industry.³³ A Research Association was set up, and this helped encourage technical changes which helped lead to a healthy productivity performance.³⁴ There was also a major shift towards exploiting new uses for jute—first as a backing for linoleum (where demand multiplied up until 1955), then as carpet-backing. By the early 1970s about 80 per cent of total output was going to carpet-makers.³⁵ These new uses made the industry much less affected by Indian competition in the old staple products. Whatever the effects of protection at an earlier stage, by the late 1970s it was not the crucial issue for the industry’s fortunes, which depended much more upon technical change.³⁶

The key technical change was the introduction of the synthetic fibre polypropylene, used not only for sacking but also for carpet-backing. The two biggest jute firms, Low and Bonar and Jute Industries Limited, had been quick to spot the potential of this new material and entered into a joint venture for its production. But the production of polypropylene involved quite different patterns than those characteristic of jute. First of all, it was a much less labour intensive product. Second, there were few if any locational advantages in making polypropylene-based products in Dundee, whereas for jute Dundee was a classic 'industrial district', leading to high levels of efficiency and profitability.³⁷ Thus, while polypropylene proved important to the corporate survival of one of the 'big two' jute firms, relatively little of the material was made or used in manufacturing in Dundee.³⁸

The story of jute is not a story of 'decline' as pathology. As Howe argues, the decline of Dundee jute derived primarily from technical change in transport (bulk carrying, containerization) and the invention of polypropylene. 'To the question, could jute in the long term have competed more effectively against these new methods, the answer must be no'.³⁹ In the absence of any pathological narrative we have no need to search for those who can be 'blamed' for the industry's demise; in particular, the most common declinist tropes of blaming either under-investment by employers, inefficiency on the part of managers, or intransigence on the part of workers or trade unions for the shrinking of an industry, are wholly irrelevant.⁴⁰

Nor, after 1945, was the decline of jute mainly a problem of 'globalization', here using that word in the limited sense of low wage competition. The scope of such competition shrank as the product mix in Dundee diversified away from the traditional areas where Indian and Pakistani goods now dominated world markets.⁴¹ This point should not be exaggerated:

South Asian producers were themselves seeking to diversify as global markets for bagging and sacking contracted, but the limits of international competition are shown by how slowly import penetration rose in Britain even as protection of the home market eroded after 1963 (Table 4). As Howe summarizes the position: ‘most commentators would thus agree that Control moved from a position in the 1950s where it was indispensable to the survival of the Dundee industry to one in the later 1960s where technological change had made it irrelevant’.⁴² Thus the political focus on protectionism in Dundee was by this time to a large extent misplaced.⁴³

Table 4. Import penetration in the UK jute market, 1952-1976

	Yarn Imports (‘000 tonnes)	Yarn imports as a percentage of home consumption	Cloth Imports (‘000 tonnes)	Cloth Imports as a percentage of home consumption
1952	0.3	2.6	56.8	53.7
1957	1.7	1.0	49.7	43.8
1962	3.8	2.6	51.9	43.1
1967	1.5	1.9	50.3	47.3
1972	2.8	2.6	27.7	56.3
1976	1.3	2.7	23.1	66.3

Source: Howe, *Dundee Textile Industry*, pp.60-61.

Post-war employment in jute, returning to Table 4, did not decline sharply until the late 1960s. This bears emphasis. The industry was still a major source of jobs with 18,000 in 1964 and 16,000 in 1969. Closures in the 1950s had a limited negative impact on employment. Some were linked to the changing structure of the industry. Table 6 shows an incomplete listing of such jute plant-closures. Most followed acquisition by other companies, rather than the exit of a stand-alone entity. The number of independent entities fell by 23 per cent from 1945 to 1967, while the industry’s largest five firms increased their market share from 50 per

cent in 1958 to 73 per cent by 1975.⁴⁴ While not a perfect measure of changing structure, the membership of the employers group, the Association of Jute Spinners and Manufacturers, declined from its post-war peak of 40 in 1958 to 14 by 1977.⁴⁵

The listing of closures in table 6 gives some sense of the pattern of contraction, but misleads if taken to suggest that closure was the main mechanism for job loss. More important were the falling numbers in plants that remained open. One example is Camperdown works, historically the largest of all jute factories in the city, with a workforce of over 14,000, but which by the time of its closure in 1981 employed only 340 workers.⁴⁶ Sidlaw Industries, which owned the site, had reduced the number of its textile workers in the city from 3,280 in 1977 to 650 in 1981, after the Camperdown closure.⁴⁷

The other component of the demographics of the industry were the absence of new entries into the industry. Only one new plant was built after the war, Taybank Mill in 1948—which was also the last to close, in 1998, making 80 workers redundant.⁴⁸

Table 5: Closures of jute companies within Dundee city boundaries, 1954-1998 (incomplete).

1954	Craigie Works, Robertson St.
1957	Belmont Works, Hawkhill
1958	Longtown Works Milton of Craigie Road; South Dudhope Mill; Ward Mills, Willison St.

1959	North British Linoleum Company, Cleington Rd.
1960	Victoria Works, Ure St; Balgay works, Lower Pleasance; Maxwelltown Works, Alexander St.
1964	Larchfield Works, Brook St.
1966	Claverhouse Bleachfield
1968	Cowgate Calender
1969	Heathfield Works, Hawkhill,; Caledonian Works, Anderson's Lane, Lochee
1970	South Anchor; Dundee Linoleum Company, South Road; Walton Works, Brook St; King's Cross Works, Loons Rd; Wellington Works, Hilltown
1971	MidWynd Works, Hilltown; Dundee Linen Works, Constitution St;
1973	Kingsmead Carpets; Kinnaird Works, Ogilvie's Rd.
1974	Caldrum East spinning mill; Eagle Mills Victoria St; Dudhope Works, Douglas St.
1975	Angus Works, Fairbairn St.
1976	Seafield Works, Taylor's Lane; Bowbridge polypropylene weaving factory; Manhattan Bag Sewing factory, Dundonald St.

1977	Garden Works, Benvie Rd.; Caldrum West; Jamaica Works, Jamaica St.; East Port Works.
1978	Upper Dens Works, Princes St.; Lower Dens Work, Princes St.
1980	Dundee Bleachworks, Midmill; Dura Mill, Dura St.; Bower Factory, Douglas St.; Filtrona Textile Products, Gourdie Ind. Estate; Bowbridge polypropylene plant
1981	Camperdown Works, Lochee;
1996	Manhattan Works
1998	Taybank Works

Sources: *Evening Telegraph* 21 August 1981, 18 October 1994, 1 September 1998; *Herald* 5 February 1996; Dundee University Archives MS/24/1/7/1/1 Low and Bonar Company Announcements, 1 September 1977.

The post-1945 decline of jute evoked much heart-searching, but no significant resistance on the parts of workers. Apart from a wage dispute in 1961, industrial relations in the industry were largely characterised by co-operation and agreement.⁴⁹ We can only speculate on why there was this absence of resistance.

One important element was that, for the period down until the 1980s, there was compensating employment growth in the city. This was particularly associated with the location and expansion of multinational enterprise (MNE) manufacturing through UK regional assistance. The closure of Longtown Works in Milton of Craigie in 1958 illustrates this very point. Timex, the US-owned mechanical watch-maker, extended its engineering workshops yards just across the road from the Longtown Works in 1957, increasing production and employment at a cost to the Treasury of £25,000.⁵⁰ We can draw a parallel here with the ‘moral economy’ established in the coal-mining industry, where loss of jobs in that industry was initially, from the 1950s to the 1970s, compensated either by coal jobs elsewhere or other local industrial employment.⁵¹ In Dundee, of course, the context was different. We are analysing an industry in a very restricted geographical area, where there was a long-term recognition that the industry was in secular decline, and that alternative jobs needed to be found. We can see this recognition clearly at work as far back as the city council’s 1931 publication, with the evocative title ‘Do It in Dundee’.⁵² Even earlier it is evident in the City’s pressure to build a road bridge over the Tay, which dates back to just after the First World War, and was always linked to ideas about diversifying the local economy.⁵³

This concern was translated into effective action with the Distribution of Industry Act of 1945, the basis of the regional policies that were used to attract industry to the city for the next three decades. These industries typically offered better pay and better conditions to Dundee workers than were available in jute, and many workers (especially women) voted with their feet and fled the low pay, noise and dirt of jute production.⁵⁴ By 1951 the jute employers were pressing the Board of Trade to reduce the inducements to new industry as they suffered labour shortages; indeed, complaints of such shortages continued well into the period when the industry was shedding significant numbers of workers.⁵⁵

So for many Dundonians, *down to the 1970s*, the decline of jute was compensated for, (and for many, *more* than compensated for), by the availability of better paid and more congenial work. Skilled men who left the industry to work in Timex in the late 1960s doubled their earnings.⁵⁶ While the loss of jobs in jute was not welcomed, and was no doubt painful for many of the individuals involved (especially older workers who found it more difficult to get jobs in other sectors), it was not regarded as a disaster. It is instructive to compare the sense of decline in the 1930s, when the loss of jobs in jute was catastrophic not only because of their scale, but also because there was so little growth of alternatives. It was only in the late 1970s, and especially the 1980s, with the simultaneous contraction of jute and most other industrial sectors, that a sense of a major local unemployment returned. And, as discussed below, it was in that period that two of the main examples of worker resistance to job losses in specific companies took place.

The context of the decline of jute was one in which there was a long-established narrative in the city that the industry was one which would always struggle against Indian competition.⁵⁷ This did not lead entirely to fatalism in the industry, as has been suggested in noting the search for new markets and products by the jute firms, but it helps to explain the degree of co-operation offered by the worker and union to the employers. The main union, the Dundee and District Union of Jute and Flax Workers, worked with the employers on such issues as recruitment and protection, having been converted in the 1930s on the second of these from its previous free trade stance.⁵⁸

Despite amalgamations in the industry, jute remained a locally-controlled sector, so that the hostility that could be mobilised against remote owners was not relevant. This contrasts with

the one case of a declining ‘old staple’ where job loss was resisted—in the shipbuilding firm of Caledon (see section IV below).⁵⁹ The Caledon workforce was also entirely male, whereas the jute industry was traditionally very much a ‘women’s industry’. However, in the post-war years, as Table 3 shows, there had been a marked switch in this regard, so that by the late 1960s the majority of the jute workforce were male. This shows the success of industrial diversification of Dundee, which is examined in further detail below, with the widening range of opportunities for women, alongside the increase in skill levels in jute production. In any event, it would be a great simplification to suggest only male-dominated workforces resisted employment shrinkage and closures. For example, it was an overwhelmingly female workforce that resisted closure at Lee Jeans in 1981 (an event that happened to co-incide with the sit-in at the Caledon yard), as it was the women workers who resisted the closure of Plessey in Bathgate.⁶⁰

III

One of the key drivers of employment changes in post-war Dundee was the arrival of American manufacturing multinationals, part of a general pattern in Scotland. The firms were encouraged by regional subsidies, the promise of relatively low-wage labour accustomed to industrial employment, and, initially, by trade protection.⁶¹ This development had started almost as soon as the war ended, with around 40,000 jobs created country-wide by 1950.⁶²

Table 6 shows the composition of Dundee manufacturing amongst the largest firms close to the peak of employment in the sector in the mid-1960s.⁶³ At this time it is clear that the MNEs (Timex, NCR, Veeder-Root) were making a substantial but not overwhelming contribution to sustain employment in the city. Jute, to reiterate, remained an important force

in the city until the early 1970s. Total manufacturing employment (1965) was 44,820, with the three American MNEs providing 7,910 jobs, approximately 18 per cent.⁶⁴ The firms listed in Table 7 employed 55 per cent of the manufacturing workforce—emphasizing their importance, but also the continuing role of small and medium-sized employers, (there were a small number of large companies with relatively small-scale activities in Dundee eg Ferranti).⁶⁵

Table 6. Largest manufacturing employers in Dundee in 1966 (all companies with over 500 employees)

Name of company	Product and status	Male employment	Female employment	total
Jute Industries	Jute. Locally-owned.	2,553	1,513	4066
NCR	Electronics. American MNE	3,235	813	4048
Timex	Watches. American MNE	1008	2165	3173
DCThompson	Publishing and printing. Locally-owned.	1,595	672	2267
Keiller	Jam and marmalade. Locally-owned.	345	873	1218
Morphy Richards	Domestic appliances: English based.	869	204	1073
Bonar Long	Electrical transformers. Locally-owned.	883	181	1064

J. Scott	Jute: locally-owned	534	530	1064
Burndept	Batteries. English-based.	(661)*	(372*)	1033
Caledon	Shipbuilding. Locally-owned.	929	34	963
Unijute	Jute: locally-owned	485	408	893
Veeder-Root	Computer mechanisms. American MNE.	558	231	789
Valentines	Printing and publishing: locally-owned	321	409	730
Baxters	Linen and jute. Locally-owned.	352	370	722
Caird	Jute: locally-owned	361	352	713
SCWS	Jute: locally-owned	243	386	629
Thomson and Shepherd	Jute carpets. Locally-owned.	386	223	609
Mallom	Jute. Locally-owned	299	268	567
Yorkshire Imperial Metals	Brass Finishers. English based.	302	205	507
Totals		15,919	10,209	26,128

Source: TNA: PRO BT177/2686 Miss McGhee (Office for Scotland) to Miss Hodkinson, 'Information for brief on Dundee', 29 November 1966. 'Manufacturing' and 'employees' are not defined by the source.

(*No breakdown by gender is given in the original document for this company, so these numbers have been estimated as if Burndept's composition reflected the average of all other companies in the table.)

Amongst the MNEs in Dundee, one of the earliest arrivals was Timex, and its presence, through to its final departure in 1993, has come to be seen as emblematic of the problematic role of such enterprises in Scotland in general and Dundee in particular.⁶⁶

From the employment levels recorded in Table 6, Timex expanded rapidly in the late 1960s and 1970s, to reach a peak at over 6,000 workers in 1974, declining to complete closure by 1993. The decline after 1974 eventually led to a major dispute in 1983, with an occupation focused on the predominantly male Milton plant. After six weeks the occupation ended with union agreement to 425 job losses, but there were no compulsory redundancies as there were sufficient applicants for voluntary departure.⁶⁷ Over the next ten years employment dwindled until final closure.

In the considerable debate about the role of US MNEs in the Scottish economy, one strong criticism often made was that they were branch plants.⁶⁸ Branch plants have been seen as of limited benefit because of their perceived lack of linkages with the local economy, their provision of only low-skilled assembly work, but also as embodying only a fragile presence in the local economy because of the ease with which they can be closed down without damage to the overall structure of the parent company.⁶⁹

Timex was a pioneering producer of the mass-produced mechanical watch, for which it built a large scale assembly plant in Dundee. Many of the jobs provided were low-skilled, and the company's operations were based on a highly-gendered structure in which these jobs were overwhelmingly undertaken by women, who supervised almost entirely by men. But it also employed a significant number of men on tool-making and related activities, and these activities fed into the company's global activities.⁷⁰ Ex-skilled workers recall repairing machinery that was sent from the USA to Dundee for this purpose, and returned for use in the firm's US factories.⁷¹ So even in its earlier days, the alleged shortcomings of branch plants only applied in part in the case of Timex.

The decline and then departure of Timex was closely linked to the decline of the mechanical watch, and the company's decision to focus instead on the assembly of components for consumer electronics. The rundown of the company was part of a global strategy of the company, but it should be noted that this was not a case of switching production of a low-skill product to the Global South. The residual watch-making activity was moved to France, but most of the jobs previously done by women working for Timex in Dundee disappeared entirely as the market for mechanical watches collapsed. The later phase of departure also sent work previously done in Dundee to other parts of Europe.⁷² So the demise of Timex was not a simple 'globalization' story, if that term is taken to suggest the relocation of jobs to low wage areas.

The other big American MNE in Dundee was NCR. It began making cash registers and accounting machines in the city in 1946. After rapid growth in the late 1960s, employment peaked at 6,500 workers in the city at nine locations, in 1970. It grew rapidly on the basis of decimalization in Britain (1971), but was seemingly completely unprepared for the take-off

of electronics in the business machine sector.⁷³ In response to this technological change, the company undertook radical re-organization of its whole business. Employment was cut across the board, including at the company HQ in Dayton, Ohio, where employment fell from 14,500 to 870 between 1971 and 1977. In Europe production was concentrated in Dundee and Augsburg. From 1971 there was a continuous decline in numbers employed, although manufacturing only ceased in 2009 and the company retains a small non-manufacturing facility in the city.⁷⁴ The evolutionary nature of employment changes at the firm was emphasized by Hood and Young, who saw it as exemplifying the slow ‘retreat’ of MNEs in Scotland. Corporate restructuring and concentration of production at alternative sites, typically elsewhere in Western Europe, meant that job losses accrued in significant numbers often years or even decades prior to eventual closure and departure. At NCR a sudden reversal of fortunes in 1971 evoked protest marches and brief stoppages late in that year, but no further forceful opposition. After significant redundancies in the early 1970s, the company revived later that decade as it completed the switch to a fully electronics-oriented facility. But in the crisis of the early 1980s, and following a five-week strike over wages, further redundancies brought employment to less than a thousand.⁷⁵

NCR in Dundee evolved away from branch assembly activity in its cash register production phase, and by the 1960s was less focussed on such activity than Timex. By the end of that decade it was an almost self-sufficient entity, meeting all of its need from raw materials through assembly to testing. The nature of its activities is suggested by the gender composition of its workforce (Table 6) whose maleness reflected the absence of an assembly operation on the scale of Timex. At that time little R and D was done in Dundee, but that changed with the move to electronic devices.⁷⁶

Like Timex, the decline of NCR was the consequence of technological changes which led to major corporate re-structuring. These involved a transition to less labour-intensive activities, but also the shift of work out of Dundee. Such a shift was undoubtedly facilitated by the companies MNE status, though in neither case was there a wholesale shift of activity to a 'low-wage' area outside Europe.

A general survey of MNE activity in Tayside in the early 1990s suggested that MNEs brought capital and new technologies to the area, but supplied many of their inputs from imports, and suggested that, partly as result, no new local suppliers came into being to cater for the MNEs needs.⁷⁷ But by then MNE employment had shrunk to a fraction of its previous size.⁷⁸ As we have seen, MNEs in Dundee made a significant impact on employment in the city, providing many well-paid jobs to both men and women. This impact was not short-lived, being strong from the 1940s to the 1970s. But ultimately it was transient, and in the 1970s and 1980s their decline was significant part of the de-industrialization of the city.

Forceful resistance to de-industrialization is an important part of the political history of post-war Dundee. Resistance was especially pronounced at Timex in 1983 and 1993, but in each instance workers were opposing changes to production or the system of pay and reward rather than corporate flight. It is true that in 1983 the firm decided to end watch-making and close the Milton of Craigie plant, concentrating its new emphasis on contract electronics assembly production at another site in the city, at Camperdown. This was the scene of a major dispute in 1993, triggered when the firm sought to impose a programme of temporary lay-offs, a one-year wage freeze and reduced fringe benefits.⁷⁹ Closure followed seven months later, and only after the dispute had evolved painfully from a strike to a lockout, involving the dismissal – on dubious legal grounds – of the plant's remaining 340 workers.⁸⁰ These acts of resistance

were important, but partly because they were in fact highly atypical of the response to job losses. To reiterate, most such losses were part of a gradual process of attrition, so closures typically came long after the plant had passed its maximum level of employment. This explains why the number of people engaged in resistance to closures is always so small: they are a 'residual' workforce making a 'last stand'. This is true for Timex in 1993, as we have seen, but also, for example, outwith Dundee, for Plessey, which employed 2,400 workers in 1973, but only 330 at the time of the 1982 occupation.⁸¹ Also typical of a wider feature of resistance to closure was that it was most evident where a remote (often foreign) owner could be identified as the decision-maker behind the closure, which gave clear agency to the decision and an ideological charge to that resistance. Finally, we must note that resistance to closure was bunched in the years of the early 1980s, both in Dundee and elsewhere in Scotland and the UK. In Dundee the battles at Caledon (returned to in the next section) and the first one at Timex were shadowed by the recession of the early 1980s, the most serious since the 1930s, and the trebling of registered unemployment.⁸² Unsurprisingly, the prospect of job loss within a labour market seeming to offer poor possibilities of alternative employment, created a stronger disposition to resist. To put the point another way: in the early 1980s an extraordinarily sharp contraction of industrial jobs was superimposed on a much longer trend.

IV

The story of de-industrialization in Dundee is not just about jute and MNEs. Significant job losses were also suffered in three 'old' industries, shipbuilding, the docks, and railways.

Shipbuilding had been an important Dundee industry from the early nineteenth century, but pressure from larger yards elsewhere meant that by 1920 it had been concentrated into one company, Caledon's. The company enjoyed a boom during the Second World War and into the 1950s, but the gross tonnage launched peaked in the late 1940s, and had halved by the early 1960s. By 1971 employment was down to just over 1,000.⁸³ Contraction continued, and in 1981 British Shipbuilders, who had acquired the yard on the nationalization of the industry in 1976, announced its closure. Closure was opposed by a sit-in of 140 workers, with the chair of the shop stewards asserting: 'I am only interested in the yard. I had the opportunity to serve my time in this yard and I want other youngsters to get the opportunity to do the same.'⁸⁴

The occupation was unsuccessful and the yard closed, though many of the workers found jobs at the neighbouring Kestrel Marine that grew out of the boat-builders Smith and Hutton (closed 1975), and by 1983 was employing 1,000 workers in ship repair and oil rig fabrication.⁸⁵ The willingness of the Caledon workers to resist closure was partly the result of a belief that British Shipbuilders were dishonest in their claims about the yard's financial position and productivity performance, as well as the prevalence of restrictive practices, in the yard.⁸⁶ So, ironically perhaps, nationalization in this case seems to have reinforced the sense of a remote, uncaring management.

Employment in Britain's docks has plummeted in the wake of containerization, especially evident from 1965 onwards.⁸⁷ But in Dundee, as elsewhere, the contraction began much earlier. The National Dock Labour Board statistics do not give separate data for Dundee docks, but include them in 'East Scotland', where employment fell from 2,535 in 1947, 2,082 in 1950, to 1,793 in 1960, 1,375 in 1965, 1,207 in 1970, and only 699 in 1975. This scale of

decline is indicative of what happened in Dundee, where the Census records 374 dockers in 1951, 120 by 1971.⁸⁸

The contraction of the UK railway network and accompanying decline of the labour force is often linked to the Beeching Report of the 1960s, but in fact it is noticeable from soon after railway nationalization in 1948. In the 1950s the rise of cheap road transport was exposing both freight and passenger services to sharp competition, and British Railways were responding with significant cuts, including in Dundee.⁸⁹ In the 1960s the process accelerated. In that decade across the UK railways came second only to coalmining for the scale of job losses, with 128,000 going between 1964 and 1969.⁹⁰ In Dundee contraction was epitomised by the closure of Dundee East station in 1959, followed by Dundee West in 1965. Probably even more important in employment terms was the closure of Tay Bridge engine shed (linked to the transition from steam to diesel traction) in May 1967, where over 350 people had previously been employed.⁹¹ In the census of 1951 1063 people were recorded as ‘railway transport workers’ of all grades, while by 1971 the figure was 460.⁹²

V

De-industrialization changes the labour market in two distinguishable ways. Insofar as it takes place through job losses (as opposed to the absence of fully compensating new industrial job creation), it brings the immediate threat of unemployment. If these job losses are concentrated in periods of macroeconomic contraction, then this problem will be much more serious. Irrespective of how it occurs, de-industrialization by definition brings a trend change in the types of jobs available. The central concern of those who see de-

industrialization as key to change in the labour market, is that even if one sets aside the impact of unemployment, de-industrialization will bring about a polarization of the labour market. The service-dominated economy generates lots of ‘lovely’ jobs for the educated, but also lots of ‘lousy’ jobs for those with limited educational qualifications.⁹³ We can christen these problems respectively the ‘transitional’ and the ‘steady state’ problems resulting from de-industrialization.

Christening the first aspect ‘transitional’ is intended to make an important analytical distinction, but should not be taken to suggest that the problem is either minor or rapidly resolved. Those who are thrown on the labour market with perhaps high, but redundant, job-specific skills but limited education, will generally find it very difficult to make the shift to the ‘lousy’, let alone the ‘lovely’ jobs in the service economy. So the impact of job losses may be prolonged, and not necessarily limited to the generation immediately affected by job loss, if that loss results in family deprivation with its potential to pass disadvantage down through the generations.

So in looking at what has happened in post-war Dundee we can usefully deploy this distinction, whilst recognising that in practice the nature and impact of change in the labour market cannot be easily categorised.

Recorded unemployment in Dundee was below the Scottish average in the 1950s and 1960s.⁹⁴ While net emigration increased, the total population of the city rose between 1951 and 1961 and was then stable until 1971. These employment and population trends suggest the city was participating substantially in the post-war ‘golden age’ of the British economy. In 1969 an article about the city in the Financial Times was headed ‘Dundee-from depression

to dynamism in 25 years'.⁹⁵ As already noted, the labour market underpinnings of this prosperity came from the slowing of jute's decline by protection and innovation in the industry, coupled to the growth of new manufacturing industries, including the influx of multinationals. But in the 1970s unemployment rose significantly, then shot up again from 1979.⁹⁶ By September 1979 the official rate had reached 9 per cent before peaking at 18 per cent in 1991.⁹⁷ But increasingly this official figure underestimated the real rate of joblessness. More comprehensive calculations give estimates of 20.6 per cent for January 1997. This calculation also suggests that a significant proportion of this 'hidden unemployment' was female, with a women's unemployment rate of 15.5 per cent. This may perhaps be a hidden legacy of the high employment rates of women in the city, dating back to jute and the post-war American multinationals, with a residue of older women who lost jobs and never regained employment.⁹⁸

The early 1990s do seem to represent a nadir in Dundee's post-1945 economic fortunes. The Carstairs Index of poverty shows Dundee City to have had some of the most deprived postcodes in Scotland in 1991. A few years later, an analysis of social security claimants found 35 per cent of households in Dundee were in receipt of social security benefits, compared with a national average of 33%, and with Glasgow at 52 per cent, using the unitary authorities as the unit of analysis.⁹⁹

For the purposes of the argument here we can think of 'a new 'steady state' emerging as the pace of de-industrialization slowed at the end of the 1990s. 'Steady state' exaggerates, as employment in industry continued to decline in the early twenty-first century. But as a trend a falling share of employment in industry must eventually come to an end, when it reaches zero. In practice the trend will end well before that level is reached, as it is impossible to

conceive of a structure of costs that makes it worthwhile to import every single industrial output. In other words, there is a minimum below which industrial employment cannot plausibly fall, and it is possible that the contemporary UK and Scotland are getting close to that minimum, though this is an inherently speculative proposition.

Table 1 shows the general shift from industrial to non-industrial employment over the whole period 1951-2001. ‘Services’ are an extremely heterogenous category, and the expansion of such employment has been accompanied by enormous changes in its composition. This expansion has been accompanied by major changes in official definitions, so Table 7 only gives a rough guide to those shifts.

Table 7. Changing composition of services in Dundee, 1951-2001 (proportion of employed population)

Sector (1951/2001 definitions)	1951	2001
Distributive trades/wholesale and retail trade and repairs	14.0	16.4
Insurance banking and finance/financial intermediaries	1.6	2.7
Other professional and business services/real estate, renting and business activities	0.4	9.6
PUBLIC SECTOR EMPLOYMENT		
Public administration and defence/public administration, defence and social security	4.0	5.7
Medical and dental services/health and social work	3.6	15.3
Education	2.8	8.8

Sources: as Table 1

Employed with caution, table 7 is useful in identifying some of the major changes in the service sector employment.¹⁰⁰ The most striking changes are the rise of ‘real estate, renting and business activities’, linked, amongst other factors, to the spread of private home ownership and the splitting-off of many business services (accounting, marketing, etc) from previous ‘in-firm’ provision. The second feature to be emphasized is the rise of health and education to key employment sectors, sectors overwhelmingly in the public sector.

As Table 7 makes clear, Dundee, like many post-industrial parts of Britain, became highly dependent on public sector employment in the last decades of the twentieth century, reliant on a kind of ‘regional Keynesianism’ not sufficiently stressed in most accounts of contemporary Britain.¹⁰¹ This growth of public employment can in turn be seen as a key component of the ‘de-globalization’ of the city, making its economic fortunes much more reliant on political decisions in London and Edinburgh, and much less (at least directly) on the vagaries of the international economy.¹⁰²

The expansion of the public sector favoured the employment of women, who were much more strongly represented in that sector than in ‘new’ industries such as digital media of life sciences. Thus it has allowed Dundee to continue to be a *relatively* good place for female employment opportunities, following the demise of jute and the multinational electronics firms which previously provided a large number of such jobs. Public sector employment is also now relatively well-paid compared with the private sector, though as much of this reflects the contracting out to the private sector of low-paid jobs previously done ‘in-house’ by public sector employers, it adds to the trend towards polarization of the labour market.

Evidence of the longer-term impact of de-industrialization, is given in Table 8. Along with overall population decline went a shift in the age structure, partly a result of out-migration of young people. But in addition, the employment rate amongst those of working age fell significantly.

Table 8. Working Population Changes in Dundee 1971-2001, per cent (post-1996

boundaries

	Percentage change in Dundee	Percentage change in Scotland
Total population	-21.31	-3.07
Population of working age	-17.91	1.93
Persons in employment	-27.84	1.75
Ratio those in employment : those of working age	-8.54	-0.12

Source: census data, collated by Turok, 'Urban Policy', 22.

Evidence of the growing 'precarity' of employment is suggested by the levels of self-employment and part-time work. On the first of these, national studies show that it is in part the consequence of the absence of employment opportunities, rather than indicative of a surge

in entrepreneurialism.¹⁰³ Part-time work, much more prevalent amongst women, is sometimes the worker's preference, but also a sign of the 'lousy job'.

Table 9: Economic activity in Dundee, 2001 (share of population aged 16-74)*

Economic status	Activity	Men	Women
Economically active	Part-time employee	3.6	16.8
	Full-time employee	44.4	28.1
	Self-employed	6.8	1.9
	Unemployed	7.4	3.2
	Fulltime Student	4.2	5.2
	Economically inactive	Retired	12.2
Student		8.4	7.3
Looking after home/family		1.0	7.8
Permanently sick/disabled		8.5	7.4
Other		3.6	4.4

*total population in this age group: male 54,959, female, 59,689

Source: *Census 2001. Scotland. Key Statistics for Settlements and Localities in Scotland*, Tables KS09b and c.

As noted earlier, changes in sectoral composition were by no means the whole story of changes in the labour market in Dundee. Changes in occupation also need to be addressed, though here the changing categorisations mean that there are no directly comparable statistics. Taking Tables 10 and 11 together brings out the key point about the decline of manual occupations and the growth of a wide diversity of white-collar work, usually requiring formal educational qualifications at varying levels. The link between manual occupations and the absence of formal educational qualifications is brought out by the contrast between the 1951 Census, which found that 90 per cent of men and of 91 per cent of women had left school at the earliest opportunity (14/15 or earlier)—usually with no formal qualifications (though such qualifications may have been acquired at a later stage in the life cycle). By contrast, in 2001 34 per cent of the population had no educational qualifications, 24.5 had group 1 (SVQ1-2), 16.6 group 2 (SVQ 3), 7.3 group 3 (SVQ4-5) and 18 group 4 (degree or professional qualification).¹⁰⁴

Table 10. Occupational class in Dundee, 1951

Occupational Class*	Men (occupied or retired over 15) percentage	Women (occupied or retired over 15) percentage
I	2.9	0.5
II	10.8	11.0
III	53.1	57.1
IV	16.4	20.7
V	16.8	10.6

*Social classes I and II are salaried workers, III, IV and V are wage workers, broadly divided into skilled, semi-skilled and unskilled respectively.

Source: *Census 1951. Scotland vol. V. Occupations and Industries* Table 10.

Table 11. Occupations in Dundee 2001

Occupational Group	Percentage of those aged 16-74 in employment
Managers and senior officials	9.7
Professional occupations	10.5
Associate professional and technical	14.4
Administrative and secretarial	12.3
Skilled trades	10.7
Personal service	7.0
Sales and customer service	10.4
Process, plant and machine operatives	10.5
Elementary occupations	14.6

Source: *Census 2001. Scotland. Key Statistics for Settlements and Localities in Scotland*, Table KS12a.

In sum, what we are tabulating here is the radical shrinking of the manual working class in the city. In the place of all those manual jobs there have proliferated a variety of mainly non-manual service sector jobs, a large proportion of which require significant levels of educational qualification-the 'lovely jobs'. But at the same time there has been the loss of opportunities for the substantial minority with little or nothing in the way of such qualifications-they are the people who have to do the 'lousy jobs'. To reiterate, these changes in occupational structure are by no means all the result of sectoral shifts. *Within* industry, including manufacturing, more jobs were becoming technical and/or supervisory, usually requiring formal qualifications for those who took them up.¹⁰⁵

V

What are the implications of the Dundee case for our broader understanding of de-industrialization? First, most generally, that this term's use is always and inevitably embedded in broader narratives about economic development: it is not a 'free-standing' concept. Most discussion of de-industrialization still shows evidence of its origins in the 1970s, and especially 1980s, when declinist assumptions about the American, British and Scottish economies were ubiquitous. This has meant that every industrial closure in those countries has tended to be interpreted within a story of national pathology, rather than as part

of the normal flux of economic activity in a capitalist economy, or as part of a trend common to all such economies.

Second, because of this chronological origin, it has been common in both the British and Scottish cases to exaggerate the significance of the Thatcher period in the process of de-industrialization, which began well before 1979, and continued long after. That this foreshortened chronology doesn't fit the shrinking of the coal industry has been emphasized by recent research, but the point has much wider scope (see Table 1).¹⁰⁶ This is not to dispute the pain caused by the incompetence of Thatcher's economic policies, but to suggest that excessive focus on the period tends to both misunderstandings of the causes of de-industrialization, and unhelpful approaches to its politics.

On causes, focusing too much on the experience of the 1980s will tend to conflate the short-term effects of the sharp contraction at the beginning of that decade, and the continuation of long-term trends which had been proceeding since the 1950s.¹⁰⁷ If we focus on trends we can see that, as the decline in industrial employment was evident across all the Western industrial countries, the causes must also be sought substantially in forces operative at an international and not just a British or Scottish level.¹⁰⁸ Changes in consumption patterns, differing relative sectoral productivity performance and changing patterns of international trade and capital movement are then seen as broader contexts within which the British and Scottish cases worked out.

On the politics, the policies of the Thatcher period are best seen as very important *not* for initiating de-industrialization (though they greatly accelerated the process), but, crucially, as changing how that process was responded to: as undermining the previous, if frayed, moral

economy.¹⁰⁹ These market fundamentalist policies broke with the moral economy of the previous decades, when to varying degrees it was deemed the duty of the state to offset, mitigate or compensate for the unavoidable disruptions that de-industrialization brings.¹¹⁰

Another problematic legacy of the origins of the de-industrialization debate in the 1980s is the question of links between globalization and de-industrialization. Of course globalization is multi-faceted, and if we associate with the influx of multinationals into Dundee after 1945 it clearly brought substantial benefits of new technologies and enhanced wages and conditions for many workers. But in the 1980s globalization was a term commonly linked de-industrialization by notions of capital flight. Much of the North American literature focussed on both ‘flight’ *within* countries (‘from the Rust Belt to the Sunbelt’) and between-international or ‘global’ movements. The literature on Scotland and Britain focused more on the latter, as within country flight of capital was a less significant feature; while varying in degree, *all* parts of these countries were experiencing de-industrialization. Within the UK, industrial decline in London was enormous, as emphasized by the Greater London Council in the 1980s.¹¹¹ Within Scotland it was also happening everywhere. The traditional emphasis has been on West Central Scotland, and this article has obviously emphasized its serious impact in Dundee. But it also took place in the Highlands and in the Borders.¹¹² Perhaps most surprisingly, it was a powerful trend in Edinburgh, a city historically with a large industrial sector, but where more manufacturing jobs were lost in 1968-1976 than in Dundee (both absolutely and proportionately).¹¹³

The Dundee case should caution us in putting too much attention on capital flight as a cause of de-industrialization. If we first take the case of jute, its problems never arose from this cause; as shown above its shrinking arose first from goods market competition, and the later

from technical change. Never was there a process of closing down jute mills and relocating their production elsewhere.¹¹⁴

Jute was broadly typical of the whole textile industry, certainly including cotton, the largest component of that sector. Its decline had begun around the First World War, it was driven initially by low-wage competition from the 'Third World', with problems exacerbated by technical change after 1945, especially the invention of synthetic fibres. Despite significant technological innovation and product diversification, employment loss was large and persistent across the post-war years.

Textiles were hugely important, especially for employment, and the employment of women, but they were not typical of the 'old staples' in key respects. The decline of coal was overwhelmingly driven by technical change coupled, in later years, with public policy on electricity generation, not by market competition; imports of coal were trivial until the 1990s, and even then only displaced a small proportion of the jobs that had been lost in the industry.¹¹⁵ Shipbuilding was, of course, hit by market competition, but in its most rapid period of decline in the late 1950s and 1960s this competition did not come from the 'Third world', but from other advanced industrial countries, Norway, Sweden and Japan.¹¹⁶ It is a similar story in iron and steel, where technical change and competition from other advanced countries were the main drivers of employment decline (only in the twenty-first century was competition from China and India significant).¹¹⁷

What capital flight did occur in Dundee should caution us against a too simplistic view that this flight could be characterised as consisting of footloose, unembedded plants which fled to low-wage locations in the Global South. As noted above, in the Dundee case, both of the

biggest multinationals eventually established activities which went well beyond branch plant assembly, with significant skilled employment, including in Research and Development. They did eventually cease manufacturing in the city (though they were hardly ‘transients’ - both provided industrial employment for almost fifty years), but insofar as the jobs lost went elsewhere, it was to other European locations, rather than developing countries. There was also relatively little of the direct transfer of employment as with the ‘rust-belt to sunbelt’ phenomenon within Britain. In Dundee, the only identified cases are Morphy Richards and Burndept (listed in Table 6) where, as part of corporate re-organizations, production was shifted south of the border in the 1970s.¹¹⁸

We can use the Dundee case to helpfully complicate the stories of both the ‘old staples’ and the ‘new industries’ in their contribution to de-industrialization. But this ‘old/new’ dichotomy itself has serious limits. As the jute example brings home, the old staples were not characterised by an unchanging commitment to inherently outdated activities. In their helpful typology of industries suffering employment decline, Massey and Meegan suggested a three part characterization: ‘rationalization’, which is simple reduction in total capacity; ‘intensification’, where labour productivity is driven up without major investment or re-organization; and ‘investment and technical change’, which is self-explanatory.¹¹⁹ They rightly put jute in the third of these boxes, given, as noted above, that it was subject to major re-organization and reform, and, most strikingly, by the 1970s barely deserved the designation ‘jute industry’, so far had it shifted to the use of polypropylene. It had become a ‘new industry’.

So the ‘old/new’ distinction needs to be treated with some care. Many important industries never fitted into that dichotomy. Food, Drink and Tobacco, for example, is not normally seen

as either of these, yet was and remained a major employer in the city. Publishing and printing is similar, with the particularly prominent example of DC Thomson. Probably the city's most long-standing, stable source of private sector jobs, Thomson's is a company which has thrived on producing a resolutely old-fashioned set of newspapers and magazines, but spread its investments widely, including into a range of new media.

Finally, we return to the long arc of history within which we can place de-industrialization. If we see that process as akin to the historical transition from agricultural to industrial predominance, we can note that the historiography of that earlier transition has often run aground because disputants about its impact talked past each other.¹²⁰ Those who emphasized its negative effects on popular welfare focused on the undoubted pains of the transition, and the long lag before the mass of the population saw much benefit in their material living standards. The 'optimists' focused attention on the long-run effects, when most of the transition had taken place, and so might be thought of as talking about something approaching a 'steady state' industrial society. In the context of de-industrialization, the point is not whether we take an overall 'optimistic' or 'pessimistic' view, but that we recognise the utility of distinguishing the issues raised by an inherently painful transition as distinct from those raised by a new 'steady state' of the 'service economy'.

Notes

¹ Bluestone and Harrison, *Deindustrialization of America*; Cowie and Heathcott, *Beyond The Ruins*. High, Mackinnon and Perchard, *De-industrialised World*; Phillips, 'The moral economy'; Gibbs, 'Moral economy'.

² Tomlinson, 'De-industrialization: strengths and weaknesses'; see also Tomlinson, 'De-industrialization not decline'.

³ Blackaby, *De-industrialisation*; Singh, 'UK industry'; Sherif, *A De-industrialized Britain*; Bacon and Eltis, *Britain's Economic Problem*.

⁴ Kaldor, *Causes*; Baumol, 'Macroeconomics of unbalanced growth'.

⁵ Sam Brittan, 'Deindustrialization is good for the UK' *Financial Times*, 3 July 1980; Rowthorn and Wells, *De-industrialization*; Crafts, 'Can De-industrialisation?'.

⁶ It might be argued that the very term 'de-industrialization' emphasizes the negative effects, as opposed to alternatives such as 'the rise of services': see Broadberry 'The rise of the service sector'.

⁷ Bluestone's 'Foreword' to Cowie and Heathcott, *Beyond The Ruins* makes this context for his 1982 book especially clear, when he argues that since the 1980s US industrial output and productivity (but not employment) has rebounded into growth (x-xiii), and therefore what has happened in the 1990s and the early 2000s 'cannot be termed "deindustrialization", but for the workers affected it feels the same'. (xiii). Note that the 1980s was the peak period for declinism in the USA, in the face of Japanese competition. For Britain, Martin and Rowthorn, *The Geography*; Foster and Woolfson, *The Politics*; Levie, Gregory and Lorentzen, *Fighting Closures*; Rose et al, 'Restructuring'.

⁸ Morton and Griffiths, 'Closing the door'.

⁹ Knox and McKinlay, 'Work in twentieth-century Scotland', 49. On the 'new industries' theme, see Randall, 'New towns'.

¹⁰ Campbell, *Scotland Since 1707*, chapter XVI ‘since 1945’ diagnoses a problem of resistance to change, and shortage of indigenous enterprise—uses a trope of entrepreneurial failure, a staple of early historiographical declinism. (See also Campbell, *The Rise and Fall*, 151-184.) On this issue, see also Payne, ‘The decline’. Other examples are Lythe and Butt *Economic History*, 201-227; Foster, ‘The twentieth century’, 455-60, 467-78.

¹¹ Perchard, “Broken Men”.

¹² Dickson and Judge, *The Politics*; Woolfson and Foster, *Track Record*; Lorentzen, “You can’t fight for jobs’. For the debate in North America: Staudohar and Brown, *Deindustrialisation*.

¹³ Dickson and Judge, ‘Introduction’, vii.

¹⁴ Findlay, ‘Resistance; Woolfson and Foster, *Track Record*; Clarke, “Stealing”; Foster and Woolfson, *Politics*; Gilmour, ‘The Trouble with Linwood’.

¹⁵ Gibbs and Phillips, ‘Who owns a factory?’

¹⁶ High, “The wounds of class”.

¹⁷ According to the 1951 Census there were seven men and one woman coalminer living in Dundee, presumably commuting to the Fife coalfield.

¹⁸ Scottish data in Tomlinson, ‘Key trends’, 13.

¹⁹ Ministry of Labour, ‘Occupational Changes’, 15.

²⁰ Paterson, Bechhofer and McCrone. *Living in Scotland*, 50-52, 82-87.

²¹ ‘Business demography,UK’.

²² MacInnes, ‘The deindustrialisation of Glasgow’, 81. Unlike Glasgow, Dundee was not the object of a planned reduction of the city’s population, and there is no evidence that the city was suffering serious competition for job creation with any of the new towns. Dundee was also characterised by relative geographical isolation, thus less affected by expanding travel to work areas.

²³ For Scotland, Hood, 'The small firm sector'.

²⁴ Tomlinson, 'Socialist politics'.

²⁵ Hood, 'The SDA'; McCrone and Randall, 'The Scottish Development Agency'; Robertson, 'Reversing industrial decline' *Dundee Courier* 13 January 1981. (Robertson was the Dundonian Chief Executive of the SDA).

²⁶ Henderson, 'An analysis of closures'.

²⁷ Beesley and Hamilton, 'Births and deaths'.

²⁸ Hood and Young, *Multinationals in Retreat*. 33-4; on the failure of the Ford motor company to establish a prospective plant in Dundee, Woolfson and Foster, 'Corporate Reconstruction', 52, 54-6. Unsurprisingly, when this issue came to the Thatcher cabinet it was discussed as an episode of union intransigence: TNA:PRO CAB128/89/12 Cabinet Conclusions 24 March 1988.

²⁹ Tomlinson, *Dundee and the Empire*.

³⁰ Board of Trade, *Jute Working Party Report*.

³¹ Morelli, Tomlinson and Wright, 'The managing of competition'; Howe, *Dundee Textile Industry*.

³² McDowall and Draper, *Trade Adjustment*; McDowall, Draper and McGuinness, *Protection*.

³³ Howe, *Dundee Textile Industry*, 137-41, 153-5.

³⁴ Carter and Williams, *Industry*, 220-229.

³⁵ Howe, *Dundee Textile Industry*, 160. This innovation encouraged the production of carpet-making in the city, so that in 1959 there were three carpet producers in the city employing 1,000 workers (One of them a subsidiary of Jute Industries): Jackson, 'Leading industries', 166.

³⁶ McDowall and Draper, *Trade Adjustment*; for these authors' debate with jute industry leaders, see Tomlinson, Morelli and Wright, *Decline of Jute*, 155-6.

³⁷ Broadberry, *The Productivity Race*, 259-60.

³⁸ Sidlaw Industries quickly sold off its Polypropylene interests and diversified into a very wide range of activities, most of them outwith Dundee: Morelli, 'Jute'; Tomlinson, Morelli and Wright, *Decline of Jute*, 110.

³⁹ Howe, *Dundee Textile Industry*, 159.

⁴⁰ For the role of unions, see below.

⁴¹ Tomlinson, Morelli and Wright, *The Decline of Jute*, 94.

⁴² Howe, *Dundee Textile Industry*, 164.

⁴³ Carstairs and Cole, 'Recent developments'.

⁴⁴ Howe, *Dundee Textile Industry*, 164; Symeondis, *The Effects of Competition*, table B1

⁴⁵ Howe, *Dundee Textile Industry*, 39.

⁴⁶ *Courier* 9 January 1981.

⁴⁷ *Courier* 10 January 1981.

⁴⁸ *Courier* 1 September 1998.

⁴⁹ Craig, Rubery, Tarling and Wilkinson, *Abolition and After*.

⁵⁰ TNA, BT 177/928B, Treasury Financed Building Project on Trading Estates or Site, 13 December 1957.

⁵¹ Phillips, 'Moral economy'.

⁵² Dundee City Council, 'Do It in Dundee' (Dundee, 1931).

⁵³ Phillips, 'The Tay Road Bridge', 247,251.

⁵⁴ Wright, 'Juteopolis'.146-7.

⁵⁵ Campbell and Lyddon, *Tayside*, 108.

⁵⁶ Tom Smith and Dave Howie, Interviewed by Val Wright and Jim Phillips, Dundee, 3 July 2018.

⁵⁷ Tomlinson, *Dundee and Empire*

⁵⁸ See the biography of Margaret Fenwick, who was Assistant General Secretary of the DDUJFW from 1960 and General Secretary from 1971 in Ewan, *The Biographical Dictionary of Scottish Women*, pp.115-116 and debate on the issue at the time of the 1963 bye-election in the city, *Times* 12 November 1963. The TUC also got involved in pressure for continuation of protection-see MRC MSS292/629/3.

⁵⁹ Caledon was a very old Dundee company that amalgamated with Robb's of Leith in 1968.

⁶⁰ Clarke, 'Stealing our identity'; Findlay, 'Resistance'.

⁶¹ Hood and Young, *Multinationals in Retreat*.

⁶² Cmd. 8223 *Industry and Employment in Scotland 1950*, paras. 42-52.

⁶³ The most detailed account of Dundee industry at firm level is for the early 1960s: see Jackson, 'Leading industries'.

⁶⁴ Total employment figure from TNA: PRO BT177/2686 Miss McGhee (Office for Scotland) to Miss Hodgkinson, 'Information for brief on Dundee', 29 November 1966.

⁶⁵ Ferranti came to Dundee in 1954, initially with 40 workers, and employed 230 in 1963, and 630 in 1984: Jackson, 'Leading industries', 162, *Courier* 27 March 1984.

⁶⁶ Knox and McKinlay, 'The union'; Young, 'Timex and IBM' in Hood and Young, *Industry, Policy and the Scottish Economy*, 117-127.

⁶⁷ Knox and McKinlay, 'The union', 283-5.

⁶⁸ Knox and McKinlay, 'The union'.

⁶⁹ Firn, ; Dimitratos, Liouka, Ross and Young, 'The multinational enterprise'.

⁷⁰ Knox and McKinlay, 'The union', 277.

⁷¹ Smith and Howie, interviewed by Wright and Phillips.

⁷² Young, 'Timex and IBM'.

⁷³ Hood and Young, *Multinationals in Retreat*, 100-117.

⁷⁴ Hood and Young, *Multinationals in Retreat*, 106-111; ‘Hundreds of jobs to be cut at NCR’, BBC News, 12 March 2009, http://news.bbc.co.uk/1/hi/scotland/tayside_and_central/7939476.stm, accessed 21 September 2018. .

⁷⁵ *The Times*, 7 May 1983, 9 May 1983, 9 July 1983, 4 September 1984; Hood and Young, *Multinationals*, 106-113.

⁷⁶ Hood and Young, *Multinationals*, 104.

⁷⁷ Liu, ‘The economic impact’.

⁷⁸ In 2001 the one remaining large multinational manufacturing company was the French tyre company Michelin, where high weight/value ratios in transporting tires keep production in Dundee, close to European markets). Michelin was established in 1972 with 400 workers, with subsequent fluctuations around 800-1000. The company closed its Aberdeen factory (opened 1973) in 1986, and plants in Burnley and Stoke in 2001, leaving Dundee the only one of Michelin’s British plants making car tyres. Its closure was announced in November 2018.

⁷⁹ Martin and Dowling, ‘Managing Change’.

⁸⁰ Peter Hetherington, ‘Timex job fight turns clock back to 1980s’, *The Guardian*, 3 March 1993.

⁸¹ Findlay, ‘Resistance’,.75.

⁸² The crisis of the 1970s was one of inflation and fiscal deficits, with only mild impact on output and employment.

⁸³ Jackson, ‘Leading industries’, 150-153; *Census 1971 Scotland Economic Activity* (10% sample),

Table 3.

⁸⁴ *Scotsman*, 19 October 1981; for arguments about Caledon see also Gordon Wilson MP in *Hansard* (Commons) vol. 10 cols. 23-5, 19 October 1981.

⁸⁵ *Courier* 21 June 1983.

⁸⁶ *Scotsman*, 19 October 1981.

⁸⁷ Wilson, *Dockers*, 308-9.

⁸⁸ National Dock Labour Board, *Reports and Accounts*, various; Census 1951, vol. iv, Table 6 and *Census 1971 Scotland Economic Activity*, Table 3.

⁸⁹ Marshall, *Railways*, 147-57.

⁹⁰ *Hansard* (House of Commons), vol. 801, col. 432, 6 May 1970.

⁹¹ Marshall, *Railways*, 151.

⁹² *Census 1951*, vol. iv, Table 6 and *Census 1971 Scotland Economic Activity*, Table 3.

⁹³ Goos and Manning, 'Lousy and Lovely Jobs'.

⁹⁴ The lowest point according to the official (claimant) count was 2.0 per cent in 1966: Campbell and Laydon, *Tayside*, 99.

⁹⁵ *Financial Times* 17 October 1969.

⁹⁶ A study in the late 1970s of the effects of job losses at NCR and Sidlaw Industries respectively showed how this unemployment impacted on different parts of the labour market. Amongst the NCR workers, 36 per cent went straight to another job, and only 27 per cent were unemployed for more than three months. For Sidlaw's jute workers the figures were 14 per cent and 56 per cent respectively. NCR workers were typically typically much more skilled: Scottish Economic Planning Department, 'Redundancies in Dundee' (Dundee, 1979), 16.

⁹⁷ Ross and Hardy, *Unemployment in Dundee*, 3; *Department of Employment Gazette*, various issues.

⁹⁸ Beatty, Fothergill, Gore and Herrington, *The Real Level of Unemployment 1997*.

⁹⁹ McLoone, *Carstairs Scores*: 64-5; Bramley, Lancaster and Gordon, 'Benefit Take-up'.

¹⁰⁰ As always, broad similarity of aggregates does not mean no compositional change. For example, retailing has shifted from a multiplicity of small, locally-owned, shops to the

dominance of the major supermarkets, so that by 2001 Tesco was the biggest private sector employer in Dundee: Dundee City Council, *About Dundee 2004* (Dundee, 2004), p.20.

¹⁰¹ ‘Regional Keynesianism’ is to be distinguished from the main thrust of regional policy which was characterised by a variety of means of seeking to encourage private investment into a region.

¹⁰² Tomlinson, ‘The Deglobalization of Dundee’.

¹⁰³ Scottish Executive, *Scottish Economic Statistics 2002* (Edinburgh, 2002), p.137.

¹⁰⁴ *Census 1951. Scotland vol. V. Occupations and Industries* Table 17; *Census 2001.*

Scotland. Key Statistics for Settlements and Localities in Scotland, Table KS13.

¹⁰⁵ McCrone, *The New Sociology*, 205-208.

¹⁰⁶ Phillips, ‘The moral economy’; Gibbs, ‘The moral economy’.

¹⁰⁷ A contraction which reduced jobs in the *service* sector by around 250,000 in the UK:

Massey and Meegan, *Anatomy*, 14.

¹⁰⁸ Feinstein, ‘Structural change’, 39.

¹⁰⁹ For a general social science discussions of the concept of ‘moral economy, see Bolton and Lasser, ‘Work, employment and society’.

¹¹⁰ Compare the much more carefully managed decline of deep-mined coal in Germany.

¹¹¹ GLC, *London Industrial Strategy*, 2-8.

¹¹² Perchard, ‘A little local difficulty?’

¹¹³ 19, 901 (35.9 per cent), compared with 11,572 (27.1 percent): Ashcroft, ‘Scottish region’, 177; see also Madgin and Rodger, ‘Inspiring capital?’.

¹¹⁴ There was some financing of Calcutta jute by Dundee capitalists before the First World War, but in the post-1945 period it was owned by Indians. Also, some jute machinery from Dundee mill closures was moved to Calcutta mills.

¹¹⁵ Imports exceeded domestic production for the first time in 2001, rising to 25 million tons in 2015, roughly equivalent to 12,500 miner's jobs at UK levels of productivity: M.Kerai, 'Coal statistics in 2012'.

¹¹⁶ Johnman and Murphy, *British Shipbuilding*.

¹¹⁷ Iron and Steel lost 90 per cent of its workforce between 1971 and 2001, the great bulk of the fall coming in the 1980s (50 per cent of the fall in 1979-1981). Over the same period, output fell by much less, approximately 40 per cent: Rhodes, 'UK steel industry, 6, 9; Payne, 'The end of steel-making'. Payne details the erosion of employment at most plants well before their closure (78).

¹¹⁸ Jackson, 'Leading industries' 156, 162; Riddell, 'Social structure and relations', 476-482.

¹¹⁹ Massey and Meegan, *The Anatomy*, 18.

¹²⁰ A key early debate is: Hobsbawm and Hartwell, 'The Standard of Living'; Griffin, 'Diets, hunger and living standards'.

References

Ashcroft, Brian, 'Scottish region and regions of Scotland' in Keith Ingham and James Love, eds., *Understanding the Scottish Economy*, Oxford, Oxford University Press, 1983, 173-187.

Bacon, Robert and Walter Eltis, *Britain's Economic Problem: Too Few Producers*, London, Macmillan 1976.

Baumol, William, 'Macroeconomics of unbalanced growth: the anatomy of urban crisis' *American Economic Review* 57 (1967), 415-426.

Beatty, Christina, Stephen Fothergill, Tony Gore and Allison Herrington, *The Real Level of Unemployment 1997*, Sheffield, Sheffield Hallam University, 1997.

Beesley, Michael and R. Hamilton, 'Births and deaths of manufacturing firms in the Scottish regions' *Regional Studies* 4 (1986), 281-288.

Blackaby, Frank, ed., *De-industrialisation* London, Heinemann, 1978.

Bluestone, Barry and Bennett Harrison, *The Deindustrialization of America. Plant Closings, Community Abandonment, and the Dismantling of Basic Industry*, New York, Basic Books, 1982.

Board of Trade, *Jute Working Party Report*, London, HMSO, 1948.

Bolton, Sharon and Knut Laaser, 'Work, employment and society through the lens of moral economy' *Work, Employment and Society* 27 (2013), 508-525.

Bramley, Glen, Sharon Lancaster and David Gordon, 'Benefit Take-up and the Geography of Poverty in Scotland' *Regional Studies* 34 (2000), 507-519.

Broadberry, Stephen, *The Productivity Race*, Cambridge, Cambridge University Press, 1997.

Broadberry, Stephen, 'The rise of the service sector' in Floud, Roderick, Jane Humphries and Paul Johnson, eds., *The Cambridge Economic History of Modern Britain. Vol. II 1970 to the Present*, Cambridge, Cambridge University Press, 2014, 330-61.

Cmd. 8223 *Industry and Employment in Scotland 1950* (London, HMSO, 1950).

Campbell, Archibald and Donald Lyddon, *Tayside: Potential for Development*, London, HMSO, 1970.

Campbell, Roy, *The Rise and Fall of Scottish Industry*, Edinburgh, John Donald, 1980.

Campbell, Roy, *Scotland Since 1707*, Edinburgh, John Donald, 1985.

Carstairs, A and A.Cole, 'Recent developments in the jute industry' *Scottish Journal of Political Economy* 7 (1960), 117-133.

Carter, Charles and Bruce Williams, *Industry and Technical Progress*, London, Oxford University Press, 1957.

Clarke, Andrew, "'Stealing our identity and taking it over to Ireland": deindustrialization, resistance and gender in Scotland' in High et al. *Deindustrialized World*, pp.331-47

Cowie, Jefferson and Joseph Heathcott, eds., *Beyond the Ruins. The Meanings of Deindustrialisation*, Ithaca: NY, Cornell University Press, 2003.

Crafts, Nicholas, 'Can De-industrialisation Seriously Damage Your Wealth?' London, Institute of Economic Affairs, Hobart Paper 120, 1993.

Craig, Christine, Jill Rubery, Roger Tarling and Frank Wilkinson, *Abolition and After: the Jute Wages Council*. Department of Employment Research Paper no. 15, 1980.

Tony Dickson and David Judge, eds., *The Politics of Industrial Closure*, Basingstoke, Macmillans, 1987.

Dimitratos, Pavlos, Ioanna Liouka, Duncan Ross and Stephen Young, 'The multinational enterprise and subsidiary evolution: Scotland since 1945' *Business History* 51 (2009), 401-25.

Ewan, Elizabeth, Sue Innes, Sian Reynolds and Sue Pipes, *The Biographical Dictionary of Scottish Women*, Edinburgh, 2006.

Feinstein, Charles, 'Structural change in the developed countries in the twentieth century' *Oxford Review of Economic Policy* 15 (1999), 35-55.

Findlay, Patricia, 'Resistance, restructuring and gender: the Plessey occupation' in Dickson and Judge, *Politics of Industrial Closure*, 70-95.

Firn, John, 'External control and regional policy' in Gordon Brown, ed., *The Red Paper on Scotland*, Edinburgh, EUSPB, 1975,

Foster, John 'The twentieth century, 1914-1979' in Robert Houston and William Knox, eds., *The New Penguin History of Scotland*, London, Allen Lane, 2001, 455-78.

Foster, John and Woolfson, Charles, *The Politics of the UCS Work-in: Class Alliances and the Right to Work*, London, Lawrence and Wishart, 1986.

GLC, *London Industrial Strategy*, London, GLC, 1985.

Gibb, **Kenneth**, Duncan Maclellan, Des McNulty, Michael Comerford, **The Scottish Economy (2018)**

Gibbs, Ewen, 'The moral economy of the Scottish coalfields: managing deindustrialization under nationalization c.1947-1983' *Enterprise and Society* 19 (2018), 124-52.

Gibbs, Ewen and Phillips, Jim, 'Who owns a factory?: Caterpillar tractors in Uddingston, 1956-1987' *Historical Studies in Industrial Relations* 39 (2018), 111-37.

Gilmour, Alison, 'The Trouble with Linwood: Compliance and Coercion in the Car Plant, 1963-1981', *Journal of Scottish Historical Studies*, 27 (2007), 75-93.

Glancey, Keith 'Components of employment change in the Tayside manufacturing sector: a spatial analysis' *Fraser of Allander Quarterly Economic Commentary* 21 (1995),

Goos, Maarten and Alan Manning, 'Lousy and Lovely Jobs: the rising polarization of work in Britain' *Review of Economics and Statistics* 89 (2007), 118-133.

Griffin, Emma, 'Diets, hunger and living standards during the British industrial revolution' *Past and Present* 239 (2018), 71-111.

Henderson, Robert, 'An analysis of closures amongst Scottish manufacturing plants between 1965 and 1975' *Scottish Journal of Political Economy* 27 (1980), 152-174.

High, Steven, "'The wounds of class": a historiographical reflection on the study of deindustrialization, 1973-2013' *History Compass* 11 (2013), 994-1007.

High, Steven, Lachlan Mackinnon and Andrew Perchard, eds., *The De-industrialised World: Confronting Ruination in Postindustrial Places*, Vancouver, UBC Press, 2017.

Hobsbawn, Eric and Max Hartwell, 'The Standard of Living during the Industrial Revolution: A Discussion', *Economic History Review*, XVI (1963), 135-146.

Hood, Neil 'The small firm sector' in Hood, Neil and Stephen Young, eds., *Industry, Policy and the Scottish Economy*, Edinburgh, Edinburgh University Press, 1984, 57-92.

Hood, Neil, 'The SDA' *Three Banks Review* 171 (1991), 3-21.

Hood, Neil and Stephen Young, *Multinationals in Retreat. The Scottish Experience* Edinburgh, Edinburgh University Press, 1982.

Howe, Stewart, *The Dundee Textile Industry 1960-1977. Decline and Diversification*, Aberdeen, Aberdeen University Press, 1982.

Jackson, Joseph, 'Leading industries' in Jackson, ed., *The Third Statistical Account of Scotland. The City of Dundee*, Arbroath, Herald Press, 1979, 104-190.

Johnman, Lewis and Hugh Murphy, *British Shipbuilding and the State since 1918. A Political Economy of Decline*, Exeter, Exeter University Press, 2002.

Kaldor, Nicholas, *Causes of the Slow Rate of Growth of the United Kingdom*, Cambridge, Cambridge University Press, 1966.

Kerai, Mita, 'Coal statistics in 2012'

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/170708/et_article_coal_in_2012.pdf

Knox, William and Alan McKinlay, 'The union makes us strong? Work and trade unionism in Timex, 1946-1983' in Tomlinson and Whatley, eds., *Jute No More*, Dundee, Dundee University Press, 2011, 266-290.

Knox, William and Alan McKinlay, 'Work in twentieth-century Scotland', in Mark Mulhern, John Beech and Elaine Thompson, eds., *Scottish Life and Society. The Working Life of the Scots. A Compendium of Scottish Ethnology, Vol. 7*, Edinburgh, 2008, 48-66.

Levie, Hugo, Denis Gregory and Nick Lorentzen, eds., *Fighting Closures: De-industrialization and the Trade Union*, Nottingham, Spokesman, 1984.

Liu, Xiaming, 'The economic impact of multinational enterprises in Tayside' *Fraser of Allander Economic Commentary* 20 (1994), 37-43.

Lorentzen, Nick, “You can’t fight for jobs and just sit there”: The Lee Jeans sit-in’ in Levie et al. ed. *Fighting Closures*, pp.43-62

Lythe, S. Edgar and John Butt *Economic History of Scotland 1100-1939*, Glasgow, Blackie, 1975.

MacInnes, John, ‘The deindustrialisation of Glasgow’ *Scottish Affairs* 11 (1995), 73-95.

Madgin, Rebecca and Rodger, Richard, ‘Inspiring capital? Deconstructing myths and reconstructing urban environments, Edinburgh, 1860-2010’ *Urban History* 40 (2013), 507-529.

Marshall, Peter, *The Railways of Dundee*, (Oxford, 1996).

Martin, Graeme and Martin Dowling, Managing Change, ‘Human Resource Management and Timex’, *Journal of Strategic Change*, 4 (1995), 77-94.

Martin, Roderick and Robert Rowthorn, eds., *The Geography of Deindustrialization* (London, 1986).

Massey, Doreen and Richard Meegan, *The Anatomy of Job Loss. The How, Why and Where of Employment Decline* (London, 1982),

McCrone, David, *The New Sociology of Scotland*. London, Sage, 2017.

McCrone, Gavin and John Randall, 'The Scottish Development Agency' in Richard Saville ed., *Economic Development of Modern Scotland*, Edinburgh, John Donald, 233-244.

McDowall, Stuart and Paul Draper, *Trade Adjustment and the British Jute Industry: a Case Study*, Fraser of Allander Institute for Research on the Scottish Economy, Glasgow, 1978.

McDowall, Stuart, Paul Draper and Tom McGuinness, *Protection, Technical Change and Trade Adjustment: the Case of Jute in Dundee*, St Andrews University Department of Economics Report no.14, St. Andrews, 1976.

McLoone, Philip, *Carstairs Scores for Scottish Postcode sectors from the 1991 Census*, Glasgow University, Public Health Research Unit, 1994.

Ministry of Labour, 'Occupational Changes, 1951-61', Manpower Studies no.6 (1967).

Morelli, Carlo, 'Jute, firm's survival and British industrial policy: government action under globalization' in M. Umemura and R. Fujioka, eds., *Comparative Responses to Globalization: Experiences of British and Japanese Enterprises*, Basingstoke, Palgrave, 2013, 146-152.

Morelli, Carlo, Jim Tomlinson and Valerie Wright, 'The managing of competition: government and industry relationships in the jute industry 1957-63' *Business History*, 54 (2012), 765-782.

Morton, Graeme and Trevor Griffiths, 'Closing the door on modern Scotland's gilded cage', *Scottish Historical Review* XCII (2013), 49-69.

Paterson, Lesley, Frank Bechhofer and David McCrone. *Living in Scotland. Social and Economic Change since 1980* (Edinburgh, 2004),

Payne, Peter, 'The decline of the Scottish heavy industries, 1945-83' in R. Saville (ed.), *The Economic Development of Modern Scotland 1950-1980* (Edinburgh, 1985), pp.79-113

Payne, Peter, 'The end of steel-making in Scotland c1967-1993' *Scottish Economic and Social History* 15 (1995), 66-84.

Perchard, Andrew, "'Broken Men" and "Thatcher's Children": memory and legacy in Scotland's coalfields' *International Labor and Working Class History*, 84 (2013), 78-98.

Phillips, Jim, 'The Tay Road Bridge and post-1945 development' in Tomlinson and Whatley, *Jute No More*, 246-265.

Phillips, Jim, 'The moral economy and deindustrialization in the Scottish coalfields, 1947-1991, *International Labor and Working Class History*, 84 (2013), 99-115

Randall, John, 'New towns and new industries' in Richard Saville, ed., *The Economic Development of Modern Scotland*, 245-269.

Rhodes, Chris, 'UK steel industry: statistics and policy' House of Commons Briefing Paper 07317, 28 October 2016.

Riddell, David, 'Social structure and relations' in Jackson, *Third Statistical Account*, 459-511.

Robertson, Lewis, 'Reversing industrial decline' *Dundee Courier* 13 January 1981.

Rose, David, Carolyn Vogler, Gordon Marshall and Howard Newby, 'Economic restructuring: the British experience' *Annals of the American Academy of Political and Social Science*, 475 (1984), 137-157.

Ross, Ernie and John Hardy, *Unemployment in Dundee*, Dundee, Dundee Labour Party, 1979.

Rowthorn, Robert and John Wells, *De-industrialization and Foreign Trade*, Cambridge, Cambridge University Press, 1987.

Sherif, Tom, *A De-industrialized Britain*, Fabian Society Pamphlet 341 (London, 1979)

Singh, Ajit, 'UK industry and the world economy: a case of deindustrialisation?' *Cambridge Journal of Economics* 1 (1977), 113-36.

Staudohar, Paul and Holly Brown, *Deindustrialisation and Plant Closure*, Lexington, Mass. Free Press, 1987.

Symeondis, George, *The Effects of Competition: Cartel Policy and the Evolution of Strategy and Structure in British Industry* (London, MIT Press, 2002)

Tomlinson, Jim. 'Socialist politics and the "small business"' *Politics and Power* 1 (1980), 165-174.

Tomlinson, Jim, 'The Deglobalization of Dundee, circa 1900-2000' *Journal of Scottish Historical Studies*, 29 (2009), 123-140.

Tomlinson, Jim, *Dundee and the Empire*, Edinburgh, Edinburgh University Press, 2014.

Tomlinson, Jim, 'De-industrialization not decline. A new meta-narrative for post-war British history' *Twentieth Century British History*, 27 (2016), 76-99.

Tomlinson, Jim, 'De-industrialization: strengths and weaknesses as a key concept for understanding post-war British history' *Urban History*, 1–21.

<https://doi.org/10.1017/S0963926819000221>

Tomlinson, Jim, 'Key historical trends in the Scottish economy' in Gibb, Kenneth, Duncan MacLennan, Des McNulty and Michael Comerford, eds., *The Scottish Economy: A Living Book*, London, Routledge, 2018.

Tomlinson, Jim, Carlo Morelli and Valerie Wright, *The Decline of Jute: Managing Industrial Change*, London, Pickering and Chatto, 2011.

Turok, Ivan, 'Urban Policy in Scotland: New Conventional Wisdom, Old Problems?' In Michael Keating ed, *Social Democracy in Scotland* (Brussels, 2007),

Woolfson, Charles and John Foster, *Track Record: the Story of the Caterpillar Occupation* (London, 1988)

Woolfson, Charles and John Foster, 'Corporate Reconstruction and business unionism: the lessons of Caterpillar and Ford' *New Left Review* 174 (1989), 51-66.

Wright, Valerie, 'Juteopolis and after: women and work in twentieth-century Dundee' in Tomlinson and Whatley, *Jute No More*, 132-162.

Young, Stephen, 'Timex and IBM' in Hood and Young, eds., *Industry, Policy and the Scottish Economy*, 117-127.