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# Scale, Scope and Survival: A Comparison of Labour-Managed and Capitalist Modes of Production*

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**Abstract**

This paper draws on a comprehensive data set from Portugal to address three central themes in the labour-managed firm (LMF) literature: the types of activity undertaken by LMFs, their scale of operation and their survival prospects. The data allow individual firms to be tracked over a 25 year period and for comparisons to be made with capitalist firms. We find first, that the industrial distribution of LMFs is markedly different to that of capitalist firms and to the standard characterisation of the pattern of LMF activity. Second, LMFs are, on average, more than twice the size of their capitalist counterparts and third, the survival prospects of LMFs considerably exceed those of capitalist firms.

*JEL Classification*: J54, P12

*Keywords*: Labour-managed firms; cooperatives; capitalist firms

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# 1 Introduction

On the fundamental question of why firms in market economies are typically controlled by suppliers of capital rather than labour, there is no shortage of theories but little headway has been made in settling the issue empirically. This was the conclusion of a survey of the literature on labour-managed firms (LMFs) by Dow and Putterman (2000) and the situation has not altered in the ensuing decade, with theoretical work continuing to outstrip evidence. Indeed, many of the most frequently quoted stylized facts about LMFs are founded on data from the 1970s and 1980s.

In this paper we draw on comprehensive and detailed, but hitherto unexploited, data from Portugal. The data set covers a 25 year period from 1985 to 2009 and allows us to track individual firms over time. Our aim is to address three recurring themes in the literature: the types of activity undertaken by LMFs, their scale of operation and their prospects for survival in the market. In each case, we make comparisons with capitalist enterprises.

One key finding in the literature is a tendency for LMFs to concentrate in certain sectors of the economy, and to avoid some activities altogether. Well-known historical clusters include the British footwear cooperatives that emerged at the end of the nineteenth century and the plywood cooperatives of the Pacific Northwest which, at their peak in the 1940s and 1950s, accounted for an estimated 20-25% of total industry output.[1] At a more general level, Ben-Ner (1988a), pointed to a tendency for LMFs in the early 1980s to concentrate in construction and manufacturing, and to be underrepresented in services. Given the changes that have taken place in the organisation of production more generally, it is pertinent to ask whether the standard characterisation of the pattern of LMF activity holds true some thirty years on.[2]

On the issue of firm size, a long-standing argument is that, due to difficulties in the raising of finance and collective governance, LMFs are only viable at a small scale (Drèze, 1989, 1993; Hansmann, 1988, 1996). Whilst we cannot address the issues of finance and governance directly, we are able to present detailed information on the size distributions of LMFs and their capitalist (CF) counterparts, measured in terms of both employment and sales revenue.

A third major theme in the literature concerns the survival prospects of LMFs and, in particular, the argument that LMFs are prone to "degenerate" into CFs due to the gradual replacement of departing members with hired workers or a takeover by an external investor

[1] See Bachus and Jones (1977) on the footwear cooperatives, and Berman (1967) and Pencavel (2001) on the plywood cooperatives.

[2] See, for example, Baker and Hubbard (2004) on the impact of computers on the ownership of assets in the trucking industry and Morrison and Wilhelm (2008) on the demise of partnerships in investment banking.

(Miyazaki, 1984; Ben-Ner, 1988b). We assess the empirical significance of degeneration by investigating the number of instances of conversion from a labour-managed to a capitalist structure, together with the total number of LMF exits, on an annual basis over the period 1986-2008. Similarly, we examine the contribution of transformations in the other direction - from CF to LMF - to overall LMF entry. With regard to survival more generally, we report entry and exit rates and, by tracking individual firms over time, compare the lifespans of the two types of firm.

Our data set - the Quadros de Pessoal - offers a number of major advantages over those used in previous work. First, it is a census of virtually all firms in the economy. Second, its detailed legal classification of firms allows LMFs and CFs to be compared within the framework of a common survey. Thus variables are defined and collected in a consistent manner across enterprise types. Third, it provides detailed internal information on each firm including the date of constitution, mode of formation and demise, and accurate measures of firm size. Fourth, the data extend over a period of 25 years during the course of which the fate of individual firms can be tracked. Finally, the specific period of the data - from 1985 to 2009 - enables us to significantly update the empirical analyses of the 1970s and 1980s.

The main findings of the paper are as follows. First, the industrial distribution of LMFs in our data is very different to that of CFs and to the pattern previously reported in the literature. For instance, we find a very high concentration of LMFs into the service sector and only a small number in construction. Second, and perhaps surprisingly given the theoretical arguments mentioned above, we show that the average LMF is substantially larger than its capitalist counterpart. This hold true even if sole proprietorships are excluded from the comparison. On average, a LMF employs twice as many workers and generates more than three times as much revenue as a capitalist company. Third, LMFs exhibit lower turnover than CFs. When measured under conditions that approximate to a steady state, the entry and exit rates of LMFs were found to be about half those of CFs. Fourth, notwithstanding theoretical arguments in the literature, we find that degeneration of LMFs into CFs is relatively rare. Finally, the data reveal that lifespans of LMFs typically exceed those of CFs, and by some margin. For instance, whilst a half of LMFs are still in existence ten years from the date of entry, only one third of CFs survive to this point.

The paper is organised as follows. Section 2 provides a definition of both labour-managed and capitalist firms and describes the data. Section 3 examines the distribution of LMFs across industries. The scale of operation of LMFs is addressed Section 4 and Section 5 presents the findings on entry, exit and survival. A concluding section then completes the paper.

## 2 Definitions and data

A satisfactory comparative analysis of labour-managed and capitalist production requires, first of all, a precise theoretical distinction between the two organisational forms and, second, a close correspondence between these theoretical entities and the types of enterprise identifiable in the data.

On the first point, we draw on Dow: A LMF is an enterprise in which ultimate control is assigned " ... by virtue of, and in proportion to, labor supply" while in a CF, control is assigned "... by virtue of, and in proportion to, capital supply" (2003, p.5).

"Ultimate control" here refers to the ability to determine, either directly or indirectly, the key aspects of a firm's behaviour including product characteristics and prices, employment, investment strategy and the distribution of any surplus. Direct control pertains when the owners themselves make the decisions on such matters as is the case, for example, in sole proprietorships. Alternatively, responsibility for decision-taking in these areas might be assigned to specialist managers. In this case, "ultimate control" refers to right of the owners to dismiss the managers either directly, or via their choice of the board of directors who in turn have the right to dismiss the management.

Our data are derived from the Quadros de Pessoal, an annual survey produced by the Portuguese Ministry of Labour and Social Security. All firms that have wage earners are included in the survey with the exception of firms engaged in certain aspects of public administration and domestic work. The Quadros de Pessoal classifies firms according to their legal form, which enables us to identify both labour-managed and capitalist firms.

With regard to LMFs, the Portuguese framework of commercial law specifically includes a cooperative legal form – the "Código Cooperativo". Article 3 of the Código lists a number of principles – set down by the Co-operative International Alliance – to which the firms in question are required to adhere. Two of these principles, concerning "democratic management" and "autonomy and independence" indicate a close correspondence with the above definition of a LMF. On the issue of democratic management, the Código states: "The co-operatives are democratic organizations managed by their members, which actively participate in the formularization of policies and in making decisions. The men and women who exert their functions as representatives are responsible to the members who elected them. In the co-operatives of the first degree, the members have equal rights to vote (one member, one vote), and co-operatives of other degrees are also organized in a democratic form." On the matter of autonomy and independence, the Código requires that if a co-operative were to seek external capital then it must do so in a manner that maintains its autonomy as a co-operative.

Identifying a set of CFs appears at first sight to be a more demanding task, since the

Quadros de Pessoal identifies no fewer than 39 alternative organisational forms (in addition to the Código Cooperativo). However, inspection of the data reveals that the vast majority of enterprises (97%) fall into one of just three categories: sole proprietorship, private limited liability company and public limited liability company. Each of these three organisational forms can be considered a CF on the above definition. Thus a sole proprietorship, in which the ownership of assets and ultimate control rests in the hands of a single individual, is the classic capitalist firm of Alchian and Demsetz (1972). In limited liability companies, whether private or public, ultimate control rests in the hands of shareholders on the principle of one-share-one-vote. The shareholders are capital suppliers in the sense that they are entitled to the residual proceeds from the sale of the assets should the firm be liquidated. Thus such enterprises also correspond to Dow's (2003) definition of a CF.

In the analysis to follow, we will consider both a total CF measure (companies plus sole proprietorships) and companies alone. The reason for this approach that sole proprietorships are distinct from both companies and LMFs by virtue of the fact that ownership and control is restricted to a single individual. This restriction is, as we shall see, strongly reflected in the data on CFs. Furthermore, since a LMF must, by definition, have at least two members it seems natural to make comparisons with a capitalist organisation which similarly allows for multiple owners, as well as with the aggregate CF measure.

The data set was carefully cleaned with particular attention being paid to a firm's legal status. In some instances a firm was present in the data at dates $t$ and $t+k$ but absent in between. Such firms were retained provided their status at $t$ and $t+k$ was the same. All other firms were checked for consistency of status. If a firm's status was missing in one or more years then, provided it was constant in the other years, the missing entries were imputed.[3]

The Quadros de Pessoal reveals that there were 1,379 LMFs, 250,138 capitalist companies and 83,871 sole proprietorships operating in Portugal in 2009. Labour-managed firms thus accounted for just over 0.4% of the total of all enterprises, or 0.55% if sole proprietorships are excluded.

## 3 The industrial distribution of LMF activity

One of the most frequently remarked upon aspects of labour-managed production is the tendency to concentrate in certain areas of economic activity and to avoid others altogether. In a early but wide-ranging survey based on data from the 1980s, Ben-Ner (1988a) pointed to

[3] A number of firms changed their legal status more than once. It is possible that this might indicate a classification error and thus all results were checked for robustness to the exclusion of these firms. Only the findings on the modes of LMF formation and demise proved to be sensitive. This is addressed in Section 5.2.

clustering both at the broad sectoral level and within manufacturing. At the broad sectoral level, construction was found to be a major focus of LMF activity, both in terms of its share of the total number of LMFs and the degree of concentration relative to that of capitalist firms. In Italy, for example, construction accounted for 44% of the population of LMFs, but only 12% of the total of CFs. Manufacturing and services also attracted significant numbers of LMFs, although in the latter case the share of LMFs was markedly below that of CFs in all of the countries under consideration. Within manufacturing, LMFs were typically overrepresented in clothing, textiles and leather, printing and publishing, wood and furniture, and glass and ceramics. In addition, there were significant number of LMFs in mechanical and metal products and – in Italy and Sweden – in food and beverages, although here the proportions were more or less in line with those for CFs. On the other hand, LMFs were almost absent from certain branches such as iron, steel and other metals, and chemicals and pharmaceuticals.

We now consider the much more recent data on the pattern of activity of LMFs in Portugal, first at the broad sectoral level and then, in more detail, for manufacturing and services. Firms are classified according to the Portuguese CAE (Rev.3) system of industrial classification which is compatible with NACE, CITA and the ISIC classification schemes.[4]

Table 1 presents the broad industry distribution of LMFs and CFs in 2009. Capitalist firms are defined here as companies plus sole proprietorships (CF2).

Table 1: Broad industry distribution of firms in 2009

| | LMF | | CF2 | | LMF/Total |
|---|---|---|---|---|---|
| | No. | % | No. | % | % |
| Agriculture, forestry and fishing | 110 | 8.9 | 215,581 | 4.7 | 0.70 |
| Mining and quarrying | 1 | 0.1 | 822 | 0.3 | 0.12 |
| Manufacturing | 191 | 13.9 | 41,874 | 12.5 | 0.45 |
| Electricity, gas and water | 8 | 0.6 | 776 | 0.2 | 1.02 |
| Construction | 109 | 7.9 | 45,648 | 13.7 | 0.23 |
| Services | 960 | 69.6 | 229,322 | 68.7 | 0.41 |
| Total | 1,379 | 100.0 | 333,986 | 100.0 | 0.41 |

The table shows, first of all, that services was by far the major area of activity for LMFs, accounting for almost 70% of the 1,379 firms that were active in 2009. The next most important sectors were manufacturing (13.9%), agriculture, forestry and fishing (8.9%) and construction (7.9%). The remaining sectors - electricity, gas and water, and mining and quarrying - accounted for only a few LMFs.

[4] CAE-Rev.3 is equivalent to NACE-Rev.2 and CITA-Rev.4. These are, in turn, derived classifications of ISIC.

In comparison with CFs it can be seen that LMFs are heavily overrepresented in agriculture, forestry and fishing and underrepresented in construction, and a Pearson Chi-square test revealed that the overall distributions are significantly different at the 1% level. It is, however, interesting to note that with regard to the two main areas of LMF activity the respective shares are not dissimilar. In the case of services, the LMF and CF shares are 69.6% and 68.7% respectively, and for manufacturing the corresponding figures are 13.9% and 12.5%.

The finding that similar proportions of LMFs and CFs are engaged in manufacturing is broadly in line with previous research. Ben-Ner (1988a) reported that in France the proportion of LMFs in manufacturing slightly exceeded the figure for CFs, whilst in Italy the reverse was true. In a subsequent analysis of Italian data, Pencavel et al. (2006) found that the LMF manufacturing share in 1996 remained just a little below that of CFs and, more recently, Burdín and Dean (2009) report a similar result for Uruguay. One notable exception is Finland, where almost all LMFs are engaged in services and none at all exist in the manufacturing sector (Kalmi, 2012).

Manufacturing aside, the picture presented in Table 1 is markedly different to that presented in the existing literature. First, the strong presence of LMFs in the service sector contrasts with Ben-Ner's (1988a) finding that LMFs where everywhere substantially underrepresented in services. Second, as noted above, construction has traditionally been seen as a major focus of LMF activity. In Ben-Ner's study, construction accounted for more than 40% of LMFs in both Italy and France and was identified as the main area of LMF concentration relative to CFs. In Table 1, by contrast, we see that construction accounted for only 7.9% of LMFs and that LMFs were actually underrepresented in this sector.

Table 2 presents more detailed information on the manufacturing sector.[5] The table reveals that LMFs were highly concentrated into certain branches of manufacturing. Of the 191 manufacturing LMFs, almost four-fifths were to be found in the food, beverages and tobacco sector.[6] Roughly 9% were engaged in printing and publishing and close to 5% in clothing, textiles and leather. Very few LMFs were active elsewhere in manufacturing. Just three firms were engaged in mechanical and metal products, whilst wood and furniture, chemicals and pharmaceuticals, and glass and ceramics each contained just a single LMF. There were no LMFs at all in the electrical and electronics sector.

A Pearson Chi-square test revealed that the distributions of LMFs and CFs within manufacturing are significantly different at the 1% level. LMFs firms were overrepresented in

[5] We amalgamated CAE-Rev.3 two digit Divisions into industry groups that facilitate comparisons with previous research.

[6] A more detailed breakdown revealed that no LMFs were engaged in the production of tobacco products.

food, drink and tobacco and, to a lesser degree, in printing and publishing. In the remaining sectors, LMFs were underrepresented. In broad terms, it can be seen that LMFs were less evenly distributed than CFs across the spectrum of manufacturing.

Table 2: Distribution of firms within Manufacturing in 2009

| | LMF | | CF2 | | LMF/Total |
|---|---|---|---|---|---|
| | No. | % | No. | % | % |
| Food, beverages and tobacco | 150 | 78.5 | 6,493 | 15.5 | 2.26 |
| Clothing, textiles and leather | 9 | 4.7 | 8,770 | 20.9 | 0.10 |
| Wood and furniture | 1 | 0.5 | 6,485 | 15.5 | 0.02 |
| Printing and publishing | 18 | 9.4 | 3,215 | 7.7 | 0.56 |
| Chemicals and pharmaceuticals | 1 | 0.5 | 669 | 1.6 | 0.15 |
| Glass and ceramics | 1 | 0.5 | 2,895 | 6.9 | 0.03 |
| Mechanical and metal products | 3 | 1.6 | 9,679 | 23.1 | 0.03 |
| Electrical and electronics | 0 | 0.0 | 619 | 1.5 | 0.00 |
| Other | 8 | 4.2 | 3,049 | 7.3 | 0.26 |
| Total | 191 | 100.0 | 41,874 | 100.0 | 0.45 |

The cluster of LMFs in printing and publishing accords with experience elsewhere.[7] On the other hand, food, drink and tobacco has not previously been regarded as such an important area of activity for LMFs, whilst glass and ceramics, and wood and furniture - described by Ben-Ner as "branches of choice" for LMFs - were each found to contain just a single LMF. This near-absence of LMFs cannot be explained in terms of the overall size of these branches since in each case, Table 2 reveals, there exist substantial numbers of CFs.

We now turn to consider the service sector which has received less attention than manufacturing in the LMF literature.

Table 3 reveals that LMFs were present in all subsectors within services, with the main concentrations being in wholesale, retail and repairs (32.1%), transport and communications (14.3%), health and social work (14.3%) and education (11.7%).[8] Once again, the distribution is substantially different to that of CFs, with LMFs being relatively more concentrated into education, finance and transport and communications, and noticeably underrepresented in hotels and restaurants.[9] In relation to the distribution of CFs, it can be seen that LMFs were overrepresented in education, health and social services, and finance, but noticeably underrepresented in hotels and restaurants and in real estate. The attractiveness of the

[7] See Estrin et al. (1987) for an analysis of printing cooperatives in France and the UK.

[8] The "other" category includes, among other activities: arts, entertainment and recreation, repair of household goods and various personal services.

[9] The difference is significant at the 1% level using a Pearson Chi-square test.

transport and communications sector to LMFs has also been noted by Pencavel et al. (2006) and Burdín and Dean (2009) for Italy and Uruguay respectively.

Table 3: Distribution of firms within Services in 2009

| | LMF | | CF2 | | LMF/Total |
|---|---|---|---|---|---|
| | No. | % | No. | % | % |
| Wholesale, retail and repairs | 308 | 32.1 | 95,988 | 41.9 | 0.32 |
| Hotels and restaurants | 11 | 1.2 | 38,981 | 17.0 | 0.03 |
| Transport and communications | 137 | 14.3 | 17,986 | 7.8 | 0.76 |
| Finance | 75 | 7.8 | 3,231 | 1.4 | 2.27 |
| Real estate | 57 | 5.9 | 41,434 | 18.1 | 0.14 |
| Public administration and defense | 13 | 1.4 | 37 | 0.0 | 26.00 |
| Education | 112 | 11.7 | 3,719 | 1.6 | 2.92 |
| Health and social work | 137 | 14.3 | 12,287 | 5.4 | 1.10 |
| Other | 110 | 11.5 | 15,659 | 6.8 | 0.70 |
| Total | 960 | 100.0 | 229,322 | 100.0 | 0.42 |

In summary, we have seen that a large majority - approximately 70% - of LMFs were operating in the service sector and a further 14% in manufacturing. Within services, LMFs were engaged in a wide variety of activities, with the largest numbers found in wholesale, retail and repairs. The distribution of manufacturing LMFs was highly concentrated, with two sectors - food, beverages and tobacco, and printing and publishing - accounting for almost 88% of the total. This pattern of LMF activity, at the broad sectoral level and within services and manufacturing, was seen to be significantly different to both the distribution of CFs and to the standard depiction of LMF activity in the literature.

# 4 The scale of operation of LMFs

Economic theory suggests that LMFs might find it difficult to operate at a large scale. Two prominent arguments concern collective decision-making and finance. Hansmann (1988, 1996) and more recently, Dow and Skillman (2007) argue that LMFs face potential collective choice problems associated with preference heterogeneity. Heterogeneity, it is argued, leads to costs of collective decision-taking and may make LMFs susceptible to takeover by outside investors, with the implication that LMFs are most likely to emerge and survive in activities where it is feasible to operate on a small scale and where tasks are relatively homogenous (Dow and Skillman, 2007). A second argument is that in the presence of adverse selection or moral hazard, LMFs may face difficulties in raising finance because, by their constitution, control rights are assigned on the basis of the supply of labour rather than capital. Thus one might

expect LMFs to be at a relative disadvantage where capital requirements are high. Support for this argument is provided by Podivinsky and Stewart (2007) who found that high levels of capital intensity acted as a barrier to LMF entry into UK manufacturing industries.

It might be thought, then, that the typical LMF will be smaller than its CF counterpart. Our data reveals that this is not the case in Portugal. Whilst LMFs are absent from the very top end of the size distribution, their average size exceeds that of CFs. As we show below, this is the case whether size is measured by employment or sales revenue and also if sole proprietorships are excluded from the comparison.

Table 4 presents data on firm size measured by employment levels for both LMFs and CFs. In this context it is useful to distinguish between companies and sole proprietorships, and thus findings are presented for two alternative definitions of CFs: companies (CF1) and companies plus sole proprietorships (CF2).

Table 4: Firm size by employment (2009)

| Number of employees | LMF | CF1 | CF2 |
|---|---|---|---|
| Mean | 22 | 10 | 8 |
| Median | 7 | 3 | 3 |
| | Size distribution (%) | | |
| 0-9 | 57.9 | 82.4 | 86.4 |
| 10-49 | 30.9 | 15.0 | 11.7 |
| 50-99 | 7.5 | 1.5 | 1.1 |
| 100+ | 3.7 | 1.1 | 0.8 |
| Total | 1,379 | 250,152 | 334,022 |

It can be seen, first of all, that in terms of average employment, LMFs are significantly larger than their CF counterparts. In 2009, LMFs employed, on average, 22 workers which compares with an average of 10 workers in capitalist companies and just 8 in all capitalist firms.[10]

The table also reveals that the LMF size distribution is heavily skewed, with the median firm employing 8 workers and 58% of LMFs having fewer than 10 workers. The predominance of small enterprises is even more pronounced among CFs, with 82% of companies, and 86% of all CFs, having fewer than 10 employees.[11]

Perhaps surprisingly in view of the theoretical arguments, the data also reveal the presence of a significant number of medium and large LMFs: 11% of LMFs employ 50 or more workers and a third of these have a workforce of 100 or more. By contrast, only 2% of capitalist firms

[10] Sole proprietorships employ two people on average.

[11] The difference between the LMF and CF means and the difference in medians are significant at the 1 % level.

employ 50 or more workers. It is the case, however, that the very largest enterprises are all CFs: employment in the four largest CFs lay in the range 11,000 - 20,000, whereas the largest LMF had a workforce of just under 800.

A more detailed investigation revealed that the majority of larger LMFs were to be found in the service sector with wholesale, retail and repairs, and education together accounting for 30 of the 51 LMFs that employed 100 or more workers. On average, LMFs in the service sector and in manufacturing were larger than those elsewhere in the economy.

Our finding that LMFs are capable of operating on a large scale is not new. Dow (2003, p.47), for example, reported the existence of construction firms in Italy which employed about 3,000 workers and enterprises in the Mondragon group employing 200-300 workers. Indeed, Ben-Ner (1988a) reports that, in the 1980s, the mean employment level among Mondragon LMFs exceeded 200 workers. We should note, however, that elsewhere the typical LMF was considerably smaller: 27 workers, on average, in France and 40 in Italy. More recently, Burdín and Dean (2009) report that in Uruguay in 2005, the average LMF employed 26 workers, which was almost twice the CF average.

In Table 5 we consider sales revenue as an alternative indicator of firm size.

Table 5: Firm size measured by sales revenue (2009)

| Annual revenue (millions of euros) | LMF | CF1 | CF2 |
|---|---|---|---|
| Mean | 3.579 | 1.150 | 0.892 |
| Median | 0.237 | 0.130 | 0.097 |
| | Size distribution (%) | | |
| Less than 1 | 70.8 | 87.7 | 90.4 |
| 1-2 | 8.0 | 5.5 | 4.4 |
| 2-3 | 4.6 | 2.2 | 1.7 |
| 3+ | 16.5 | 4.6 | 3.5 |
| Total | 1,379 | 250,138 | 334,009 |

In 2009, the mean annual sales revenue generated by LMFs was approximately 3.6 million euro. As we would expect from the employment figures, the distribution of revenues is skewed with 71% of LMFs earning less than 1 million euro and 16.5% generating 3 million or more. A breakdown by sector revealed that LMFs engaged in services and in manufacturing typically generated the highest revenues, with annual means of approximately 4.5 million euro in each case.

The table reinforces our finding that LMFs are, on average, larger than CFs.[12] Indeed, the disparity in sales revenue is greater than that in employment: LMFs, on average, generated

[12] The difference between the LMF and CF means and the difference in medians are significant at the 1 % level.

more than three times the revenue of capitalist companies and four times the revenue of CFs if sole proprietorships are included in the comparison.[13]

## 5 LMF entry, exit and survival

Considerable attention in the theoretical LMF literature has been focussed on the process of firm formation and prospects for survival (see Dow, 2003, for a survey). By comparison, empirical work is in short supply. In particular, whilst a number of papers have addressed specific hypotheses, there is a lack of basic information on entry, exit and survival of the form provided - for the aggregate of all firm types - by Dunne et al. (1988) for US manufacturing and, more recently, Disney et al. (2003) for the UK.[14] Such information, as Dunne et al. point out, provides a valuable foundation for both theoretical and empirical analyses.

The existing empirical evidence on rates of LMF entry, exit and survival is largely derived from fairly short data series from the 1970s and 1980s, which is a somewhat special period in that a number of LMF sectors were experiencing unprecedented rates of growth. Given this, and small sample sizes in some cases, it is not surprising that a wide range of entry, exit and survival rates have been reported (Ben-Ner, 1988a). Our data set contains at least 1,400 LMFs at each point in time and has the major advantage of extending over a 25 year period, for much of which time the LMF population was fairly stable.

We begin with a detailed description of entry and exit over the period 1986-2008. Data are presented on the annual number of labour-managed entrants, exitors and continuing firms, and comparisons drawn with equivalent figures for CFs. For LMFs, we also identify the modes of entry and exit. The remainder of the section then examines the lifespans of the two types of enterprise.

| | |
|---|---|
| Stayer | Present in $t$, $t-1$ and $t+1$ |
| Entrant | Present in $t$, absent in $t-1$ |
| Exitor | Present in $t$, absent in $t+1$ |
| Transient | Present in $t$, absent in $t-1$ and $t+1$ |

Following a classification suggested by Disney et al. (2003), a firm that appears in the data in year $t$ is categorised as a stayer, entrant or exitor as shown below. In addition, a firm that is present in $t$, but absent in $t-1$ and $t+1$ is identified as a transient firm. Such firms

[13] In the above comparisons we are not seeking to control for the types of activity underatken by firms. In a recent and detailed analysis of wine production in Italy, Maietta and Sena (2008) find that LMFs use less labour and capital, yet generate more output, than CFs.

[14] Recent empirical papers on LMF entry include Arando et al. (2009), Kalmi (2012), Pérotin (2006) and Podivinsky and Stewart (2007).

are a subset of both the entrant and exitor categories. Thus the total stock at any point in time is the sum of the stayers, entrants and exitors minus the number of transient firms.

Our interest lies with the organisational form of an enterprise (LMF or CF) and thus each of the above categories is defined in terms of the specific enterprise type. Thus, for example, in the data on LMFs a stayer is a firm that was present in the market in $t$, $t-1$ and $t+1$ *and* was constituted as a LMF in each of these years. Similarly, a LMF entrant is an enterprise that existed as a LMF in $t$, but did not exist *as a LMF* in $t-1$ (it was either absent from the market or present in the market but constituted as a CF).

### 5.1 Entry, exit and continuation rates

The basic data on LMF stocks and flows over the period 1986-2008 are presented in Table 6. It is immediately evident that both entry and exit exhibit considerable variation over time. The entry rate, for example, ranges from 13.2% in 1991 to just 2.7% for the most recent observation in 2008. Interestingly, both entry and exit rates were typically higher in the 1980s than in recent years.

For comparative purposes one would ideally like to determine steady-state rates of entry and exit. Inspection of the table reveals that the period 1994-2007 provides a good approximation to a steady state: the LMF population in 1994 (1,526) was almost identical to the stock in 2007 (1,523) and there was very little fluctuation during the intervening years. We therefore focus the discussion on this period and report the associated mean figures in the final row of the table.

In each of the years over the period 1994-2007, there were just over 1,500 LMFs in operation. At any point in time 91.8%, on average, of these firms would have been in the market for at least a year and would still be present in the following year. We refer to these as "continuing firms" or "stayers". The annual number of entrants was, on average, 67 which gives a mean entry rate of 4.4%. The average number of exitors was almost identical at 65 which yields a exit rate of 4.3%. The sum of these three percentages slightly exceeds one hundred due to the presence of a small number of "transient firms". These are firms that are present in the market for only one year and thus count as both entrants and exitors. On average, there were 8 such firms in any one year, which represents 0.5% of the stock.

These figures indicate a greater degree of stability within the LMF sector than is suggested by the earlier findings of Ben-Ner (1988a) and the more recent evidence provided by Pérotin (2006). Ben-Ner, using data from the 1970s and 1980s, found considerable variation across countries, but in all cases the rates of turnover exceeded those reported above. Entry rates ranged from 12% in the case of Sweden to 61% in the Netherlands, whilst exit rates ranged

from 6% in the UK to 29% in Sweden and the Netherlands.[15] The disparity between these findings and our own reflects, at least in part, the fact that the mid-1970s to mid-1980s was a period in which many LMF sectors experienced a substantial rate of growth.[16] Using a longer data series, extending from 1979 to 2002, Pérotin (2006) reported average entry and exit rates of 15% and 10% respectively for French LMFs.

Table 6: LMF entry and exit, 1986-2008

| Year | Total | Stayers | | Entrants | | Exitors | | Transients | |
|---|---|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | No. | % | No. | % |
| 1986 | 1,738 | 1,388 | 79.9 | 207 | 11.9 | 180 | 10.4 | 37 | 2.1 |
| 1987 | 1,711 | 1,448 | 84.6 | 153 | 8.9 | 135 | 7.9 | 25 | 1.5 |
| 1988 | 1,759 | 1,469 | 83.5 | 183 | 10.4 | 140 | 8.0 | 33 | 1.9 |
| 1989 | 1,743 | 1,350 | 77.5 | 124 | 7.1 | 306 | 17.6 | 37 | 2.1 |
| 1991 | 1,656 | 1,351 | 81.6 | 219 | 13.2 | 114 | 6.9 | 28 | 1.7 |
| 1992 | 1,625 | 1,468 | 90.3 | 83 | 5.1 | 83 | 5.1 | 9 | 0.6 |
| 1993 | 1,624 | 1,337 | 82.3 | 82 | 5.0 | 226 | 13.9 | 21 | 1.2 |
| 1994 | 1,526 | 1,325 | 86.8 | 128 | 8.4 | 92 | 6.0 | 19 | 1.2 |
| 1995 | 1,501 | 1,366 | 91.0 | 67 | 4.5 | 77 | 5.1 | 9 | 0.6 |
| 1996 | 1,505 | 1,373 | 91.2 | 81 | 5.4 | 59 | 3.9 | 8 | 0.5 |
| 1997 | 1,512 | 1,390 | 91.9 | 66 | 4.4 | 62 | 4.1 | 6 | 0.4 |
| 1998 | 1,512 | 1,409 | 93.2 | 62 | 4.1 | 47 | 3.1 | 6 | 0.4 |
| 1999 | 1,516 | 1,421 | 93.7 | 51 | 3.4 | 48 | 3.2 | 4 | 0.3 |
| 2000 | 1,535 | 1,404 | 91.5 | 67 | 4.4 | 72 | 4.7 | 8 | 0.5 |
| 2001 | 1,511 | 1,409 | 93.2 | 48 | 3.2 | 57 | 3.8 | 3 | 0.2 |
| 2002 | 1,516 | 1,391 | 91.8 | 62 | 4.1 | 68 | 4.5 | 5 | 0.3 |
| 2003 | 1,501 | 1,413 | 94.1 | 53 | 3.5 | 40 | 2.7 | 5 | 0.3 |
| 2004 | 1,531 | 1,428 | 93.3 | 70 | 4.6 | 37 | 2.4 | 4 | 0.3 |
| 2005 | 1,564 | 1,431 | 91.5 | 70 | 4.5 | 76 | 4.9 | 13 | 0.8 |
| 2006 | 1,541 | 1,417 | 92.0 | 53 | 3.4 | 81 | 5.3 | 10 | 0.6 |
| 2007 | 1,523 | 1,372 | 90.1 | 63 | 4.1 | 94 | 6.2 | 6 | 0.4 |
| 2008 | 1,469 | 1,315 | 89.5 | 40 | 2.7 | 120 | 8.2 | 6 | 0.4 |
| 94-07 | 1,522 | 1,396 | 91.8 | 67 | 4.4 | 65 | 4.3 | 8 | 0.5 |

We now turn to consider how the LMF turnover rates compare with those of their capitalist counterparts. Table 7 presents data on stocks and flows over the period 1986-2008 for capitalist companies (CF1) and all capitalist firms (CF2).

An important point to note at the outset is that the populations of both CF1 and CF2 exhibited strong growth throughout the period. Since the stock of LMFs declined over the same period, a comparison of turnover rates must be conducted with care. As was the case

[15] The figure for Sweden relates to a single year (1984). The figures for other countries are averages over a number of years.

[16] Between 1976 and 1981 the number of LMFs in the EEC increased by 93% (CECOP, cited by Ben-Ner, 1988a, p.8).

with LMFs, the rates of inflow and outflow of CFs fluctuate over time. Nevertheless, there is a marked contrast between the two types of firm. This can be seen most clearly in the proportions of stayers and transients.

Table 7: CF entry and exit, 1986-2008

| Year | CF1 | | | | | CF2 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Distribution (%) | | | | Total | Distribution (%) | | | |
| | | Stay. | Ent. | Exit | Tran. | | Stay. | Ent. | Exit | Tran. |
| 1986 | 59,960 | 81.0 | 14.3 | 6.6 | 1.9 | 103,436 | 74.6 | 18.8 | 10.2 | 3.5 |
| 1987 | 64,412 | 82.3 | 13.0 | 6.2 | 1.5 | 111,583 | 76.9 | 16.7 | 9.3 | 2.9 |
| 1988 | 70,619 | 82.2 | 14.4 | 4.8 | 1.4 | 123,252 | 76.6 | 17.9 | 8.3 | 2.8 |
| 1989 | 79,008 | 78.6 | 14.9 | 9.0 | 2.5 | 137,691 | 72.3 | 17.9 | 14.0 | 4.3 |
| 1991 | 93,008 | 74.7 | 22.7 | 4.8 | 2.2 | 157,373 | 71.4 | 24.8 | 7.1 | 3.2 |
| 1992 | 101,841 | 83.0 | 13.0 | 5.6 | 1.7 | 170,950 | 80.2 | 14.5 | 7.7 | 2.4 |
| 1993 | 109,357 | 82.0 | 12.1 | 7.8 | 1.9 | 181,287 | 79.6 | 13.0 | 10.2 | 2.6 |
| 1994 | 121,921 | 78.9 | 17.3 | 5.7 | 1.9 | 201,011 | 76.5 | 18.8 | 7.4 | 2.7 |
| 1995 | 128,987 | 85.1 | 10.8 | 5.3 | 1.3 | 211,989 | 82.5 | 12.2 | 7.2 | 2.0 |
| 1996 | 135,879 | 85.9 | 10.1 | 5.0 | 1.0 | 222,035 | 83.5 | 11.4 | 6.9 | 1.7 |
| 1997 | 144,562 | 85.3 | 10.7 | 5.2 | 1.2 | 235,658 | 82.5 | 12.2 | 7.1 | 1.9 |
| 1998 | 154,665 | 84.7 | 11.3 | 5.1 | 1.1 | 250,495 | 82.0 | 12.6 | 7.2 | 1.9 |
| 1999 | 163,943 | 85.5 | 10.4 | 5.2 | 1.1 | 264,922 | 81.3 | 12.3 | 8.4 | 2.0 |
| 2000 | 181,335 | 81.6 | 14.3 | 5.7 | 1.6 | 287,477 | 76.5 | 15.6 | 10.8 | 2.9 |
| 2001 | 201,583 | 80.0 | 15.2 | 6.3 | 1.5 | 304,024 | 76.7 | 15.7 | 10.2 | 2.6 |
| 2002 | 223,896 | 79.4 | 15.6 | 6.7 | 1.7 | 320,813 | 78.5 | 14.9 | 8.8 | 2.3 |
| 2003 | 232,526 | 84.2 | 10.2 | 6.8 | 1.2 | 327,001 | 82.7 | 10.6 | 8.4 | 1.7 |
| 2004 | 238,195 | 85.2 | 9.0 | 6.8 | 1.0 | 332,013 | 83.3 | 9.8 | 8.5 | 1.6 |
| 2005 | 244,616 | 84.4 | 9.3 | 7.4 | 1.1 | 346,420 | 80.4 | 12.2 | 9.7 | 2.4 |
| 2006 | 250,340 | 84.0 | 9.5 | 7.7 | 1.2 | 348,466 | 82.0 | 10.3 | 9.5 | 1.8 |
| 2007 | 256,060 | 82.7 | 9.8 | 9.0 | 1.5 | 353,036 | 80.5 | 10.7 | 11.0 | 2.2 |
| 2008 | 257,648 | 81.1 | 9.5 | 11.2 | 1.8 | 350,328 | 78.9 | 10.3 | 13.3 | 2.6 |

Referring back to Table 6, it can be seen that, in the case of LMFs, the percentage of stayers at any point in time varied between 77.5% and 94.1%, and exceeded 90% in the majority of years from 1992 onwards. In the case of CFs, by contrast, the percentage of stayers never reaches 90%; for capitalist companies, the maximum figure is 85.9% whilst for all capitalist enterprises percentage of stayers ranges between 71.4% and 83.5%. Table 6 also reveals that among LMFs the proportion of transient firms was typically less than1%, whilst in Table 7 we see that for capitalist companies the figure is usually in the range 1% - 2%, and that for all capitalist firms the figure is above 2% in most years.

As a point of comparison with the LMF steady-state approximations, we can consider the CF figures for 2007. At this point the stock of both CF1 and CF2 had stabilised, with entry and exit rates more or less in balance. The comparison reveals a substantially lower

rate of turnover among LMFs than CFs. This is evident in both the overall entry and exit rates and in the proportion of transient firms in the respective populations. With regard to overall entry and exit rates, the LMF figures of 4.4% and 4.3% respectively are less than half the CF rates. The difference in transient rates is even more marked: the proportion of LMFs that fail to survive beyond the first year was 0.5%, whereas the corresponding figures for CF1 and CF2 are 1.5% and 2.8% respectively. These differences are reflected in the proportions of stayers, with the LMF figure of 91.8% being some ten percentage points above that for CFs.

### 5.2 Modes of formation and demise

A common theme in the theoretical LMF literature is the possible incentive for an established LMF to convert to a LMF or, alternatively, for workers in an existing CF to take over the firm and transform it into a LMF.

Miyazaki (1984) and Ben-Ner (1984, 1988b), for example, argue that the members of a successful LMF may have an incentive to replace any departing members with workers hired at the market wage and thus over time the LMF will become transformed into a CF. There may also be situations under which LMF members will find it worthwhile to sell the firm to an external investor. On the other hand, an entrepreneur who initially chose to set up a CF might find that, at a later date, there are gains to made from selling the firm to the workforce. This might be due to a gradual diminution of informational asymmetries within the firm or a change in the external environment. Ben-Ner and Jun (1996) examine the incentive for an entrepreneur to sell the firm within a bargaining framework and show that a takeover by the workforce is more likely when profits are low.[17]

The existing evidence reveals that transformations in either direction are far from uncommon. Ben-Ner (1988a) reports that almost half of new French LMFs in France during the period 1976-1983 were conversions of existing CFs. Approximately three-quarters of these CFs were judged to be in financial distress. In the UK, conversions from CFs accounted for about 10% of LMF formations over a similar period. Once again, the majority of these CFs were in financial trouble. In Finland, by contrast, almost all LMF entrants over the period 1988-2005 were created de novo (Kalmi, 2012). Evidence on the mode of LMF demise is more scarce. Ben-Ner only provides a figure for Sweden and for just a single year, 1984. In that year, transformations to CFs accounted for approximately 60% of total LMF exits.

The Quadros de Pessoal enables us to identify the modes of both formation and demise of LMFs over the period 1989-2008 data period. On the entry side, we are able to distinguish between LMFs that were created de novo and those that arose as a result of the transformation

[17] See Dow (2003) for further theoretical discussion of transformations and Abramitzky (2008) for an analysis of membership levels in the specific case of Israeli kibbutzim.

of a previously existing CF. On the exit side, we distinguish dissolution (where the productive unit ceases to exist) from transformations into a CF.

Table 8 presents the findings expressed as annual averages over the whole period and, as an indicator of recent experience, for the five years from 2004 to 2008. The table reveals that transformations in both directions do occur, but also that they account for a relatively small proportion of overall LMF entry and exit. Taking the period as a whole, 89% of LMFs were created de novo and 11% as transformations from pre-existing CFs whilst on the exit side, dissolution accounted for 91% of the total and 9% were conversions into CFs. Turning to the more recent evidence, it can be seen that the contribution of transformations to LMF entry rises to 13.6%, whereas the proportion of conversions among LMF exits is lower, at just 3.6% of the total.

Table 8: Modes of LMF formation and demise

| | LMF formation | | | | | LMF demise | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Annual | De novo | | From CF | | Annual | Dissolution | | To CF | |
| | mean | No. | % | No. | % | mean | No. | % | No. | % |
| 1989-2008 | 91 | 81 | 89.0 | 10 | 11.0 | 100 | 91 | 91.0 | 9 | 9.0 |
| 2004-2008 | 59 | 51 | 86.4 | 8 | 13.6 | 82 | 79 | 96.3 | 3 | 3.7 |

A number of firms in the sample changed their legal status more than once. It is possible that this might indicate a classification error and thus all results were checked for robustness to the exclusion of such firms. The findings on modes of LMF formation and demise proved to be sensitive, and in Table 9 we therefore present results for the restricted sample which excludes all firms that changed status more than once.

Table 9: Modes of LMF formation and demise (restricted sample)

| | LMF formation | | | | | LMF demise | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Annual | De novo | | From CF | | Annual | Dissolution | | To CF | |
| | mean | No. | % | No. | % | mean | No. | % | No. | % |
| 1989-2008 | 85 | 80 | 94.1 | 5 | 5.9 | 94 | 90 | 95.7 | 4 | 4.3 |
| 2004-2008 | 55 | 51 | 92.7 | 4 | 7.3 | 78 | 76 | 97.4 | 2 | 2.6 |

As would be expected, the effect of excluding firms that changed status more than once is to reduce the contribution of transformations to LMF entry and exit. For instance, if we consider the period 2004-2008, the contribution of transformations to LMF entry falls from 13.6% to 7.3% and to exit from 3.6% to 2.6%. The transformation percentages reported in Table 8 should therefore be regarded as upper bounds and a clear message to emerge from this

analysis is that, notwithstanding the theoretical arguments in the literature, degeneration is a relatively rare occurrence.[18]

### 5.3 Survival

We now turn to consider the survival prospects of LMFs. In previous work using UK data for the period 1974-86, Ben-Ner (1988a) compared the hazard rates of LMFs and CFs aged up to 7 years and found that, at all age points, LMFs had a substantially lower probability of demise.[19] Our data set provides more recent evidence and also enables us to compare survival rates over a period of 20 years from the date of formation.

We begin by examining the survival of the firm as a specific organisational type. Thus the lifespan of a LMF is defined as the period from its formation *as a LMF* to its demise, either through dissolution or conversion to a CF.[20] As we saw in the previous section, conversions into CFs accounted for 10% of total LMF exits. In the case of CFs, transformations account for a negligibly small proportion of both entry and exit.[21]

Table 10: Organisational form survival rates

| LMF and CF survival rates (%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Years after entry | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 |
| LMF | 83.1 | 76.8 | 71.2 | 64.1 | 61.3 | 48.7 | 41.1 | 34.1 |
| CF1 | 81.3 | 72.9 | 66.0 | 59.6 | 54.6 | 32.0 | 20.7 | 12.9 |
| CF2 | 78.6 | 70.2 | 63.4 | 57.1 | 52.4 | 31.8 | 20.3 | 12.3 |

Table 10 presents the findings on the survival rates of both LMFs and CFs. The figures show the percentage of firms of each type that are still surviving at specified intervals following their formation (entry).

The table reveals that approximately 83% of LMFs survive beyond their first year, 77% survive beyond the second and 61% are still in operation five years after the date of entry. Almost a half of LMFs are still in existence ten years after entry and one-third survive for 20 years or more. One important finding then, is that LMFs are capable of surviving in the market for considerable periods of time and a substantial proportion do so. The second clear

[18] Estrin and Jones (1992) examined the proportion of workers that were members in French cooperatives during the 1970s and found no evidence of a decline over the life of the firm. However, under French law, employees in cooperatives have the right to become members should they so wish (Estrin and Jones 1992, 1995).

[19] CF rates were based on data from 1974 to 1982. Ben-Ner noted that the result was not sensitive to whether or not sole proprietorships were included in the set of CFs.

[20] The date of formation is taken as the date on which the firm was constituted, as reported in the data set.

[21] Our interest lies in the distinction between LMFs and CFs and so a change in status from sole proprietorship to company, or vice versa, is not regarded as a transformation.

message to emerge from the data is that LMFs typically survive longer than CFs, and by some margin. It can be seen that, at every specified interval following entry, the proportion of LMFs that are still in operation exceeds the proportion of surviving CFs (CF1 or CF2). Thus, for example, fewer than one-third of CFs remain in existence ten years after the date of entry and only one in eight survive beyond 20 years.[22]

An alternative approach to the issue of firm survival is to consider the lifespan of the production unit. That is, to measure the lifespan of the enterprise as the period from its formation to its dissolution, rather than to its dissolution or transformation. At least from the standpoint of the founders of a firm, this might be the more interesting measure. In Table 11, therefore, we distinguish firms on the basis of their legal status at the time of formation and measure the time to dissolution, disregarding any changes in status along the way.

Table 11: Production unit survival rates

| LMF and CF survival rates (%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Years after entry | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 |
| LMF | 84.4 | 78.8 | 73.4 | 66.2 | 64.1 | 52.1 | 46.4 | 39.3 |
| CF1 | 81.5 | 73.2 | 66.3 | 60.0 | 55.0 | 32.4 | 21.1 | 13.3 |
| CF2 | 78.9 | 70.7 | 64.0 | 57.7 | 53.0 | 32.5 | 20.9 | 12.7 |

In the case of CFs the survival rates are only marginally higher than those in Table 10. For LMFs, on the other hand, there is an appreciable difference. This difference increases with the time from the date of formation, such that the proportion of LMFs that survive as production units for 20 years or more is almost 40%. The corresponding figure for CFs is approximately 13%, thus reinforcing the message that LMFs, on average, have considerably longer lifespans than CFs.

# 6 Conclusions

In this paper we have used a comprehensive, up-to-date and detailed data set from Portugal to address a number of major themes in the labour-managed firm literature. Specifically, we have examined the types of activities undertaken by LMFs, their scale of operation, and their rates of formation and demise.

An analysis of the distribution of LMFs across industries revealed a pattern which differed markedly from that of capitalist firms and also from the standard representation of LMF

[22] As a check, we repeated this analysis using the year the firm appeared in the data set, rather than the reported date of constitution, as the date of entry. This lowers the measured lifespans of the firms, but the the ranking of firm types remains unchanged. We also checked for robustness to the removal of firms that changed legal status more than once. This had the effect of very slighly raising the average lifespans of LMFs.

activity in the literature. The service sector accounted for more than two-thirds of LMFs, whilst only 8% were engaged in construction - a sector that has traditionally been regarded as a major focus of LMF activity. In comparison with CFs, LMFs were overrepresented in agriculture, forestry and fishing but underrepresented in construction. Differences in the distributions of the two firm types were also evident within these broad sectors. High relative concentrations of LMFs were found, for example, in education and finance within the service sector and food, drink and tobacco and printing and publishing within manufacturing.

Our analysis of firm size revealed that LMFs were typically larger than CFs. In terms of employment, the average LMF was more than twice the size of its CF counterpart, even if sole proprietorships are excluded from the comparison. The size disparity was greater still when measured in terms of sales revenue. Third, we found that entry and exit rates of LMFs were about half those of CFs and that "degeneration" of LMFs into CFs is relatively rare. Finally, our data reveals that the lifespans of LMFs generally exceed those of CFs, and by some margin. For instance, whilst almost a half of LMFs were still in existence ten years from the date of entry, only one third of CFs survive to this point And after 20 years, more than a third LMFs were still in operation, whilst only one in eight CFs had survived.

On the fundamental question, raised at the outset, of why LMFs are relatively rare in market economies, we are not able to provide an answer. We can however, point to some misconceptions. First of all, it is not the case that labour-management is restricted to a small and peripheral set of economic activities. Whilst there are instances of clustering - particularly within manufacturing - the data also reveal that LMFs are distributed widely throughout the economy. Within services, for example, there are LMFs operating in all of the subsectors.

Second, the scarcity of LMFs cannot be attributed to an inability to operate on a large scale. The vast majority of all enterprises are small, with 86% employing fewer than 10 workers. Moreover, not only are LMFs larger, on average, than CFs but some 11% employ 50 or more workers.

Finally, it is clear from our analysis that the explanation for the comparative rarity of LMFs does not lie with an inability to survive in the market. Rather, our findings provide strong support for Dow's contention that LMFs are rare because, for whatever reason, they are created much less frequently than CFs (2003, p.227).

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