

Leveraged Buyouts: Their Impact on Jobs and Wages

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“Sometimes private equity ... give the impression of being little more than amoral asset-strippers after a quick buck. Casino capitalists enjoying huge personal windfalls from deals at the same time as they gamble with other people's futures.” (Brendan Barber. General Secretary of Trade Union Congress, 2007)

Abstract

The impact of buyouts on jobs and wages has been a controversial issue for a number of years, especially those deals that have private equity backing. As the quote above illustrates, there are concerns that investors in buyouts gain at the expense of employees' jobs and wages. This chapter outlines agency and entrepreneurial perspectives of buyouts and their predictions regarding the impact of buyouts on jobs and wages. Evidence on the impact of buyouts on jobs and wages is then reviewed and is discussed in relation to the different theoretical perspectives of buyouts. The evidence reviewed here are large scale studies that use a variety of statistical techniques to analyse data from a variety of countries. Studies examining the average impact on jobs and wages are mixed and the magnitude of the impacts are generally fairly modest. There is some evidence consistent with entrepreneurially motivated buyouts creating jobs. Recent employee-level evidence is most insightful, suggesting low-skilled workers are more likely to suffer job losses and high-skilled workers are more likely to experience wage gains. Several areas for future research are identified in this chapter.

1. Introduction

Leveraged Buyouts (LBOs) are corporate restructuring transactions involving the transfer of whole companies or company divisions to new owners. There are two key features typical of all LBO transactions: first, a high level of debt, secured against an LBO targets' corporate assets and future cash flows, is used to facilitate an LBO transaction; second, senior management possess a significant equity stake after the buyout (Thompson and Wright, 1995; Kaplan and Stromberg, 2009). There are, however, variations in types of LBO transactions. For instance, insider-driven deals, where incumbent managers in a firm acquire a significant equity stake are referred to as management buyouts; while outsider-driven deals, where outside managers acquire a significant equity stake are referred to as management buy-ins (Thompson and Wright, 1995).

LBOs install a system of corporate governance that provides managers with strong incentives to focus on profitability (Jensen, 1986; Thompson and Wright, 1995). First, a significant proportion of equity is held by management.¹ This unifies senior management with ownership, providing managers with a strong incentive to focus on firm profitability. Second, the fixed interest obligation of debt requires managers to pay out future cash flows rather than waste cash on sub-optimal investments and perquisites. Third, in the case of private equity (PE)-backed deals, PE firms will hold a significant equity stake and have board representation. The high equity stake provides financial incentives for PE firms to monitor senior management and provide input into strategic decisions. PE firms' board representation facilitates their monitoring function and input into strategic decisions. Consistent with the view that LBOs

¹ The proportion of equity held by management varies depending on the size of deal. Centre for Management Buy-Out Research data for UK deals shows that for deals valued below £10 million management hold about 60-80% of equity while for deals valued greater than £10million the amount of equity held by management is about 25-40%. The remaining equity is held by PE firms.

install strong corporate governance is evidence that LBOs are associated with real economic performance gains (Lichtenberg and Siegel, 1990; Amess, 2003; Harris et al., 2005; Davis et al., 2014).

While there is little academic debate that LBOs are associated with performance gains, there has been a great deal of controversy in academia and in wider society concerning their impact on jobs and wages. In some respects PE might seem a distant ‘world of high finance’ to workers, but where PE can directly impact on workers is through jobs and wages. This real effect brings the PE business model directly into workers’ lives. It should not be surprising, therefore, that the debate concerning LBOs real impact on jobs and wages has sometimes been visceral. The concern is not simply that workers lose jobs and suffer lower wages as a result of a PE-backed LBO, it is that PE investors’ wealth gains might partly be achieved by such restricting decisions (Fox and Marcus, 1992; International Trade Union Confederation, 2007; Applebaum and Batt, 2014). In sum, the LBO restructuring transaction creates an opportunity for the revision of labour contracts and investors exploit this for personal gain. The competing argument from practitioners and proponents of LBOs is that they target firms that are underperforming and that the restructuring of portfolio firms is required in order to create sustainable businesses. PE firms realise capital gains when they sell their portfolio firms on at a profit and this can only be achieved if they create viable businesses.

This review focuses on providing a synthesis of the evidence obtained from quantitative empirical studies concerning the impact of LBOs (with insider or outsider management involvement) on jobs and wages. The focus is on these studies because they provide objective evidence of the average effect within large samples. This has the benefit of being able to provide insights that shed light on competing arguments concerning the labour effects of LBOs,

whereas a use of case studies might illicit an accusation that a specific case was chosen to support a specific argument. In addition, given intermittent calls for government intervention on PE firms' activity to protect workers welfare, a synthesis of large scale studies provides the best basis for understanding the overall effects of LBOs on jobs and wages.

2. Theoretical perspectives

2.1 Agency theory

The seminal work of Jensen (1986) provides an agency theory perspective through which LBOs have traditionally been understood. The corporate governance literature recognises that when ownership and management of a firm are separated, the management might have the discretion to pursue different objectives from firms' owners, creating agency costs. These agency costs are most severe in the presence of weak corporate governance that does not attenuate managers' discretionary behaviour. Discretionary behaviour could include the pursuit of firm size beyond its optimal level and making investments that yield a negative net present value. This could result in job creation from which management obtain private benefit. Such discretionary behaviour reduces firm value and performance (Jensen and Meckling, 1976; Fama and Jensen, 1983; Hart, 1995). An LBO installs a governance structure that realigns managers' objectives with those of the owners, reducing discretionary behaviour (Jensen, 1986, Thompson and Wright, 1995).

The agency theory perspective of LBOs is associated with job losses because restructuring after a LBO sometimes involves downsizing and downscoping a firm in order to improve its performance. If pre-LBO management pursued discretionary goals that required more employees beyond the optimal level, an LBO provides an opportunity and incentives for a correction in employment levels. The agency theory perspective therefore predicts a reduction

in employment levels after an LBO. Job losses in these circumstances have become associated with the PE business model. Critics argue that PE firms create wealth for investors by cutting jobs and that the wealth created for investors is in part created from transfers from employees. The agency theory perspective makes it clear that such jobs were the result of managerial discretion that reduced firm value and performance. This is therefore a sub-optimal use of employees. Moreover, practitioners argue that their goal is not to destroy jobs *per se*, but to create sustainable businesses.

The change in ownership at the time of an LBO provides an opportunity for wage payments that exceed the marginal product of labour to be reduced (Shleifer and Summers, 1988). The implication here is that the LBO is not creating wealth; rather, it is motivated by the transfer of wealth from employees to LBO investors. Such rent-extraction could pay-off for LBO investors in the short-term if employees who have made investments in firm-specific human capital do not leave their jobs because the next-best paid job pays no better than the post-LBO lower wage. In the long-term, however, the lower wages reduce incentives to invest in firm-specific human capital, lowering labour productivity (Shleifer and Summers, 1988). There could also be a short-term negative impact on labour productivity if effort is reduced because the higher wage payments are perceived by employees as a norm and part of an implicit agreement in return for a 'fair day's work' (Akerlof, 1982).

Contrary to the above is an argument that organisational restructuring results in employees receiving higher wages after an LBO. Lichtenberg and Siegel (1990) suggest that wages could replace monitoring by bureaucratic staff after a LBO in order to reduce employee moral hazard. An efficiency wage argument is that wages are paid at a rate to maximise labour productivity, which is in excess of the equilibrium market clearing level (Stiglitz, 1987). Employee moral

hazard is reduced because the higher wage payment increases the cost of losing a job by being caught shirking. Another explanation is that a higher wage establishes a norm where employees are willing to put in more effort in return for the higher pay (Akerlof, 1982). This theoretical argument predicts an increase in wages after an LBO.

2.2 Entrepreneurial

The entrepreneurial perspective is a more recent addition to our understanding of the impact of the LBO governance structure and the role that PE firms play in their interaction with portfolio firms. The entrepreneurial perspective offers understanding of the LBO of divisions/subsidiaries of larger organisations and to the LBO of private firms. These arguments are important because both these types of LBOs represent a large proportion of deals that are conducted (Kaplan and Stromberg, 2009).

Arguments relating to the LBO of divisions/subsidiaries are outlined first. Williamson (1975, 1985) argues that large organizations adopt a divisional organizational structure with an internal capital market. It exists due to the failure of the external capital market. Head office allocates cash to divisions, which are profit centres, where it can get the best return on investment. Such an organizational structure acts as an incentive and governance device to promote profit maximization from divisional managers. There are, however, limits to the effectiveness of the internal capital market of large firms as an incentive and governance device (Williamson, 1985). The misallocation of resources can occur due to divisional managers politicking to gain access to financial resources, which could result in underinvestment in some divisions. Underinvestment in a division might also arise as a consequence of head office deciding that a division does not feature in its core strategy. Underinvestment in divisions could result in sub-optimally low levels of employment

In the case of private firms, they can suffer from underinvestment due to their reliance on internal finance (Carpenter and Petersen, 2002) and difficulties in obtaining finance from banks (Behr et al., 2013). This is because private firms find it difficult to convey information about their creditworthiness to external finance providers (Behr et al., 2013). In addition, some private firms might pursue alternative goals to profit-maximisation (e.g. life-style businesses and family run businesses).

The entrepreneurial perspective emphasises both entrepreneurial incentives and the relaxation of financial constraints leading to investment in profitable growth opportunities. First, the equity held by management provides financial incentives to pursue entrepreneurial growth opportunities. This contrasts with hierarchical incentives that can sometimes fail to motivate managers' pursuit of entrepreneurial growth (Thompson and wright, 1995). Where PE firms hold a significant equity stake, they promote and encourage value creation through their involvement in the entrepreneurial decision-making of their portfolio firms (Bruining et al., 2013). Second, PE firms also have the potential to relax pre-buyout financial constraints and increase investment in entrepreneurial activity (Berger and Udell, 1998; Engel and Stiebale, 2014). This is a result of their role in improving post-LBO governance and their financial expertise reassuring creditors that funds will be used productively (Boucly et al., 2011; Amess et al., 2015).

The entrepreneurial perspective's emphasis on incentives to pursue profitable growth opportunities suggests that LBOs have the potential to create jobs. Note, however, that the entrepreneurial perspective offers no insight on LBOs effects on wages. Nevertheless, a positive effect on wages would suggest that employees share in potential gains from investment

in growth opportunities. If there is no wage effect, it suggests that post-LBO investors do not share their entrepreneurial gains with employees.

3. The PE business model

While the theoretical perspectives in section 2 provide an academic framework for understanding the impact of LBOs on jobs and wages, the nature of the PE business model has also received attention for how it impacts on jobs and wages. Broadly there are two competing views. First, there is criticism that the PE business model involves job cuts and the suppression of wages in portfolio firms in order to generate profit for the new owners. Critics have focused on PE firms in particular because their business model involves targeting, buying, restructuring, and selling firms in order to make a capital gain for themselves and their investors. When restructuring has resulted in job losses, critics have not perceived as necessary to create a sustainable business; rather, it is perceived as a short-term measure to create profit for LBO investors at employees' expense.

Second, proponents argue that PE firms acquire underperforming firms and develop them into sustainable businesses. The PE business model is able to create value by targeting underperforming firms and restructuring their financial incentives, governance, and business operations. With larger deals short term organisational restructuring that involves downscoping might be required in order to correct prior mistakes that led to over-diversification. This will lead to job losses, but the purpose of downscoping is to create a more strategically focused and sustainable business. In smaller deals the value creation is through the purchase of neglected divisions and poorly run private firms. In these cases, value creation arises through the exploitation of business opportunities, creating jobs.

While there are some general features of an LBO deal, there are different motivations. There are variations in the business models applied in order to create value in portfolio firms. Many academic studies do not take this into consideration, however; rather, they assess an average effect or examine effects across different employees' types while neglecting the different business models applied by PE firms in their attempt to create value.

4. Employment effects

The empirical studies discussed in this section are listed in Table 1 of the appendix. Details of the sample, including: country of study, sample period, and number of firms subject to an LBO are provided in the table. Where establishment- and employee-level data have been used, the number of establishments and the number of employees subject to an LBO are also provided. The deal type and summary of key findings are also reported in Table 1. Given that these details can be found in Table 1, the focus of the discussion below will be on the findings reported.

It can be seen from the sample descriptions in Table 1 that most studies use samples from the US and the UK, reflecting the preponderance of deals in these markets. While this review does include studies using Swedish and French data, it is clear that there is scope for further examination of the employment consequences of LBOs in different countries with different institutional contexts.

Average effects

Some of the early research examining employment consequences reflects difficulties in obtaining data for private firms at that time. Therefore, the relatively small samples reflect a focus on public-to-private deals where pre-LBO data are easy to obtain. Kaplan (1986) report a 12% decline in median industry-adjusted employment from the year prior to the MBO deal

to the year afterwards; however, this result included a sample of firms that undertook divestitures and acquisitions. For a sub-sample of firms that did not undertake divestment or acquisition, Kaplan did not find any statistically significant association between MBOs and employment. Smith (1990) also finds an insignificant industry-adjusted employment effect. Thus, these early US studies found that there was no employment effect associated with public-to-private buyouts.

While the early US research outlined above focused on the employment effects in public-to-private transactions, early UK research by Wright et al. (1992) examined the average employment effects across a range of deal sources (e.g. family and divestment). They obtain data via a survey conducted in 1990 of deals between 1983 and 1986. The survey found that employment was 6.3% lower at the time of the MBO and remained 4.5% lower at the time of the survey. The results must be treated with caution, however, because no control sample was used.

Bergstrom et al. (2007) provide evidence from a sample of Swedish PE-backed Buyouts. The deals have no significant impact on employment. This is supported by Amess and Wright (2012), who examine the average employment effects of deals from a variety of deal sources (i.e. public, private, divestment, receivership). A feature of the study is that it distinguishes between PE-backed and non-PE-backed deals. Using an employment demand equation, they find that LBOs, whether PE-backed or not, have no significant impact on employment levels. They also find that the impact on employment growth is also insignificant after accounting for large deals where there is expected to be more restructuring and likelihood of job losses.

A fundamental problem when analysing the impact of LBOs is establishing the counterfactual. Firms subject to a LBO are not randomly selected from the population of firms and it might be the case that employment levels impact on the LBO decision. For instance, over-employment might be identified as a source of under-performance in a firm, making it a LBO target with job reduction a potential source of performance gains. Amess et al.'s (2014) study of PE-backed and non-PE-backed LBOs use two modelling strategies to address the issue of self-selection to the LBO form. Average treatment effects are estimated using difference-in-differences (DID) combined with propensity score matching (PSM) and the control function approach. The application of these methods reveals that estimates of employment effects can be sensitive to modelling strategy. First, estimates obtained from DID combined with PSM indicate that, over the period t-1 to t+1 around the deal, PE-backed LBOs have no significant effect on employment while non-PE-backed LBOs experience an 11% decline in employment. Second, the control function approach indicates that, over the period t-1 to t+2 around the deal, PE-backed LBOs experience a 9% increase in employment while there is no significant effect on non-PE-backed LBOs. This evidence shows that, at best, PE-backed LBOs create jobs while non-PE-backed LBOs have no significant impact on jobs.

Davis et al. (2014) conduct one of the most comprehensive studies to date by analysing the employment effects of PE-backed LBOs at both establishment and firm levels. The study excludes MBOs that do not involve a PE firm, which means they are unable to compare the consequences of PE-backed and non-PE backed deals. Their analysis provides a number of insights. First, average employment levels shrink more rapidly at establishments subject to a LBO compared to controls. Davis et al. find that the cumulative difference in favour of controls is about 3 percent and 6 percent of initial employment over the first two and five years post-LBO, respectively. Second, in shrinking and exiting establishments LBOs experience faster

job destruction than control firms, but in expanding establishments there is faster job creation than control firms. Third, over the two years after a LBO, target firms exhibit nearly 2 percent more greenfield job creation than controls. Summing over job creation and destruction at continuing establishment, job losses at closed establishments, job gains at greenfield establishments, acquisitions and divestitures, employment declines by less than 1% compared to controls t+2 after LBO. The results reveal that PE-backed LBOs are catalysts for a process of creative destruction that would be hidden from firm-level studies.

Connections between business and politics is contentious. There is concern that business exploits political connections to get favourable treatment (e.g. though more favourable labour laws), but collaboration between business and politics can help create an environment conducive to job creation. Faccio and Hsu (2017) explore the issue of political connections by examining the impact of PE firms' political connections on employment. They find that over the period t-1 to t+5 employment grows, on average, by 1.24% in establishments controlled by politically connected PE firms while in nonconnected PE firms it is 0.33%. After addressing endogeneity concerns, there is still a significant difference in employment growth between the politically connected and nonconnected PE firms, but the magnitudes are more modest. Nevertheless, Faccio and Hsu (2017) argue their findings could be due to politicians and private equity firms exchanging favours. They find evidence consistent with politically connected private equity firms altering their hiring and firing decisions to support the election of their political allies. In return, portfolio firms of politically connected PE firms receive government grants and contracts. This provides an important understanding of decision-making in portfolio firms because it suggests that job creation and destruction after a PE-backed LBO is not a simply a business decision.

Differences across deal type and source

There is recognition in the literature that the impact of LBOs could vary across deal type and source of deal. Amess and Wright (2007) seek to draw distinction between MBOs (insider driven deals) and MBIs (outsider driven deals). Managers with inside information might be in a better position to exploit untapped growth opportunities and might have loyalty to existing employees. In contrast, the outsiders in an MBI, with less loyalty to existing employees, might be more inclined to restructure, leading to job losses. They find that employment growth is 0.51 of a percentage point higher in MBOs and 0.81 of a percentage point lower in MBIs, compared to a control sample of firms. The authors suggest that for the average MBO in their sample employment grows by about 1.5 employees per year, while for the average MBI in their sample employment declines by about 5 employees per year. Economically, these figures are fairly modest. Nevertheless, they indicate a distinction between MBOs and MBIs matters and not all LBOs will have the same employment effects. Moreover, MBOs seem to be able to obtain previously untapped employment growth opportunities while MBIs are associated with job losses, possibly due to restructuring.

Subsequent analysis of outsider-driven deals, i.e. Institutional Buy Outs (IBOs), by Goergen et al. (2011, 2014) also find they are associated with negative employment effects. IBOs are deals where the acquirer consists solely of institutional investors and PE firms c.f. MBIs where outside managers are also part of the team of acquirers. Goergen et al. (2011) report that employment growth is 1.62% lower in the year after the deal but IBO employment growth is not statistically significant from a control sample of firms two and three years after the deal. Goergen, O'Sullivan and Wood (2014) report that post-IBO employment is up to 15% lower.

Most studies do not distinguish between deal sources. Meuleman et al. (2009) and Boucly et al. (2011) examine the employment effect of different deal sources in order to explore deals where there are most likely to be entrepreneurial growth opportunities. Meuleman et al. (2009) find that employment growth is 36% higher in divisional buyouts compared with other deal sources over the three years after the deal. This heterogeneity in employment effects across deal sources is also reported in Boucly et al.'s (2011). While they find that average employment for all LBOs grows by 12% from the year before the deal to three years after the deal, employment grows by 18% in private-to-private deals, 11% in secondary buyouts (SBOs) and 6% in divisional buyouts. Employment growth in private-to-private and divisional buyouts deals could be due to the entrepreneurial incentives installed by an LBO. The SBO result is curious because the governance and entrepreneurial incentives are in place prior to the SBO. Given that industry expertise can improve portfolio firms operations (Bernstein and Sheen, 2016), one possible explanation is that SBOs occur when there is better complementarity between portfolio firms' assets and the acquiring PE firms' expertise (e.g. specialist market knowledge) than that for the selling PE firm. As a consequence, the PE firm in the SBO might be able to achieve growth opportunities, resulting in employment growth, which are not achieved in the primary deal.

The impact on different types of workers

One branch of the literature recognises that the impact of an LBO might result in organisational change that has a distinctive impact for different types of workers. Lichtenberg and Siegel (1990) examine the different employment consequences for nonproduction and production workers. They find that there is an 8.5% reduction in the number of nonproduction workers employed while there is no significant effect on production workers. This is consistent with an agency perspective where bureaucratic employees that are costly and do not create or add

productive value are stripped out of plants. In contrast, production workers might not suffer job losses because their activities create value for firms.

The distinction between different worker types has been neglected in the literature for a number of years, reflecting difficulty in obtaining such data because it is not reported in company reports; however, two recent studies use government employee-level data that allow in-depth analysis of employment consequences for employees with different characteristics. Antoni et al. (2015) find modest average effects on employment, the fraction of a year an employee is employed falls by about 1-1.5%. An important insight from their study, however, is that employment effects vary across employee characteristics. Employees that are older, those with a longer tenure in their jobs, female, white collar and unskilled blue collar workers experience increased risk of unemployment. Olsson and Tåg (2016) find little evidence of average changes in employment incidence after a PE-backed LBO. For specific worker types in low productivity firms, however, there are negative employment effects. Workers performing routine job tasks experience a 10.2 percentage point (96.6%) increase in employment incidence and workers performing offshorable job tasks experience an 8.6 percentage point (97%) increase in unemployment incidence. Such detailed analyses suggests that LBO restructuring impacts on workers differently. Such effects are not captured in studies examining average effects across a workforce.

Agrawal and Tambe (2016) use employee-level data from a job website to take a different approach to analyse the employment effects of LBOs. The concern with this type of study is that certain types of employees might select to use the job web site and so it is difficult to generalise the results. Nevertheless, the detailed data allow detailed insight for those workers that use the website in their job search. They analyse the impact on duration of employment

and, if an employee loses their job, the subsequent impact on employment duration. They find that employment spells are 6 to 8.2 percentage points longer in portfolio firms compared to control firms. In addition, for those workers that leave a portfolio firm after an LBO, their employment duration is 2.9 months shorter than those in control firms. They attribute this to post-LBO investment in IT resulting in workers complementary IT skills being upgraded, which in turn improves their employability.

Summary

While some studies do find that LBOs impact on employment, most find that the average effect is modest. There is some evidence of positive effects with increased employment in LBOs of private firms, divisions, and SBOs, which is consistent with an entrepreneurial perspective. In addition, the evidence concerning MBIs and IBOs suggests that job losses are more likely to be associated with deals where inside-management are not associated with the deal, suggesting outside acquirers are more likely to instigate restructuring that leads to job losses. The evidence also suggests that lower-skilled workers and white collar workers suffer negative effects. Low skilled job losses could be the result of automation and offshoring and white collar job losses could be the result of LBOs downsizing corporate bureaucracy. The evidence suggests a complicated picture of the employment effects of LBOs. There is no clear evidence that there should be government intervention in the LBO market in order to protect jobs.

5. Wage effects

There are fewer studies assessing the impact on wages compared to the number of employment studies. The theoretical background outlined in section 2 has little to say on the wage effects of LBOs. Nevertheless, a key criticism of LBOs is that they create an opportunity for the new owners to suppress wages, which could be a source of improvements in operating performance.

Average pay per worker

Much work in this area makes use of data available in company reports. Most private firms will report the number of employees and the wage bill, therefore, these studies will simply assess the impact of an LBO on average pay per worker. Amess and Wright (2007) provide evidence for UK deals. They estimate that average pay growth is 0.31 of a percentage point lower in MBOs and 0.97 of a percentage point lower in MBIs. For the sample of firms used in the study, coefficient estimates indicate that average pay per employee grows by £83.70 and £231.35 less per annum for MBO and MBI firms, respectively, compared to control firms.

Bergstrom et al.'s (2007) analysis of Swedish PE-backed LBOs and Goergen et al.'s (2011) analysis of UK IBOs both find no significant impact on average wage level. This is supported by Amess et al.'s (2014) UK study using techniques that account for potential selection bias to the LBO form, who find that PE-backed and non-PE-backed LBOs have no significant effect on the wage per worker over the period $t-1$ to $t+2$. In contrast, Davis et al. (2014) report that PE-backed LBOs in the US have earnings per worker 2.4 percent lower compared to controls two years after the deal. While Bergstrom et al. (2007) find that PE-backed LBOs have no impact on wages, they do however find a negative relationship between wage growth and the relative change in operating performance. They argue that this is indicative of wage reductions explaining post-LBO changes in performance.

The impact on workers with different characteristics

There is a body of literature that recognises that the impact of LBOs on wages might be different for workers with different characteristics. Lichtenberg and Siegel (1990) examined

the distinct wage effects for nonproduction and production workers. They found that the annual compensation for nonproduction workers fell by 5.2% over the period t-1 to t+2 around the deal. In contrast, over the same period, they find that the annual and hourly compensation per production worker is 3.6% and 2.3% higher, respectively. They argue that this is consistent with compensation being used to motivate employees rather than direct monitoring.

Antoni et al. (2015) estimate that the impact on the average employee's wage ranges from 0.96% to 2.68%. More in-depth analysis using education and occupational reveals that the impact of LBOs on wages varies across different types of employees. Target employees with low and medium levels of education experience greater wage improvements than those for those with high levels of education. Highly educated employees gain 0.07% while the additional gain for low educated and medium educated is 1.19% and 2.06%, respectively. The wage effect is different when proxy measures for occupational skills are considered. White collar workers achieve a wage gain of about 1%, unskilled blue-collar workers receive a wage gain that is not statistically significant from this, and skilled blue-collar workers gain by an estimated 2.84%. Antoni et al. also find that the characteristics of workers for whom LBOs have a negative effect are those employees: with high tenure, older, and are middle managers. A positive effect for female employees is found, although this may be due to females being over-represented in the medium educated group.

Heterogeneity in employee wages after an LBO is also reported in Agrawal and Tambe (2016). They examine wage differences between those workers that have never been employed by a firm acquired by a LBO with employees that have been employed by a LBO target at some point in the sample. The rationale for this is that employees will acquire transferable human capital after PE-led investment in IT and so the wage effects of an LBO on an employee will

persist after they have left an LBO target firm and obtained a job in another firm. Employees that were once employed in a LBO target experience a 2.5%-3.5% wage gain for each unit increase in IT complementary skills. In high IT firms, such wage gains are estimated to be up to 13% higher.

Summary

The evidence suggests that the impact of LBOs on wages is fairly modest. In addition, the evidence to date is mixed. This mixed body of evidence does not strongly support the argument that LBOs lead to wage suppression but nor does it suggest that the average employee shares in post-LBO performance gains. Nevertheless, there is evidence to suggest heterogeneous wage effects across different types of employees. In particular, the evidence suggests skilled workers experience the highest wage gains.

6. Future research

Over the years, the evidence on employment and wage effects has grown and has become increasingly nuanced, providing depth to our understanding of the effects of LBOs on employees. Nevertheless, the evidence is largely mixed and fails to provide firm support for either positive or negative effects for employees. The most insightful research appears to assess the impacts for different types of employees. There are several areas where research on the employment and wage effects of LBOs would be useful.

First, future research on workers' pay could examine the impact of LBOs on different pay components. The structure of pay packages impacts on risk-sharing and incentives. For instance, profit-sharing and bonus schemes provide stronger incentives to reduce employee moral hazard than a salary or wage. Could greater use of these types of pay components be a

driver of improved performance after a LBO? Profit-sharing schemes could also be attractive to post-LBO owners because it means they share performance risk with employees. The wage bill will be positively correlated with firm performance. Do LBOs adopt profit-sharing schemes to reduce the new owners' exposure to performance risk?

Second, Shleifer and Summers (1988) argue that corporate restructuring presents an opportunity for implicit labour contracts to be renegotiated. Obviously, implicit features of a labour contract are by definition impossible, or at least very difficult, to observe and measure. There are aspects of being employed that could indicate whether implicit agreements with employees have been broken or have deteriorated after a LBO. For instance, if employees become less satisfied with their work (i.e. feeling more insecure, the lack of opportunity to develop skills, and feeling less achievement in their work) and feeling more worried, depressed, and tense about work. There is increasing interest in the well-being of individuals; the impact of corporate restructuring transactions, such as a LBO, on workers well-being could be a fruitful area of research that expands our knowledge of the labour consequences beyond the narrow economic confines of having a job and how well it pays.

Third, pensions can represent an important part of a pay package. Some employees might be willing to accept lower wages in return for a better pension. Such arrangements are not typically part of an explicit employment contract; rather, they are implicit. Employer pension liabilities and employer pension contributions, however, might be an area where the LBO restructuring creates an opportunity where such an implicit contract is changed unfavourably for employees in order to generate savings that benefit LBO investors.

Fourth, there are broader aspects of the work environment that impact on employees' welfare. For instance, some firms will offer their employees flexitime, job sharing, and on the job training and education, and benefits in kind such as health insurance and a car. These aspects of work are provided by employers on a voluntary basis and future research could determine whether cost-cutting after an LBO leads to a reduction in the provision of these aspects of work. In addition, there could be an assessment of changes to employees' workload and duties along with changes to contractual status from permanent to casual.

Finally, much of the evidence provided to date uses US and UK data, although there is some evidence from other European countries. Private equity is a growing feature of capital markets in developing economies, such as India and China. Such markets provide an interesting context because their capital markets are generally considered less developed than those in the US and Europe. This might mean there is potential for upside gains and employment creation due to PE investment. In countries with less employment regulation, however, LBOs may be more likely to depress wages. Some markets also see PE firms with private, state and foreign ownership operating alongside each other. It would be interesting to find out the different employment and wage effects of different PE firms.

7. Conclusions

This chapter reviews the agency and entrepreneurship perspectives of LBOs and outlines arguments concerning their impact on jobs and wages. The agency perspective predicts the realignment of managers and owners incentives after a LBO will result in job losses. Critics of PE firms have taken this types of argument to suggest that any gains they make could be attributable to transfers from employees. This might be in the form of job losses or the suppression of wages. An entrepreneurial perspective suggests that LBOs provide incentives

for the new owners to invest in entrepreneurial growth, resulting in job creation. A weakness of the entrepreneurial perspective is that it has little to say on how an LBO impacts on wages.

Unfortunately, the evidence does not provide a clear picture of the effects of LBOs on jobs and wages for PE-backed deals. Nevertheless, there appears to be some evidence of job creation in deals that are characterised as entrepreneurial. The employee level studies provide insightful evidence as to the gainers and losers from being employed at an LBO target. Recent studies suggest that low-skilled workers are more likely to suffer job and wage losses, while skilled workers experience wage gains. The lack of consensus in the evidence and the paucity of studies conducting employee-level analysis suggests there is scope for further research in this area.

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Appendix

Table 1: Summary of employment studies reviewed in chronological order

Author(s)	Sample (Country, period, deals, any other characteristics)	Deal Type	Findings
Kaplan (1989)	US 1980-1986 42 and 26 firms	MBO	Over period t-1 to t+1: for total of 42 firms -12%; for 26 firms with no divestitures of acquisitions, no significant effect.
Lichtenberg and Siegel (1990)	US 1983-1986 420 plants	LBO	Over period t-1 to t+2: -8.5% for nonproduction workers; no significant effect for production workers.
Smith (1990)	US 1977-1986 58 and 30 firms	MBO	Median changes in the number of employees for the total sample of 58 firms and the asset-sale subsample of 30 firms are insignificant.
Wright, Thompson and Robbie (1992)	UK 1983-1986 182 firms	MBO	-6.3% at time of MBO. At time of survey, 1990, 4.5% below pre-MBO levels.
Amess and Wright (2007)	UK 1999-2004 1350 firms	MBO, MBI	Compared to control sample employment growth 0.51% higher for MBOs and 0.81% lower for MBIs.
Bergstrom, Grubb and Jonsson (2007)	Sweden Deals conducted between 1999-2001 73 firms	PE-backed LBO	No significant effect.
Meuleman, Amess, Wright and Scholes (2009)	UK 1993-2003 238 firms	PE-backed LBO	Employment growth 36% higher in divisional buyouts compared with other buyout types over three years after LBO. MBIs, IBOs, and BIMBOs do not have significantly different employment growth compared to MBOs
Boucly, Sraer, and Thesmar (2011)	France 1994-2004 839 firms	LBO	Over period t-3 to t+3: employment grows 12% for all LBOs, 18% in private-to-private LBOs, 6% in divisional LBOs, 11% in SBOs, no significant effect in public-to-private LBOs.

Goergen, O'Sullivan and Wood (2014)	UK 2000-2006 73 firms	Institutional Buyout	At t+1, annual employment growth rate is -1.62%. This is significantly different from control sample. In t+1 and t+2 employment growth rate is not significantly different from the control sample.
Amess and Wright (2012)	UK 1993-2004 533 firms	PE-backed and non-PE-backed LBOs	PE-backed and non-PE-backed LBOs have no significant effect on levels and growth in large and small deals.
Amess, Girma and Wright (2014)	UK 1996-2006 386 firms	PE-backed and non-PE-backed LBOs	Difference-in-differences combined with propensity score matching. PE-backed LBOs have no significant effect. Over t-1 to t+1, -11% in non-PE-backed LBOs. Control function approach: Over period t-1 to t+2, 9% higher in PE-backed LBOs. No significant effect in non-PE-backed LBOs.
Davis, Haltiwanger, Handley, Jarmin, Lerner and Miranda (2014)	US 1980-2005 3,200 target firms and their 15,000 establishments	PE-backed LBO	Establishment analysis: employment is -3% t+2 years after LBO and -6% t+5 after LBO. Summing over: job creation and destruction at continuing establishment, job losses at closed establishments, job gains at greenfield establishments, acquisitions and divestitures, employment declines by less than 1% compared to controls t+2 after LBO.
Goergen, O'Sullivan and Wood (2014)	UK 1997-2006 106 firms	Institutional Buyout	Post-LBO employment declines by up to 15%.
Antoni, Maug and Obernberger (2015)	Germany 2002-2008 535 deals involving 830 firms, 2,584 establishments, and 192,364 employees	PE-backed LBOs	Measure the fraction of a year employed, not jobs. Over one to three year period after LBO, LBOs reduce employment by about 1-1.5%.
Olsson and Tåg (2016)	Sweden Deals conducted between 2002-2008 239 firms 42,391 employees	PE-backed LBO	10.2 percentage point (96.6%) increase in unemployment incidence for routine workers, no effect on non-routine workers, in low productive firms. Offshorable workers in low productive firms experience

			increased unemployment incidence by 8.6 percentage point (97%) in period t+4 after LBO. No significant increase in unemployment incidence across population of employees.
Agrawal and Tambe (2016)	US 1995-2010 4193 deals 5680 employees	PE-backed LBO	Employment spells 6-9 percentage points longer. Workers leaving LBO firm has unemployment spell 2.9 months shorter than control.
Faccio and Hsu (2017)	US 1990-2012 3748 deals 20,073 establishments		Over period t-1 to t+5, employment growth in establishments owned by politically connected PE firms is 1.24% and is 0.33% in establishments operated by nonconnected PE firms.

Table 2: Summary of wage studies reviewed in chronological order

Author(s)	Sample (Country, period, firms)	Transaction Type	Findings
Lichtenberg and Siegel (1990)	US 1983-1986 481 plants	LBO	Over period t-1 to t+2: annual compensation per nonproduction worker is -5.2%; annual and hourly compensation per production worker is 3.6% and 2.3%
Amess and Wright (2007)	UK 1999-2004 1350 firms	MBO, MBI	Compared to control sample wage growth is 0.31 of a percentage point lower for MBOs and 0.97 of a percentage point lower for MBIs.
Bergstrom, Grubb and Jonsson (2007)	Sweden Deals conducted between 1999-2001 73 firms	PE-financed LBO	No significant effect.
Goergen, O'Sullivan and Wood (2014)	UK 2000-2006 73 firms	Institutional Buyout	No significant effect.
Amess, Girma and Wright (2014)	UK 1996-2006 386	PE-backed and non-PE-	PE-backed and non-PE-backed LBOs have no significant effect on wage per worker over period t-1 to t+2.

		backed LBOs	
Davis, Haltiwanger, Handley, Jarmin, Lerner and Miranda (2014)	US 1980-2005 3,200 target firms and their 15,000 establishments	PE-backed LBO	Growth of earnings per worker at continuing LBO establishments -2.4 percent compared to controls t+2 years after LBO.
Antoni, Maug and Obernberger (2015)	Germany 2002-2008 535 deals involving 830 firms, 2,584 establishments, and 192,364 employees	PE-backed LBO	Average daily wage 0.96% to 2.68% higher. Low and medium educated, skilled blue-collar workers, and females experience greatest wage gains. Employees with high tenure, older and are middle managers experience negative wage effects.
Agrawal and Tambe (2016)	US 1995-2010 4193 deals 5680 employees	PE-backed LBO	Wages 2.5%-3.5% higher for workers with more IT complementarity skills.