COMMITTEE ON CAPITAL MARKETS REGULATION

THE IMPACT OF PRIVATE EQUITY BUYOUTS ON PRODUCTIVITY AND JOBS

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The Impact of Private Equity Buyouts on Productivity and Jobs

Contents

The Impact of Private Equity Buyouts on Productivity and Jobs

A Review of Empirical Literature[1]

Executive Summary

Over the past two decades, the role of private equity in the real economy has dramatically increased. For example, private equity-backed U.S. companies numbered approximately 4,000 in 2006, but by 2018, that figure had doubled to about 8,000. Meanwhile, the number of publicly traded firms in the United States fell by 14 percent, from 5,113 to 4,397. Globally, private equity's net asset value has jumped more than seven fold from 2000 to 2018, while the market capitalization of the public equity market grew only 2.1 times over the same period. Institutional investors that have historically been public market oriented increasingly allocate investments to private markets, seeing them as necessary vehicles to attain diversification as well as participation in the growth of the full economy.[2]

The growing importance of private equity has generated ongoing debate as to its impact on the real economy, including the impact on productivity at private equity-owned firms (referred to herein as "target firms"), as well as the impact of private equity on job growth. For a long time, such policy debates were not assisted by empirical facts and analyses because of limited data and disclosure requirements and the relatively short history of private equity. However, the past 10-15 years have witnessed a burgeoning academic literature based on increasingly refined and comprehensive data which has since covered much of the real economic impact of private equity.

In this literature review, the Committee on Capital Markets Regulation seeks to provide clarity as to the findings of academic research on the impact of private equity on target firm productivity and jobs.[3] In Part I of our review, we describe the methodology used by such studies. In Part II, we summarize and compare the findings of twenty-two empirical studies that measure the impact of private equity ownership on firm productivity and jobs. Our study is intended to be exhaustive of the research since 2005 focused on the United States and Europe.

We review eight U.S.-focused studies and two globally-focused studies (including the U.S.) on the impact of private equity on a target firm's productivity, such as revenue per employee (i.e. total firm revenue divided by total number of employees), return on assets or innovation. Productivity in an economy is vital to overall macroeconomic growth and is arguably the most important determinant in a country's standard of

[1] The literature review was prepared by John Gulliver, Executive Director of the Committee, and Wei Jiang, Arthur F. Burns Professor of Free and Competitive Enterprise, Columbia Business School and Member of the Committee.
[2] Data regarding the private equity markets were adopted from the McKinsey Global Private Markets Review 2019. Data regarding U.S. public companies were sourced from World Bank Listed Domestic Companies.
[3] We do not focus on the impact of private equity buyouts on wage growth at target firms, because the academic literature on this topic is highly limited.

living.[4] Overall, a majority of studies find that private equity positively impacts a firm's productivity, while some find little or no statistically significant effect. Importantly, none of the studies we review find that private equity negatively impacts firm productivity. Moreover, the two global studies find that private equity exerts positive externalities on entire industries as productivity gains not only accrue to the target firms, but also spill over to competitor firms. We then review European-focused studies, all five of which find that private equity buyouts enhance the productivity of target firms, while another finds that an increase in private equity investment in a country is associated with an increase in innovation.

While these studies do not explore the specific mechanisms through which private equity increases productivity, the positive results are consistent with explanations offered by other studies. For example, in the case of consumer products firms, significant increases in post-buyout revenue are the result of new product launches and geographic expansion that occur under private equity management.[5] Moreover, private equity buyouts generally lead to improved management practices at medium sized firms (often the type of firm targeted in private equity transactions).[6]

If productivity gains were primarily the result of job cuts, then the net societal benefit of private equity may be less clear. However, we next review the impact of private equity on job growth and find that this is generally not the case. We consider five U.S. studies and two global studies (including the U.S.) that measure the impact of private equity buyouts on job growth at target firms, as well as the positive externalities that are bestowed on entire industries. The most comprehensive U.S. study finds that the most prevalent types of private equity transaction – buyouts of private firms – are associated with a positive impact on job growth. These job-promoting transactions constitute more than 70% of private equity deals in this study. In the remaining minority of cases, involving buyouts of public companies, private equity is associated with job declines. Due to the larger size of public companies, the net result across all transaction types is that private equity buyouts have no statistically significant effect on employment. However, since the study only examines a two-year window for job growth, it may fail to capture job growth that occurs in subsequent years, which may be significant given the typical 4 to 5-year holding period of private equity investments. In addition, the two global studies we review show that, similar to the positive findings for productivity, private equity also leads to job growth across entire industries, both at target firms and competitor firms.

We then summarize six European-focused studies that examine the impact of a private equity buyout on job growth at target firms. Similar to the U.S. studies, the most comprehensive European study

[4] *See* Economic Policy Institute, *The Link between Productivity Growth and Living Standards*, Apr. 5, 2000, available at https://www.epi.org/publication/webfeatures_snapshots_archive_03222000/.
[5] *See* Farcassi, Previtero and Sheen, *Barbarians at the Store? Private Equity, Products and Consumers*, NBER Working Paper No. 27435 (June 2020).
[6] *See* Bloom, Sadun and van Reenen, *Do Private Equity Owned Firms Have Better Management Practices?*, American Economic Review, Vol. 105 (May 2015).

documents a positive impact of private equity on job growth at target firms, albeit to a much larger degree than in the U.S. The stronger conclusions in the European study may result from both a longer examination window (5 years of job growth versus 2 years) and better data availability on private companies in Europe than in the U.S.[7] Limitations as to data regarding private companies in the United States may also mean that U.S. jobs studies underweight the prevalence of private-to-private transactions, as compared to buyouts of public companies for which there is often better data. Finally, we review two studies that find that private equity investment in a certain region is associated with job growth at non-private equity owned firms in that region.

In conclusion, the empirical literature shows that private equity buyouts in the U.S. and Europe generally have positive effects on productivity at target firms and, in most cases, a positive impact on job growth. In addition, private equity exerts positive externalities on entire industries, generating both productivity growth and job growth at competitor firms as well.

[7] Most European countries require financial disclosures for private companies, while the U.S. does not. *See* Erel, Jang and Weisbach, *Do Acquisitions Relieve Target Firms' Financial Constraints*, Journal of Finance 70, 2015.

Part I: Methodology

A general challenge in empirical studies is addressing the "counterfactual" issue. In other words, what would productivity or job growth outcomes have been at the target firm in the absence of private equity involvement? To address the counterfactual issue, studies identify "control" firms that are similar to target firms along observable dimensions (such as industry and pre-event valuation) in order to attribute the differential outcome in productivity or employment levels at target firms to the effects of the private equity buyout. Studies also need to take extra steps to rule out the possibility that post-buyout changes at target firms are caused by industry- or macro-level economic factors that would have persisted in the absence of private equity investment.

Studies typically match controls to target firms based on the size of the firm (such as number of employees), industry and buyout year (which serves as a "pseudo-event time" for control firms; in other words, changes in control firms are measured from the same year as the buyout of the target firm so as to filter out time trends and macroeconomic factors). Researchers also usually exhaust all the observable financial metrics as additional control variables, such as total assets, return on assets, and stock valuation, that are correlated with productivity and job growth. A popular method in some studies builds on a "propensity score" for identifying control firms. In such a method, researchers first conduct a predictive regression of a private equity buyout from variables which proxy for economic factors motivating buyouts of a firm, such as sales, analyst coverage, capital expenditures, dividends paid, share turnover, market to book value, free cash flow, leverage, cash on hand, net fixed assets, and the number of past mergers. Out of such a regression, the researchers can calibrate a probability for a given firm to be bought out in a specific year, which further establishes the similarity of a target firm and a control firm and therefore addresses the "counterfactual" issue described above. Finally, target firms can be matched to control firms based on as-close-as-possible probability. In such a setting, the two firms look "identical" in terms of their desirability as a buyout target based on observable characteristics, but only one of them was actually taken over. As such, the divergence in path of the two firms are likely attributed to the buyout event.

Another methodological issue to clarify is the treatment of bankruptcies of target firms or control firms by the studies. When a target firm or control firm goes bankrupt their respective productivity measures (such as revenue) go to zero and all jobs are treated as lost. In other words, the empirical research is robust in its treatment of bankruptcies by target firms and control firms during the period of private equity ownership studied.

A further methodological issue is that the majority of the studies that we review measure the effects of private equity buyouts on the consolidated business entity, generally referred to as "firms." However,

firms often operate multiple "establishments" that are defined, e.g., by the Census Bureau and others, as a single physical location where one predominant activity occurs. For example, if a firm has an automotive business with several factories and a separate consumer business, then an establishment would be a single physical location (a particular factory) producing automotive. Increasingly researchers have been leveraging databases such as the Census data to focus on the impact of a private equity buyout on specific establishments in addition to firms.

A key challenge for firm-level studies is that firms can "disappear" from the relevant database such as Compustat, even though the firm's establishments continue to operate. This could be the case when a firm's various components are acquired by multiple firms, so the original firm has no clear successor. Studies that are able to trace at the establishment level can overcome the challenges due to firm attritions.

A small subset of studies solely consider the impact of private equity buyouts on specific establishments. Although establishment-level analyses can pinpoint productivity improvements at specific locations for specific activities, firm-level analyses remain predominantly important for understanding company-wide decisions, including those that stem from ownership by a private equity fund—firms act as a whole, rather than as a collection of individual establishments. For example, an establishment-level analysis will not account for job reallocation from one establishment to another within the same firm. It will also fail to consider post-buyout job creation at newly opened establishments. Private equity owners may choose to invest in and expand jobs at highly productive establishments and cut investment and jobs at less productive establishments. A study of individual establishments would fail to account for this productive reallocation of jobs and investment with the same firm.

One final methodological note is that, in addition to overall findings for the impact of private equity buyouts on productivity and employment growth, studies also often breakdown their findings by the four types of private equity transactions: public-to-private transactions (where a private equity fund acquires a public company), private-to-private deals (where a private equity fund acquires a private company), divisional (where a private equity fund acquires part of a target company) and secondary (where a private equity fund sells a private company to another private equity fund).

We now shift to our review of the empirical literature. Our analysis is generally organized in reverse chronological order with U.S. studies first followed by studies on European private equity activity. Throughout our analysis all findings as to the impact of private equity on productivity and employment growth are presented relative to control firms.

Part II: Empirical Literature Review

A. Effects of private equity buyouts on firm productivity

United States

Davis et al. (2019) is the most recent and comprehensive study in terms of the impact of private equity buyouts on productivity at target firms. Davis et al. study approximately 3,600 U.S. buyouts between 1980-2011 and track the productivity of firms in the two years following the buyout, measured primarily as revenue per employee. Davis et al. find that the most prevalent types of private equity buyout transaction – buyouts of private firms, which constitute 50% of all transactions – are associated with a 14.7% increase in productivity, measured as revenue per employee. By contrast, target firms in other types of transactions, including public-to-private, divisional and secondary buyouts, show no statistically significant increase in productivity. Overall, private equity investment is associated with a 7.5% increase in productivity at target companies relative to control firms. In addition, more than 80% of the productivity increase is attributable to revenue growth, rather than to workforce reductions.

Bharath et al. (2014) study approximately 400 going-private transactions, i.e., public-to-private, (including companies taken private by private equity buyouts, management, and private operating firms) between 1981-2005 and track the productivity of target *establishments* up to six years after the buyout. In their sample, 115 of the going-private transactions involve private equity buyouts and their results show no within-establishment productivity changes at such target establishments. As noted earlier, such an outcome does not rule out firm-wide productivity improvements, for example, that result from the closure of less-productive establishments or the addition of new, productive establishments.

Cohn et al. (2013) study 263 private-to-private buyouts of target firms between 1995-2009 and find that operating profitability improves in the two-year post-buyout period (median increase in pre-interest return on sales of 1.5%), and this improvement is driven by underperforming firms (those with below-industry median operating performance pre-buyout). The results are consistent with private equity buyouts creating value in part by improving the operational efficiency of struggling private firms. The study also finds that target firms experience a large increase in sales growth in the two year post-buyout period (median increase of 20-30%). However, when Cohn et al. (2013) examine 317 public-to-private buyouts of firms between 1995-2007, they find no evidence that buyouts improve operating performance over the three years following buyouts, based on profits and return on assets.

Guo et al. (2011) study 192 large (over $100 million) U.S. public-to-private buyouts of target firms between 1990-2006 and find a statistically significant increase in the ratio of EBITDA (11.43%) and net cash flow (14.3%) to sales from the pre-buyout year to the second post-buyout year. Benchmark-adjusted

performance, measured in terms of EBITDA and net cash flow to total assets increase by 11% and 22%, respectively.

Lerner et al. (2011) study patent activity at 495 U.S. private equity target firms as a measure of innovative productivity between 1986-2005. They find no evidence that target companies either increase or decrease innovation volume (measured by patent activity) in the five-year period after a private equity buyout. However, the quality and impact of the patents improve, especially in the area of core competence. In other words, Lerner et al. (2011) find that post-buyout patents are more heavily cited and are concentrated in the most valuable areas of target companies' portfolios.

Leslie and Oyer (2009) study 144 private equity-owned companies that were taken public between 1996 and 2005, by comparing managerial incentives during the PE-ownership phase (the "before-period") with the publicly traded phase (the "after-period"). They found that executives are subject to steeper managerial incentives during the PE-ownership phase (on average 4.5 years), but there is no statistically significant effect of buyouts on several measures of profitability—return on assets, EBITDA/assets, sales per employee and employees per asset—at target companies relative to peer firms.

Though Brav et al. (2015) and Brav et al. (2018) conduct studies on activist hedge funds that own partial stakes in public companies rather than private equity funds that own 100% of private companies, they shed light on post-buyout productivity changes because a substantial number of firms or segments of firms targeted by activist hedge funds were subsequently sold to private equity funds. Moreover, activist funds are known to deploy private-equity strategies in public companies. Brav et al. (2015) find that plants sold improve productivity significantly under new ownership suggesting that the capital redeployment created value. Along a similar vein, Brav et al. (2018) show improvement in productivity as measured by patent quality and impact, and innovator productivity.

While the above studies focus on the effects of private equity transactions on individual firms and establishments, additional studies examine the impact at an industry level. Bernstein et al. (2017) conducted an industry-level study, examining the effects of private equity activity on productivity, measured by gross output, across industries in 25 OECD countries (including the U.S.) from 1991-2009.[8] The study analyzed the industry-wide impact of private equity activity (at least one transaction) occurring in a given industry over the previous 5 years, defined as "PE industries." Bernstein et al. (2017) found that total production in PE industries grew at an annual rate that is 84 basis points higher than non-PE industries. Given that the average annual growth rate for total production in the sample was 6.0%, the 84-basis point increase represents a significant 15% productivity gain associated with private equity ownership.

[8] While this study does not focus solely on the U.S., U.S. private equity accounts for 50.2% of aggregate OECD private equity deals in the study's sample and 56.9% of aggregate dollar value.

Aldatmaz and Brown (2019) examine spillover effects in an industry, studying the impact of private equity investments on *competitor* firms in the same industry. Aldatmaz and Brown (2019) consider 19 industries across 52 countries (including the U.S.) from 1990 to 2017 and find that a one-standard deviation increase in private equity investment in a given industry corresponds with an 80 basis-point increase in the growth rate of labor productivity (defined as industry sales per employee) over the following year among public firms in the same industry. The authors note that their findings may underestimate the positive externalities of private equity investment, since private firms also likely experience positive spillover effects but are not considered due to data limitations.

Europe

Biesinger et al. (2020) is the most recent and comprehensive Europe-focused study on the impact of private equity buyouts on productivity at target firms. Biesinger et al. (2020) study 1,580 buyouts between 1992-2017 across European countries, former Soviet Republics, the Middle East and North Africa. They measure changes in productivity beginning at the time of the private equity buyout and for up to five years after the exit by the private equity fund. They find statistically significant long-run increases in labor productivity (20%, measured by revenue per employee), capital intensity (27%, measured as the ratio of fixed assets to employment) and total factor productivity (4%).

Amess et al. (2016) study 407 U.K. private equity buyouts between 1998-2005 and measure post-buyout patent filing and citation activity as a measure of innovative productivity for at least three years after the buyout at target firms. Amess et al. (2016) find a 6% increase in quality-adjusted patent stock three years after the buyout. They find that the increase in productivity is particularly strong among private-to-private transactions, which experience a 14% increase in the quality-adjusted patent stock.

Acharya et al. (2013) study 395 European buyouts by large private equity funds (with AUM over $300 million) between 1991-2007 and find that target firms experienced small improvements in EBITDA margins (average of 1% over peer firms) and sales growth (average of 1% over peer firms) over the full period of ownership by private equity funds. Boucly et al. (2011) study more than 800 French private equity buyouts between 1994-2004 and find that the profitability of target firms is 4.4% higher than peer firms, measured by return on assets, in the three years following the buyout. Return on sales also increases by 1.4% over the same period.

Finally, Popov and Roosenboom (2009) study the effects of aggregate private equity investment on productivity in European countries between 1991-2004. They find that private equity investment is associated with an increase in patent applications and grants: a 1% increase in private equity investment

in a country in a given year increases the number of patents granted in that country by between 0.04% and 0.05%. In addition, private equity-owned firms are overrepresented in their contribution to industrial innovation (measured by the number of patents granted): while private equity investment accounts for 8% of aggregate industrial spending, private equity accounts for as much as 12% of industrial innovation.

In conclusion, empirical studies of private equity buyouts in the U.S. and Europe generally find that such buyouts result in positive effects on productivity at target firms.

B. Effects of private equity buyouts on job growth

United States

The same Davis et al. (2019) study that we reviewed in the prior section also considers the impact of a private equity buyout on job growth. Davis et al. (2019) studied approximately 3,600 U.S. buyouts between 1980-2011 and tracked employment levels at target companies in the *two years* following the buyout. Notably, the study differentiates between the various types of private equity buyouts, including buyouts of private firms versus buyouts of public firms. The study finds that for the most prevalent type of private equity transaction, those involving the buyout of private firms (constituting 50% of total transactions in the sample), job growth at target companies (excluding the effects of post-buyout acquisitions and divestitures to focus on organic job growth) is 3.1 percentage points higher relative to peers over the two post-buyout years. If post-buyout acquisitions and divestitures are included,[9] then job growth in these cases jumps to 12.8 percentage points higher than peer firms. Moreover, in the second most common type of transaction, those involving the transfer of equity ownership in a firm from one private equity owner to another (so called secondary sales, constituting 22% of total transactions), job growth at target companies is 6.1 percentage points higher relative to peers. Adding acquisitions and divestitures increases this figure to 9.9 percentage points. For less common transaction types, the effect on jobs is more negative, as the buyout of public firms (constituting 14% of transactions) is associated with a 10 percentage point decline in job growth and the buyout of single divisions of a firm (constituting 13% of transactions) is associated with a 16 percentage point decline. These declines are 12.6 percentage

[9] The argument for including acquisitions and divestitures in estimates of job growth at target firms is that such transactions affect overall employment levels at a firm. The argument for excluding acquisitions and divestitures is that such job growth is not "organic," as in job reductions or growth due to layoffs or increased hiring at the pre-existing firm.

points and 11.4 percentage points, respectively, when acquisitions and divestitures are included. However, due to the larger number of jobs at public companies, the study finds that job growth at target firms excluding the effects of post-buyout acquisitions and divestitures is 4.4 percentage points lower relative to peers over the two post-buyout years. When acquisitions and divestitures are included, the study finds that buyouts have no statistically significant overall effect on employment.

Cohn et al. (2019) studied 560 U.S. buyouts (244 public-to-private, 316 private-to-private) between 1997-2007 and found a 13% average reduction in within-establishment employment levels relative to peer establishments in the four years following a buyout. In contrast to Davis et al. (2019), this study measures establishment-level employment only, rather than firm-level employment. The full job employment effects from a private equity buyout could, however, include job creation in other parts of the firms that could offset the job cuts at private equity-acquired establishments. Moreover, the Cohn et al. (2019) sample consists of 44% buyouts of public firms, significantly higher than the 14% of transactions for such buyouts in the Davis et al. (2019) study, suggesting that these results may underweight the more positive impact of buyouts on job growth at private firms. As noted previously, data availability on private firms is generally weak in the U.S. given the lack of disclosure requirements.

Bharath et al. (2014) also studied the effects of 115 private equity buyouts on job growth between 1981-2005, at the establishment-level of employment, finding that job gains or losses at private equity-owned establishments are not statistically different from control firms in the short run (from three years pre-buyout to three years post-buyout). However, Bharath et al. find that job growth is between 6-10 percentage points lower in the long run (from three years pre-buyout to six years post-buyout) compared to control firms. Similarly, Paglia and Harjoto (2014) also examine the impact of private equity on job growth at the establishment level, analyzing 3,874 establishments that received private equity financing from 1995-2009. The study finds that private equity investment is associated with a 14% increase in job growth over the five years following the financing event. Like Cohn et al. (2019), the Bharath et al. and Paglia and Harjoto studies measure establishment-level employment rather than firm-level employment. Studies of establishment-level employment may miss out on job gains at other establishments owned by the same target firm and are not affected by acquisitions and divestitures that take place at the parent company level. In addition, the general lack of data on private firms in the U.S., given the absence of disclosure requirements, may also be contributing to an overweighting of public-company buyouts.

Micro-level studies surveyed above have also been supplemented by region-level and industry-level studies. Region- and industry-level studies are different than micro-level studies as they not only include target firm-specific effects from private equity buyouts, but they also include spill-over effects of private equity buyouts on entire regions or industries that have received private equity investment. In a

region-level study, Cox and Bailey (2020) examined county-level employment between 2011-14 to measure how the scale of private equity investment affects county-level employment by looking at all ~3,000 counties in the U.S. and measuring whether private equity investment correlates with an increase in employment. Cox and Bailey (2020) find that private equity investment in 2011 and 2012 is positively associated with local employment over the next two- to three- years: for each $1 million in additional PE investment, 1.3 new local jobs are created (alternatively, for each 1% change in PE investment, local employment increases by 0.06%). Private equity buyouts can have positive spill-over effects on jobs in local economies due to increased economic activity associated with the private equity investment.

At the industry level, the same Bernstein et al. (2017) study that we reviewed in the prior section also examines the industry-wide impact of private equity investment on employment. Bernstein et al. (2017) found that PE industries experienced job growth at an annual rate of 78 basis points higher than non-PE industries. The Aldatmaz and Brown (2019) study, also reviewed in the prior section, directly tests for spillover effects with respect to employment growth. Aldatmaz and Brown (2019) find that a one-standard deviation increase in private equity investment in a given industry corresponds with a 60 basis-point increase in employment growth over the following year among public firms in the same industry. The authors note that their findings may underestimate the positive spillover effects of private equity, since private firms also likely experience spillover effects but are not considered due to the U.S. data limitations.

Europe

Biesinger et al. (2020)'s study of 1,580 buyouts between 1992-2017 in European countries, former Soviet Republics, the Middle East and North Africa, finds that target firms exhibit a statistically significant job increase of 26% relative to peer firms during the private equity holding period. We note that Biesenger et al. (2020) is the most comprehensive study of the impact of private equity on job growth in terms of total number of buyouts included, the global coverage, and consideration of the full ownership period by a private equity fund—the study tracks deals for up to five years post-exit—as compared to Davis et al. (2019), which only considered two years following the buyout. Biesinger et al (2020) also found that employment increases are particularly large at smaller target firms.

Guery et al. (2017) study employment levels at 1,461 French private equity owned *establishments* between the years of 2002-2005 and 1,629 private equity-owned establishments between the years of 2008-2011. Guery et al. do not measure or compare the magnitude of changes in employment levels at target or control establishments. Instead, they simply seek to determine whether private equity owned establishments are more or less likely than control firms to reduce employment (without focusing on how much). They

find that private equity-owned establishments are more likely to reduce employment than peer firms. From 2002-2005, 37 percent of private equity-owned establishments showed a decrease in employment as compared to 24 percent of peer firms over the same period. From 2008-2011, 37 percent of private equity-owned establishments showed a decrease in employment against 27 percent of peer firms over the same period.

Amess et al (2014) study 527 U.K. *takeovers* (including 133 private equity buyouts and other acquisitions) between 1996-2006 and find that overall, takeovers have no significant effect on employment levels at target firms in the three years post-buyout. Specifically, they find no evidence that private equity buyouts have any significant effect on employment.

Boucly et al. (2011) study more than 800 French private equity buyouts between 1994-2004 and find that target companies increase employment by 12% relative to peer firms between the four-year period preceding the buyout and the four years following the transaction. Similarly, Amess and Wright (2012) studied 347 private equity buyouts between 1993-2004 with at least four years of pre- and post-buyout data. They find that post-buyout employment in private equity-backed buyouts is 7.78% higher, respectively, compared to peer firms. On the other hand, Weir et al (2007) study 122 U.K. public-to-private buyouts between 1998-2004, tracking the effect of buyouts on employment levels up to *five years* post-buyout. Weir et al (2007) find that employment levels decreased at target companies in the first two years after going private (median employment decreases by 8.5% in year one and 0.23% in year two) and is flat over the next three years.

In conclusion, studies of the impact of private equity buyouts on job growth in Europe generally find more positive effects than those focused on the United States. A potential reason for that difference is that U.S. studies generally study short periods of time after the buyout (such as two years), whereas certain European studies study longer periods of time after the buyout (the full ownership period, which can be over five years). This is likely due to the fact that certain European countries provide additional data regarding employment at private companies than is available for U.S. private companies through the U.S. census bureau.[10]

[10] *See* Erel et al. (2015), *supra* note 4.

Conclusion

We find that empirical studies of private equity buyouts in the U.S. and Europe generally find that such buyouts result in positive effects on productivity at target firms, which is vital to the growth of the macroeconomy and improvements in standards of living. In the U.S., job growth is positively impacted by private equity buyouts in the most prevalent types of transactions, while in Europe job growth is often positively impacted across all transactions. The stronger European results may be due to the relatively shorter examination window in U.S. studies than European studies (2 years after the buyout versus 5 years) and the better availability of private firm data in Europe versus the U.S. Moreover, studies find that private equity not only often improves productivity and job growth at target firms, but also bestows positive externalities on entire industries. In conclusion, the empirical literature generally finds that private equity is associated with improved productivity and, in most cases, leads to higher job growth at both target firms and across industries.

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