Economic contribution of the US private equity sector in 2018

Prepared for the American Investment Council

October 2019

Building a better working world

(Page intentionally left blank)

Executive summary

EY partnered with the American Investment Council (AIC) to estimate the current economic activity of, and related to, the US private equity sector – US private equity firms and private equity-backed companies – within the US economy in 2018.

Key findings include:

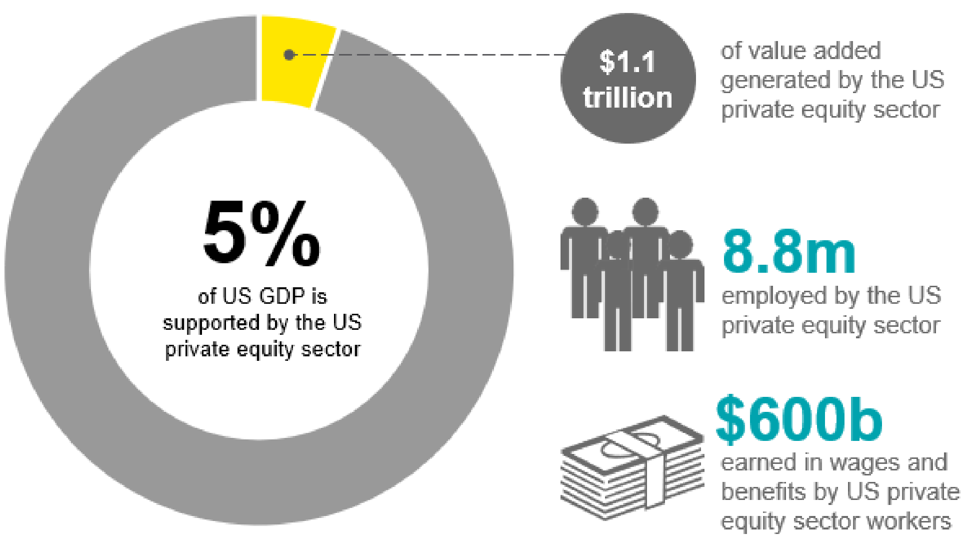
Economic activity of the US private equity sector

- **Employment and wage contribution.** The US private equity sector provides employment and earnings for millions of workers. Overall, in 2018, the US private equity sector directly employed 8.8 million workers earning $600 billion in wages and benefits. The average US private equity sector worker earned approximately $71,000 in wages and benefits in 2018. For a full-time worker this is approximately $36 per hour.

- **Share of US economic activity.** The US private equity sector directly generated $1.1 trillion of value added in the United States in 2018. Value added measures a sector's or industry's contribution to the production of final goods and services produced in the United States or US gross domestic product (GDP). The US private equity sector's value added comprised approximately 5% of US GDP in 2018.

- **Tax contribution.** The US private equity sector generates tax revenue through US private equity firms, private equity-backed companies, and its employees. In 2018, the US private equity sector paid $174 billion of federal, state, and local taxes. Approximately two-thirds of these were federal taxes ($113 billion) with the remaining taxes paid to state and local governments ($61 billion).

Figure E-1. Employment, wages and benefits, and value added of the US private equity sector, 2018



Note: Figure only includes economic activity of the US private equity sector (i.e., the economic activity at US private equity firms and private equity-backed companies). Wages and benefits include all labor income (i.e., employee cash compensation and benefits, as well as proprietors' income).
Source: PitchBook; US Bureau of Economic Analysis; EY analysis.

Economic activity related to the US private equity sector

- **Suppliers to the US private equity sector.** Suppliers to the US private equity sector employed an additional 7.2 million workers throughout the US economy earning $500 billion in wages and benefits and generating $900 billion of US value added in 2018. This economic activity supported $144 billion of taxes - federal ($93 billion) and state and local ($50 billion).
- **Related consumer spending.** The consumer spending of workers of the US private equity sector and the sector's suppliers employed an additional 10.4 million workers throughout the US economy earning $600 billion in wages and benefits and generating $1.0 trillion of US value added in 2018. Consumer spending related to the US private equity sector supported $157 billion of taxes - federal ($102 billion) and state and local ($55 billion).

Total economic activity of, and related to, the US private equity sector

In total, the US private equity sector, the sector's US suppliers, and the related US consumer spending employed an estimated 26.3 million workers earning $1.7 trillion in wages and benefits and generating $2.9 trillion in US value added in 2018. Additionally, the federal, state, and local taxes paid by, and related to, the US private equity sector totaled nearly $500 billion in 2018.

Table E-1. Total economic activity of, and related to, the US private equity sector, 2018
Millions of jobs; trillions of dollars

	US private equity sector	Suppliers to US private equity	Related consumer spending	Total
Employment	8.8	7.2	10.4	26.3
Wages & benefits	$0.6	$0.5	$0.6	$1.7
Value added	$1.1	$0.9	$1.0	$2.9
Taxes paid	$0.2	$0.1	$0.2	$0.5

Note: Wages & benefits include all labor income (i.e., employee cash compensation and benefits, as well as proprietors' income). Taxes paid includes federal, state, and local taxes. Figures may not sum due to rounding.
Source: EY analysis.

Contents

Economic contribution of the US private equity sector in 2018

I. Introduction

EY partnered with the American Investment Council (AIC) to estimate the current economic activity of, and related to, the US private equity sector – US private equity firms and private equity-backed companies – within the US economy in 2018. The US private equity sector provides employment and earnings for millions of workers and contributes jobs and earnings to other sectors of the US economy that relate to private equity operations.

Overall, in 2018, the US private equity sector directly employed 8.8 million workers throughout the US economy earning $600 billion in wages and benefits and generating $1.1 trillion of value added. Suppliers to the US private equity sector employed an additional 7.2 million workers throughout the US economy earning $500 billion in wages and benefits, generating $900 billion of value added. The consumer spending of workers of the US private equity sector and the sector's suppliers employed an additional 10.4 million workers throughout the US economy, earning $600 billion in wages and benefits and generating $1.0 trillion of value added.

Overview of private equity

Private equity firms partner with investors to form funds that invest in companies, primarily those in need of retooling or that seek growth. The aim of the investment, which often takes the form of a majority stake, is to help bolster the company through use of the private equity firm's access to capital and its strategic, financial, and operational expertise. Ultimately, transforming the target company to operate more efficiently and effectively generates returns for the private equity fund, the private equity firm that sponsors the fund, and the fund's limited partner investors.

Private equity firms partner with a variety of investor types, including pension funds, university endowments, charitable foundations, and insurance companies. Private equity funds invest across a range of industries such as energy, healthcare, manufacturing, retail, and technology. In 2018, the US private equity sector included more than 3,800 private equity firms and 15,000 PE-backed companies. Jobs at private equity firms are estimated to be roughly 1% of US private equity sector employment.

Though some sector participants use the term private equity in different ways, for the purposes of this analysis private equity only includes private investment in growth capital or established companies aiming to improve and strengthen the companies. In contrast, venture capital – which is not included in the definition of private equity used for this analysis – consists of private investment in startup and early stage companies.

The most common private equity fund types are: (1) buyout funds, and (2) growth equity funds. For the purposes of this study all deals in both subcategories will be referred to as private equity funds.

Private equity funds that invest in more mature businesses

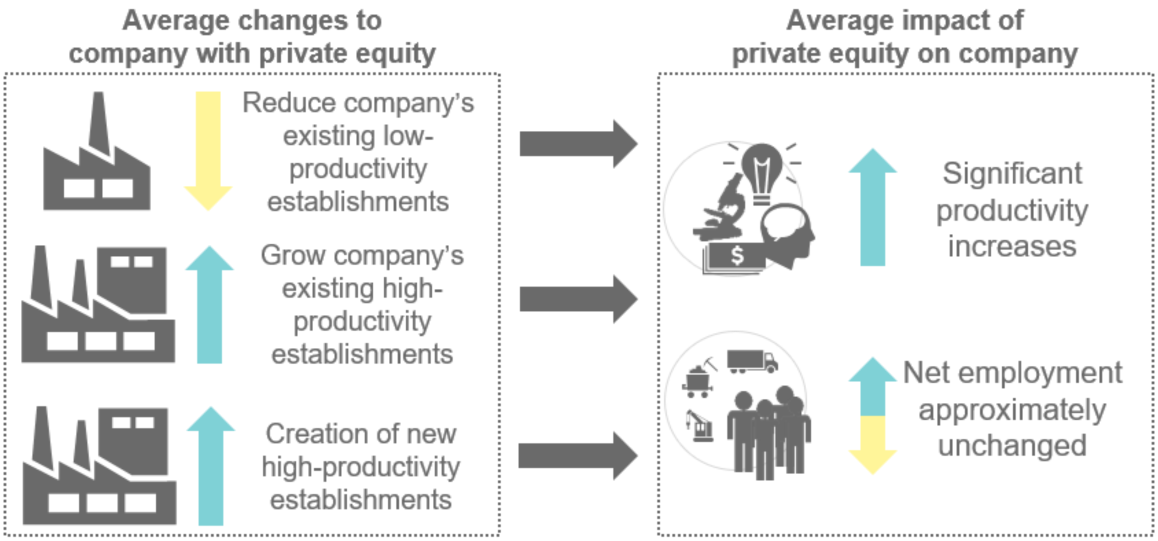
An established company may, perhaps due to increased competition, the changing structure of an industry or its markets, or high overhead costs, perform below its potential. Identifying and addressing the root cause of underperformance, however, is often a complex task that requires expertise and potentially significant infusions of capital. A private equity fund can provide both.

Obtaining a controlling stake in such a company often requires significant investment. A private equity fund often finances acquisitions, in part, through debt issuance, a sometimes cost effective method for such transactions. In a typical case, the target company's future cash flows are the collateral. The private equity fund generates returns on its investment by maximizing profits net of interest expenses and payments of the debt principal. A successful private equity fund often has significant expertise in helping lift the performance of target companies, and both the private equity fund and target company can benefit from a buyout.

In addition, achieving higher performance may involve changes in higher-level management or refocusing of the target's business purposes by spinning off peripheral business components. Sweeping changes to a company are not always welcome by all stakeholders, particularly in the short term. The intervention of an outside actor can be not only beneficial, but critical to achieve change and realign a target company.

Notably, given the access to capital and expertise of private equity firms, as well as their ability to effectuate change on a large scale, private equity-backed companies often have better prospects for experiencing rapid growth and restructuring as compared to similar companies without a private equity investment. As seen in Figure 1, a recent study analyzing the performance of 3,200 private equity-backed companies with more than 150,000 establishments from 1980 through 2005 estimates that, on average, two years after a private equity investment the productivity of a private equity-backed company increases significantly with a near-zero net employment change relative to a comparable company without private equity investment.[1] The study found that, relative to a comparable company, an average private equity-backed company was more likely to reduce a company's low-productivity establishments, grow a company's high-productivity establishments, and create new high-productivity establishments; that is, refocus the company on its higher-productivity activities.

Figure 1. Estimated average impact of private equity investment in a company after two years



Note: Figure shows the average changes to a company with a private equity investment relative to a comparable company without it. That is, the changes displayed are estimates of what would have happened to a private equity-backed company, on average, if not for a private equity investment. Results are from an analysis of 3,200 PE-backed companies with more than 150,000 establishments over the 1980-2005 period for two years after the LBO.
Source: Davis et al. (2014) and Davis et al. (2019).

Growth equity funds

Growth equity funds are private equity funds that invest in companies earlier in their lifecycle, to foster expansion. Growth equity target companies often have established business models, revenues, and operating profits, but are unable to raise sufficient capital to undertake a significant expansion. Such an expansion could include moving the company into new markets, facilitating new product development, or possibly a strategic acquisition.

The target company for a growth equity fund, were it not for such investors, could be in a difficult spot. There are significant cost and regulatory hurdles to raising public capital. The target company might also not be able to rely on venture capital investment. Venture capital generally specializes in providing relatively smaller levels of financing and generating returns from very high revenue growth from very young companies that might be less likely from a more established company. Growth equity private equity funds, in effect, are a middle ground between venture capital that targets startup companies and private equity funds that focus on well-established companies in need of retooling.

Growth equity investors rely on the company's revenue growth to generate returns, which can be accomplished by providing the additional capital, as well as through strategic and operational support from the private equity firm. Growth equity funds typically undertake a significant role in the target company's day-to-day operations.

II. Economic activity of the US private equity sector

The US private equity sector, comprised of US private equity firms and private equity-backed companies, provides employment and income for millions of workers and contributes jobs in other sectors of the economy that are connected to private equity operations.

The economic activity described in this report includes the following indicators:

- **Employment.** Employment is measured as the total headcount of workers. For example, a company with three full-time workers and a company with two full-time workers and one part-time worker would both be measured as having three workers.
- **Wages and benefits.** Wages and benefits include employee cash compensation and benefits as well as proprietor income.[2]
- **Value added.** Value added measures a sector's contribution to the production of all final goods and services produced in the United States, or US gross domestic product (GDP).

As displayed in Table 1, the US private equity sector supported 8.8 million jobs in 2018. The table also displays the type of economic activity of these jobs. The largest share of US private equity sector employment was estimated to be in personal services. Personal services accounted for 2.3 million jobs, or 26% of US private equity sector employment in 2018. These services include healthcare, accommodation, food services, recreation, and other personal services.

Business services employed the second largest share of US private equity sector workers with 2.0 million jobs, or 23% of US private equity sector employment. Business services include finance and insurance, real estate and rental and leasing, professional, scientific, and technical services, management of companies and enterprises, administrative and support services, and waste management and remediation services. Included in business services are US private equity firms. However, the vast majority of US private equity sector workers were estimated to be employed at private equity-backed companies, as opposed to private equity firms. Jobs at private equity firms are estimated to comprise roughly 1% of US private equity sector employment.[3]

US private equity sector employment in manufacturing is the third largest segment of the sector's employment. In particular, 1.9 million workers were estimated to be employed in manufacturing in 2018. This is 22% of total US private equity sector employment. These three segments of the US private equity sector – personal services, business services, and manufacturing – comprise nearly three-quarters of the sector's total employment. Other significant segments of the sector include retail trade (0.9 million jobs; 10% of total), information (0.5 million jobs; 6% of total), construction (0.5 million jobs; 6% of total), transportation and warehousing (0.3 million jobs; 4% of total), and wholesale trade (0.2 million jobs; 2% of total).

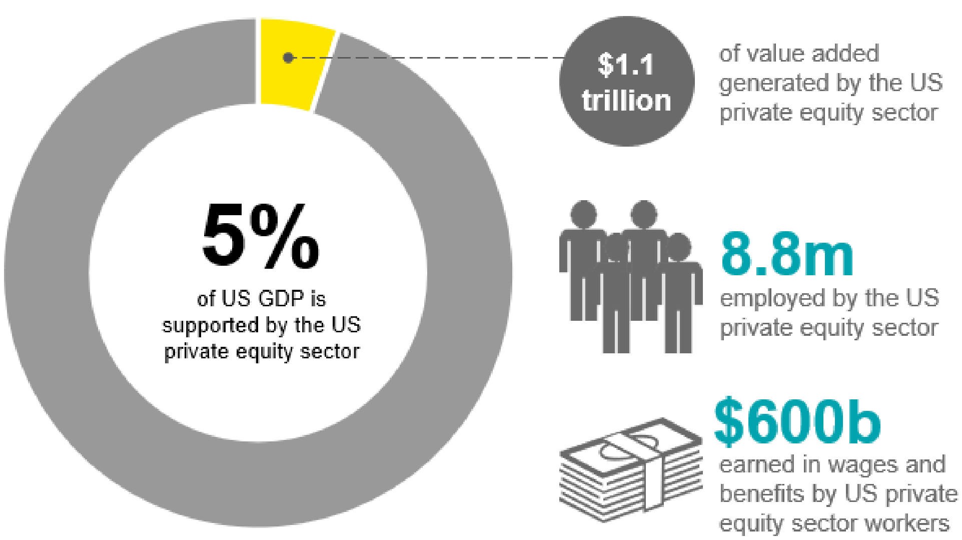
Table 1. US private equity sector employment by type of economic activity, 2018
Millions of jobs

	Jobs	% of total
Personal services	2.3	26%
Business services	2.0	23%
Manufacturing	1.9	22%
Retail trade	0.9	10%
Information	0.5	6%
Construction	0.5	6%
Transportation and warehousing	0.3	4%
Wholesale trade	0.2	2%
Mining, quarrying, and oil and gas extraction	*	*
Utilities	*	*
Agriculture, forestry, fishing, and hunting	*	*
Total employment	**8.8**	**100%**

*Less than 0.05 million jobs or 0.5%
Note: PitchBook industry classifications have been mapped to the North American Industry Classification System (NAICS) codes. Figures may not sum due to rounding.
Source: PitchBook; EY analysis.

Overall, in 2018, the US private equity sector employed 8.8 million workers throughout the US economy who earned $600 billion in wages and benefits and generated $1.1 trillion of value added.[4] This amounts to an average worker in the US private equity sector earning approximately $71,000 in wages and benefits.[5] For a full-time worker this is approximately $36 per hour.[6] Additionally, as summarized in Figure 2, the $1.1 trillion of value added of the US private equity sector in 2018 was approximately 5% of US GDP ($20.6 trillion in 2018).[7]

Figure 2. Employment, wages and benefits, and value added of the US private equity sector, 2018



Note: Figure only includes economic activity of the US private equity sector (i.e., the economic activity at US private equity firms and private equity-backed companies). Wages and benefits include all labor income (i.e., employee cash compensation and benefits as well as proprietors' income).
Source: PitchBook; US Bureau of Economic Analysis; EY analysis.

III. Economic activity related to the US private equity sector

In addition to the economic activity of the US private equity sector, this report also estimates the related economic activity of: (1) suppliers to the US private equity sector, and (2) related consumer spending:

- **Suppliers to the US private equity sector.** The US private equity sector purchases goods and services from other businesses, which support jobs, wages and benefits, and value added at these supplier businesses. For example, the US private equity sector's expenditures on utilities, telecommunications, raw materials, and security, among other goods and services, support sales at suppliers. Moreover, demand for these goods and services leads to additional rounds of economic activity as suppliers to the US private equity sector purchase operating inputs from their own suppliers. Goods and services imported from abroad are not included in this report's estimates of US economic activity.

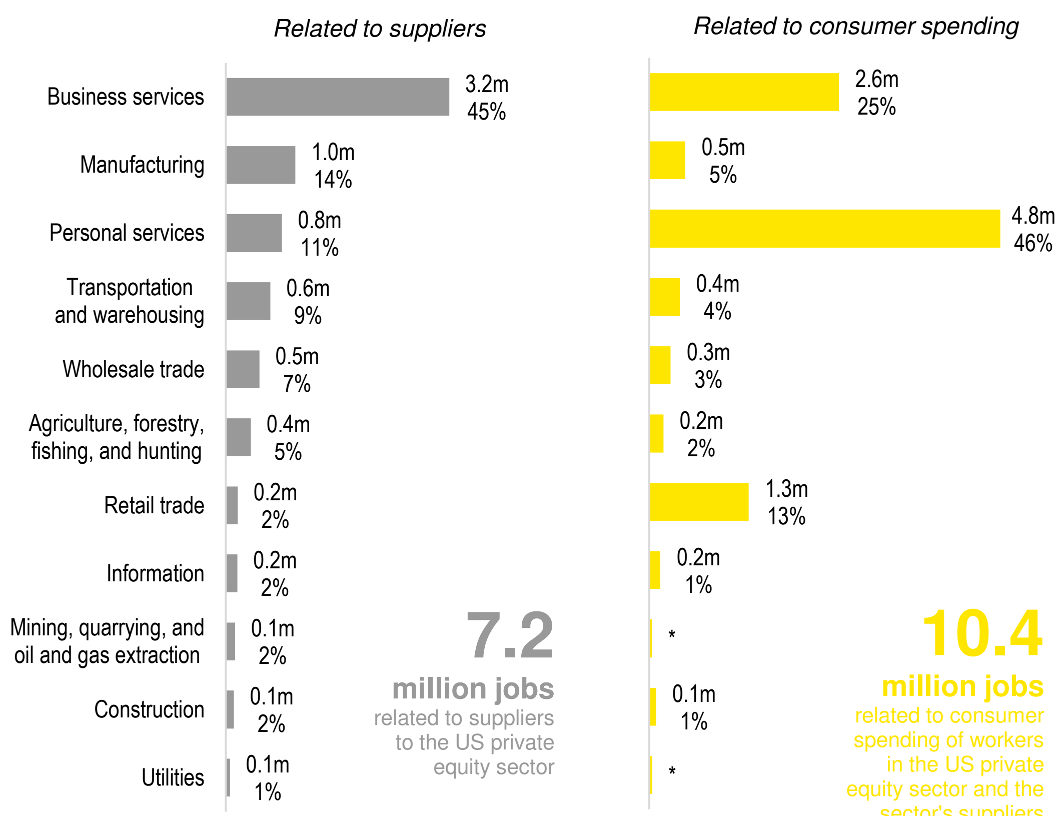
- **Related consumer spending.** Related consumer spending refers to the consumer spending supported by workers in the US private equity sector and their suppliers. When these workers spend their earnings at US businesses (e.g., grocery stores, retailers, movie theaters), they support economic activity in those sectors. The earnings that these workers spend on food at a restaurant, for example, creates jobs at the restaurant and at farms, transportation companies, and other industries that are involved in the restaurant's supply chain.

The magnitude of the economic activity related to the US private equity sector is estimated with the 2017 Impacts for Planning (IMPLAN) input-output model of the United States. The model, which describes US economic linkages as they existed in 2017, was scaled to the size of the 2018 US economy to estimate the economic activity related to the US private equity sector. Unlike other economic models, IMPLAN includes the interaction of more than 500 industries, thus identifying the interaction of specific industries that are related to the US private equity sector. See the Appendix for further details.

As displayed in Figure 3, suppliers to US private equity were estimated to support 7.2 million jobs throughout the US economy in 2018. The largest segments of suppliers to the US private equity sector were estimated to be business services (3.2 million jobs; 45% of total), manufacturing (1.0 million jobs; 14% of total), and personal services (0.8 million jobs; 11% of total). These three supplier industries comprise nearly three-quarters of the total employment related to suppliers to the US private equity sector. The remaining related supplier employment includes transportation and warehousing (0.6 million jobs; 9% of total), wholesale trade (0.5 million jobs; 7% of total), agriculture, forestry, fishing, and hunting (0.4 million jobs; 5% of total), retail trade (0.2 million jobs; 2% of total), information (0.2 million jobs; 2% of total), mining, quarrying, and oil and gas extraction (0.1 million jobs; 2% of total), construction (0.1 million jobs; 2% of total), and utilities (0.1 million jobs; 1% of total).

Consumer spending of workers in the US private equity sector and the sector's suppliers was estimated to support 10.4 million jobs throughout the US economy in 2018. The largest segments of employment related to the consumer spending of workers in the US private equity sector and the sector's suppliers were estimated to be personal services (4.8 million jobs; 46% of total), business services (2.6 million jobs; 25% of total), and retail trade (1.3 million jobs; 13% of total). These three industries comprise more than three-quarters of the related economic activity. The remaining employment related to the consumer spending of workers in the US private equity sector and the sector's suppliers includes manufacturing (0.5 million jobs; 5% of total), transportation and warehousing (0.4 million jobs; 4% of total), wholesale trade (0.3 million jobs; 3% of total), agriculture, forestry, fishing, and hunting (0.2 million jobs; 2% of total), information (0.2 million jobs; 1% of total), and construction (0.1 million jobs; 1% of total).

Figure 3. Economic activity related to the US private equity sector, 2018
Millions of jobs; share of total



*Less than 0.05m
Note: Industry definitions are based on the North American Industry Classification System (NAICS). Figures may not sum due to rounding.
Source: EY analysis.

Table 2 summarizes the estimated economic activity of, and related to, the US private equity sector in the 2018 US economy. The private equity sector directly employed a total of 8.8 million workers throughout the US economy who earned $600 billion in wages and benefits and generated $1.1 trillion of value added. Suppliers to the US private equity sector employed an additional 7.2 million workers throughout the US economy who earned $500 billion in wages and benefits and generated $900 billion of value added. In addition, the consumer spending of workers in the US private equity sector and its suppliers employed 10.4 million workers throughout the US economy who earned $600 billion in wages and benefits and generated $1.0 trillion of value added.

Table 2. Total economic activity of, and related to, the US private equity sector, 2018

Millions of jobs; trillions of dollars

	US private equity sector	Suppliers to US private equity	Related consumer spending	Total
Employment	8.8	7.2	10.4	26.3
Wages & benefits	$0.6	$0.5	$0.6	$1.7
Value added	$1.1	$0.9	$1.0	$2.9

Note: Wages & benefits includes all labor income (i.e., employee cash compensation and benefits as well as proprietors' income). Figures may not sum due to rounding.
Source: EY analysis.

IV. State distribution of economic activity of, and related to, the US private equity sector

The distribution of jobs, wages and benefits, and value added by state (plus the District of Columbia) of the economic activity of the US private equity sector is displayed in Table 3 and Figure 4. The states estimated to have the most US private equity sector employment are: (1) California (1.1 million jobs), (2) Texas (703,000 jobs), (3) New York (609,000 jobs), (4) Florida (523,000 jobs), and (5) Pennsylvania (369,000 jobs).

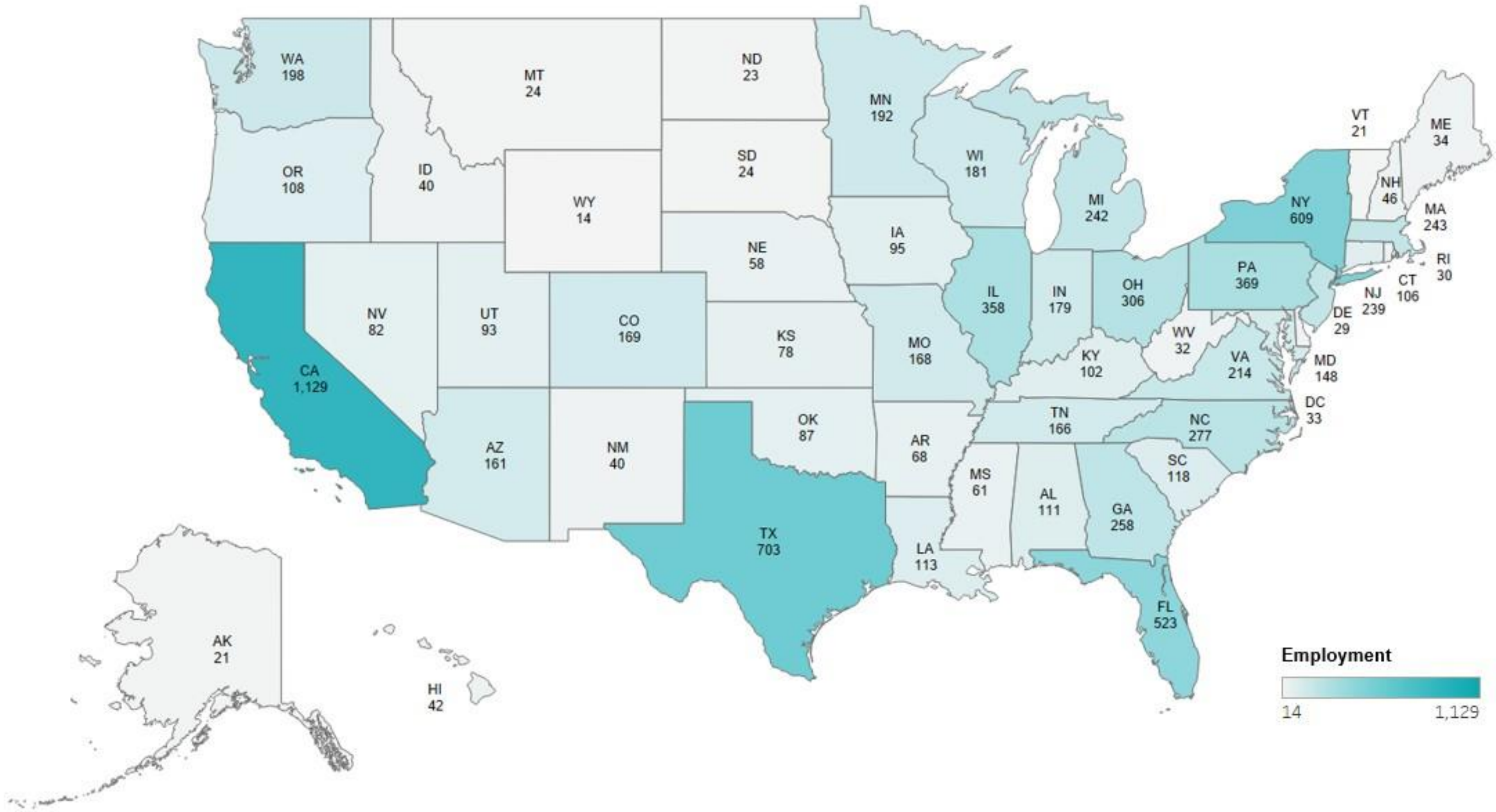
Table 3. Economic activity of the US private equity sector by state, 2018

Thousands of jobs; billions of dollars

	Jobs	Wages & benefits	Value added		Jobs	Wages & benefits	Value added
Alabama	111	8	13	Montana	24	2	3
Alaska	21	1	2	Nebraska	58	4	7
Arizona	161	11	19	Nevada	82	5	8
Arkansas	68	5	8	New Hampshire	46	4	6
California	1,129	82	144	New Jersey	239	17	28
Colorado	169	12	20	New Mexico	40	3	5
Connecticut	106	8	13	New York	609	41	68
Delaware	29	2	3	North Carolina	277	19	32
District of Columbia	33	2	3	North Dakota	23	2	3
Florida	523	33	54	Ohio	306	22	37
Georgia	258	18	30	Oklahoma	87	7	11
Hawaii	42	3	4	Oregon	108	8	13
Idaho	40	3	5	Pennsylvania	369	26	42
Illinois	358	26	43	Rhode Island	30	2	3
Indiana	179	13	22	South Carolina	118	8	14
Iowa	95	7	12	South Dakota	24	2	3
Kansas	78	6	10	Tennessee	166	11	19
Kentucky	102	7	12	Texas	703	55	91
Louisiana	113	9	15	Utah	93	7	12
Maine	34	2	4	Vermont	21	1	3
Maryland	148	10	17	Virginia	214	15	24
Massachusetts	243	18	31	Washington	198	15	26
Michigan	242	17	29	West Virginia	32	2	4
Minnesota	192	14	25	Wisconsin	181	13	22
Mississippi	61	4	7	Wyoming	14	1	2
Missouri	168	12	20	**United States**	**8,762**	**$623**	**$1,052**

Note: Table only includes employment at US private equity firms and private equity-backed companies. Wages & benefits includes all labor income (i.e., employee compensation and proprietor income). Figures may not sum due to rounding.
Source: PitchBook; EY analysis.

Figure 4. Economic activity of the US private equity sector by state, 2018
Thousands of jobs



Note: Figure only includes employment at US private equity firms and private equity-backed companies. Figures may not sum due to rounding.
Source: PitchBook; EY analysis.

The distribution of jobs, wages and benefits, and value added by state (plus the District of Columbia) of economic activity of, and related to, the US private equity sector is displayed in Table 4 and Figure 5. The states estimated to have the most employment in or related to the US private equity sector are: (1) California (3.4 million jobs), (2) Texas (2.2 million jobs), (3) New York (1.7 million jobs), (4) Florida (1.4 million jobs), and (5) Illinois (1.1 million jobs).

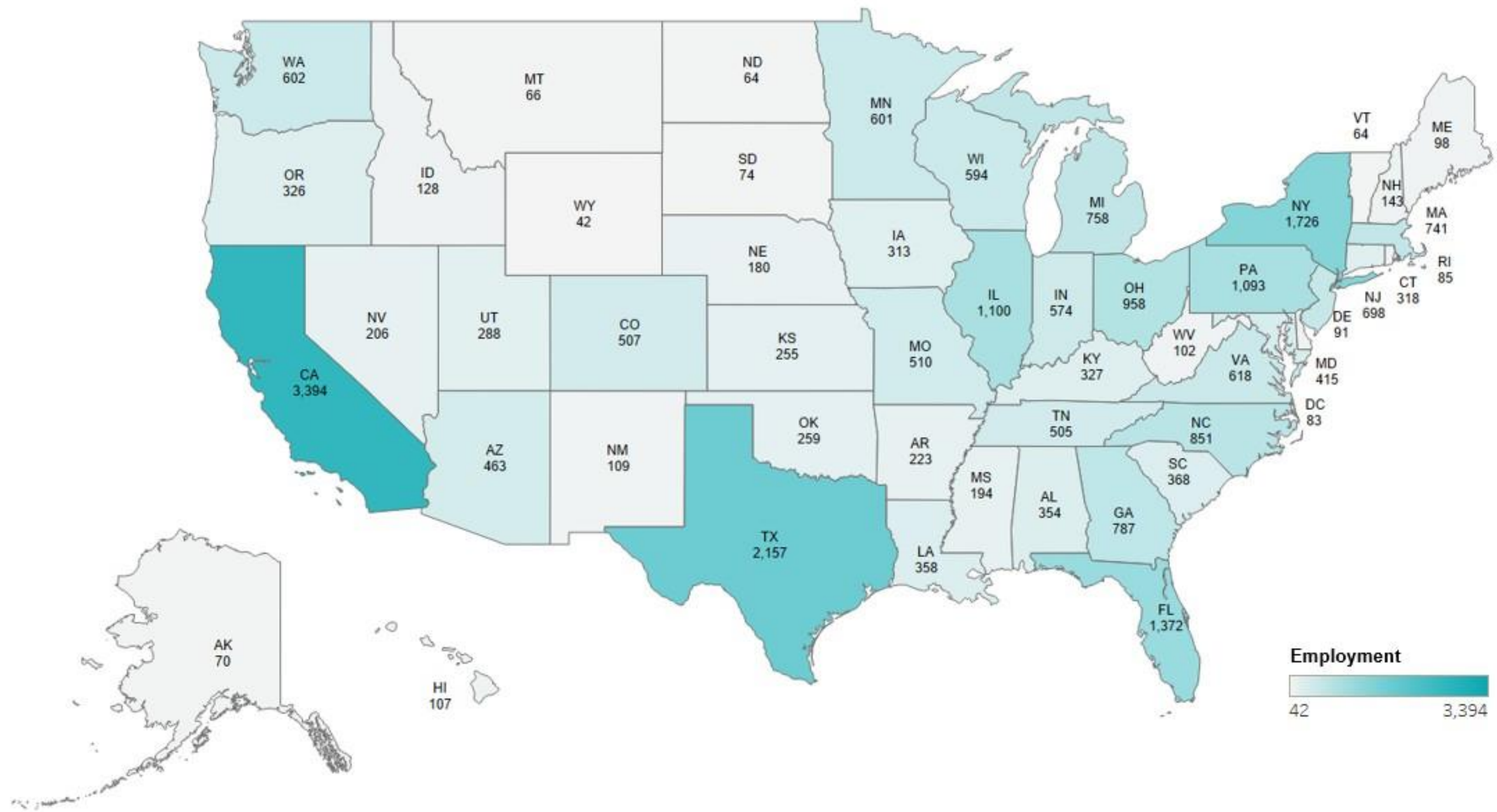
Table 4. Total economic activity of, and related to, the US private equity sector by state, 2018

Thousands of jobs; billions of dollars

	Jobs	Wages & benefits	Value added		Jobs	Wages & benefits	Value added
Alabama	354	23	39	Montana	66	4	7
Alaska	70	4	7	Nebraska	180	11	19
Arizona	463	29	50	Nevada	206	12	21
Arkansas	223	14	24	New Hampshire	143	10	17
California	3,394	220	379	New Jersey	698	45	77
Colorado	507	32	54	New Mexico	109	7	12
Connecticut	318	21	35	New York	1,726	109	183
Delaware	91	6	10	North Carolina	851	54	92
District of Columbia	83	5	8	North Dakota	64	4	7
Florida	1,372	84	142	Ohio	958	62	107
Georgia	787	50	86	Oklahoma	259	17	29
Hawaii	107	6	10	Oregon	326	21	36
Idaho	128	8	14	Pennsylvania	1,093	70	118
Illinois	1,100	71	121	Rhode Island	85	5	9
Indiana	574	37	64	South Carolina	368	24	41
Iowa	313	20	35	South Dakota	74	5	8
Kansas	255	17	29	Tennessee	505	32	55
Kentucky	327	21	36	Texas	2,157	144	244
Louisiana	358	24	41	Utah	288	19	32
Maine	98	6	11	Vermont	64	4	7
Maryland	415	26	44	Virginia	618	39	66
Massachusetts	741	49	83	Washington	602	39	68
Michigan	758	49	85	West Virginia	102	7	12
Minnesota	601	39	68	Wisconsin	594	38	66
Mississippi	194	13	21	Wyoming	42	3	5
Missouri	510	33	56	**United States**	**26,319**	**$1,694**	**$2,889**

Note: Table includes employment at US private equity firms and private equity-backed companies as well as the related supplier and consumer spending employment. Wages & benefits includes all labor income (i.e., employee compensation and proprietor income). Figures may not sum due to rounding.
Source: PitchBook; EY analysis.

Figure 5. Total economic activity of, and related to, the US private equity sector by state, 2018
Thousands of jobs



Note: Figure includes employment at US private equity firms and private equity-backed companies as well as the related supplier and consumer spending employment. Figures may not sum due to rounding.
Source: PitchBook; EY analysis.

V. Taxes paid by, and related to, the US private equity sector

The US private equity sector generates tax revenue through US private equity firms, private equity-backed companies, and their employees. Additionally, taxes are paid by the suppliers to the US private equity sector and paid on worker-related consumer spending. Table 5 summarizes the federal, state, and local taxes paid by, and related to, the US private equity sector in 2018. The estimates of taxes paid include all major federal, state, and local taxes (e.g. corporate and individual income taxes, sales and excise taxes, property taxes), where applicable. Taxes paid by the US private equity sector are displayed separately for those paid by businesses and those paid by its employees.

Table 5. Table 5. Federal, state, and local taxes paid by, and related to, the US private equity sector, 2018

Billions of dollars

	US private equity sector			Suppliers to US private equity	Related consumer spending
	Business taxes	Employee taxes	Total		
Federal taxes	**$36**	**$77**	**$113**	**$93**	**$102**
Individual income taxes	7	52	59	49	53
Payroll taxes	21	21	42	34	37
Corporate income taxes	7	0	7	6	7
Excise taxes	1	2	3	3	3
Customs duties and fees	0	1	1	1	1
State and local taxes	**$26**	**$35**	**$61**	**$50**	**$55**
Property taxes	11	9	19	16	17
Sales taxes	6	9	15	12	13
Individual income taxes	2	13	14	12	13
Excise, license, and other taxes	6	5	11	9	10
Corporate income taxes	2	0	2	2	2
Total taxes	**$63**	**$112**	**$174**	**$144**	**$157**

Note: Figures may not sum due to rounding.
Source: EY analysis.

As seen in Table 5, the US private equity sector generated $174 billion of federal, state, and local taxes in 2018. Approximately two-thirds of these were federal taxes ($113 billion) with the remaining taxes being paid to state and local governments ($61 billion). More than two-thirds of the $113 billion of federal taxes paid were employee taxes ($77 billion). These were primarily individual income taxes ($52 billion) and payroll taxes ($21 billion). State and local taxes were more evenly split between major tax types: property taxes ($19 billion), sales taxes ($15 billion), individual income taxes ($14 billion), excise, license, and other taxes ($11 billion), and corporate income taxes ($2 billion). Overall, this $174 billion of taxes comprised more than 3% of total federal, state, and local tax revenues in 2018.

Table 5 also summarizes the federal, state, and local taxes related to the US private equity sector. Suppliers to the US private equity sector paid $144 billion of federal ($93 billion) and state and local ($50 billion) taxes. Additionally, consumer spending related to the US private equity sector supported $157 billion of federal ($102 billion) and state and local ($55 billion) taxes. Overall, the federal, state, and local taxes paid by, and related to, the US private equity sector totaled nearly $500 billion in 2018.

The distribution of state and local taxes paid by state (plus the District of Columbia) by the US private equity sector is displayed in Table 6. The states estimated to have the most taxes paid by the US private equity sector are: (1) California ($8.7 billion), (2) New York ($6.1 billion), (3) Texas ($4.8 billion), (4) Illinois ($2.8 billion), and (5) Pennsylvania ($2.5 billion).

Table 6. Total state and local taxes paid by the US private equity sector by state, 2018
Billions of dollars

Alabama	0.6	Montana	0.2
Alaska	0.1	Nebraska	0.4
Arizona	1.0	Nevada	0.5
Arkansas	0.5	New Hampshire	0.3
California	8.7	New Jersey	1.8
Colorado	1.0	New Mexico	0.3
Connecticut	0.8	New York	6.1
Delaware	0.2	North Carolina	1.7
District of Columbia	0.3	North Dakota	0.2
Florida	2.5	Ohio	2.2
Georgia	1.5	Oklahoma	0.5
Hawaii	0.3	Oregon	0.7
Idaho	0.3	Pennsylvania	2.5
Illinois	2.8	Rhode Island	0.2
Indiana	1.1	South Carolina	0.7
Iowa	0.7	South Dakota	0.1
Kansas	0.6	Tennessee	0.9
Kentucky	0.7	Texas	4.8
Louisiana	0.8	Utah	0.6
Maine	0.3	Vermont	0.2
Maryland	1.1	Virginia	1.3
Massachusetts	1.8	Washington	1.3
Michigan	1.6	West Virginia	0.3
Minnesota	1.7	Wisconsin	1.3
Mississippi	0.4	Wyoming	0.1
Missouri	1.0	**United States**	**$61.4**

Note: Figures may not sum due to rounding.
Source: EY analysis.

The distribution of state and local taxes paid by state (plus the District of Columbia) by the US private equity sector and related economic activity is displayed in Table 7. The states estimated to have the most taxes paid by, and related to, the US private equity sector are: (1) California ($23.2 billion), (2) New York ($16.0 billion), (3) Texas ($12.5 billion), (4) Illinois ($7.7 billion), and (5) Pennsylvania ($6.9 billion).

Table 7. Total state and local taxes paid by, and related to, the US private equity sector by state, 2018
Billions of dollars

Alabama	1.9	Montana	0.4
Alaska	0.3	Nebraska	1.2
Arizona	2.6	Nevada	1.2
Arkansas	1.4	New Hampshire	0.8
California	23.2	New Jersey	4.9
Colorado	2.8	New Mexico	0.7
Connecticut	2.2	New York	16.0
Delaware	0.6	North Carolina	4.9
District of Columbia	0.7	North Dakota	0.5
Florida	6.3	Ohio	6.2
Georgia	4.3	Oklahoma	1.4
Hawaii	0.8	Oregon	2.0
Idaho	0.7	Pennsylvania	6.9
Illinois	7.7	Rhode Island	0.6
Indiana	3.3	South Carolina	2.0
Iowa	2.1	South Dakota	0.4
Kansas	1.6	Tennessee	2.4
Kentucky	2.1	Texas	12.5
Louisiana	2.2	Utah	1.7
Maine	0.7	Vermont	0.5
Maryland	2.7	Virginia	3.4
Massachusetts	4.8	Washington	3.6
Michigan	4.5	West Virginia	0.7
Minnesota	4.5	Wisconsin	3.9
Mississippi	1.3	Wyoming	0.3
Missouri	2.8	**United States**	**$167.0**

Note: Figures may not sum due to rounding.
Source: EY analysis.

VI. Caveats and limitations

The estimates of the economic contribution of the US private equity sector presented in this report are based on an input-output model of the US economy and the data and assumptions described elsewhere in the report. Readers should be aware of the following limitations of the modeling approach and limitations specific to this analysis.

- **The results show a snapshot of current economic contributions.** The input-output modeling approach used in this analysis shows the 2018 economic contribution of the US private equity sector based on its relationships with other industries and households in the US economy. The results do not reflect the impacts of an expansion or contraction of the sector.

- **Estimates are limited by available public information.** The analysis relies on information reported by federal government agencies (primarily the US Bureau of Economic Analysis, US Bureau of Labor Statistics, and US Census Bureau) and PitchBook. The analysis did not attempt to verify or validate this information using sources other than those described in the report.

- **Modeling the economic contribution of the US private equity sector relies on government industry classifications.** This report relates the activities of US private equity sector companies to the operating profiles of various industries as defined by the North American Industry Classification System (NAICS) to most effectively estimate the economic contribution of the US private equity sector. Workers in the US private equity sector are assumed to receive the average wages and to require the level of operating input purchases characteristic of the industries into which they have been categorized. This analysis relies on estimates of the domestically purchased inputs from the IMPLAN economic model, which are estimated using aggregate trade flow data and may vary by industry.

- **State-level results are high-level estimates.** The state-level results are an allocation of the national results to the 50 states (plus the District of Columbia) with a high-level estimate based on the industries in which the private equity sector operates. An allocation approach is necessary because sufficiently detailed data on the US private equity sector are not available by state from publicly available sources. For example, for a given private equity-backed company only a total employment number is available, not a state-by-state number.

- **Taxes paid by, and related to, the US private equity sector based on historical averages.** In general, estimates of federal, state, and local taxes paid are based on the historical relationship between federal, state, and local tax collections (by tax type) to economic activity.

Appendix

Technical details: IMPLAN model of the US economy

This analysis uses an input-output model to estimate the economic contribution of the US private equity sector in 2018. The economic multipliers in this report were estimated using the 2017 Impacts for Planning (IMPLAN) input-output model of the United States. This 2017 model was scaled to the size of the 2018 US economy. IMPLAN is used by more than 500 universities and government agencies. Unlike other economic models, IMPLAN includes the interaction of more than 500 industries, thus identifying the interaction of specific industries that are related to the US private equity sector.

The multipliers in the IMPLAN model are based on the Leontief production function, which estimates the total economic requirements for every unit of direct output in a given industry based on detailed inter-industry relationships documented in the input-output model. The input-output framework connects commodity supply from one industry to commodity demand by another. The multipliers estimated using this approach capture all of the upstream economic activity (or backward linkages) related to an industry's production by attaching technical coefficients to expenditures. These output coefficients (dollars of demand) are then translated into dollars of value added and wages and benefits and number of employees based on industry averages.

The multipliers presented in this report include the US private equity sector, suppliers to US private equity, and related consumer spending. Economic activity at suppliers to the US private equity sector is attributable to operating input purchases from US suppliers. Economic activity related to consumer spending is attributable to spending by US private equity sector and supplier employees based on household spending patterns. The US private equity sector is estimated to have an employment multiplier of 3.0, a wages and benefits multiplier of 2.7, and a value added multiplier of 2.7.

In general, estimates of federal, state, and local taxes paid are based on the historical relationship between federal, state, and local tax collections (by tax type) to economic activity (measured as personal income). This ratio estimates the effective tax rates for each tax type as a share of total personal income.

Endnotes

[1] In particular, the analysis' estimates of the net differential in the employment growth rate of the private equity-backed companies relative to the comparable companies not backed by private equity after two years range from a 0.26 percentage-point increase to a 0.88 percentage-point decrease. See Steven J. Davis, John Haltiwanger, Kyle Handley, Ron Jarmin, Josh Lerner, and Javier Miranda, (2014), "Private equity, jobs, and productivity," *American Economic Review* 104(12): pp. 3956-3990. An analysis using a similar methodology for approximately 6,000 private equity buyouts between 1980 and 2013 found similar results (i.e., a statistically insignificant impact on employment and significant productivity increases), but highlighted heterogeneity within the data. In particular, on average, public-to-private buyouts resulted in significant employment declines and private-to-private buyouts and secondary deals resulted in significant employment increases. See Steven J. Davis, John Haltiwanger, Kyle Handley, Ben Lipsius, Josh Lerner, and Javier Miranda, (2019), "The Social Impact of Private Equity Over the Economic Cycle."

[2] Proprietor income includes the payments received by self-employed individuals and unincorporated business owners.

[3] The only available employment data from PitchBook on US private equity firms was for the number of investment professionals. This report estimated the total number of employees at US private equity firms based on the ratio of non-investment professionals to investment professionals for the securities, commodity contracts, and other financial investments and related activities industry with data from the US Bureau of Labor Statistics.

[4] EY was provided data on 2018 private equity-backed companies by PitchBook. Private equity-backed companies only included those headquartered in the United States with an ownership status of privately held (backing), in IPO registration, or publicly held. Companies backed by venture capital were not included in these data. For companies with missing employment data the company's industry, revenue, and EBITDA were used to impute employment when revenue or EBITDA were available. The wages and benefits paid to employees of private equity-backed companies and value added generated by private equity-backed companies were estimated from industry averages with the IMPLAN model, which is discussed in the appendix to this report.

[5] This $71,000 is computed prior to rounding the wages and benefits and employment estimates. In particular, the $0.6 trillion of wages and benefits is approximately $623 billion and 8.8 million employees is approximately 8,762 thousand employees.

[6] This estimate assumes that a full-time worker works 40 hours per week 50 weeks a year.

[7] This is 2018 US GDP as reported by the US Bureau of Economic Analysis.