

A decorative graphic on the left side of the page consists of a series of vertical black bars of varying heights that increase in height from left to right, creating a sense of upward movement. To the right of these bars, a large yellow wedge shape expands from a point, pointing towards the top right corner of the page.

# Supporting innovation and economic growth

The broad impact of the R&D credit in 2005

Prepared by Ernst & Young LLP for the R&D Credit Coalition

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# Executive summary

Companies of all sizes, in a wide range of industries, use the research and development (R&D) tax credit across all 50 states of the US. The most recent data on the distribution of R&D credits claimed and R&D activity show:

- ▶ 17,700 corporations claimed \$6.6 billion R&D credits on their tax returns in 2005. Approximately 11,300 C corporations and 6,400 S corporations, regulated investment companies and real estate investment trusts claimed the credit.
- ▶ Corporations claiming the R&D credit in 2005 were roughly equally divided into fourths by size, with 29% of firms with \$1 million of assets or less, one fourth with assets of \$1-\$5 million, one fourth with assets of \$5-\$25 million and 21% with assets of \$25 million or more.
- ▶ Firms in all major industries claim the R&D credit, with the principal industries claiming the credit being manufacturing, professional, scientific and technical services and information sectors.
- ▶ Firms in the manufacturing, information and services sectors claimed the majority of the R&D credit.
- ▶ The value of the R&D credit as a percent of the firm's assets was highest for small firms.
- ▶ California reported the largest share of industrial R&D activity, followed by Michigan, New Jersey, Texas and Massachusetts.
- ▶ States with the most companies reporting R&D activity include California, Texas, Massachusetts, Florida, Pennsylvania, New York and Michigan.
- ▶ On a per capita basis, Connecticut, Delaware, Massachusetts, Michigan, Washington and New Jersey reported the most R&D activity.
- ▶ As a percent of private sector gross state product, a few small states like Connecticut, Rhode Island, Delaware and New Hampshire reported a large amount of R&D activity.

The remainder of this paper discusses in detail the distribution of the R&D tax credit claimed over time, across firm size and industry and R&D activity performed by states.<sup>1</sup> A methodology section, describing the data presented in the tables, follows the results.

# The R&D tax credit – current law

The R&D tax credit was enacted in 1981 and has been extended 12 times. The R&D tax credit expired on December 31, 2007. The credit has been allowed to expire eight other times. In only one year has the R&D credit not been available since 1981. The credit has become an important factor in US companies' research and development investments, despite the political uncertainty.

The R&D credit is available for qualified research and development expenditures incurred in the United States. The primary categories of qualified R&D expenditures are, in descending order of magnitude:

1. Wages paid to employees performing qualified research activities
2. Supplies used in the conduct of qualified research
3. 65% of amounts paid to outside contractors for the performance of qualified research

The R&D credit consists of three available credits. The regular R&D tax credit is a 20% credit for qualified R&D expenditures in excess of a calculated base amount. The base amount is determined by a statutory formula that reflects the percentage of gross receipts dedicated to R&D expenditures in the four preceding years. In other words, the regular research credit is tied to an increase in R&D intensity (expressed as R&D expenditures as a percent of sales) compared to a fixed historical measure of intensity. The base amount can not be less than 50% of qualified research expenses. In addition, firms can claim 20% tax credit for the amount given to qualified organizations for "basic research" (e.g., university or nonprofit organization research).

There is also an Alternative Incremental Research Credit (AIRC). The AIRC combines a three-tier credit rate ranging from 3% to 5% of the total amount of R&D expenditures above the base amount. Firms that have increased their R&D expenditures, but not their R&D intensity, are eligible for the AIRC.

An Alternative Simplified Credit (ASC) allows a 12% credit for R&D expenditures above 50% of the average qualified research expenditures over the three years before the credit year. The Alternative Simplified Credit was enacted in the Tax Relief and Healthcare Act of 2006.

# The R&D tax credit – Returns and credit claimed, 1997-2005

Table 1 shows the trend of R&D tax credits claimed by C corporations from 1997 to 2005. The amount of R&D tax credit claimed increased by almost 50%, and the number of firms claiming it increased by 6%. Most of this increase happened before the recession in 2001. From 2001 to 2003, the amount of R&D tax credit claimed decreased by 25% and the number of corporations claiming it decreased by 7%. Record levels for credits claimed and returns claiming the credit were reached in 2005, with a 34% increase in the R&D tax credit and a 16% increase in the number of corporations claiming it from 2003 to 2005.

**Table 1: R&D tax credit claimed by Subchapter C corporations from 1997 to 2005**

<b>Year</b>	<b>Credits claimed<sup>1</sup> \$millions</b>	<b>Number of returns</b>
1997	4,398	10,668
1999	5,281	10,019
2001	6,356	10,388
2003	4,766	9,697
2005	6,363	11,290

Source: Special IRS/SOI tabulations.

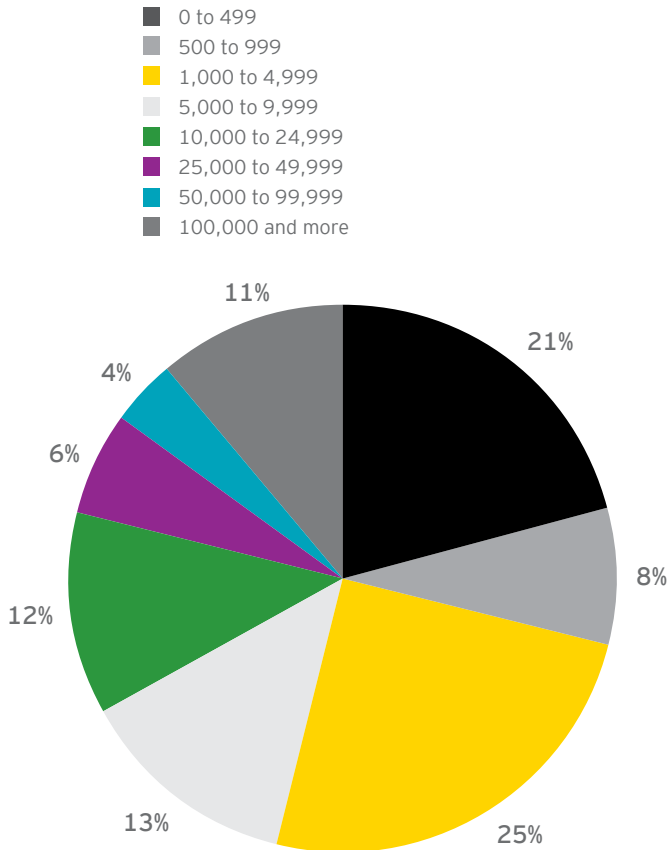
<sup>1</sup> R&D tax credits claimed by all corporations totaled \$6,643 million in 2005.

# The R&D tax credit – Distribution by firm size

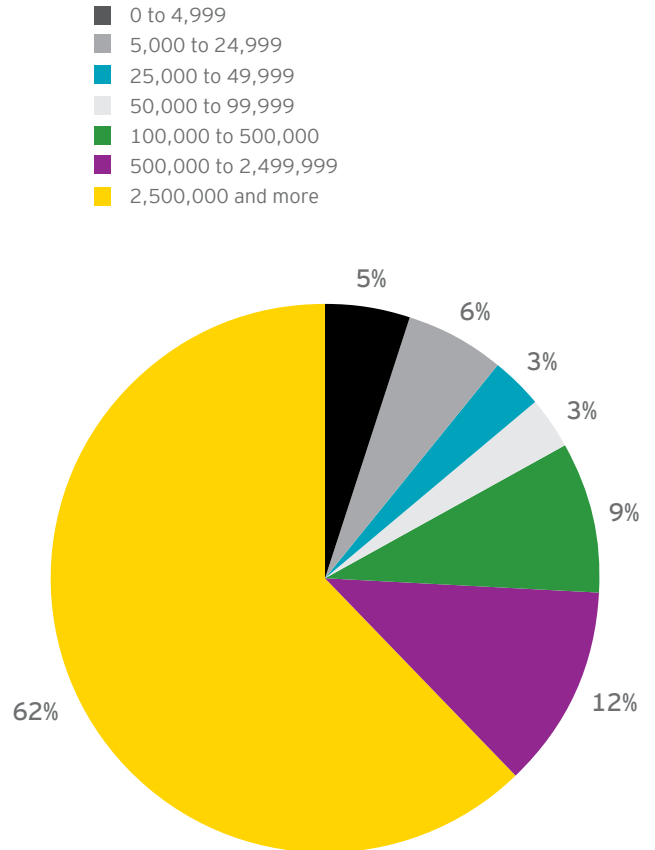
Tax data on R&D credits claimed by corporations is compiled by the Statistics of Income (SOI) division of the Internal Revenue Service (IRS). The data are from special tabulations of IRS/SOI data on R&D credits claimed by all corporations in 2005. In 2005, 17,700 corporations claimed the R&D credit, totaling \$6.6 billion.

Chart 1 and Table 2 show the distribution of R&D tax credits claimed in 2005 by firm size, as defined by assets. The R&D tax credit is claimed by both small and large companies. Chart 1 shows the distribution of corporations claiming the R&E tax credit across firm size, with 21% of firms with assets under \$500,000, 33% with assets between \$50,000 and \$5 million, one quarter of firms between \$5 million and \$25 million and 20% of firms with assets exceeding \$25 million. The data is for all active corporations, including Subchapter S corporations, Regulated Investment Companies (RICs) and Real Estate Investment Trusts (REITs). A similar distribution across firm size occurs for only Subchapter C corporations.

**Chart 1: Distribution of firms claiming R&D credits by firm size, by assets, 2005, (\$000)**



**Chart 2: Distribution of R&D credits claimed by firm size, by assets, 2005, (\$000)**



Source: IRS/SOI, All Corporations.

Chart 2 and Table 2 shows that the amount of tax credit claimed by corporations is concentrated among the largest firms, with assets above \$2.5 billion of assets (62% of total R&D tax credits claimed). The distribution of credits claimed is shown for Subchapter C corporations. Pass-through entities, including Subchapter S corporations and RICs and REITs, claimed \$300 million of the total \$6.6 billion R&D credits claimed in 2005.

Table 2 shows the average R&D credit per return tends to increase with asset size, as would be expected as larger companies have larger qualifying research expenditures. However, this increase is less than proportional to average asset size: as a percentage of average assets, the average amount of tax credit claimed per firm is a decreasing function of firm size, with firms with assets lower than \$500,000 claiming an average tax credit of 9.1% of average assets and large corporations claiming an average tax credit of less than 0.05% of average assets.

**Table 2: The value of R&D credits claimed by active corporations relative to firm size, 2005**

<b>Total assets (\$000)</b>	<b>Number of returns</b>	<b>Credits claimed (\$ millions)</b>	<b>Per return (\$ 000)</b>	<b>Credit as a percentage of average assets</b>
Zero assets	242	\$48	\$198	-
1-499	3,374	\$30	\$9	9.0%
500-999	1,423	\$27	\$19	2.6%
1,000-4,999	4,422	\$198	\$45	2.1%
5,000-9,999	2,197	\$162	\$74	1.1%
10,000-24,999	2,197	\$242	\$110	0.7%
25,000-49,999	1,098	\$184	\$168	0.5%
50,000-99,999	703	\$189	\$269	0.4%
100,000-249,999	658	\$285	\$434	0.3%
250,000-499,999	352	\$300	\$852	0.2%
500,000-2,499,999	544	\$829	\$1,524	0.1%
2,500,000 and more	454	\$4,149	\$9,139	*
<b>Total</b>	<b>17,664</b>	<b>\$6,643</b>	<b>\$376</b>	<b>*</b>

Source: IRS/SOI, All Corporations.

\*Less than 0.05%.

## The R&D tax credit by industry

Table 3 shows the distribution of R&D tax credits claimed by industry. The data are from special tabulations of IRS/SOI data on R&D credits claimed by Subchapter C corporations in 2005.

Firms claiming the R&D tax credit are principally in the manufacturing (44%), professional services (30%) and information (10%) sectors. The manufacturing sector claims the largest share of the R&D tax credit (71%), followed by the professional services and information sectors (10% each). Within the manufacturing sector, the computer and electronic product manufacturing and pharmaceutical/chemical manufacturing subindustries claimed the most R&D credit.

**Table 3: Distribution of R&D credits claimed by C corporations, by industry, 2005**

<b>R&amp;D Credits by industry</b>	<b>Number of returns</b>	<b>Percent of returns</b>	<b>Credits claimed (\$ millions)</b>	<b>Percent of credits</b>
All sectors	11,290	100%	\$6,363	100%
Agriculture, forestry, fishing and hunting	61	0.5%	4	0.1%
Mining	19	0.2%	5	0.1%
Utilities	37	0.3%	20	0.3%
Construction	18	0.2%	3	0.1%
Manufacturing	4,921	43.6%	4,529	71.2%
Wholesale trade	594	5.3%	196	3.1%
Retail trade	124	1.1%	40	0.6%
Transportation and warehousing	43	0.4%	9	0.1%
Information	1,076	9.5%	636	10.0%
Finance and insurance	143	1.3%	125	2.0%
Real estate and rental and leasing	14	0.1%	4	0.1%
Services	4,241	37.6%	791	12.4%

*Source: Special tabulations requested from IRS/SOI. Figures may not appear to sum due to rounding.*

# Qualifying research expenditures

The IRS/SOI has published some tabulations of the R&D tax credit for 2003 with more details on the underlying qualifying expenditures and some of the tax credit limitations. These tabulations available on the IRS/SOI Web site involved significant additional resources, so were not available for 2005. The underlying relationships, however, are not expected to change significantly from year-to-year.

Table 4 shows the composition of qualifying research expenditures. Companies' employees' wages and salaries accounted for 70% of qualifying research expenditures. Cost of supplies for research accounted for 16%, and the applicable percentage of contract research (principally wages and salaries of workers of third-party contractors) accounted for 14%.

**Table 4: Qualified research expenditures by type**

	Regular Tax Credit	Alternative Incremental Tax Credit	Total	Percent <sup>2</sup>
Wages for qualified services	61.2	20.8	82.0	70%
Cost of supplies	14.5	4.2	18.7	16%
Applicable percent of contract research expense	13.3	2.8	16.2	14%
Rental or lease costs of computers	0.3	*	0.3	*
Total qualified research expenses <sup>1</sup>	92.9	28.4	121.5	100%

\* Less than \$50 million or less than 0.5%

<sup>1</sup> Does not equal sum of components since some corporations only reported total line.

<sup>2</sup> Percent of reported components.

Dollar amounts are in billions.

Source: IRS/SOI, Table 1 from <http://www.irs.gov/taxstats/article/0,,id=164402,00.html>



# Credit as a percent of qualifying research expenditures

Both the regular R&D credit and the alternative incremental credit apply the credit to qualifying research expenditures above different bases. Thus, the regular R&D credit is smaller than 20% of total qualifying R&D expenditures, and the alternative incremental credit is smaller than the 3% to 5% percent credit rates.

In addition to the incremental nature of both the regular and alternative credit, the regular credit base can not be less than 50% of qualified research expenses. This further reduces the research expenses qualifying for the credit. In 2003, the IRS reports that 78% of the returns claiming the regular credit were subject to the 50% limitation. These firms accounted for 46% of the total qualifying research expenditures and 57% of the R&D regular credit after the limitation.

In 2003, the regular R&D credit of \$4.8 billion applied to \$93 billion of qualified R&D expenditures, for an average credit rate of 5.1%. The alternative incremental R&D credit of \$600 million was applied to \$29 billion of qualified R&D expenditures for an average credit rate of 2.1%.

# Research and development by state

Tables 5 to 8 present the distribution of industrial R&D performance by state for 2005, the latest year of available data. The data are from the National Science Foundation survey of company funds for R&D, by state.

Industrial R&D activity reported in the NSF survey in 2005 totaled \$204 billion, or about 50% more than the amount of qualifying research expenses reported for the R&D tax credit. The definition of R&D expenditures for tax purposes is narrower than the more common measures of R&D, such as used by the NSF.

Table 5 shows the number of firms performing industrial R&D in each state, ranked by the number of firms. Not surprisingly, although firms in every state report R&D activity, most firms with R&D activity are located in large states, with the largest number of firms in California (more than 12% of all firms claiming the tax credit), followed by Texas (5.5% of all firms claiming the credit), Massachusetts (5.2% of all firms claiming the credit) and Florida (5% of all firms claiming the credit).<sup>2</sup>

Table 6 shows the share of the amount of industrial R&D performed in the state, for the top 20 states. Although California is still ranked first (22% of the total amount of R&D performed in the US), it is now followed by Michigan (8%), New Jersey and Texas (6% each).

Table 7 shows the amount of industrial R&D performed by state population in 2005, for the top 20 states. The largest amounts of per capita R&D activity are conducted in smaller states, including Connecticut and Delaware. Massachusetts, Michigan and Washington also have large industrial R&D activity per capita.

Table 8 shows the amount of R&D performance by state as a share of private sector gross domestic product (GSP) in 2005. The highest percentage of business activity in research activity is conducted in Michigan. Some small states, like Connecticut, Rhode Island, Delaware, New Hampshire and Oregon also have a large amount of R&D activity.

**Table 5: States ranked by number of firms in the state reporting R&D activity, 2005**

<b>State</b>	<b>Number of firms</b>	<b>State</b>	<b>Number of firms</b>
California	5,741	Indiana	615
Texas	2,641	Kentucky	513
Massachusetts	2,478	Delaware	500
Florida	2,392	Nebraska	463
Pennsylvania	2,310	New Hampshire	445
New York	2,213	Iowa	416
Michigan	2,111	Kansas	403
Illinois	2,064	Tennessee	387
Georgia	1,724	Louisiana	332
Colorado	1,450	Arkansas	317
New Jersey	1,424	Nevada	277
Ohio	1,415	Rhode Island	238
Wisconsin	1,358	South Dakota	219
Alabama	1,296	Idaho	171
Utah	1,264	Oklahoma	165
Virginia	1,230	Mississippi	164
Washington	1,229	Maine	154
Minnesota	1,028	Vermont	130
Oregon	1,014	Hawaii	86
Arizona	985	North Dakota	84
North Carolina	907	Montana	58
Maryland	856	West Virginia	51
Connecticut	838	District of Columbia	34
New Mexico	775	Wyoming	33
Missouri	704	Alaska	16
South Carolina	624		

*Source: National Science Foundation.*

**Table 6: Top 20 states ranked by share of industrial R&D performance in 2005**

State	Share of total US R&D
California	22.4%
Michigan	8.1%
New Jersey	6.3%
Texas	5.7%
Massachusetts	5.3%
Washington	4.7%
Illinois	4.7%
New York	4.3%
Pennsylvania	4.3%
Connecticut	3.2%
Minnesota	3.0%
Ohio	2.7%
North Carolina	2.5%
Indiana	2.1%
Colorado	2.1%
Oregon	1.6%
Florida	1.5%
Arizona	1.3%
Virginia	1.3%
Wisconsin	1.3%

Source: National Science Foundation.

**Table 7: Top 20 states ranked by per capita industrial R&D performed in 2005**

State	Per capita R&D
Connecticut	1,835
Delaware	1,765
Massachusetts	1,686
Michigan	1,635
Washington	1,520
New Jersey	1,480
California	1,263
Rhode Island	1,246
Minnesota	1,179
New Hampshire	1,031
Colorado	893
Oregon	885
Illinois	745
Pennsylvania	695
Indiana	690
United States	680
Kansas	667
North Dakota	643
North Carolina	582
Vermont	543

Source: National Science Foundation.

**Table 8: States ranked by R&D activity as percent of gross state product (GSP), 2005**

State	Industrial R&D activity (\$ millions)	Private sector gross state product (\$ millions)	R&D as % of GSP	State	Industrial R&D activity (\$ millions)	Private sector gross state product (\$ millions)	R&D as % of GSP
Michigan	16,548	332,057	4.98%	Maryland	2,452	203,772	1.20%
Washington	9,555	233,449	4.09%	South Carolina	1,364	117,441	1.16%
Massachusetts	10,788	291,776	3.70%	New York	8,819	861,618	1.02%
Connecticut	6,442	176,328	3.65%	Iowa	1,029	104,033	0.99%
Rhode Island	1,340	38,160	3.51%	Virginia	2,683	290,120	0.92%
New Jersey	12,902	383,478	3.36%	Maine	331	38,543	0.86%
California	45,618	1,435,610	3.18%	Georgia	2,226	311,917	0.71%
Minnesota	6,053	207,306	2.92%	Nebraska	400	62,166	0.64%
Delaware	1,490	52,017	2.86%	Tennessee	1,150	200,821	0.57%
New Hampshire	1,351	49,161	2.75%	Kentucky	650	118,016	0.55%
Oregon	3,223	122,121	2.64%	Alabama	698	128,397	0.54%
Colorado	4,168	188,879	2.21%	Florida	2,974	590,516	0.50%
Kansas	1,832	89,350	2.05%	New Mexico	278	56,803	0.49%
Indiana	4,327	212,463	2.04%	West Virginia	205	43,913	0.47%
Pennsylvania	8,640	437,693	1.97%	Oklahoma	401	102,166	0.39%
North Dakota	410	21,012	1.95%	Nevada	365	99,213	0.37%
Illinois	9,506	500,730	1.90%	Arkansas	262	75,322	0.35%
<b>United States</b>	<b>204,250</b>	<b>10,892,216</b>	<b>1.88%</b>	Hawaii	122	42,515	0.29%
Vermont	338	19,963	1.69%	Montana	71	25,066	0.28%
North Carolina	5,051	305,739	1.65%	South Dakota	66	26,493	0.25%
Idaho	635	39,542	1.61%	Mississippi	147	65,879	0.22%
Arizona	2,711	185,757	1.46%	Louisiana	278	159,901	0.17%
Ohio	5,445	393,696	1.38%	District of Columbia	93	54,453	0.17%
Wisconsin	2,660	192,732	1.38%	Wyoming	29	23,628	0.12%
Utah	1,036	75,777	1.37%	Alaska	30	32,416	0.09%
Missouri	2,523	190,015	1.33%				
Texas	11,579	882,277	1.31%				

Source: EY calculations based on data from National Science Foundation and Bureau of Economic Analysis.

# Conclusion

Businesses can claim a tax credit for their qualified R&D expenditures performed in the United States. The R&D tax credit claimed increased by almost 50% from 1997 to 2005, and the number of firms claiming it increased by 6%.

Companies of all sizes and in all industries claim the R&D tax credit. The distribution of firms claiming the credit is the largest among small and medium size firms. Major users of the R&D credit are in the manufacturing, professional services and information sectors.

R&D activity is conducted across the 50 states. California hosted the largest share of R&D (22%) in the US, with Michigan, New Jersey, Texas, Massachusetts and Washington with at least 5% shares. In addition to these states, Florida, Pennsylvania, New York, Illinois, Georgia, Colorado, Ohio, Wisconsin, Alabama, Utah, Virginia, Minnesota and Oregon had over 1,000 firms in the state conducting R&D. Several smaller states were ranked in the top 10 states in terms of R&D spending per capita: Connecticut, Delaware, Rhode Island and New Hampshire.

## Methodology

This study is based upon the Internal Revenue Service's Statistics of Income special tabulations on the R&D tax credit claimed by corporations in 2003 and 2005.

The distribution of all active corporations claiming the R&D credit includes both C corporations, S corporations and Regulated Investment Companies (RICs) and Real Estate Investment Trusts (REITs). The distribution of credits claimed by industry is limited to C corporations.

The study reports the total R&D tax credit claimed by corporations (line 41 of Form 6165). This amount does not reflect the amount of credits received in the current year due to limitations on credits. For example, if the tax credit exceeds current income taxes, the excess credit is not refundable. Excess credits can be carried back against a limited number of prior years' tax liabilities or forward against a limited number of future years' tax liabilities.

Additional detail from special tabulations of the Form 6165 in 2003 provide detail on the composition of qualifying research expenditures, on the split between the regular R&D credit and the alternative incremental R&D credit and the effects of the 50% of base limitation.

The data on industrial R&D performance by state, and funded by companies, reflect the results of the National Science Foundation's annual survey of R&D activity in the US. The data is from 2005. According to the survey, industrial R&D funded by companies represented 90% of total industrial R&D activity in 2005 (the remainder being federally funded).

## End notes

<sup>1</sup> This study updates the April 2004 report, *Supporting Innovation and Economic Growth, The Broad Impact of the R&D Tax Credit*, by Ph.D., Cathy Koch of Washington Council Ernst & Young.

<sup>2</sup> The number of firms reporting research and development expenses in the NSF survey is greater than the number of corporate tax returns claiming the R&D credit for several reasons: (1) several firms may be included in a single consolidated corporate tax return, (2) firms may include noncorporate businesses, such as partnerships and sole proprietorships and (3) not all research expenses qualify for the R&D tax credit.

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