



R&D Performance of U.S.-Located Multinational Companies: Results from Multiagency Survey Linking Project

by Francisco Moris¹

The majority of U.S. business research and development is performed by multinational companies. This report, based on information combining separate surveys on R&D and direct investment activities, announces the availability of 2008–10 data from the R&D Data Link Project on activities by multinational companies (MNCs) either owned by U.S. companies or located in the United States and briefly highlights findings from 2010. Data presented in the full set of detailed statistical tables (DSTs) (<http://www.nsf.gov/statistics/2016/nsf16306/>) and in this report were obtained by linking company-specific information from the Business R&D and Innovation Survey (BRDIS), cosponsored by the National Science Foundation (NSF) and the U.S. Census Bureau, with MNC information from two surveys conducted by the Bureau of Economic Analysis (BEA): the survey of Foreign Direct Investment in the United States (FDIUS), and the survey of U.S. Direct Investment Abroad (USDIA). R&D expenditures of linked companies account for a substantial portion of the estimated U.S. R&D totals published in BRDIS for all companies. Data from the R&D

Data Link Project are unweighted (see “Data Notes” section).

U.S. MNC Parent Companies

U.S. MNC parent companies (see “Definitions” section) identified by linking USDIA and BRDIS surveys performed \$197 billion of R&D in the United States in 2010, or 71% of the \$279 billion performed by all U.S.-located companies in the same year (table 1). Linked parent companies account for an even larger share in federally funded business R&D. These companies performed \$25.5 billion (75%) of the \$34.2 billion in federally funded R&D performed by businesses in the United States in 2010. Further, linked U.S. MNC parent companies employed 788,000 (56%) of the 1.4 million U.S. business R&D employees (table 2).

Majority-Owned Foreign Affiliates of Linked MNC Parent Companies

Majority-owned foreign affiliates of U.S. MNC parent companies that linked to BRDIS performed \$38.9 billion in R&D in 2010, with Germany (\$6.7 billion) and the UK (\$5.5 billion) accounting for 31% of this total, based on BEA USDIA survey data. The other

top six country locations, with at least \$1.5 billion in R&D performed by these affiliates, were Canada, France, Japan, Israel, India, and China, accounting together for another 30%.²

U.S. Affiliates of Foreign MNCs

Over one-half of the domestic R&D performed by U.S. affiliates of foreign MNCs that linked to BRDIS was performed in six states in 2010: California, Illinois, Massachusetts, New Jersey, Pennsylvania, and Texas. (For a detailed analysis of state-level R&D by MNCs based on the R&D Data Link Project, see BEA [2013]³.) Overall, linked U.S. affiliates of foreign MNCs performed \$39.7 billion, or 14%, of total U.S. business R&D in 2010, reflecting little change in their shares since 2004.

U.S. affiliates that linked to BRDIS employed 155,000 R&D employees in the United States in 2010 (table 2). This amount accounts for 11% of the estimated 1.4 million business R&D employees in the United States in 2010.

Data Notes

For a given data year, there were two links of BRDIS data performed at the

TABLE 1. Business R&D performed in the United States, by source of funds and MNC status: 2008–10

(Millions of U.S. dollars)

Selected characteristic	2008	2009	2010
U.S.-located companies			
Domestic R&D performance	290,680	282,393	278,977
Source of funds			
Paid for by the company	232,505	224,920	221,706
Paid for by others	58,176	57,473	57,271
Federal	36,360	39,573	34,199
Other ^a	21,816	17,900	23,072
Linked parent companies of U.S. MNCs			
Domestic R&D performance	193,465	198,335	197,163
Source of funds			
Paid for by the company	157,782	162,968	162,421
Paid for by others	35,684	35,367	34,742
Federal	28,827	27,386	25,524
Other ^a	6,856	7,982	9,218
Linked U.S. affiliates of foreign MNCs			
Domestic R&D performance	35,054	35,538	39,700
Source of funds			
Paid for by the company	29,059	27,798	30,175
Paid for by others	5,996	7,739	9,524
Federal	1,414	1,749	1,469
Other ^a	4,581	5,990	8,055

BEA = Bureau of Economic Analysis; BRDIS = Business R&D and Innovation Survey; FDIUS = Foreign Direct Investment in the United States; MNC = multinational company; USDIA = U.S. Direct Investment Abroad.

^a Includes companies located inside and outside the United States, U.S. state government agencies and laboratories, foreign government agencies and laboratories, and all other organizations located inside and outside the United States.

NOTES: Data in the first panel come from the regularly published BRDIS survey (cosponsored by the National Science Foundation and the U.S. Census Bureau) and are weighted. Data for "linked parent companies of U.S. MNCs" and "linked U.S. affiliates of foreign MNCs" are for BRDIS companies linked to BEA USDIA and FDIUS surveys, respectively. Linked data are not weighted. Data in this table are for R&D-active companies; that is, companies for which BRDIS-reported worldwide R&D expense plus worldwide R&D costs funded by others is greater than zero. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, U.S. Bureau of Economic Analysis, and U.S. Census Bureau, R&D Data Link Project, 2008–10.

Census Bureau: a link with BEA's FDIUS survey data for U.S. affiliates of foreign MNCs, and a separate link with BEA's USDIA survey data for U.S. MNC parent companies. Separately, majority-owned foreign affiliates (collected in the USDIA survey) of linked U.S. MNC parent companies were identified and tabulated by BEA.

Data from linked companies are based on the subset of companies in BRDIS that are part of an MNC, based on BEA information, and are not equivalent to

estimates presented in BRDIS for total U.S. business R&D. BRDIS estimates of the latter are computed by weighting sample data to universe totals. In contrast, data from the R&D Data Link Project are not weighted and are instead obtained from simple aggregations of linked sample microdata. Thus, aggregated data from linked companies do not represent U.S. totals but rather reflect companies included in the data collection of participating surveys for a given year. Companies in the BRDIS-FDIUS match are the subset of BRDIS compa-

nies that are also U.S. affiliates of foreign MNCs, as identified in BEA surveys. Companies in the BRDIS-USDIA match are the subset of BRDIS companies that are parent companies of U.S. MNCs, as identified in BEA surveys.

Data for linked parent companies of U.S. MNCs and linked majority-owned U.S. affiliates (U.S. located foreign-owned companies) should not be summed to attempt a U.S. R&D aggregate related to MNCs because some companies are both MNC parent companies of overseas affiliates and are themselves owned by a foreign parent company.

NSF and Census Bureau's BRDIS is an annual, nationally representative sample survey of approximately 43,000 companies. The target population for BRDIS consists of all for-profit companies that have five or more employees and that perform R&D in the United States. For details on BRDIS scope and methodology for 2008–10, see the "Technical Notes" in <http://www.nsf.gov/statistics/nsf13332/>. For full BRDIS statistics, see <http://www.nsf.gov/statistics/srvyindustry/>.

BEA's FDIUS survey covers U.S.-located affiliates of foreign MNCs. The USDIA survey covers U.S. MNC parent companies and also their foreign affiliates. U.S. affiliates and U.S. parent companies must file on a fully consolidated, domestic (U.S.) basis. BEA conducts the FDIUS and USDIA surveys annually and conducts more comprehensive FDIUS and USDIA benchmark surveys every 5 years. For the FDIUS survey, 2008, 2009, and 2010 were annual survey years. For the USDIA survey, 2008 and 2010 were annual survey years, and 2009 was a benchmark year. For BEA releases and methodology, see http://bea.gov/scb/account_articles/international/iidguide.htm.

TABLE 2. Domestic total employment of R&D active companies and R&D employment, by major industry group and MNC status: 2008–10
(Thousands)

Type of company and industry	2008		2009		2010	
	Total	R&D	Total	R&D	Total	R&D
U.S.-located companies						
All industries	18,515	1,425	17,788	1,424	18,638	1,412
Manufacturing	10,173	850	9,882	850	10,260	849
Nonmanufacturing	8,342	575	7,906	574	8,378	563
Linked parent companies of U.S. MNCs						
All industries	10,828	786	11,386	788	11,387	788
Manufacturing	6,524	554	6,567	556	6,435	552
Nonmanufacturing	4,304	232	4,818	232	4,952	236
Linked U.S. affiliates of foreign MNCs						
All industries	2,168	141	2,348	145	2,114	155
Manufacturing	1,746	113	1,693	118	1,565	125
Nonmanufacturing	422	28	655	27	549	30

BEA = Bureau of Economic Analysis; BRDIS = Business R&D and Innovation Survey; FDIUS = Foreign Direct Investment in the United States; MNC = multinational company; USDIA = U.S. Direct Investment Abroad.

NOTES: Data in the first panel come from the regularly published BRDIS survey (cosponsored by the National Science Foundation and the U.S. Census Bureau) and are weighted. Data for "linked parent companies of U.S. MNCs" and "linked U.S. affiliates of foreign MNCs" are for BRDIS companies linked to BEA USDIA and FDIUS surveys, respectively. Linked data are not weighted. Data in this table are for R&D-active companies; that is, companies for which BRDIS-reported worldwide R&D expense plus worldwide R&D costs funded by others is greater than zero. Detail may not add to total because of rounding. Industry classification is based on dominant business code for domestic R&D performance, where available. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, U.S. Bureau of Economic Analysis, and U.S. Census Bureau, R&D Data Link Project, 2008–10.

Definitions

Affiliate: A business unit located in one country but owned or controlled by a company in another country.

Employment, total and R&D: Employee head counts during the pay period that included 12 March of the survey year. R&D employees are those who provide direct support to R&D, such as researchers, R&D managers, technicians, clerical staff, and others assigned to R&D groups.

Majority-owned affiliate: A company owned or controlled to the extent of more than 50% of the voting securities (or equivalent) by its parent company.

MNC parent company: A company that has a 10% or higher ownership share in a business located outside its home country.

Multinational company (MNC): A parent company and its foreign affiliates.

U.S. affiliate: A company located in the United States but owned by a foreign parent company.

Data Availability

Linked data for MNCs from the R&D Data Link Project include detailed industry codes, company size (based on U.S. total employment), sales, total employment and R&D employment, R&D performance, character of work (basic, applied, and experimental development), and source of funds. Selected data are also available by geographic detail, including state, investing country, and host country. See BRDIS Data Link DSTs at <http://www.nsf.gov/statistics/2016/nsf16306/>. All data and publications from the project are available at <http://www.nsf.gov/statistics/rdlink/> and <http://www.bea.gov/international/ai1.htm#BEACENS>. Full BRDIS statistics are available at <http://www.nsf.gov/statistics/srvyindustry/>. BEA interna-

tional statistics are available at <http://www.bea.gov/international/>.

Notes

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2. See table 37 of DST package available at <http://www.nsf.gov/statistics/2016/nsf16306/>.

3. Bureau of Economic Analysis (BEA). 2013. State-level R&D by multinational companies: Results from an interagency data link project. *Survey of Current Business* 93(9):286–93. http://www.bea.gov/scb/date_guide.asp. Accessed 24 June 2015.

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