

Metalworking Machinery: 2002

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Summary

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For general CIR information, explanation of general terms and historical note, see the appendix.

Current Industrial Reports

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U S C E N S U S B U R E A U

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Table 1. Value of Shipments, Including Exports of Metalworking Machinery by Class of Product: 1993 to 2002
[Thousands of dollars]

Product code	Product description	2002	2001	2000	1999	1998
	Metalworking machinery.....	2,002,082	2,987,581	3,632,410	3,783,336	4,817,066
	Metal cutting type 1/2/.....	1,418,660	2,163,666	2,552,370	2,512,638	3,481,754
333512A1	Boring machines.....	128,329	124,763	87,200	53,822	73,583
333512A1	Drilling machines 3/.....	17,137	22,576	23,694	50,649	102,930
33351212	Gear cutting machines 3/.....	111,048	137,232	180,616	132,046	197,672
33351221	Grinding and polishing machines (except gear-tooth grinding, lapping, polishing, buffing machines).....	210,691	367,715	454,313	477,132	535,508
33351231	Lathes 4/.....	132,365	262,020	287,021	297,398	472,943
33351241	Milling machines 5/.....	56,125	137,778	150,503	200,495	281,101
33351271	Machining centers (multi-function numerically controlled machines).....	273,639	435,493	629,717	597,862	897,331
33351281	Station type machines.....	169,896	347,948	401,772	407,136	571,038
33351291	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, etc.).....	238,295	276,354	333,204	291,742	344,562
3335126111	Remanufactured metal cutting machine tools.....	50,404	49,174	(NA)	(NA)	(NA)
	Metal forming type.....	583,422	823,915	1,080,040	1,270,698	1,335,312
33351311 pt.	Punching and shearing machines.....	105,925	155,316	203,813	219,988	254,323
33351311 pt.	Bending and forming machines.....	141,273	202,586	262,372	265,754	262,748
33351331	Presses (except forging).....	140,063	180,347	303,146	433,736	399,489
33351351 pt.	Forging machines 6/.....	(D)	(D)	(D)	(D)	(D)
33351351 pt.	Other metal forming type machines 6/.....	187,360	275,785	310,709	351,220	418,752
3335137121	Remanufactured metal forming machine tools.....	8,801	9,881	(NA)	(NA)	(NA)

D Withheld to avoid disclosing data for individual companies. NA Not available. pt. Part.

1/Data for "All lathes (turning machines) valued under \$3,025 each" and "All milling machines valued under \$3,025 each" are included in total "Metal cutting type" for 1998 through 2002.

2/For 2002, data for product codes 3335123126, "Vertical NC turning machines," and 3335123134, "All nonnumerically controlled lathes (turning machines) valued at \$3,025 each or more," are included in total "Metal cutting type."

3/Data for part of "Drilling machines" have been combined with "Gear cutting machines" for 2001 and 2002 to avoid disclosing data for individual companies.

4/For 2002, product code 33351231, "Lathes," excludes the values for product codes 3335123126, "Vertical NC turning machines," 3335123131, "All lathes (turning machines) valued under \$3,025 each," and 3335123134, "All nonnumerically controlled lathes (turning machines) valued at \$3,025 each or more."

5/Product code 33351241, "Milling machines," excludes the value for product code 3335124101, "All milling machines valued under \$3,025 each."

6/Data for "Forging machines" have been combined with "Other metal forming type machines" to avoid disclosing data for individual companies.

Table 2. Total Shipments and Unfilled Orders
 [Quantity in units; value in thousands of dollars]

Product code	Product description	No. of cos.	2002				2001			
			Total shipments		Unfilled orders (value)	Total shipments		Unfilled orders (value)		
			Quantity	Value		Quantity	Value			
	Metalworking machinery.....	(X)	115,573	2,002,082	768,336	144,662	2,987,581	990,841		
	Total metal cutting type machine tools.....	(X)	63,907	1,418,660	491,581	80,855	2,163,666	684,203		
	Total metal forming type machine tools.....	(X)	51,666	583,422	276,755	63,807	823,915	306,638		
	Metal cutting type machine tools valued at \$3,025 each or more 1/.....	(X)	16,944	1,344,734	477,630	24,438	2,082,607	668,956		
	Metal cutting type machine tools valued under \$3,025 2/ 3/ 4/.....	(X)	46,434	23,522	314	55,842	31,885	222		
333512A1	Boring and drilling machines 2/5/.....	35	1,958	145,466	64,693	2,803	147,339	78,094		
333512A101	All boring machines valued under \$3,025 each.....	-	(X)	(X)	(X)	(X)	(X)	(X)		
	Boring machines valued at \$3,025 each or more:									
333512A103	Horizontal boring, drilling, and milling machines, including floor, table, rail mounted, and all other nonprecision boring machines (except boring lathes) 6/.....	6	c/ (D)	(D)	(D)	(D)	(D)	(D)		
333512A105	Precision and jig boring machines, including horizontal and vertical machines 6/.....	7	c/	946 b/	128,329 b/	62,672 c/	987 b/	124,763 b/	76,882	
333512A111	All drilling machines valued under \$3,025 each 2/.....	12	b/	901	1,929	(D)	b/ 1,639	3,743	(D)	
	Drilling machines valued at \$3,025 each or more:									
333512A113	Vertical upright drilling machines, including plain upright and heavy duty 7/.....	3	(D)	(D)	(D)	(D)	(D)	(D)		
333512A117	Deep hole drilling machines 7/.....	3	b/	111 c/	15,208 c/	2,021 b/	177 c/	18,833 c/	1,212	
	Multiple spindle drilling machines:									
333512A119	Adjustable joint and fixed center types 5/.....	6	(D)	(D)	(D)	(D)	(D)	(D)		
333512A121	All other automatic multiple spindle drilling machines 5/.....	3	(D)	(D)	(D)	(D)	(D)	(D)		
333512A123	All other drilling machines, n.e.c. 5/.....	6	(D)	(D)	(D)	(D)	(D)	b/ (D)		
3335121200	Gear cutting machines, including gear hobbors, shapers, teeth finishing, bevel gear generators, and all other gear cutting machines 5/.....	6	c/	672 b/	111,048	55,703 a/	646	137,232	69,021	
33351221	Grinding, polishing, buffing, honing, and lapping machines	73	36,193	210,691	87,465	44,140	367,715	197,228		
3335122101	All grinding, polishing, buffing, honing, and lapping machines valued under \$3,025 each.....	15	33,973	11,451	27	40,236	15,302	55		
	All grinding, polishing, buffing, honing, and lapping machines valued at \$3,025 each or more:									
3335122108	External cylindrical grinding machines: Plain and universal, including angular wheel types 8/.....	4	(D)	(D)	6,887	(D)	(D)	(D)		
3335122116	Roll, chucking, centerless, and other cylindrical grinding machines 8/.....	10	(D)	(D)	20,420	b/ 553	119,265	83,759		
3335122120	Internal cylindrical grinding machines 9/.....	1	(X)	(X)	(X)	(D)	(D)	(X)		
3335122122	Surface grinding machines 9/.....	9	(D)	(D)	(D)	(D)	(D)	(D)		
3335122136	All other disc grinders, including bench, floor, snag, double spindle grinders, and abrasive belt grinders 9/.....	4	b/	354 b/	11,386 c/	1,429 b/	1,154 a/	36,983 c/	7,663	
3335122142	Tool, cutter, and drill point grinding machines 8/.....	12	170	36,132	(D)	420	72,116	11,710		
3335122151	All other grinding machines, n.e.c., including planer type, and thread grinding machines 8/.....	14	b/	772	97,113 c/	14,906	641 a/	34,316	21,139	
3335122156	Honing and lapping machines (except flat surface lapping machines), internal, including combination bore, hone, and external 10/11/.....	6	(D)	(D)	(D)	(D)	(D)	(D)		
3335122161	Flat surface lapping machines (except gear lapping) 10/11/.....	4	690	33,548	(D)	a/ 836	a/ 55,550	c/ (D)		
3335122166	Polishing and buffing machines, including speed lathes and multistation type 11/.....	15	a/	234 b/	21,061 b/	43,796	300 a/	34,183 c/	72,902	
33351231	Lathes 1/3/.....	(X)	1,793	132,365	14,246	2,949	262,020	20,087		
	Numerically controlled:									
3335123101	Horizontal.....	7	1,793	132,365	14,246	2,465	203,538	11,800		
	Multiple spindle NC turning machines 12/.....	2	(D)	(D)	(D)	(D)	(D)	(D)		

Continued

Table 2. Total Shipments and Unfilled Orders
 [Quantity in units; value in thousands of dollars]

Product code	Product description	No. of cos.	2002			2001			Unfilled orders (value)
			Total shipments		Unfilled orders (value)	Total shipments		Unfilled orders (value)	
			Quantity	Value		Quantity	Value		
3335123107	Single spindle NC turning machines: Chuck sizes less than 10 inches.....	6	1,184	79,097	10,366	1,556	117,265	8,676	
3335123116	Chuck sizes from 10 inches but less than 15 inches 12/.....	6	(D)	(D)	(D)	(D)	(D)	(D)	
3335123121	Chuck sizes 15 inches and over 12/.....	1	609	53,268	3,880	909	86,273	3,124	
3335123126	Vertical NC turning machines 1/.....	5	(D)	(D)	(D)	154	50,130	a/ 8,287	
3335123131	All lathes (turning machines) valued under \$3,025 each 3/.....	2	(D)	(D)	(X)	(D)	(D)	(X)	
3335123134	All nonnumerically controlled lathes (turning machines) valued at \$3,025 each or more 1/.....	8	(D)	(D)	(D)	330	8,352	(D)	
33351241	Milling machines 4/.....	18	369	56,125	21,465	1,990	137,778	24,658	
3335124101	All milling machines valued under \$3,025 each 4/.....	3	(D)	(D)	(X)	(D)	(D)	(X)	
3335124106	All milling machines valued at \$3,025 or more: General-purpose, knee milling machines, all types 13/.....	7	(D)	(D)	(X)	(D)	(D)	(D)	
3335124111	Automatic: Single spindle, multiple spindle and special-purpose machines 13/.....	3	(D)	(D)	(D)	(D)	(D)	(D)	
3335124121	All other milling machines, n.e.c., including planer type and thread milling machines 13/.....	9	c/ 369	b/ 56,125	21,465	a/ 1,990	a/ 137,778	24,658	
33351271	Machining centers.....	21	5,367	273,639	63,146	7,430	435,493	87,289	
3335127101	Drill, mill, and bore, vertical (automatic tool change): Y-axis travel less than 20 inches 14/.....	7	(D)	(D)	8,054	2,845	109,988	4,029	
3335127106	Y-axis travel 20 inches through 26 inches 14/.....	7	3,908	174,343	15,041	1,910	140,630	11,287	
3335127111	Y-axis travel over 26 inches.....	9	327	38,387	5,154	466	63,915	7,383	
3335127112	Drill, mill, and bore, horizontal (automatic tool change): Under 500mm pallet and smaller 15/.....	4	(D)	(D)	(D)	(D)	(D)	(D)	
3335127113	500 to 800mm pallet and smaller 15/.....	3	(D)	(D)	(D)	(D)	(D)	(D)	
3335127114	Over 800mm pallet 15/.....	2	158	43,175	16,251	257	55,665	16,522	
3335127146	All other machining centers, including special machining, special adapting of standard machining and machining centers with indexing turret.....	6	974	17,734	b/ 18,646	1,952	65,295	48,068	
33351281	Station type machines 1/.....	13	66	169,896	4,198	151	347,948	140,363	
3335128101	Dial or rotary, trunnion, and center column 1/16/.....	9	(D)	(D)	(D)	(D)	(D)	(D)	
3335128106	Transfer 16/.....	5	(D)	(D)	(D)	(D)	(D)	(D)	
3335128111	Other station type, n.e.c. 16/.....	4	66	169,896	4,198	151	347,948	b/ 140,363	
33351291	Other metal cutting machine tools 2/.....	56	15,550	238,295	38,984	17,060	276,354	50,998	
3335129101	Other metal cutting machine tools, n.e.c. valued under \$3,025 2/.....	14	c/ 10,391	c/ 9,290	(D)	b/ 10,856	c/ 10,227	(D)	
3335129106	Other metal cutting machine tools, n.e.c. valued at \$3,025 each or more: Broaching machines 17/.....	7	(D)	(D)	c/ 1,109	b/ (D)	b/ (D)	c/ 9,376	
3335129122	Sawing and cut-off machines: Band saws: Horizontal 18/.....	8	b/ 1,372	b/ 14,698	(D)	2,206	25,243	(D)	
3335129123	Vertical 18/.....	7	840	10,828	b/ 3,204	1,023	12,729	2,347	
3335129126	All other sawing and cutoff machines.....	12	420	20,030	2,961	487	26,370	a/ 5,205	
3335129131	Spark erosion, ultrasonic, and electrolytic machines, all types	6	546	37,935	4,279	798	51,810	4,859	
3335129136	Miscellaneous metal cutting machine tools 17/.....	21	1,981	145,514	27,431	b/ 1,690	149,975	c/ 29,211	
3335126111	Remanufactured metal cutting machine tools	21	529	a/ 50,404	c/ 13,637	575	49,174	15,025	
	Metal forming type machine tools valued at \$3,025 or more.....	(X)	11,428	539,125	272,413	14,671	770,874	301,230	
	Metal forming type machine tools valued under \$3,025 19/.....	(X)	40,113	35,496	918	49,040	43,160	1,745	
33351311	Punching, shearing, bending, and forming machines.....	71	9,964	247,198	117,001	11,307	357,902	139,333	
3335131101	All punching and shearing machines valued under \$3,025 each	9	a/ 1,261	b/ 1,808	81	b/ 639	b/ 1,187	b/ 40	
3335131106	All punching and shearing machines valued at \$3,025 each or more: Power operated only: Punches, including combination punching and shearing machines.....	13	b/ 2,821	b/ 24,895	c/ 2,451	b/ 3,500	b/ 31,192	4,085	

Continued

Table 2. Total Shipments and Unfilled Orders
[Quantity in units; value in thousands of dollars]

Product code	Product description	No. of cos.	2002				2001			
			Total shipments		Unfilled orders (value)	Total shipments		Unfilled orders (value)		
			Quantity	Value		Quantity	Value			
3335131111	Punching machines fixed position and two axes positioning table 20/21/.....	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
	Plate shearing machines:									
3335131116	Mechanical 21/.....	5	53	4,313	b/ 913	a/ 341	91,842	(D)		
3335131121	Hydraulic	9	a/ 648	10,811	b/ 1,355	a/ 821	16,035	733		
3335131126	Other power operated punching and shearing machines 20/21/.....	9	c/ 824	64,098	9,581	1,016	15,060	25,723		
3335131131	All bending and forming machines, power operated valued at under \$3,025 each.....	7	1,526	2,190	197	1,631	2,283	178		
	All bending and forming machines, power operated valued at \$3,025 each or more:									
3335131136	Press brakes, all types 22/.....	7	385	30,650	(D)	a/ 561	42,134	4,420		
3335131142	Roll bending machines including sheet, plate, angles, bars, shapes and tubes 23/.....	9	(D)	(D)	(D)	(D)	(D)	(D)		
3335131151	Rotary bending and forming machines, including rotary head 23/.....	10	a/ 823	44,073	27,253	b/ 945	a/ 57,009	a/ 21,731		
3335131161	Other bending and forming machines, including folders and slide bending machines 22/.....	23	1,623	64,360	75,170	a/ 1,853	101,160	82,423		
33351331	Presses (except forging) 19/.....	38	7,682	140,063	63,138	10,059	180,347	91,711		
3335133101	All presses valued under \$3,025 each 19/.....	6	6,121	3,451	(D)	7,195	a/ 3,962	c/ (D)		
	All presses valued at \$3,025 each or more:									
	Mechanical presses:									
	Gap or C-frame:									
3335133106	50 tons and under 24/.....	6	(D)	(D)	384	b/ (D)	c/ (D)	c/ (D)		
3335133113	Over 50 tons 24/.....	3	b/ 207	3,809	528	272	6,684	569		
	Vertical straight sided and arch frame single action:									
3335133121	Single point 25/26/.....	3	(D)	(D)	(D)	(D)	(D)	(D)		
	Two point:									
3335133128	150 tons and under 25/26/.....	3	(D)	(D)	(D)	(D)	(D)	1,292		
3335133133	151 tons and over.....	-	(X)	(X)	(X)	(X)	(X)	(X)		
3335133136	Automatic presses, strip or coil fed 25/.....	7	(D)	(D)	(D)	250	60,599	32,500		
3335133141	All other mechanical presses 25/26/.....	3	b/ 277	b/ 66,026	b/ 32,916	166	28,593	9,652		
	Hydraulic presses:									
	Vertical single action, all tonnages:									
3335133146	Housing or straight side type 27/.....	4	(D)	(D)	(D)	(D)	(D)	(D)		
3335133151	Column type (open rod) 27/.....	7	77	30,753	18,859	a/ 107	35,743	b/ 20,673		
	Gap or C-frame:									
3335133156	15 tons and under 28/.....	7	180	3,903	1,196	414	6,725	(D)		
3335133161	16 tons to 35 tons 28/.....	5	36	1,805	(D)	63	2,423	(D)		
3335133166	Over 35 tons 28/.....	7	39	b/ 4,072	c/ 5,946	142	9,258	b/ 4,776		
3335133171	Other hydraulic and pneumatic presses, including horizontal.....	8	c/ 745	b/ 26,244	c/ 3,309	b/ 1,450	a/ 26,360	b/ 22,249		
3335135176	Forging machines, including forging presses and die stamping presses 29/.....	6	(D)	(D)	(D)	(D)	(D)	(D)		
33351351	All other metal forming type machine tools 19/.....	39	33,895	187,360	92,552	42,345	275,785	70,404		
3335135101	All other metal forming type machine tools valued under \$3,025 each 19/.....	7	b/ 31,205	a/ 28,047	(D)	b/ 39,575	a/ 35,728	b/ (D)		
	All other metal forming type machine tools valued at \$3,025 each or more:									
3335135106	Thread rolling machinery 29/.....	5	a/ 29	a/ 2,918	(D)	56	9,042	(D)		
3335135111	Metal container-making machinery 29/.....	5	(D)	(D)	18,174	63	18,201	10,063		
3335135116	Die casting machines, all types 29/.....	4	(D)	(D)	(D)	(D)	(D)	(D)		
3335135121	Riveting machines	8	863	16,558	7,050	b/ 668	a/ 25,575	3,107		
3335135126	All other metal forming type machine tools, n.e.c. 29/.....	20	b/ 1,798	139,837	67,328	b/ 1,983	187,239	57,234		
3335137121	Remanufactured metal forming machine tools	14	125	8,801	3,424	96	9,881	3,663		

- Represents zero. D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. X Not applicable.

1/Product codes 3335123126 and 3335123134, and 3335128101 for "Unfilled orders (value)" for 2002, and product code 3335123134 for "Unfilled orders (value)" in 2001, are included in "Metal cutting type machine tools valued at \$3,025 each or more," but excluded from product classes 33351231 and 33351281 respectively.

2/"Unfilled orders (value)" for product codes 333512A111 and 3335129101 are included in the total for "Metal cutting type machine tools valued under \$3,025," but excluded from product classes 333512A1 and 33351291.

3/Product code 3335123131 is included in the total for "Metal cutting type machine tools valued under \$3,025" but excluded from product class 33351231.

4/Product code 3335124101 is included in the total for "Metal cutting type machine tools valued under \$3,025" but excluded from product class 33351241.

5/Product codes 333512A119, 333512A121, 333512A123 and 3335121100 were combined to avoid disclosing data for individual companies. Product codes 333512A119, 333512A121, and 333512A123 were not included with 333512A1 "Boring and drilling machines."

6/Product codes 333512A103 and 333512A105 were combined to avoid disclosing data for individual companies.

7/Product codes 333512A113 and 333512A117 were combined to avoid disclosing data for individual companies.

8/Product codes 3335122108, 3335122116, and 3335122151 for shipments, and 3335122142 and 3335122151 for "Unfilled orders (value)" for 2002, and product codes 3335122108 and 3335122116 for 2001 were combined to avoid disclosing data for individual companies.

9/Product codes 3335122122 and 3335122136 for 2002 and 3335122120 for 2001 were combined to avoid disclosing data for individual companies.

Table 2. Total Shipments and Unfilled Orders
[Quantity in units; value in thousands of dollars]

10/Product codes 3335122156 and 3335122161 for shipments were combined to avoid disclosing data for individual companies.
11/"Unfilled orders (value)" for product codes 3335122156, 3335122161, and 3335122166 were combined to avoid disclosing data for individual companies.
12/Product codes 3335123101, 3335123116, and 3335123121 were combined to avoid disclosing data for individual companies.
13/Product codes 3335124106, 3335124111, and 3335124121 were combined to avoid disclosing data for individual companies.
14/Product codes 3335127101 and 3335127106 for shipments for 2002 were combined to avoid disclosing data for individual companies.
15/Product codes 3335127112, 3335127113, and 3335127114 were combined to avoid disclosing data for individual companies.
16/Product codes 3335128101, 3335128106 and 3335128111 with the exception of "Unfilled orders (value)" for 2002 (see footnote 1) were combined to avoid disclosing data for individual companies.
17/Product codes 3335129106 and 3335129136 for shipments were combined to avoid disclosing data for individual companies.
18/"Unfilled orders (value)" for product codes 3335129122 and 3335129123 were combined to avoid disclosing data for individual companies.
19/"Unfilled orders (value)" for product codes 3335133101 and 3335135101 are included in the total for "Metal forming type machine tools valued under \$3,025" but excluded from product classes 33351331 and 33351351.
20/Product codes 3335131111 and 3335131126 for 2002 were combined to avoid disclosing data for individual companies.
21/Product codes 3335131111 and 3335131116 for shipments for 2001, and "Unfilled orders (value)" for product codes 3335131111, 3335131116, and 3335131126 for 2001 were combined to avoid disclosing data for individual companies.
22/"Unfilled orders (value)" for product codes 3335131136 and 3335131161 for 2002 were combined to avoid disclosing data for individual companies.
23/Product codes 3335131142 and 3335131151 were combined to avoid disclosing data for individual companies.
24/Product codes 3335133106 and 3335133113 for shipments, and "Unfilled orders (value)" for 2001 were combined to avoid disclosing data for individual companies.
25/Product codes 3335133121, 3335133128, 3335133136 and 3335133141 for 2002 were combined to avoid disclosing data for individual companies.
26/Product codes 3335133121, 3335133128, and 3335133141 shipments for 2001 and product codes 3335133121 and 3335133141 for "Unfilled orders (value)" for 2001 were combined to avoid disclosing individual company data.
27/Product codes 3335133146 and 3335133151 were combined to avoid disclosing data for individual companies.
28/"Unfilled orders (value)" for product codes 3335133161 and 3335133166 for 2002, and "Unfilled orders (value)" for product codes 3335133156, 3335133161, and 3335133166 for 2001 were combined to avoid disclosing data for individual companies.
29/Product codes 3335135176, 3335135116 and 3335135126, and "Unfilled orders (value)" for 3335135106, and 3335135111 for shipments for 2002, were combined to avoid disclosing data for individual companies.

Note: The percent of estimation of each item is indicated as follows: a/16 to 25 percent of this item is estimated. b/26 to 50 percent of this item is estimated. c/Over 50 percent of this item is estimated.

Table 3. Shipments of Numerically Controlled Machines; All Export Shipments: 2002 and 2001
 [Quantity in units. Value in thousands of dollars]

Product description	2002			2001		
	Shipments of numerically controlled machines		Export shipments (value) 1/	Shipments of numerically controlled machines		Export shipments (value) 1/
	Quantity	Value		Quantity	Value	
Metalworking machinery.....	10,417	1,055,265	351,517	14,382	1,610,073	511,150
Metal cutting type machine tools 2/.....	9,527	895,275	259,214	12,566	1,402,909	380,093
Boring and drilling machines 2/.....	(D)	(D)	(D)	(D)	(D)	(D)
Gear cutting machines 2/.....	(D)	(D)	(D)	(D)	(D)	(D)
Grinding, polishing, buffing, and lapping machines 2/.....	417	111,310	(D)	589	202,359	(D)
Valued under \$3,025 each, external cylindrical grinding machines (plain and universal), and surface grinding machines, all types 2/.....	343	105,435	(D)	521	197,330	(D)
Honing, lapping, polishing and buffing machines 2/.....	74	5,875	(D)	68	5,029	(D)
Horizontal NC turning machines, valued at \$3,025 or more 3/.....	1,793	132,365	41,381	2,465	203,538	50,401
Single spindle NC turning machines:						
Chuck sizes less than 10 inches 3/.....	1,184	79,097	(D)	1,556	117,265	33,991
Chuck sizes over 10 inches but less than 15 inches 4/.....	(D)	(D)	(D)	(D)	(D)	(D)
Chuck sizes 15 inches and over and multiple spindle 4/.....	609	53,268	13,804	909	86,273	16,410
Vertical NC turning machines, valued at \$3,025 or more 2/.....	(D)	(D)	(D)	154	50,130	(D)
Nonnumerically controlled turning machines, valued at \$3,025 or more 2/.....	(X)	(X)	(D)	(X)	(X)	(D)
Milling machines 2/.....	179	50,847	(D)	512	114,811	15,690
Machining centers	5,367	273,639	70,525	7,430	435,493	92,401
Drill, mill and bore, vertical (automatic tool change) 5/.....	4,235	212,730	64,755	5,221	314,533	81,136
Y-axis travel less than 20 inches 5/6/.....	(D)	(D)	(D)	2,845	109,988	(D)
Y-axis travel 20 inches through 26 inches 6/.....	3,908	174,343	32,040	1,910	140,630	36,659
Y-axis travel over 26 inches 5/.....	327	38,387	(D)	466	63,915	(D)
Drill, mill and bore, horizontal (automatic tool change) 7/.....	158	43,175	5,770	257	55,665	11,265
Under 500mm pallet 7/8/.....	(D)	(D)	(D)	(D)	(D)	(D)
500mm-800mm pallet 7/8/.....	(D)	(D)	(D)	(D)	(D)	(D)
Over 800mm pallet 8/.....	158	43,175	(X)	257	55,665	(X)
All other machining centers 2/.....	974	17,734	(D)	1,952	65,295	(D)
Station type machines, and other metal cutting machine tools, n.e.c.	780	162,880	58,921	669	186,480	84,301
Remanufactured metal cutting machines 2/.....	329	27,791	(D)	401	36,375	2,121
Metal forming type machine tools.....	890	159,990	92,303	1,816	207,164	131,057
Punching, shearing, bending, and forming machines.....	474	84,320	46,359	453	80,166	43,404
Punching and shearing machines.....	220	56,893	16,733	257	55,469	13,908
All bending and forming machines, power operated.....	254	27,427	29,626	196	24,697	29,496
Presses (except forgings).....	199	22,314	13,306	1,056	38,881	32,047
Forging machines, and all other metal forming type machine tools 9/.....	217	53,356	32,638	307	88,117	55,606
Remanufactured metal forming machines 9/.....	(D)	(D)	(D)	(D)	(D)	(X)

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. X Not applicable.

1/Data includes the value of all types of machines exported, as reported by MQ333W survey panel.

2/Data were included in total "Metal cutting type machine tools."

3/Data included in "Horizontal NC turning machines, valued at \$3,025 or more."

4/Data included in "Chuck sizes 15 inches and over and multiple spindle."

5/Data for export shipments included in "Drill, mill and bore, vertical (automatic tool change)."

6/Data for shipments of numerically controlled machines included in "Y-axis travel 20 inches through 26 inches."

7/Data for export shipments included in "Drill, mill and bore, horizontal (automatic tool change)."

8/Data for shipments of numerically controlled machines included in "Over 800mm pallet."

9/Data for "Remanufactured metal forming machines" included in "Forging machines, and all other metal forming type machine tools."

Table 4. Shipments, Exports, and Imports of Metalworking Machinery: 2002 and 2001
 [Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise 1/ 2/		Imports for consumption 1/ 3/	
	Quantity	Value	Quantity	Value at port	Quantity	Value 4/
2002						
Boring and drilling machines, excluding multi-function NC machines, machining centers:						
Boring machines:						
Valued under \$3,025 each.....	(X)	(X)	5,968	905	307	250
Valued at \$3,025 each or more.....	946	128,329	180	10,420	605	62,408
Drilling machines:						
Valued under \$3,025 each.....	901	1,929	5,532	3,528	268,109	21,571
Valued at \$3,025 each or more 5/.....	111	15,208	611	22,490	999	43,716
Gear cutting machines 5/.....	672	111,048	2,360	15,619	264	32,517
Grinding, polishing, buffing, honing, and lapping machinery (except gear tooth grinding, lapping, polishing, and buffing machines):						
Valued under \$3,025 each.....	33,973	11,451	57,846	10,483	963,202	31,396
Valued at \$3,025 each or more.....	2,220	199,240	4,429	128,888	5,841	253,235
Lathes (turning machines) under \$3,025.....	(D)	(D)	903	1,280	15,700	11,419
Horizontal NC turning machines.....	1,793	132,365	291	35,844	3,010	317,005
Vertical NC turning machines.....	(D)	(D)	91	10,096	455	70,838
Nonnumerically controlled turning machines.....	(D)	(D)	653	10,363	2,926	52,001
Milling machines:						
Valued under \$3,025 each.....	(D)	(D)	3,898	5,638	9,368	6,746
Valued at \$3,025 each or more.....	369	56,125	2,139	57,496	3,219	95,053
Machining centers (multifunction NC machines):						
Drill, mill, and bore, vertical (automatic tool change):						
Y-axis travel less than 20 inches and 20 inches through 26 inches.....	3,908	174,343	485	56,143	1,540	120,704
Y-axis travel 26 inches and over.....	327	38,387	15	2,427	471	72,937
Drill, mill, and bore, horizontal (automatic tool change).....	158	43,175	44	12,519	980	278,195
Other machining centers.....	974	17,734	360	24,661	168	56,208
Station type machines.....	66	169,896	83	46,762	362	159,917
Other metal cutting machine tools:						
Valued under \$3,025 each.....	10,391	9,290	(NA)	(NA)	(NA)	(NA)
Valued at \$3,025 each or more.....	5,159	229,005	4,354	117,117	5,687	154,166
Punching and shearing machines:						
Valued under \$3,025 each.....	1,261	1,808	3,659	1,562	10,593	3,972
Valued at \$3,025 each or more.....	4,346	104,117	1,416	76,014	1,771	64,641
Bending and forming machines:						
Valued under \$3,025 each.....	1,526	2,190	17,772	4,293	89,690	7,483
Valued at \$3,025 each or more.....	2,831	139,083	1,855	58,083	8,068	225,699
Presses (except forging presses).....	7,682	140,063	17,153	77,079	19,458	171,588
Forging machines, including presses 6/.....	(D)	(D)	203	32,678	1,500	49,423
All other metal forming type machine tools:						
Valued under \$3,025 each.....	31,205	28,047	(NA)	(NA)	(NA)	(NA)
Machines valued at \$3,025 each or more:						
Die casting machines 6/.....	(D)	(D)	2,443	24,704	2,323	42,801
Thread rolling machines	29	2,918	57	1,308	52	4,159
Other metal forming machines 6/.....	1,798	139,837	(NA)	(NA)	(NA)	(NA)

2001

Boring and drilling machines, excluding multi-function NC machines, machining centers:						
Boring machines:						
Valued under \$3,025 each.....	(X)	(X)	817	566	436	412
Valued at \$3,025 each or more.....	987	124,763	221	14,884	793	75,239
Drilling machines:						
Valued under \$3,025 each.....	1,639	3,743	5,857	3,803	242,833	19,439
Valued at \$3,025 each or more 5/.....	177	18,833	1,142	41,096	1,009	42,996
Gear cutting machines 5/.....	646	137,232	6,413	36,372	397	52,975

Table 4. Shipments, Exports, and Imports of Metalworking Machinery: 2002 and 2001
 [Quantity in units. Value in thousands of dollars]

Product description	Manufacturers' shipments		Exports of domestic merchandise 1/ 2/		Imports for consumption 1/ 3/	
	Quantity	Value	Quantity	Value at port	Quantity	Value 4/
Grinding, polishing, buffing, honing, and lapping machinery (except gear tooth grinding, lapping, polishing, and buffing machines):						
Valued under \$3,025 each.....	40,236	15,302	41,448	9,361	868,424	30,143
Valued at \$3,025 each or more.....	3,904	352,413	3,505	121,968	7,437	283,327
Lathes (turning machines) under \$3,025.....	(D)	(D)	1,908	1,422	16,026	11,337
Horizontal NC turning machines.....	2,465	203,538	676	74,391	5,224	512,750
Vertical NC turning machines.....	154	50,130	54	6,204	555	87,629
Nonnumerically controlled turning machines.....	330	8,352	811	15,055	3,803	72,935
Milling machines:						
Valued under \$3,025 each.....	(D)	(D)	2,323	3,337	8,831	8,043
Valued at \$3,025 each or more.....	1,990	137,778	1,046	43,521	5,254	108,621
Machining centers (multifunction NC machines):						
Drill, mill, and bore, vertical (automatic tool change):						
Y-axis travel less than 20 inches and 20 inches through 26 inches.....	4,755	250,618	686	76,593	2,637	216,370
Y-axis travel 26 inches and over.....	466	63,915	31	11,703	861	108,318
Drill, mill, and bore, horizontal (automatic tool change).....	257	55,665	35	10,429	1,567	457,334
Other machining centers.....	1,952	65,295	356	28,851	118	27,142
Station type machines.....	151	347,948	103	56,632	592	217,838
Other metal cutting machine tools:						
Valued under \$3,025 each.....	10,856	10,227	(NA)	(NA)	(NA)	(NA)
Valued at \$3,025 each or more.....	6,204	266,127	4,521	134,717	7,850	236,036
Punching and shearing machines:						
Valued under \$3,025 each.....	639	1,187	15,808	3,033	14,681	3,619
Valued at \$3,025 each or more.....	5,678	154,129	2,073	81,426	2,131	144,030
Bending and forming machines:						
Valued under \$3,025 each.....	1,631	2,283	8,200	3,046	66,205	6,476
Valued at \$3,025 each or more.....	3,359	200,303	1,990	70,018	8,877	290,874
Presses (except forging presses).....	10,059	180,347	11,958	77,757	17,972	362,928
Forging machines, including presses 6/.....	(D)	(D)	327	48,904	1,936	120,563
All other metal forming type machine tools:						
Valued under \$3,025 each.....	39,575	35,728	(NA)	(NA)	(NA)	(NA)
Machines valued at \$3,025 each or more:						
Die casting machines 6/.....	(D)	(D)	985	17,236	1,456	72,780
Thread rolling machines.....	56	9,042	34	1,933	98	10,093
Other metal forming machines 6/.....	1,983	187,239	(NA)	(NA)	(NA)	(NA)

D Withheld to avoid disclosing data for individual companies. NA Not available. X Not applicable.

1/For a comparison of North American Industry Classification System (NAICS)-based product codes, schedule B export codes, and HTSUSA import codes, see Table 5.

2/Source: Census Bureau report EM 545, U.S. Exports.

3/Source: Census Bureau report IM 145, U.S. General Imports for Consumption.

4/This dollar value represents the c.i.f. (cost, insurance, and freight) value at first port of entry in the United States plus import duties.

5/Manufacturing shipments data for part of "Drilling machines valued at \$3,025 each or more" have been combined with "Gear cutting machines" to avoid disclosing individual company data.

6/Data included with "Other metal forming machines."

Table 5. Comparison of the North American Industry Classification (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2002

Product code	Product description	Export code 1/	Import code 2/
	Boring machines, excluding multifunction NC machines, machining centers:		
333512A101	All boring machines valued under \$3,025 each	8459.39.0020 8459.40.0020	8459.39.0020 8459.40.0020
	Machines valued at \$3,025 each or more:		
333512A103	Horizontal boring, drilling, and milling machines, includes floor, table and rail mounted, and all other boring machines (except boring lathes)	8459.31.0010 8459.31.0040 8459.31.0070 8459.39.0040 8459.39.0050 8459.40.0040 8459.40.0050 8459.40.0070 8459.40.0080	8459.31.0010 8459.31.0040 8459.31.0070 8459.39.0040 8459.39.0050 8459.40.0040 8459.40.0050 8459.40.0070 8459.40.0080
333512A105	Precision and jig boring machines, including horizontal, vertical, and all other precision boring machines	8459.10.0000	8459.10.0000
	Drilling machines, excluding machining centers:		
333512A111	All drilling machines valued under \$3,025 each	8459.29.0020	8459.29.0020
	Machines valued at \$3,025 each or more:		
333512A113	Vertical, upright drilling machines, including plain upright and heavy duty	8459.29.0070	8459.29.0070
	Multiple spindle drilling machines (cluster of spindles driven from one central power unit):		
333512A119	Adjustable joint and fixed center type	8459.29.0040	8459.29.0040
333512A121	All other automatic multiple spindle drilling machines, including indexing turret head (fixed column and table)		
333512A117	Deep hole drilling machines	8459.21.0080	8459.21.0080
333512A123	All other drilling machines, n.e.c., including bench type sensitive, vertical n.e.c., and radial	8459.29.0050 8459.29.0090 8461.40.1050	8459.29.0050 8459.29.0090 8461.40.1020
3335121200	Gear cutting machines, includes gear hobbers, shapers, teeth finishing, bevel gear generators, and all other gear cutting machines	8461.40.1070 8461.40.1090 8461.40.5040 8461.40.5060	8461.40.1030 8461.40.1040 8461.40.1060 8461.40.5040 8461.40.5050 8461.40.5070
	Grinding, polishing, buffing, honing, and lapping machinery (except gear tooth grinding, lapping, polishing, and buffing machines):		
3335122001	All grinding, polishing, buffing, honing, and lapping machines valued under \$3,025 each	8460.39.0020 8460.40.0020 8460.90.0020	8460.39.0020 8460.40.8020 8460.90.8020
	Machines valued at \$3,025 each or more:		
	External cylindrical grinding machines:		
3335122008	Plain and universal, including angular wheel types	8460.21.0080	8460.21.0080
3335122016	Roll, chucking, centerless, and other cylindrical grinding machines	8460.29.0010 8460.29.0030	8460.29.0010 8460.29.0030
3335122036	All other disc grinders, includes bench, floor, snag, double spindle grinders, and abrasive belt grinders		

Continued

Table 5. Comparison of the North American Industry Classification (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2002

Product code	Product description	Export code 1/	Import code 2/
3335122051	All other grinding machines n.e.c., including planer type, and thread grinding machines	8460.29.0050	8460.29.0050
3335122022	Surface grinding machines	8460.11.0080 8460.19.0010 8460.19.0050	8460.11.0080 8460.19.0010 8460.19.0050
3335122042	Tool, cutter, and drill point grinding machines, including universal and special Honing and lapping machines, except gear honing and lapping:	8460.31.0080	8460.31.0080
3335122056	Internal, including combination bore, hone, and external (except flat surface lapping machines)	8460.40.0060 8460.40.0080	8460.40.4060 8460.40.8080
3335122061	Flat surface lapping machines, except gear lapping	8460.90.0060	8460.90.4060
3335122066	Polishing and buffing machines (including speed lathes and multistation type)	8460.90.0080	8460.90.8080
Lathes (turning machines):			
3335123031	All lathes valued under \$3,025 each	8458.19.0020 8458.99.5060	8458.19.0020 8458.99.5060
Machines valued at \$3,025 each or more:			
Horizontal spindle:			
3335123001	Multiple spindle NC turning machine	8458.11.0010	8458.11.0010
Single spindle NC turning machine:			
3335123007	Chuck sizes less than 10"	8458.11.0050	8458.11.0050
3335123016	Chuck sizes from 10" but less than 15"	8458.11.0090	8458.11.0090
3335123021	Chuck sizes 15" and over		
3335123026	Vertical spindle	8458.91.1060 8458.91.1080 8458.91.5050 8458.91.5070	8458.91.1060 8458.91.1080 8458.91.5050 8458.91.5070
3335123034	Nonnumerically controlled turning machines valued at \$3,025 each or more	8458.19.0030 8458.19.0050 8458.19.0070 8458.19.0090 8458.99.1050 8458.99.5090	8458.19.0030 8458.19.0050 8458.19.0070 8458.19.0090 8458.99.1050 8458.99.5090
Milling machines, excluding machining centers:			
3335124001	All milling machines valued under \$3,025 each	8459.59.0020 8459.69.0020	8459.59.0020 8459.69.0020
Machines valued at \$3,025 each or more:			
3335124006	General purpose, knee milling machines all types	8459.51.0080 8459.59.0030	8459.51.0080 8459.59.0030
Automatic and manufacturing bed type:			
3335124011	Single spindle, multiple spindle and special purpose machines	8459.61.0080	8459.61.0080
3335124021	All other milling machines, n.e.c., (including planer type and thread milling machines)	8459.69.0050 8459.69.0070 8459.69.0090	8459.69.0050 8459.69.0070 8459.69.0090

Continued

Table 5. Comparison of the North American Industry Classification (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2002

Product code	Product description	Export code 1/	Import code 2/
	Machining centers (multifunctions NC machines):		
	Drill, mill, and bore, vertical (automatic tool change):		
3335127001	Y-axis travel less than 20"	8457.10.0015	8457.10.0015
3335127006	Y-axis travel 20" through 26"		
3335127011	Y-axis travel over 26"	8457.10.0025	8457.10.0025
3335127012	Under 500mm pallet	8457.10.0035	8457.10.0055
3335127013	500mm-800mm pallet		8457.10.0060
3335127014	Over 800mm pallet		8457.10.0065
			8457.10.0070
3335127046	All other machining centers, incld. special machining centers, special adapting of standard machining centers, and machining centers with indexing turret	8457.10.0045	8457.10.0075
	Station type machines:		
3335128001	Dial or rotary, trunnion, and center column	8457.20.0010	8457.20.0010
3335128006	Transfer (free, palletized shuttle)	8457.20.0090	8457.20.0090
3335128011	Other station type n.e.c.	8457.30.0010	8457.30.0010
		8457.30.0090	8457.30.0090
	Other metal cutting machine tools:		
		8459.70.0060	8459.70.8060
3335129001	Other metal cutting machine tools n.e.c. valued under \$3,025	8461.20.0070	8461.20.8070
		8461.30.0040	8461.30.8040
		8461.50.0020	8461.50.8020
		8461.90.6020	8461.90.6020
		8461.90.6050	8461.90.6050
	Machines valued at \$3,025 each or more:		
3335129006	Broaching machines, including internal surface and all other broaching machines	8461.30.0060	8461.30.4060
		8461.30.0080	8461.30.8080
	Sawing and cutoff machines:		
3335129022	Band saws - vertical	8461.50.0050	8461.50.4050
3335129023	Band saws - horizontal	8461.50.0090	8461.50.8090
3335129026	All other sawing and cutoff machines		
3335129031	Spark erosion, ultrasonic and electrolytic machines all types	8456.20.0000	8456.20.1010
		8456.30.0000	8456.20.1050
		8456.99.3005	8456.30.1020
		8456.99.3040	8456.30.1050
		8456.99.3060	8456.30.1070
		8456.99.3080	8456.99.3005
			8456.99.3040
			8456.99.3060
			8456.99.3080
3335129036	Miscellaneous metal cutting machine tools, including rifling, centering, keyseating, pointing, chemfering, facing, shaving, grooving, countersinking, burring, reaming, screw and nut slotting machines, threading planers, and shapers	8456.10.0000	8456.10.1010
		8459.70.0020	8456.10.1020
		8459.70.0080	8459.70.4000
		8461.20.0010	8459.70.8080
		8461.20.0090	8461.20.4000
		8461.90.3040	8461.20.8090
		8461.90.3080	8461.90.3040
		8461.90.6030	8461.90.3080
		8461.90.6090	8461.90.6030
			8461.90.6090
	Punching and shearing machines:		
3335131001	All punching and shearing machines valued under \$3,025 each	8462.39.0020	8462.39.0020
		8462.49.0020	8462.49.0020

Continued

Table 5. Comparison of the North American Industry Classification (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2002

Product code	Product description	Export code 1/	Import code 2/
	Machines valued at \$3,025 or more:		
	Power operated only:		
	Plate shearing machines (squaring, slitting, etc.):		
3335131016	Mechanical		
3335131021	Hydraulic	8462.31.0080	8462.31.0080
3335131006	Punches, including combination punching and shearing machines	8462.39.0050	8462.39.0050
		8462.41.0080	8462.41.0080
3335131011	Punching machines fixed position and two axes positioning table	8462.49.0050	8462.49.0050
3335131026	Other power operated punching & shearing mach.		
	Bending and forming machines:		
3335131031	All bending and forming machines valued under \$3,025	8462.29.0020	8462.29.8025
	Machines valued at \$3,025 each or more:		
3335131036	Press brakes all types	8462.21.0080	8462.21.4085
3335131042	Roll bending machines, including sheet, plate, angles, bars, shapes, and tubes	8462.29.0030	8462.21.8085
		8462.29.0040	8462.29.4085
3335131051	Rotary bending and forming machines, including rotary head	8462.29.0050	8462.29.8035
			8462.29.8045
3335131061	Other bending and forming machines, incld. folders		8462.29.8055
	Presses except forging presses:		
3335133001	All presses valued under \$3,025 each	8462.99.0020	8462.99.8020
	Machines valued at \$3,025 each or more:		
	Mechanical		
	Open back inclinable (gap type):		
3335133006	50 tons and under	8462.99.0030	8462.99.4030
3335133013	Over 50 tons	8462.99.0040	8462.99.8045
	Machines valued at \$3,025 each or more, continued:		
	Vertical straight sided and arch frame, excluding knuckle joint, including cam and crank:		
	Single action:		
3335133021	Single point	8462.99.0060	8462.99.8060
	Two point:		
3335133028	150 tons and under		
3335133033	Over 150 tons		
3335133036	Automatic presses, strip or coil field		
3335133041	Other mechanical presses, including end wheel type bulldozer, double and triple action, and transfer fed presses, four point and knuckle joint (excluding automated lines of standard equipment)		
	Hydraulic presses (metalworking only)		
	Vertical single action, all tonnages		
3335133046	Housing or straight side type		
3335133051	Column type (open rod)		
	Gap or C-frame:		
3335133056	15 tons and under	8462.91.0060	8462.91.4060
3335133061	16 tons to 35 tons	8462.91.0090	8462.91.8090
3335133066	Over 35 tons		
3335133071	Other hydraulic and pneumatic presses, including horizontal		

Continued

Table 5. Comparison of the North American Industry Classification (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2002

Product code	Product description	Export code 1/	Import code 2/
3335135076	Forging machines, (including forging presses and die stamping presses)	8462.10.0030 8462.10.0035 8462.10.0055	8462.10.0030 8462.10.0035 8462.10.0055
3335135001	All other metal forming type machine tools: All other metal forming type machine tools valued under \$3,025 each Machines valued at \$3,025 each or more:	8463.20.0060 8463.90.0060	8463.20.0060 8463.90.0060
3335135016	Die casting machines all types	8454.30.0010	8454.30.0010
3335135006	Thread rolling machinery	8463.20.0080	8463.20.0080
3335135011	Metal container-making machinery		
3335135021	Riveting machines, except hand held portable types	8463.90.0080	8463.90.0080
3335135026	All other metal forming type machine tools n.e.c.		

n.e.c. Not elsewhere classified.

1/Source: 2002 edition, Harmonized System-Based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, Annotated (2002).

Appendix.

General CIR Survey Information, Explanation of General Terms and Historical Note

GENERAL

The CIR program has been providing monthly, quarterly, and annual measures of industrial activity for many years. Since 1904, with its cotton and fats and oils surveys, the CIR program has formed an essential part of an integrated statistical system involving the quinquennial economic census, manufacturing sector, and the annual survey of manufactures. The CIR surveys, however, provide current statistics at a more detailed product level than either of the other two statistical programs.

The primary objective of the CIR program is to produce timely, accurate data on production and shipments of selected products. The data are used to satisfy economic policy needs and for market analysis, forecasting, and decision making in the private sector. The product-level data generated by these surveys are used extensively by individual firms, trade associations, and market analysts in planning or recommending marketing and legislative strategies, particularly if their industry is significantly affected by foreign trade. Although production and shipments information are the two most common data items collected, the CIR program collects other measures also such as inventories, orders, and consumption. These surveys measure manufacturing activity in important commodity areas such as textiles and apparel, chemicals, primary metals, computer and electronic components, industrial equipment, aerospace equipment, and consumer goods.

The CIR program uses a unified data collection, processing, and publication system. The U.S. Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic census, manufacturing sector. The manufacturing sector provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is too large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. The CIR program includes a group of mandatory and voluntary surveys. Typically the monthly and quarterly surveys are conducted on a voluntary basis. Those companies that choose not to respond to the voluntary surveys are required to submit a mandatory annual counterpart corresponding to the more frequent survey.

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS), 1997

The adoption of the North American Industry Classification System (NAICS) in the 1997 Economic Census has had a major impact on the comparability of current and historic data. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those that left manufacturing are logging and portions of publishing. Prominent among the industries that came into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. The net effect of the classification changes are such that if the 1997 value of shipments data for all manufacturers were tabulated on an SIC basis, it would be approximately 3 percent higher.

Listed below are the NAICS sectors:

- 21 Mining
- 22 Utilities
- 23 Construction
- 31-33 Manufacturing
- 42 Wholesale Trade
- 44-45 Retail Trade
- 48-49 Transportation and Warehousing
- 51 Information
- 52 Finance and Insurance
- 53 Real Estate and Rental and Leasing
- 54 Professional, Scientific, and Technical Services
- 55 Management of Companies and Enterprises
- 56 Administrative and Support and Waste Management and Remediation Services
- 61 Educational Services
- 62 Health Care and Social Assistance
- 71 Arts, Entertainment, and Recreation
- 72 Accommodation and Food Services
- 81 Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

FUNDING

The Census Bureau funds most of the surveys. However, a number of surveys are paid for either fully or partially by other Federal Government agencies or private trade associations. A few surveys are mandated, but all are authorized by Title 13 of the United States Code.

RELIABILITY OF DATA

Survey error may result from several sources including the inability to obtain information about all cases in the survey, response errors, definitional difficulties, differences in the interpretation of questions, mistakes in recording or coding the reported data, and other errors of collection, response, coverage, and estimation. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to these nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is the imputing of data for nonrespondents, for late reporters, and for data that fail logic edits. Missing figures are imputed based on period-to-period movements shown by reporting firms. A figure is considered to be an impute if the value was not directly reported on the questionnaire, directly derived from other reported items, directly available from supplemental sources, or obtained from the respondent during the analytical review phase. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are suppressed or footnoted. The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

DATA REVISIONS

Statistics for previous years may be revised as the result of corrected figures from respondents, late reports for which imputations were originally made, or other corrections. Data that have been revised by more than 5 percent from previously published data are indicated by footnotes.

DISCLOSURE

The Census Bureau collects the CIR data under the authority of Title 13, United States Code, which specifies that the information can only be used for statistical purposes and cannot be published or released in any manner that would identify a person, household, or establishment. "D" indicates that data in the cell have been suppressed to avoid disclosure of information pertaining to individual companies.

EXPLANATION OF GENERAL TERMS

Capacity. The maximum quantity of a product that can be produced in a plant in 1 day if operating for 24 hours. Includes the capacity of idle plants until the plant is reported to be destroyed, dismantled, or abandoned.

Consumption. Materials used in producing or processing a product or otherwise removing the product from the inventory.

Exports. Includes all types of products shipped to foreign countries, or to agents or exporters for reshipment to foreign countries.

Gross shipments. The quantity or value of physical shipments from domestic establishments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale or use. Shipments of products purchased for resale are omitted. Shipments of products made under toll arrangements are included.

Interplant transfers. Shipments to other domestic plants within a company for further assembly, fabrication, or manufacture.

Inventories. The quantity or value of finished goods, work in progress, and materials on hand.

Machinery in place. The number of machines of a particular type in place as of a particular date whether the machinery was used for production, prototype, or sampling, or was idle. Machinery in place includes all machinery set up in operating positions.

Net receipts. Derived by subtracting the materials held at the end of the previous month from the sum of materials used during the current month.

Production. The total volume of products produced, including: products sold; products transferred or added to inventory after adjustments for breakage, shrinkage, and obsolescence, plus any other inventory adjustment; and products that undergo further manufacture at the same establishment.

Quantities produced and consumed. Quantities of each type of product produced by a company for internal consumption within that same company.

Quantity and value of new orders. The sales value of orders received during the current reporting period for products and services to be delivered immediately or at some future date. Also represents the net sales value of contract change documents that increase or decrease the sales value of the orders to which they are related, when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those that are supported by binding legal documents such as signed contracts or letter contracts.

Quantity and value of shipments. The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and

returns. Shipments to a company's own branches are assigned the same value as comparable appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

Stocks. Total quantity of ending finished inventory.

Unfilled orders (backlog). Calculated by adding net new orders and subtracting net sales from the backlog at the end of the preceding year.

HISTORICAL NOTE

Data on metalworking machinery have been collected by the Census Bureau since 1942. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library.