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WHEN GIANTS FALL

Shutdown of one or more U.S. automakers could eliminate up to 3.3 million U.S. jobs

BY ROBERT E. SCOTT

The U.S. motor vehicle industry is one of the largest, most complex and highly integrated sectors of the U.S. economy. The bankruptcy of one or more of the U.S. automakers and a collapse of the domestic auto assembly industry could eliminate up to 3.3 million U.S. jobs within the next year. The collapse of just one company, General Motors (GM), would lead to an estimated reduction of 900,000 jobs. Using this range of job-loss estimates, unemployment would rise by 3.0 to 8.9 percentage points in the nine hardest hit states in the United States. Jobs losses would be widespread throughout the U.S. economy. After the U.S. auto market recovers from the current historic recession the U.S. trade deficit could rise by at least \$110 billion per year as imported vehicles displace domestic brands, increasing the deficit by 16% and putting additional downward pressure on the U.S. dollar and living standards.

In addition to its finding that a bankruptcy-related shutdown of the U.S. motor vehicle industry could cost up to 3.3 million U.S. jobs, this study finds:

- The 900,000 to 3.3 million jobs lost nationwide would be distributed among all 50 states and the District of Columbia, with the biggest losers, in numeric terms: Michigan (112,500 to 407,300 jobs lost), California (84,500 to 305,900 jobs), Ohio (60,500 to 219,100 jobs), Texas (55,200 to 200,000), Illinois (42,800 to 154,900), Indiana (40,700 to 147,300), and New York (39,900 to 144,600) (Table 2a).
- The hardest-hit states, as a share of total state employment, are: Michigan (up to 407,300 jobs, 8.9% of state employment), Indiana (up to 147,300 jobs, 5.0% of employment), Kentucky (up to 75,000 jobs, 4.2% of employment), Alabama (up to 76,100 jobs, 4.0% of employment), Tennessee (up to 106,400, 4.0% of employment), and Ohio (up to 219,100 jobs, 4.0% of employment) (Table 2b).

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- Between 113,900 and 412,600 jobs would be lost in the motor vehicle and parts industries alone. Other hard hit manufacturing sectors include fabricated metal products (up to 60,500 jobs lost), primary metals (up to 33,700 jobs lost), plastic and rubber products (up to 23,600 jobs lost), non-electrical machinery (up to 19,800 jobs lost) and computer and electronic parts (up to 16,800 jobs lost) (Table 4).
- Service industries would also experience massive job losses including wholesale trade (up to 96,400 jobs lost), retail trade (up to 86,600 jobs lost), transportation (up to 69,500 jobs lost), finance and insurance (up to 30,300 jobs lost), professional, scientific, and technical services (up to 76,300 jobs lost), and administrative support and temp help services (up to 55,300 jobs lost) (Table 4).
- Jobs in the auto industry are some of the best paid in the economy, and when workers spend those wages they generate (on average) about 1.7 additional jobs for each job supported in the auto and related sectors. Thus, an auto industry shutdown would eliminate between 576,700 and 2.1 million “re-spending” jobs in the domestic economy (Table 4). These jobs would constitute the bulk of the jobs displaced by an auto industry bankruptcy.
- If the Big Three auto firms shut down, the U.S. trade deficit would rise by \$109.3 billion, a significant (15.6%) increase in the U.S. goods and services trade deficit relative to 2007 levels. This increase would substantially exceed the combined U.S. goods trade deficit with Japan and South Korea in 2007 (\$95.7 billion), which was second only to the U.S. deficit with China. Overall U.S. motor vehicle exports would fall by 61%, total imports would rise by 21%, and the U.S. auto trade deficit would rise from \$123.5 billion to \$232.8 billion (88%).

Background

The auto industry has seen a dramatic collapse in recent months, largely as a result of the financial crisis and the onset of the recession that began at the start of the year. Auto sales, relative to the population, are at their lowest

level since WWII. More than 16 million light vehicles were sold in 2006 and 2007. That fell to an annual rate of 10.6 million units in October, a 35% decline from 2007. The collapse in light vehicle sales has hit *both* import and domestic companies. Partial data for November have just been released. GM sales fell 41% in November, but Nissan (down 42%) was harder hit. Ford’s sales were off 30%, but Honda’s fell 32%, and Hyundai was off 40%. Overall, domestic sales fell 40%, and Asian producers were off 35%. Every company experienced a sharp drop in sales last month (Wardsauto 2008). The broad-based drop-off in sales indicates that overall economic conditions are primarily to blame for the decline, rather than decisions specific to U.S. automakers.

Some public officials and commentators have proposed that domestic automakers should be allowed or encouraged to enter bankruptcy, suggesting that the industry should go through a restructuring process, similar to those experienced by many airlines and other companies (Romney 2008). However, bankruptcy is not an option for domestic automakers. Most customers have indicated in surveys that they would be unwilling to purchase a vehicle from a company that was bankrupt, because they might not be able to obtain a warranty or repairs. Hence, a bankruptcy reorganization, by whatever name, is a one-way ticket to a long-run domestic auto-industry collapse.

Any effort to restructure domestic automakers, either through a normal Chapter 11 bankruptcy or a “pre-packaged” bankruptcy with government support, is likely to end in the failure of one or more auto companies and a liquidation of company assets through a Chapter 7 proceeding (Cohn 2008). The consequences would be devastating for the entire U.S. motor vehicle industry and for the economy as a whole. The Center for Automotive Research has suggested that the bankruptcy of one or more of the Detroit-based automakers would lead to widespread bankruptcies throughout the thousands of firms that supply parts to domestic and foreign auto producers. As a result, most or all assembly of cars and light trucks by domestic and foreign automakers in the United States could grind to a halt in relatively short order.

In this regard it is worth noting that GM has said that it is consuming more than \$2 billion per month in cash

reserves, and that it may run out of “sufficient cash for operations” by the end of 2008 without federal help (Vlasic 2008). Industry analysts agree that GM is the most vulnerable of the Detroit automakers. In 2007, it produced more than one-quarter of all vehicles manufactured in the United States. Its collapse could well be the trigger that brings domestic auto and parts production to a halt, shutting down the entire U.S. vehicle supply chain.

Estimates of job losses resulting from auto industry shutdown

This paper estimates the employment impacts of motor vehicle production using the direct and indirect labor requirements of producing output in a given domestic industry. The model includes 201 U.S. industries, 84 of which are in the manufacturing sector. See the Methodology Appendix for further details.

Three types of job generation are evaluated in this study. The input-output model is used to estimate the *direct* and *indirect* effects of the shutdown of one or more domestic automakers. Direct effects include only those jobs supported in motor vehicle assembly. The indirect effects include all jobs supported in industries that provide inputs into vehicle production. This would include auto parts, electronics, steel, tires, aluminum, plastics, and various manufactured products that are used in vehicle production. Indirect effects also include a large number of service jobs that support vehicle production and sales. These include wholesale and retail sales, scientific and

technical services, software design, accounting, legal and management services.

The third type of job generation is caused by *re-spending*. These are jobs supported by the wages earned by workers in both the motor vehicle industries, and in all the other sectors supported by vehicle production. When those workers spend their wages, it creates demand for additional products, which supports additional jobs in their local and the national economy. Re-spending impacts in this study reflect average wage levels in the auto industry (Bivens 2003). The re-spending multipliers used in this study are much smaller than other publicly available project-spending multipliers (such as the BEA’s Regional Input-Output Modeling System, RIMS II); see Appendix for further details.

Job loss scenarios

Three scenarios were developed for this study. Each assumes that bankruptcy results in a complete shutdown of one or more U.S. vehicle producers. The first scenario assumes that General Motors alone fails, but that the rest of the domestic industry is able to stay in operation. The second scenario assumes that all three U.S.-based auto companies go out of business, but that the domestic operations of foreign-owned auto companies are able to keep running. The third scenario assumes that the entire U.S. light vehicle assembly industry, including foreign-owned assembly operations (so-called transplants), shuts down.

TABLE 1

Jobs lost due to auto industry shutdowns*

	GM shutdown only	Detroit-3 shutdown	Total industry shutdown
<i>Direct jobs</i>	53,200	122,800	192,800
<i>Indirect jobs</i>	284,000	655,000	1,028,500
<i>Respending jobs</i>	576,700	1,329,900	2,088,400
Total employment impact	914,000	2,107,700	3,309,700

* Assumes complete shutdown of segment indicated in each scenario, including associated jobs in supplier industries.

SOURCE: EPI Analysis of Bureau of Labor Statistics data. See text for details.

The analysis is based on total estimated employment in U.S. vehicle assembly in December 2007 of 192,800 workers (Bureau of Labor Statistics 2008c).¹ Approximately 10 million vehicles were manufactured in the United States in 2007, including 6.4 million assembled by U.S.-based automakers and 3.6 million in foreign-owned plants (Wardsauto 2008). The analysis assumes that assembly jobs are proportionate to production for each domestic and foreign auto producer. Input output-based employment requirement multipliers were used

to estimate the number of jobs supported by each job displaced in motor vehicle assembly. These modified employment requirements multipliers were used to prepare the analysis in scenarios 1-3 (see Methodology Appendix for further details).

Results

Table 1 summarizes estimates of the number of jobs that would be lost in each of the three scenarios. If GM alone were to shut down (scenario 1), 53,200 (direct) jobs

TABLE 2 A

Jobs lost due to auto industry shutdown, ranked by number of jobs lost

Rank	States	GM only	Total industry shutdown	Rank	States	GM only	Total industry shutdown
1	Michigan	112,500	407,300	27	Oklahoma	9,700	35,200
2	California	84,500	305,900	28	Iowa	9,400	33,900
3	Ohio	60,500	219,100	29	Mississippi	8,800	31,700
4	Texas	55,200	200,000	30	Connecticut	8,600	31,200
5	Illinois	42,800	154,900	31	Louisiana	7,900	28,500
6	Indiana	40,700	147,300	32	Kansas	7,700	27,900
7	New York	39,900	144,600	33	Arkansas	7,000	25,300
8	Florida	34,900	126,300	34	Utah	6,300	22,700
9	Pennsylvania	33,200	120,100	35	Nebraska	6,000	21,800
10	Tennessee	29,400	106,400	36	Nevada	5,200	19,000
11	North Carolina	26,400	95,600	37	New Hampshire	3,500	12,800
12	Wisconsin	23,600	85,400	38	West Virginia	3,500	12,700
13	Georgia	23,000	83,400	39	Idaho	3,300	12,000
14	Missouri	22,800	82,600	40	New Mexico	2,900	10,500
15	Alabama	21,000	76,100	41	Maine	2,800	10,300
16	Kentucky	20,700	75,000	42	Rhode Island	2,500	9,200
17	New Jersey	17,900	65,000	43	Delaware	2,000	7,100
18	South Carolina	16,100	58,200	44	Hawaii	1,800	6,700
19	Virginia	15,500	56,000	45	South Dakota	1,800	6,500
20	Washington	14,700	53,300	46	Montana	1,500	5,300
21	Minnesota	14,200	51,500	47	North Dakota	1,500	5,500
22	Arizona	13,100	47,500	48	Vermont	1,200	4,400
23	Massachusetts	12,800	46,200	49	Alaska	1,000	3,600
24	Maryland	10,300	37,200	50	Wyoming	1,000	3,600
25	Oregon	10,300	37,300	51	District of Columbia	900	3,300
26	Colorado	10,200	36,800		TOTAL U.S.	914,000	3,309,700

* Totals may vary slightly due to rounding errors.

SOURCE: EPI analysis of Bureau of Labor Statistics data.

TABLE 2 B

**Jobs lost due to auto industry shutdown,
ranked by share of state employment, 2007**

Rank	States	GM only		Total industry shutdown	
		Jobs	Share of total state employment	Jobs	share of total state employment
1	Michigan	112,500	2.5%	407,300	8.9%
2	Indiana	40,700	1.4	147,300	5.0
3	Kentucky	20,700	1.1	75,000	4.2
4	Alabama	21,000	1.1	76,100	4.0
5	Tennessee	29,400	1.1	106,400	4.0
6	Ohio	60,500	1.1	219,100	4.0
7	South Carolina	16,100	0.9	58,200	3.2
8	Wisconsin	23,600	0.8	85,400	3.0
9	Missouri	22,800	0.8	82,600	3.0
10	Mississippi	8,800	0.8	31,700	2.8
11	Illinois	42,800	0.7	154,900	2.6
12	North Carolina	26,400	0.7	95,600	2.5
13	Nebraska	6,000	0.7	21,800	2.4
14	Oklahoma	9,700	0.6	35,200	2.4
15	Oregon	10,300	0.6	37,300	2.3
16	Iowa	9,400	0.6	33,900	2.3
17	Arkansas	7,000	0.6	25,300	2.2
18	Pennsylvania	33,200	0.6	120,100	2.1
19	Georgia	23,000	0.6	83,400	2.1
20	Utah	6,300	0.6	22,700	2.1
21	Idaho	3,300	0.6	12,000	2.1
22	Texas	55,200	0.6	200,000	2.1
23	California	84,500	0.6	305,900	2.1
24	Arizona	13,100	0.6	47,500	2.1
25	Kansas	7,700	0.6	27,900	2.1
26	New Hampshire	3,500	0.6	12,800	2.0
27	Washington	14,700	0.5	53,300	2.0
28	Minnesota	14,200	0.5	51,500	1.9
29	Rhode Island	2,500	0.5	9,200	1.9
30	Connecticut	8,600	0.5	31,200	1.9
31	Nevada	5,200	0.5	19,000	1.8
32	Florida	34,900	0.5	126,300	1.8
33	Delaware	2,000	0.5	7,100	1.7
34	West Virginia	3,500	0.5	12,700	1.7
35	South Dakota	1,800	0.5	6,500	1.7
36	New York	39,900	0.5	144,600	1.7

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TABLE 2B (cont.)

Jobs lost due to auto industry shutdown, ranked by share of state employment, 2007

Rank	States	GM only		Total industry shutdown	
		Jobs	Share of total state employment	Jobs	Share of total state employment
37	Maine	2,800	0.5%	10,300	1.7%
38	Colorado	10,200	0.5	36,800	1.7
39	North Dakota	1,500	0.5	5,500	1.7
40	New Jersey	17,900	0.4	65,000	1.6
41	Virginia	15,500	0.4	56,000	1.6
42	Maryland	10,300	0.4	37,200	1.5
43	Louisiana	7,900	0.4	28,500	1.5
44	Wyoming	1,000	0.4	3,600	1.5
45	Vermont	1,200	0.4	4,400	1.5
46	Massachusetts	12,800	0.4	46,200	1.4
47	New Mexico	2,900	0.4	10,500	1.4
48	Montana	1,500	0.4	5,300	1.4
49	Alaska	1,000	0.3	3,600	1.2
50	Hawaii	1,800	0.3	6,700	1.2
51	District of Columbia	900	0.1	3,300	0.5
	TOTAL U.S.	914,000	0.7	3,309,700	2.5

* Totals may vary slightly due to rounding errors.

SOURCE: EPI analysis of Bureau of Labor Statistics data.

would be lost in motor vehicle assembly. An additional 284,000 (indirect) jobs would be lost in other supplier sectors in manufacturing, service, and resource industries, and 576,700 (re-spending) jobs would be lost due to the loss of income that would be suffered by those 337,300 workers. Thus, the collapse of GM alone would result in the loss of a total of 914,000 U.S. jobs.

If GM, Ford, and Chrysler were all shut down by a wave of auto-industry bankruptcies, more than twice as many jobs would be lost, including 122,800 direct jobs, 655,000 indirect jobs, and 1.3 million re-spending jobs, for a total of 2.1 million jobs lost. However, if the bankruptcy of one or more U.S.-based automakers brings about a complete collapse of the U.S. motor-vehicle assembly complex, as forecast by Cole et al. (2008), then up to 3.3 million total jobs would be lost, including all 192,800 assembly workers, 1.0 million indirect jobs and 2.1 million re-spending jobs.

State-by-state impacts

This study estimates the impacts of an auto industry shutdown using detailed data on employment by state in the 201 industries in the input output model used to estimate job losses in Table 1. A total industry shutdown would result in the loss of more than 100,000 jobs in each of 10 states including Michigan (407,300 jobs), California (305,900), Ohio (219,100), Texas (200,000), Illinois (154,900), Indiana (147,300), New York (144,600), Florida (126,300), Pennsylvania (120,100), and Tennessee (106,400), as shown in Table 2a.

The top-10 hardest hit states would each suffer the loss of at least 2.8 percentage points of total employment in the total shutdown scenario, including Michigan (up to 407,300 jobs, 8.9% of state employment), Indiana (up to 147,300 jobs, 5.0% of employment), Kentucky (up to 75,000 jobs, 4.2% of employment), Alabama

(up to 76,100 jobs, 4.0% of employment), Tennessee (up to 106,400 jobs, 4.0% of employment), Ohio (up to 219,100 jobs, 4.0% of employment), South Carolina (up to 58,200 jobs, 3.2% of employment), Wisconsin (up to 85,400 job, 3.0% of employment), Missouri (up to 82,600 jobs, 3.0% of employment), and Mississippi (up to 31,700 jobs, 2.8% of employment), as shown in **Table 2b**. Many states in the second tier of automakers would still be hard hit by an auto industry shutdown, including states such as Minnesota (up to 51,500 jobs

lost, 1.9% of employment), Maine (up to 10,300 jobs lost, 1.7% of employment), Virginia (up to 56,000 jobs, 1.6% of employment and Louisiana (up to 28,500 jobs, 1.5% of employment). These states would all suffer significant job losses. An alphabetic listing of jobs lost by state is shown in **Table 2c**.

Table 3 reports motor vehicle and parts industry job losses (only) by state. The hardest hit states would be Michigan (33,900 to 122,800 jobs lost), Ohio (11,300 to 40,900 jobs lost), and Indiana (9,200 to 33,400 jobs lost).

TABLE 2 C

Jobs lost due to auto industry shutdown, by state

States	GM only	Total industry shutdown	States	GM only	Total industry shutdown
Alabama	21,000	76,100	Montana	1,500	5,300
Alaska	1,000	3,600	Nebraska	6,000	21,800
Arizona	13,100	47,500	Nevada	5,200	19,000
Arkansas	7,000	25,300	New Hampshire	3,500	12,800
California	84,500	305,900	New Jersey	17,900	65,000
Colorado	10,200	36,800	New Mexico	2,900	10,500
Connecticut	8,600	31,200	New York	39,900	144,600
Delaware	2,000	7,100	North Carolina	26,400	95,600
District of Columbia	900	3,300	North Dakota	1,500	5,500
Florida	34,900	126,300	Ohio	60,500	219,100
Georgia	23,000	83,400	Oklahoma	9,700	35,200
Hawaii	1,800	6,700	Oregon	10,300	37,300
Idaho	3,300	12,000	Pennsylvania	33,200	120,100
Illinois	42,800	154,900	Rhode Island	2,500	9,200
Indiana	40,700	147,300	South Carolina	16,100	58,200
Iowa	9,400	33,900	South Dakota	1,800	6,500
Kansas	7,700	27,900	Tennessee	29,400	106,400
Kentucky	20,700	75,000	Texas	55,200	200,000
Louisiana	7,900	28,500	Utah	6,300	22,700
Maine	2,800	10,300	Vermont	1,200	4,400
Maryland	10,300	37,200	Virginia	15,500	56,000
Massachusetts	12,800	46,200	Washington	14,700	53,300
Michigan	112,500	407,300	West Virginia	3,500	12,700
Minnesota	14,200	51,500	Wisconsin	23,600	85,400
Mississippi	8,800	31,700	Wyoming	1,000	3,600
Missouri	22,800	82,600	TOTAL U.S.	914,000	3,309,700

* Totals may vary slightly due to rounding errors.

SOURCE: EPI analysis of Bureau of Labor Statistics data.

TABLE 3

**Motor vehicles and parts jobs lost by state
(excludes other indirect and re-spending jobs lost)**

Rank	States	GM only	Total industry shutdown	Rank	States	GM only	Total industry shutdown
1	Michigan	33,900	122,800	27	Kansas	600	2,300
2	Ohio	11,300	40,900	28	Arizona	500	1,700
3	Indiana	9,200	33,400	29	Utah	500	1,600
4	California	6,000	21,900	30	Louisiana	400	1,500
5	Tennessee	6,000	21,900	31	Connecticut	300	1,200
6	Illinois	4,900	17,800	32	Idaho	300	1,000
7	Kentucky	4,600	16,800	33	Massachusetts	300	1,000
8	Alabama	4,200	15,100	34	Maryland	300	900
9	Texas	3,300	12,100	35	Colorado	200	800
10	Missouri	3,100	11,200	36	Delaware	200	600
11	North Carolina	3,100	11,300	37	Maine	200	600
12	Wisconsin	2,700	9,700	38	New Jersey	200	800
13	New York	2,300	8,300	39	West Virginia	200	700
14	Pennsylvania	2,300	8,400	40	North Dakota	100	400
15	South Carolina	2,000	7,300	41	New Hampshire	100	400
16	Mississippi	1,500	5,300	42	Nevada	100	300
17	Georgia	1,100	4,000	43	Rhode Island	100	300
18	Oregon	1,100	3,900	44	South Dakota	100	300
19	Oklahoma	1,100	3,900	45	Alaska	-	-
20	Iowa	1,000	3,600	46	District of Columbia	-	-
21	Minnesota	900	3,300	47	Hawaii	-	-
22	Nebraska	800	2,900	48	Montana	-	-
23	Washington	800	2,800	49	New Mexico	-	-
24	Florida	700	2,400	50	Vermont	-	100
25	Virginia	700	2,700	51	Wyoming	-	-
26	Arkansas	600	2,200		TOTAL U.S.	113,900	412,600

* Totals may vary slightly due to rounding errors.

SOURCE: EPI analysis of Bureau of Labor Statistics data.

Industry-specific impacts—evidence of conservative assumptions

Approximately half of the direct and indirect jobs lost would be in the manufacturing sector, as shown in **Table 4**. Some sector highlights from this table were summarized above. That nearly half of the jobs lost would be in the service industries is indicative of the deep connections the motor vehicle industry has throughout the U.S. economy.

The data in **Table 4** also illustrate some of the ways in which this analysis provides a conservative estimate of

job losses associated with industry shutdowns. For example, there were 1.9 million workers employed in the retail “Motor vehicle and part” dealers industry in December 2007 (BLS 2008c), and according to the Census Bureau, about 71% of sales in this sector were made by new car dealers. However, **Table 4** estimates that only 23,900 to 86,600 jobs would be lost in this sector. Domestic auto-makers have much more extensive distribution networks than their foreign counterparts, so the shutdown of one or more of these firms would likely lead to widespread closures of dealerships and much larger job losses.

TABLE 4

Jobs lost due to auto industry shutdowns, by industry*

NAICS	Industry name	GM shutdown only	Detroit-3 shutdown	Total industry shutdown
111-114	Agriculture, Forestry, Fisheries	800	1,800	2,800
21	Mining	1,000	2,300	3,600
211	Oil and Gas	200	400	700
212-213	Minerals and Ores	800	1,900	2,900
221	Utilities	700	1,600	2,500
23	Construction	1,500	3,500	5,400
31-33	Manufacturing	169,700	391,300	614,500
311	Food and kindred products	300	700	1,000
312	Beverage and tobacco products	0	0	100
313	Textiles and fabrics	900	2,200	3,400
314	Textile mill products	1,100	2,500	3,900
315	Apparel and accessories	100	300	500
316	Leather and allied products	100	200	300
321	Wood products	700	1,700	2,600
322	Paper	1,000	2,300	3,700
323	Printed matter and related products	1,100	2,600	4,100
324	Petroleum and coal products	200	400	700
325	Chemicals	2,500	5,800	9,000
326	Plastics and rubber products	6,500	15,100	23,600
327	Nonmetallic mineral products	2,500	5,800	9,100
331	Primary metal	9,300	21,400	33,700
3311	Iron and steel mills ferroalloy	1,700	3,900	6,100
332	Fabricated metal products	16,700	38,500	60,500
333	Machinery, except electrical	5,500	12,600	19,800
334	Computer and electronic parts	4,600	10,700	16,800
3341	Computer and peripheral equipment	200	400	600
3342	Communications equipment	100	200	300
3343	Audio and video equipment	400	1,000	1,500
3344	Semiconductor and other electronic components	3,000	6,800	10,700
335	Electrical equipment, appliances, and component	1,500	3,500	5,400
336	Transportation equipment	114,300	263,500	413,800
3361-3363	Motor vehicles and parts	113,900	262,700	412,600
3364	Aerospace product and parts	200	400	700
337	Furniture and fixtures	200	500	800
339	Miscellaneous manufactured commodities	500	1,000	1,600

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TABLE 4 (cont.)

Jobs lost due to auto industry shutdowns, by industry*

NAICS	industry name	GM shutdown only	Detroit-3 shutdown	Total industry shutdown
42	Wholesale trade	26,600	61,400	96,400
44, 45	Retail trade	23,900	55,100	86,600
48, 49	Transportation	19,200	44,300	69,500
511-519	Information	4,100	9,500	14,900
511	Newspapers, books, and other published matter	900	2,100	3,400
521-525	Finance and insurance	8,400	19,300	30,300
531-533	Real estate and rental and leasing	2,800	6,400	10,000
541	Professional, scientific, and technical services	21,100	48,600	76,300
55	Management of companies and enterprises	7,100	16,400	25,700
561-562	Administrative and support and waste mgmt. and remediation svcs.	15,300	35,200	55,300
611	Education services	1,500	3,400	5,400
621-624	Health care and social assistance	100	300	400
711-713	Arts, entertainment, and recreation	1,600	3,700	5,800
721-722	Accommodation and food services	5,400	12,500	19,700
811-813	Other services	19,400	44,700	70,100
	Government	7,200	16,600	26,100
	Subtotal, direct and indirect	337,300	777,700	1,221,300
	Manufacturing share	50.3%	50.3%	50.3%
	Services share	48.5%	48.5%	48.5%
	Re-spending	576,700	1,329,900	2,088,400
	TOTALS	914,000	2,107,700	3,309,700

* Totals may vary slightly due to rounding errors.

SOURCE: EPI analysis of Bureau of Labor Statistics data.

The model also projects that the bankruptcy of one or more U.S. automakers would also have a relatively limited impact on overall employment in the U.S. motor vehicle and parts industry, as shown in **Table 5**, which reports the impacts of the shutdown on the major segments of the motor vehicle industry. Bankruptcy could eliminate up to 100% of employment in U.S. vehicle assembly, at least for a period of time. However, the model estimates that, at most, only 12.2% of employment in motor vehicle bodies and trailers would be lost, and at most 33.5% of parts production. Overall, only 42.6% of domestic motor vehicle industry jobs would be at risk in a shutdown.

These assumptions are highly conservative. The model used here assumes that other segments of the domestic motor vehicle industry are able to absorb a massive loss of demand from original equipment assemblers and still remain viable, ongoing businesses. While typical of input-output models, this assumption does not reflect the reality of today's highly leveraged business environment, where companies often operate on razor-thin margins between profitability and failure.² In reality, supplier companies that lose much of their business are unlikely to survive until the Big Three's competitors gear up production to replace them.

TABLE 5

**Motor vehicle industry job loss analysis*
(excludes other indirect and respending jobs)**

NAICS Sector	Estimated seasonally adjusted employment December-07	Job loss scenario			Total shutdown
		GM shutdown only	Detroit-3 shutdown	Total industry shutdown	Share of industry employment
3361—Motor vehicle assembly	213,200	53,200	122,800	192,800	90.4%
33611—Auto and light truck assembly	192,800	53,200	122,800	192,800	100.0
3362—Motor vehicle bodies and trailers	156,200	5,300	12,200	19,100	12.2
3363—Motor vehicle parts	598,300	55,400	127,800	200,700	33.5
Totals	967,700	113,900	262,800	412,600	42.6

* Totals may vary slightly due to rounding errors.

SOURCE: EPI Analysis of Bureau of Labor Statistics data.

Impacts of shutdowns on U.S. trade flows

U.S. motor vehicle and parts trade flows for 2007 are summarized in **Table 6**. This table separately reports trade in finished vehicles and in parts, bodies, and trailers. Likewise, trade with North America (Canada and Mexico) is separated from the rest of the world. These distinctions are useful because domestic auto producers have developed deep supply networks with the latter countries under NAFTA, the preceding U.S. Canada Free Trade Agreement, and the earlier U.S.-Canada auto pact. Most or all trade between U.S.-based subsidiaries would likely end in the event of a shutdown of one or more of these firms. This will have implications both for total U.S. exports (which will fall) and for the trade balance which will also fall (but by much more).

A rough “post-collapse” trade scenario is constructed using these data in Table 6. This scenario, which is based on the Big Three shutdown scenario, assumes that all U.S. vehicle exports would cease in the wake of collapse of the U.S. domestic industry. It assumes that demand recovers to pre-collapse levels (16.1 million units per year), in roughly 2010. It assumes that U.S. parts exports to Canada would fall by 30% (comparable to the decline in U.S. parts production in Table 5), and that U.S. parts exports to the rest of the world fall 20% (assuming that foreign subsidiaries

of U.S.-based multinational corporations also reduce demand for U.S.-made components).

On the import side, it is assumed for simplicity that all vehicle imports from Canada and Mexico are also eliminated due to the collapse of the Big Three producers.³ It assumes that transplant production is unchanged. As a result, all other vehicles sold in the United States are then supplied from the rest of the world. The number of vehicles imported from the rest of the world would be slightly less than double, from about 6.7 million units in 2007 to 12.5 million units. However, the domestic content of those imports would fall dramatically, since imports would then exclude units from Canada and Mexico (approximately 1.8 million autos were imported from these countries alone in 2007, excluding light trucks). Furthermore, offsetting gains through exports of parts and vehicles would be lost. The net import cost of auto imports would be much higher, and the total cost of imported vehicles from the rest of the world would rise by 155%, offsetting the decline in North American imports.

Overall U.S. motor vehicle exports would fall by 61%, total imports would rise by 21%, and the U.S. auto trade deficit would rise from \$123.5 billion to \$232.8 billion, an increase of \$109.3 billion (88%). This would result

TABLE 6

Implications of auto industry collapse for U.S. motor vehicle trade (billions of dollars)

Exports	2007	Post-collapse	Percent change
Vehicles			
N. America	\$30.2	\$0.0	-100%
Rest of world	27.6	0.0	-100
Parts, bodies, and trailers			
N. America	\$32.0	\$22.4	-30%
Rest of world	21.0	16.8	-20
Total exports	110.7	43.4	-61
Imports			
Vehicles			
N. America	\$69.5	\$0.0	-100%
Rest of world	84.7	216.0	155
Parts, bodies, and trailers			
N. America	\$41.4	\$29.0	-30%
Rest of world	38.6	27.0	-30
Total imports	234.2	283.6	21
Trade balance	\$-123.5	\$-232.8	88%

SOURCE: EPI analysis of Census Bureau data.

in a significant (15.6%) increase in the U.S. goods and services trade deficit (relative to 2007 levels).

Conclusion

The bankruptcy of one or more U.S.-based automakers would lead to the shutdown of significant portions of the U.S. motor vehicle industry. This would, in turn, cause a wave of plant closures and bankruptcies throughout the manufacturing and services sectors of our economy. Under this scenario, as many as an estimated 3.3 million U.S. jobs would be eliminated, with thousands of jobs lost in every state. Massive increases in unemployment would result. But this would just be the first wave of consequences of an auto industry bankruptcy. Massive job loss and community disruption would result. Increased government payments and tax losses alone would exceed \$150 billion in the first three years following bankruptcy

of all three domestic auto companies, according to Cole et al. (2008).

An airline-style (Chapter 11) bankruptcy re-organization is not an option for U.S.-based automakers. They have already extensively restructured product lines and labor contracts. Academic experts (Helper and MacDuffie 2008) and the industry itself have put forth restructuring plans that include independent oversight committees and regular performance benchmarking tied to future funding. These plans provide the foundation for a rebuilt, restructured domestic auto industry that is ready to compete and deliver good, sustainable U.S. jobs for the future. The alternative is simply too destructive to contemplate.

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Appendix: Methodology

This report estimates the direct and indirect effect of domestic auto company shutdowns using an input-output-based employment requirements table developed by the U.S. Bureau of Labor Statistics (BLS 2008a and 2008b). This analysis was based on a detailed, industry-based study of the relationships between changes in trade flows and employment for each of 201 sectors of the U.S. economy. The model estimates the number of jobs supported for each job in motor vehicle assembly, North American Industry Classification System (NAICS) sector 3361. For further details of the approach used in this analysis see Ratner (2006).⁴

The BLS estimates two types of employment requirements tables. Standard employment requirements tables estimate the total amount of labor required to produce a given volume of output, using domestic production technology.⁵ Tables adjusted to remove the employment effect of imports are known as domestic employment requirements tables. Domestic employment requirements coefficients (adjusted to remove imports) were used to estimate all employment impacts in this study.

Re-spending jobs for the motor vehicle industry were estimated by Bivens (2003, Table 6).

Endnotes

1. This figure represents employment in NAICS 33611, light vehicle production. Approximately 40,000 workers were employed in heavy vehicle production in 2007 (NAICS 33612). They were excluded from this analysis because domestic light vehicle makers produce very few heavy trucks. It was assumed that heavy truck production and employment would be unaffected by collapse in light vehicle production in scenarios 1-3.
2. Note that the use of the input-output model also imparts a conservative bias to job loss estimates for the GM-only and Big Three shutdown scenarios. This model assumes that each firm consumes inputs at the industry average level. However, U.S.-based auto producers have significantly higher levels of domestic content than at least some foreign auto producers. Hence, the use of average labor input coefficients for these firms likely results in a substantial underestimate of indirect jobs lost in these two scenarios.
3. This assumption is clearly an overstatement, since several foreign automakers also operate assembly plants in Mexico and Canada and would likely resume and/or continue assembly and export operations from there in the wake of a U.S. industry shutdown. Hence, this scenario may be too pessimistic. However, there are also reasons to believe that U.S. transplant production could fall in the wake of shutdowns of one or more U.S.-based producers, as they might feel less pressure to produce in this market for political reasons. In that event, imports and the trade deficit could be even larger than predicted in Table 6.
4. Ratner (2006) is an Appendix to the U.S. section of Faux et al. (2006), by Scott.
5. See Documentation for Employment tables in BLS (2008b).

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