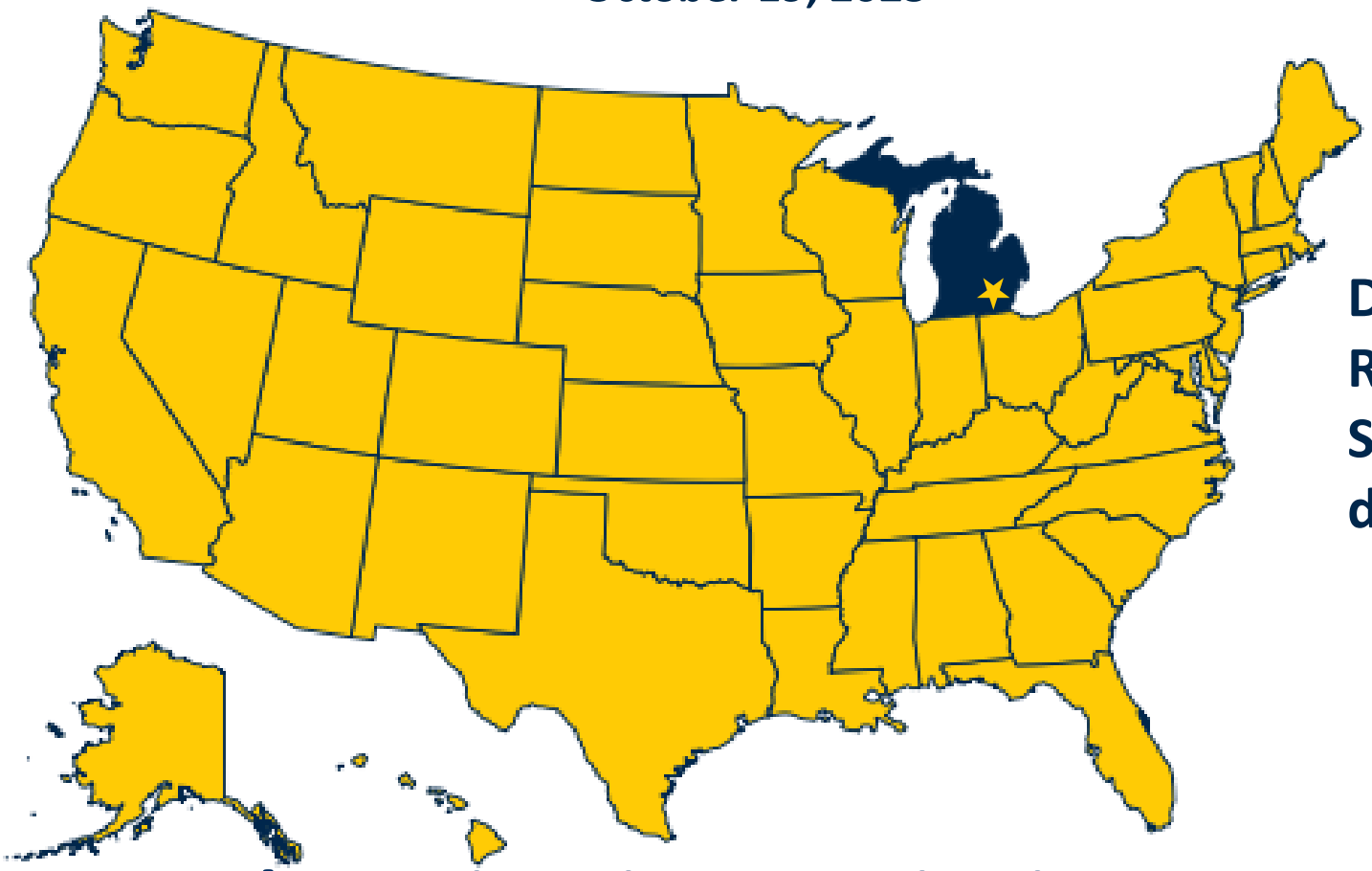
The Economic and Fiscal Impacts of Potential UAW Strike Scenarios

October 19, 2023



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Background and Assumptions

Issues for REMI Modeling

- Very uncertain
  - Which company would go out on strike
  - How long would strike last
  - How would suppliers respond
- Solution: Generate 10 weekly simulations for each company, phase in the loss of supplier jobs starting in week 3 through week 8
- Actual strike activity is even more complex and unprecedented than we anticipated

Actual History

- Strike unfolded gradually
  - Strike starts on Friday September 15, so week 1 is week starting on Monday September 18 with one assembly plant for each company; 12,700 workers on strike
  - Friday September 22 UAW added 5,600 striking workers at distribution facilities for all three companies (these workers would have eventually been part of the indirect effect in our estimates)
  - Friday September 29 UAW added 6,900 striking workers at two assembly plants, one Ford and one GM
  - Wednesday October 11 UAW added 8,700 striking workers at Ford assembly plant in Kentucky. The largest and most profitable plant in the US

Actual Situation Today

- Where are we today, as of October 19:
  - The UAW has struck 6 assembly plants: 28,300 workers
  - The UAW has struck 38 parts warehouses: 5,600 workers
  - We are at the end of week 5, but only 3 assembly plants have been struck for the entire period

UAW Contract Years Since 1960 and Company-Wide Strikes with the Detroit Three Automakers

Year	Company	Days	Number of Workers
1961	Ford	17	120,000
1964	GM	27	300,000
1967	Ford	46	150,000
1970	GM	67	400,000
1973	Chrysler	9	117,000
1976	Ford	20	165,000
1979	*No Strike*		
1982	*No Strike*		
1984	*GM Strike in Canada, but not U.S.*		
1985	Chrysler	12	60,000

Year	Company	Days	Number of Workers
1987	*No Strike*		
1990	*No Strike*		
1993	*No Strike*		
1996	*No Strike*		
1999	*No Strike*		
2003	*No Strike*		
2007	GM	2	73,000
2011	*No Strike*		
2015	*No Strike*		
2019	GM	40	48,000

2022 Vehicle Production by State and Automaker (Includes Medium- and Heavy-Duty) Wards Intelligence

State	Ford	GM	Stellantis	**Detroit Three Total**	Other Makes	Total All Makes	Rank of Total Production
Michigan	583,218	539,646	757,187	**1,880,051**	17,184	1,897,235	1
Kentucky	604,853	38,686		**643,539**	445,136	1,088,675	2
Missouri	380,854	215,906		**596,760**	0	596,760	6
Ohio	72,763		354,251	**427,014**	453,529	880,543	5
Texas		343,698		**343,698**	224,486	568,184	7
Illinois	280,378		58,392	**338,770**	24,338	363,108	12
Indiana		294,612		**294,612**	783,843	1,078,455	3
Kansas		165,663		**165,663**	0	165,663	14
Tennessee		128,906		**128,906**	413,746	542,652	9
Alabama				**0**	968,704	968,704	4
Arizona				**0**	14,360	14,360	15
California				**0**	544,645	544,645	8
Georgia				**0**	340,000	340,000	13
Mississippi				**0**	378,764	378,764	11
South Carolina				**0**	485,291	485,291	10
Grand Total	1,922,066	1,727,117	1,169,830	**4,819,013**	5,094,026	9,913,039	

Source: Wards Intelligence, "North America Vehicle Production by State and Plant, 2018–2022," March 21, 2023.

Estimated UAW Workers at Detroit Three Manufacturing Facilities by State, July 2023

State	Ford		GM		Stellantis		Total
	Assembly	Other	Assembly	Other	Assembly	Other	
Michigan	12,247	9,759	10,780	9,092	20,144	4,390	66,412
Ohio	1,661	4,733		3,840	5,584	422	16,240
Kentucky	11,895		1,248				13,143
Missouri	8,452		3,903				12,355
Indiana			3,754	1,478		6,231	11,463
Illinois	4,585	1,036					5,621
Texas			5,116				5,116
New York		730		3,143			3,873
Tennessee			2,564	894			3,458
Kansas			2,054				2,054
Total	38,840	16,258	29,419	18,446	25,728	11,043	139,734

Sources: Estimated using facility information from Ford, GM, and Stellantis corporate websites.

Inputs to REMI

- Assumed that there would be no impact on auto industry suppliers in weeks 1 and 2; Only input to remi was loss of income to striking workers. The difference between the weekly wage ($1,318) and strike benefits ($500)

- In week 3 we assumed suppliers would lose 1/6 of the full equilibrium impact. We entered 1/6 of the number of striking workers as an exogeneous production loss and 5/6 of the striking workers as an income loss

- Impact on suppliers was increased by 1/6 each week. In week 4 this means that we entered 2/6 of the number of striking workers as an exogenous production loss and 4/6 of the striking workers as an income loss

- Full impact on suppliers in weeks 8 through 10

Inputs to REMI

- 11 region remi model – 9 states with assembly plants, New York State, and a balance of the U.S. region so that the sum of regions equaled the U.S.
- Used the Keynesian closure method
- Since the strike was known to be a temporary event of unknown duration, we needed to neutralize both the investment and population response embedded in the remi model
- Model allows you to automatically turn off investment response to direct activity, but we also needed to neutralize construction response due to indirect effects and population migration response
- We did this by adding/subtracting construction employment (exogenous) and population migration so that the impact on each state was close to 0.

Results

Simulated National Economic Impacts

	Ford	GM	Stellantis	All Three
2-Week				
Total Employment Loss (BEA Measure)	82,000	71,000	55,000	208,000
Striking UAW Workers	55,000	48,000	37,000	140,000
Cumulative Personal Income Loss ($ millions)	$150	$130	$100	$380
4-Week				
Total Employment Loss (BEA Measure)	200,000	191,000	142,000	533,000
Striking UAW Workers	55,000	48,000	37,000	140,000
Cumulative Personal Income Loss ($ millions)	$590	$550	$410	$1,550
8-Week				
Total Employment Loss (BEA Measure)	434,000	432,000	315,000	1,181,000
Striking UAW Workers	55,000	48,000	37,000	140,000
Cumulative Personal Income Loss ($ millions)	$2,570	$2,530	$1,850	$6,950

Simulated Economic and Fiscal Impacts on Michigan

	Ford	GM	Stellantis	All Three
2-Week				
Total Employment Loss (BEA Measure)	28,000	25,000	31,000	84,000
Striking UAW Workers	22,000	20,000	25,000	67,000
Cumulative Personal Income Loss ($ millions)	$50	$40	$50	$140
Cumulative Total Tax Revenue Loss ($ millions)	$3.5	$3.2	$3.9	$10.6
4-Week				
Total Employment Loss (BEA Measure)	54,000	49,000	58,000	161,000
Striking UAW Workers	22,000	20,000	25,000	67,000
Cumulative Personal Income Loss ($ millions)	$150	$140	$170	$460
Cumulative Total Tax Revenue Loss ($ millions)	$10.9	$9.9	$11.9	$32.7
8-Week				
Total Employment Loss (BEA Measure)	105,000	96,000	112,000	313,000
Striking UAW Workers	22,000	20,000	25,000	67,000
Cumulative Personal Income Loss ($ millions)	$610	$560	$660	$1,830
Cumulative Total Tax Revenue Loss ($ millions)	$41.2	$37.6	$44.4	$123.2

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