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The Year-over-Year Decline in Southbound Freight at the Canada – U.S. Border

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Around the world, freight shipments declined markedly in the final quarter of 2008 as global economic conditions worsened. This *Brief* examines the decline in goods entering the U.S. (the foremost consumer nation) from Canada, focusing upon the rail and truck modes, which are the modes handled at the land ports-of-entry. The article compares the "post-meltdown" level of activity seen in December 2008 with the conditions seen one year earlier. The article uses data from the Transborder Surface Freight Database maintained by the U.S. Bureau of Transportation Statistics (*found at www.transtats.bts.gov).*

This article examines truck- and rail-borne freight flows at five land ports-of-entry along the Canada – U.S. border: Blaine, WA; Sweetgrass, MT; Detroit, MI; Buffalo, NY; and Champlain, NY. The five ports were chosen to provide geographic diversity, as well as a range of sizes. Together, these five ports handled 53 percent of the truck-borne freight entering the U.S. from Canada in December 2007, so the trends found at these ports likely are representative of the situation along the entire border. A year-over-year methodology was used in order to account for background seasonal variations. Rather than examining the *value* of goods, which depends upon factors such as currency exchange rates, commodity price fluctuations, and inflation, we analyzed the *weight* of goods traversing the border. A port-specific discussion is found within, but noteworthy general findings include:

Largest Traffic Decline at Detroit. In the aggregate, the number of southbound trucks at the five ports declined by 14.7 percent. There were large disparities, though, with the 21 percent decline at Detroit, the largest port, dwarfing small declines (on the order of 8 percent) at the lesser ports.

Emptier Trucks. While the number of trucks declined by 14.7 percent, the weight carried by those trucks declined by a greater amount (19.3 percent), implying either that there are more empty trucks, or that trucks are operating at lower load ratios. The relatively small decline in actual traffic means that usage of roads and port facilities has not fallen as much as might otherwise be expected in current economic conditions.

Declining Rail Mode Share. At all ports, the amount of freight conveyed by rail declined at a greater rate than that conveyed by truck. Assuming that the rail mode is more efficient, and in combination with the trend toward emptier trucks, it seems likely that cross-border freight now has a smaller carbon footprint in aggregate, but a larger one on a per-kg basis.

Unequal Decline by Commodity. The largest decline was evident within a group of commodity codes representing wood-related freight, consistent with the crash in U.S. housing construction. Virtually no decline was evident in food-related commodities. Other commodity groups (e.g., manufactured goods, chemicals, metals, etc.) exhibited notable declines.

Exhibit 1. Measures of Freight Flow, by Mode

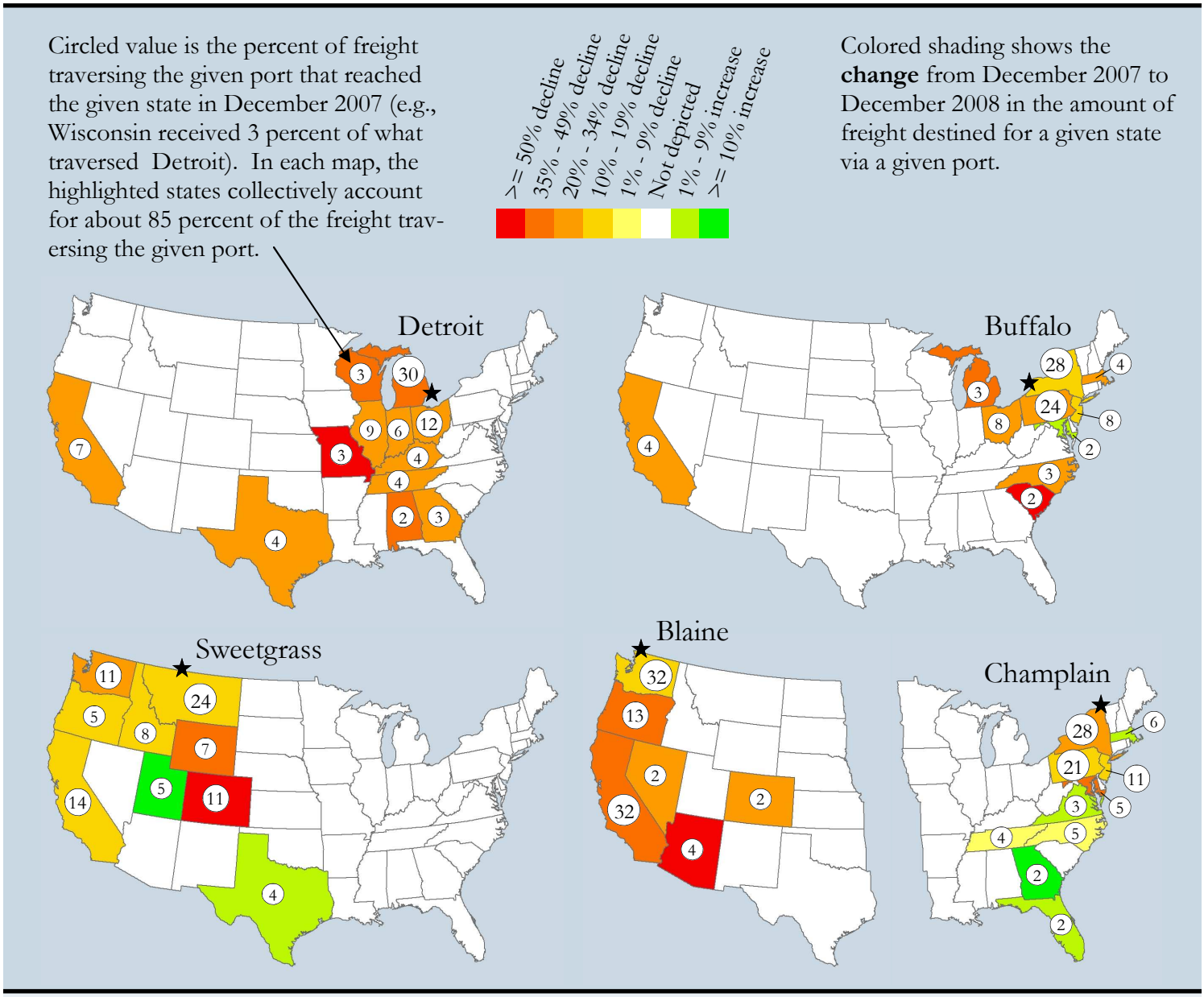
	Blaine			Sweetgrass			Detroit			Buffalo			Champlain		
	2007	2008	YTY	2007	2008	YTY	2007	2008	YTY	2007	2008	YTY	2007	2008	YTY
No. of trucks	25,038	23,090	-8%	10,347	9,468	-8%	115,664	91,580	-21%	71,369	65,987	-8%	26,611	22,406	-16%
Weight carried by truck (million kg)	160.1	122.9	-23%	157.0	132.8	-15%	914.9	689.2	-25%	657.5	539.0	-18%	271.2	260.4	-4%
Weight carried by rail (million kg)	417.0	277.3	-34%	134.4	92.1	-31%	270.8	133.1	-51%	386.6	276.9	-28%	163.9	147.1	-10%
Truck mode share by weight (%)	27.7%	30.7%	11%	53.9%	59.0%	10%	77.2%	83.8%	9%	63.0%	66.1%	5%	62.3%	63.9%	3%
No. of loaded rail containers	5,871	3,655	-38%	1,728	1,116	-35%	13,853	8,662	-37%	7,703	5,035	-35%	4,501	4,436	-1%
No. of loaded containers on trucks	17,183	4,157	-76%	9,027	8,210	-9%	98,867	78,840	-20%	53,419	49,142	-8%	24,091	19,995	-17%
Value of goods (million US$)	$570	$425	-26%	$392	$408	4%	$4,417	$3,318	-25%	$2,437	$2,027	-17%	$920	$760	-17%

Three exhibits are used to examine declining freight flows. Exhibit 1 contains metrics that reveal the *relative importance of the truck and rail modes* with respect to the freight passing through a port. Exhibit 2 focuses upon *where freight is destined* within the U.S. after traversing a given port. Exhibit 3 shows profiles of *what kinds of commodities* are typical at a given port. As well as supporting an examination of the year-over-year decline, the exhibits are interesting simply for what they reveal about the nature of cross-border commerce between Canada and the U.S. Each port is discussed separately, drawing upon a synthesis of the data in the exhibits.

Detroit is the largest freight port along the Canada – U.S. border. It handles large amounts of all kinds of commodities (see Exhibit 3) but has historically served as the gateway for manufactured goods associated with the automobile industry and with other industrial sectors. Manufactured goods (HS codes 82–96) are the dominant commodity group passing southbound through Detroit, with such goods primarily destined for states within the industrial heartland (see Exhibit 2). At Detroit, a year-over-year decline is evident in every group of commodities except for that related to food (HS codes 1–24). Manufactured goods show the greatest degree of decline, and the overall decline in freight (by weight) is 25 percent for truck-borne and 51 percent for rail (see Exhibit 1). The decline in the *number* of trucks and the *weight carried* by those trucks is of a similar magnitude (21 percent and 25 percent, respectively), indicating that the weight-per-truck remained relatively constant. The 21-percent decline in the number of trucks is the largest traffic decline evident at any port, by a wide margin. The decline in freight was relatively uniform throughout the port's "sphere of influence," as evidenced by the narrow range of orange shading seen in Exhibit 2: i.e., a decline of 20 to 49 percent is shown for each state except Missouri (which declined even more).

Buffalo is the second-largest of the five ports. It, too, handles a full range of commodities, but those grouped in HS codes 25–40 (minerals, ores, chemicals, plastics, and other raw materials) are dominant. Again, a decline is evident in every commodity group except for that related to food. Generally, goods traversing this port are destined for a more tightly clustered group of states centered around New York and Pennsylvania. The decline in freight passing through Buffalo was less severe than that at Detroit, amounting to 18 percent by truck and 28 percent by rail. The decline was not as uniform within the port's sphere of influence, as evidenced by the wider variation of

Exhibit 2. Destinations of Freight, by Port

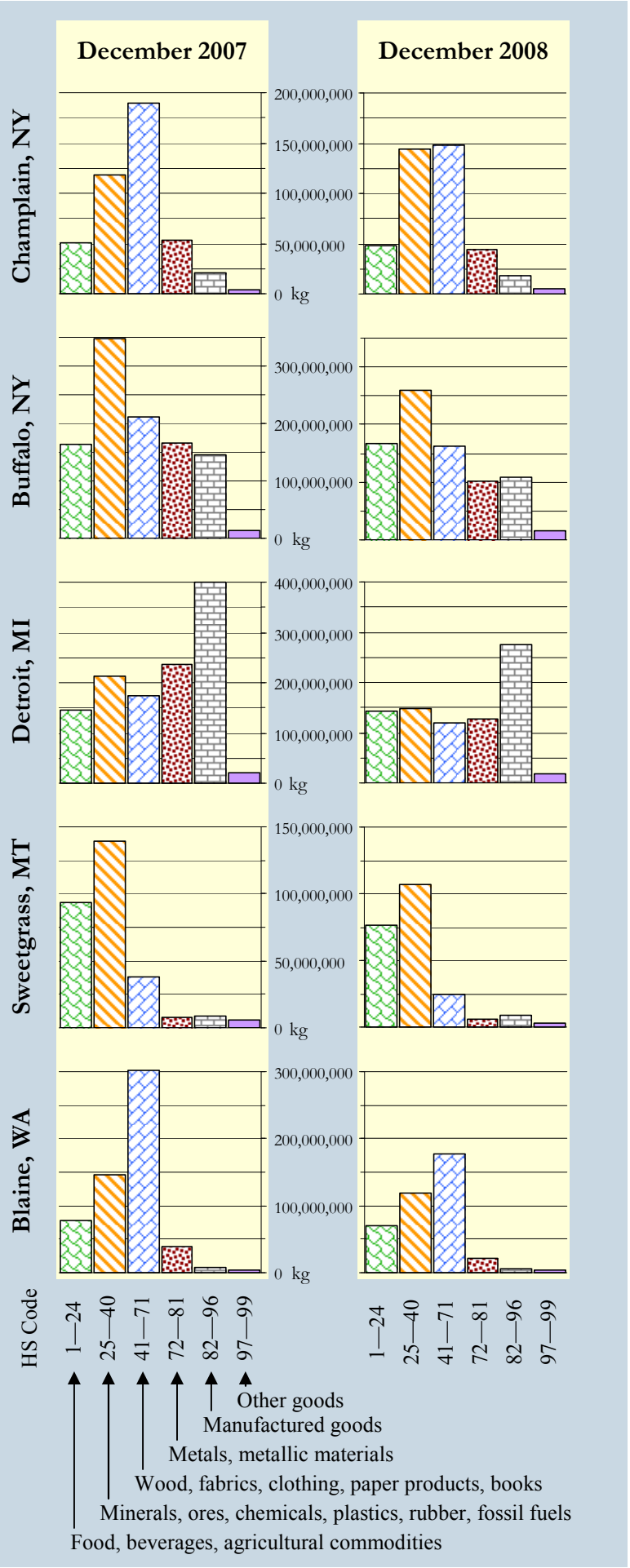


shading seen in Exhibit 2. The decline in the *number* of trucks traversing this port is significantly less than the decline in the *weight* of freight (8 percent and 18 percent respectively), implying that there are more empty trucks, or that trucks are operating at lower load ratios. As is the case at all five ports, there is a greater proportional decline in the weight of goods carried by rail than by truck, such that the truck mode-share was larger in December 2008.

Blaine exhibits a commodity profile skewed heavily toward natural resources, with significant amounts of wood-related (HS codes 41–71) and food-related commodities traversing the port, as well as the group containing minerals, ores, chemicals, etc. (HS codes 25–40). Goods are destined primarily for locations along the west-coast I-5 corridor, and unlike the other four ports, the majority of freight is handled by rail. A steep decline in wood-related products is evident, consistent with the collapse of home construction within the U.S., but relatively little decline is evident in other commodity groups. The decline in freight was fairly uniform within the port's sphere of influence. As observed in Buffalo, the decline in the weight of truck-borne freight is proportionally much greater than the decline in the number of trucks, implying that the truck mode lost efficiency. Note the 76 percent decline in the number of truck-borne containers. Blaine is located

Exhibit 3. Profile of Commodities Passing Through Each Port

between two major seaports (Seattle, WA, and Vancouver, BC) that handle Asian container trade.

Champlain handles a commodity profile very similar to that of Blaine, skewed toward the resource sector. As in Blaine, the largest proportional decline is evident within the wood-related commodity group, but little decline is evident within other groups. There is actually a significant year-over-year *increase* in the amount of freight within the group of ores, minerals, etc. This is the only instance of an increase within any commodity group at any port, so we examined it more closely. A large weight of material was shipped to Georgia by truck through Champlain in a short period at the end of 2008 (36 million kg of HS code 25, which is "salt, sulfur, earths and stone, plastering materials, lime and cement"). These shipments overwhelm declines in other commodities within that grouping, and also account for the fact that Champlain shows an increase in the efficiency of the truck mode (i.e., the decline in the weight of truck-borne freight is relatively small compared to the decline in the number of trucks). Note that Champlain is a relatively small port, making it more susceptible to such distortions.

Sweetgrass, the smallest port, handles a commodity profile skewed toward food-related goods and the group containing minerals, ores, etc. It has the least-concentrated sphere of influence, with goods destined for states throughout the west. It also exhibits the least uniform change in year-over-year shipment volumes, with many shades evident in Exhibit 2. It is the only port at which an *increase* in the value of goods is seen. The small size of the port again allows for the possibility of distortions in trends.