Chapter 4:
Identifying the Effects of NAFTA on the U.S. Economy Between 1992 and 1998: A Decomposition Analysis

Peter B. Dixon and Maureen T. Rimmer*

1. Introduction

Peter B. Dixon and Maureen T. Rimmer, Victoria University, Melbourne, Australia professors, stated that the aim of their presentation was to identify the effects on the U.S. economy of the North American Free Trade Agreement (NAFTA) in the early years of its implementation. To this end, they provided a decomposition of U.S. growth in macro variables and industry outputs between 1992 and 1998.

To show what is involved, Dixon and Rimmer referred to tables 1 and 2. The first row of table 1 shows that between 1992 and 1998 real GDP for the United States grew by 24.40 percent (row 1, column 1). Of this, 0.19 percent (row 1, column 2) is attributable to what they refer to as NAFTA factors. Within this 0.19 percent, columns 3 to 6 identify the contributions specific to Canada and Mexico. Column 7 of row 1 shows that growth of 24.20 percent in U.S. GDP was attributable to factors such as technical change (column 8), growth in aggregate employment (column 9) and developments in international trade not specific to Canada and Mexico (column 10).

The methodology underlying the results in Tables 1 and 2 is explained in Dixon and Rimmer (2004). It relies on historical and decomposition simulations with USAGE, a detailed model of the U.S. economy. In this paper, Dixon and Rimmer describe the results in a way they hope is understandable to readers who are not interested in methodological issues. Dixon and Rimmer started by describing what they meant by NAFTA factors.

Defining NAFTA Factors

Dixon and Rimmer noted that NAFTA factors have two components:

a. *Movements in U.S. tariffs on imports from Canada and Mexico beyond those applying to imports from the rest of the world (ROW).* To clarify what this means, they take the example of ice cream from Canada. In 1992 the U.S. tariff rates on imports of ice cream from Canada and ROW were 27.4 and 25.8 percent. Between 1992 and 1998, the ROW rate dropped by 1.1 percentage points, from 25.8 percent to 24.7 percent. They assume that in the absence of a special relationship with

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Canada such as NAFTA, the tariff on ice cream imports from Canada would also have fallen by 1.1 percentage points, from 27.4 percent to 26.3 percent. In fact, by 1998 the tariff rate on ice cream from Canada was only 12.1 percent. In their decomposition analysis, what they attribute to NAFTA is the effects of the extra movement in the tariff rate beyond the ROW movement, a fall of 14.2 percentage points, from 26.3 percent to 12.1 percent.

b. *Other NAFTA effects: changes in U.S. trading conditions with Canada and Mexico beyond those applying to ROW.* By trading conditions, Dixon and Rimmer mean c.i.f. (cost, insurance and freight) import prices (in U.S. dollars) and the positions of foreign demand curves for U.S. products. Trading conditions for the United States on both the import and export sides are affected by many factors, including growth in the world economy, changes in technologies and preferences in U.S. trade-partner countries, and changes in the taxes and tariffs imposed by trade partners. For 1992 to 1998, they measure changes in trading conditions with regard to both exports and imports for Canada, Mexico, and ROW. Then in their decomposition analysis, what they attribute to NAFTA factors are the effects of the extra movements in trading conditions for Canada and Mexico beyond those for ROW. To clarify, they consider the case of motor vehicle parts. For 1992 to 1998 they estimate that the c.i.f. price of imports of motor vehicle parts from ROW increased by 1.5 percent, while the corresponding price for imports from Mexico decreased by 4.5 percent (perhaps reflecting cost reductions in Mexico associated with increased shipments to the United States). At the same time, the ROW demand curve for exports of motor vehicle parts from the United States moved out by 23 percent, whereas the Mexican demand curve moved out by only 11 percent (perhaps reflecting an increased ability of Mexican producers to supply their own market). In the authors' decomposition analysis, the change in trading conditions with Mexico for motor vehicle parts that they attribute to NAFTA is the joint effect of a 6 percent reduction in the c.i.f. price of imports from Mexico (= 4.5 + 1.5) and a 12 percent inward movement in the Mexican demand curve for U.S. exports (= 23 - 11).

Dixon and Rimmer noted that while they refer to the factors measured by (a) and (b) as NAFTA factors, it should be recognized that they are not exclusively associated with NAFTA. For example, they estimate that the ROW demand curve for U.S. steel springs shifted out relative to the Mexican demand curve. It is possible that this relative shift was partly caused by developments outside NAFTA related to a shift in Mexican demand towards manufactured products from China that was stronger than the shift in ROW demand towards these products from China. In tables 1and 2, NAFTA effects embrace the effects of all differences between changes in U.S. tariffs and trading conditions with ROW and those with Mexico and Canada. However, it is reasonable to suppose that NAFTA was a major part of these differences.

2. **Macroeconomic NAFTA Effects: U.S. GDP and U.S. Trade**

Column 1 of table 1 shows observed movements in U.S. macro variables for 1992 to 1998. Over this period, U.S. GDP grew by 24.40 percent (row 1). Growth in U.S. trade greatly exceeded growth in GDP, with imports expanding by 73.59 percent and exports by 48.32 percent (rows 9 and 5). Growth of trade with Mexico was particularly rapid. U.S. imports from Mexico grew by 240.90 percent, while U.S. exports to Mexico grew by 77.64 percent (rows 11 and 7).

Contribution of NAFTA Factors

Column 2 implies that NAFTA's effects on the U.S. macro economy were small, though generally favourable: a 0.19 percent increase in GDP and 0.42 and 0.38 percent increases in private and public consumption. The effects on U.S. trade were more noticeable but still moderate: 5.77 and 3.25 percent increases in imports and exports. By contrast, NAFTA factors had a major effect on the composition of U.S. imports by source and U.S. exports by destination. Of the 240.90 percent increase in imports from Mexico, NAFTA factors accounted for 143.91 percent, and of the 77.64 percent increase in exports to Mexico, NAFTA factors accounted for 27.88 percent. Columns 3 to 6 of table 1 break the NAFTA contributions into four component parts.

Column 3: Effect of NAFTA-related reductions in U.S. tariffs on imports from Canada

On average, the shocks in column 3 are a reduction in the power of the U.S. tariffs on Canadian imports of 0.34 percent. That is, between 1992 and 1998 NAFTA had the effect of reducing U.S. tariffs rates on imports from Canada by only 0.34 percentage points relative the rates applying to U.S. imports from ROW. This tiny average reduction reflects the fact that U.S. tariff rates on imports from Canada were very low in 1992, averaging only about 0.5 percent. They had already been reduced by the earlier Canada-U.S. free trade agreement signed in 1988. With the shocks in column 3 being so small in average terms, it is not surprising that the macro outcomes are negligible. The only noticeable effects are on the composition of imports by source. Imports from Canada increased by 2.74 percent, largely replacing imports from Mexico (-1.10 percent) and ROW (-0.37 percent). The overall effect on imports is an increase of 0.10 percent.

Column 4: Effect of NAFTA-related reductions in U.S. tariffs on imports from Mexico

On average, the shocks in column 4 are a reduction in the power of the U.S. tariffs on Mexican imports of 0.78 percent. This has the effect of increasing imports from Mexico by 11.81 percent, largely at the expense of imports from Canada (-0.94 percent) and ROW (-0.63 percent). The overall increase in imports is 0.08 percent, slightly less than that in column 3. This is true even though the reduction in the power of the tariffs on imports from Mexico in column 4 (0.78 percent) is greater than that on imports

from Canada (0.34 percent) in column 3. This paradox is explained by the data for 1992, which show the value of U.S. imports from Canada at about 2.5 times those from Mexico.

Columns 5 and 6: Other NAFTA effects

Dixon and Rimmer expected to find that NAFTA reduced the c.i.f. prices of U.S. imports from the NAFTA partners, particularly imports from Mexico. Their reasoning was that closer economic integration with the United States would allow firms in NAFTA partner countries to achieve cost-reducing economies of scale by improving the suitability of their products for the U.S. market, thereby increasing export volumes. Their estimates for 1992 to 1998 support this story strongly for some commodities. For example, they show the c.i.f. price of U.S. imports from Mexico falling by more than 20 percent relative to the c.i.f. price of imports from ROW for 37 of the 500 USAGE commodities. Averaging over all commodities, the c.i.f. price of U.S. imports from Mexico fell by about 7.5 percent relative to the price of imports from ROW. This was responsible for a 134.04 percent increase in U.S. imports from Mexico (row 11, column 6). By contrast, the c.i.f. prices of imports from Canada showed almost no movement relative to prices of imports from ROW.

On the export side, NAFTA-related changes in trading conditions in Canada boosted U.S. exports to Canada by 18.63 percent (row 6, column 5), while NAFTA-related changes in trading conditions in Mexico boosted U.S. exports to Mexico by 30.97 percent (row 7, column 6). In both cases there were small diversions of U.S. exports away from other markets (rows 7 and 8, column 5 and rows 6 and 8, column 6).

Relative to the effects shown in columns 3 and 4 for NAFTA-related U.S. tariff changes, the effects shown in columns 5 and 6 for NAFTA-related shifts in trading conditions are large. Reductions in c.i.f. import prices (especially for imports from Mexico) and easier access to NAFTA markets allowed the U.S. to improve its terms of trade. NAFTA factors relating to Canada generated a terms-of-trade improvement of 1.25 percent (column 5, row 20), while those relating to Mexico generated an improvement of 1.57 percent (column 6).

Because terms-of-trade improvements allow a country to obtain more imports for any given volume of exports, they allow an increase in real consumption. Columns 5 and 6 show increases in U.S. private consumption of 0.19 and 0.24 percent (row 2), with slightly smaller increases in public consumption (row 4). Favorable terms-of-trade movements also generate increases in real wage rates. This effect can be seen in row 15 of columns 5 and 6: real wage increases of 0.32 and 0.44 percent.

Contribution of Other Factors

GDP growth is driven primarily by improvements in technology and increases in employment. These are the dominant factors taken into account in columns 8 and 9 of table 1. Together these two columns explain 23.59 percentage points (= 14.69 + 8.90) of U.S. GDP growth of 24.40 percent between 1992 and 1998. In generating these two columns, Dixon and Rimmer treat technology and employment as exogenous—that is, determined independently of trading conditions and other factors mentioned in the column headings of table 1. By exogenizing technology, they rule out trade-related technology effects of the type hypothesized in the literature associated with Melitz (2003). Dixon and Rimmer noted that these effects are not important for the United States, although they may be important for its NAFTA partners, particularly Mexico. By exogenizing aggregate employment they assume that over a six-year period, trade shocks affect wages rather than aggregate employment. For the medium term they assume that favorable (unfavorable) economic developments mean that a given level of employment is achieved with higher (lower) real wages. The "given level of employment" is determined by demographic factors and the state of the business cycle, factors that are independent of trade policies.

Non-NAFTA trade factors (column 10 of table 1) include shifts in ROW demand curves for U.S. products and shifts in Canadian and Mexican demand curves by the same percentages as those in the ROW demand curves.[12] Similarly, non-NAFTA trade factors include (1) changes in c.i.f. prices of imports from ROW, and (2) changes in c.i.f. prices of imports from Canada and Mexico by the same percentages as those for imports from ROW. Also included as non-NAFTA trade factors are twists in U.S. import/domestic preferences. These caused changes in import shares in U.S. domestic markets beyond those that can be explained by changes in relative prices of imported and domestic products. As in many other countries, in the 1990s U.S. preferences shifted towards imported products, possibly reflecting easier access to information about foreign products.

For 1992 to 1998, twists in import/domestic preferences, movements in export demand curves, and other non-NAFTA trade factors generated a 28.20 percent increase in U.S. imports (row 9, column 10) and a 19.99 percent increase in U.S. exports (row 5). While non-NAFTA trade factors were strongly trade creating, they made only a minor contribution to GDP growth (0.61 percentage points, row 1, column 10).

Returning to column 8 of table 1, we see that technology improvements were also strongly trade creating, generating export growth of 36.68 percent and import growth of 12.88 percent (rows 5 and 9, column 8). Technology improvements facilitated U.S. exports by improving their competitiveness while increasing U.S. economic growth, thereby stimulating imports.

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[12] Recall that shifts in Canadian and Mexican demand curves beyond those for ROW have already been taken into account as NAFTA factors.

Column 9 shows that macro factors stimulated imports but retarded exports (26.75 percent growth for imports but 11.61 percent contraction for exports). Column 9 not only contains the effects of employment growth but also the effects of changes in business confidence. In 1998 business confidence, reflected in investment/capital ratios for industries, was considerably higher than in 1992. Consequently, column 9 shows strong growth in investment relative to GDP (38.01 percent for investment compared with 8.90 percent for GDP, rows 3 and 1). Strong investment growth leads to real appreciation and associated stimulation of imports and retardation of exports.

3.   Industry NAFTA Effects

Dixon and Rimmer decomposition calculations produce results for 502 industries, the number of industries in the USAGE model. Table 2 presents results for a manageable number of selected industries. It shows the 11 industries for which NAFTA factors had the largest negative impacts on output; the 16 industries for which NAFTA factors had the largest positive impacts; and 5 industries between these groups that are included in the table to illustrate a point of interest.

Consistent with the small size of the macro impacts of NAFTA factors, the industry impacts are approximately balanced between negative and positive. Out of the 502 USAGE industries, 236 suffered a negative impact from NAFTA factors, while 266 benefited from a positive impact. However, while many critics of free-trade agreements such as NAFTA can believe that the macro effects are benign, they are concerned about the structural effects.

In looking for structural problems, we started by examining industries for which the NAFTA factors had a negative impact of more than 5 percent over the period 1992 to 1998. There are 26 such industries. However, this does not indicate NAFTA-related structural problems. Most of the 26 industries had positive growth despite the negative impact of NAFTA. For example, industry 277 (steel springs, row 1)—the industry worst affected by NAFTA factors—showed strong positive growth (34.39 percent, row 1, column 1). Steel springs benefited from exceptionally strong export growth outside NAFTA, giving the industry a large positive entry in column 10 of table 2. The positive entry offsets the *relative* [13] decline of its exports to NAFTA partners (the main contributor to the large negative entry in column 2). Industries 356 (motor vehicle parts, row 9) and 374 (watches, row 11) are broadly similar cases. While their exports were relatively subdued in NAFTA markets, they exported strongly to ROW. This was facilitated not only by large outward movements of the ROW demand curves for U.S. motor vehicle parts and watches, but also by rapid technical improvements in these U.S. industries. Consequently, both columns 10 and 8

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[13]   Steel spring exports to NAFTA partners grew quite strongly between 1992 and 1998, but not nearly as strongly as exports to ROW. Thus NAFTA factors for this industry include negative shifts of Canadian and Mexican demand curves for U.S. steel springs relative to the shift in the ROW demand curve.

in table 2 show large positive entries for motor vehicle parts and watches, overwhelming the negative entries in column 2.

Another way of looking for NAFTA-related structural problems is to examine industries that did poorly between 1992 and 1998 and ask whether their problems were seriously exacerbated by NAFTA factors. Of the 502 USAGE industries, 37 had negative growth over this period. Of these, NAFTA factors contributed more than half of the negative result in 7 cases (see rows 3, 6, 12, 13, 14, 15 and 16 of table 2). Even for these seven industries, NAFTA factors were not the major cause of their decline. The major negative contribution for small arms ammunition (row 13), earthenware (row 6), luggage (row 15) and flavour syrups (row 16) occurs in column 10, indicating that these industries competed poorly either against non-NAFTA imports in the U.S. market or against competitors in non-NAFTA export markets. For nonferrous ores (row 3), ordnance (row 12), and primary smelting (row 14) the major negative contribution is in column 9. This column includes the effects of cuts between 1992 and 1998 in military investment, explaining the ordnance result. It also includes the effects of adjustments in rates of return. In 1992, rates of return in nonferrous ores and primary smelting were low, causing reductions in their capital stocks across the period and reducing their ability to produce.

Rather than causing structural problems, NAFTA factors may have mitigated such problems. Of the 16 industries (listed at the bottom of table 2) for which NAFTA factors made the largest positive contributions to output, 14 have negative entries in column 10. These industries were not performing well in non-NAFTA export markets or in competition with non-NAFTA imports in the U.S. market. For them, improved access to NAFTA export markets and availability of cheaper inputs from NAFTA countries made a useful contribution to output growth in what was otherwise an unfavorable international situation.

4. Concluding Remarks

Trade policies often get a bad rap. They get blamed for a multitude of economic evils. To many people, it seems a matter of common sense that a policy which encourages imports will cost U.S. jobs. But of course this is not right. Boosting imports also boosts exports. Nevertheless, it is often difficult to pinpoint the causes of poor economic outcomes, and trade policies become a convenient scapegoat.

Even within the economics profession there is confusion about what should be attributed to what. For example, in a much-quoted article, Kehoe (2005) criticizes CGE modelers for underestimating the trade-stimulating effects of NAFTA. His evidence is that in the 10 years following the signing of NAFTA, trade volumes for the NAFTA countries grew more quickly than was shown *ex ante* in the CGE results. However, properly interpreted, the CGE results were not about how fast trade would grow in these 10

years. Rather, they were about how NAFTA would affect growth in trade. Put another way, the CGE modelers were making projections of how much trade growth should be *attributed* to NAFTA.

In this paper, Dixon and Rimmer addressed the attribution issue. Using a detailed CGE model, they have decomposed movements in U.S. macro and industry variables from 1992 to 1998 into the contributions of NAFTA factors and other factors. At the macro level, their results show that NAFTA factors made a minor but useful contribution to aggregate U.S. economic welfare. They attribute an increase of about 0.4 percent in private and public consumption from 1992 to 1998 to NAFTA factors. In present-day terms this is an annual welfare gain of about $50 billion. At the industry level, they focused on whether there were structural adjustment problems in the U.S. economy that developed between 1992 and 1998 and should be attributed to NAFTA. Working at the 502-industry level, they did not find such problems. For industries that suffered negative growth during this period, they found that the major cause in most cases was poor performance in non-NAFTA export markets or in competition with non-NAFTA imports in the U.S. market. For some industries they found that NAFTA factors mitigated a potential structural adjustment problem by easing access to NAFTA markets in a situation in which there was strong competition in non-NAFTA markets.

With regard to trade, their results show that NAFTA factors greatly stimulated U.S. trade with Mexico. For 1992 to 1998, they attribute to NAFTA factors growth of 143.91 percent in U.S. imports from Mexico and growth of 27.88 percent in U.S. exports to Mexico. But other factors also played a major role, stimulating U.S. imports from Mexico by a further 97.00 percent and exports to Mexico by a further 49.76 percent. While U.S. trade with Canada also grew rapidly between 1992 and 1998, their decomposition analysis shows that this was predominantly for non-NAFTA reasons.

References

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Table 1. Decomposition of Movements in Macro Variables Between 1992 and 1998: Contributions of Driving Factors

	(1) Total observed movement 1992–98	(2) Total effects of NAFTA factors	(3) Tariff on imports from Canada	(4) Tariff on imports from Mexico	(5) Other Canada trade effects	(6) Other Mexico trade effects	(7) Total other effects (excludes NAFTA factors)	(8) Technology and tastes	(9) Aggregate employment and other macro factors	(10) Trade effects (excludes NAFTA factors)
			Decomposition of NAFTA factors					Decomposition of other effects		
Percentage changes										
1 Real GDP (Y)	24.40	0.19	-0.01	0.00	0.07	0.13	24.20	14.69	8.90	0.61
Real private consumption										
2 (C)	24.23	0.42	-0.01	-0.01	0.19	0.24	23.81	11.17	11.13	1.51
3 Real investment (I)	60.93	0.76	-0.02	0.00	0.26	0.52	60.16	20.50	38.01	1.65
4 Real public consumption (G)	4.07	0.38	-0.01	-0.01	0.18	0.21	3.69	10.02	-7.70	1.38
5 Real exports (X)	48.32	3.25	0.14	0.11	1.49	1.51	45.06	36.68	-11.61	19.99
6 *to Canada*	63.39	16.86	0.14	0.12	18.63	-2.03	46.53	34.87	-13.96	25.62
7 *to Mexico*	77.64	27.88	0.17	0.13	-3.39	30.97	49.76	39.61	-13.34	23.49
8 *to ROW*	39.67	-4.30	0.13	0.10	-2.83	-1.70	43.97	36.80	-10.67	17.84
9 Real imports (M)	73.59	5.77	0.10	0.08	2.69	2.90	67.83	12.88	26.75	28.20
10 *from Canada*	67.81	4.77	2.74	-0.94	10.01	-7.03	63.04	5.15	29.64	28.25
11 *from Mexico*	240.90	143.91	-1.10	11.81	-0.84	134.04	97.00	19.03	36.59	41.37
12 *from ROW*	61.68	-4.86	-0.37	-0.63	1.39	-5.25	66.54	14.05	25.36	27.13
13 Aggregate employment (L)	11.92	0.00	0.00	0.00	0.00	0.00	11.92	0.00	11.92	0.00
14 Aggregate capital (K)	17.47	0.56	-0.01	0.00	0.19	0.39	16.91	14.44	1.35	1.12
15 Real wage (W/Pc)	10.43	0.77	0.00	0.01	0.32	0.44	9.66	14.89	-8.23	2.99
16 Real exchange rate	16.02	3.45	-0.06	-0.05	1.59	1.96	12.57	-6.52	6.25	12.84
17 Price deflator for C (P_c)	11.83	0.00	0.00	0.00	0.00	0.00	11.83	0.00	11.83	0.00
18 Price deflator for I (P_I)	2.95	-0.39	0.01	0.01	-0.09	-0.32	3.35	-4.23	8.87	-1.28
19 Price deflator for G (P_g)	15.26	0.45	0.01	0.01	0.19	0.25	14.80	8.27	5.15	1.39
20 Terms of trade	6.49	2.75	-0.04	-0.03	1.25	1.57	3.75	-10.09	4.26	9.58
21 Price deflator for GDP (P_y)	11.69	0.36	0.00	0.00	0.17	0.19	11.33	-0.80	10.90	1.24
Percentage point changes										
22 Trade balance, % of GDP	-1.29	0.10	0.00	0.00	0.04	0.07	-1.40	1.11	-2.87	0.37
23 Net f'gn liabilities, % of GDP	5.22	1.49	-0.03	-0.01	0.60	0.92	3.74	27.14	-26.46	3.06

Table 2. Decomposition of Movements in Selected Industry Outputs Between 1992 and 1998: Contributions of Driving Factors

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Total observed movement 1992-98	Total effects of NAFTA factors	Decomposition of NAFTA factors				Total other effects (excludes NAFTA factors)	Decomposition of other effects		
				Tariff on imports from Canada	Tariff on imports from Mexico	Other Canada trade effects	Other Mexico trade effects		Technology and tastes	Employment & other macro factors	Non-NAFTA trade effects
	Percentage changes										
1	277 Steel springs	34.39	-52.66	0.19	0.01	-37.97	-14.89	87.05	26.79	9.67	50.59
2	255 Metal barrels	11.59	-15.34	0.03	0.03	-8.60	-6.80	26.93	18.48	9.49	-1.04
3	23 Nonferrous ores	-2.94	-15.07	0.06	0.07	-14.23	-0.97	12.13	3.80	-20.98	29.31
4	350 Elect equip for cars	25.34	-13.88	0.05	-0.01	-3.90	-10.02	39.22	34.03	8.68	-3.48
5	206 Boot cut stock	8.34	-10.31	0.18	0.11	-2.88	-7.73	17.34	23.81	-12.06	5.59
6	223 Earthenware	-10.42	-9.22	-0.28	0.04	-2.44	-6.55	-1.19	14.32	-1.47	-14.04
7	124 Fabric textile prods	21.75	-9.19	0.01	-0.11	-2.04	-7.06	30.94	17.53	9.99	3.42
8	304 Print machinery	49.25	-9.07	0.11	0.09	-6.10	-3.16	58.32	23.76	32.77	1.79
9	356 Motor vehicle parts	39.54	-9.05	0.09	-0.04	-5.10	-4.00	48.59	23.28	7.78	17.53
10	329 Relays & ind. controls	39.19	-8.82	0.06	0.00	-8.89	0.00	48.01	41.45	12.10	-5.54
11	374 Watches	80.35	-8.48	0.03	0.02	-4.70	-3.83	88.83	50.10	-5.18	43.91
12	52 Ordnance	-3.39	-3.12	0.02	0.02	-2.48	-0.68	-0.27	32.78	-34.17	1.11
13	51 Small arms ammunition	-2.90	-2.45	0.05	0.03	-1.58	-0.96	-0.45	9.65	2.72	-12.83
14	245 Primary smelting	-2.25	-2.06	-0.16	-0.03	-0.90	-0.97	-0.19	11.26	-9.63	-1.82
15	210 Luggage	-1.73	-2.03	0.04	-0.23	-1.14	-0.70	0.30	23.25	19.74	-42.69
16	88 Flavor syrups	-2.58	-2.02	0.03	0.14	-1.34	-0.85	-0.56	24.48	2.05	-27.08
17	355 Motor vehicles	38.93	6.99	-0.05	-0.03	5.97	1.11	31.94	16.12	18.32	-2.50
18	354 Truck trailer	64.37	7.51	-0.01	-0.03	7.45	0.10	56.86	-1.53	59.34	-0.95
19	362 Railroad equipment	72.91	7.66	-0.11	0.05	7.64	0.08	65.25	23.98	52.69	-11.42
20	106 Thread mills	28.63	7.68	0.05	-0.03	-1.68	9.33	20.95	20.70	4.29	-4.04
21	56 Butter	-0.25	7.91	0.04	-0.01	4.91	2.97	-8.16	7.04	4.28	-19.48
22	293 Machinery tools	27.80	8.47	0.00	0.09	7.08	1.30	19.33	22.05	25.57	-28.28
23	5 Cotton	23.78	8.49	0.06	-0.01	0.36	8.09	15.29	28.05	-0.80	-11.95
24	196 Petroleum & coal prods	11.28	8.75	0.05	0.04	4.06	4.60	2.53	8.53	-9.92	3.92
25	298 Industrial patterns	34.96	9.75	0.03	0.02	9.55	0.14	25.22	16.08	15.72	-6.59
26	353 Truck & bus body	60.46	11.25	0.02	-0.01	8.72	2.51	49.21	5.09	50.64	-6.52
27	22 Copper ores	-9.27	12.06	-0.07	0.00	12.22	-0.10	-21.33	21.75	-19.99	-23.09
28	246 Primary aluminum	-2.88	13.71	0.05	0.02	11.41	2.23	-16.60	12.60	1.01	-30.20
29	318 Computers	344.86	15.35	0.12	0.11	14.32	0.81	329.50	358.61	77.42	-106.52
30	108 Coated fabric	32.12	16.64	-0.04	-0.01	8.20	8.48	15.49	25.82	12.53	-22.87
31	345 Electronic tubes	159.44	27.52	0.13	-0.02	-5.32	32.73	131.92	116.22	6.15	9.56
32	148 Public building furniture	45.12	38.45	0.10	0.07	20.83	17.46	6.66	27.46	22.71	-43.51
	Ave. across 502 inds (output wgts)	26.56	0.32	0.00	0.00	0.16	0.17	26.24	16.66	9.31	0.27