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CHAPTER TWELVE

Inventories

12.1. Introduction

This chapter details estimates for inventory holdings of physical goods and of monetary metals (and changes in related claims on foreigners). The final section combines inventory data from other chapters (for example, adding the value of farm animals from chapter 7 on agriculture) and places overall series and its components into a more general context.

12.2. Physical Goods

This section details estimates for inventories of physical goods, other than monetary metals (which are treated below). Inventories of farm and range animals were included in the agricultural capital stock. Here we are concerned with all other inventories—specifically of mined, manufactured, and agricultural products, and of imports. In principle, animals held off farms and ranges should also be included, but we had insufficient data to prepare the estimates.[1]

In estimating the value of the remaining inventories, we followed the example of Kuznets (1946, 202, 228), taking one-half of the value of output of mining, manufacturing and agriculture and one-half of the value of imports to represent inventories.[2]

Gallman wrote sections 12.1 to 12.6; Rhode made minor revisions for clarity and wrote section 12.7.

TABLE 12.1 **Value of inventories of imported goods, measured current and 1860 prices, 1840–1900, in millions of dollars**

		1840	1850	1860	1870	1880	1890	1900
Current dollars								
1	Value of imports, exclusive of duties	100	180	368	449	681	845	858
2	Duties	15	40	53	192	183	227	229
3	Value of imports, inclusive of duties	115	220	421	641	864	1,072	1,087
4	Inventories of imported goods	58	110	211	321	432	536	544
5	Price index (1860 = 100)	92.1	90.3	100	145	108	88.6	82.4
1860 dollars								
6	Value of imports, exclusive of duties	109	199	368	310	631	954	1,041
7	Inventories of imported goods	62	114	211	177	361	546	595

Sources: Line 1: North and Simon 1960, 577, 605, 643. Line 2: US Bureau of the Census 1960, series U-18. Line 3: line 1 + line 2. Line 4: For justification of this procedure, see text. Line 5: US Bureau of the Census 1960, series U-34 (1880, 1890, 1900), linked with series E-1 (1870), and series E-70 (1840, 1850, 1860). The first and third are import average value and price index series (see text). In the table, index numbers are rounded to the level at which the underlying series are rounded. Lines 6: 100 × line 1 ÷ line 5. Line 7: 1860 value of imports inclusive of duties as a ratio of the value of imports exclusive of duties. Line 8: line 7 × 0.5. Line 9: line 6 × line 8.

12.3. Imports

We took the value of imports from North and Simon (1960, 577, 605, 643), and adjusted the series to incorporate the value of duties, the latter taken from US Bureau of the Census 1960, series U-18.[3] The deflator was formed by linking together the average unit value of imports (series U-34, 1880, 1890, 1900), the Warren-Pearson all commodities index (series E-1, 1870), and the Bezanson price index of goods imported into Philadelphia (series E-70, 1840, 1850, 1860) from US Bureau of the Census 1960. The series exclusive of duties was deflated and then used as an extrapolator for the 1860 value of imports plus duties. Table 12.1 shows the results.

12.4. Agriculture

The agricultural output series is Gallman's gross income series, adjusted to include feed and seed allowances of corn, oats, and hay, and to exclude various items that either did not figure importantly in inventories or are

TABLE 12.2 **Value of inventories of agricultural products, measured in current and 1860 prices, 1840–1900, in millions of dollars**

		1840	1850	1860	1870	1880	1890	1900
1	Value of inventories in census-year prices	388	489	889	1,368	1,425	1,555	1,840
2	Price adjustment factor	0.861	1.068	0.969	0.933	1.053	1.029	1.049
3	Line 1 expressed in calendar-year prices (line 1 × 2)	334	522	861	1,276	1,501	1,600	1,930
4	Line 1 expressed in prices of 1879	417	542	792	917	1,426	1,953	2,268
5	Line 3 ÷ line 4, 1860			1.0871				
6	Line 1 expressed in 1860 prices (line 4 × line 5)	453	589	861	997	1,550	2,123	2,466

Sources: See text.

covered elsewhere.[4] The prices underlying the Gallman series are census year prices. Accordingly, the valuation base of the Gallman series was shifted to the calendar year, by means of the Warren-Pearson and BLS farm products price indexes reported in US Bureau of the Census 1960, series E-2 and E-15. Since Gallman's constant price series is based on 1879, it was necessary to shift the base to 1860. This was done without reweighting the index. Table 12.2 displays the agricultural inventory estimates.

12.5. Mining and Manufacturing

The mining and manufacturing inventory estimates were based on Gallman's value-added estimates. Once again, the valuation base was shifted from the census to the calendar year by means of the price indexes of Warren-Pearson and BLS.[5] The mining series was deflated by Gallman's price index, shifted to the base 1860. The manufacturing series, 1840–80, was deflated by the Gallman price index of manufacturing output, shifted

TABLE 12.3 **Value of inventories of mined products, measured in current and 1860 prices, 1840–1900, in millions of dollars**

		1840	1850	1860	1870	1880	1890	1900
1	Value of inventories in census-year prices	5.2	9.8	19.7	72.3	88.8	164	270.7
2	Price adjustment factor	0.925	1.01	1.026	0.893	1.07	1.007	1.058
3	Line 1 expressed in calendar-year prices (line 1 × 2)	4.8	9.9	20.2	64.6	95	165.1	286.4
4	Line 1 expressed in 1879 prices	4.2	10.1	19	40.7	88.8	200.9	319.7
5	Line 3 ÷ line 4, 1860			1.063				
6	Line 1 expressed in prices of 1860 (line 4 × line 5)	4.5	10.7	20.2	43.3	94.4	213.6	339.8

Sources: Lines 1 and 4, value added × 0.58 (which yields a value roughly equal to value of output × 0.50). See Gallman 1956, 218.
Lines 2, 3, 5, 6, see text.

to the base 1860, without reweighting, and extrapolated to 1890 and 1900 on the Warren-Pearson "all commodities" index, which tracks the Gallman index very closely (Gallman 1956, 279). Table 12.3 details the inventory estimates for mined products; table 12.4 does the same for manufactured products. Table 12.5 then brings together the inventory estimates for all physical goods, including imports, agricultural products, mined products, and manufactured products. Metals held for monetary purposes are treated immediately below.

12.6. Monetary Metals and the Net International Position

This section consists of two components: the stock of monetary metals owned by Americans (including American governments), and the net international position of the United States (foreign debts held by Americans, minus American debts held by foreigners). The former we have taken chiefly from Hepburn and the 1929 *Annual Report* of the director of the Mint (see the notes to table 12.6). Unfortunately, neither of these

TABLE 12.4 **Value of inventories of manufactured products, current and 1860 prices, 1840–1900, in millions of dollars**

		1840	1850	1860	1870	1880	1890	1900
1	Value added by manufacturing, census-year prices	250	447	815	1,631	1,962	3,727	5,044
2	Adjustment factor	1.124	1.124	1.126	1.238	1.359	1.142	1.19
3	Value of inventories in census-year prices (line 1 × line 2)	281	502.4	917.7	2,019.20	2,666.40	4,256.20	6,002.40
4	Price adjustment factor	0.918	1.012	0.989	0.944	1.053	1.006	1.036
5	Line 4 in calendar prices (line 3 × line 4)	258	508	908	1,906	2,808	4,282	6,218
6	Price index, base 1879, census years	109.7	85.6	95.7	140.8	100	86	85.8
7	Line 3, expressed in 1879 prices (100 × line 3 ÷ line 6)	256.2	586.9	958.9	1,434.10	2,666.40	4,949.10	6,995.80
8	Line 5 ÷ line 7, 1880					0.947		
9	Line 5 expressed in 1860 prices (line 7 × line 8)	243	556	908	1,358	2,525	4,687	6,625

Sources: Line 1: Gallman 1960, 56. The 1840 figure has been corrected here per Gallman 1966, 47. Line 2: 0.5 × value of product ÷ value added; derived from Gallman 1956, 38–39, 41. We assumed that the same ratio held for 1840 and 1850. Lines 3–9: For sources and justification of the procedures, see text.

TABLE 12.5 **Value of all inventories of physical goods, measured in current and 1860 prices, in millions of dollars**

		1840	1850	1860	1870	1880	1890	1900
1	Value, at current prices	655	1,150	2,000	3,568	4,836	6,583	8,978
2	Implicit price index	87	91	100	139	107	87	90
3	Value, at 1860 prices	763	1,270	2,000	2,575	4,530	7,570	10,026

Sources:
Line 1: Sums of table 12.1, line 4; table 12.2, line 3; table 12.3, line 3; and table 12.4, line 5.
Line 2: 100 × line 1 ÷ line 3.
Line 3: Sums of table 12.1, line 9; table 12.2, line 6; table 12.3, line 6; and table 12.4, line 9.

TABLE 12.6 **Value of net US international assets, measured in current and 1860 prices, 1840–1900, in millions of dollars**

		1840	1850	1860	1870	1880	1890	1900
1	Stock of monetary metals	83	154	253	217	500	1,159	1,682
2	Net international position	–261	–217	–377	–1,252	–1,584	–2,894	–2,501
3	International assets, current prices	–178	– 63	–124	–1,035	–1,084	–1,735	–819
4	Price index (base:1860)	102	90	100	145	108	88	88
5	Deflated stock of monetary metals	81	171	253	150	463	1,317	1,911
6	Deflated international position	–256	–241	–377	–863	–1,467	–3,289	–2,842
7	Net international assets, 1860 prices	–175	– 70	–124	–713	–1,004	–1,972	–931

Sources:
Line 1: 1840–60: Hepburn 1915, 160 ("Specie in the U.S."), 177 ("estimated specie in the U.S."). 1870: US Director of the Mint (1929, 106) figure for June 30, 1873, plus Hepburn's (1915) estimates of the value of net specie exports, fiscal years 1873, 1872, 1871, minus the value of the US gold production, 1871, 1872, 1873, the latter estimated as the product of gold output from US Bureau of the Census 1960, series M-246, and $20.67 times 1 plus the gold premium (Hepburn 1915, 226, means of highs and lows). We made no allowance for silver production on the grounds that during the period, silver was not being used significantly for monetary purposes in the United States. We were unable to make allowance for gold flowing into the arts, because we could find no basis for estimating the value of this flow. 1880–1900: US Director of the Mint 1929, 106. Line 2: US Bureau of the Census 1960, series U-207. Line 3: line 1 + line 2. Line 4: US Bureau of the Census 1960, series E-1, extrapolated to 1900 on series E-13. Line 5: 100 × line 1 ÷ line 4. Line 6: 100 × line 2 ÷ line 4. Line 7: line 5 ÷ line 6.

sources provides any clear indication of the bases for the figures. While the series of the director of the Mint might be supposed to rest on official evidence, the title of the table uses the term "estimates" to describe the series. Furthermore, the director's *Report* (1929, 106 and 110) includes two contradictory tables relating to gold stocks, and never references the contradiction; we used the series on p. 106.

The estimates of the director of the Mint appear to be dated 30 June, which is close to the date of the capital series (1 June). Hepburn does not indicate the day within the year to which his estimates relate, but one may suppose that the end of the federal fiscal year was intended. During the period in question, the federal fiscal year ended within three months of 1 June.

The net international position of the United States was taken from US Bureau of the Census 1960, series U-207, which was based on the very careful work of North and Simon (1960).

It is by no means clear how such series should be deflated, and one can even make a case that they should not figure in a constant price capital series. However, if they are to be deflated, presumably some general price index should be used, such as the GNP or capital stock deflator.[6] In the case of the net position of the United States, one could even argue that the appropriate procedure would be to deflate claims on the United States by a US deflator, and US claims on foreigners by a weighted average of the general price indexes of the countries on which Americans had claims. The one deflated aggregate would then be subtracted from the other, after due allowance for any change in the relevant rates of exchange.

Our view is that such complex procedures are unwarranted, given the nature of the interpretive issues surrounding the concepts. We chose the simplest procedure available, deflating with the Warren-Pearson and BLS. all-commodities price indexes, shifted to the base 1860 without reweighting (see notes to table 12.6).

12.7. Placing the Inventory Data in Context

Tables 12.7 and 12.8 compile data on the distribution of inventories from 1840 to 1900. They include the value of farm animals from chapter 7 on agriculture. The tables allow us (1) to calculate a total value of inventories; (2) to derive the shares of inventories comprised by agricultural products, manufactured products, mined products, and others; and (3) to form the ratio of the inventory stock to GNP.

TABLE 12.7 **Values and shares of inventories, current and 1860 prices, 1840–1900, in millions of dollars**

		1840	1850	1860	1870	1880	1890	1900
	Value at current prices							
1	Total inventories	1,100	1,737	3,074	5,234	6,680	9,299	12,046
2	Animals	445	587	1,074	1,666	1,844	2,716	3,068
3	All products	655	1,150	2,000	3,568	4,836	6,583	8,978
4	Agricultural products	334	552	861	1,276	1,501	1,600	1,930
5	Mined products	5	10	20	65	95	165	286
6	Manufactured products	258	508	908	1,906	2,808	4,282	6,218
7	Other products	58	80	211	321	432	536	544
	Value at 1860 prices							
8	Total inventories	1,439	2,061	3,074	3,686	6,075	9,625	12,246
9	Animals	676	791	1,074	1,111	1,545	2,055	2,220
10	All products	763	1,270	2,000	2,575	4,350	7,570	10,026
11	Agricultural products	453	589	861	997	1,550	2.123	2,466
12	Mined products	5	11	20	43	94	214	340
13	Manufactured products	243	556	908	1,358	2,525	4,687	6,625
14	Other products (Above excludes monetary metals)	62	114	211	177	361	546	595
15	Current prices	83	154	253	217	500	1,159	1,682
16	1860 prices	81	171	253	159	463	1,317	1,991

Sources: Line 1: line 2 + line 3. Lines 2 and 9: table 7.3. Lines 3 and 10: table 12.5. Lines 4 and 11: table 12.2. Lines 5 and 12: table 12.3. Lines 6 and 13: table 12.4. Line 7: line 3 – line 4 – line 5 – line 6; other products are principally imports. Line 8: line 9 + line 10. Line 14: line 10 – line 11 – line 12 – line 13; other products are principally imports. Lines 15 and 16: table 12.6.

TABLE 12.8 **Shares of inventories, current and 1860 prices, 1840–1900**

		1840	1850	1860	1870	1880	1890	1900
Agricultural share								
1	Current prices	0.71	0.66	0.63	0.56	0.5	0.46	0.41
2	1860 prices	0.78	0.67	0.63	0.57	0.51	0.43	0.38
Manufacturing share								
3	Current prices	0.23	0.29	0.3	0.36	0.42	0.46	0.52
4	1860 prices	0.17	0.27	0.3	0.37	0.42	0.49	0.54
Mining and other share								
5	Current prices	0.06	0.05	0.08	0.07	0.08	0.08	0.06
6	1860 prices	0.05	0.06	0.08	0.06	0.07	0.08	0.05
Inventories/GNP								
7	Current prices	0.63	0.66	0.73	NA	0.69	0.74	0.74
8	1860 prices	0.89	0.73	0.73	0.66	0.70	0.74	0.70

Sources: Line 1: from table 12.7, (line 2 + line 4) ÷ line 1. Line 2: from table 12.7, (line 9 + line 11) ÷ line 8. Line 3: table 12.7, line 6 ÷ line 1. Line 4: table 12.7, line 13 ÷ line 8. Line 5: from table 12.7, (line 5 + line 7) ÷ line 1. Line 6: from table 12.7, (line 12 + line 14) ÷ line 8. Line 7: from table 12.7, line 1 ÷ GNP in current prices in Gallman 2000, 7. Line 8: table 12.7, line 8 ÷ GNP in 1860 prices in Gallman 2000, 7.

The data shows that the share of agricultural products in inventories fell from about three-quarters of the total in 1840 to about four-tenths in 1900. The share of manufactured products in inventories climbed from less than one-quarter of the total in 1840 to over one-half in 1900. In current-price terms, the ratio of inventories to GNP rose between 1840 and 1900; in the constant-price terms, the ratio fell. These ratios differ somewhat from those reported in Gallman (1986) table 4.7, column 3. The difference is likely due to the use of a different GNP series in the denominator. The overall trends, however, are similar.