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Appendix B

Extension of the Bureau of Agricultural Economics Index of Prices Paid by Farmers for Machinery and, Beginning with 1920, Expansion of the Coverage to Include Motor Vehicles with Other Farm Machinery

The Bureau of Agricultural Economics has calculated index numbers of prices paid by farmers for implements and machinery exclusive of motor vehicles beginning with 1910, and a similar index for motor vehicles beginning with 1924. Both series have as their base average prices in 1910-1914, and both reflect the prices of new units only. BAE had earlier calculated another index of prices paid by farmers for motor vehicles, beginning with 1917. This is not fully comparable with its successor, but it affords a basis for extrapolation of the present index back to 1920.

Beginning with 1920, the index of prices paid for farm machinery and that of prices paid for motor vehicles were combined, using as weights the respective values of farm machinery and of motor vehicles owned by farmers. For 1910, when the number of motor vehicles on farms was negligible, the BAE index of prices paid by farmers for machinery exclusive of motor vehicles was suitable. For earlier census years it was necessary to resort to indexes of prices of goods which could reasonably be expected to move in a manner roughly similar to the prices paid by farmers for machinery. Thus Frederick C. Mills' Index of Wholesale Prices of Processed Goods Entering into Capital Equipment, which begins with 1891, was linked to the BAE series to obtain an index for 1900, and, in turn, a simple average of the Warren and Pearson wholesale price indexes of (1) metal and metal products and (2) lumber was linked to Mills' index to obtain indexes for 1890, 1880, and 1870.¹

The series that resulted from these steps is shown in the following table.

<i>Year</i>	<i>Index</i> (1910-1914 = 100)	<i>Year</i>	<i>Index</i> (1910-1914 = 100)
1870	136	1925	150
1880	113	1930	148
1890	93	1935	149
1900	90	1940	159
1910	100	1945	195
1920	177	1950	294

¹ Frederick C. Mills, *Economic Tendencies in the United States* (National Bureau of Economic Research, 1932), p. 586; George F. Warren and Frank A. Pearson, *Prices* (Wiley, 1933), pp. 26, 30.

Strictly speaking, all machinery on farms is used machinery. Consequently the use of this index as a deflator of the current values reported by farmers to the census may at times result in some distortion as the value of used machinery does not always move precisely with that of new machinery. During an agricultural depression prices paid for machinery at farm sales are often relatively lower than those paid to dealers for new machinery. Contrariwise, in time of high prosperity, particularly if, as in 1945, the supply of new machinery is inadequate, prices paid at farm sales are often relatively higher than those paid to dealers for new machinery. However, to the extent that the values reported to the census by farmers are influenced by the prices of new machinery, even in times when these prices are not in normal relation to prices of used machinery, distortion from this source is minimized.