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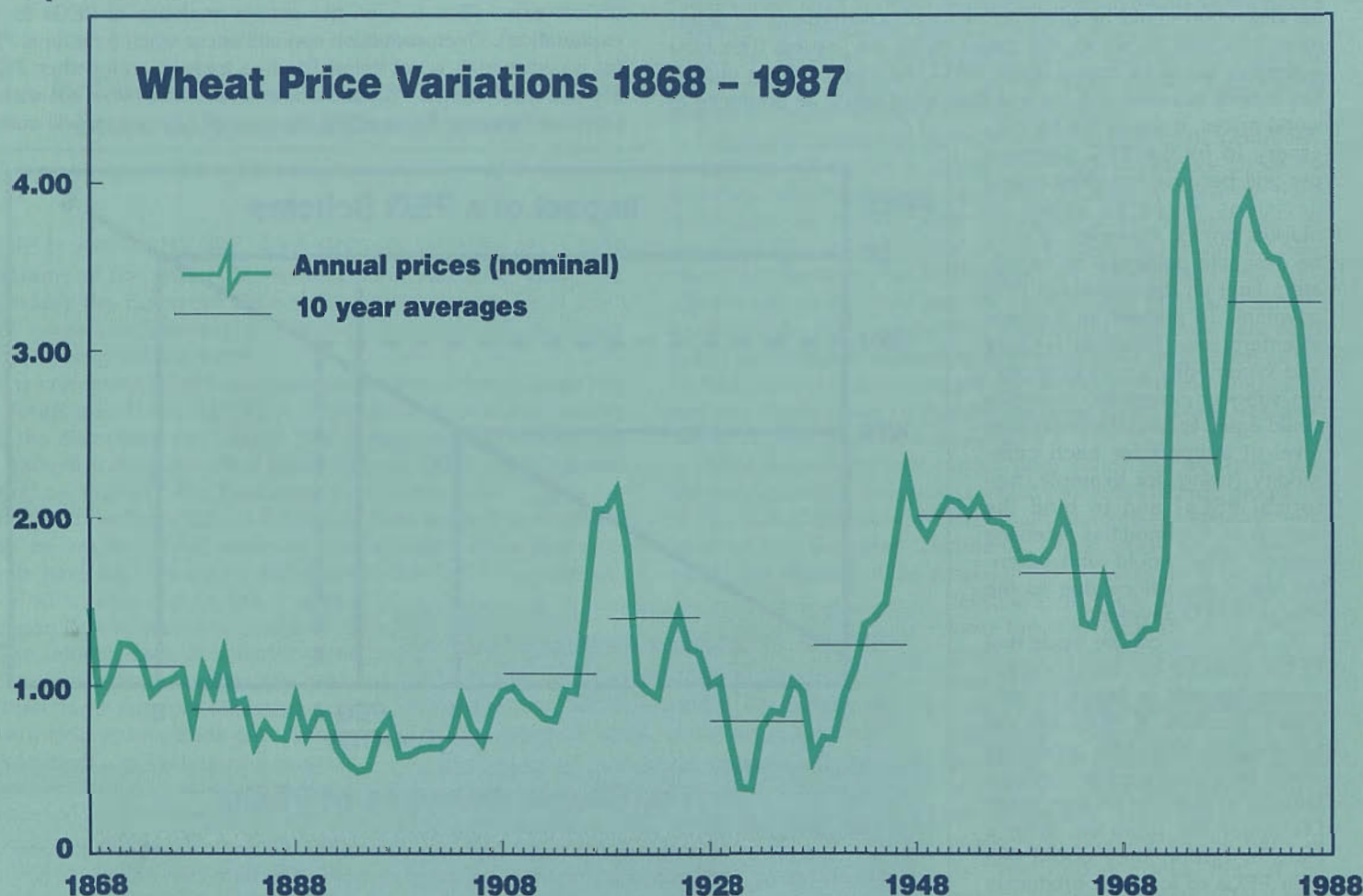
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# PRICE VARIABILITY AND

\$ per bushel



by Robert Boxley

## Why Farm Programs?

Most people would probably assert that the primary purpose of agricultural programs is to raise farm income. When basic farm legislation was being put in place in the 1930s, however, price stability for agricultural products was of equal concern. In the 1950s and 1960s, price volatility receded as an issue, in part because farm programs generally were successful in reducing price uncertainty. But the aftermath of the "price shocks" of the early 1970s dramatically emphasizes that price variability remains a central fact of agricultural production.

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## Price Volatility - A Fact of Farm Life

U.S. agriculture traditionally has experienced "boom-or-bust" cycles brought on by highly volatile commodity and livestock prices. The Civil War drove wheat prices to over \$2 a bushel in 1866. For the next half century nominal wheat prices fluctuated around \$1 a bushel. They rose sharply with World War I, then dropped with the depression. The pattern was repeated with WWII, and with the 1973 boom. Similar patterns can be seen for cotton, rice, corn, and other grains.

## Importance of Variation is Relative

One way to quantify price variation is to express it relative to mean or average prices. The chart shows 120 years of wheat prices averaged by decades. A pattern of year-to-year variation around decade means is apparent, together with a widening of the range of



# ND FARM PROGRAMS

## Coefficients of Variation, Nominal Prices

<u>Decade</u>	<u>Wheat</u>	<u>Corn</u>	<u>Rice</u>	<u>Cotton</u>	<u>Tobacco</u>	<u>Peanuts</u>
			(percent)			
1868-77	14	24	*	*	24	*
78-87	20	22	*	9	17*	
88-97	21	26	*	16	13*	
98-07	16	22	*	19	16*	
1908-17	34	<b>37</b>	34	<b>40</b>	36*	
18-27	31	<b>37</b>	35	29	21	26
28-37	29	35	23	34	29	30
38-47	<b>43</b>	<b>47</b>	<b>41</b>	<b>43</b>	<b>35</b>	<b>38</b>
48-57	4	11	9	10	5	5
1958-67	13	6	4	11	7	5
68-77	<b>47</b>	<b>36</b>	<b>37</b>	<b>38</b>	19	20
78-87	15	15	27	10	9	10

\*Annual prices not available.

price fluctuations since the early 1970s.

Behavioral theory postulates that relative, rather than absolute variation, is a more appropriate measure of price risk. That is, the greater absolute variation in wheat prices during recent decades does not necessarily imply greater risk since average prices are also higher. Relative variation is commonly measured by the coefficient of variation (The standard deviation of prices around the mean expressed as a percentage of the mean).

For the risk averse, a lower coefficient of variation is preferred to a higher. For wheat, the coefficient of variation in the 1968-1977 decade was the highest of record. For corn, rice and cotton, 1968-1977 price variations were the greatest since World War II years. For the last several years, acreage reserve programs and target prices have contributed to lower coefficients for program crops.

Peanuts and tobacco are noteworthy exceptions to these price patterns. These two crops have been under strict production controls most years since the mid-1930s. Along with other commodi-

ties, their prices rose during the war years, but have shown little year-to-year variation since.

### Price Stability: A Continuing Program Goal?

Historical prices are not necessarily a test of the effectiveness of farm programs in stabilizing commodity prices. Commodity prices rose in the 1970s and fell in the 1980s in response to a number of factors not under the control of farm programs.

Possibly also, program managers may have inadvertently exacerbated price responses to the unexpected trade and macroeconomic developments of the period.

The experiences of the 1970s demonstrate that the threat of price instability remains a significant factor in agricultural production and marketing.

As we move to an increasingly interdependent global trading economy, the prospects for future price instability must continue to be a consideration in the design of agricultural and trade policies **C**