

Inflation Expectations During the Korean War: Evidence from a Program of Price Controls

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Abstract

The beginning of the Korean war in June of 1950 was accompanied with inflationary pressures. The first contribution of this paper is to document the main theory of the Korean war inflation, which blames consumers and businesses for a wave of speculative buying seen as the source of inflation. According to this theory, the program of price controls adopted in January of 1951 put an end to the Korean war inflation by removing anticipations of future price increases. The second contribution of this paper is to test this theory using a difference-in-difference approach, which exploits the variation in the application of controls to livestock and retail meat. I find a negative, significant, and sizable effect of the price freeze on expectations of future price increases. The paper concludes with a discussion of the distortions introduced by the price freeze, and the role of the price control program itself in this inflationary episode.

Keywords: price controls, Korean War, Office of Price Stabilization, expectations, inflation

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The return of inflation after the Covid 19 pandemic has led to new calls to enforce price controls to limit price increases (Weber, 2021; Reich, 2022; Casselman and Smialek, 2022). Most economists are opposed to price controls because of the effects of setting a price below equilibrium, which theoretically will lead to a disequilibrium between supply and demand, shortages, black markets and other disruptions. However, others have argued that price controls could stop "inflationary spirals," when they are the product of self-fulfilling expectations of future price increase (e.g. Galbraith, 1952: 21).

It is this latter view that led Rockoff (1984: 199) to see the Korean war program of price controls in the United States as a "model use of controls," because they were adopted in a situation where money supply growth was limited. Controls therefore served to rein in mistaken anticipations of future price increases, and brought "price expectations into line with the new rate of growth of the money supply" (Rockoff, 1984: 198). The purpose of this present paper is twofold: first, to document this theory and how it served as a policy framework for price controls. Second, to examine whether it is sustained empirically, by measuring the effect of the 1951 price freeze on expectations of future inflation.

The beginning of the Korean war in June 1950 was accompanied by a rise in prices during the Summer. Inflationary pressures subsided in the Fall, but prices started rising again, and even faster, towards the end of the year. This prompted the adoption in January of 1951 of a general price and wage freeze by the Truman administration, enforced by the Office of Price Stabilization (OPS).

Although the January 1951 price freeze was called "General," it admitted a number of exceptions and limitations. Most important among these limitations were farm prices, which were left largely uncontrolled, especially during the first few months of 1951. On the other hand, retail prices were firmly controlled by the freeze. This

situation created a natural experiment: as I document, livestock prices and retail prices of meat are tightly connected in normal times, such that the uncontrolled livestock prices can serve as a control group to evaluate the effect of the price control "treatment" on retail meat prices.

Using this variation in the application of price controls, I estimate using a difference-in-difference methodology that the effect of the price freeze was a reduction of expectations of future price increases between 8.5% and 12.3%, compared to what these expectations would have been absent the price freeze. I discuss this result in light of the theories that have been advanced to explain the Korean war inflation, and the economic significance of this result, arguing that this hardly constitutes evidence of success, because the price increase was itself largely attributable to the program of price controls.

This paper contributes in the main to two literatures: first, this paper contributes to the literature on the changing state of expectations during the 1950s (Sims, 2024; Binder and Brunet, 2022; Binder and Kamdar, 2022). Few studies have looked empirically at price controls, and even fewer at the Korean war experience, beyond the work of some historians such as Pierpaoli (1999). This paper is perhaps most closely related to the notes by Frances Martin (1951) and Louise Mack (1951a; 1951b), a series of studies from the Division of Prices and Cost of Living of the Bureau of Labor Statistics published during the Korean war. Their studies attempted to estimate the effect of the price freeze on prices, but their comparisons were between frozen and free prices in general, rather than between carefully selected control and treatment groups.

Second, this paper adds to the studies trying to estimate the effect of price controls, such as Aparicio and Cavallo (2021), Rockoff (1984) and Blinder and Newton (1981). Aparicio and Cavallo have argued in the Argentinian context that "inflation

expectations remained relatively flat even around key price controls announcements" (2021: 65). This runs counter to the idea that price controls can stop expectations of future inflation, which, as I demonstrate, was at the core of the mental model of OPS, and a possibility that was recognized by economists as diverse as Galbraith (1952: 21) and Friedman (1974: 86). This present paper lends some credence to this theory, by showing a significant effect of price controls on expectations of future inflation in the context of the Korean War. However, the discussion also points out that this effect is itself a product of the anticipation of the price freeze, and that the introduction of large distortions introduced many more problems in the productive structure of the economy.

I proceed by reviewing the inflationary episode of the Korean war, and the different theories that were and have been advanced to explain it. I propose a very simple model capturing the effect of expectations on inflation, and explain how we can test this theory using city and state data on retail and farm prices. Finally, I discuss these results in light of the previous literature of expectation-driven inflation, and suggest future avenues of research.

1 Inflation during the Korean War: Development and Interpretations

In this section, I go over the main stylized facts that characterized the inflationary episode during the Korean war, from the beginning of the war in June 1950 to the end of the war in 1953. I then review the different interpretations of this episode.

1.1 Inflation during the Korean war

When the war started on June 25, 1950, inflation was already on an upward trajectory (Figure 1). At the end of World War II, the wartime price controls were becoming increasingly untenable, and by 1946 they were abandoned. A period of very high catchup inflation followed, with year-over-year CPI inflation reaching a peak of 20% in January of 1947 (Reed, 2014: 12ff.). Inflation remained elevated until the recession of November 1948, which lasted well into 1949, and which was accompanied with a decrease in the price level. By June of 1950, when the war started, the CPI inflation was at zero percent year-over-year.

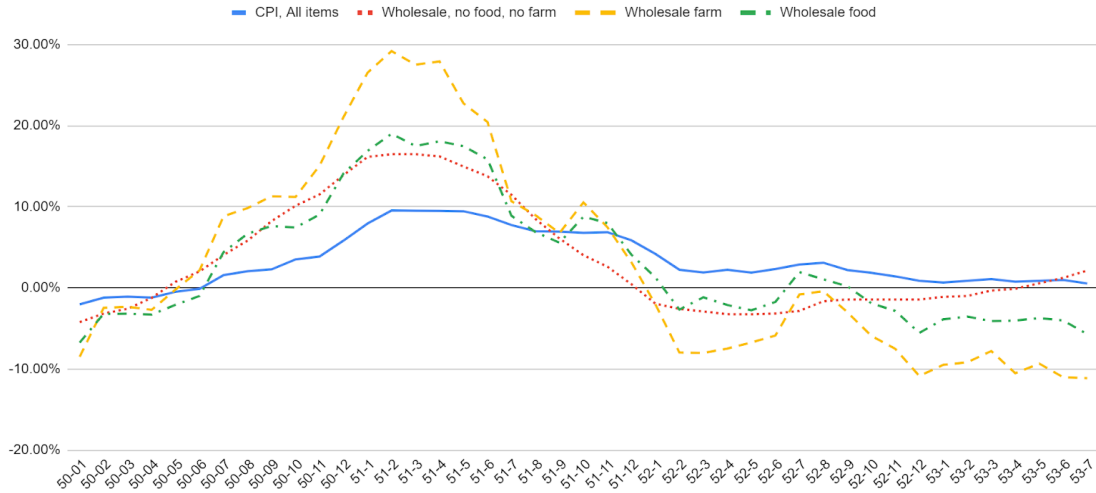


Figure 1: Year-over-year inflation rates, 1950-01 to 1953-07

The inflation rate jumped for the first time in the summer of 1950 following the outbreak of the Korean war. In September of 1950, Congress voted on the Defense Production Act (DPA), which gave broad powers to the President to organize production and allocate essential resources, and to control wages, prices and credit. An Economic Stabilization Agency was created alongside the Office of Defense Mobiliza-

tion, but the Truman administration hesitated to use its powers to control prices, as successes in Korea coincided with a stabilization of the inflation rate in September-October (Pierpaoli, 1999).

As news of China's entry in the conflict reached the US in late November, inflation started creeping up again. By the beginning of 1951, Truman resolved himself to adopt a program of mandatory price controls. To enforce this program, the Office of Price Stabilization (OPS) was carved out of the Economic Stabilization Agency in January, and put under the direction of Michael V. DiSalle. A freeze of all wages and prices was ordered on January 26, 1951, with prices capped at the highest level they had reached during the period from December 19 to January 25.



Figure 2: Index of consumer prices and three producer prices, 1950-01 to 1953-07

This created a problematic situation, as the government had repeatedly urged businesses not to increase their prices in the previous months. Those who had heeded this advice found themselves in a much worse position than those who had ignored it and increased their prices. Consequently, the OPS adopted a number of new

regulations to adapt price ceilings for most goods in the economy, either with dollars and cents ceilings, or by setting maximum mark-ups capping the prices of retailers by a fixed percentage above their costs. Following the beginning of price controls, inflationary pressures eased up after peaking in April-May 1951; in fact the wholesale price level subsequently decreased, while the consumer price index stabilized at the end of 1951 (Figure 2).

1.2 Theories of the Korean war inflation

There are two main theories of the Korean war inflation: one based on expectations of future price increases, the second on monetary factors. In the following, I will only attempt to empirically verify the first of these theories, but will discuss in the conclusion the significance of the monetary view of Korean war inflation.

1.2.1 The expectation theory of inflation

The most common interpretation of the inflationary episode of the Korean War is what we may term the "expectation" theory of inflation: the invasion of South Korea by North Korea on June 25, 1950, led to a sudden shift in expectations. Consumers and producers, anticipating a shift of production towards defense goods and the return of wartime shortages, created a wave of speculative buying that spiraled out of control until the general wage and price freeze adopted on January 26, 1951 stopped this process, by ending the expectations of future higher prices. This interpretation was widely disseminated at the time, and is still current today in accounts of the inflationary episode.

This story was laid out perhaps most clearly by David Ginsburg, the former General Counsel of the Office of Price Administration (the agency in charge of price

controls during World War II):

Indirect controls cannot cope with intense, temporary price pressures which arise from psychological and speculative forces ... The immediate post-Korean inflation was caused in large part by the expectation of future price increases and shortages... Moreover, direct general price controls are essential to allay the fear of further price increases which is the greatest stimulus to speculative buying. (Ginsburg, 1952: 528)

Ginsburg added to this an argument on the downward rigidity of some industrial prices:

Higher costs become lodged in the industrial price structure and normally remain there even in the face of severely declining demand. Wage rates are among the most rigid of these elements. If wage rates are increased in periods of speculative demand they become, for all practical purposes, part of the industry's permanent cost structure. Only direct controls, which prevent speculative booms from having their effect on prices, can avoid this problem. (Ginsburg, 1952: 528)

The idea that controls were necessary to stop a wave of panic-buying was echoed repeatedly in the analyses of price controls by OPS officials (DiSalle, 1951; Ginsburg, 1952; Burt and Kennedy, 1952; Heimann, 1952; Faragher and Heimann, 1953). For instance, G. Griffith Johnson, an advisor in the Economic Policy Office of the Economic Stabilization Agency, writing in the *American Economic Review* (Johnson, 1952), argued that fiscal and monetary policies were not sufficient to end inflation: "What we faced was a rapid spiral touched off by a sharp change in psychology—a problem not susceptible of handling by slow-moving methods. If we had wished

to prevent the rapid rise in prices and wages of the second half of 1950, there was only one practicable way of doing it: a quick imposition of some measure of direct controls" (Johnson, 1952: 290). Mike DiSalle, in his May 1951 testimony before Congress during which he defended the need to strengthen price controls, argued similarly that:

in the absence of price ceilings the frantic consumer buying and piling up of inventories, which went on in many fields until the end of January, might well have continued much longer—possibly until the time when physical shortages developed as a result of the expanding defense program. The psychological inflation of panic buying and hoarding would then have passed without a break into the physical inflation of acute shortages, and the two stages together could have set off a runaway spiral of prices and wages that would have ruined our economy. (DiSalle, 1951: 3)

This was subsequently reiterated by the other directors of the price control agency, for instance Tighe Woods who argued the following year that: "the price freeze ended buying based on fear of and also on hope for higher prices. This *elimination of speculative demand* helped maintain stability throughout the past year." (Woods, 1952: 1, original emphasis).

This was the mental model of inflation on which DiSalle and others at the OPS were acting: speculation and hoarding due to expectations of future price increases was itself the source of price increase, and by breaking those expectations of future inflation, the OPS broke the price increase itself.

While OPS officials did not really try to verify their story empirically beyond references to news articles about hoarders, and testimonies going in the direction

of their theory, an NBER study published a few years later explored empirically the determinants of spending and consumption during the war, concluding that the waves of inflation during 1950-51 were indeed driven by speculation on the part of consumers:

The outbreak of the Korean War in June 1950 was followed by eight months of strong inflationary pressure, due largely to abnormally heavy buying by consumers in anticipation of possible future shortages. . . . In the period covered by this study the key to an understanding of trends in economic activity is to be found in the behavior of consumers. (Hickman, 1955: 2)

More recently, this interpretation has been taken at face value by comparative writings on different inflationary episodes. A Bureau of Labor Statistics study examining "One Hundred Years of Price Changes," argued that "Demand surged as consumers, mindful of World War II shortages, bought while they still could. . . . The General Ceiling Price Regulation went into effect in early 1951, affecting primarily food and durable goods. Constrained by these controls, inflation was relatively modest through most of 1951" (Reed, 2014: 16). Prompted by the Covid-era pandemic to look at historical episodes of inflation, the Council of Economic Advisors published a short study summarizing this idea in one sentence: "Demand jumped as households—reminded of rationing and supply shortages during World War II—rushed to purchase goods" (Rouse, Zhang and Tedeschi, 2021).

Economic historians' views have been more measured. Rockoff (1984; 2012) has produced some of the only works looking at the Korean war in the wider perspective of price controls. While he also emphasized the role of expectations in triggering the inflationary wave after the beginning of the war (Rockoff, 1984: 177), he underlined

the role that monetary factors played in limiting overall inflation over the two years after the price control program was started (Rockoff, 1984: 187). We now turn to the role of these monetary factors in another explanation of the Korean war inflation.

1.2.2 A monetarist take on inflation

The preceding interpretation of inflation was convenient for the OPS, because it justified its role, and gave it a prominent place in ending the rise in prices. This argument usually left little room for monetary policy, at most as a factor explaining the absence of a surge in prices at the end of the period, when President Eisenhower announced the end of price controls during his first State of the Union Address (Eisenhower, 1953).

The expectation theory defended by OPS was already criticized at the time, even from inside the agency. The lack of empirical evidence linking the action of the OPS with changes in the inflation rate were noted by Anne Flory, the agency's official historian, who summarized the prevalent reasoning of officials:

OPS issued regulations in order to carry out its part in the stabilization program. It assumed that compliance with its regulations would produce the desired effect. It further assumed that the overwhelming majority of sellers would comply with the regulations. Lastly, it assumed that price movements and other indexes to economic stability reflected in some measure the effect of compliance with its regulations. It concluded, therefore, that its regulations did, in fact, contribute to the stabilization program. With its faith in its own effort thus established, the agency did not undertake an administrative examination of its basic premises. (Flory, 1954: 618-619)

Flory's account was not so much an indictment of the agency but rather an explanation of why it failed to defend its ground with Congress; the legislator had severely limited the power of OPS to enforce price controls with two rounds of amendments in July 1951 and August 1952, and a slashing in half of the OPS budget in 1952.

Fiercer critiques came from Henry Hazlitt, who repeatedly attacked price controls as a "colossal hoax" in his regular *Newsweek* column (Hazlitt, 1951). Hazlitt argued that the source of inflation was the monetary expansion that had started in the Summer of 1950, as the government forced the Federal Reserve to expand the monetary supply by buying Treasury bonds at a fixed price. The value of Treasury Securities held by the Fed did increase by 30% from June 1950 to April 1951, an increase that was in part offset by gold outflows; at the same time, demand deposits and currency held only increased by about 4% during the same period, but investment and lending increased by about 30% and stabilized during the second quarter of 1951 for the rest of the war.¹

In their monetary history of the United States, Milton Friedman and Anna Schwartz emphasized that the Federal Reserve-Treasury accord to stop supporting the prices of government bonds, reached in early March 1951, was a pivotal moment in the turn away from cheap-money policies to a new, reinforced independence of the Central Bank in order to fight inflation (Friedman and Schwartz, 1963: 623ff). The Accord signaled the beginning of a tightening of monetary policy, which coincided with the decrease in the rate of inflation that characterized the rest of 1951-1952, at the same time that a surplus appeared in the Treasury consequent to the tax increases decided by the Truman administration and voted by Congress to finance

¹The July 1951 issue of the Federal Reserve Bulletin went back in many details on the "recent monetary and credit developments;" data for demand deposits, investment and treasury bonds are taken from the Bulletin and the St. Louis Fed: <https://fred.stlouisfed.org/>.

the war.

This monetarist account of inflation is prevalent in stories that have looked at the episode from the point of view of the Federal Reserve. Somewhat surprisingly, the most ardent supporter of a monetary origin of the Korean war inflation was the Federal Open Market Committee of the Federal Reserve. Before 1951, the Fed had been committed to maintain low interest rates on government bonds, in effect preventing interest rates on long-term United States Bonds from going above 2.5%, by buying bonds on the open market every time the rate got closer to this limit. Minutes of the Federal Open Committee Meeting show that the board was acutely aware that the policy of maintaining the price of bonds at the same level led to the monetization of public debt, and was a potent source of inflationary pressures (Hetzel and Leach, 2001: 47).

On February 6, 1951, at the height of the dispute between the President and the Federal Reserve, Marriner Eccles, arguably the most powerful governor on the board, made an impassioned plea laying out the responsibility of the Fed in the current episode:

We can not wait to act. Action is far overdue. In retrospect, I would say, if anything, that we have been derelict in not acting sooner and more aggressively. We have failed to take as drastic and strong and aggressive action as the situation has been calling for. We have relied upon selective credit controls, a slender reed that was entirely unable to deal with the credit expansion that this Federal Reserve System has pumped into the market through its cheap money policy. . . . The thing we are doing is to make it possible for the public to convert Government securities into money and to expand the money supply of this country by \$7 billion in

six months. We have permitted an increase in the money supply of this country by more than 8 per cent since Korea. . . . We are almost solely responsible for this inflation. (FOMC Meeting minutes, Feb. 6-8, 1951: 17-18).

This speech was a pivotal moment in the showdown between the Fed and the Treasury, and ultimately, in the victory of the Fed who regained the ability to increase interest rates through the Fed-Treasury Accord, which put an end to the support of government bond prices by the central bank. After the Accord, Truman picked a new chair, William McChesney Martin, who committed the Federal Reserve to a restrictive monetary policy to fight inflation, disappointing Truman's hopes. The end of the support of government securities ushered in an immediate rise in interest rates (Hetzel and Leach, 2001: 52).²

2 Measuring inflation expectations

In this section, I set up a framework to test the hypothesis that price controls significantly altered expectations of inflation. First, I propose a simple model of inflation based on the theory presented in the previous section. Second, I show how the difference-in-difference estimator in the simplest two-by-two case helps us recover expectations from the simple model we set up. Finally, I give evidence that our control and treatment groups share a parallel trend before the treatment, which is the crucial assumption for the difference-in-difference estimator to be unbiased.

²In April 1951, long-term rates on US bonds breached the 2.5% ceiling for the first time since October 1939: <https://fred.stlouisfed.org/series/LTG0VTBD>.

2.1 Model and estimation strategy

The expectation theory of inflation presented in the previous section is simple: the future price level depends not only on current prices, but also on the expectations of higher prices in the future. In equation, this means that:

$$P_t^i = P_{t-1}^i(1 + E[\pi_t^i]) \quad (1)$$

where P_t^i is the price of commodity i at time t , π_t^i is the rate of increase of the price of commodity i , and $E[\pi_t^i]$ is the expected inflation of commodity i at time t . When people do not expect a rise in prices, $E[\pi_t^i] = 0$ and the price level is stable. This simple model captures the expectation theory of inflation that was defended by the OPS during the Korean war, that framed the agency response, and that is still current in most explanations of the episode.

Our problem is to find whether or not the price control program had a stabilizing effect on $E[\pi_t^i]$, such that the price level was stabilized. It is the price level that is frozen by price controls, and after the price freeze, people expect prices to remain at the same level. Absolute expectations are complex to measure, but I argue in the following that i) we are not interested in the overall level of expectations, but in relative expectations for different types of goods, and ii) a difference-in-difference estimation will help us recover the effect price controls had specifically on inflationary expectations.

My estimation strategy is to find two groups of commodities, one that was subject to the price freeze, and the other that was left free of control. The main identifying assumption is that prices in the control and in the treatment groups would have evolved similarly in the absence of the price freeze—the so-called parallel trend assumption. In the next subsection, I will detail the two groups chosen, and provide

evidence that they fulfill the parallel trend assumption. Before that, the rest of this section explains why the difference-in-difference estimator provides an estimate of the difference between expectations of inflation for controlled and free commodities.

The equation we will estimate is a standard parametrization of the difference-in-difference estimator (Cunningham, 2021: 420; Angrist and Pischke, 2008: 233):

$$p_t^i = \beta_0 + \beta_1 D + \beta_2 C + \delta(C \cdot D) + \epsilon \quad (2)$$

where $p_t^i = \ln(P_t^i)$ is the natural logarithm of prices P_t^i , D is a dummy variable equal to 1 when the observation is recorded after price controls began and 0 otherwise, and C is a dummy equal to 1 when the observation is from our treated group and 0 otherwise. The effect of the treatment (price controls) is captured in δ . The estimate of δ can be expressed as a function of the conditional average of each of our four groups (controlled and free, pre and post). To see why, one can express the parameters of (2) as functions of the conditional averages:

$$E(p_t^i | D = 0, C = 0) = \beta_0 \quad (3)$$

$$E(p_t^i | D = 1, C = 0) = \beta_0 + \beta_1 \quad (4)$$

$$E(p_t^i | D = 0, C = 1) = \beta_0 + \beta_2 \quad (5)$$

$$E(p_t^i | D = 1, C = 1) = \beta_0 + \beta_1 + \beta_2 + \delta \quad (6)$$

Clearly, $((6) - (5)) - ((4) - (3)) = \delta$, or in other words:

$$\delta = [E(p_t^i|D = 1, C = 1) - E(p_t^i|D = 0, C = 1)] - [E(p_t^i|D = 1, C = 0) - E(p_t^i|D = 0, C = 0)] \quad (7)$$

Now given our model (1), and given the approximation $\ln(P_t^i) \approx \ln(P_{t-1}^i) + E[\pi_t^i]$, then:³

$$E(p_t^i|D = 1, C = 1) = \frac{\sum_{j=0}^n p_{1j}^c}{n_1^c} = \frac{\sum_{j=0}^n p_{0j}^c + E[\pi_{1j}^c]}{n_1^c} \quad (8)$$

where p_{1j}^c is the price of a commodity j in period 1 (the post period), this commodity belonging to the group of commodities subjected to price control c (f represents the group of commodities free of controls). The other conditional averages are derived similarly. As long as we have a balanced panel ($n_1^c = n_0^c = n^c$ and $n_1^f = n_0^f = n^f$), then δ will be equal to the difference between the average expectation of the price of controlled and free commodities:

$$\begin{aligned} \delta &= \left[\frac{\sum_{j=0}^n p_{0j}^c + E[\pi_{1j}^c]}{n_1^c} - \frac{\sum_{j=0}^n p_{0j}^c}{n_0^c} \right] - \left[\frac{\sum_{j=0}^n p_{0j}^f + E[\pi_{1j}^f]}{n_1^f} - \frac{\sum_{j=0}^n p_{0j}^f}{n_0^f} \right] \\ &= \left[\frac{\sum_{j=0}^n E[\pi_{1j}^c]}{n^c} \right] - \left[\frac{\sum_{j=0}^n E[\pi_{1j}^f]}{n^f} \right] \\ &= \bar{E}[\pi_1^c] - \bar{E}[\pi_1^f] \end{aligned} \quad (9)$$

This section showed that the difference-in-difference estimator is able to test the model of inflation proposed by OPS officials and others, which hinges on the role

³The logarithmic transformation can either be considered an approximation for relatively small rates of inflation, or as a lower bound, conservative estimate.

of expectations $E[\pi_t^i]$. Given the theory of the previous section, our prediction is that $\delta = \bar{E}[\pi_1^c] - \bar{E}[\pi_1^f] < 0$. That is, the price freeze decreased expectations of price increases for controlled commodities, as compared to those commodities that remained free of control. All we have to do now is find two groups of commodities, one controlled and one not controlled, which share a parallel trend, and to build a balanced panel to test this model.

2.2 Data and parallel trend assumption

When the Defense Production Act of 1950 was adopted, a number of statutory exemptions and limitations were written into the law for various reasons. Letzler (1954: 498ff) discussed a number of these and other exemptions and limitations, the most important of which for our purposes was the prohibition of price ceilings on agricultural commodities that were being traded below the parity price for the commodity, as determined by the Secretary of Agriculture. Parity prices were computed according to a complex formula involving the cost of living of farmers and the prices they could get for their product, as compared to the relationship between these costs and prices during the period 1910-1914. It was a way to support farm prices, and Congress was not ready to limit those supports when it adopted the Defense Production Act.

This led in January 1951 to an interesting natural experiment: the prices of livestock remained free of controls, while the prices of retail meat were subject to firm controls (Martin, 1951: 426). The rest of this section details these two groups of commodities, and provides evidence that their price movements historically evolved together.

Our data on retail prices by cities comes from the Retail Price Division of the Bureau of Labor Statistics (BLS, 1949-1951). This data was gathered by trained agents

from the bureau, who collected it monthly in 55 cities in the early 1950s. Over the period of our study (1949-1951), some items were dropped and other added, but the core of the different meat prices remained the same. For each city, we therefore have access to the prices of round steak, rib roast, chuck roast, hamburgers—produced from beef cattle, veal cutlets—produced from calve cattle, pork chops, bacon, ham, salt pork—produced from hogs, and lamb legs—produced from lambs and closely related to sheep prices.

The data on farm prices comes from the Crop Reporting Board of the Bureau of Agricultural Economics, a division of the US Department of Agriculture (Crop Reporting Board, 1949-1951). In part to fulfill the requirements of parity laws, the USDA collected many monthly statistics at the farm level. These statistics include the average prices of hogs, beef, calves, sheep and lambs received by farmers at the state level. Because farm prices are at the state level, I will aggregate in the following the retail prices by states to compare the two categories of products.

Both sets of data have been digitized by others and made available on Hathitrust, and I used OCR software to import the tables into a usable format. Many of the retail prices have been checked using the physical books due to the poor quality of some of the pages scanned.⁴ To make both series comparable, each commodity has been standardized as an index with 1949 as a base period (average price in 1949 = 100).

The main question that we now face is whether the prices of livestock and of retail meat evolve sufficiently similarly under normal conditions as to sustain the parallel trend assumption. Our first piece of evidence that this is the case comes from theoretical and empirical studies of agricultural prices. Thomsen (1952), in the second edition of his then-authoritative book on agricultural prices, published during

⁴I thank my research assistant, Charles Lundstrom, for his help in checking the retail data.

our period of interest, wrote that

Prices received by farmers for meat animals are more closely related to the retail price of the final products than are the prices for most nonperishable farm commodities, because there are no industrial uses for the major products, meat is seldom carried over in volume from one year to the next, and there is intense competition in meat packing. (Thomsen, 1952: 362)

Thomsen discussed our four categories of livestock, providing further evidence that farm prices are closely related to the retail products: for instance, in the case of hogs, he produced a figure from the American Meat Institute, showing "how closely the seasonal pattern of hog prices follows the seasonal pattern of the value of pork products" (Thomsen, 1952: 369-370). Thomsen explained that in an unpublished analysis, he found that over the period 1921-1941, "96% of the variation in hog prices was associated with changes in the combined value of pork and lard" (Thomsen, 1952: 370).

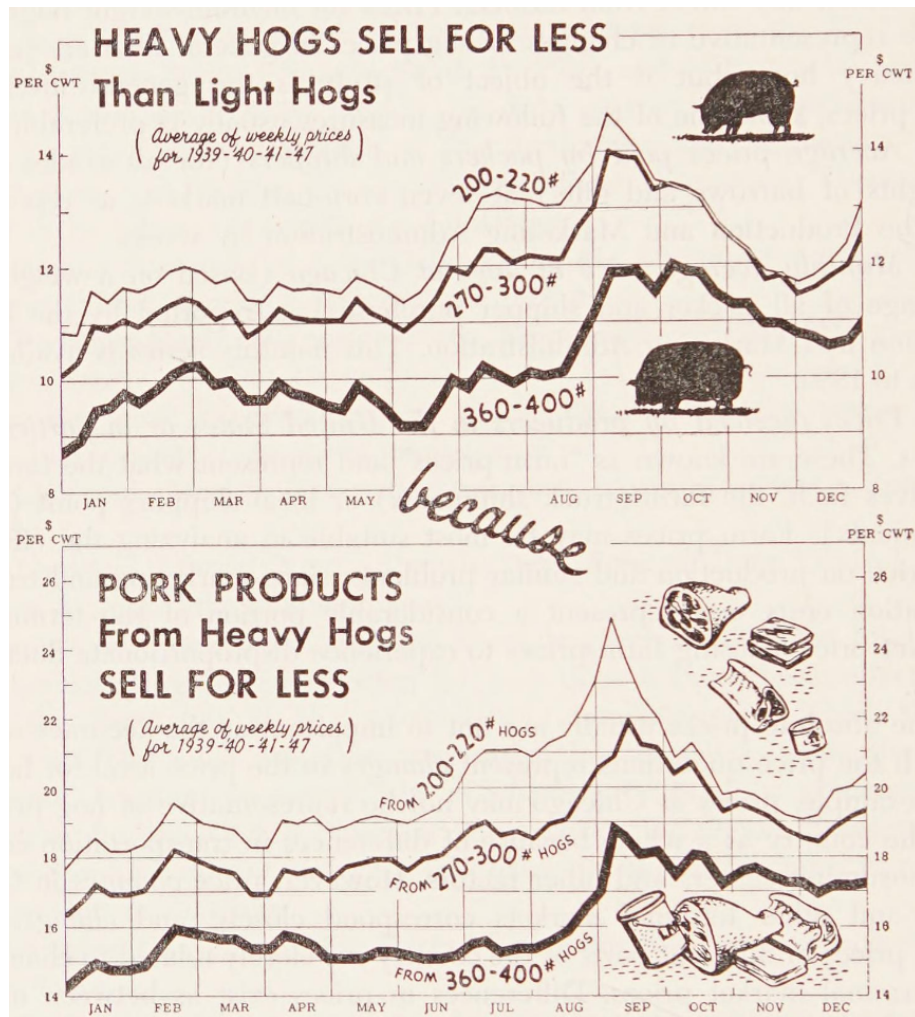


Figure 3: Hog Prices from *American Meat Institute* via Thomsen (1952: 370)

While the hog industry is relatively straightforward, the cattle market is much more complex, with many producing areas yielding many different types of products, grades, etc. However, Thomsen notes again that "As with hogs, prices for live cattle are derived from the value of the products obtained from them. The two most important products are meat and the hide, although many other by-products also are obtained." (Thomsen, 1952: 385). Meat prices are arguably the most important

factor however, given the appearance in the early 1950s of new substitutes for leather (Thomsen, 1952: 385). I take this as further evidence that changes in the prices of live cattle and of retail prices are closely related, and that, absent the price controls on retail prices, they would have continued evolving together.

Looking into the data on farm prices and retail meat prices, the parallel trend assumption seems to be confirmed, especially when we limit the comparison to the period before the beginning of the Korean war (Figure 4). By looking at a US index aggregated using CPI and wholesale weights for both series, it is clearly apparent both that they tend to move in concert, and that the beginning of price controls created a very large price differential that was reduced significantly only in the last quarter of 1951.

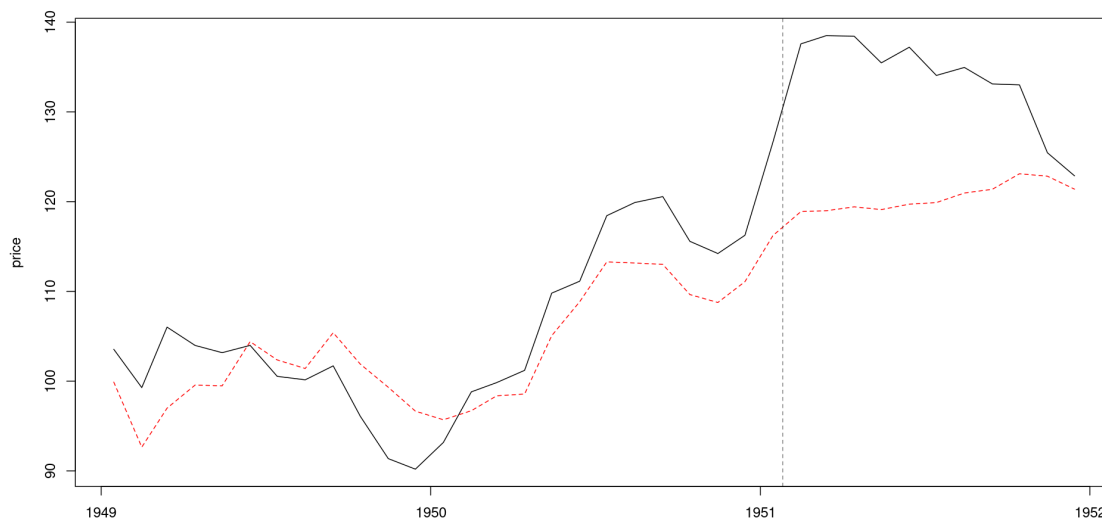


Figure 4: Comparison of aggregate, US indexes of livestock prices (black, solid line) and retail meat prices (red, dashed line)

Looking at the figure, it is also apparent that the beginning of the Korean war

had already led to a larger increase in farm prices than in retail prices. But the gap was maintained around the same level until the end of the year, when livestock prices increased much more rapidly than retail prices. A disaggregated view of the data shows that each category (beef, calves, hogs, and lambs) evolved similarly over the period. In each case, the effect of price controls appears significant, and the prices of farm and retail track very closely before price freeze.

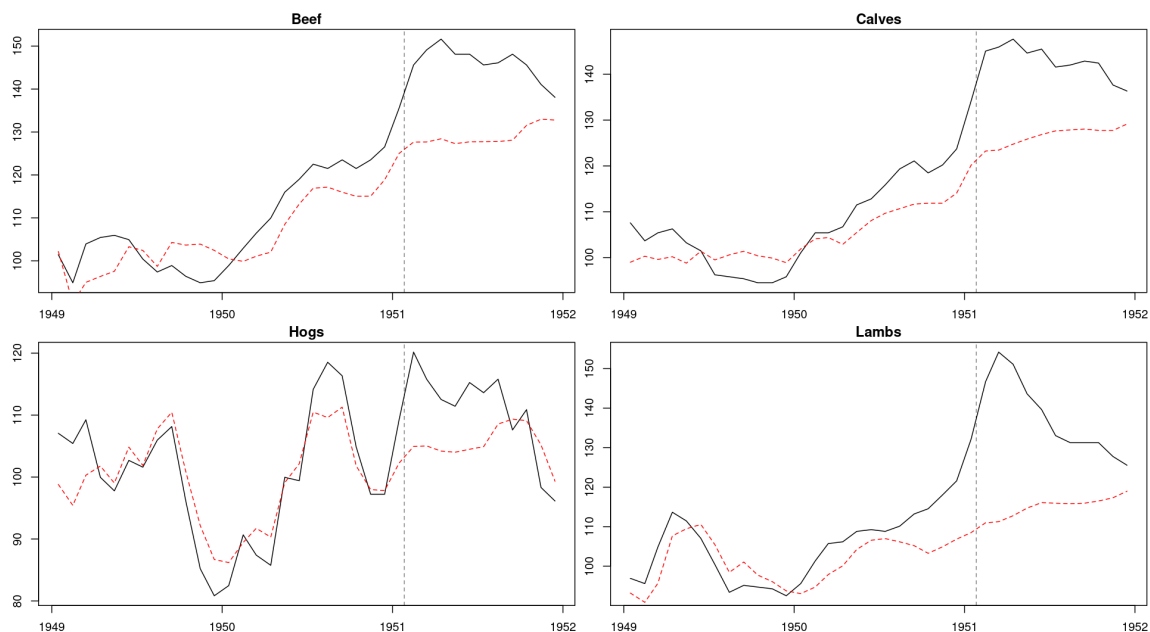


Figure 5: Comparison of US indexes for livestock prices (black, solid line) and retail meat prices (red, dashed line) for each of the four groups of meat

On the basis of the theoretical evidence reported by Thomsen and the empirical evidence in the figures above, I will proceed in the following under the assumption that, barring the price control program, the prices of livestock and of retail meat would have continued to evolve similarly.

3 Discussion: the effect of price controls on expectations of inflation

This section presents the result of various estimations of equation (2), and discusses the statistical and economic significance of those results. I frame the discussion in relation to the theory presented in the first section, and existing interpretations of the source of inflationary expectations.

3.1 Results

In this section, I report the results from the estimation of different parametrization of the equation:

$$p_t^i = \beta_0 + \beta_1 D + \beta_2 C + \delta(C \cdot D) + \epsilon \quad (2)$$

The price freeze was adopted on January 26, and our data is collected in the first weeks of each month. We will assume in the following that the "pre" period goes up to and includes January 1951, and the "post" period starts after January. The simplest estimation of the effect of price controls is to apply the two-by-two estimator immediately before and after the price freeze (first row of table 1). The ATT (δ) is -0.085, which is highly statistically significant. Given our discussion above, we can read δ either as a lower bound on the difference in percentage points between the expected price increases for controlled and free commodities, or in a more standard way as a lower bound estimate of the percentage point increase in prices that was avoided because of the price freeze. The effect is negative, as predicted, such that after the price freeze, people expected controlled prices to increase 8.5 percentage points less than uncontrolled prices. In other words, in the absence of the price

freeze, retail prices of meat would have been about 8.5% higher than they were in February 1951.

As a robustness check, rows 2-4 show the same estimate with controls for States and Animals. If there were large variations in the effect of the price freeze by state or animal, we would expect these controls to change the effect of δ . The table shows that the effect is stable to controls.

Rows 5 and 6 show the same estimator but this time applied to the average price over three months before and after the price freeze. Again, controlling for animal and state does not change the measured effect. This aggregation over three months increases the effects by around 50%, to a difference between controlled and uncontrolled commodities of 12.3 percentage points. This is not surprising, given that farm prices had already begun to increase more than retail prices in January (see figures 4 and 5 above, and figure 6 below).

Table 1: Difference-in-difference estimates of the effect of price controls on expectations

Nr	(1) Dep. variable	(2) Controls	(3) ATT (δ)	(4) SE	(5) 95% CI	(6) N
<i>Baseline: 2x2 (Jan.-Feb.) Diff-in-diff</i>						
1	ln(price)	None	-.085	.013	(-.11 — -.059)	1441
2	ln(price)	State	-.085	.013	(-.11 — -.059)	1441
3	ln(price)	Animal	-.084	.008	(-.10 — -.067)	1441
4	ln(price)	Animal and State	-.084	.008	(-.10 — -.068)	1441
<i>2x2 (grouped by quarters around the date of the price freeze) Diff-in-diff</i>						
5	ln(price)	None	-.123	.013	(-.149 — -.097)	1459
6	ln(price)	Animal and State	-.123	.008	(-.138 — -.107)	1459

The limitations of two-by-two difference-in-difference estimators are well-known (see e.g. Cunningham, 2021: 469ff.): first, if the treatment effect is heterogeneous

across units, or if it varies across time periods, the estimation will be biased. Second, this estimation will be biased when there are more than two time periods. In our case, the effect of the initial price freeze clearly dissipates over time, as farm prices and retail prices get closer throughout 1951, and in the case of hogs start moving downward together (see figures 4 and 5 above).

To estimate those dynamic effects, and see if they affect the estimation of the initial effect of the price freeze, I run a difference-in-difference using the estimator developed by Callaway and Sant’Anna (2021).

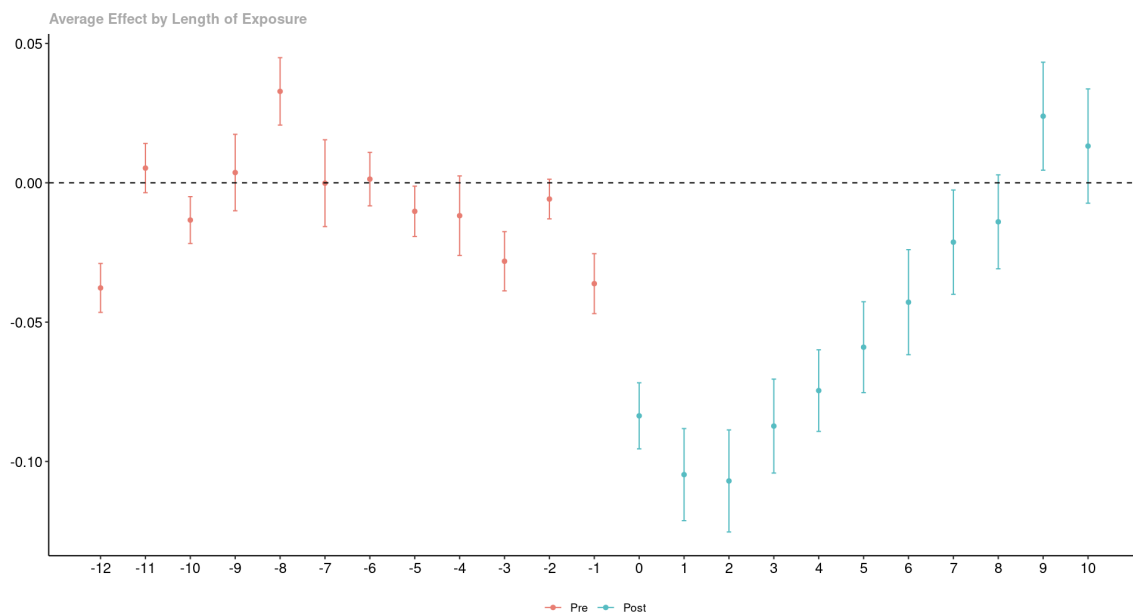


Figure 6: Difference-in-difference estimation of the effect of price controls, based on Callaway and Sant’Anna, (2021)

Figure (6) reports the results in the form of an event study plot. The plotted coefficients represent the ATT between control and treated groups in the respective period. The change in color signals the beginning of price controls in January 1951. The results suggest that the difference in prices between treated and untreated com-

modities before price controls began were relatively small, and statistically either insignificant or close to insignificance. These common trends indirectly support the identifying assumption (Angrist and Pischke, 2008). After price controls began, the divergence in prices between the two groups can be clearly seen. It is also clear that after the first few months, the effect begins to dissipate, and eventually returns to statistical insignificance.

The immediate effect of the price freeze is of the same order of magnitude as when estimated using the simple 2x2 difference-in-difference. Figure 6 makes it clear why aggregating three months around the date of the price freeze increases the estimated effect: the ATT was already significantly negative in January, and in March it went down further before stabilizing. Given these different estimates, we can say that the price freeze significantly influenced expectations of future inflation, lowering controlled prices between 8% and 12% below what they would have been in the absence of the freeze.

3.2 Expectations of what?

The preceding section shows that we can identify a clear effect of price controls on expectations of future increases in prices. Following the price freeze of January 1951, prices of meat at retail, which were firmly controlled, stopped increasing, while farm prices, which were left free of control, continued to increase. It is unlikely that the difference between our control and our treated groups was due to military or monetary events, because these two factors would have affected all prices, not just those falling under the general freeze.

These results do not mean that, absent the price freeze, prices would have continued to climb. In fact, there are good reasons to think that they would have stopped

climbing eventually. Not only were farm prices eventually brought down, but the conjunction of a budget surplus, a military stalemate, and the rise of interest rates all presumably affected the overall rise in prices.

The program of price controls can hardly be seen as the source of this subsequent easing of inflationary pressures. Evidence from investigations into price violations do not show widespread black markets or even widespread upward pressures (Carret, 2023). Farm prices, and especially those of our control group, were supposed to be rolled back by the OPS, who managed to implement only one of these rollbacks, in May 1951, before being stripped of the authority to do so by Congress during the Summer (Burt and Kennedy, 1952; Durham, 1952). Yet farm prices continued to decrease, until they eventually reached a level more in line with retail prices.

As our natural experiment demonstrates, there was a distortion between the price of livestock, and the retail prices of meat, which was a consequence of the exemptions baked into the price control program. This distortion introduced many problems, especially on the cattle market where production dropped in the Spring of 1951 below 80% of its level from the two previous years. Reports of shortages in Chicago and New York started appearing in June in the pages of the New York Times (New York Times, 1951a; 1951b; 1951c; 1951d), and these dysfunctions led to a lobbying campaign that succeeded in getting Congress to limit the power of the OPS to impose price controls and roll prices back (Carret, 2023).

It is also worth noticing that the end of the program of price controls, in spite of the dire predictions of its proponents, did not witness a sudden rise of prices, as had happened after the end of World War II price controls, and to some extent after the Nixon price controls (Blinder and Newton, 1981).

This leaves us with an important question of interpretation: why were the expectations of future price increases by consumers and businesses in the early 1950s so

much influenced by the price freeze?

One potential explanation is that prices advanced *because* people expected the price freeze. This idea has been most clearly expressed by Working (1952). Working argued that the first price increase in the Summer of 1950 was due to "anticipatory buying." But when it came to the second price rise, in late 1950, he argued that most of the rise in prices came from the anticipation of the price control program:

Then in the fall of the year prices leveled off. This was soon followed by a renewed price rise, the character of which shows it to have been the result of the anticipated governmental price controls. Prices which were under the control of private suppliers, and which are ordinarily very slow to join any price rise, were raised in order to "beat" the price ceilings. The way in which the price freeze was applied, in other words, actually caused a rise of prices rather than snuffing out an inflationary spiral. (Working, 1952: 711)

OPS officials were aware of this, and in their post-mortem of the program, argued repeatedly that most of the failures of the experiment were the result of the delay in adopting firm regulations on price increases before January (e.g. Letzler, 1954: 491; Durham, 1952: 3).

If this interpretation is true, then it is not surprising that the measured effect was so large. The only reason that prices were going up was the expectation that they would soon have to stop going up. When retail prices increased in anticipation of the freeze, they took with them farm prices. The freeze eventually ended the rise of retail prices, but nothing prevented farm prices from keeping on their earlier momentum. In this way, not only the rise of prices, but also the distortion created between farm and retail prices was a direct consequence of the program of price controls.

Friedman (1974: 86) acknowledged the possibility that a program of price controls could be successful in altering people's expectations, citing the example of Argentina in the 1960s. But he added that by doing so, the government would be "introducing a whole series of *distortions*" in the price structure (Friedman, 1974: 86-87). Friedman argued that the same result could be obtained, and "far better," if "the people can be made to believe that the government is serious in its anti-inflation effort" (Friedman, 1974: 87). The example examined in this paper shows that the same was probably true in the US during the Korean war: the price freeze was successful in changing people's expectations, but the price to pay for it was the introduction of large distortions in the price structure.

4 Conclusion

This paper establishes firmly that price controls had a significant influence on expectations of future price increases, which is in line with both the theory of expectation-based inflation and with the view that the threat of price controls was itself the source of these expectations. A conservative estimate for the effect of the price freeze is a reduction in the price level of controlled commodities between 8.5% and 12.3% compared to what it would have been without the price freeze. We warned the reader to use some caution with this result: while it provides evidence that price controls did affect expectations of future inflation, it does not mean that price controls are an effective means to control inflation. In fact, the opposite might be true, if the initial rise was itself the product of the anticipation of the price control program.

This analysis also leaves open a major problem: why and how did uncontrolled prices eventually come down? More empirical research is needed to answer this question. Several avenues of research could potentially help in answering this: first,

the Fed-Treasury accord, by putting an end to cheap money policies and allowing the rise of interest rates after almost 12 years of keeping them down, probably played a key role that needs to be distinguished from the program of price control. Variation in money growth between federal reserve districts could perhaps be used to test the hypothesis (advanced by Hazlitt and the FOMC) that money-printing by the Fed was the source of the Korean War inflation.

Second, the dynamics of the meat market may also have played a role in bringing down prices. If the meat market is not as generalizable as we could hope for, finding other natural experiments could provide more evidence on the effect of the price freeze on expectations of future price increases. Raw wool and wool apparel, or farm milk and retail dairy products could potentially be used to test the effects of the price freeze, as both raw wool and farm milk were left uncontrolled while their retail derivatives were firmly controlled.

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