Chronicle of a Deflation Unforetold

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Suppose that the nominal money supply could be cut literally overnight. What would happen to prices, wages, and output? Such an experiment was carried out three times in France in 1724, resulting in a cumulative 45 percent cut. Prices adjusted instantaneously and fully on the foreign exchange market. Prices of commodities and of manufactured goods and industrial wages fell slowly, over many months, and not by the full amount of the nominal reduction. The industrial sector experienced a contraction of 30 percent. When the government changed course and increased the nominal money supply overnight by 20 percent, prices responded more, and industry rebounded.

I. Introduction

Robert Lucas’s (1996) Nobel lecture begins by quoting David Hume (1752, 41, 46–47). Hume’s essays exhibit the tension between the neutrality of money that he finds “evident,” at least in a closed economy, and his observation that prices lag in response to increases in money, which are therefore not neutral. This tension has remained, in the words of Lucas, “at the center of monetary theory” (664) ever since.

Hume derived his theoretical belief of neutrality from a priori reasoning, frequently presented in the form of thought experiments that Lucas finds “a little magical.” For example, to prove that the quantity...
of money has no effect on the interest rate, Hume asks us to “suppose that, by miracle, every man in Britain shou’d have five pounds slipt into his pocket in one night” (1752, 66). As for the observation of short-run nonneutralities, Lucas notes that it is hard to tell what evidence Hume had aside from his everyday knowledge and the writings of “one Mons. de Tot.”1 As it turns out, these writings describe a monetary experiment that was just as magical as Hume’s thought experiments, with two differences: the experiment actually happened, and it did not support the neutrality of money.

The place was France; the time was 1724. Money then took the form of gold and silver coins that bore no face value. Rather, government would set the nominal value of coins by decree and could change it literally overnight and without warning. It did so three times that year, reducing the face value of coins by 45 percent in all, with the aim of quickly reducing the price level. But the only market to adjust fully and instantaneously was the foreign exchange market; elsewhere, prices slowly came down over the course of 2 years, even in centralized markets for homogeneous goods such as wheat. At the same time, the textile industry (the main industrial sector at the time) went into a severe contraction. Two years later, in May 1726, the government carried out a similar operation in the other direction, increasing the face value of coins overnight by 20 percent. Both prices and industrial output bottomed out and started to rise.

I do not recount the 1724 experiment for its position in the genealogy of monetary economics. Nor do I expect to surprise anyone with claims that prices react slowly to a monetary contraction. These claims have been around since Hume, and there have been attempts to document them in modern (Goodfriend and King 1997) and older data (Bordo et al. 2007). Also, various theories have been proposed since Hume to explain these effects, and despite controversies around their identification, researchers have used them to select which theories are more plausible. The reason is that “real world experimentation is not an option” and “the only place we can perform experiments is in structural models” (Christiano, Eichenbaum, and Evans 1999, 67). The 1724 experiment is worth revisiting2 because it comes close to implementing in

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1 Hume (1752, 49) describes “the frequent operations of the French king on the money; where it was always found, that the augmenting the numerary value did not produce a proportional rise of the prices, at least for some time” upon “the authority” of Nicolas Dutot ([1738] 1935).

2 The experiment has not gone completely unnoticed. Hume cited authors (Melon 1736; Dutot 1738; Paris-Duverney 1740) who had closely observed or even participated in this policy and who published their views of the events in the 1730s. All three agreed that prices did not adjust immediately or fully to the policy and that the French economy had undergone a sharp recession at the same time, but they disagreed on the lessons to be drawn. The episode has been described, albeit with little data (Babeau 1891; Marion 1913;
the real world the kind of experiment that theorists have routinely performed on their models from Hume down to, say, Golosov and Lucas (2007, fig. 4), in a way that starkly puts the theories to the test.

The overnight change in nominal money holdings engineered by the government in 1724 was neither an open-market operation nor a helicopter drop: it was exactly proportional to each agent’s cash balances. As Lucas (1996, 676) notes, this is precisely the case in which prices change proportionately and money has no effect in, say, a standard overlapping generations model. To account for Hume’s observations and generate a real effect, Lucas assumed incomplete information about monetary disturbances. Others have invoked “information stickiness” (Mankiw and Reis 2002) or rational inattention (Sims 2003; Maćkowiak and Wiederholt 2005). On the morning of September 22, 1724, however, the change to money balances was large, immediate, and well publicized.

Much of the literature on price rigidities in recent years has focused on two families of models, using either time-dependent (e.g., Clarida, Gali, and Gertler 1999) or state-dependent pricing (e.g., Dotsey, King, and Wolman 1999). Neither model will make sense of what happened in 1724 on the foreign exchange market and the commodities markets.

The 1724 experiment is striking, but it is not perfect. One possible limitation is that it took place under a commodity money regime with possibly different inflation dynamics (Alogoskoufis and Smith 1991; Bordo 1995). Yet the experiment remains an exact and instantaneous reduction in the nominal money supply. More problematic are agents’ expectations of future policy. Alone they cannot account for nonneutrality but could be important in combination with some other factor, and they were thought important by contemporary observers, including the government. A feature of the 1724 experiment is that the timing and magnitude of the reductions in money supply were not announced in advance, but the prior history of monetary policy must have shaped agents’ expectations.

The paper proceeds as follows. Section II provides some background on the institutions of the period and a narrative of the experiment. Section III presents the quantitative evidence on prices and on industrial output. Section IV discusses the observations made and explanations proposed by contemporary observers.

II. Monetary Policy in 1720s France: A Narrative

In this section I review the general features of France’s monetary regime and policy and describe the course of policy from 1723 to 1726.3

3 Aside from the references cited in n. 2, see for this period Marion (1914) on general...
A. Monetary Regime

The monetary system in eighteenth-century France was based on gold and silver coins. Aside from two brief episodes (the billets de monnaie in 1703–7 and the bank notes of John Law’s System in 1716–20), there was no paper money or any form of circulating bank liabilities.

A commodity money system consists of two distinct elements: the circulating medium (coins) and the unit of account, in this instance the livre or franc. The key feature of coinage before the nineteenth century, in France as indeed everywhere else, was that coins bore no indication of face value: the relation between coins and unit of account was set by the government at will, deciding, for example, that the silver coins known as the ecu are worth 6 livres. The fact that a coin was assigned a legal tender value of \( N \) meant that it could be tendered to discharge a nominal debt in the amount of \( N \). All debts (domestic and foreign bills of exchange, commercial bills, long-term private and public debt) were commonly denominated in units of account and were payable in the current coins at their current legal value.

The physical quantity of money was determined not by the government but by the private sector. Gold and silver were freely minted, meaning that the government-sanctioned mints were at all times open to mint for a given posted price unlimited quantities of precious metal (old coins, foreign coins, bullion) into coins of the realm, which were the only legal tender. Thus, the physical money stock was decided by private agents through their minting and melting decisions.

The government did determine two sets of parameters aside from the mint price. One set consisted in the physical coin specifications: size, weight, fineness, and design of each coin, determined by royal edicts. The other set of parameters consisted in the legal tender or current values of each coin, expressed in livres.

B. Monetary Policy: General Features

Monetary policy consisted in the government varying the parameters of the monetary system for fiscal or other purposes. Several operations could take place. One was a recoinage; an edict was passed announcing new coin types with distinct designs and (possibly new) weight and fineness. Typically the existing coins were demonetized; that is, they lost

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There were also billon (20 percent silver, but slightly undervalued) and copper small denominations, both minted on government account and with legal tender limited to 6 livres since 1719. They were reduced once, in April 1724, by 25 percent.

This is what the U.S. Congress’s constitutional power to “regulate the value” of money meant.
their legal tender value after a certain grace period, although they could always be sold to the mint for new coins at the official mint price. The purpose of a recoinage could be practical, for example, to change the denomination structure of coins or to replace worn coinage; or it could be fiscal, to subject the whole money stock to the seigniorage tax.

Another operation consisted in simply changing the legal tender values of existing coins by decree without altering them or requiring any action on the part of the coin holder. If the face value of coins was lowered, this was called a diminution; if it was increased, it was an augmentation. The effect of a diminution (augmentation) of x percent is instantaneously to reduce (increase) the nominal money supply by x percent on the appointed date. For example, on September 22, 1724, at 8:00 a.m., it was announced that all coins worth 5 livres the previous night were henceforth valued at 4.

C. Monetary Policy Up to 1723

In history there is no time \( t = 0 \) and always a prior history. Thus I need to review the history of monetary policy in the 40 years prior to the deflation of 1724, because that is what agents in 1724 had in mind when forming their expectations.

A convenient way to summarize monetary policy in a commodity money system is to track two indices. The first index, called the mint equivalent (ME), is the number of units of account per weight of standard metal contained in a given coin (Glassman and Redish 1988).\(^6\) There is potentially one such index for each coin; but different denominations of a given metal (gold or silver) always had the same ME, so one index per metal is sufficient. I focus on the silver ME because silver coinage was predominant and because relative movements of the gold and silver ME reflect changes in the gold-silver ratio, which are secondary to the story.

The second index tracks the mint price (MP) paid by the mint in new coins for metal. It is in the same units as the ME.\(^7\) The difference between ME and MP, called seigniorage, is the mint’s gross profit from converting a unit of metal into coins. Augmentations and diminishations will appear as increases or decreases in ME. A recoinage might or might not change the ME, but those that were intended to collect seigniorage typically increased the ME.

Figure 1 plots the ME and the MP in France from 1688 to 1727,

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\(^6\) The unit of weight, which I will use throughout because it makes for round numbers, was the marc (mark) or half pound (244.8 grams); the standard fineness was 22 carats for gold and 11/12 for silver.

\(^7\) A single price was offered for any quantity of metal of a given standard, whether paid in small or large denominations; so again only one MP per metal needs to be tracked.
summarizing the relevant history up to our experiment. The three diminutions of 1724 and the augmentation of 1726 are labeled 1, 2, 3, and A, respectively. Prior to 1688, coin values had been stable for nearly a half century. There followed a turbulent period during which recoinages repeatedly increased the ME; the fiscal nature of these operations is evident from the gap that opens between ME and MP, indicating a substantial seigniorage rate. France was at the time engaged in very costly wars. A striking feature of these operations is that they were always followed, after a few years, by a sequence of diminutions, which appear as a descending step function for ME. These diminutions were always foretold: following a preannounced schedule, coins were to return progressively to their old values, without any restamping or recoinage.

From December 1715 the ME rose again and peaked in July 1720. This period encompasses John Law’s System and its brief experiment with fiat money (Velde 2007). In July 1720 a gradual reduction of the ME by 50 percent was planned but later aborted. For several years, monetary reform was off the table as the government faced far more pressing issues.

D. Monetary Policy from 1724 to 1726

The policy that concerns us here consists in a sequence of three diminutions that, in contrast with earlier episodes, were unforetold. The
cumulative reduction in face value of coins was 45 percent. A recoinage followed for purely technical reasons. Then, in early 1726, another recoinage was launched for fiscal purposes, but it kept the ME at the same level. Finally, in May 1726, an augmentation took place. The silver content of the livre remained constant until the 1790s.

1. Diminutions in 1724

The deflationary policy took place through a sequence of three diminutions on February 11 (dated February 4), April 4 (dated March 27), and September 22. They brought the silver coin from 6.9 livres to 6.3 livres, 5 livres, and 4 livres successively (table 1 documents the percentage changes). The gold coin was similarly lowered.

The reduction of September 1724 was followed a few days later (on September 26) by an edict announcing a recoinage. The purpose here was not to change anything to the nominal value of money but (aside from an adjustment to the gold-silver ratio) to remedy a side effect of the diminutions, namely, the fact that the existing fractions of the ecu (thirds and sixths) were not suited to its new face value of 4 livres. The very fact that the government was bothering with such details suggested that the new face value of the ecu was meant to be permanent. To

\[\text{The date of the arrêt du conseil differs from the date of publication because of the delays in sending the information to the various provinces (it took 10 days for a letter to reach Perpignan from Paris). At each diminution, the government carefully calculated, given the postal schedules, when to send the letters to the intendants so that the announcement would appear within a window of 2 or 3 days everywhere in France. Although the text of the decrees explicitly stated that they entered in force from the day of publication, the difference between the date of the decree and the date of publication gave rise to some disputes. For the September diminution, therefore, the government postdated the decree to September 22 and started mailing copies to the most remote provinces on September 14. This confused some intendants, who hesitated to accept as valid a document dated in the future. Finally, for the May 1726 augmentation the government resorted to specially hired couriers. To ensure secrecy, each time the minutes of the decree were sent to the royal press at night and the typesetters were kept locked up inside the shop until the text had been issued to the street hawkers the following morning (Archives Nationales [hereafter AN] G/7/1472). In each case, utmost secrecy was maintained until the moment of publication. For example, the day before the publication of the April reduction, the finance minister wrote to the director of the royal printing press: "I send you a copy of an arrêt du conseil for a reduction of coin value which you must typeset tonight and print during the night so that it may be distributed by the hawkers tomorrow morning at eight exactly. You shall take the measures necessary to ensure not only that a sufficient number of copies is available for distribution tomorrow, but also that the arrêt remains secret until the time of publication which must not be delayed even if the arrêt is not yet registered in the cour des monnaies, as the King’s service demands it" (AN G/7/32, letter of April 3, 1724, to Anisson; G/7/33, letter of September 21, 1724, to Anisson).

Since the reductions were not quite proportional for gold and silver, the gold-silver ratio was thus changed from 14.67 to 14.28, 15, and finally 14.46 (the ratio that would prevail in France until 1785).

This point was made by the intendant of Caen to the merchants of his district (AN G/7/220, n. 177).}
TABLE 1

<table>
<thead>
<tr>
<th>Date</th>
<th>Ecu’s Value</th>
<th>Diminution (%)</th>
<th>Cumulative Diminution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 1720</td>
<td>7.5</td>
<td>-8.0</td>
<td>-8.0</td>
</tr>
<tr>
<td>August 1723</td>
<td>6.9</td>
<td>-8.7</td>
<td>-16.0</td>
</tr>
<tr>
<td>February 1724 (1)</td>
<td>6.3</td>
<td>-29.6</td>
<td>-33.3</td>
</tr>
<tr>
<td>April 1724 (2)</td>
<td>5</td>
<td>-29.0</td>
<td>-46.7</td>
</tr>
<tr>
<td>September 1724 (3)</td>
<td>4</td>
<td>-20.0</td>
<td>-44.7</td>
</tr>
<tr>
<td>Recoinage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Allay suspicions that the recoinage was driven by fiscal considerations, it was announced that henceforth seigniorage on silver would be high enough only to cover production costs and in any case never to exceed 2 percent. The slight increase in the ME of silver allowed production costs to be covered and still leave a slight nominal inducement for recoinage.  

2. Why a Deflationary Policy?

The reasons for the policy of deflation are difficult to ascertain. Monetary policy, like all policy at the time, was decided by the king, who reigned as absolute monarch, and his cabinet. The cabinet was composed of the principal ministers, including the finance minister (Gaspard Dodun), and met in private without any written minutes. The archives contain scant documents that shed light on the motivations for policy, and we have to rely on the preambles of decrees and the writings of advisers, many of them anonymous. The most insightful writings are those of Joseph Paris-Duverney, an adviser of the government (Velde 2008).

One motivation was a kind of long-term price level targeting. The pattern in figure 1 shows that when the government engaged in currency manipulations, it usually tried to return to the earlier level of ME. This norm, medieval in origin (Sargent and Velde 2002, chap. 5), had been

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11 See a memo from September 1724, along with drafts of the decree, in AN G/7/1876.
12 The king at the time was Louis XV, who was born in 1710. He had come legally of age in February 1723 but until June 1726 had a prime minister, the Duke of Orléans (who died in December 1723) and then another royal prince, the Duke of Bourbon.
13 Two texts are of particular interest. One is a memorandum commonly attributed to him, published in August 1725 in the Gazette d’Amsterdam and attributed to him in Archives des Affaires Étrangères, Mémoires et Documents, France 1258, fols. 61–67. The second text is the retrospective apology he wrote during the later controversy with Jean-François Melon and Nicolas Dutot (Paris-Duverney 1740, 1:72–109, 2:326–400).
14 See a memorandum of 1692 (AN G/7/1392, n. 25) and one of 1705 (AN G/7/1468, vol. 1, fol. 240) discussing the pros and cons of such a policy.
applied throughout the last decades of the reign of Louis XIV, and the nation “expected to see coins return to the point from which they had been removed, and in practice they had always been brought back or at least very close” (Paris-Duverney 1740, 1:76).

At the time of the diminutions, Paris-Duverney cited another motivation: the high price level reduced the real value of soldiers’ wages and harmed government creditors, already mistreated during and after the period of John Law. The concern for creditors of the state (and, to the degree that soldiers’ wages were fixed in nominal terms, they were part of the broad category of nominal creditors of the state) is rather surprising given France’s poor reputation as a debtor in the eighteenth century. The policy of deflation amounted to what might be called an “antidefault.” The government clearly had in mind the state’s reputation as a lender, particularly in light of a looming European war. In the same document, Paris-Duverney justified the creation of a sinking fund to reimburse the debt, financed by a new tax, in the following words: “The more one has behaved in ways that deter trust, the more painstaking and punctual the government must be in discharging its promises, so as to rekindle and make moderate use of this precious trust on behalf of the State when its conservation requires it.”

The government was not unaware of the costs of a deflation, although it may have underestimated them. The experience of the business contraction of 1715–16, widely attributed to the similar but foretold deflation of 1713–15, was recent enough. The government knew that fiscal revenues would suffer in a recession and knew that it would incur capital losses on the balances held by tax collectors and treasurers at the time of the diminution, for which the king was responsible.

Mitigating these capital losses was one reason why the government did not foretell the diminutions, as it had when a preannounced program of 11 diminutions decreased the ME by 30 percent in 1713 and 1714. A surprise reduction accompanied by immediate inventorying of the treasurers’ holdings prevented them from claiming the capital loss on coins received after the reduction. The major motivation, however, was clearly to avoid what had happened in 1713 and 1714. On that occasion, it was thought, prices had risen as merchants compensated themselves for the losses they expected on their money balances, and foreigners stopped buying French goods as they waited for prices to drop. The reason for preannouncing the diminutions, to give debtors

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15 See AN F/12/797A, memoranda of the merchants of Paris and Tours asking for an augmentation, December 1715; and the account by the head of the government at the time justifying the augmentation of December 1715, Bibliothèque Nationale (hereafter BN) Fr7769, fols. 223–30.

16 In 1724, these losses amounted to 34.8 millions, reducing revenues from 222 millions to 187 millions (BN NAF 22245, fol. 365).
a chance to pay off their debts and share the nominal losses, was deemed
to be inapplicable after Law's paper money had given everyone a chance
to wipe out their debts (Paris-Duverney 1740, 1:97–98, 2:336).

3. Policy to 1726

After September 1724, the government was committed to making no
further changes in the currency. All it could do was wait for prices and
wages to fall. But two crises developed in 1725, one international and
one domestic.

The risk of a European war increased considerably in April 1725 when
the Franco-Spanish alliance broke down. The expenses of a potential
war would likely require borrowing, and the government was convinced
that punctual servicing of the debt was insufficient and that a program
to begin reimbursing it was required, using a sinking fund financed by
a new income tax. But tax increases are never popular, and the gov-
ernment was blamed for having needlessly provoked an international
crisis.

The domestic crisis was a harvest shortfall in northern France, due
to continual rains from April to September 1725 and following a me-
diocre harvest in the three previous years. Wheat prices spiked sharply,
and a riot just outside Paris on July 9 alerted the government to the
dangers of the situation. The crisis passed but left the public in a sour
mood (Kaplan 1985).

At this point, the budget was still not in balance, and unpaid arrears
from previous years were accumulating, particularly on the debt. The
fiscal pressure became enough to push the government into the kinds
of operations it had foresworn, namely, taxing the money supply with
another recoingage. But the government did not wish to lose the hard-
won fall in prices it had (partially) achieved, so it proceeded to lower
the value of coins even further before recoining back to the same ME.18
On December 4, 1725, it was announced that silver ecus would fall from
4 livres to 3.5 livres on January 1 and to 3 livres on February 1. The
diminutions took place as announced, but 3 days after the second one,
an edict appeared ordering a general recoingage of silver and gold, and
the seigniorage tax was raised to 18 percent.

The credibility of the government’s monetary policy was, of course,

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17 See Paris-Duverney’s memoir in the Gazette d’Amsterdam and a commentary on a budget
plan of December 1725: “when the State’s credit is restored, everything is easy and everyone
is satisfied, the realm is feared and peace is reinforced. . . . To restore one’s credit is the
best way to peace, si vis pacem para bellum” (Archives des Affaires Étrangères, Mémoires et
Documents, France 1258, fol. 54v).

18 As early as October 1724, rumors of war had led some to believe that the true purpose
of the ongoing deflationary policy was to allow for such an operation in time of need
(letter of the intendant in Bourges, AN G/7/188, n. 488).
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in ruins. Growing dissatisfaction with the Duke of Bourbon’s ministry impelled the king, now 16 years old, to take matters into his own hands and secretly plan a change of government. The ministry took final, desperate measures: on May 27 a decree raised the value of the newly minted gold and silver coinage by 20 percent, and a few weeks later the seigniorage rate was also lowered to 5.8 percent. There is no direct evidence on the motivation for this move, but it is likely that the same arguments were made by the business community as in 1715 and 1716 for the need to increase the nominal value of coins so as to stimulate economic activity (see n. 15). The measures came too late to save the ministry, which was dismissed on June 11, 1726 (Velde 2008). Thereafter, the French currency was not altered (except for an adjustment to the gold-silver ratio) until the French Revolution.

III. Quantitative Evidence

In 1724, the French government engaged in a deflationary policy. It did so with a succession of reductions in the face value of coins that were not announced in advance but were broadly publicized. How did prices and quantities react?

What allows me to answer is a striking aspect of the deflation of the 1720s, namely, the government’s eagerness to follow the economy closely, at least once it became clear that prices were not reacting as expected. During 1724 and 1725, great efforts were made to collect data on prices and wages in addition to those collected through the existing mechanisms to monitor industrial activity, particularly in textiles. The information that has survived in the archives is very fragmentary but can serve to provide an unusually good quantitative picture.

In this section, I first document the reaction of prices on various markets and then turn to the textile industry to describe prices, wages, and output. Before the data, however, a brief description of the statistical method used is in order.

A. Statistical Method

The data I use are not ideal. Changing sampling and reporting methods, archival randomness, and other factors make for unbalanced panels and time series with many missing observations. Furthermore, my main interest is in the evolution of a common factor: either the general price level common to a collection of price series or the nationwide activity level common to a collection of regional output series.

The features of the data and the objects of interest suggest the use of a state space model. For each collection of series (prices or quantities), I model the series as observations on an unobserved common
factor represented as a random walk. Given parameter values (such as loading factors and variances), I use the Kalman filter to estimate the common factor and compute a log likelihood. The parameters are chosen to maximize the log likelihood. The approach allows for easy handling of missing data (Gomez 2001). It is also possible to vary the parsimony of the specification (e.g., by specifying a common value for all loading factors) and use an information criterion to select the specification. The details are in Appendix B. This statistical model underlies the indices in figures 6, 7, 9, 10, 11, and 12.

B. Prices

1. Bullion

Coins were made of gold and silver; this is the essential difference between the regime of the time and modern systems and has implications for the behavior of the price of silver and gold bullion (uncoined metal) during the period under study.

Elementary logic suggests that the market price of either metal must have immediately fallen between the MP and the ME: had it been lower than the former, minting would have occurred, increasing the money supply; had it been higher than the latter, melting would have occurred. If the nominal price of bullion had not fallen by the same amount as the ME, it would have been profitable to melt coins and unprofitable to mint them.

I do not have any evidence on market prices of bullion, but I have collected minting data for most mints in France. Figure 2 shows monthly minting levels of gold and silver: in other words, the monthly flows of (gross) additions to the money stock. The data are normalized to the average flow between 1726 and 1735. In this graph as in others that follow, the three diminutions of 1724 are marked on the horizontal axis by a downward-pointing triangle, and the augmentation of 1726 is marked by an upward-pointing triangle.

A large peak in gold output is noticeable in 1723. It is due to a recoinage of gold ordered on August 1723 after the face value of gold coins was adjusted to match the relative price of gold to silver in the rest of Europe. After a year, however, gold minting returns to normal. Likewise, the peak in early 1726 in both metals is due to another recoinage. Outside of these recoinages minting volumes are normal.

19 There were 29 mints operating in France at the time. Minting records for the period before 1725 have survived for only the 19 mints that reported to a court in Paris (the others reported to regional courts). These 19 mints represented three-quarters of total output in 1726 (Clairand 1996). The records I have used (AN Z/1b/298, Z/1b/421) note the number of coins sampled for quality assessment purposes in each mint and for each year. Knowing the sampling rate, one can infer each mint’s output.
particular, it is apparent that the diminutions of 1724 caused neither a substantial increase in the physical stock of coins (such as what happened during recoinages) nor a stop in minting, such as would happen if it had become profitable to melt coins.

2. Foreign Exchange

Foreign exchange markets traded claims on foreign (gold or silver) currency delivered in a foreign city at a future date (typically 1 or 2 months forward). Give or take the costs of arbitrage (shipping, insurance, and the time cost), the MP and ME should have placed the same bounds on the price of foreign currency as on bullion.

The foreign exchange market turns out to be the one market that immediately and completely adjusted to the diminutions. We do not have very good direct evidence on the market in Paris, but we do have series of quotations from two foreign markets, London and Hamburg, which traded bills of exchange denominated in French livres. Figure 20

Dutot (1738) provides quotations from the Paris market, but in the form of ranges within which the London quotations varied over a certain period of time. His observations show that the Paris market behaved in exactly the same way as the London market.
Fig. 3.—Exchange rates on Paris in London, in French units of account per British unit of account, 1721–29. The line plots an index of the silver parity between the units of account. Source: Course of the Exchange.

Fig. 4.—Exchange rates on Paris in Hamburg, in French units of account per Hamburg unit of account, 1726. The lines indicate the silver MP and ME. Source: Geld-Cours, Staatsarchiv, Hamburg.
3 shows biweekly quotations in London. For comparison, I also plot the silver parity. Figure 4 shows the same thing for Hamburg.

The only factors moving the silver parity are the augmentations and diminutions in France. Up to the few days’ delay in transmitting information, we see that the foreign exchange quotations adjust immediately and fully to the diminutions and augmentations. For example, the diminution of September 22, 1724, brought the face value of the ecu from 5 livres to 4 livres, increasing the silver content of the livre by 25 percent. In London, the price of a bill on Paris increased by 22.5 percent between September 26 and September 29.

Given the immediate adjustment of foreign exchange rates, French goods would become more expensive relative to foreign goods if their nominal price did not fall as well. In October 1724, the intendant in Caen used this argument to persuade merchants in his province to lower their price, stating “that if the price of goods of this country did not fall immediately, foreigners would begin to sell by preference to Frenchmen the goods we need to export” (AN G/7/220, n. 177, October 3, 1724).

The intendant’s predictions were soon realized. The intendants in Poitiers and in Lille noted in October 1724 that foreign demand for French textiles was disappearing (AN G/7/266, n. 301; G/7/456, n. 223). The available aggregate data confirm these reports. Figure 5 shows the collapse in exports, which fell by 37 percent in 1724 after having grown by 30 percent in 1722 and by 50 percent in 1723. The merchandise trade balance turned negative in 1724, a rare event in this period as the figure shows. Imports grew in 1724, albeit more slowly, but fell 28 percent in the following year. These data suggest that domestic prices did not adjust as much as the foreign exchange did to the reduction in money supply. The next subsection provides direct evidence.

3. Commodity Markets

The foreign exchange market in Paris was located, along with the bond and equity market, in what is now the National Library. It is a short

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21 There was a time lag before the news reached foreign cities. For Hamburg, the regular post took 9 days; for Amsterdam, 5 days. The time to reach London depended on the winds over the English Channel: reaching Calais alone took 3 days (Affaires Étrangères, Mémoires et Documents, France 1252, fol. 128).

22 Foreign bills of exchange were payable at a usance of 2 months. This, one might expect, ought to introduce expectations of further diminutions into their pricing. But a decree of May 27, 1719, decided that, henceforth, foreign bills drawn on France would be payable in coin at the rate known in the place of origin when they were drawn, making them immune to posterior diminutions or augmentations.

23 The only stock for which prices are available is the Indies Company, not shown here. They show no impact of the diminutions.
10-minute walk from there to the market for grains and other foodstuffs, located in the Halles. But the picture in this market is very different.

Markets in the Halles were held twice a week. From a contemporary compilation of the high, low, and modal prices of foodstuffs for every market day, begun in 1724, Dutot (1738) selected data on wheat, bread, eggs, pork, candles, and butter for the months in which diminutions or augmentations occurred. I reproduce Dutot’s daily data in table 2. An asterisk marks the first market day after a diminution. After the February diminution, the nominal money supply fell by 8.7 percent, but we see the price of wheat fall from 25 to 24.25, only 3 percent. In April, the money supply fell by 20.6 percent, and the next market day the price of wheat fell by 14.5 percent, rising on the following market day by 9 percent. Finally, in September, the money supply fell by 20 percent but the price of wheat fell by only 7 percent. More remarkably, the price of wheat on September 23 was the same as on February 9, even though the face value of coins had fallen by 45 percent.

Dutot also computed monthly averages for the same six foodstuffs for the years 1724–26. Figure 6 plots an index of these six commodities

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24 The source he used has survived (Bibliothèque de l’Institut, Paris, mss. 513–21), although the volume for the year 1724 has disappeared. This original source is much more detailed, but since the 1724 volume is now missing, I can extend the monthly averages for only the six commodities chosen by Dutot to cover the full period of diminutions.
as well as an index excluding wheat. The stepwise graph represents the index of the livre’s ME. Both indices are normalized so as to coincide in January 1724, before the diminutions. The currency index exactly traces the decrease in the nominal value of coins. If prices had reacted to the diminutions, the price index should follow the currency index. Instead, the two remain far apart for several years.

The markets we observe here are competitive and free from manipulation and interference. The government was extremely wary of interfering with market mechanisms when it came to grains: what regulations there were aimed at preventing fraud or collusion (Kaplan 1984, 1996). Prices do appear to move over time, presumably in response

<table>
<thead>
<tr>
<th>Wheat</th>
<th>Bread</th>
<th>Eggs</th>
<th>Pork</th>
<th>Candles</th>
<th>Butter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td>Mode</td>
<td>High</td>
<td>Low</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(Average)</td>
<td>(Average)</td>
</tr>
<tr>
<td>February 1724:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>25.5</td>
<td>3.75</td>
<td>32.5</td>
<td>6.75</td>
<td>14.5</td>
</tr>
<tr>
<td>5</td>
<td>25.5</td>
<td>3.75</td>
<td>32</td>
<td>7.75</td>
<td>14.5</td>
</tr>
<tr>
<td>9</td>
<td>25</td>
<td>3.5</td>
<td>57.5</td>
<td>7.75</td>
<td>14.5</td>
</tr>
<tr>
<td>12*</td>
<td>24.25</td>
<td>3.5</td>
<td>65</td>
<td>7.75</td>
<td>14.5</td>
</tr>
<tr>
<td>16</td>
<td>24.5</td>
<td>3.5</td>
<td>70</td>
<td>6.75</td>
<td>14.5</td>
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<tr>
<td>April 1724:</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>27.5</td>
<td>3.25</td>
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<td>14.5</td>
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</tr>
<tr>
<td>5*</td>
<td>23.5</td>
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<td>14.5</td>
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<td>8</td>
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<td>3.25</td>
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<td>14.5</td>
<td>92</td>
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<tr>
<td>12</td>
<td>24.5</td>
<td>3.25</td>
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<td>14.5</td>
<td>90</td>
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<tr>
<td>September 1724:</td>
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<tr>
<td>6</td>
<td>25</td>
<td>3</td>
<td>29</td>
<td>6.75</td>
<td>10.5</td>
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<td>13</td>
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<td>3.25</td>
<td>30</td>
<td>6.75</td>
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<tr>
<td>16</td>
<td>27.25</td>
<td>3.25</td>
<td>34</td>
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<td>30</td>
<td>26</td>
<td>3.25</td>
<td>36.5</td>
<td>6.75</td>
<td>10.5</td>
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<td>May–June 1726:</td>
<td></td>
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<tr>
<td>15</td>
<td>24.5</td>
<td>12</td>
<td>20</td>
<td>2.75</td>
<td>2.5</td>
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<tr>
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<td>24</td>
<td>12.5</td>
<td>18.25</td>
<td>2.75</td>
<td>2.5</td>
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<tr>
<td>22</td>
<td>24</td>
<td>12</td>
<td>19</td>
<td>2.75</td>
<td>2.5</td>
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<tr>
<td>25</td>
<td>23.25</td>
<td>12</td>
<td>18.5</td>
<td>2.75</td>
<td>2.5</td>
</tr>
<tr>
<td>29*</td>
<td>23.25</td>
<td>12</td>
<td>20.5</td>
<td>2.75</td>
<td>2.5</td>
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<tr>
<td>1</td>
<td>23.25</td>
<td>12.5</td>
<td>19.9</td>
<td>2.75</td>
<td>2.5</td>
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<tr>
<td>5</td>
<td>23.25</td>
<td>15</td>
<td>21</td>
<td>2.75</td>
<td>2.5</td>
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<tr>
<td>8</td>
<td>23.25</td>
<td>13</td>
<td>22</td>
<td>2.75</td>
<td>2.5</td>
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<tr>
<td>12</td>
<td>23</td>
<td>13</td>
<td>21</td>
<td>2.75</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Sources.—Dutot ([1738] 1935, 76), Institut mss. 514.

Note.—The units are sous per pound for bread, pork, and candles and livres per bushel (septier) of wheat, per hundred pounds of butter, and per thousand eggs.

* The first market date after each diminution.

Official measurers provided a third-party verification of the quantity and quality of the grain purchased. They reported prices (highs, lows, and modes) and total quantities every market day to the market authorities and are the original source for the price and quantity data I now have (see Baulant and Meuvret [1960–62] on the measurers).
to supply and demand shocks. They simply do not appear to respond much to changes in the money supply (a result reminiscent of the findings of Boivin, Giannoni, and Mihov [2007]).

Data from other sources confirm that there is nothing special about Paris. We know that local officials throughout France were required to submit price reports on grains and other commodities twice a month, although the zeal they deployed in fulfilling this duty varied. Fortunately the surviving reports of one official, in the city of Nantes, on the Atlantic coast, bear witness to his zeal.26 Figure 7 plots an index of these prices, separating grains from other goods. The indices are again set to coincide in January 1724. The price indices remain wide apart from the currency index until the second half of 1726.

4. From the Wholesale Markets

I collect under the label of “wholesale markets” two sets of data. The first come from regional fairs, which were held in various towns through-

26 Nantes, Archives Municipales (AM), HH2 and 4: bimonthly reports on wheat and rye; HH3 and 5: monthly reports on 51 items, including foods (grains, pulses, wine, meat, oil, and cheese) and other commodities (wool, linen, silk, animal fodder, fat, wax, and wood for burning). Internal evidence indicates that these series are averages of observations for each market day.
Government officials reported on the state of business at the fairs, often with detailed statistics on the volume of sales, prices, and also the volume of goods brought and the volume sold, and sometimes the rate of interest at which bills were discounted.

Data from the fairs of Pézenas and Montagnac, held in the South of France near Montpellier, in a major textile-producing area, allow me to compute a quantity-weighted index of up to 70 types of cloths produced locally. The second set of data comes from the cloth hall of Rouen (halle foraine), where cloths were brought from outside to be sold to retailers and craftsmen. This survey of the prices of all cloths brought to be sold each month has the advantage of coverage at high frequency over all types of cloth (there are 58 different types of cloths, and the average ratio of dearest to cheapest is 40). Unfortunately, it starts only in January 1725, when the deflation was already under way; there are no quantities, so the index cannot be weighted. I normalize all series by their sample mean and compute an index based on the median of the normalized values each month.

The indices for the southern fairs and for Rouen are shown together in figure 8. The pattern is similar to that found in markets: prices fell

The fairs of Pézenas and Montagnac were held five times a year after the holidays of St. Hilary (January 13), mid-Lent, Whitsunday, Holy Cross (September 14), and St. Martin (November 11).
Fig. 8.—Price indices of cloth brought to the fairs of Pézenas and Montagnac (chain-weighted, 1724–28) and to the cloth hall of Rouen (median, monthly from May 1725 to May 1728). Sources: AN F/12/1237, F/12/1380; Archives Départementales (AD) Hérault C2345; AN F/12/1367.

gradually, by about 15 percent from early 1725 to mid-1726, roughly the same rate as in commodities markets. They also show a strong rebound of about 10–15 percent in May 1726, after the face value of coins was increased by 20 percent.

Finally, comparisons of prices for a broad range of cloths, from low to high quality, can be found for certain fairs and for the period of deflationary policy of 1724 (table 3). Prices fall on average by around 30 percent, less than the value of coins; there is even a rebound in prices in mid-1724, as noted by some inspectors.

C. The Textile Industry: Prices, Output, and Wages

The French archives contain quantitative information on the textile industry, particularly woolens, which represented somewhere between 15 and 20 percent of all French industry in the eighteenth century. Industry itself accounted for a third of total output (Daudin 2005, 32, 39). The industrial organization of the manufactures was relatively simple. The weavers, or fabricants, owned and operated the looms. Either they or a merchant-entrepreneur bought the raw materials; the weavers hired labor to process the raw materials (mainly wool), spin it, and
TABLE 3
Percentage Changes in Cloth Prices

<table>
<thead>
<tr>
<th>Location</th>
<th>ME</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amiens cloth hall (107 cloths),</td>
<td>-40</td>
<td>-25</td>
<td>-25</td>
<td>6.5</td>
</tr>
<tr>
<td>January 1724–October 1724</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clermont fair (42 cloths), May</td>
<td>0</td>
<td>7</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>1724–August 1724</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Germain fair (22 cloths), Feb-</td>
<td>-40</td>
<td>-33</td>
<td>-33</td>
<td>6.0</td>
</tr>
<tr>
<td>uary 1724–February 1725</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCES.—AN G/7/97, nn. 242–44 (Amiens); F/12/1376 (Clermont); F/12/1234B (Saint-Germain).

weave it. The weaver returned or sold the finished cloth to the merchant, who sold it either directly to retailers (marchands-drapiers), at cloth markets in the main cities, or else at the regional fairs that took place annually in various parts of France.28

The price data that I present were collected at all stages: “factory gate,” fair, cloth market, and retail shops. The output data were collected at the production stage, twice a year, by government-appointed inspectors (Minard 1998, 2000). Some of their reports have survived in the national or in local archives and form the basis for my quantitative study (see App. table A1 for sources).

The reports listed each production location, the types of cloth produced (length and width), the type of wool used and its price, prices of cloth per bolt or per ell,29 the number of producers, the number of working and idle looms, and the number of bolts produced. Many reports (three out of four) are now missing. But each semiannual report provided the total of looms working and bolts of cloth produced in the previous semester for comparison purposes. These numbers of looms and bolts do not account for differences in size or value, but on these variables I have twice as many observations.30 I first compute an index of national activity based on the looms and bolts data; then I use the more detailed but fragmentary data to compute price-weighted quantities and quantity-weighted prices.

29 The ell, an English unit of length for cloth measuring 45 inches, is very close to the French aune of 118 centimeters.
30 Of the 30 districts for which some reports survive, 25 (representing 78 percent of national output according to the figures in Markovitch [1976, 492–95]) provide usable data for looms and bolts, and 19 (72 percent of output) provide enough data for chain-weighted price and quantity indices. The total number of observations for the period 1715–39 is 415 on looms, 425 on bolts, and 242 for price and quantity indices.
1. Results

Indices for looms working and bolts produced are shown, with standard error bands, on the same graph in figure 9. They are remarkably close, particularly for the period of interest, for which there is a lot of available data. Two recessions are noticeable: one in 1720 during the collapse of Law’s System and the second during the period under study. The magnitude of the decline from mid-1723 to mid-1726 is similar for both indices: 31 percent for looms and 35 percent for bolts. It is also substantial, on a par with the American Great Depression: from October 1929 to October 1932, industrial production declined by 31 percent (Miron and Romer 1990).

It is also interesting to note that the sharp rebound from the 1720 crisis seemed to peak in the first or second half of 1723. This confirms the qualitative picture given above of very strong activity up to 1723, but it suggests that the peak of activity may have preceded the deflationary policy.

For 19 regions, I also compute a common index of price-weighted series of ells produced. For comparison purposes I compute a common index for the number of bolts (as in fig. 9) for the same 19 regions. The comparison is shown in figure 10. There is more uncertainty on the ells series (e.g., I have only one full report for the first half of 1726, whereas I have 19 observations on bolts and looms working for that

Fig. 9.—Index of working looms and index of bolts produced, semiannual, 1718–31 (log scale). Dotted lines are 95 percent confidence intervals.
same semester). The index is nevertheless broadly consistent with the bolts index, although it fails to show much of a recovery after 1726.

2. Producer Prices

For the same 19 series, I have computed a common index of quantity-weighted prices, in units of account per ell. The result is shown in figure 11. The currency index is set to coincide with the price index in the second semester of 1723. Textile prices are more tightly estimated than quantities and roughly follow the same pattern as other prices. From the second half of 1723 to the second half of 1724, the price index fell from 1 to 0.80 whereas coins had been reduced by 45 percent. By the first half of 1725 the price index had fallen to 0.61, nearly the extent of reduction on coins, but then rose to 0.65 and 0.67 in the following two semesters.31

31 See also the factory gate prices collected by the government for 16 cloths (F/12/681, n. 139; F/12/551–53), showing a median increase in price of 67 percent from 1716–17 to January 1724, in line with the 72 percent increase in ME, but only a fall of 14 percent from January to April 1724 and 13 percent from April to October 1724.
3. Other Industries

During the period under study, only the linen industry was the object of systematic reporting by inspectors as with woolens. Reports survive for two adjacent districts in Normandy, and the corresponding index is very imprecisely estimated (fig. 12). It shows a rise up to 1719 and a rebound after 1726, but it does not distinguish sharply the two recessions of 1720 and 1724–26.

A few reports on the price of silks in Lyon (the capital of the silk industry) suggest that prices adjusted rather more than in the woolen industry (table 4).

4. Wages

Although the finance minister Dodun had sent detailed instructions for wages to be collected, I have found very few data in the surviving archives. Only one report, for the district of Carcassonne, contains abundant data not only on wages but also on the costs of all other inputs, and on the number of workers, for selected years.32 Carcassonne’s...

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32 The dates are 1712, 1716, 1719, 1723, and 1724 before and after the September diminution. Another report contains wage data for the first and second semesters of 1726, although the categories of laborers and the units in which wages are expressed do not match exactly with the earlier reports.
TABLE 4

<table>
<thead>
<tr>
<th>Prices</th>
<th>ME</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prices in Lyon for 11 silks, December 1723–May 1724</td>
<td>-26</td>
<td>-32</td>
<td>-43</td>
<td>5.7</td>
</tr>
<tr>
<td>Prices in Lyon for 44 silks before September 1724–November 1724</td>
<td>-20</td>
<td>-16</td>
<td>-16</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Sources.—AN G/7/1707, n. 142; G/7/368–73.

woolen industry was substantial, about 3–5 percent of the national industry. It produced a range of cloths, mostly of middle and high quality for export to the Near East and lower quality for domestic consumption.

The data are provided for various districts: Carcassonne and nearby towns (where the exporters were concentrated), the Montagne of Carcassonne, Mazamet, and Dourgne.33 The wage rates are mostly expressed as piece rates (by weight of wool, length, or bolt of cloth), although some are expressed as daily wages. The report also gives the quantity of cloth produced and the quantity of wool needed for each type of cloth. I can infer the quantity of labor provided for each type of labor;

33 In 1724, Carcassonne represented 64 percent of the district’s output and the Montagne another 28 percent.
in the case of daily wages, I multiply the known number of laborers by the number of working days in a year, assumed to be 240.\textsuperscript{34} This allows me to compute a weighted wage index, although the results are not very different if one uses an unweighted index. The results are shown in table 5; since I also have the price of output, I compute a ratio $w/p$.

The data strikingly confirm the qualitative evidence on wages. In particular, from 1723 to July 1724, after the first diminutions had reduced the nominal value of currency by a third, wages had not reacted at all. After the September diminution, they fell by 33 percent, a substantial fall but still short of the 45 percent reduction in nominal values. In real terms (deflated by the price of output), they had actually increased since 1723. After the augmentation of May 1726, when the nominal value of coins increased by 20 percent, wages increased by 13 percent and output prices by more than the full amount.

IV. In Their Own Words

To close this case study, I will let the voices of the past be heard. The correspondence between officials in Paris and those in the provinces reveals how contemporaries perceived the episode and sought to understand it.\textsuperscript{35} I willingly run the risk of anachronism and organize the material according to the sort of theories we might invoke as we seek to understand it ourselves.

It is interesting (and in some way reassuring) to see that the government’s initial model was neutrality. Local officials, perhaps worried that

\begin{table}
\centering
\caption{Wages in the Woolen Industry of the Carcassonne District}
\begin{tabular}{llllllll}
\hline
        & 1712 & 1716 & 1719 & 1723 & July & December & & \\
\hline
Wages:  &       &       &       &       &       &         & & \\
Carcassonne & 1.00 & .89  & 1.24 & 1.27 & 1.25 & .83      & .75 & .85     \\
Montagne & 1.00 & .87  & 1.06 & 1.19 & 1.20 & .92      &       &         \\
Mazamet & 1.00 & 1.02 & 1.05 & 1.48 & 1.49 & 1.04     &       &         \\
Dourgne & 1.00 & 1.05 & 1.08 & 2.07 & 1.79 & 1.43     &       &         \\
All & 1.00 & .89  & 1.15 & 1.26 & 1.25 & .88      &       &         \\
\hline
Output prices: &       &       &       &       &       &         & & \\
Carcassonne & 1.00 & .87  & 1.94 & 1.53 & 1.31 & .91      & .84 & 1.10    \\
$w/p$ & 1.00 & 1.02 & .64  & .83  & .96  & .92      & .89 & .77     \\
ME & 1.00 & 1.00 & 1.50 & 1.88 & 1.25 & 1.04     & 1.04 & 1.24    \\
\hline
\end{tabular}
\footnotesize{Source: AN F/12/556.}
\end{table}

\textsuperscript{34} This is based on a comment by the manufacturer Vanrobais that holidays take out a third of the week on average (AD Somme, C158).

\textsuperscript{35} The sources are essentially the correspondence between the finance minister and the intendants and inspectors of manufactures in the provinces (see App. A).
their lack of zeal would be blamed for the model’s failure, accompanied by their observations on prices and activity with possible explanations. As I noted in the introduction, theories based on incomplete or incompletely processed information would not go very far. Since it was their duty to publicize the diminutions and explain them to the actors, no one proposed such explanations.36

One could imagine that prices failed to fall because of offsetting shocks, and various candidates were proposed at the time, though it seems difficult to imagine such rotten luck for the French government that each diminution was met by just the right shock. A more plausible line of thought was followed by the government as it gave instructions to its officials, namely, a sort of coordination failure in which private agents were unable to move from one equilibrium of prices to another in spite of the government’s exhortations.

A few contemporaries remarked that some prices were prevented from adjusting by contractual arrangements. Such rigidities, although small, may be sufficient to create large effects through either strategic complementarities (Haltiwanger and Waldman 1989; Bomfim and Diebold 1997) or real interest rate effects (De Long and Summers 1986).

Finally, the role of expectations was perceived by both government and private agents to have played a fundamental role in the behavior of prices. Of course, the distinction between foretold and unforetold would not matter in a model in which neutrality holds for an injection proportional to money holdings, so expectations can matter only in conjunction with another explanation.

The rest of this section organizes contemporaries’ remarks along the foregoing themes.

A. Monetary Neutrality

The government’s deflationary policy was based on the idea that changing the nominal value of the medium of exchange should result in proportional changes in the price level or, alternatively, that returning the nominal value of coins to the 1716 level should bring prices to their 1716 level. Initially the government expected this process to take place quickly. The instructions sent with the first diminution of February 1724 asked the intendants to write immediately to report on the change in prices in their province and to send an update a week later (BN Fr8928, fol. 308). As late as October 1724, the intendant in Provence still expressed the belief that “since there is less money in value than before, 36 On the contrary, one intendant said that he had expected diminutions to have more of an effect on prices than before: because of the numerous variations in the unit of account of recent years, men computed differently than they used to (intendant in Caen, AN G/7/220, n. 177).
this must make it scarcer and hence drive down the prices of all things that are bought, because there will be fewer buyers and fewer people with the means to purchase” (BN Fr8928, fols. 273–77, October 8, 1724): in other words, the money market should clear.

Even after evidence had accumulated that prices did not react as expected and officials admitted that prices would take time to react to diminutions, they remained somewhat bewildered, as the intendant in Bourges, writing in October 1724: “It is true that, far from seeing a reduction in the prices and wages, by a barely conceivable madness it seems that everyone in concert insists on doing the opposite of what common sense and reason dictate; since by giving almost double the weight of silver that one gave twelve or fifteen months ago, one obviously ought to receive the good at half its former rate, yet everyone is so accustomed to sell dearly that no one can bring themselves to lower their prices” (AN G/7/188, n. 488). The intendant was expressing the simple logic that, since a livre contained twice as much silver, the price in livres of a good ought to be half of what it was. What could account for the “barely conceivable madness”?

B. Offsetting Price Pressures

Figure 7 suggests that commodities prices were subject to midfrequency swings (3–5 years) that were related to something other than monetary policy and also that 1723 was a period of high prices.37 When trying to understand why prices were not falling, contemporaries often attempted to explain why prices were high in the first place.

1. Foodstuffs

A large number of intendants reported that foodstuffs were particularly expensive. This was attributed to a string of two mediocre harvests in 1722 and 1723; the harvest in 1724 seemed to be going reasonably well, although the harvest of 1725 was disappointing as a result of heavy rains in the North of France. Many intendants thought that, as long as food remained expensive, wages and manufacturers’ costs would remain high. Another source of high prices was a lack of fodder in 1723, which

37 The presence of such cycles is readily seen in the spectrum of grain price series such as Baulant and Meuvret (1960–62) or Dupâquier, Lachiver, and Meuvret (1968).
resulted in high transportation costs. Another cost that producers and merchants invoked was that of their inventories, purchased at previous, higher prices. The intendant in Pau predicted, on the basis of what he had seen during the augmentation of 1718, that prices of manufactured goods would start to fall only once producers had exhausted their existing stocks of materials and were using new materials bought with current money (Dijon: G/7/166–70, n. 308, October 10, 1724; G/7/121–23, n. 181, October 11, 1724).

2. Wages

The government was particularly concerned about the evolution of wages, which it saw as key to lowering the price of manufactured goods because high wages were a frequent pretext for keeping output prices up (AN G/7/32, August 30, 1724). Many inspectors and intendants reported that wages remained high (although some, as in Alençon and Alsace, said that they were reasonable), and in Provence workers were said to rebel and collude against any attempt at lowering wages. The reasons given vary. The government believed that collusion was at play in some instances. Many intendants said that the high price of foodstuffs drove up the subsistence wage. Some argued that the demand for labor was higher, either in agriculture (Provence) or in manufacturing, where employers were bidding up wages (Auch and Pau), particularly new entrants (Languedoc and Poitiers). The intendant in Soissons pointed to a lower supply of labor, due to two causes. One was demographic, namely, an undersize age class due to the wars that occurred 15–20 years before. The other was an income effect: since 1719, workers were used to living well, and it took much higher wages than before to

38 The intendant in Alençon: "grains have risen in price more than fallen, and it is certain that this is what causes the dearness of everything else" (G/7/76, n. 364, November 13, 1724); in Bordeaux: "the only cause of high prices is the great dearth in this province" (G/7/147, n. 300, October 28, 1724); in Soissons: "as far as foodstuffs are concerned grain must be considered as the prime material whose price influences everything, it is not the price of currency that sets the price of foodstuffs grown and consumed in the realm, but only the scarcity or abundance of those goods" (G/7/513, n. 251, November 8, 1724); in Dijon: "wool and silk remain almost as expensive, as well as wages, so that unless these materials fall, I do not think we can hope to achieve so quickly a fall proportional to currency" (G/7/166–70, n. 308, October 10, 1724). On fodder, see G/7/368–73, n. 48, December 4, 1724; G/7/229, November 1, 1724.

39 For textiles, the two main costs were wool and wages. On the basis of the source cited in table 5, I find that in early 1724 in Carcassonne, wool accounted for 45 percent of output price, other materials 5 percent, and labor 36 percent. In that district, the average price of cloth was high, in the 90th percentile of the national price distribution; the share of labor would have been higher for cheaper cloth, made of cheaper wool.

40 Documents in G/7/31, G/7/1707, and Arsenal 10846 show an attempt in April 1724 by workers in the stocking industry to go on strike and organize a fund to support the strikers. The government threw a few ringleaders in jail for a few weeks. Similar incidents were reported in the paper industry in Dauphiné.
convince them to provide additional labor: “since day laborers earn in three days enough to feed their families for a week, they have to be bid up and will not be moved to work the rest of the week except with high wages and even then one does not always convince them.” The finance minister repeated the idea in his letter of September 1724, claiming that wages were high because workers fed themselves differently, and if they returned to their consumption basket of 1710, they would find food and clothing more affordable. In a private letter he gives more examples: meat consumption had increased by 40 percent, wool cloth had replaced linen in garments, and leather shoes had replaced wooden clogs (BN Fr8362, fol. 108; G/7/33, letter to Silly, October 15, 1724).

This idea, sometimes expressed as a sort of habit persistence, is echoed by a senior official of the finance ministry during a meeting of the Trade Council on October 19, 1724, when he complained that laborers in the textile industry had grown accustomed to living better than befitted their station, a remark echoed by the intendant in Dauphiné, who said that “workers had grown accustomed to earning too much since 1719 and 1720, a habit they could not forsake and which makes them arrogant” (AN F/12/71*/3/223; BN Fr8381, fol. 73v).

C. Coordination Failure

The quote of the bewildered intendant in Bourges mentions that people seemed to act “in concert.” The government seemed faced with a coordination problem, with everyone along the production chain blaming upstream costs for their inability to lower prices. In a typical example, the guild of nail makers in Moulins declared themselves “all ready to lower their prices by the same extent as the iron producers” (AN G/7/411). In his instructions to the intendants in April and September 1724, the finance minister outlined a strategy for reducing prices by working along the production chain, asking the intendants to talk to the main actors at each step, from producers of raw materials to manufacturers, workers, wholesalers, and retailers.

The minister singled out one industry for the excessive price of its output, namely, iron, which had been exporting a lot, and he was count-

41 Alençon, G/7/1704, n. 246; Alsace, G/7/444, October 20, 1724; Auch and Pau, G/7/121–23, n. 181; Languedoc and Provence, G/7/789, October 30, 1724; Soissons, G/7/513, n. 251. The intendant in Soissons even considered fiscal policy to increase the labor supply, but raising the lump-sum taille levied at the parish level would fall only on farmers and yeomen because they were outnumbered by the day laborers, and tax collectors found it easier to collect from them. This intendant, named Orry, was finance minister from 1730 to 1745.

42 This is reminiscent of the comments by Herbert Hoover’s Treasury secretary, Andrew Mellon, on the benefits of deflation: “High costs of living and high living will come down. People will work harder, live a more moral life” (cited in Hetzel [2008, 34]).
ing on reduced demand from abroad after the exchange rate appreciation to bring prices down in that sector. Conversely, French industries relying on imported raw materials should be able to pay a better price. A few other factors were expected to help bring down prices: scarce fodder had driven up transportation costs in the previous year, but that was not expected to last in the coming year. Next, wages were to fall, and to ensure this the intendants were to discourage any collusive attempts on the part of workers to maintain high wages (see above). Then manufacturers should have to lower their prices and, consequently, retailers. The losses they would incur on their stocks would be compensated by the high prices they had been enjoying previously. As for domestic bills, they were mostly indexed (payable at the rate prevailing when they were issued; letters to the intendants of April 4, 1724, AN G/7/31).

The intendant in Moulins wrote that “the individual sells his cattle at a high price to the butchers, the butchers sell the meat dearly and the hides to the tanners, they in turn sell the same hides prepared dearly to shoemakers, cobbler and others, this creates a cascade and no one submits to a price reduction proportional to currency” (AN G/7/411, October 25, 1724). The intendant in Bourges similarly reported that “all producers and retailers agree that the last diminution must result in a proportional fall in the price of their wares, they even promise to conform to the wishes of His Majesty, but when it comes to keeping their word they reply that as long as foodstuffs and wages do not fall they will be unable to cede on the price of their goods” (AN G/7/128, n. 488, October 7, 1724). In Dijon, the intendant had learned that retailers “continue to sell their goods at the same prices as before the last diminution, claiming that at the factories, among wholesalers, and in the fairs, goods are not reduced, and some have even increased in prices” (AN G/7/166–70, n. 311, November 4, 1724).

Another concern was geographical coordination: a recurrent excuse or explanation given by the intendants was that prices could not fall in their district because they were not falling in neighboring ones (e.g., Clermont, G/7/108, n. 282; Pau, G/7/121–23, n. 181). Dodun refused to accept this argument because prices should depend only on the level of the currency, and “if it were accepted there isn’t a province that couldn’t use this excuse, and since no province can be preferred over the others they must all give the example at the same time” (BN Fr8362, fol. 109; G/7/33, December 14, 1724).

Whether or not these explanations were correct, the government’s suspicions about coordination failure meant that, in the weeks that followed the diminutions of April and September 1724, producers and merchants were summoned in dozens of French towns to have their information sets vigorously updated by government officials. No one
could plead ignorance or inattention. Not only did the government publicize its actions; it also argued that it was profitable for agents to react. When the intendant in Caen tried to persuade merchants to lower their prices by appealing to the threat of foreign competition, he told them that “they had to realize the damage for the State that would follow, and even if they were not good enough citizens to be moved by this consideration their self-interest must enlighten them since their total ruin would be unavoidable if they lost sales in France and foreigners imported many goods” (AN G/7/220, n. 177, October 3, 1724).

D. Nominal Contracts

In January 1960 the nominal price level dropped by 99 percent in France, when the new franc replaced the old franc, with full adjustment of prices and no effect on output. All contracts and debts were fully indexed (ordonnance 58-1341 of December 27, 1958, art. 3 [Journal Officiel, 1958, p. 11935]). In 1724, the diminution decrees contained no provision to index existing contracts. The rule that “a franc is a franc” was expected to apply.

Several observers attributed the lack of response of prices to the existence of nominal contracts. The intendant in Amiens stated that many leases of lands and houses and contracts to cut wood had been raised to high levels during the period of fiat money in 1720 and had not yet come down; this, combined with grain scarcity, prevented prices from falling (AN G/7/97, n. 240, November 17, 1724). The mayor of Nantes wrote to the intendant of Bretagne that “in vain would one ask merchants to cut the price of their wares by a third if one does not reduce by a third the leases on their shops,” and he proposed that a law be passed reducing all leases passed since January 1720 by a third, citing a precedent of 1421. The intendant dismissed the proposal because departing from the rule that “a franc is a franc” would, he thought, lead to excessive litigation (AM Nantes, HH59, nn. 9, 10).

The extent to which nominal debts were a legitimate concern was a matter of debate at the time. As I showed, a motivation for not announcing the diminutions in advance was the government’s belief that nominal debts were of little importance after the wave of repayments in 1720. The data in Hoffman, Postel-Vinay, and Rosenthal (2000, fig. 2.4, 388) bear this out: they estimate that the stock of notarized private debt fell by 40 percent in Paris in 1720, from 160 million to 102 million

43 See Sargent and Velde (2002, chap. 6) for the origins of the rule as a way to resolve disputes over debt repayments.
livres. As for merchants’ bills and credits, the finance minister claimed in his instruction of April 1724 that the majority were payable in specie at the rate of the date of issue. This, however, was disputed: the cloth and spice merchants of Moulins, in their memorandum to the finance minister, claimed that trade credit was always payable in coin at the rate on the day of payment (AN G/7/31, n. 209, April 4, 1724; G/7/411, Mémoire des marchands drapiers et épiciers).

E. Expectations and Credibility

Contemporary reports place great emphasis on expectations of future monetary policy and, implicitly, expectations of future prices. Actors were reported to fear a diminution, and presumably because they did not expect prices of goods to adjust by the full amount, they anticipated not only nominal but also real capital losses on their cash balances.

The fears of diminutions appear before the policy begins in 1724: the information summarized by figure 1, particularly the pattern of a return to previous nominal levels after a period of disturbances, must have been in everyone’s mind. In July 1722 the inspector in Champagne noted that cloth producers had never earned so much and had the upper hand over traders who were looking to invest their funds in fear of a diminution: the latter thought there was less to lose by holding goods, and they were willing to buy any cloths they found without examining their quality. By January 1724, the same inspector found that the price of cloth had increased in part because of fear of an impending diminution (AN F/12/1359, July 22, 1722, January 19, 1724). The intendant in Dauphiné complained that high prices were due to the high value of coins and urged the government to lower the coins “or, if it is necessary for political reasons to leave them as they are, assuage the public’s fears of an impending diminution” (AN G/7/1902). The same month, when Dodun asked intendants to report on the prices of grains, several (in Châlons, Paris, and Poitiers) reported that farmers were selling only small quantities because they feared a diminution of coins and were “keeping their inventories as an asset liable to a smaller loss” than cash balances. Once the first diminution took place in February 1724, the path taken by the government became clearer. The uncertainty was now how far down it would go, and the government itself later

44 Hoffman et al. (p. 115) suppose that the share of Paris was 25 percent. This means that notarized private debt represented about 400 million livres. By way of comparison, the market value of the government’s debt was about 500 million livres (Véèle 2008, 156).

45 Not everyone expected a deflation, however. Shortly before his death in December 1723, the previous prime minister was thought to be planning a return of John Law and the introduction of a new paper currency. In January 1724, the finance minister took the unusual step of publicly denying any intent to create a paper currency as being completely opposite of the views of the new government (AM Nantes, HH890, n. 218).
admitted that it did not know initially. The effect of this uncertainty is sharply described by a local official in Marseille 2 weeks after the first diminution of February: “the diminution has suspended all business and increased the prices of foodstuffs and merchandise. We never doubted that the first diminutions would have this effect. . . . All sensible people are convinced that the third diminution will begin to have some effect and progressively things will return into balance with specie, as long as all are convinced of the King’s firm and serious intention not to increase after the diminutions. It is up to the Court to see how it can persuade foreigners and the King’s subjects that this intent is serious, firm and unwavering.”

The comments presciently alluded to uncertainty both over the final target and over the government’s resolve to remain at the target once it has reached it.

With the second diminution Dodun admitted that the first had not produced the expected effect because merchants and workers foresaw that more could come and used this pretext to increase prices; but he believed that specie now being on a “lasting, if not perpetual footing,” all things should return to the state they were in before paper money and the fear of diminutions took them to their current high level. A few days later he instructed the intendants to repress the rumors of further diminutions that were circulating and, he claimed, giving pretext to merchants and craftsmen to keep their prices high.

That rumors persisted is not surprising given the ambiguity of the phrase “lasting, if not perpetual.” Reporting on the Beaucaire fair of late July 1724, the inspector cited fears of further diminutions that led to a frenzy of purchases and a rise in prices of 12–15 percent over the course of the fair, everything being bought with cash; wool had risen by 8–10 percent since the fair of Pézenas in early June. In Tours, in early September, the inspector reported that sellers were unwilling to sell for cash.

In the edict of September 1724, the government admitted that it had allowed “a considerable amount of time to pass until we might be in a position to decide, knowledgeably and on the basis of our own experience, whether it was appropriate to set the price of coins at the value which they had reached after the last reduction, or to reduce them further, and if so to what extent.” In the accompanying instruction, Dodun said that the prime minister wanted to leave him “enough time to inform myself fully” and wanted to “see the effect of the March 27 diminution before deciding at what level coins would be set for the future”; hence the 6 months of inaction, “which is a very long time for such a pressing matter” (BN Fr8928, fol. 106).

BN Fr8928, fols. 309–10, February 23, 1724; a letter to the intendant from Jean-Pierre Rigord (1656–1727), a local antiquarian who served as deputy of the intendant in Marseille from 1704 to his death. The intendant wrote similar comments to the finance minister a few days later.

AN G/7/31, 299, April 4, 1724; G/7/32, May 2, 1724; similar letter later in BN Fr8928, fol. 288, July 30, 1724. The government routinely read private letters, and there are a few instances of individuals receiving visits from the police (AN G/7/32, May 22, 1724; Arsenal, 10,832, fols. 46–49; AN G/7/1707, n. 116).
sell, and buyers eager to buy, because of fears of further diminutions. Similarly, the inspector in Troyes reporting on the fair of September 1724 attributed the high prices of wools to the belief among traders that it was better to keep one’s funds in goods; those who have money prefer to lend it to merchants without interest than lend it in annuities at 3.3 percent (the legal interest rate; AN F/12/695, December 18, 1724).

The finance minister admitted as much in the instruction of September 1724 accompanying the third diminution:

The efforts we have made until now to reduce the prices of foodstuffs and goods have not had all the success we could expect, because the public was convinced that it would be necessary to make another diminution of the currency. . . . Experience has shown us that the price of foodstuffs and goods is influenced less by the value of coins than by the fear of an impending diminution and uncertainty over their value in the future. . . . The excessive increase in the price of all things which began only in 1720 was mainly due to the fear of losing on paper balances, which was replaced by the fear of losing on coins which persists today. (BN Fr8362, fols. 99, 101, 104)

Finally heeding the advice it had received, the government did not merely announce a permanent level for currency. It also explained the choice of level in the preamble of the edict of September 1724. It proclaimed a commitment to a “certain and unchanging value of money” and blamed recent circumstances for deviations away from that principle. A long time had elapsed since the April diminution because of the need to decide how far down to go. Experience showed that trying to go down too far, after a long period in which the economy had grown accustomed to a high nominal level, was too difficult, and hence the government had settled on the new level as proper and final. This long preamble, accompanied as it was by an instruction to the intendants that was to be made public, was a remarkable attempt at communicating with the public the goals of monetary policy.

Now, after the final diminution, the course of the economy rather than government policy became the chief concern. Already in October 1724, the finance minister predicted that prices would fall of themselves because of reduced demand, whether foreign or domestic, and also because increasing unemployment would push down labor costs. A similar belief was expressed by the deputies to the Council of Trade, who

49 AD Hérald, C2126, letter of Hure de la Chapelle, August 1, 1724; AN F/12/695, September 12, 1724, September 26, 1724.
thought that increasing pressure from the creditors of merchants would sooner or later force the latter to sell their inventories and drive down prices, as had happened in 1715 (with an accompanying raft of bankruptcies).

A few later reports continued to link the fact that prices did not decline enough to expectations, although not necessarily of further diminutions. In March 1725, the inspector in Troyes commented that merchants attending the last fair had been expecting that an augmentation of coinage would be conceded to stimulate trade, and most of them still expected one. Reporting on the Beaucaire fair of July 1725, the inspector said that those who had cash preferred to hold on to it or buy bills of exchange rather than buy goods since some prices had still not bottomed out (AN G/7/792, March 11, 1725; AD Hérault, C2301).

F. Credit Crunch and Recession

At the same time as the recession worsened, the intendants and inspectors commented increasingly on economic activity. Having documented the recession quantitatively in the previous subsection, I will dwell on only the comments that touch on monetary matters, in particular the development in late 1724 and 1725 of a “credit crunch” (to use a modern phrase).

The first reports of what contemporaries called a “scarcity of money” appear in early October 1724, soon after the last diminution. Initially they seem to refer to reduced cash balances (as a consequence of the diminution), but later they appear to refer to an unwillingness to spend or lend cash: in Provence, “coins are scarce because they have lower value and because there is less eagerness to use them”; in Normandy people are trying to borrow at 12 and 15 percent to send to Paris. In January 1725 the intendant in Rouen reports that trade is languishing and that there is no demand for cloths, even though manufacturers have lowered their prices, whereas retailers have not lowered theirs as much. He attributed the situation to the lack of money. At the same time the inspector in Dauphiné reported that cloth output had fallen by half in 3 months because foreign demand had evaporated, foreigners having bought a lot before the last diminution, and also because workers were reluctant to lower their wages. In Troyes in March, merchants were

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50 AN G/7/33, letter of October 22, 1724, to La Tour, intendant in Poitiers; F/12/695, December 18, 1724. The Council of Trade was an advisory body composed of finance ministry officials and deputies elected by the chambers of commerce. The deputies’ comment on bankruptcies led them to muse that perhaps a further fall in prices was more to be feared than desired; these perhaps too candid comments were struck out from the final minutes of the council’s meeting.
still hoping for a reversal of monetary policy. In Caen in September, the inspector reports that prices of inputs had become reasonable but manufacturers were not producing for lack of money. In Rouen in November, the high price of grain and the lack of money were blamed.

By the end of 1724, the government was apparently becoming concerned with the state of the economy, not just the evolution of prices. In the deliberations of the Trade Council, increasing attention is paid to the reports of the inspectors of manufactures about the conditions of the textile industry and the volume of trade at the major fairs. The reports for the first half of 1725 were consistently gloomy. In Alençon the inspector blamed it on weak demand and high grain prices. In Caen it was said that inputs were now reasonably priced and workers more numerous, but very little cloth was sold for lack of money. In Rouen producers also suffered from the lack of money.

In early 1725, the government heard rumors of bankruptcies among merchants and worried about the possible repercussions on the main trading centers. On January 7, 1725, Dodun asked the intendant in Lyon to be kept informed of any bankruptcies, and 2 days later he wrote similarly to the intendants in Orléans, Tours, La Rochelle, Bordeaux, Rouen, Marseille, and Lille. The reports he received over the next few months apparently reassured him that the bankruptcies that were taking place would not have systemic repercussions. Either there were none to report or they befell marginal players who had not borrowed much from other merchants. Only Bordeaux reported a significant number of bankruptcies, but all were linked to a speculative boom in the wine trade that had developed in the previous years and had prompted “cobblers, craftsmen and even servants” to enter into a business they did not know. By the summer, a different sort of crisis, related to grains, would take up Dodun’s full attention.

Information on discount rates for commercial paper at the Languedoc fairs, summarized in table 6, corroborates the talk of “scarcity of money.” Rates apparently rose markedly and peaked in June 1726.

A factor that may have exacerbated the problem was an ill-timed reduction in the usury ceiling set by the usury laws. The ceiling had been 5 percent since 1679; a reduction from 5 percent to 4 percent

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51 Champagne: G/7/237, n. 184; Caen: G/7/220, November 1, 1724; Provence: BN Fr8928, fols. 262–67; Normandie: G/7/1707, n. 264, December 9, 1724; G/7/792: Rouen, January 21, 1725; Dauphiné, January 12, 1725; Troyes, March 11, April 1, 1725. Alençon, F/12/1369A, July 6. Caen, F/12/1469B, September 1. Rouen, F/12/1363, November 28. 52 Alençon: F/12/1369A, July 6, 1725; Caen: F/12/1369B, September 1, 1725; Rouen: F/12/1363, November 28, 1725. 53 AN G/7/35, January 1725, nn. 13, 27; February 1725, nn. 21, 23; March 1725, nn. 3, 11; May 1725, n. 15. Bordeaux: G/7/147, nn. 307, 313; Lille: G/7/266, n. 347; La Rochelle: G/7/344, n. 248; Lyon: G/7/368–73, nn. 50, 56, 57; Orléans: G/7/422, n. 310; Marseille: G/7/792; Rouen: G/7/503, n. 226.
had been debated in 1715–16 and again in August 1717 (AN Mar G 135; Mazarine ms. 2432, fols. 85–89), and Law attempted in March 1720 to reduce the legal ceiling to 2 percent; but the edict was never registered in Parlement and did not come into force. In June 1724, the legal ceiling was lowered to 4 percent, with some resistance from the Parlements.54 In June 1725, the government did an about-face and admitted that this had resulted in lenders either withholding their funds or engaging in usurious (and illicit) practices: “we have ceded against our own opinion to the general wishes of our people.”

V. Conclusion

The peculiarities of the French monetary system allowed its government to conduct a series of unforetold reductions in the nominal money supply by a total of 45 percent over a period of a few months. The goal was to reduce the price level to what was thought to be an appropriate level. This ruthless experiment in price level targeting was not successful. Prices and wages fell, but not by the full 45 percent; moreover, it took them months, if not years, to do so. Real wages in fact rose initially. Interest rates rose as well. Only the foreign exchange market adjusted instantaneously and fully. Even markets that were as close to fully competitive as one can imagine, such as grain markets, failed to react initially.

54 See, e.g., the complaints of the Parlement of Provence (AN G/7/792). The intendant in Rouen reported that this led to a sharp drop in lending (G/7/503, n. 226, January 19, 1725).
There is also some suggestive evidence that some prices reacted more sharply to the reversal of monetary policy that took place in 1726. At the same time, the industrial sector of the economy (or at any rate the textile industry) went into a severe contraction, by about 30 percent. The onset of the recession may have occurred before the deflationary policy began, but it was widely believed at the time that the severity of the contraction was due to monetary policy, in particular to a resulting “credit crunch” as holders of money stopped providing credit to trade in anticipation of further price declines. Likewise, it was also believed, on the basis of past experience, that a policy of inflation would halt the recession; in fact, the economy rebounded once the nominal money supply was increased by 20 percent in May 1726.

The comments of contemporaries point to possible avenues. In contrast to modern currency reforms, existing debts and nominal contracts were not adjusted for fear of generating too much litigation. Such small nominal rigidities, in conjunction with other factors such as strategic complementarities and expectations of further diminutions, might have induced larger effects.

Appendix A

Sources and Data

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<td>Rouen</td>
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<tr>
<td>Saintonge</td>
</tr>
<tr>
<td>Sedan</td>
</tr>
<tr>
<td>Sologne</td>
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<tr>
<td>Toulouse</td>
</tr>
<tr>
<td>Troyes</td>
</tr>
</tbody>
</table>
TABLE A1 (Continued)

Other Sources:

Letters of Dodun
(1723–26) AN G/7/31–36
Correspondence of the intendants with Dodun:

Alençon, Languedoc G/7/1704 Hainaut G/7/290
Alsace G/7/444, BN NAF La Rochelle G/7/344
2600–2601
Amiens G/7/97 Lyon G/7/368–73
Auch-Pau G/7/121–23 Montauban G/7/400
Auvergne G/7/1704
Bordeaux G/7/147 Orléans G/7/422
Caen G/7/229 Poitiers G/7/456
Champagne G/7/237 Rouen G/7/503
Dauphiné BN 8381 Roussillon G/7/509
Flandres G/7/286
Franche-Comté G/7/285

Minutes of matters
sent to the minister
(1723–26) G/7/787–92 Fairs F/12/1228–43
Coinage G/7/1468, 1472 Minting records Z/1b/298, 421
Miscellaneous correspondence G/7/1704–8 Police files Arsenal 10832, 10846
(Bureau de Commerce)
(Trade Council) F/12/71–73, 681–82, 695–96 Works of Melon Arsenal 3857
Affaires Étrangères:
Mesnes et Documents, France 1252, 1256, 1258

* Source: Archives Nationales unless otherwise noted.

Appendix B

The Model

Let \( \left( Y_{it} \right)_{i=1}^{N} \) be the original series, where \( i \) denotes the region or the commodities and \( Y_{it} = \log(Y_{t}) \). The general model is

\[
Y_{it} = \gamma_{i} + \lambda_{i} \mu_{it} + \epsilon_{it},
\]

\[
\mu_{it} = \mu_{i,t-1} + \xi_{it},
\]

with \( \epsilon_{it} \sim (0, \sigma_{\epsilon}^{2}) \) and \( \xi_{it} \sim (0, \sigma_{\xi}^{2}) \). The parameters \( \lambda_{i}, \gamma_{i}, \sigma_{\epsilon}^{2}, \) and \( \sigma_{\xi}^{2} \) are estimated by maximum likelihood, using an exact initial Kalman filter (Koopman 1997; Durbin and Koopman 2001), with \( \gamma_{i} \) and \( \lambda_{i} \) normalized to the sample mean and standard deviation of \( \gamma_{i} \). The trend is modeled as a random walk; more general formulations, such as adding a time trend, a seasonal factor, or making the trend locally linear, as in Harvey (1989, 45), did not improve the fit: thus the data are not seasonally adjusted. The index is then scaled as

\[
I_{t} = \exp\left[\frac{1}{N} \sum_{i=1}^{N} \lambda_{i} \right] \mu_{it}.
\]

The unrestricted model (R0) has \( 3N - 1 \) parameters, which may be too profuse.
depending on the number of observations available. The model can be restricted by successively imposing the following constraints:

\[ \gamma_i = \frac{1}{T} \sum_{t=1}^{T} y_{it} = \bar{y}_i, \]  

(B1)

\[ \lambda_i = \left[ \frac{1}{T-1} \sum_{t=1}^{T} (y_{it} - \bar{y}_i)^2 \right]^{1/2} = \sigma(y) \quad \text{and} \quad (B1), \]  

(B2)

\[ \sigma_i^2 = \sigma^2 \quad \forall i \quad \text{and} \quad (B2), \]  

(B3)

\[ \sigma_i^2 = \frac{1}{N} \sum_{i=1}^{N} \sigma^2(y_i) \quad \text{and} \quad (B2), \]  

(B4)

that is, setting the constants \( \gamma_i \) to the sample means (model R1), setting the loading factors to the sample standard deviations (model R2), imposing a common variance of the idiosyncratic shocks (model R3), and setting that common variance to the average variance of the data series (model R4). Restrictions (B1) and (B2) are equivalent to log-normalizing the data and setting all loading factors to one.

Given the number of series \( N \), model R0 has \( 3N - 1 \) parameters, model R1 has \( 2N \) parameters, model R2 has \( N + 1 \), model R3 has two parameters (\( \sigma^2(\xi) \) and the common variance \( \sigma^2 \)), and model R4 has one parameter (\( \sigma^2(\xi) \)). The trade-off between parsimony and fit can be evaluated in various ways: with the

<table>
<thead>
<tr>
<th>Figure</th>
<th>Index</th>
<th>Series</th>
<th>( N )</th>
<th>AIC</th>
<th>BIC</th>
<th>LLR</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Paris, commodities prices, monthly, 1724–33</td>
<td>6</td>
<td>709</td>
<td>R1</td>
<td>R1</td>
<td>R1</td>
</tr>
<tr>
<td>6</td>
<td>Paris, commodities prices (excluding wheat), monthly, 1724–33</td>
<td>5</td>
<td>589</td>
<td>R1</td>
<td>R1</td>
<td>R1</td>
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<tr>
<td>7</td>
<td>Nantes, all commodities prices, monthly, April 1720–July 1731</td>
<td>51</td>
<td>5,184</td>
<td>R1</td>
<td>R1</td>
<td>R1</td>
</tr>
<tr>
<td>7</td>
<td>Nantes, grains prices, bimonthly, April 1720–December 1729</td>
<td>8</td>
<td>1,647</td>
<td>R0</td>
<td>R0</td>
<td>R0</td>
</tr>
<tr>
<td>9</td>
<td>Woolens, looms, semiannual, 1715–39</td>
<td>24</td>
<td>415</td>
<td>R1</td>
<td>R2</td>
<td>R0</td>
</tr>
<tr>
<td>9</td>
<td>Woolens, bolts, semiannual, 1715–39</td>
<td>24</td>
<td>425</td>
<td>R1</td>
<td>R2</td>
<td>R0</td>
</tr>
<tr>
<td>10</td>
<td>Woolens, price-weighted ells, semiannual, 1714–37</td>
<td>19</td>
<td>242</td>
<td>R0</td>
<td>R2</td>
<td>R0</td>
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<tr>
<td>10</td>
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<td>R2</td>
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<td>Woolens, ells-weighted prices, semiannual, 1714–37</td>
<td>19</td>
<td>242</td>
<td>R0</td>
<td>R3</td>
<td>R0</td>
</tr>
</tbody>
</table>

Note.—AIC = Akaike information criterion; BIC = Bayesian information criterion; LLR = log likelihood ratio.
Akaike or the Schwarz (Bayesian) information criterion or with log likelihood ratio tests since the models are nested (see table B1). I have used the Schwarz criterion, which performs well (from a Bayesian perspective) in factor analysis (Lopes and West 2004).

References


