

The French Revolution and Financial Markets:

A Look Beyond Government Debt

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### Abstract

This paper analyses the French revolution's impact on a credit market in rural France. The political instability and economic crises that rages between 1789 and 1797 left local credit markets devastated. Population movements, uncertainty and the destruction of credit networks all reduced access to capital between 1780 and 1805. Recovery was very slow despite some improvement in the institutions of credit markets and even by 1840 local credit markets remained smaller than their Old Regime climax. Wholesale property rights change as occurred between 1789 and 1797 leads to persistent uncertainty and thereby reduces the willingness of individuals to participate in intertemporal exchange. Thus economists should take a longer view of the process of economic reform.

The governments of many developing economies have been engaging in deep structural reforms while at the same time facing popular pressure to transform their political system. It is commonly argued that economies can quickly realize the gains from new, more efficient, institutions. Thereby little attention has been paid to historical examples of wholesale institutional change. Yet as the example of Eastern Europe shows economic issues are over shadowed by political ones. Therefore it is relevant to consider how economic change occurs under political instability. This article focuses on credit markets in France at the time of the Revolution of 1789 and documents the complex adaptation of the countryside to a new set of institutions. The Revolution of 1789 is a good historical case study because, like modern reform episodes, it features massive property rights change, associated with monetary and political instability. While something is lost in terms of relevance due to the economic development that has occurred since 1789, studying historical events offers the only opportunity to study the long-term consequences of dramatic change. It is clear that the French Revolution had a dramatic and long lasting effect on private credit. In fact an entirely new credit system had to be put into place before the market recovered.

To study how the countryside responded to the Revolution I use a sample of loan contracts collected from archival sources. The data were drawn from L'Isle sur Sorgues, a small town in southern France, between 1780 and 1840.<sup>1</sup> We begin by studying the Revolution's effect on credit

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<sup>1</sup>This study is but a part of a larger effort to study a number of credit markets in France, at this early stage we only analyze the performance of the market in L'Isle sur Sorgues.

markets. We then examine how the market coped with the increased uncertainty that followed 1789, leaving for the end of the paper the analysis of financial development and economic growth.

### I The Revolution and Credit Markets

Economic historians have been hard at work applying modern financial economics to the problems of government finance in France between 1740 and 1815. While their efforts illuminate the budgetary constraints faced by Old-Regime, revolutionary, and imperial governments, they have had comparatively little to say about the long-term effects of the financial upheaval of 1789-97.<sup>2</sup> They end their studies either in 1797 when the final default occurred or 1815 when the Bourbon monarchy returned to power. However, L'Isle sur Sorgues's experience suggests that the Revolution had important long-run effects on the private sector. Indeed credit markets there were the victims of both violence and financial turmoil. L'Isle sur Sorgues, which had for centuries been part of an independent papal enclave, was annexed to France during a period of near civil war. This difficult political transition was followed by economic crises. The government began to issue *assignats*, a paper currency that rapidly depreciated. Because the private financial system was unprepared for inflation, *assignats* caused massive financial dislocation that proceeded unabated until late in 1797.<sup>3</sup>

To understand the effects of the *assignats* period we must first discuss Old Regime credit markets. Before 1789, two types of medium- and long-term contracts prevailed in L'Isle sur Sorgues: perpetual annuities

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<sup>2</sup>An exception to this rule is Bordo and White (1991) but they restrict their attention to the constraints that the Revolution placed on Napoleon's financial activities.

<sup>3</sup>For details see Marion (1927:4).

(rentes) that had an effective duration of over 20 years and notes (obligations) that were due most often within two years.<sup>4</sup> The market for credit functioned differently for perpetual annuities than for notes. While notaries were the principal intermediaries for *rentes*, they limited their activities to linking borrowers and lenders, who usually came from different social and economic groups. *Obligations*, however, were the domain of a concentrated pool of lenders: Jews and merchants.

For L'Isle sur Sorgues--and other areas as well--the last decade of the Old Regime stood at the end of a long period of financial growth. Indeed by most accounts credit markets doubled in size between 1700 and 1780.<sup>5</sup> Growth in L'Isle was achieved through a slow democratization of the *rente* and through a dramatic rise in the use of *obligations*. By the 1780s, long- and medium-term contracts were roughly equal in terms of flows, while perpetual annuities still dominated the stocks. Moreover the credit market appears to have distributed capital broadly across the near 2,500 households of the area (for summary data see Table 1).<sup>6</sup>

[Table 1 about here]

Since growth of the market during the Old Regime was relatively smooth there is no reason to suspect that the 1780s represented an unusual deviation from trend. In fact, growth would probably have continued as the medium-term credit networks increased in size and sophistication. Yet in April 1790, the National Assembly, faced with dire needs for cash, decided to issue paper money--called *assignats*. The *livre*-denominated *assignats*

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<sup>4</sup>Individuals also used (*billets*) that were private notes. Because *billets* were not notarized little information about them survives.

<sup>5</sup>Servais (1982), Hoffman, Postel-Vinay, and Rosenthal (1992), and Rosenthal (1993) all show similar growth rates.

<sup>6</sup>These data are fully analyzed in Rosenthal (1992).

became legal tender for public and private debts.<sup>7</sup> To reduce inflationary fears, the government decreed that the *assignats* would be fully backed by land confiscated from the Church. Moreover as Church lands were sold equivalent amounts of *assignats* would be retired. The incentives to inflate, however, proved too strong and the currency lost nearly half of its value in two years. Ironically for a time, the *assignats* solved the government's revenue problems precisely through an inflation tax.<sup>8</sup>

Whatever the impact of *assignats* on government finance, it was their impact on private credit markets that interests us. To manage their financial portfolios, individuals had to try to anticipate the government's decisions and predict how the *assignat* experiment would go. In the 1790s it seems that most everyone expected the *assignat* to fail and that in the long run the government would reintroduce a silver backed currency. At that time the government would also have to choose a whole series of exchange rates: one between the pre-1792 *livres* and the new currency, and then one between each silver value of the *assignats* and the new currency. Thus given the anticipated failure, the question of expectations reduces to expectations about timing and future exchange rates.

Individuals appear to have anticipated that after stabilization contracts dating from before 1790 would have to be honored at par (in terms of silver).<sup>9</sup> Moreover many thought that interim contracts--that is those

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<sup>7</sup>This was France's second experiment in paper currency as already in 1719, under the guidance of John Law, the crown had issued *billets de banque*. The *billets* had rapidly lost their value as the state printed far more than the economy could sustain without inflation.

<sup>8</sup>Aftalion, (1990, ch.4), Sargent and Velde (1991).

<sup>9</sup>The *livre* was worth 0.982 francs-germinal in terms of silver content, the unit introduced in 1797. Thus a contract signed for 10 year loan of 100 *livres* in 1788 would have to be repaid as 98.2 francs in 1798.

denominated in *assignats*--would be converted to the new unit at some unknown fraction of par.<sup>10</sup> Given these expectations and the fact that between 1791 and 1797, lenders had to accept repayment at par in *assignats*, borrowers could choose among three courses of action: 1) do nothing, 2) renegotiate, 3) repay their debts.

A few debtors did not convert their *livres*-denominated debts into *assignats*-denominated debts. They found their financial situation unchanged after 1797. Apparently some borrowers were not astute enough to renegotiate their debts. Indeed, between 1800 and 1825 notaries recorded many repayments of Old Regime debts that had passed through the Revolution untouched.<sup>11</sup>

Most debts, however, were either renegotiated or canceled. The many borrowers who did convert their debts improved their situation because the *assignat*/new currency exchange rate was less than one. Individuals holding *assignats* sought out debtors willing to borrow from them. Such lenders hoped that these new debts would be not be canceled before the stabilization occurred. Such contracts benefited both parties since the

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<sup>10</sup>In fact since it was well known that *assignats* had depreciated over time there was an effort to create sliding schedules to convert *assignats* debts in to francs germinal.

<sup>11</sup>This is a clue of the importance of reputation in credit markets. Indeed borrowers probably knew that lenders would not lend to them in the future if they took advantage of the depreciation. Not renegotiating could thus be a form of signaling one's intent to honor future contracts. However, if all or almost all borrowers renegotiated then lenders have little choice about who to lend to. Thus, when depreciations where small renegotiations did not occur. A historical example of a small depreciation not followed by renegotiation occurred in the 1766 when the government lowered the maximum interest rate on *rente* from 5 to 4% per annum. The government decree was not followed by massive renegotiation presumably because borrowers saw the damage to their relationships with lenders as greater than the 20% savings on outstanding debt that renegotiation offered. The *assignat* period however was a very large depreciation so renegotiation was the rule not the exception.

conversion of contracts from *livre* to *assignats* reduced the debts of borrowers while debt contracts provided some protection from the inflation that plagued *assignats*. The loser in this transaction was the holder of the original debt who was left holding rapidly depreciating *assignat* which he in turn tried to loan out. In theory every private debt contract should have been renegotiated since only then would there have been no further use for *assignats* in the financial sector. In practice the high volume of new loans between 1792 and 1797 testifies both to the extent of lenders' desire to avoid holding *assignats* and to the extent of renegotiation.

In the end it was repayment out right, the third course, that proved most popular. Of course, during the depreciation borrowers tried to repay as late as possible but before the stabilization date. Yet since *assignats* lost more than 95% of their value, many individuals were able to extinguish their debts outright between 1792 and 1797.<sup>12</sup>

While not every borrower extinguished or converted all his Old Regime debts, the *assignats* dramatically reduced long-term debts. In 1789, perpetual annuities comprised the bulk of the bond portfolios of French men and women. Perpetual annuities were redeemable by the borrower at any time and they were denominated in *livres*, the French unit of account.<sup>13</sup> The vast

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<sup>12</sup>Postel-Vinay (1989). In June of 1795 the assembly passed a decree outlawing the repayment of private *rentes* in *assignats*. It is not clear how well the law was enforced since it was reiterated in November of 1795 and abrogated in March of 1796. Yet the government intervention in private credit markets indicates that it was aware of the consequence of the inflation. Thus any monetary theory of the Revolutionary period should take into account the costs imposed on the private financial sector and the real economy by the *assignat*.

<sup>13</sup>Technically lenders could demand a month's notice so borrowers who repaid unwilling lenders had to pay a premium of one month's interest. But should the stabilization take place in the interim then they would be unable to repay in *assignats*. Thus the trick was to start repayment procedures as close as possible to the stabilization--but not too close.



bulk of these contracts were either redeemed or renegotiated between 1791 and 1793 and by the time the inflation subsided both flows and stocks of perpetual annuities had entered an irreversible decline. Indeed, while in the eighteenth century *rentes* had accounted for more than 50% of all new loans they fell to less than 4% of new contracts after 1805 (see Table 1). The Revolution made term debts, which had been gaining ground in the eighteenth century, the dominant credit instrument after 1800.<sup>14</sup>

Had the inflation been purely redistributive, we would have no story to tell, save for the effect of redistribution on recourse to credit. It appears however, that credit markets suffered greatly. Ignoring the years of crisis and their immediate aftermath, I collected data on all recorded credit contracts from August 1805 through February 1810--over eight years after financial order had been restored.<sup>15</sup> In addition I collected data from all contracts recorded in 1825 and 1840 to understand how the market fared in the longer run.

As the data for 1805-9 show, capital markets were devastated between 1792 and 1797 (see Tables 1 and 2). Credit flows were less than

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<sup>14</sup>To be sure there were other legal reasons for the disappearance of *rentes*. Since *rentes* had been considered real-estate (*immeuble*) they were part of a family patrimony which could not be easily dissipated by heirs. Turning liquid wealth into *rentes* was in effect an attempt to prevent heirs from consuming more than the income from inherited wealth. These legal changes appear to have been of small consequence relative to the monetary dislocation since family histories of the eighteenth century abound in instances of estate dilapidation.

<sup>15</sup>The volume of renegotiations makes it impossible to collect long continuous runs of data between 1791 and 1797. Since credit markets were at a standstill in 1798 I went a few year out to see how activity had recovered. Specifically, I collected information on all credit contract in the registers of the *actes civils publics* tax, which was a tax on all notarized contracts. This information was supplemented by looking at the original documents in notarial archives for a small number of contracts.

25% of their Old-Regime highs while stocks were reduced to less than 4%.<sup>16</sup> Even if we weight medium- and long-term loans by the medium-term duration the market lost more than 85% of its stock. Short-term loans were extended for only half as long as they had been at the close of the eighteenth century and their flow was only 40% of what it had been only 25 years before. This massive contraction was persistent in that it continued unabated through 1809, a full 12 years after stabilization. The market's size had doubled by 1825 but only in terms of stocks since although duration doubled, flows remained constant. Only in 1840 did the market again equal in flows and exceed in stock the Old Regime medium-term volumes. Nonetheless total volumes and flows were still well below those of the eighteenth century. Indeed, the early nineteenth-century credit activity growth rates suggest that the market did not recover its Old Regime volumes and stocks until nearly a century after the *assignats* had first been issued.

[Table 2 about here]

To understand this massive contraction, we will trace three different consequences of the Revolution on credit markets: 1) changes in market composition, 2) changes in uncertainty, and 3) changes in intermediaries.

#### 1) Changes in Market Composition

Perhaps the most striking contrast between 1780 and the subsequent samples are the changes in the population of borrowers and lenders. Nobles, religious institutions, and Jews, all important participants under the Old Regime, were virtually absent after 1800. Their

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<sup>16</sup> Stocks can be interpreted as the volume of the market if all loans were one year long.

disappearance had a profound direct impact on the size of L'Isle's credit market. Nobles had accounted for about 30% of all funds loaned and borrowed on the *rente* market and had borrowed about 30% of all the obligation funds. The aristocrats never regained any importance after 1800. The Church, which in the Old Regime had been a major lender (their loans amounted to 17% of the funds on the market between 1675 and 1780) disappeared forever. Finally Jews who had been the primary lender group for *obligations* (up to 75% of the market) amounted at best to 10% of the market around 1805 and even less later. In all, under the Old Regime these three groups had borrowed 37% and lent 51% of all *rente* funds. Their share of the *obligation* market had been equally impressive since they had borrowed 60% and lent 64% of those funds between 1675 and 1780.

There is evidence that both nobles and Jews were moving out of L'Isle sur Sorgues towards the end of the Old Regime. The Revolution, however, transformed a slow process into an exodus.<sup>17</sup> This massive migration caused an equivalent outflow of cash as nobles and Jews left with their liquid wealth and tried to sell off other assets. Furthermore all religious institutions were nationalized and their wealth confiscated which further reduced the supply of capital. It seems likely however that a greater portion of Church wealth remained in the area than that of nobles or Jews since the government received little in return for the sale of church assets.

The market's contraction was more massive than the simple subtraction of the contribution of the departing groups would suggest. A

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<sup>17</sup>Both in L'Isle sur Sorgues and Cavaillon, the neighboring town the period between 1760 and 1830 saw a number of very large farms owned by absentee nobles broken up and sold to local farmers (AD Vaucluse E...). For Jews see Moulinas (1981:4111-34).

simple out-migration would have reduced local capital, yet it seems hard to believe it would have amounted to more than a temporary setback. L'Isle sur Sorgues was an agrarian economy, hence most non-labor income came either from non movable assets or the movable capital of farms and craft shops all of which presumably were unaffected by the relocation of groups like nobles or Jews.<sup>18</sup> Thus the market should have recovered quickly yet all the evidence is that the contraction was massive and prolonged. Without the elites and Jews the market should have retained at least 40% of its volumes and stocks. If we only consider those groups remained in l'Isle after 1789 their number of loans was less than two-thirds of what it had been in 1780, their loan volumes less than half, and their stocks about 10%. Moreover since lending in *obligations* was the domain of Jews the migrations should have pushed the market towards an increasing reliance on *rentes* were all social groups--save Jews--participated. Yet as noted the reverse occurred and the *rente* disappeared.

## 2) Changes in Uncertainty

Beyond population movements the Revolution affected credit markets by increasing uncertainty, and subsequent government actions only aggravated the problem. To begin with, expectations about future prices and the value of currency were disrupted by the *assignats*. While the return to a silver based currency and the partial default of 1797 provided some budgetary relief, national governments continued to be unstable. The next half century witnessed five important changes in government of which two occurred under revolutionary pressures (1830, 1848) and two as a result of

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<sup>18</sup>One problem however lies with the fact that saving rates may have been correlated with income so that the redistribution of income associated with the Revolution could have lowered or raised savings rates.

military defeat (1813, 1815). Between 1797 and 1815, Napoleon's government was constantly contested either from within or without and other work shows that it was neither financially nor politically secure.<sup>19</sup> Restoration governments were not much more stable and ended in the revolution of 1830. During the early nineteenth century, political regimes lasted little more than a decade and a half, perhaps not enough to inspire confidence to lenders scarred by the Revolution of 1789. At each of these transitions there was a strong possibility that the administrative structure would break down, as it had in 1789, leading the new government to desperate financial measures.

During the Napoleonic period, international conflicts, which had always produced financial disasters under the Old Regime, loomed large. Since raising revenue domestically caused disturbances, wars were financed by taxing occupied territories.<sup>20</sup> Thus military adversity--a likely event despite the emperor's prowess on the field of battle--could signal a return to predatory financial practices. All this uncertainty must have reduced the willingness of individuals to participate in credit markets. Between 1805 and 1807, before interest rate ceilings were reintroduced, we observe interest rates as high as 12% and none below 5% (see Table 3). These rates are well above the 4 to 6% range that had characterized medium- and long-term credit before 1789, suggesting either that capital was extremely scarce or that lenders perceived credit as very risky.<sup>21</sup>

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<sup>19</sup>Bordo and White (1992) and Sutherland (1986, ch. 10). The South-East was a politically divided region where opposition to the central government ran strong. Anti Napoleon feelings there were quite strong as well.

<sup>20</sup>See Bordo and White (1990) and Marion (1927:4, 216-353).

<sup>21</sup>For Old Regime rates see Servais (1985), Velde and Weir (1992), Lockett (1992), Rosenthal (1993).

[Table 3 about here]

Those lenders who remained in the market took precautions to reduce the impact of uncertainty on their activities. The most obvious of such precautions was that some contracts were no longer denominated in money. Denominating debts in alternate goods provided some form of insurance. Claims where money was only the second of two payment options and grain the first were, however, not clearly enforceable. Indeed a government intent on an inflation tax would outlaw such contracts to increase the demand for money. In any case it is unlikely that widows, for example, really desired to receive their entire annuities in sacks of wheat. Therefore lenders and borrowers probably negotiated a grain-money exchange rate at each payment. Contracts denominated in alternate commodities disappeared quickly, presumably because of the high transactions cost of such arrangements. Nonetheless three of the dozen long-term contracts (life annuities) of 1805-6 were denominated in wheat, a full 8 years after stabilization.<sup>22</sup>

A more frequent and persistent response to uncertainty was a dramatic shortening of contract duration. Most lenders refused to sign contracts that extended far beyond a calendar year. In many cases, however, loans ran a good deal longer suggesting that renegotiation was often necessary. Yet despite the cost of renegotiation, median and mean duration of contracts remained stubbornly close to 16 months between 1805 and 1809. It is therefore likely that individuals in L'Isle sur Sorgues continued to

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<sup>22</sup>That denominating longer term contracts in grain survived the longest is not surprising. For a given probability of destabilization per unit time longer term contracts are more likely to be affected by the stabilization. Thus the return to denominating longer term contracts in grain is higher than for shorter term contracts.

doubt that stability had returned. In the short run the uncertainty ushered in by the *assignats* and maintained by government instability raised transactions cost and raised them for a long time.

### 3) Changes in intermediaries

The final cause of the market's collapse was the destruction of credit networks. Two such networks had coexisted in Old Regime L'Isle-sur-Sorgues. The first had centered on notaries who specialized in collecting accurate collateral information used for determining the safety of long-term loans. The second network had centered on Jews and merchants who took advantage of economies of scale and of the complementarity of credit dealings with the exchange of goods to reduce transactions cost for medium-term loans. Both of these networks could only operate efficiently in stable economic environments. The Revolution, however, was an era of massive and unpredictable change. It is impossible, given the data at hand, to decide which network suffered the most. Yet it appears that medium-term intermediaries were just about wiped out by the inflation since so few of them recur in the data after 1800. Notarial networks suffered as well because lenders were unwilling to offer *rente* contracts. Yet notaries' information was still in demand since after the Revolution lenders required explicit collateral even for medium-term loans.

Given the intensity of the credit contraction that followed 1789 it should be no surprise that credit networks were slow to rebuild and that when they reemerged they were formed on a different basis than those which had existed before the inflation. Indeed nineteenth-century credit markets had to be adapted to persistent uncertainty and to a new set of institutions. After 1797 a new market slowly emerged where notaries linked borrowers and lenders for collateralized loans, while merchants underwrote

shorter-term notes. Old-Regime *rentes* were replaced by nineteenth-century *obligations* while eighteenth-century *obligations* were replaced by a new credit instrument, the notarized letter of exchange.

## II Reforms and Uncertainty

### 1) Reform

While the Revolution proved very costly to rural credit markets, they were too important to the local economies to collapse permanently. As borrowers and lenders struggled to rebuild credit markets they faced new institutions that could have offset the dislocation caused by the *assignats*. Already under the Old Regime there had been efforts to improve the credit system. But in a typical Old Regime fashion these efforts had been regionally based and had offered only partial solutions to the high transactions cost that plagued credit. In contrast after 1789, reforms were sweeping, national, and should have helped credit markets greatly. In light of the data presented here, however, it appears that credit markets relied as much on traditional intermediary networks as on the new institutions for information.

First and foremost among the revolutionary reforms, antiquated usury laws were abolished and interest bearing term contracts were legalized throughout France.<sup>23</sup> Interest rates were left free to vary. To reduce the transactions cost of credit, lien registries were opened in every canton.<sup>24</sup> There creditors could ascertain how many liens were placed on collateral pledged by borrowers. In fact registries allowed lenders to

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<sup>23</sup>They had only been legal in selected provinces. See Carrière (1974).

<sup>24</sup>Lien registries were an extension of Old Regime innovations of the 1770s. Canton are administrative districts that grouped about a dozen villages around a small market town.



recover a good deal of the credit histories of debtors and to inscribe their own loans into the registers.<sup>25</sup> Yet registration was not made mandatory, nor did registered loans have precedence for repayment over unregistered ones in case of default. Finally after 1807, loans collateralized by land could only bear a maximum of 5%--the old *rente* interest cap.

After these institutional reforms the new *obligations* were superior loan contracts to both the old *obligations* and *rentes*. Indeed lenders could now stipulate interest rates in *obligations* contracts, which had been illegal before 1789. In addition like *rentes*, these new contracts could be collateralized on land which made them far safer than the old *obligations*. Before 1789 *obligations* had been collateralized with either vague and general claims or specific movable assets.<sup>26</sup> The new *obligations* were also superior to *rentes* because lenders rather than borrowers controlled contract duration. Finally the new lien registries provided more information about collateral than was possible simply through notarial networks. Had these institutional improvements occurred without the Revolution's financial chaos, *obligations* would probably have replaced *rentes*, and the market would have expanded as well. Indeed the extra control afforded lenders by these institutional innovations should have induced more savers to put their funds on the market.

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<sup>25</sup>Lenders are interested in all the liens extant on a piece of collateral at the time a loan is made (registered or not) but their contribution to the credit history is of no interest to themselves. The private value of registration comes from the fact that it insures the validity of the claim in case of default (increases the recovery rate). Since lien registration was costly it was only undertaken for longer term and larger loans, which suggests that credit histories were often socially deficient.

<sup>26</sup>Rosenthal, (1993).

After 1800, these institutional improvements proved very popular within the context of the decimated market. Given the persistent political uncertainty lenders wanted to keep close control over their capital and lend it only to individuals with secure collateral. Debt contracts registered by notaries and collateralized by specific real-estate assets appear to have been systematically registered. Although *obligations* were not the only credit contracts available, they were the preferred instruments for long-term or large contracts. We should not overestimate, however, the importance of the Revolution's institutional reforms in the evolution of the market. Indeed already under the Old Regime the *obligation* was being slowly transformed into its nineteenth-century form. Moreover as nineteenth century critics of French financial practices noted bitterly, rural credit remained bilateral. Intermediaries, like notaries, carried out only matching activities. Because each pair of lender and borrower was locked into a separate bilateral relationships they were deprived of the risk pooling advantages of banks.<sup>27</sup>

## 2) Information and Geography

A more detailed appreciation for the impact of Revolutionary reforms comes from the data. Lien registries, which were available to every notary in France, failed to become the dominant information source, and credit activity retained its regional pattern. Data on the residences of borrowers and lenders who negotiated their loans in L'Isle or its canton shows that capital flows remained local (see Table 4). Let us first

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<sup>27</sup>Bigo (1947:17-63). For large creditors, banks had no particular advantage over notarial networks. But the data suggests that there were many individuals who only lent out infrequently and who would probably have preferred a more diversified position than was offered by their individual borrower.

concentrate on notaries that resided in L'Isle. The proportion of loans negotiated between individuals who did not reside in the same municipality jumped between 1780 and 1805, a sign that distance between borrowers and lenders had increased. Yet this was to a large extent due to the disappearance of elites and religious institutions that had strong preferences for lending to inhabitants of L'Isle sur Sorgues. Accounting for the compositional changes of the market parcels out about half of the change in concentration reducing within-L'Isle loans in 1780 from 64% to 50% of the total. After the Revolution contracts within the city seem to have amounted to about 35% of L'Isle's credit activity. We can take a broader perspective and include all the notaries in the canton if we concentrate on the nineteenth century. After 1805, loans between individuals who resided in the same municipality remained constant at about 40% of the total in terms of value and 45% in terms of contracts.

[Table 4 about here]

Given the population outflows, local capital supply should have been scarcer after 1800 than in 1780 and capital inflows therefore greater. Turning to Table 5, we find that the amount of capital traded outside the canton increased substantially between 1780 and 1840 suggesting that the size of the local market had expanded somewhat. Yet cantons in the area were small and this increased dispersion could reflect either increased flows within the countryside or increased trade with true urban centers like Avignon. Thus, the proportion of contracts where one party resided beyond the limits of the arrondissement or in Avignon--that is in another credit market--may be a better measure of the system's ability to move

capital over longer distances.<sup>28</sup> That figure shows no dramatic change since all contracts with one distant party account only for 20% of all flows between 1780 and 1840 (see Table 5). Moreover neither outflows nor inflows show any well defined trend between 1780 and 1840. Apparently the institutional reforms did not reduce the isolation of L'Isle-sur-Sorgues during the early nineteenth century. To the extent that L'Isle sur Sorgues had recovered from the Revolution by 1840, it had done so largely on the basis of local savings, a process that must have slowed growth.

[Table 5 about here]

Obviously it is possible that individuals from the area were increasingly able to borrow further afield. Such increased borrowing would be missed in our data if all contracts were signed in front of a notary in the lender's town of residence. Yet as Table 4 suggests and closer examination confirms, the choice of notary did not seem to depend on the lender's residence. Between 1805 and 1809, there were 465 contracts in which lender and borrower had different residences. Forty nine percent of such agreements were finalized before a notary in the lender's town, 26% in the borrower's town, and 25% in another town altogether.<sup>29</sup> Thus while there may have been some opportunity for borrowing outside of L'Isle it is unlikely that the canton's isolation could have been broken through massive capital inflows without leaving any trace in the notarial archives of

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<sup>28</sup>The arrondissement is the major subdivision of the department. There are four arrondissement in the Vaucluse one for each of the major cities. L'Isle was in the arrondissement of Avignon, the major town in the Vaucluse but flows from Avignon are really from a different market than L'Isle's.

<sup>29</sup>Future research will shed light on inter urban lending. Practically it would appear to have a small amount of all loans. See Hoffman et al (1992).

L'Isle.<sup>30</sup> Indeed as noted above lenders from the nearby towns--Avignon, and Carpentras--failed to increase their share of the market in the nineteenth century.

The absence of any dramatic increase in distance between borrower and lender shows that the institutional innovations were powerless in the face of the uncertainty raised by political instability. The best mechanism for lenders to reduce their exposure to governmental predatory behavior was to reduce the duration of loans, but that in turn required nearly constant renegotiation. Such renegotiation was prohibitively costly unless lender and borrower were neighbors or could deal through a trusted intermediary such as a notary. Notarial networks that had provided agency services had, however, collapsed; thus only localized lending was possible in 1805-9.

Capital flowed only with difficulty across geographical boundaries, so the development of credit depended on the efficiency of the process that matched lenders and borrowers locally. This matching process in turn depended on how creditors learned about debtors. To assess more accurately how institutions may have influenced information flows we must focus first on the 1805-9 sample. There we can observe repeat activity, which is an indicator of how information was transmitted from borrower to lender. It appears that close family connection was not an important determinant of notarial credit since borrowers and lender shared the same last name in only 1.5% of all contracts.<sup>31</sup> The market share of

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<sup>30</sup>One intriguing hypothesis that bears further investigation, is that institutional innovation resulted in capital outflows but the present data do not allow us to decide this issue.

<sup>31</sup>If we assume a more extended family composed of the parents of both spouses and all children, the borrower's name would equal the lenders name

intra-family loans had not changed by 1840 suggesting that intra-family credit does not appear in notarial archives. One should bear in mind however that intra-family agreements constitute the bulk of notarial activity. Therefore it is more likely that intra-family capital movements were perceived as intergenerational transfers. They were therefore recorded differently from inter-family capital flows in contracts such as dowries, advances on inheritances, or apprenticeship agreements.

Since families were not the primary credit channels, lenders had to become informed in other ways about borrowers. While some lenders surely learned about the creditworthiness of borrowers directly, from neighborly or professional interaction, the evidence of extensive cross lending both geographically and socially suggests that few lenders and borrowers interacted regularly. Indeed fully 46% of all loans were between a lender and a borrower who shared neither profession nor residential proximity while lenders with identical occupation and residence amounted to only 8% of all contracts. Thus even in the depth of the crisis that followed the Revolution most loans occurred between individuals who were in some way at a distance.

### 3) Credit Participation

Informational distance was also caused by the irregularity of credit interaction: borrowers only participated in the market infrequently.<sup>32</sup> As Table 6 shows, no less than two-thirds of the contracts of the 1805-9 sample were signed by borrowers who only appeared once. Moreover for

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only in 25% to 50% of contracts depending on the proportion of parents and children in the family. So a more accurate measure of family may be 4-6%.

<sup>32</sup> Obviously individuals could have other reasons to interact.

those borrowers who appeared more than once the median interval between loans was nearly a year.

[Table 6 about here]

If we turn to the 1840 sample (see Table 7) more than 75% of all borrowers appear only once. Yet, given the estimated interval between loans for the 1805-9 sample, multiple borrowers are probably undercounted in 1840. In any case, both samples suggest that lenders could not simply participate in the credit market by lending to a select few individuals. The 700 different debtors that appear between August of 1805 and February of 1810 represent more than 25% of the heads of households in the area. Thus, information flows had to be extensive to allow such broad participation. Nonetheless since the annual number of loans made in the market had been more than halved between 1780 and 1805 the frequency of participation must have declined severely during the Revolution. The irregular participation of borrowers no doubt raised the information costs that more distant lenders would have had to bear to participate in the market and the events of 1789-97 must bear some responsibility for the prolonged isolation of L'Isle sur Sorgues.

[Table 7 about here]

Locally two kinds of specialists intervened to overcome the inevitable informational asymmetry that arose from distance and infrequent participation. First the eight notaries who witnessed contracts in the canton of L'Isle probably screened borrowers in the obligation market. They could provide lenders with information about borrowers' reliability and past loan performance since they--or one of their colleagues--had probably witnessed their other credit transactions. Notaries must have played a most important role for those lenders who only appeared once and

who accounted 30% of all the loans made between 1805 and 1809. Indeed lenders who appear only a few times (3 or less) show great loyalty to their notaries suggesting that they relied on them for information about borrowers. (see Tables 6 and 8)

[Table 8 about here]

The other possible specialists were repeat lenders who had incentives to invest effort in screening borrowers themselves. Indeed the 21 lenders who appeared more than six times (or more than once a year on average) gave out more than a third of all the loans (see Table 6). What is more striking is that these lenders had a good deal of loyalty to their notaries. As Table 9 shows, multiple lenders contracted 80% of their loans before their preferred notary. Notaries however were not exclusive since less than half of all the repeat lenders gave their business to a single notary. Two exceptions are worth noting. First, widows and women generally exhibited striking loyalty to their notaries, Madeleine Chabaud, for example made all 10 of her loans in the offices of David. Second, distant lenders seem to have been very loyal as well: Jacques Sautel, who resided in Avignon depended on the service of Mourier, the notary of Le Thor, for all 38 of his loans. The largest lender, Jacob Cresque, is typical of the more prevalent pattern: his 62 loans were contracted in presence of no less than six of the eight notaries in the area. Cresque, however, had a strong preference for Liotard whom he used for more than 35 times.

While the loyalty of lenders suggests that notaries offered repeat clients advantages, it is far from clear that these benefits stemmed from informational advantages. Indeed if each notary had an informational advantage over specific subsets of the population then one would expect to observe borrower loyalty rather than lender loyalty. Indeed lenders would



not want to ignore the extra information available to the privileged notary and thus force debtors to be loyal to their notaries. One problem with measuring borrower loyalty is that they were much less likely to participate in the market repeatedly than lenders (see Tables 5 and 8). Nonetheless between 1805 and 1809 no less than 140 borrowers appeared more than once, and if credit rating was costly one would expect these borrowers to have been very loyal to their notaries and perhaps to lenders as well.

As Table 8 shows, L'Isle sur Sorgues's borrowers seem to have been willing to bear the cost of communicating their reliability to different lenders in the *etudes* of different notaries. Only 22 of 140 multiple borrowers received two or more loans from the same lender. Moreover if all borrowers had some loyalty to their primary notary, few had exclusive dealings. Only one of the 20 borrowers who appear more than three times used the same notary to negotiate all his credit contracts, while only 54% of those who borrowed two or three times had exclusive dealings with a single notary. Therefore it is likely that within the market information about borrowers was broadly available, either because notaries cooperated and shared information or because lenders acquired that information independently. Thus notaries must have offered something more than reliable information to secure the loyalty of lenders.<sup>33</sup> Yet such broadly dispersed information came at a cost--L'Isle sur Sorgues was rather isolated from the other credit markets of France.

### III Recovery

While the isolation of the L'Isle sur Sorgues credit market continued well into the nineteenth century, the town was becoming

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<sup>33</sup>Such things may have involved giving the safest loans to the most assiduous lenders or simply reduced enforcement cost in case of default.

increasingly tied to the broader French economy. Increased commerce motivated agricultural expansion and specialization, a phenomenon that had started during the Old Regime. Such specialization increasingly brought local farmers in contact with merchants in the bigger towns of Avignon and Carpentras and these contacts offered an opportunity for financial innovation through a new type of contract: the letter of exchange.

The letter of exchange was perhaps the oldest credit instrument in Europe and it appears to have first been used by merchants to transfer capital through space in the Middle ages. Yet by the eighteenth century it was widely used by financiers to transfer funds both through space and time in trade centers.<sup>34</sup> The nineteenth century saw a vast expansion of the letter of exchange as it came to replace Old-Regime *obligations* in the countryside. The letter of credit in its mature (1840) form involved four participants, a borrower, a lender, a notary and, a merchant.<sup>35</sup> Each letter of exchange was a promise by a borrower, signed in front of a notary, to have funds available to a lender in the offices of a merchant. While the first three participants almost always lived within the canton of L'Isle sur Sorgues, the last was almost systematically a resident of either Avignon or Carpentras, the two larger cities of the Vaucluse. In 1805-9 unlike in 1840, letters of exchange do not appear to have been notarized or registered. Thus the only notes in that data set are those that were registered as part of a collection process so we concentrate our analysis on the 1840 data set.

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<sup>34</sup>Carrière (1974), De Roover(1953).

<sup>35</sup>The use of a notary is the principal innovation from the Old Regime. Such agency relationships do not appear to have existed before 1820. Cf. Lockett (1992).

By 1840 notaries and merchants were linked so that almost all bills signed before a notary were payable at the counter of a specific merchant.<sup>36</sup> In fact we only have one example a notary using two merchants. It seems that notary was forced in the middle of the year to switch merchants--perhaps caused by the financial difficulties of his first correspondant. Otherwise notaries-merchant relationships were almost exclusive. Yet the traditional bilateral bond between borrowers and lenders remained since in the case of non-payment, it was not merchants who brought suit but lenders. The service provided by merchants was simply to ease transactions by serving as clearing houses at harvest time.

One cause of the increased merchant activity was increased specialization. One example of such specialization involves a red dye crop, *garence*, which was a root grown in marshy areas to the west of L'Isle. During the early nineteenth century, growing *garence* made the fortunes of a good number of farmers in the region, but it apparently required substantial capital outlays.<sup>37</sup> *Garence* was but one crop whose production expanded after 1800, the others like beans, dried fruit, silkworms, and wine were more traditional. Farmers who specialized in commercial crops, increased the seasonality of their income since they grew fewer crops. Increased capital needs and increased seasonality no doubt lead farmers to rely more heavily on medium-term credit than before. The solution to their credit needs lay directly with the crops that they were growing, like silk cocoons, or *garence*. Most of these

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<sup>36</sup>One cannot make the same inference from previous data since the notary involved was that of the debtor, not that of the merchant.

<sup>37</sup>One conjecture is that the expansion of the *garence* was a direct result of the continental blockade imposed by Napoleon which prevented foreign imports of dyes.

crops--after an initial refining step--were exported by merchants to Lyon, Marseille, and other manufacturing centers. These merchants could provide the financial intermediation that the farmers required.<sup>38</sup>

The merchants who handled the commercialization of the export crops provided the institutional basis for increased credit, although they did not provide the credit itself. Roche and Meyre, or Fortunet were merchants who bought the farmers crops at harvest and paid their notes. There appears to have been no secondary market for notes perhaps because merchants did not provide full intermediation, and because information about the solvency of particular borrowers was hard to come by. The rapid growth of the letter of exchange at the expense of longer credit instruments suggests that the credit market adapted to reduce the costs associated with medium-term loan duration. Short loan durations were required to induce lenders to part with their capital in a period when few French people saw their government--and hence their currency--as highly stable.

#### IV Conclusion

As in the eighteenth century, the nineteenth century L'Isle sur Sorgues credit market was extensive. More than 1050 men and women participated in the market in the four and a half years between August 1805 and September 1810, representing more than 40% of all households. The market was broad indeed, especially since we know that other kinds of capital transfers (intra-family agreements, store credit, letters of exchange to cite a few examples) are beyond our field of vision. Such

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<sup>38</sup>The northern orientation of this crop explains why there several contract involving lenders from distant Lyon (more than 200 kms away ) but only a smattering from nearby Marseille (60 kms).

broad participation occurred at a cost, individuals were financially isolated from the rest of France. The broadness of the credit market suggests that it was able to overcome many informational problems.

While L'Isle sur Sorgues was only one of several thousand credit markets in France, its records yield a stark picture for the nineteenth century. Credit market activity remained depressed throughout the period, not because rural credit markets are intrinsically unsatisfactory but because the Revolution was a fracture that could not be mended easily. If further research confirms this pattern critics of nineteenth century French rural credit markets will have to place more emphasis of the negative consequence of the Revolution than on transactions cost. Indeed without the Revolution of 1789 there may never have been a rural credit problem in France.

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Table 1: Capital Flows in L'Isle

		Loan Size		Number of Loans	Total Flows	Anticipated Length	Realized Length
		Mean	Median			(years)	(years)
1780	<i>Obligations</i>	614	94	184	113,630	2.1	3
	<i>Rentes</i>	861	450	119	101,624	-	24.9
1805-9	<i>Obligations</i> <sup>a</sup>	473	300	99	47,219	1.3	1.5
	<i>Rentes</i>	394	300	5	1,839	-	-
1825	<i>Obligations</i>	569	360	81	46,643	2.8	3.3 <sup>b</sup>
	<i>Rentes</i>	2,666	2,400	3	8,000	-	10.3 <sup>b</sup>
1840	<i>Obligations</i>	977	500	111	107,484	3.3	-
	<i>Bills</i>	350	231	88	34,660	1	-

Note to Table 1: All amounts are in *livres* before 1789 and *francs* afterwards 1 *livre*=0.982 *franc*. Life annuities were excluded from the data because no duration could be computed--in any case they only appear in 1805-9.

Sources: Volumes and Anticipated length are calculated from the complete enumeration of contracts. Realized lengths come from a variety of sources for 1825 they come from an enumeration of loan repayment contracts. For 1780 they come from annotations by the notaries on the original contracts. For 1805-9 they are the realized lengths of a subsample of contracts collected from the notary of Le Thor.

<sup>a</sup>1805-9 are annual rates

<sup>b</sup>Rente duration were calculated from the duration of contracts signed after 1797 and reimbursed in the sample period.



Table 2: Capital Stocks in the L'Isle sur Sorgues Credit Market:

	Flows (francs)	Durations (years)	Stocks (francs)	Alternative Stock (francs)	Ratio to 1780
1780 Obligations	113,630	2.3	261,349		
1780 Rentes	101,624	24.9	2,530,437		
Total			2,791,772		
1805-9 Obligations <sup>a</sup>	47,219	1.5	70,828		27.6%
1805-9 Rentes	1,839	(17.6) <sup>b</sup>	32,366		1.3
Total			103,194		3.7
1825 Obligations	46,643	3.3	153,921		59.7
1825 Rentes	8,000	10.3	82,400		3.3
Total			236,321		8.6
1840 Obligations	107,484	3.3	354,697	419,187	163.6
1840 Rente	-	-	-	-	-
1840 Bills of Exchange	34,660	1	59,685	59,685	-
Total			414,382	478,872	17.4

Note to Table 2: Durations were taken as realized durations rather than anticipated since they would better represent the capital stock. However I collected no information on repayments in 1840 so I present an alternative estimates of the stock of obligations with duration equal to anticipated lengths inflated by the difference between anticipated and realized lengths in 1825, (3.9 years) further data collection will make these numbers more precise.

<sup>a</sup>1805-9 are annual rates

<sup>b</sup>duration for rentes in this period was no available so it is the average between 1780 and 1825.

Table 3: Interest rates on Obligations in l'Isle sur Sorgues

	Min	Max	Mean	Median	N
1805	5%	12%	7%	6%	6
1806	4.8	15	7.3	6	20
1807	5	7	5.5	5	9
1808	legal maximum is binding at 5%				

Note to Table 3: All interest rate data are for loans negotiated in the Mourier étude of Le Thor. Further research will increase the sample size.

Table 5: Geographic Distribution of Distant Participants

		L' Isle Notaries Only							
Parties From Outside of <sup>a</sup>		1780		1805-9		1825		1840	
		N	V	N	V	N	V	N	V
Canton	B <sup>b</sup>	54	14%	19	13%	12	23%	11	8%
	L	17	5	14	18	9	5	54	29
Arrondissement or Avignon	B	32	8	14	9	11	15	20	5
	L	14	5	11	12	10	3	19	11
		All Notaries							
		N	V	N	V	N	V	N	V
Canton	B	38	16	15	17	42	10		
	L	30	18	20	13	66	25		
Arrondissement or Avignon	B	26	10	10	13	28	5		
	L	25	13	20	18	35	11		

Notes to Table 5: N are numbers of contracts, V are % of value.  
<sup>a</sup>I omitted contracts where both parties were from outside the canton area as they could not supplied local capital  
<sup>b</sup>B is for borrowers, L for lenders.

Table 6: Participation in the Credit Market, 1805-9  
 (54 months of observation)

Borrowers		Number of contracts signed <sup>a</sup>						All
		1	2-3	4-6	7-10	11-20	>20	
Numbers	561	119	14	5	1	0	699	
Loans	561	264	66	37	13	0	941	
Mean Interval <sup>b</sup>	-	13	7	5	4	-	10.3	
St. Dev	-	11	7	5	4	-	10	
Median Interval	-	11	5	4	3	-	9	
Lenders		1	2-3	4-6	7-10	11-20	>20	All
Numbers	287	82	26	10	6	5	416	
Loans	287	185	120	84	82	183	941	
Mean Interval <sup>b</sup>	-	10	9	4	3	1	4.6	
St. Dev	-	12	10	5	5	1.5	7.6	
Median Interval	-	6	4	2	1	1	4	

Notes to Table 6: Contracts were declared to be the same borrower (Lender) if their occupation, residence first and last names were all identical. The requirement on residence was relaxed in the case of unusual names and infrequent occupation. The most sever under matching probably occurs for farmers a category of mobile individuals with common occupation and popular surnames.

<sup>a</sup>Matching across borrowers and lender leads to a total of 1085 individuals in the data set, since 20 individuals both borrowed and lent between 1805 and 1809.

<sup>b</sup>All intervals are measured in months and are the means between recorded events.

Table 7: Participation in the Credit Market, 1840

(12 months of observation)

Borrowers	Number of contracts signed						All
	1	2-3	4-6	7-10	11-20	>20	
Numbers	257	39	2	0	0	0	298
Loans	257	86	9	0	0	0	352
Mean Interval <sup>a</sup>	-	2.2	2.6	-	-	-	2.2
St. Dev	-	2.7	2.2	-	-	-	2.6
Median Interval	-	1	1	-	-	-	1
Lenders	1	2-3	4-6	7-10	11-20	>20	All
Numbers	157	39	12	5	1	0	211
Loans	157	88	52	40	15	0	352
Mean Interval <sup>a</sup>	-	2.5	2	1.1	0.8	-	2
St. Dev	-	3.3	2.7	2	1	-	2.2
Median Interval	-	1	1	1	1	-	4

Notes to Table 7: for details on matches see Table 7. There were six matches of borrowers and lenders which gives a total of 509 participants in the credit market.

<sup>a</sup>All intervals are measured in months and are the means between recorded events.

Table 8 Loyalty to Notaries in l'Isle

Number of loans	Borrowers		Lenders	
	Exclusive Interaction	Share of Primary Notary	Exclusive Interaction	Share of Primary Notary
2-3	54%	73%	63%	84%
4-6	0.5	64	46	81
7-10	0	53	33	82
11-20	0	41	33	77
>20	-		20	83

Notes to Table 8: Data are for 1805-9. The data for 1840 are similar.