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EVIDENCE FROM THE FRENCH EXPERIENCE

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* Corresponding author: Fraisse, Banque de France, 31, rue Croix-des-Petits-Champs 75001 Paris, France (e-mail: henri.fraisse@banque-france.fr); Frouté, Université de Paris-Est Créteil, Faculté d'Administration et d'Echanges Internationaux, 61, avenue du Général de Gaulle, 94010 Créteil cedex, France (e-mail: philippe.froute@u-pec.fr). The opinions expressed here are the authors' own and do not necessarily reflect the views of the Banque de France. We thank Anne Muller and Rémy Prom for outstanding research assistance. Assistance in data productions and explanation on the bankruptcy process were generously provided by Mark Beguery and Marie-Claude Meyling. We benefit grandly from the advice of Régis Blazy, Frédéric Boissay, Gilbert Cette, Mark Harris, Hervé Le Bihan , Patrick Sevestre, David Thesmar, Chirstian Rausch, and Muriel Roger and participants at the EALE conference, the ECB workshop on debt sustainability, the Banque de France research seminar, the 18th International Panel Data conference, the Money, Macroeconomic and Finance conference in Dublin and the 29th GdER Annual International Symposium on Money, Banking and Finance in Nantes.

Résumé : *La France possède une unique et longue expertise de politique publique dans le domaine du surendettement. Quand un ménage ne peut plus faire face à ses engagements vis-à-vis de ses créanciers, il peut déposer un dossier auprès d'une commission de surendettement. Cette commission peut décider d'octroyer un délai de paiement de deux ans ou décider à l'amiable ou non d'un plan de remboursement. Cette étude évalue l'influence de cette décision sur le taux de rechute, le taux de remboursement et le bénéfice net de la procédure, défini comme le montant recouvert par les créanciers net du cout public de traitement d'un dossier. L'allocation aléatoire des dossiers auprès de gestionnaires de sensibilité différente permet de corriger de l'endogénéité de la décision d'orientation. 60% des ménages sont orientés vers un remboursement. Sur une période de deux ans, la possibilité d'octroyer un moratoire fait baisser les niveaux moyens des taux de rechute et des taux de recouvrement respectivement de 13 à 7 et de 14 à 12 points de pourcentage. Le montant remboursé par une faible proportion de ménage compense le cout public du surendettement. La sensibilité du gestionnaire joue fortement sur l'orientation d'un dossier.*

JEL : D1, G2, K35

Keywords: Surendettement, Restructuration

Abstract: *France has a long and unique experience of public intervention in household debt restructuring. When facing financial distress, households can file a case to a "households' over-indebtedness commission" (HOC). These HOCs either grant a delay of payment or impose a partial reimbursement of the secured or unsecured debt. This paper evaluates the ex post impact of this decision on the creditors' recovery rate, the household's re-default rate and the net benefit of the treatment, defined as the amount recovered by the creditors minus the public cost of treatment of the file. The random allocation of the households over file managers with different pro-household friendlinesses is used to correct for endogeneity. Sixty percent of households are ordered to repay part of their debt. Over a two-year horizon, the possibility to grant a delay of payment decreases the average redefault rate and the average repayment rate respectively from 13 to 7 percentage points and from 14 to 12 percentage points. The net benefit over a small fraction of low distressed households offsets the loss observed over a large fraction of more distressed households. Our results highlight a substantial impact of the severity of the case manager.*

JEL : D1, G2, K35

During the last financial crisis, the numbers of personal bankruptcies and household indebtedness have reached levels never experienced before on a worldwide scale. According to Eurostat figures taken from national accounts, the household debt-to-income ratio exceeded 200% in Ireland, the Netherlands and Denmark in 2009. Meanwhile, according to statistics from the US courts, personal bankruptcies hit a record high of 1.531 million people in the US in 2010. As a result, the policy debate seems to have shifted from the set up of an ex ante "optimal" bankruptcy regime to the implementation of "ex post" special policy programs restructuring the debt of households in financial distress. Put more simply, the urgent question has increasingly shifted towards how to restructure the huge amount of outstanding debt rather than how to prevent new indebtedness. For example, a program was implemented in Pennsylvania in 2010 to provide help for unemployed borrowers. The program (Homeowners' Emergency Mortgage Assistance Program) enables borrowers to obtain an interest-free loan to pay arrearages plus a portion of their mortgage in case of unexpected losses of income.[1] In 2009, the US launched a federal program – the Home Affordable Modification Program- in order to facilitate the modifications of loans granted to homeowners at risk of foreclosure. There are ongoing discussions on tackling the debt restructuring issue in Spain.

Among the existing systems, French and German bankruptcy laws are theoretically considered close to optimum (White, 2006 and Kilborn, 2007). Nevertheless, this statement stands mainly for the *ex ante* analysis of the legal process. Indeed, compared to the US system, French and German laws possess screening mechanisms designed for avoiding opportunistic use of the law. An overindebted household must be considered in "good faith", otherwise its file is simply rejected. Strategic filings are thus not of great concern in these two countries. However, these systems do not prevent *ex post* problems, such as re-default, from occurring. In this respect, very few studies are available, especially because of a lack of comprehensive data available. In this study, we use a unique dataset made up of the population of households that filed for bankruptcy in France from mid-2007 to 2008 and tracked until 2010. This unique dataset provides the entirety of the debt obligations for each household. It also provides all of the information concerning the procedure, including the outcomes of the procedure, i.e., recovery rates and re-defaults.

The French procedure presents an interesting and unique feature. Since 1990, it possesses a compulsory *ex ante* alternative method of dispute resolution (following the denomination of Shavell, 1995) in order to restructure the secured and (mostly) unsecured debt of the financial distressed household. Households have to file to a conciliation board (commission de surendettement), i.e., the households' over-indebtedness commissions (denoted HOC hereafter). The purpose of HOC is to make creditors and debtors agree on a settlement when households cannot meet their commitments because of excessive debt. Inside of the HOC, one key actor is the file manager. Indeed, she orients a procedure issue by assessing the file and proposing the appropriate outcomes. Hence, file allocation

[1] For a first assessment of the program, one can read Orr et al., 2011.

between case managers may have an important influence on the efficiency of the procedure, according to the personal inclination of the chosen case managers. Using a two-year horizon, a case manager must basically make the choice between asking the household to repay a part of its debt or granting it a moratorium period (or "observation period"), during which it would have nothing to pay. The HOC examines the financial situation of the household again at the end of the observation period ("OP" hereafter). The household can then benefit from a total discharge against a liquidation of his assets if he is still genuinely in dire conditions.[2] Otherwise, a modification plan is set up.

In this paper, our contribution is to explore a piece of literature that has received little attention so far –public programs of household debt restructuring. The public program under review does not focus solely on mortgage debt but on all types of debt. We use an original source of identification, a measure of the pro-creditor friendliness of case managers in charge of bankruptcy files, to identify the effects of debt repayment on ex post re-default and recovery rates. We propose a welfare measure of the program by comparing the public cost of treating a file with the debt recovered by creditors.

Previous works have mainly focused on the trade-off faced by any personal bankruptcy system. On the one hand, personal bankruptcy law aims at insuring households against unanticipated negative shocks of income. On the other hand, it aims at limiting strategic behaviors from the part of households who could over-borrow in anticipation of debt relief (White, 2005). From an international comparison perspective, the main result is that different legal systems governing personal bankruptcy laws have different balances between the objective of creditor protection and debtor protection. For instance, the US system, even after adopting the Bankruptcy Abuse Prevention and Consumer Protection Act[3] (BAPCPA) in 2005, can be qualified as being debtor-friendly, whereas France and Germany have more creditor-protective systems. One strand of the literature has tried to exhibit the main features of efficient bankruptcy law systems. These works have explored microeconomic theory, such as Wang and White (2000), and macroeconomics, such as Athreya (2002) and Livshits, MacGee and Tertilt (2006). These works also focus on ex ante perspectives and confirm the relative nature of adopted solutions to solve the trade-off between creditor and debtor protection. As underlined by Han and Li (2011), who stress ex post bankruptcy borrowing, little is known about households' behaviors after bankruptcy. This paper complements a few of the recent empirical papers dealing with the issue of mortgage loan modification in the US. Quercia, Ding and Ratcliffe (2009) assess the impact of different types of mortgage loan modifications on the likelihood of a re-default and find that only a strong payment reduction makes modified loans sustainable. Using a sample of a dataset that covered 60 percent of the mortgage market and an indirect measure of loan modification, Adelino, Gerardi and Willen (2009) show that, from 2007 to 2008, loan servicers performed only approximately 3 percent

[2] As documented by Blazy et al. (2011), 80% of households benefiting from total discharge do not have any valuable assets.

[3] A comprehensive economic analysis of the reform can be found in White (2007).

of payment-reducing modification. They explain that re-default and self-cure risks make investors reluctant to renegotiate. Basing their analysis on loan servicers' data, Agarwhal et al. (2011) find that securitization substantially explains the difficulty to renegotiate. They also find that a decrease in 100 percentage points of the mortgage interest rate reduces the re-default probability within 6 months by 4 percentage points. Mayer, Morrison, Piskorski and Gupta (2010) exploit a natural experiment impacting a key actor of the subprime market to show that creditors have limited incentive to renegotiate because they fear the adoption of strategic behaviors by households. As the closest to our work, Agarwhal et al. (2012) carefully evaluate the impact of the home affordable modification program both on the intensity of the renegotiation of mortgages within and outside the program and on subsequent outcomes (e.g., foreclosure rate, house price). By contrast, we "internally" evaluate the French procedure, comparing the impacts of the decision of the case manager whether to order a repayment on the subsequent outcomes. The scope of our dataset enables us to widen the perspective by addressing any cause of personal bankruptcy and any type of debt, bearing in mind that defaulting on a mortgage is a very rare event in France.

This paper uses a measure of the pro-creditor friendliness of case managers in charge of bankruptcy files to identify causal effects of debt repayment on ex post re-default and recovery rates. One could indeed suspect that the assessment of these rates is plagued by some endogeneity issues. Despite having at our disposal unusually rich sets of controls, it is very likely that case managers have pieces of information on households that are unobservable to econometricians, e.g., family background or financial literacy, to determine which households would be more at ease to reimburse their debt. Case managers can contact households by phone to attain this additional "soft" information. Following previous empirical works from Kling (2006), Doyle (2007), Schoar and Chang (2008) and French and Song (2011), we correct for this endogeneity issue by exploiting the random allocation of cases among case managers differing by their pro-household friendliness.

Following this empirical strategy, we find some interesting results. First, by granting delays of payment, the HOC decreases the average redefault rate from 13 to 7 percentage points while modestly pushing down the repayment rate from 14 to 12 percentage points. The ability of the households benefiting from a delay of payment to reimburse their debt is limited. Second, the net benefit of the treatment defined as the amount recovered by the creditors over two years minus the public cost of treatment of the file is positive, the amount collected on a small fraction of households offsetting the cost of treatment of files associated to households benefiting from a delay of payment. Third, our results highlight the substantial impact of the severity of the case manager: the probability of being required to pay something increases by eleven percentage points when assigned by a tough manager. A tough manager increases the average fraction of reimbursed debt by three percentage points against an increase in the average rate of re-default of two percentage points. If every file had been allocated to a severe manager, the amount recovered by creditors would have increased by 6%.

The paper is organized as follows: Section I presents the institutional background for the French legal system with a particular emphasis on the case allocation mechanisms between case managers; Section II presents our identification strategy; Section III describes the data and descriptive statistics; Section IV presents the estimation results; and Section V concludes.

I. Institutional background

A. An outline of the French regulation since 1989

In France before 1990, in the case of a default, an indebted household could be individually sued before civil courts by each of its creditors. In 1989, the Neiertz' law introduced collective action for creditors by creating households over-indebtedness commissions (HOCs) and encouraging them to find a negotiated solution. If the parties do not manage to settle, a plan is imposed by the HOC after being formally approved by the judge.[4] The liberalization of credit financing, which started in the mid-80s in France, led to an excess credit supply, pushing some households to financial distress. The primary goal of HOCs was to lighten the caseloads of the judiciary by setting up a way to bargain efficiently on the restructuring of debt. The Neiertz' law only gave HOCs conciliatory roles initially. However, given the persistence of the phenomenon of over-indebtedness, it has been repeatedly amended, reinforcing the authority of HOCs facing the court:

- A law passed in 1995 gave the opportunity for HOCs to propose recommendations to the judge.
- In 1998, HOCs were allowed to recommend remedial action plans to the magistrate, such as moratoriums and partial or total cancellations of liabilities.
- Since 2003, HOCs have had the opportunity to propose a "personal recovery procedure" (PRPs). This procedure corresponds to a "fresh start" in the American terminology. The debt is expunged and the households remaining assets are sold.[5]
- The last change, implemented in November 2010, is outside our period of review. It reduced the maximum length of the modification plan from ten years to eight years and sped up the need for HOC decisions to be rendered within a time period of three months (instead of six previously). It allows HOCs to liquidate assets without requiring the formal approval of a judge first.

In sum, this institutional movement of strengthening the powers of the HOC parallels the increase of the number of over-indebtedness filings (see Figure 1 below).

[4] The judge does not discuss per se the terms of the plan but checks whether they are law-abiding. See Fraisse and Muller (2011) for a detailed analysis of the process and an empirical study of the determinants of a settlement.

[5] In practice, this procedure is proposed to only 8% of the first time filers for whom a delay of payment of two years is preferred.

Insert Figure 1 about here

Thus, HOCs have an increasingly important role in the outcome of a procedure. Nevertheless, on a practical ground, a large part of HOCs' work is transferred to case managers, who guide the outcome of a procedure, a role that must be carefully taken into account when assessing the outcome of a procedure.

B. The management of a case in practice

An individual may only file to the nearest HOC from his home. These commissions are organized under the supervision of the French central bank and are present in each of the French "départements" (French equivalent of an American county; there are 95 départements in Metropolitan France). They are chaired by the local representative of the state ("Préfet" or "Sous-préfet") or a representative of the French treasury. They put together representatives of the creditors, such as bankers, utility providers or IRS agents, representatives of the debtors, such as the debtor herself, and a member of an association of consumers. There are 117 conciliations boards spread over the French territory. HOCs are the only entry point into the judicial process, and no "forum shopping" is possible. The first step of the process is to study the legal acceptation of the case. If the over-indebtedness is considered genuine by the commission, the household is put on a national registry accessible to banks for a duration ranging from the time it will take to repay the debt under the new plan to a maximum of ten years, if the plan allows a fraction of the debt to not be repaid. In practice, each file is transferred to a case manager according to a randomization process. On average, each manager receives 54 files during a year (see Table 1 below). The case manager is in charge of verifying that three conditions are met:

- The indebted household must not be able to clear its debts
- The debt must not be constituted only by professional debts
- The household must be in good faith

Once the case is declared receivable (in 94% of the cases), it may be oriented in two directions:

- The household situation is declared as being "compromised". In this case, the household benefits from either a moratorium on its debt of up to 2 years or a liquidation of its assets together as a total discharge. We classify both treatments as having nothing to pay to the creditors during a period of two years.
- Conversely, the debtor is in a situation considered as enabling the implementation of remedial actions, and the HOC may propose a contractual recovery plan (repayment plan denoted "RP" hereafter).

Insert Table 1 about here

The case manager is also in charge of setting up a modification plan after having bargained with the different creditors.

An important point to note is that each case manager and commission have large discretionary powers.[6] For illustration, every commission is free to set the maximum interest rate at which the debt can be restructured in a settled modification plan. More generally, this discretionary power stems from both the definition of the over-indebtedness and the strictness of the proposed repayment plans. Each of the Banque de France local branches is in charge of the day-to-day functioning and the administrative tasks related to the commissions. In practice, the case manager collects information from the bankrupt household and its creditors. The debt cannot be restructured without unanimous consent. The initial debt structure of the household is sent to each creditor contacted by the case manager, bargaining to restructure the creditor's line. Therefore, the case managers try to reach an agreement before the case is formally brought to the commission. The commission body focuses on the most difficult cases. A bargaining failure leads to a modification plan or a total discharge proposed by the case manager and imposed by a judge. Therefore, this treatment might give an incentive for the parties to bargain but might also lead some others to consider that the imposed decision could be more favorable. For example, the French consumer code requires a creditor to examine the solvability of its debtors when contracting a loan. If one creditor grants several unsecured credit lines to the same household that files for bankruptcy, one might suppose that it would be easy for the commissioners to convince her to accept restructuring the household's debt.[7]

Given the case load of each HOC and the age of the program (approximately 20 years), the process now runs smoothly; the very vast majority of cases are handled at the case-manager level, and the only role of the HOCs is to formally validate the work of the case manager.

Incentives to comply with the modification plans settled between the parties or imposed by the judge are strong. If a household does not respect the terms of the plan, it loses the benefit of the collective procedure and each creditor might individually sue the household. To control the indebtedness behaviors of households during plans, every new loan is subject to the approval of HOCs. In addition, the household is red-flagged on a national credit register during the period of the plan or for eight years after having benefitted from a total discharge. In practice, a household on this register does not have access to new credits.

C. Case Assignment

The French Government entrusts the Banque de France with the mission to manage the HOCs. This mission is formalized by a contract between the French Treasury and the Banque de France, which

[6] In 2010, the Banque de France implemented a decision to support the same software for all of its branches. This tool aims at harmonizing the work of the Commissions and optimizing the restructuration plans.

[7] In practice, the commissions avoid formally using this threat, as it might trigger endless litigations and go against the main goal of the commission, which is to reach an agreement between the parties.

must justify every year the cost that it intends to charge to the Treasury. To this respect, the productivity of each case manager is closely monitored, and performance pay has been introduced at the individual level. [8]This performance pay is related to the number of cases a case manager is able to handle without taking into account the ex post outcomes of the case, as noted in the report on the HOC system made by the French Court of Auditors (2010).[9] Therefore, it is asked of every manager of a local branch of the Banque de France to implement a random allocation of the cases. A case manager should not be free to choose the case he has to handle because it would distort the incentive mechanism. Onsite inspections by Banque de France auditors take place to ensure the randomization of files at the local level. It is important to note that the case manager does not meet a household; therefore, she only impacts a household's behavior in the decision to deny or grant a delay of payment.

II. Identification Strategy

In assessing the re-default and repayment behaviors of households ordered to repay, endogeneity might be a problem. Our data give us a large set of information. However, the case manager, through phone calls to the household, social services or creditors, might have at her disposal additional soft information, such as the financial literacy, job prospects or family background of the household. These unobservable characteristics might play on both the decision of the manager and the likelihood that the household will comply with the plan. To correct for this endogeneity, we estimate selection models with an "exclusion restriction" on the measure of the severity of the case manager. We start by building a severity indicator at the case-manager level. We extract the propensity of the case manager to deny an observation period by estimating the following equation[10]:

$$P_i = X_i\gamma + \delta_{g(i)} + \varepsilon_i \quad (1)$$

where P_i equals one if some of the debt is required to be repaid over two years, X_i represents a set of controls characterizing the case and the household and $\delta_{g(i)}$ is the fixed effect related to the case manager g allocated to the household i .[11]

We then model the re-default rate R_i^*, or the recovery amount (in log) Rec_i,with a selection model. We define the re-default rate as the following event: unable to comply with the repayment plan initially ordered by the HOC, the household files a case to the HOC again within the two years following the starting date of the initial repayment plan. The recovery sum is defined as the amount of the initial outstanding debt reimbursed by the household within a two year period. We limit our

[8] More productive case managers climb the Banque de France wage scale quickly.

[9] Note that we build the data set from administrative records taken from a management tool only designed to store information for the case managers to use and the computation of productivity indicators. No quantitative analysis is run by the HOC to improve the process (for example, "credit score" could be implemented).

[10] French and Song (2011) use a jackknife estimator for this regression, applying to case *i* a severity measure built on a regression excluding *i.* This refinement was not necessary here. Given the large number of cases allocated to one manager (54 on average), the results were not substantially changed when applied to a sub sample of HOCs.

[11] We discard the 2% of case managers who have worked in two HOCs over the year.

analysis to a two-year horizon because, first, we are able to keep track of the households from mid-2007 to 2010 and, second, the delays of payment granted by the HOC are of two years.

The selection equation models the likelihood for household to have something to repay. The outcome equation models either the re-default or the repayment. The model is estimated beyond its functional form by including in the selection equation the severity index (the "instrument"). The severity index builds from the case manager's fixed effects taken from (1): the severity index S_i equals one if the case manager fixed effect is larger than the median (approximately equal to 0; see table 1) and zero otherwise[12].

$$\begin{cases} P_i^* = X_i\alpha + \theta S_i + \gamma_c + \omega_i \\ R_i^* = Z_i\beta + \gamma_c^R + \nu_i \end{cases} \quad (2) \qquad \begin{cases} P_i^* = X_i\alpha + \theta S_i + \gamma_c + \xi_i \\ \mathrm{Rec_i} = Z_i\beta + \gamma_c^{Rec} + \zeta_i \end{cases} \quad (3)$$

$\gamma_c, \gamma_c^R, \gamma_c^{Rec}$ are HOC fixed effects.

The severity indicator is included with an HOC fixed effect. This HOC fixed effect might capture the local credit markets' characteristics or the potential interactions of these characteristics with the overall severity of the HOC. Therefore, the severity indicator assesses the relative severity of the case managers within an HOC irrespectively of the local credit markets.When benefiting from a delay of payment of two years, a household is not under the risk of re-default. Basically, the household has nothing to gain from refiling because it does not repay any of its debt to its creditors and is barred from accumulating new debt.[13] After the two years, the HOC again analyzes the household financial wealth and makes another decision. Obviously, the recovery rate for creditors is zero. We compute the empirical counterparts of the expected re-default rate and recovery rate both on the population of households that were denied a delay of payment and on the population that were required to repay. We assess the impact of the decision of the HOC by comparing what would have been the recovery rate and the redefault rate over the whole population if no household would have benefited from a delay of payment :

$$E(R_i|P_i = 1) \qquad E(Rec_i|P_i = 1) \quad (4)$$

III. Data and Descriptive Statistics

A. Sample construction

[12] This "discrete" approach is proposed by Doyle (2011), who alternatively considers a "continuous" severity measure in another paper of his (Doyle, 2007). Our results do not change if the case manager fixed effect is used to capture the severity of the manager instead of this binary indicator built from the fixed effects.

[13] The case manager must indicate the reason of the re-default. For those who benefit from an OP, we check that the reason for re-default is the end of the OP in 85% of the cases.

The Banque de France officers use a computer-assisted management tool to keep track of the changes of the bankruptcy files during the negotiation process. This tool stores the information of the last-to-date modification project together with the household[14] and creditors' characteristics. We attained access to these individual administrative files collected by the Banque de France from mid-2007 to 2010. Therefore, both the pending and terminated files are present in the dataset, totaling 570,173 observations. Each file contains information on the resources, wealth and amount of debt of a household. The characteristics of the pending repayment plan are available as well as the stage of the judicial procedure at which the file stands. We restrict our analysis to cases terminated in 2008 for households that file for the first time between 2007 and 2008. Our final dataset contains 67,320 files.

B. Summary Statistics

In our sample, the average bankrupt is a 46-year-old divorced tenant with a long-term job contract. Her monthly income amounts to 1,366 Euros. Her initial outstanding debt amounts to 26,607 Euros. Her monthly expenditures amount to 1,291 Euros. Note that the manager can ask for restructuring the expenditure side as well and that the expenditure variable is taken before this restructuring.[15] To avoid entering too much into the details of daily life billings, the case manager uses a forfeit depending on the structure of the household that is supposed to encompass some components of its budget (e.g., utility bills).

Bankrupt households hold amounts of debt that total, on average, 1.6 times their yearly total net income, almost four times the national average. Excluding loan repayments, running expenditures nearly equate the household monthly income. On average, this debt is spread over eight creditors, which stresses the importance of considering over-indebtedness beyond mortgage debt. Indeed, in comparison with other countries such as Spain or the US, a noticeable feature of the French case is the very small fraction of bankrupts that are homeowners (5% against 60% in the whole population). Hence, regulation of the mortgage market is not as crucial as in the Spanish or British cases (speaking only to European cases). Only 3% of over-indebted households have a housing loan against approximately 25% for the population as a whole. Among bankrupt households, 82% are tenants, and 33% of bankrupted people are unemployed (see Table 2).

On average, households obtain an equal number of banking and non-banking creditors. Banking debt represents 72% of the total debt. Job loss is an important initial cause of financial distress. Nevertheless, evolving debt and lax screening from creditors when originating loans might be important causes of bankruptcy filings. This would be is in line with the findings in the US case. Indeed, using a calibrated model for the US case, Livshits, MacGee and Tertilt (2006) show that, over

[14] Within the household, information concerning the debtor and the co-debtor are collected.

[15] An illustrative example would be for example to ask the households to limit the number of cell phones.

recent decades, the large increase in revolving debt in the US is a key determinant of the increase in bankruptcy filings. Skiba and Tobacman (2008) reinforce this finding with a causal study based on US individual-level administrative records on payday borrowing. Our data go in the same direction: payday loans debt is indeed present in 60% of the files, amounting to approximately one-third of the total amount of debt. According to the European Community Household Panel that provides an assessment of the indebtedness of a sample of households representative of the French population, approximately 35% of French households have a non-housing outstanding loan in 2007.

Insert Table 2 about here

The causes of personal bankruptcy reported by the case managers provide a more direct although subjective assessment than the structure of the debt. The view that adverse events are the main cause of filing for bankruptcy has been challenged in the literature (White, 2007). However, in the French case, consistent with US data from surveys of bankruptcy filers (see Sullivan, Warren and Westbrook, 1999), adverse events, such as job loss, health problems and divorce, are the most common causes of bankruptcy in France (almost 63%). Poor money management occurs in 27% of the cases (Table 3). Nonetheless, as we see below, the classification of the cause of bankruptcy might be biased by the case manager's subjectivity. For example, a job loss or divorce can lead households to over-borrow to offset a negative shock in income.

Concerning the outcomes of the procedure, only 6% of applications are rejected every year, and 62% of the households are ordered to pay at least part of their debt over a two year horizon. On average, this amounts to 24% of their outstanding debt. The repayment rate - considered as the percentage of the initial debt reimbursed within two years- for the whole population of households – whether they benefit or not from a delay of payment, is only of 14%. Hence, the percentage of people who do not manage to significantly reimburse their remaining debt is significant. Another point of concern is the proportion of people -among those who were ordered to repay- that are re-defaulting within two years. This proportion amounts to 12% (Table 3).

Insert Table 3 about here

IV. Estimation

A. Case Manager Assignment

Our identification strategy will be flown if the assignment of the file to case manager depends on the quality of the case. To check for the random allocation of the files across case managers, we perform two tests. We run the following regressions for each HOC; that is, at the level at which the allocation of cases across case managers is performed:

$$X_i = \delta_{g(i)}^{H} + \eta_i \quad (5)$$

X_i is one observable characteristic of the case (e.g., income, debt) and $\delta_{g(i)}^{H}$ is the fixed manager effect dealing with case i in the HOC (see Table 1 for descriptive statistics on case managers and case manager fixed effects). First, we test the joint significance of the case manager fixed effects within an HOC, and we discard all the cases of an HOC where the case managers fixed effects were jointly significant (e.g., all the cases of the HOC). Second, we test the significance of each individual fixed effect within an HOC, and we discard all cases treated by a case manager whose fixed effect is statistically significant. The regressions (5) is ran for each of the observable characteristics of the case. Following the discussion by Greene (2001) on the estimates of fixed effects in a small sample, the calculation is restricted to case managers with more than 10 investigations per year. However, our test remains very strict because it includes managers with little experience and for whom training by other case managers can be informally provided.

We run a F-test of joint significance for the case manager fixed effects within a single HOC. If the p-value associated with this test is below 10% for a given HOC, we discard the HOC from the sample. The percentage of cases remaining in the sample for each observable characteristic are displayed in column 2 of Table 4. We replicate the same exercise by discarding only the cases associated with a manager whose individual fixed effect is significant. The percentage of cases remaining in the sample for one observable characteristic is displayed in column 3. The cause of over-indebtedness corresponds to a smaller percentage of remaining cases. This feature is mainly driven by the fact that it is compulsory for case managers to fill an answer for this category and that the answer is particularly subjective. Indeed, the cause of over-indebtedness is hardly ever unique. Often, money mismanagement may be the result of adverse events such as divorce. Hence, it is difficult to identify a strict unilateral causality. In a sense, finding no evidence of random allocation with respect to this variable is a robustness check of our method to conclude whether or not the cases are randomly allocated with respect to other much more objective observable characteristics. For the other variables, when considering the individual significance, the average proportion is higher than 95%, which provides important support for randomization.

Beyond the randomization of the cases, the instrument must have an explanatory power on the outcome of the HOC. We estimate (1); that is, a regression of the decision of the case over the case's manager's fixed effect and the set of case and household characteristics. A joint significance F-test of the case manager fixed effects allows us to conclude strong case manager differences. The case manager fixed-effects range from -0.39 to 0.35 with a mean at zero (by construction) and a standard deviation of 0.1 (see Table 1).

Insert Table 4 about here

In Table 5, we display estimates from our selection models on the re-default and the recovery rates (Models (2) and (3)).[16]

B. Main Results on Controls

Household characteristics

Unsurprisingly, the most decisive impact on the probability of a repayment being required is the presence of an ability to repay that is a positive net income in charges. Income and charges have the expected signs. For instance, higher households' incomes diminish the re-default probability and raise creditors' recovery. Looking more carefully, an interesting behavior of case managers appears. Indeed, the coefficient associated with the initial outstanding debt does not play a significant role for the required repayment (RP) variable, contrary to monthly charges, which tend to diminish the probability of having something to repay. This feature can be interpreted as a stronger emphasis put by case managers on future flows of revenues rather than past accumulated debt stocks.

When looking at the way households' characteristics affect the outcomes of procedures, a number of features appear. Wealth tenuousness tends to decrease the likelihood of a RP. It is especially true for the employment status. An insecure employment status positively influences the re-default probability and negatively influences the recovery rates. Thus, the negative relationship with the payment requirement variable may confirm that personal bankruptcy law in France is mainly a tool for addressing poverty issues. Case managers also take into account life accidents such as divorce. Indeed, divorced people are less likely to be ordered a repayment. They do not exhibit significant probability of re-default, but, on average, the fraction of the reimbursed debt associated with these people tends to be lower. The same observation is true concerning the alimony obligations variable.

Debt Characteristics

Another comparison of interest is the difference of outcomes taking into account the differences among creditors' types. When the number of non-banking creditors or the share of non-banking debt increases, the case manager is less likely to ask for a repayment and the probability of re-default decreases. This comes in contrast with the share of banking debt, which might capture over-borrowing behaviors or poor financial management. The Gini coefficient associated with an unequal repartition of creditors is positively associated with re-default and negatively associated with the recovery rate variable. Hence, disperse creditors do not help circumvent the trade-off between re-default probability and recovery rates for creditors. On the contrary, this dispersion tends to amplify adverse effects.

A final interesting feature is the marginal effect related to housing debt. Housing debt tends to increase the probability of a PR. It also increases the probability of re-default and diminishes the

[16] As the estimates for the first stage regression are similar across the two models, we present them only for the first model.

proportion of reimbursed debt. These features may be linked with the economic crisis that impacts the housing market. This is also due to private landlords being much less prone to renegotiate than bankers, usually represented by in-house dispute resolution experts, as the rent they earn might be an important part of their income. The other debt categories do not share these characteristics. Penal debt moderates the severity of case managers. It does not have any influence on the re-default probability, but it tends to diminish the fraction of the reimbursed debt.

C. Selection Effects and Causality

Our identification strategy aims at correcting for selection bias in the decision to grant an OP to a group of households. We find evidence of selection effects from the order of a repayment to the re-default rate and the recovered amount. The correlation between ω_i and ν_i is significantly negative. Unobservable characteristics leading a household to benefit from a moratorium have a positive impact on the likelihood of a re-default. The case manager has available characteristics unobservable by the econometrician, which jointly make the case manager less strict and the households more likely to re-default. This selection effect is also present, albeit to a lesser extent, in our estimation of the recovered amount of debt. The correlation between ξ_i and ζ_i is significantly positive. Unobservable characteristics, e.g., good employment prospects or help from the family, push the case manager to order an immediate repayment. These same characteristics explain higher recovery rates, justifying the decision of the HOC.

Insert Table 5 about here

We assess the work of the HOC by comparing the predicted re-default and recovery rates among the two groups of households. First, considering the group for whom a delay of payment has been denied, would they have benefited from a delay of payment, they would have not re-defaulted and they would have paid noting. In an "average treatment on the treated" sense, the causal impact of the decision of the HOC on these households amounts to a re-default rate of 11.5 percent and a recovery rate of 19.3 percent. For the group that benefits from a delay of payment, our model allows us to assess the relief given by the HOC: if they had something to pay, they would have re-defaulted at a 16 percent rate, having reimbursed only 5.8 percent of their initial outstanding debt (see Table 6). All in all, by granting delays of payment, the HOC decreases the average redefault rate from 13 to 7 percentage points while modestly pushing up the repayment rate from 12 to 14 pp.

Insert Table 6 about here

D. Ex Post Cost and Benefit Analysis

A global cost benefit analysis of the procedure would be difficult and go beyond the scope of this paper. In France, households are not represented by lawyers and do not support monetary costs when the procedure is opened. Once a filing for over-indebtedness has been initiated, they benefit from the extinction of the procedures separately launched by creditors. However, they might suffer from opportunity costs due to stigmatization and financial constraints because they are then blacklisted by banks for the duration of the plan.[17] For creditors, they benefit from the information collected by the HOC on the total indebtedness of the household financials and in comparison with a disordered restructuring without collective procedure; they might have a stronger guarantee to recover a fraction of their debt. On the cost side, creditors, particularly banks, pay the wages of employees devoted to dispute resolution. In term of general procedure, one can mention the general equilibrium effects of the procedure that might influence local credit markets: a more lenient HOC can lead to a rationing of households by risk-adverse creditors. The spillover effects of bankruptcy laws and their enforcement on local credit markets have been analyzed under different institutional settings (see, for example, Pence, 2006 for the US or Bianco, Japelli and Pagano, 2005 for Italy).

We undertake here a more modest but detailed analysis by taking a public finance perspective of the procedure, contrasting the amount recovered by the creditors with the public cost of treatment of a file. The net benefits of the procedure are defined as the amounts recovered by the creditors in two years minus the public cost of treatment of the file. Concerning public costs, a special investigation of the French Audit Office established that the average total cost for a file was approximately 1,035 Euros in 2008.[18] This cost includes the compensation of case managers, occupation costs and various costs of treatment (e.g., computing system, stamps, phone bills). Because we know the opening and ending dates of the procedure for each file, a proportional cost, taking into account the length of the procedure, is input for each file. On average, it takes 213 days to terminate a case, with a standard deviation of 156 days, leading to what we defined as the cost of treatment of 1,035 Euros (by construction), with a standard deviation of 758 Euros. When we contrast the cost of treatment with the probability to receive an OP when assigned a lenient case manager - which we used as our indicator of financial distress- we observe that the cost is higher for the file that would benefit from a moratorium. The reason case managers do not try hard to set up a modification plan is not because the likelihood to recover a positive amount is weak.

Figure 2 represents the net benefits for each file, depending on a financial distress indicator. The net benefit of treatment is positive for approximately half of the cases (53%). What is "lost" on the files corresponding to the more distressed households (i.e., those that are very less likely to benefit from a

[17] Outside help, when existent, is usually provided by social services.

[18] Cour des comptes, Rapport public annuel 2010, « la lutte contre le surendettement des particuliers », pp.461-494.

moratorium) is more than compensated by the debt reimbursed by the other households. The net benefit is dispersed very unequally among households: the net amount recovered on the population of households corresponding to the first five percentiles of our indicator of financial distress exceeds the cost of treatment of the 47% of households presenting a negative cost of treatment. On aggregate and for a population of 67,054 households, the net benefit of the procedure is 171 million Euros, with a total cost of treatment of 69 million Euros.

E. Effects of the Severity of the Managers on the Outcomes of the Procedure and the Benefits of the Procedure

The severity of the case manager is a crucial element in our analysis because it plays the role of an instrument in identifying the effect of the decision of the HOC on the outcome of a file. Moreover, one can question what the real impact of the severity on the net benefits of the procedure is. We detail in this section the effects of the severity on the re-default rate, the recovery rate and the recovered amount net of the public cost of treatment. We consider a manager as severe (respectively, lenient) if its propensity to grant a delay of payment is above (below) the median of the fixed effects provided by the estimation of (1). Table 7 reports the marginal effects associated with this severity indicator. Shifting from a lenient to a severe manager has an impact on the probability of PR estimated at 11 ppt (e.g., about one third of the standard deviation of the probability). This impact is strong; for comparison, having a long-term employment contract leads to an increase by 4 ppt of the probability of PR with respect to being unemployed. This strong impact on the likelihood of a PR translates into an average increase by 2 ppt in the probability to re-default and a 3 ppt increase in the recovery rate. The impact of a more severe case manager in monetary terms is approximately 200 Euros on average per case. On aggregate, it leads to an increase of amount recovered by creditors of 6 ppt.

As our identification strategy is based on the exclusion of the severity indicator in the outcome equation, we complement these results by looking at the heterogeneity of the response to the severity of the manager among households. As in any instrument analysis (see Anghrist and Pischke, 2010 for an overview), the impact of the decision of the case managers might depend on the traction of the instrument on some subsamples of the population under review. In Figure 3, we represent the marginal impact of being assigned a tough manager on the likelihood to be ordered a repayment as a function of our financial distress indicator. Our financial distress indicator presents a jump of approximately 0.4, which is due to the strong impact of the positivity of the net disposal income on the likelihood to be ordered a repayment.[19] The relationship between financial distress and the impact of the severity on the different outcomes, i.e., default, payment and selection into payment, is highly non-linear (Figures 3, 4

[19] Excluding this indicator of our models leads to a much smoother financial distress indicator but at the expense of their explanatory powers. As mentioned above, the positivity of net disposal income appears to be decisive for the case manager.

and 5). The severity of the case manager has a smaller impact on the probability of a PR at low or very high levels of financial distress. For these levels, the selection is mainly driven by observable characteristics. In contrast, when the decision to deny a moratorium is uncertain regarding the characteristics of financial distress, an allocation to a severe case manager is critical because the median household reached a maximum of 25 ppt on the probability of having to repay something. The severity of the case manager on the expected probability to re-default has a limited impact on the re-default rate of the weakly distress household but reach a peak, i.e., a 5 pct increase, for households having a fifty percent chance of being ordered a repayment. Correspondingly, turning to the recovery rate, assigning a severe manager mainly has a positive impact on the low distressed households. In sum, more severity globally increases the amount recovered from households. Unsurprisingly[20], this is due to an increase in the recovery rate of low-distress households and at the expense of an increase in the re-default rate of highly distressed households. The impact on the expected re-default and recovery rate is mainly due to the strong influence of the severity on the likelihood to obtain an OP.

Insert Table 7 about here

V. Conclusion

This paper investigates the ex post effects of the debt restructuring scheme on French households, using a unique dataset that provides the whole debt obligations for each over-indebted household.

The empirical strategy uses the effective randomization of case manager assigned to a specific file and their differences in terms of severity to estimate the effects of the decision to deny a two-year moratorium on the re-default and recovery rates. 62 percent of households are ordered to repay part of their debt. If delays of payment had been denied to the entire population, the average redefault rate and the average repayment rate would have increased respectively from 7 to 12 and from 12 to 14 percentage points.

We undertake a cost-benefit analysis of the procedure by comparing the amount recovered by the creditors to the public cost of treatment of a file. For approximately half of the files, the net benefit is negative. However, the amount recovered on a fraction of the less financially distressed households is sufficient to compensate for the public cost of treatment of the highly distressed households, demonstrating the highly heterogeneous impact of the procedure.

[20] The random allocation of the cases was suggesting this result.

We show that households assigned to tough case managers are much more likely to be required to reimburse part of their debt. The probability increases by 0.1 when the file is allocated to a tough manager. For illustration, this is a larger impact than being unemployed rather than having a long-term employment contract. The data also exhibit a heterogeneous response from the households to the severity of the case manager. The effect of the severity on the recovery rate is not significant for households in greater distress. Its impact is maximal on the re-default rate for households for which the possibility of attaining a moratorium is highly uncertain. If every file had been allocated to a severe manager, the amount recovered by creditors would have increased by 6%.

We focus in this paper on aspects rarely examined in the literature: the ex post outcome and cost of the bankruptcy process. It would be interesting to assess the ex ante impact of the bankruptcy process on the credit markets. Those effects have been studied, for instance, by Pence (2006) for the US and Bianco et al. (2005) for Italy. We intend to study those effects for France. They are obviously an empirical matter. However, as mentioned above, because case managers filter out strategic cases under the obligation to file in good faith, spillover effects on more risky households are not obvious in the French case. Turning to creditors, anecdotic evidence tells us to think that these spillovers should be small, at least for key players of pay day loans. For example, one of the market leaders for this type of loans shows a fraction of non-performing loans as only two percent of its outstanding loans.

Another path for future research would be to exploit a longer time horizon. It could help us, for instance, see what solutions should be favored in the long term by reducing the "overindebteness trap" problem. For instance, a total discharge right away at the first entrance in the process rather than an observation period finally leading to a total discharge after a long and painful process could be preferred under some conditions.

REFERENCES

Adelino, M., Gerardi, K., Willen, P., 2009. “Why don’t lenders renegotiate more homemortgages? Redefaults, self-cures and securitization”, National Bureau of Economic Research Working Paper 15159.

Agarwal S., Amromin G., Ben-David I., Chomsisengphet S. and D. Evanoff. 2011. “Market-Based Loss Mitigation Practives for Troubled Mortgages Following the Financial Crisis” Federal Reserve Bank of Chicago Working Paper.

Agarwal S., Amromin G., Ben-David I., Chomsisengphet S., Piskorski T. and A. Seru. 2012. “Policy intervention in debt renegotiation: evidence from the home affordable modification program” NBER working paper #18311.

Angrist Joshua D. and Jorn-Steffen Pischke, 2010. "The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con out of Econometrics," *Journal of Economic Perspectives*, American Economic Association, 24(2), 3-30.

Arthreya Kartik B. 2002. “Welfare Implications of the Bankruptcy Reform Act of 1999” *Journal of Monetary Economics,* 49(8): 1567-1595.

Bianco M., Japelli T. and M. Pagano. 2005. “Courts and banks: effect of judicial costs on credit market performance” *The Journal of Money, Credit, and Banking*, April 2005, vol. 37, n. 2, 223-244.

Blazy Régis, Bertrand Chopard, Eric Langlais and Ydriss Ziane. 2011. “Personal Bankruptcy Law, Fresh Starts and judicial Practice” EconomiX Working Papers 2011-15, University of Paris West - Nanterre la Défense, EconomiX.

Chang Tom and Antoinette Schoar 2008 “Judge Specific Differences in Chapter 11 and Firm Outcomes,” MIT Working Paper.

Cour des comptes, Rapport public annuel 2010, « la lutte contre le surendettement des particuliers », pp.461-494.

Doyle, Joseph J., Jr.. 2007. “Child Protection and Child Outcomes: Measuring the Effects of Foster Care” *American Economic Review*, 97(5): 1583–1610.

Doyle, Joseph J., Jr.. 2011. “Causal Effects of Foster Care: An Instrumental-Variable Approach” forthcoming in the *Children and youth Services Review.*

French Eric and Jae Song, 2011. “The Effect of Disability Insurance Receipt on Labor Supply”, *Federal Reserve Bank of Chicago, Working paper* 2009-05.

Fraisse Henri and Anne Muller, 2011. “Les commissions de surendettement des ménages : de l’objectif de négociation à la prévention de la rechute”, *Économie et Statistique* n°443- Décembre.

Greene, William H, 2001. “Estimating Econometric Models with Fixed Effects”, New York University, Leonard N. Stern School Finance Department Working Paper Series.

Han Song and Geng Li. 2011. “Household borrowing after personal bankruptcy”, *Journal of Money Credit and Banking*, 43, 491-517.

Kilborn Jason J. 2007. *Comparative Consumer Bankruptcy*. Carolina Academic Press, Durham NC.

Kling, Jeffrey R. 2006. "Incarceration Length, Employment, and Earnings." *American Economic Review*, 96(3): 863–876.

Livshits Igor D., James MacGee and Michele Tertilt. 2006. “Accounting for the Rise in Consumer Bankruptcies” *American Economic Journal: Macroeconomics*, 2(2): 165-193.

Mayer Christopher J., Edward R. Morrison, Tomasz Piskorski, and Aprit Gupta. 2010. “Mortgage Modification and Strategic Behavior: Evidence from a Legal Settlement with Cuntrywide” *Columbia Law and Economics Working Paper* 404.

Orr James, John Sporn, Joseph Tracy, and Jungfeng Huang. 2011. “Help for Unemployed Borrowers: Lessons from the Pennsylvania Homeowners’ Emergency Mortgage Assistance Program” *Current issues in Economics and Finance*, Federal Reserve of New York, 17(2).

Pence M. K. 2006. “Foreclosing on Opportunity : State Laws and Mortgage Credit” *Review of Economics and Statistics* 88 (1) : 177-82.

Quercia, R., L. Ding, and J. Ratcliffe. 2009. “Loan modifications and redefaultRisk”, Working paper, Center For Community Capital : The University of North Carolina at Chapel Hill.

Skiba Paige M. and Jeremy Tobacman. 2008. “Payday Loans, Uncertainty, and Discounting: Explaining Patterns of Borrowing, Repayment and Default” University of Pennsylvania, mimeo.

Shavell Steven. 1995. “Alternative Dispute Resolution: An Economic Analysis” *The Journal of Legal Studies*, 24(1): 1-28.

Sullivan Teresa A., Elizabeth Warren, and Jay L. Westbrook. 2000. *The Fragile Middle Class*. Yale University Press, New Haven and London.

White Michelle J. 2005. “Economic Analysis of Corporate and Personal Bankruptcy Law” National Bureau of Economic Research Working Paper 11536.

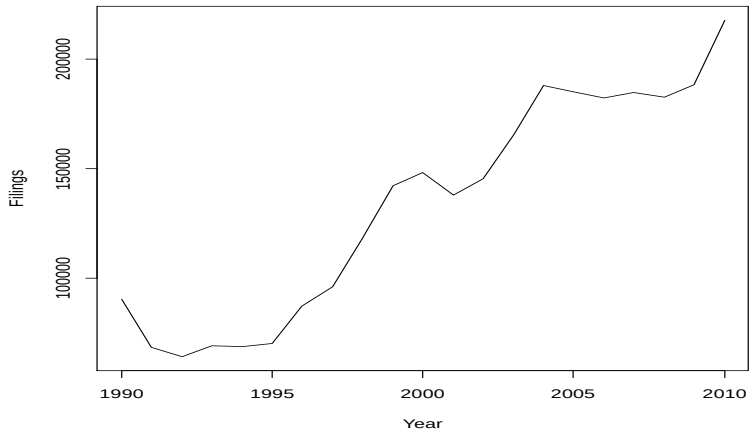
White Michelle J. 2006. “Abuse or Protection? Consumer Bankruptcy Reform under BAPCPA” *Public Economics*, 18-19: 1-27.

White Michelle J. 2008. “Bankruptcy: Past Puzzles, Recent Reforms, and the Mortgage Crisis” National Bureau of Economic Research Working Paper 14549.

Wang Hung-Jen and Michelle J. White. 2000. “An Optimal Personal Bankruptcy System and Proposed Reforms” *Journal of Legal Studies*, 29(1): 255-286.

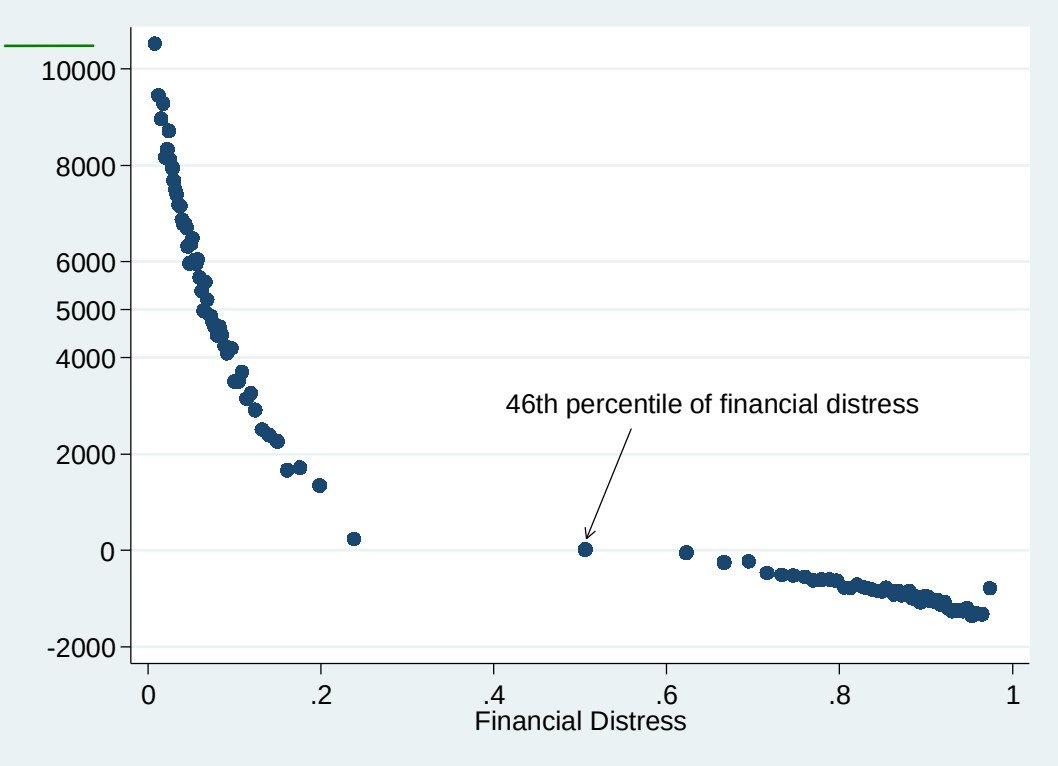
FIGURES AND TABLES

FIGURE 1. OVER-INDEBTEDNESS FILINGS IN FRANCE, 1990-2010



Source: Banque de France.

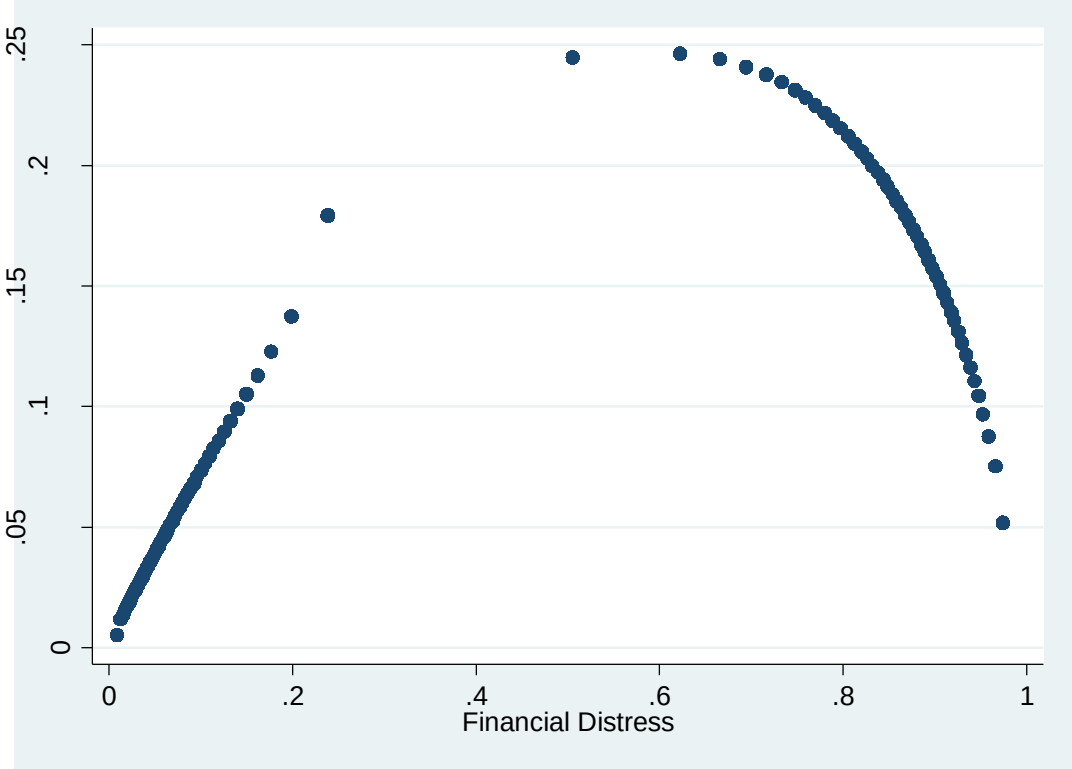
FIGURE 2. AMOUNT RECOVERED BY CREDITORS NET OF THE PUBLIC COST OF TREATMENT



Source: Banque de France. Author calculations.

Note:"Financial Distress" is defined as the likelihood to be granted an observation period by a lenient manager. Each dot corresponds to the amount recovered by creditors net of public cost of treatment averaged over a percentile of the financial distress indicator.

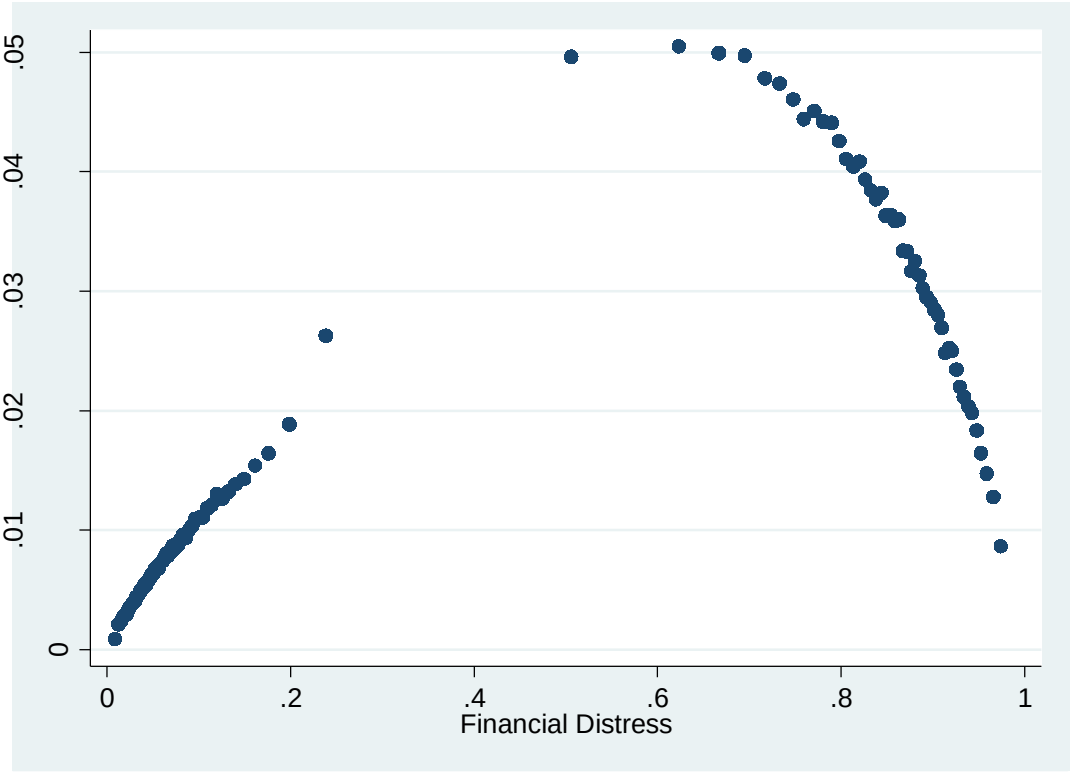
FIGURE 3. MARGINAL EFFECT ON THE PROBABILITY TO BEING ORDERED A REPAYMENT OF SHIFTING FROM A LENIENT TO A SEVERE MANAGER



Source: Banque de France. Author calculations.

Note:"Financial Distress" is defined as the likelihood to be granted a observation period by a lenient manager. Each dot corresponds to the marginal impact averaged over a percentile of the financial distress indicator.

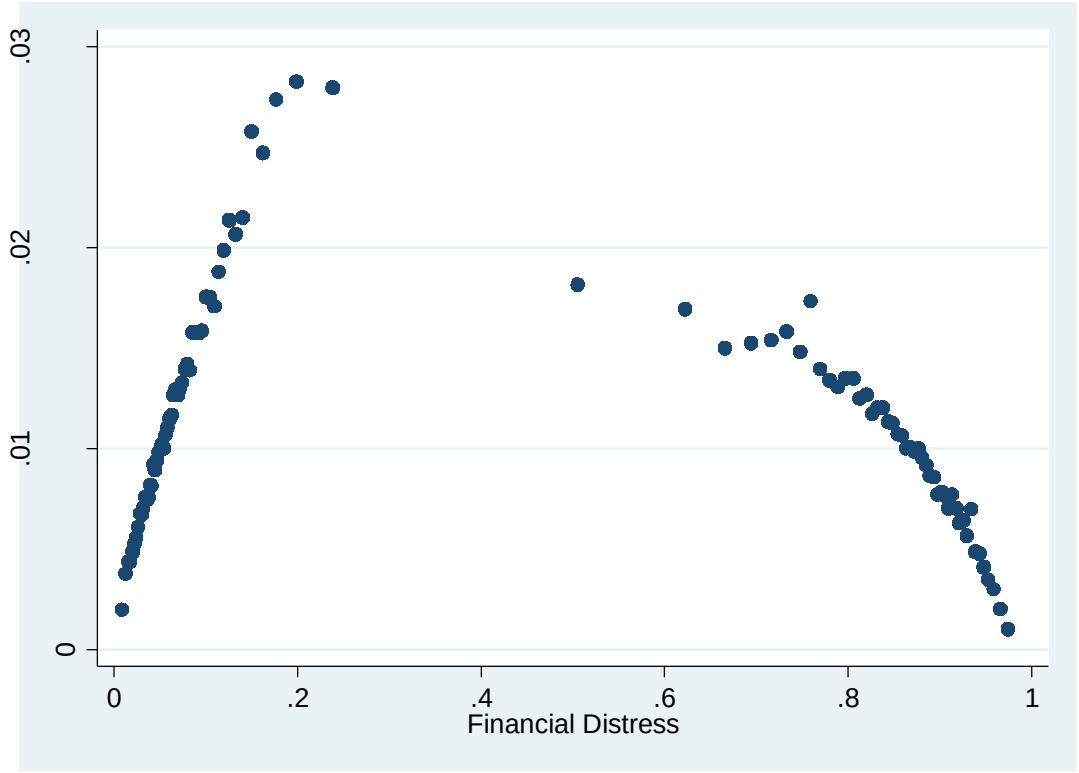
FIGURE 4. MARGINAL EFFECT ON EXPECTED REDEFAULT RATE OF SHIFTING FROM A LENIENT TO A SEVERE MANAGER



Source: Banque de France. Author calculations.

Note:"Financial Distress" is defined as the likelihood to be granted an observation period by a lenient manager. Each dot corresponds to the marginal impact averaged over a percentile of the financial distress indicator.

FIGURE 5. MARGINAL EFFECT ON EXPECTED RECOVERY RATE OF SHIFTING FROM A LENIENT TO A SEVERE MANAGER



Source: Banque de France. Author calculations.

Note:"Financial Distress" is defined as the likelihood to be granted a observation period by a lenient manager. Each dot corresponds to the marginal impact averaged over a percentile of the financial distress indicator.

TABLE 1— CASE MANAGERS' STATISTICS

Variables	Mean	Std Dev	Median	Max	Min	Obs
Number of cases by manager	54	28	56	149	11	1241
Case Manager Fixed Effect	0.002	0.112	-0.006	0.35	-0.39	1241
Number of cases by conciliation boards	575	342	495	1882	130	117

Source: Banque de France. Author calculations.

Notes: There are 117 conciliations boards (HOC) spread over the French territory for a total number of 1241 case managers. OLS regression of the propensity to grant a delay of payment on case characteristics provide the case manager fixed effects (see identification strategy)

TABLE 2—HOUSEHOLDS CHARACTERISTICS: SUMMARY STATISTICS

	Variables	Mean	Std Dev	Max	Min
Income and charge (in Euros)	Monthly income (log)	1366	613	5900	120
	Initial outstanding debt (log)	26607	30073	520867.50	10.61
	Charges (log)	1291	444	5860	89
Households characteristics	Age	46	13.54	104	20
	#Dependents	0.89	1.22	15	0
	Codebtor	0.28	0.45	1	0
	Unemployed codebtor	0.05	0.21	1	0
Tenure					
	Tenant	0.82	0.39	1	0
	Homeowner	0.02	0.15	1	0
	Homeowner (outstanding mortgage)	0.03	0.18	1	0
	Other households tenure	0.13	0.33	1	0
Marital status					
	Married	0.24	0.43	1	0
	Divorced	0.33	0.47	1	0
	Cohabiting	0.09	0.28	1	0
	Single	0.27	0.44	1	0
Employment status					
	Long term contract	0.38	0.49	1	0
	Short term contract	0.07	0.26	1	0
	Unemployed	0.33	0.47	1	0
	Retired	0.13	0.34	1	0

Source: Banque de France. Author calculations.

Notes: In the case of marital and employment status, the sum of proportions is not equaled to 1. There are widows, civil union, domestic partnership in the case of marital status, or part-time work in the case of employment status, but their proportion is too small to be of statistical interest.

TABLE 3— CHARACTERISTICS OF THE INITIAL DEBT STRUCTURE AND OUTCOMES OF THE PROCEDURE

	Variables	Mean	Std Dev	Max	Min
Debt structure	# Banking creditors	3.93	2.82	29	0
	# Non banking creditors	3.96	3.73	35	0
	Share of non banking debt	0.28	0.32	1	0
	Gini coefficient of creditors distribution	0.63	0.19	1	0
Type of debt	Housing	0.40	0.49	1	0
	Penal	0.14	0.35	1	0
	Current expenses	0.43	0.49	1	0
	Profesional	0.01	0.10	1	0
	Alimony obligation	0.04	0.19	1	0
Causes of over-indebtedness	Money mismanagement	0.27	0.44	1	0
	Adverse events	0.63	0.44	1	0
Outcomes of the bankruptcy process	Repayment required	0.62	0.49	1	0
	Redefault rate	0.12	0.32	1	0
	Repayment rate	0.14	0.19	1	0

Source: Banque de France. Author calculations.

TABLE 4— RANDOMIZATION

	Variables	Excluding Conciliation Boards	Excluding Case Managers
Income and charge (in	Monthly income (log)	0.736	0.945
	Initial outstanding debt (log)	0.748	0.956
	Charges (log)	0.924	0.950
Households characteristics	Age	0.853	0.959
	#Dependents	0.911	0.953
	Codebtor	0.898	0.973
	Unemployed codebtor	0.894	0.956
Tenure			
	Tenant	0.922	0.973
	Homeowner	0.910	0.977
	Homeowner (outstanding mortgage)	0.963	0.953
	Other households tenure	0.916	0.966
Marital status			
	Married	0.877	0.973
	Divorced	0.881	0.979
	Cohabiting	0.849	0.939
	Single	0.905	0.973
Employment status			
	Long term contract	0.794	0.955
	Short term contract	0.934	0.967
	Unemployed	0.849	0.957
	Retired	0.831	0.980
Debt structure	# Banking creditors	0.616	0.937
	# Non Banking creditors	0.652	0.933
	Share of non banking debt	0.796	0.959
	Gini coefficient of creditors distribution	0.765	0.944
Type of debt	Housing	0.632	0.936
	Penal	0.856	0.957
	Current expenses	0.724	0.837
	Profesional	0.931	0.970
	Alimony obligation	0.814	0.937
Causes of over-indebtedness	Money mismanagement	0.275	0.796
	Adverse events	0.275	0.796

Source: Banque de France. Author calculations.

Notes: In order to assess the random allocation of the cases across managers, we run within each FOC regressions of each of the observable characteristics on case managers fixed effects. The calculation is restricted to case managers with more than 10 investigations per year. We run a F-test of joint significance of the case manager fixed effects within a single HOC. If the p-value associated to this test is below 10% for a given HOC, we discard all the cases managed by the HOC from the sample. The percentage of cases remaining in the sample for each observable characteristic is display in column 2 of table 4 below. We replicate the same exercise by discarding only the cases associated to a manager whose the individual fixed effect is significant. The percentage of cases remaining in the sample for one observable characteristic is display in column 3.

TABLE 5— SELECTION MODELS: MARGINAL EFFECTS

	Variables	Repayment required	Redefault	Debt Reimbursed (log)
	Case Manager's Fixed Effect (as an instrument)	0.110***	0.010***	-0.007***
		(0.004)	(0.004)	(0.003)
Income and charge (in Euros)	Income greater than charges	0.386***	-0.056***	1.188***
		(0.003)	(0.006)	(0.016)
	Monthly Income (in log)	0.116***	-0.015***	1.896***
		(0.005)	(0.009)	(0.023)
	Monthly Charges (in log)	-0.005***	-0.006***	-0.020***
		(0.001)	(0.002)	(0.005)
	Forfeit of Monthly Charges (in log)	-0.006***	0.001	-0.087***
		(0.001)	(0.002)	(0.005)
	Outstanding Debt (in log)	-0.003	0.019***	0.187***
		(0.002)	(0.003)	(0.008)
Households characteristics	Age (in log)	0.561***	0.272	-0.473
		(0.118)	(0.181)	(0.465)
	Age Square (in log)	-0.082***	-0.042*	0.074
		(0.016)	(0.024)	(0.063)
	#dependent	-0.017***	0.001	-0.195***
		(0.001)	(0.002)	(0.005)
	Codebtor	-0.005	0.019***	-0.125***
		(0.004)	(0.005)	(0.014)
	Unemployed Codebtor	-0.009	0.021***	-0.138***
		(0.006)	(0.008)	(0.022)
Tenure (Ref. Renter)	Homeowner (outstanding mortgage)	0.097***	-0.009	0.283***
		(0.010)	(0.011)	(0.027)
	Homeowner	0.002	-0.005	0.145***
		(0.009)	(0.009)	(0.025)
	Other Household tenure	-0.009**	-0.001	0.203***
		(0.005)	(0.007)	(0.017)
Marital status (Ref. in couple)	Divorced	-0.011***	0.006	-0.105***
		(0.003)	(0.004)	(0.012)

TABLE 5— SELECTION MODELS: MARGINAL EFFECTS (CONT.)

	Variables	Repayment required	Redefault	Debt Reimbursed (log)
Employment status (Ref. long term contract)	Short term contract	-0.022***	0.041***	-0.183***
		(0.005)	(0.006)	(0.018)
	Unemployed	-0.036***	0.049***	-0.235***
		(0.003)	(0.005)	(0.014)
	Craftsmen	-0.042***	0.047***	-0.137***
		(0.006)	(0.009)	(0.027)
	Retired	-0.011*	-0.044***	-0.013
		(0.006)	(0.009)	(0.022)
	Others	-0.043***	0.004	-0.065**
		(0.006)	(0.009)	(0.025)
Debt structure	# Banking creditors	-0.000	0.002*	0.004*
		(0.001)	(0.001)	(0.002)
	# Non Banking creditors	-0.004***	-0.004***	-0.006***
		(0.000)	(0.001)	(0.002)
	Share of non banking debt	-0.033***	-0.068***	0.141***
		(0.005)	(0.009)	(0.023)
	Gini coefficient of creditors distribution	-0.012*	0.029***	-0.222***
		(0.007)	(0.011)	(0.028)
Type of debt	Housing	0.061***	0.016***	-0.019*
		(0.003)	(0.004)	(0.011)
	Penal	-0.012***	0.004	-0.101***
		(0.004)	(0.005)	(0.015)
	Current Expenses	0.014***	0.027***	-0.032***
		(0.003)	(0.004)	(0.011)
	Alimony obligation	-0.032***	0.011	-0.179***
		(0.006)	(0.010)	(0.026)
	Rho		-0.145**	0.0255**
			(0.064)	(0.0086)

Source: Banque de France. Authors calculations. *Note:* This table reports estimates from a selection models to redefault and repayment. 67, 054 observations are used. Marginal effects are computed at the sample mean.

TABLE 6— PREDICTED RE DEFAULT AND REPAYMENT RATES

Variables	Mean	Std	Obsevations
Redefault rates :			
Whole population	0,1323	0,0002	67,054
Population that were granted an observation period ("OP")	0,16	0,0004	25,911
Population that were denied an OP	0,115	0,0002	41,143
Whole population (with households getting an OP assigned a zero percent redefault rate)	0,0705		67,054
Repayment rates :			
Whole population	0,141	0,0007	67,054
Population that were granted an OP	0,058	0,0007	25,911
Population that were denied an OP	0,1935	0,0009	41,143
Whole population (with households getting an OP assigned a zero percent recovery rate)	0,1182		67,054

Source : Banque de France. Authors calculations.

Notes: This table reports the average expected redefault rates and repayment rates conditionally on being denied an observation period on different population of households.

TABLE 7— AVERAGE MARGINAL EFFECTS OF A HIGH VERSUS LOW PROPENSITY'S MANAGER TO ORDER A REPAYMENT

Variables	Mean	Std	In std dev	Obsevations
Probability of repayment required	0,111	0,0003	29,5%	67,054
Probability of redefault (conditional)	0,009	0,0000	5,3%	67,054
Probability of redefault (unconditional)	0,020	0,0001	11,7%	67,054
Repayment rate (conditional)	-0,0005	0,0000	-0,30%	67,054
Repayment rate (unconditional)	0,0310	0,0002	17%	67,054

Source : Banque de France. Authors calculations.

Notes: This table reports the average marginal effects of a high versus low propensity's manager to require a repayment. The marginal effects are computed on the probability of redefault and on the repayment rate -conditionally and unconditionally on being ordered a repayment (e.g denied an observation period).

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75049 Paris Cedex 01
tél : 0033 (0)1 42 97 77 24 ou 01 42 92 63 40 ou 48 90 ou 69 81
email : 1404-ut@banque-france.fr