



«Does Gender Diversity in Panels of Judges Matter? Evidence from French Child Support Cases»

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L'article sélectionné, publié dans une prestigieuse revue d'économie du droit en 2021, porte sur l'effet du sexe des juges sur les montants de pension alimentaires pour enfants fixés en appel dans les tribunaux français. La sélection de cet article est une belle occasion de mettre en valeur les fruits de la collaboration scientifique d'un petit collectif d'économistes lorrains qui dure depuis plus de 20 ans. Cette collaboration est née à l'orée des années 2000, c'est-à-dire à un moment où les économistes lorrains n'avaient pas encore rejoint leurs homologues strasbourgeois au sein du BETA mais où certains d'entre eux commençaient à franchir les frontières de leurs laboratoires respectifs (ADEPS¹, CREDES²) pour travailler ensemble sur des sujets situés à l'intersection de leurs thématiques de recherche. Ce rapprochement s'est notamment matérialisé en 2003 par la production d'un rapport de recherche commun intitulé « *Les obligations alimentaires vis-à-vis des enfants de parents divorcés : une analyse économique au service du droit* », sous la co-direction de Bruno Deffains et de Cécile Bourreau-Dubois³, et dans lequel étaient interrogées les justifications économiques, à la fois théorique et empirique, de la mise en place d'un barème en matière de pension alimentaires pour enfants en cas de divorce.

Rétrospectivement, on mesure combien ce rapport de recherche a été décisif. En effet, il a ouvert la voie à la production d'autres rapports de recherche sur les transferts privés fixés par la justice au moment des divorces, à des recherches soutenues financièrement par un partenaire récurrent -la Mission Recherche Droit et Justice- comme par l'ANR, à la rédaction du chapitre « Economie du droit du divorce » dans le manuel *d'Analyse économique du droit* chez De Boeck et à la publication d'articles académiques comme à des articles de vulgarisation à destination des juristes et/ou du grand public. Enfin, il a aussi conduit au développement d'une expertise dans le champ de la mise en œuvre des règles du droit du divorce, qui a amené

¹ ADEPS : Analyse Dynamique des Effets des Politiques sociales.

² CREDES : Centre de recherches et de Documentation économiques

³ BOURREAU-DUBOIS C (resp.sc), DEFFAINS B. (resp. sc), Myriam DORIAT-DUBAN, Éliane JANKELIOWITCH-LAVAL, Bruno JEANDIDIER, Ouarda KHELIFI, Éric LANGLAIS et Jean-Claude Y, (2003), « Les obligations alimentaires vis-à-vis des enfants de parents divorcés. Une analyse économique au service du droit », pour le compte de la Mission Recherche « Droit et Justice » du Ministère de la Justice et de la Mission Recherche (MiRe) du Ministère de l'Emploi et de la Solidarité, rendu en décembre 2003, 335 pages. Ce projet était une réponse à l'appel à projet « La parenté comme lieu de solidarités » émanant du GIP « Mission Recherche Droit et Justice » du Ministère de la Justice et de la Mission Recherche (MiRe) du Ministère de l'Emploi et de la solidarité.

par exemple Cécile Bourreau-Dubois à participer à la création du barème de pension alimentaire pour enfants mis en circulation en 2010 par le Ministère de la Justice et Bruno Jeandidier à être une cheville ouvrière de la révision de ce même barème, à la fin des années 2010.

Cette dynamique collective autour du droit du divorce n'aurait certainement pas vu le jour s'il n'y avait pas eu au tournant des années 2000 la volonté politique de Bruno Deffains de constituer un seul laboratoire d'économie à Nancy, autour de l'économie du droit. Et si le hasard ne s'en était pas aussi un peu mêlé : en effet, le début des années 2000 est aussi le moment où le Ministère de la Justice a commencé à réfléchir sur la faisabilité de la mise en place d'un barème en matière de pension alimentaire pour enfants et cherchait de l'expertise sur cette question. Ce qui est certain en tout cas c'est que les chercheurs impliqués dans ce rapprochement n'imaginaient pas au début des années 2000 que l'analyse économique du droit du divorce deviendrait une des thématiques structurantes de ce qui allait devenir progressivement l'axe économie du droit du BETA.

Quelques mots à présent sur le contenu de l'article. Son originalité ne tient pas tellement à la question posée. En effet, celle-ci est largement étudiée dans la littérature, que ce soit en économie du droit, en science politique ou encore en sciences criminelles. L'apport du papier résulte des données mobilisées pour répondre à la question, en l'occurrence des décisions prises par des magistrats français. Nombreux sont les travaux qui ont cherché à tester si la décision d'un juge est corrélée à son sexe, et, pour les travaux les plus récents, à mesurer si la variable du sexe du juge contribue à expliquer au sens statistique du terme sa décision. Le point commun de ces travaux est que, pour la plupart d'entre eux, ils portent sur le cas américain. Or les systèmes juridiques américain et français présentent des caractéristiques institutionnelles assez différentes. Par conséquent s'interroger sur l'effet du sexe du juge sur sa décision dans le cas français soulève d'autres enjeux et conduit à développer d'autres hypothèses que ceux qui sont évoqués dans la littérature anglo-saxonne. Le système américain est un système de *common law*, c'est-à-dire un système juridique où les juges disposent d'une large marge de manœuvre, ce qui conduit assez naturellement à étudier l'impact du sexe du juge, et plus généralement celui de ses caractéristiques individuelles, sur sa décision. En revanche, en France, où existe un système de *civil law*, le juge est pensé comme un acteur neutre et impartial, dont la fonction est de faire appliquer un droit essentiellement

codifié, ce qui laisse a priori moins de place à la discrétion des juges. Dans un tel contexte, la question de l'effet du sexe du juge sur sa décision est souvent considérée comme très secondaire voire illégitime, ce qui explique qu'il existe à ce jour très peu de travaux traitant cette question dans le cas français. L'un des apports de cet article est donc de contribuer à enrichir la connaissance que l'on a des comportements sexués des juges français. Par ailleurs, le système américain est caractérisé par une nette surreprésentation des hommes dans la population des juges. La grille de lecture des travaux anglo-saxons consiste alors à se demander dans quelle mesure les femmes juges, parce qu'elles appartiennent à une minorité au sein de leur corps professionnel, jugent différemment du groupe majoritaire. Pour sa part, le corps de la magistrature française est très largement féminisé. Cette composition genrée inversée par rapport à la situation américaine conduit donc cet article à explorer des hypothèses alternatives à celles mobilisées dans les travaux anglo-saxons.

Cet article s'appuie sur l'exploitation d'une base de données constituée de 2000 décisions de justice prononcées en appel entre 2006 et 2010, avant l'entrée en vigueur du barème de pension alimentaire pour enfants. Chacune de ces décisions est prise par un collège de trois juges, comme le prévoit la procédure en cas d'appel de la décision de première instance. Deux résultats principaux sont à retenir. Premièrement, les collèges composés de trois femmes fixent des montants de pension alimentaire plus élevés que les collèges mixtes, et ce quel que soit le sexe du créancier de la pension alimentaire. Deuxièmement, l'effet minorant de la mixité des collèges est plus particulièrement prononcé lorsque le créancier est un homme et que le collège est constitué de deux femmes et d'un homme. Cela étant, si les montants de pension alimentaire fixés par les collèges féminins sont significativement plus élevés, il n'en reste pas moins que l'ampleur des écarts en jeu restent modeste dans la plupart des configurations. Pour cette raison, comme le conclut l'article, ces écarts à l'équité horizontale sont sans doute moins problématiques du point de vue de la politique publique que la relative faiblesse des montants de pension alimentaire fixés par les juges, sur la base des montants proposés par les parents.

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Does Gender Diversity in Panels of Judges Matter? Evidence from French Child Support Cases

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Abstract: In this article, we examine whether and to what extent the gender composition of a panel of three judges may have an impact on its decision in a civil law system characterized by a very large representation of females among judges. From a database of 2000 decisions from French Courts of Appeal, we show that the gender composition of panels of judges have a significant effect on the amounts of child support. More specifically, our results show that panels composed of three female judges set higher child support amounts than mixed panels, regardless of the gender of the creditor. In addition, the diminishing effect of the panel's gender mix is particularly pronounced when the creditor is a man and the mixed panel is composed of two women and one man.

1. Introduction

There is an extensive literature in law and economics, criminology and political science on the impact of judges' personal characteristics on the decisions they may make (Kulik et al. 2003; Schazzenbach 2005; Collins and Moyer 2008; Bonneau and Rice 2009; Curry 2009; Glynn and Sen 2015; Lim et al. 2016; Boyd 2016). These studies cover judges of lower courts as well as those of higher courts (courts of appeal or supreme courts). In particular, ethnicity and gender have been largely studied, always in the same way: in an American legal system characterized by an over-representation of white males among judges, the issue is to investigate whether and to what extent a judge who belongs to a minority, in terms of gender or ethnicity, produces decisions that differ from those of a white male judge (Harris and Sen, 2019).

With respect to the specific impact of a judge's gender, research has highlighted that it may have an effect on decisions (Songer and Crews-Meyer, 2000; Tiede et al. 2010; Collins et al. 2010; Scheurer 2014, Bielen et al. 2017) but that it may also differ according to the gender of the parties involved in the conflict (Schanzenbach 2005; Martin and Pyle, 2005; Boyd and Nelson, 2017; Philippe, 2020). These differences are manifest only in litigation where women might feel more concerned than men, such as cases of harassment or discrimination.¹ One may consider that union breakdown cases involving the determination of child support are another area where the judge's gender is likely to matter. Indeed, it can be presumed that judge's gender could have an impact on issues related to union breakdowns involving children because judges are likely to have different positions according to their gender and to the gender of the creditor of child support. This hypothesis is in line with several empirical results (Martin and Pyle, 2005; Fuszara, 2003; Junqueira, 2003; Bourreau-Dubois et al., 2012).

Most studies about the impact of the judge's gender on decision-making focus on the U.S. legal system. Conversely, very little research has been done on this subject in civil law countries. One possible explanation lies in the difference between the two types of legal culture. As Schultz and Shaw (2013) explain, in common law countries the judges "act as anonymous interpreters of the law according to specified interpretation rules and pass judgments in the name of the state or the people" (p. 6). Such a system does not leave room for discussion about the influence of judges' characteristics on judgments. Additionally, there is a strong ideology of judicial neutrality in civil law systems. For instance, according to Boigeol (2013) the question of the gender of the judge is

¹ Farhang & Wawro (2004) find that, in employment discrimination cases, female appellate judges are more likely to vote in favor of the plaintiff. These findings are supported by Peresie (2005), who examines federal appeals judges voting on Title VII sex discrimination and sex harassment cases and finds that female judges are more likely to side with the plaintiff.

not an easy topic to approach, “as the first reaction of judges is always to reject the assumption that there might be any correlation between gender and judging” (p. 140). On the other hand, in common law countries, judges “have greater discretion in reaching their decision by ‘distinguishing’ the case in hand from precedents. They ‘make the law’. The judgment is therefore more closely connected to their personality” (p. 6). It is therefore unsurprising that most empirical studies on this issue focus on the common law system, and more particularly on the United States. However, in several judicial fields, civil law judges have significant discretion, leaving room for the possible influence of their characteristics on their decisions. In France, this is the case, for example, when it comes to determining child support award, especially in absence of guidelines.² Consequently, the French judicial system leaves room for judicial discretion. Besides, civil law judiciaries are largely feminized, unlike in the United States where women are still under-represented among judges. This demographic specificity reinforces the interest of studying the impact of judges’ gender in civil law countries and refreshes the way this issue is addressed, since women judges are in the majority.

The goal of this paper is to study whether the gender composition of a panel of three judges affects judicial decision-making in a civil law system where women judges are in the majority. To this end, we focus on the determination of child support amounts by French panels of judges, using a database of 2000 collegial decisions made between May 2006 and January 2010 in French Courts of Appeal. Our study joins previous analyses on collegial court decisions that seek to measure the impact of gender in panel judicial decision-making (Farhang and Wawro 2004; Peresie, 2005; Boyd et al. 2010). However, our article departs from these studies in one significant respect. Previous studies examine how the gender of judges sitting on appeal affects their individual decisions, controlling for the gender composition of the panel, in cases where they have to vote in favor of the plaintiff or the defendant. In the French judicial system, the panel decision-making process is an oral collective deliberation without a formal vote. Given this procedural specificity, what interests us is whether the gender composition of a panel affects the collective decision taken by that panel in setting child support.

The article is structured as follows. Section 2 is devoted to the institutional framework of our study. In Section 3 we provide a brief review of the literature explaining whether and why male and female judges would decide differently and whether the judge’s gender has an impact in a collegial decision-making process. Section 4 describes the data and presents some descriptive statistics. Section 5

² With regard to child support orders, the judge must mainly defend the interests of the child, must apply article 371-2 of the Civil Code (“Each parent shall contribute to the maintenance and education of the children in proportion to his or her resources, those of the other parent, and the needs of the child...”) and must take into account the proposals for the amount of child support made by the parties (parents). Since 2010, the judge may also use an advisory guideline that proposes an amount of child support based on the parents’ incomes, the number of children and the type of custody.

outlines the empirical methodology. The results are presented in section 6 and discussed in section 7. Section 8 concludes.

2. The institutional context: characteristics of the French judicial system

2.1. A highly feminised judicial system

The French judicial system is one of the most feminised in civil law countries. While the proportion of female judges remains low in common law countries (Feenan, 2009), in civil law countries the proportion of women in judicial systems is often close to the proportion of women in the population. In France, women represented 65% of all professional judges, this proportion being slightly higher in the courts of first instance (68%), lower in the Courts of Appeal (62%), and significantly lower in the highest courts (50%) (*Références Statistiques Justice*, 2018). This situation is explained by the fact that, as in other civil law countries, French judicial careers depend on the diplomas obtained at the end of law studies (Feenan, 2009). In France, 60% of law graduates are women and men represent only about 15% of candidates for the National School for the Judiciary³ (Boigeol, 2013). This feminization is perceived as a problem by many judges and prosecutors, because it is associated with a certain devaluation of the judicial institution. According to Boigeol (2013), however, the real problem is not the feminization but the demasculinization of the judicial institution and the fact that the low representation of men may have consequences on the judgments rendered. This subject is particularly sensitive in divorce cases, where fathers' rights movements often complain that French judges make decisions in favor of mothers, in terms of both the amount of child support and the residence of children. According to them, the explanation lies in the strong feminization of judges in charge of divorce litigation in the courts of first instance⁴.

2.2. Divorce proceedings in France

In France, at least until 1 January 2017, judicial proceedings were mandatory in the event of divorce.⁵ In particular, the court makes four decisions relating to children: the amount of child support, the child's place of residence, the legal custody right and the exercise of parental authority. Two situations may arise, depending on whether the parents agree or disagree on the amount of

³ Created in 1958, the French National School for the Judiciary (Ecole Nationale de la Magistrature, ENM) is the college where all judges and prosecutors receive their training.

⁴ On this issue, one may refer to Fix and Johnson (2017) who study the influence of judge gender on public assessment of court outcomes.

⁵ Since 2017, the procedure has provided that, except in special cases, couples who wish to divorce by mutual consent should now apply to a notary.

child support, given that the judge may also decide on this at their request if they are not married.⁶ When the parents agree, the judge must check that the child's interests are sufficiently protected. If the judge considers that this is not the case, he or she may set a different amount. However, empirical studies show that judges generally approve the parents' offers when they agree (Belmokhtar and Cretin, 2015). In the absence of a consensus between the parents, the judge must determine the amount of child support. Disagreement over child support affects one in four couples when the parents are not married, and one in ten in divorce cases (Chaussebourg and Baux, 2007).

Until 2010, French judges did not have any guidelines, even advisory, to determine the amount of child support. However, their practice was guided by a number of general principles. Indeed, the decisions of judges must respect the fundamental principles of French family law (safeguarding of the child, interest of the spouses, shared legal custody) but must also take into account the parents' offers and their personal situation. For example, the amount of child support decided by the judge must be within the bounds of the parents' proposal. When the parents do not agree with the judge's decision, they can appeal. The grounds for the appeal are likely to be multiple. They may deal with questions of principle (if one of the parties disputes the type of divorce pronounced) and/or the consequences of the divorce (disagreement on one of the four decisions relating to children, or on the distribution of common property). For example, in divorce litigation cases, parents may be dissatisfied with the decision of the judge who has sought to reconcile the debtor's offer with the creditor's request. Thus, the former may contest the judgment because he considers that the amount of the child support fixed at first instance is too high, while the latter may consider it too low.

In the Courts of Appeal, the judicial decision is collegial. The panel is composed of three judges: a president, a rapporteur and a deputy judge. The decision is made on behalf of the entire group. In the event of disagreement, the decision is made by a majority of the judges and no discrepancy is mentioned in the final judgment. Consequently, while it is possible to know the decision of the panel, it is not possible to know the individual position of each judge.

3. Related literature

The goal of our article is to test empirically whether the gender composition of a panel of judges affects the amount of child support set by the panel. This hypothesis may be supported by insights

⁶ Parents who are not married are not forced to go before the judge to organize their children's lives after separation. If they do so, it is often because they cannot reach an agreement or in order to have their agreement homologated by the judge.

from three types of literature. The first one is the empirical literature which highlights that the judge's gender does matter in divorce cases (3.1). The second literature brings several theories explaining why women and men would decide differently (3.2). Finally, there are studies that provide insights into the way gender diversity in a panel of judges may affect the collective decision made by the judges on that panel (3.3).

3.1. Does gender matter in divorce judgments?

The effect of gender on judging has been empirically explored in divorce cases. The results are quite inconclusive. Among the few studies on this topic, some focus on the influence of the judge's gender on the way they judge in family courts. Kohen (2008) studies how male and female family judges in Buenos Aires understand their profession and its requirements, their representation of the ideal family judge, their motivation in becoming family judge, the way they experience the power they wield, and their opinion on the supposed contributions women judges might make to the family judiciary. She concludes that there are no clear-cut differences between men and women in terms of their adherence to an ethic of justice or of care. Nor is there any real difference in the way judges reach their decisions: both women and men first decide on a fair solution and only then look for the law that would give that solution legal support. Distinct gender differences are apparent, however, in the way female judges approach decision-making. While men stress the importance of objectivity, neutrality and equidistance, women emphasize vocation, care and personal involvement. Differences can therefore be observed more in the decision-making process than in its outcome.

Nevertheless, other studies show that differences in sentencing may exist because of the judge's gender. Bourreau-Dubois et al. (2012) show that female family law judges set (slightly) higher amounts of child support in first instance comparatively to their male counterparts. Fuszara (2003) for Poland and Junqueira (2003) for Brazil show that there is some evidence that female judges tend to be less generous than their male colleagues toward women seeking alimony, while this result is not supported by Dijksterhuis (2013), who studied the Netherlands. For the United States, Martin and Pyle (2005) demonstrate that female judges in state high courts are more likely than male judges to uphold the female litigant's rights in divorce cases.

Empirical studies confirm that the judge's gender might have an effect on divorce judgments but they do not explain why. There exists a rich literature on this topic, not necessarily based on family law but which can give some possible explanations for the observed differences.

3.2. Why would women and men judges decide differently?

As Boyd et al. (2010) state, there are four main approaches to differences between the decisions of women and men judges. The first three are based on an individualistic view, while the fourth follows a more institutional perspective. According to the *different voice* approach, males and females develop distinct worldviews and see themselves as differentially connected to society. Consequently, we can expect male and female judges to differ in the way they conceptualize the question the court is addressing, as well as in how to resolve the dispute. As a result, differences in sentencing decisions are likely to emerge across virtually all areas of the law. The following two approaches, meanwhile, imply that the judge's gender matters only in specific areas of the law and that gender differences manifest themselves provided that the litigants' gender is taken into account. In the *representational* approach, female judges serve as representatives of their class and so work toward its protection in litigation of direct interest. Consequently, gender differences should manifest themselves in a smaller set of cases, especially those relating to women's issues, such as sex discrimination in employment or sexual harassment. In other words, female judges are likely to uphold female litigants' claims in cases where they are socially discriminated against due to their gender or, more generally, when they are vulnerable. Such an approach should be relevant in the area of divorce law: in this view, female judges are likely to support women who experience a more dramatic drop in their living standard than men, especially if they have dependent children. The logic behind the third approach, the *informational approach*, is not that women judges favor their own class. In this approach, the differences are said to result from the fact that female judges possess information that their male colleagues do not have, emanating from shared experiences with the female litigant. According to this approach, gender differences in judging should appear only on issues on which female judges may possess valuable expertise, experience or information. In particular, according to Boyd et al. (2010), the gender effect should appear in employment discrimination cases, with female judges likely to have common discrimination experiences through their work. This informational approach could be enlarged to include union breakdown cases involving children. The gender differences could result from the fact that women judges possess more information on child costs than their male counterparts, given that mothers (which female judges may themselves be) are usually more involved than fathers (which male judges may be) in the daily maintenance of children. Nevertheless, in our case, we see no reason to limit the relevance of the informational approach to cases where the creditor is a woman.

Contrary to these three individualistic approaches, the *organizational approach* considers that no difference should be noticed due to the fact that judges, both female and male, are the product of similar institutional mechanisms (Steffensmeier and Herbert, 1999). They undergo identical

professional training, get their jobs through the same procedures and face similar constraints once on the bench. Other studies support this type of approach, considering that judges evolve in an institutional environment which necessarily has an influence on their behavior. For instance, Siegel (1999) argues that judges' decisions might not reflect their preferences, due to the role of institutional rules that have a compulsory nature and dictate standards of behavior. Finally, all these commonalities between male and female judges should be sufficient to "overcome any biological, psychological or experienced-based differences between the sexes" (Steffensmeier and Herbert, 1999, p. 1165). Given the specificities of the French judiciary, this approach should be quite relevant. The method for recruiting judges in France should contribute to homogenizing the way they judge, regardless of their gender or other attributes. First, all the French judges are trained within the National School for the Judiciary and therefore receive the same training. Further, as those entering ENM are mainly young graduate students with no professional or life experiences, they are malleable and easily acquire similar reflexes and ways of thinking (Boigeol, 2013, p. 141).

3.3. Does gender still matter in a panel of judges?

The specific characteristic of the previous theories is that they propose an individualistic approach to the issue of the judge's gender. However, judges do not decide on their own and their decisions may be influenced by institutional dimensions: their professional group, the court in which they work, the panel of judges of which they are members if they work in a Court of Appeal... Consequently, the question arises of whether these institutional dimensions may affect the individual mechanisms of gender in judicial decision making, as described previously. In our case, the issue we have to address is how the judge's gender comes into play when judges have to decide in a panel.

In the literature, we find different theoretical frameworks to understand how the gender composition of a panel of judges can affect the decisions made by that panel. The first is to adopt the distinction made by Boyd et al. (2010) between two questions: whether and in what ways male and female judges decide cases differently (individual effect) and whether and in what ways serving with a female judge causes males to behave differently (panel effect). Using the four individualistic approaches described previously (*different voice, informational, representational, organizational*), these authors explain that only the *informational* approach would make it possible to observe a panel effect, as defined by them, and only on issues on which female judges may possess valuable expertise, experience, or information. As far as we are concerned, we choose to use these four approaches differently in order to identify several expected effects concerning the correlation between the gender composition of the panel and the amount of child support ordered by the panel. Under the

different voice approach, the collective panel's decision should be determined by the gender majority on the panel. Differences should therefore be observed between female dominated panels and male majority panels. According to the *representational* approach, these differences in decision-making between these two categories of panels should only be observed when the child support creditor is a woman. Next, according to the *informational* approach, a difference should be observed only between the decisions made by all-male panels and those made by other panels, regardless of the gender of the creditor. Finally, according to the *organizational* approach, the decision taken by a panel should be independent of its gendered composition.

Other theories, which are not specifically related to gender issues but rather to the expression of individual opinions in collective decision-making, can also provide an interesting explanation of how groups make decisions. If these opinions can be at least partially gender-related, it is possible that the gendered composition of a group or panel (e.g. of judges) can influence the way collective decisions are made.

According to *critical mass theory*, changes in the conventions shared by a majority of the population are observed when the minority reaches a certain critical "mass". For instance, when women make up only a small percentage of an organization's membership, they may feel that they must act in accordance with the organization's norms. Assuming that organizations are often male dominated, the higher the number of women in the organization, the more acceptable it will be for women to deviate from the male norms of the institution. Applied to our question, whatever the reasons for gender differences, they should be apparent if the number of women judges in a court or in the legal system reaches a certain threshold (Scheurer, 2014). In a highly feminized legal system, such as in France (see section 2), critical mass theory suggests that gender differences must be clearly observed at the macro level since the critical threshold was reached a long time ago. Applying this theory to our question implies doing so at a micro level, i.e., at the panel level. The question becomes whether the observed decisions are different according to the gender composition of the panel. More specifically, in a largely feminized judicial system like in France, the question is about the minimum number of male judges needed in a panel to observe differences: is it necessary to have at least one man, or at least two men in a panel of three judges, to observe a difference in judgment compared to a panel of three men?

The theory of *polarization* (Sunstein, 1999, 2000; Schkade et al. 1999) may also be useful in understanding the extent to which the gender composition of a panel of judges can have an impact on the decision made by this panel. Once more, this theory is not directly related to gender, except if we consider that specific opinions may be directly related to it. According to this theory, in a deliberation, members of a group (including panels of judges cited by Sunstein) opt for a decision

that is more extreme than individual decisions. Polarization would be explained by the combination of two elements that tend to reinforce individual positions at the collective level: reputational (willingness to behave in accordance with the group's assumed expectations) and informational (exchanges of arguments becoming stronger the more homogeneous the group is). Thus, in a panel of judges, after listening to the other members, each individual would adjust his or her speech to align with the dominant position, in order to conform to the opinion expected by his or her peers (reputation). Moreover, an individual's position on a given issue depends on the arguments put forward and how convincing they are. If the group is homogeneous, the arguments presented tend to be stronger (information). These two effects are all the stronger the more the members of the group perceive themselves as similar and trust each other. Applied to a panel of judges, and assuming that gender can influence individual opinions (especially in family cases as explained before), polarization theory may suggest that child support decisions can be a function of the gendered composition of the panel.

4. Descriptive data and statistics

4.1. The data

The data used in this article come from the French Courts of Appeal. There are 36 Courts of Appeal in France. All their decisions since 2006 have been recorded in the JURICA database by the *Cour de cassation*, which is the highest French court in private law matters. We used key words ("child support", "children", "family judge", "income") to find in JURICA the cases involving the determination of a child support amount (20,757 decisions). From this set of cases, we randomly selected 1,999 cases (involving 3,605 individual – children – decisions), while respecting the structure of cases by Courts of Appeal at the national level.⁷

4.2. Descriptive statistics

4.2.1. Characteristics of the cases

In our sample, 79% of the children are minors, 52% are boys, a quarter live in a one-child family (42% come from a family with two children and 24% from a family with three children). In two thirds of cases the judicial decision sets "classical" custody (every other weekend and half of the holidays with one of the parents, i.e. about 25% of the time) and "reduced" custody in less than

⁷ Six of the 36 Courts of Appeal are located in the French Overseas Territories. Four of these six Courts of Appeal are not represented in our database (Cayenne, Fort de France, Nouméa, Papeete). This exclusion does not constitute a significant limitation because these courts deal with few cases compared to other courts in metropolitan France.

one in four cases.⁸ Usually the mother of the child has primary residence (89%), implying that creditors of child support payments are mainly women. For 55% of the 3,605 children, the father has appealed and in more than nine cases out of ten the latter is the debtor of the child support payments. When the mother appeals (45%), she is a creditor in more than 80% of cases. The grounds for appeal are almost always the determination of child support (97%). In a little more than two out of five cases, this is combined with an appeal on the grounds of residence. On average, debtor parents have higher incomes than creditor parents (€2,240 per month *versus* €1,158).⁹ Decisions on appeal often involve children whose parents have modest incomes: nearly 60% of children have at least one parent receiving legal aid. When the parties' proposals are explicitly expressed in monetary terms,¹⁰ the average demand for child support per child is 2.7 times higher than the average offer (€257 *versus* €94). For 11% of children, the parents agree on equal amounts of child support,¹¹ so they go to the judge only to have this agreement validated. On average, the decision of the judges on appeal leads to lower per capita child support amounts than those decided at first instance (€171 *versus* €183). In one out of two cases, the amount of child support fixed at first instance is confirmed by the Court of Appeal, is increased in 23% of cases and is reduced in 27% of cases.¹²

⁸ In France, three cases are usually distinguished: shared residential custody (equal amount of time in each parent's home), "classical" custody (the child spends about three-quarters of his or her time with one of the parents), and "reduced" custody (the child spends more than three-quarters of his or her time, or all of it, with one of the parents). In addition, there is the particular case of adult children, for whom no housing arrangements are decided upon.

⁹Information on parents' incomes is derived from the parties' declarations to the judge. For 13% of children, the debtor's income is not known; for 10% of children, the creditor's income is not known.

¹⁰ For 9% of children the offer is unknown and for 9% of children the demand is unknown. In these cases, it is simply known that the opposing party's offer is contested, but no amount is indicated.

¹¹ For 6% of children, the parents agree that no child support should be paid.

¹² When the appellant is the creditor, child support is maintained in 48% of cases, increased in 42% of cases and decreased in 10% of cases. When the appellant is the debtor, child support is maintained in 52% of cases, increased in 10% of cases and decreased in 38% of cases.

Table 1: Descriptive statistics (at child level)

<i>Judgment</i>	
Child support per child fixed on appeal (average, in €)	171
Type of residence:	
- shared	4.2%
- classical	64.7%
- reduced	12.0%
- age of the child > 17 years old	19.1%
<i>Characteristics of the cases</i>	
Child support per child at first instance (average, in €)	183
Family mediation at first instance	3.7%
The mother is creditor	88.9%
Reasons for the appeal:	
- child support only	54.2%
- residence only	3.2%
- both	42.6%
Average debtor supply (in €)	94
Average creditor demand (in €)	256
The parents agree on the amount of child support	11%
Debtor's income per month (average, in €)	2240
Creditor's Income per month (average, in €)	1158
Uncertainty of the judge on the debtor's income	18.2%
Uncertainty of the judge about the creditor's income	7.7%
Legal aid:	
- only for the debtor	10.1%
- only for the creditor	28.1%
- for both parents	21.3%

Source: Database on appeal decisions in separations with children, extracted from the JURICA database. N= 3605 children.

4.2.2. Characteristics of Courts of Appeal and Panels of Judges

Given the disparity in population density between regions, the different Courts of Appeal do not handle the same number of cases. At the time of the survey, more than a quarter of national family litigation was handled by three Courts of Appeal (Appendix 1).

In our sample, the number of judges involved in separation litigation during the period 2006-2010 varies from 1 to 5 depending on the Courts of Appeal (3 for the Court of Appeal of Poitiers *versus* 17 in the Court of Appeal of Lyon). This number is not necessarily correlated to the volume of activity of the Court of Appeal (e.g. 11 judges for the Court of Appeal of Basse Terre which represents 1% of judgments against 12 judges for the Court of Appeal of Paris which represents 10% of judgments). The fact that “small” Courts of Appeal have a large number of judges assigned to separation litigation during the period could result from a high turnover rate of judges assigned to this type of court of appeal and/or high mobility of judges between chambers due to their small number. Indeed, in small Courts of Appeal, judges are not assigned to a particular chamber (civil chamber, social chamber or commercial chamber) but to several chambers. Conversely, in large Courts of Appeal, it is possible to assign a full-time judge to a particular chamber.

Table 2 shows the number of cases handled per Court of Appeal, the number of panels per Court of Appeal,¹³ the number of panels per Court of Appeal that handled a single case and the number of panels most involved (i.e. they addressed half, two-thirds or 80% of the cases of the Court of Appeal concerned). Thus, the number of cases before a Court of Appeal is at least 11 and at most 195. On average, each Court of Appeal has handled 62.5 cases, with half of them judging 47 or fewer. The number of panels per Court of Appeal varies from 1 to 15, given that on average a Court of Appeal has 6.13 panels, and half have 5 or fewer. A maximum of 6 panels judged a single case. Half of the Courts of Appeal have 3 or fewer panels that handled 80% of the cases. Finally, among the 135 panels in the sample, 32 are composed of three women, 62 of two women and one man, 32 of one woman and three men and 9 of three men.

Table 2: Descriptive statistics on the activity of Courts of Appeal

Variable (by Court of Appeal)	Minimum	Maximum	Median	Average
Number of cases	11	195	47	62.5
Number of judges	3	17	6	7
Number of female judges	1	13	3.5	4.1
Female judges in the court (in %)	1	91	60	54
Number of panels	1	15	5 ^(*)	6.13
Number of panels that handled a single case	0	6	1	1.53
Number of panels that handled 80% of cases	1	6	3	2.94
Number of panels that handled 2/3 of the cases	1	5	2	2.28
Number of panels that handled 1/2 of the cases	1	3	2	1.66

Source: Database on appeal decisions in separations with children, extracted from the JURICA database. N= 135 panels.

(*) Notes: 50% of the Courts of Appeal have mobilized at least 5 different panels to deal with separation litigation during the survey period

Concerning the gender distribution of judges, we observe that within the courts, women represent a little more than half of the judges involved in the handling of separation litigation (see Table 2).¹⁴ In addition, in the panels in our sample, about a quarter of cases are handled by a panel of three women and almost 43% by a panel of two women (see Table 3). Thus, nearly 70% of cases are judged by a predominantly or exclusively female panel. In addition, 6% of cases are judged by an all-male panel and one-quarter by a predominantly male panel.

Finally, with regard to gender composition by status of judges who are members of a panel, it can be observed that the presidents of the panels are mainly men (54% of cases), but the rapporteur is a woman in 58% of cases against 34% for men, while in 8% of cases the gender of the rapporteur is unknown. In our sample, in 30% of cases, the president is also the rapporteur.

¹³ A panel is considered to be different from another if at least one of its members is different, regardless of its status in the panel.

¹⁴ This rate is very close to that observed at the same time in the Courts of Appeal, all disputes combined. Indeed, in 2014, 58% of judges in the Courts of Appeal were women (source: *Références statistiques Justice*, 2014).

Table 3: Gender and status in judicial panels

	President		Rapporteur			Total
	Man	Woman	Man	Woman	Unknown	
3 men	6%	0%	6%	0%	0%	6%
3 women	0%	26%	0%	25,5%	0%	26%
1 woman and 2 men	21% ^(*)	4%	16%	8%	2%	25%
2 women and 1 man	27%	16%	12%	24,5%	9%	43%
<i>Total</i>	<i>54%</i>	<i>46%</i>	<i>34%</i>	<i>58%</i>	<i>8%</i>	<i>100%</i>

Source: Database on appeal decisions in separations with children, extracted from the JURICA database. N= 1,999 cases.

(*) Notes: 21% of the cases were handled by a panel composed of a woman and two men and where the president was a man.

4.2.3. Child support amounts according to the gender composition of the panel

The descriptive analysis of child support amounts set by appellate judges leads to two results (Table 4). First, panels composed of three women set higher pension amounts than those set by panels composed exclusively of men or mixed panels. Secondly, the amounts offered are higher when the creditor is a woman than when it is a man, regardless of the gender composition of the panel.

Table 4: Average amounts of child support per child (in €), by gender composition of the panel and by gender of the creditor.

Panel composed of three men or mixed	156***
Panel composed of three women	212
Panel composed of three men or mixed and the mother is a creditor	167***
Panel composed of three women and the mother is a creditor	234
Panel composed of three men or mixed and the father is a creditor	56***
Panel composed of three women and the father is a creditor	86

Source: Database on appeal decisions in separations with children, extracted from the JURICA database. N = 3,587 children for whom the amount of child support set by the panel is known.

***: Significant difference at the 0.1% threshold.

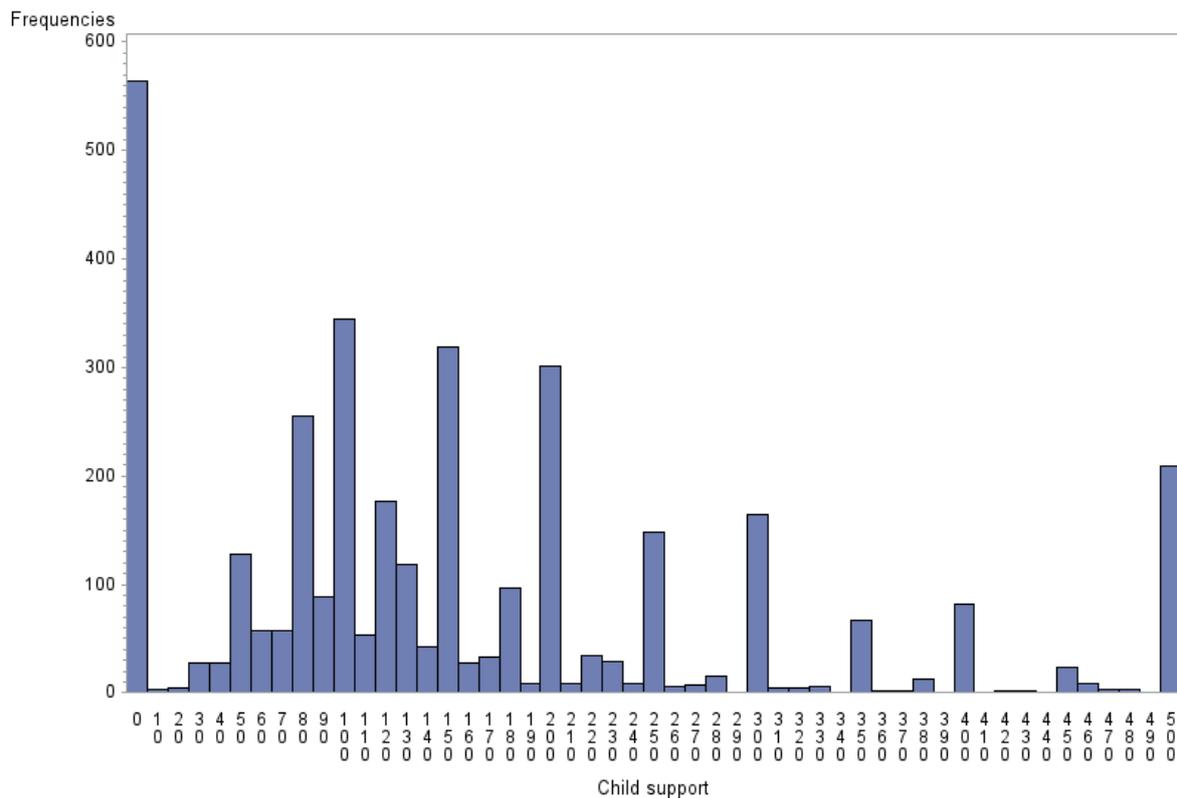
5. Methodology

To estimate the effect of the gender composition of the panel on the child support amount we use a two-part model in order to take into account the sequential aspect of the panel's decision. We first present our empirical strategy and then the control variables.

5.1. Empirical strategy

The amounts of child support fixed are positive in 84% of cases, with a peak (16%) corresponding to the zero value (Graph 1).

Graph 1. Distribution of child support monthly amounts fixed on appeal



Source: Database on appeal decisions in separations with children, extracted from the JURICA database. N= 3587.

The econometric specification chosen to best represent the distribution of these amounts, characterized by a significant fraction of null values, is guided by our assumption about the model for judicial decisions in the determination of child support. More specifically, we consider there are two sequential decision-making processes: the determination of cash child support (“whether or not”) and the determination of the child support amount (“how much”). First, the panel of judges assesses whether or not a positive child support award can be determined in the light of the characteristics of the case. Indeed, even if the law provides that the non-custodial parent must contribute to his or her child support and education costs, the judges may decide to set a null amount. This may be the case if the parents agree on a zero amount (for example, in the case of a shared residence) or if the debtor has a very low income. During the survey period, the eligibility rules relating to the family support allowance (*Allocation de Soutien Familial* = ASF)¹⁵ may have led some judges to set a null child support amount. Indeed, a zero child support amount could allow the creditor to claim the maximum amount of the ASF (€85 per month at the time of the investigation) while in the event of a positive amount less than this, the creditor was not eligible for the ASF. In other words, judges of the panel first consider whether or not to set a child support amount. At this stage, they can then take into account the first instance decision, the parents’

¹⁵ The *Allocation de Soutien Familial* is given to persons who raise a child deprived of one of her/his parents.

agreement to a zero amount, the debtor's low income, and the risk of the creditor losing the benefit of the ASF.

Once the decision to set a positive amount has been taken, they decide on its amount by integrating some of the above information as well as the type of residence, the number of siblings, the re-partnering of the creditor, etc. Based on this assumption of a sequential decision, we have chosen to use a two-part model.¹⁶

This model assumes that the panel of judges makes two successive decisions, each of which can be determined by a set of different explanatory variables: (i) a null or a non-zero amount of child support and then (ii) the amount. A specific latent variable is identified for each of these steps, with a logit model to determine whether the panel of judges decides to set a non-zero child support amount and with a linear regression to explain the logarithm of the child support amount only for the cases where support is non-zero.

The structure of our two-part model is the following:

- (1) $N_i^* = X1_i\gamma + \eta_i$ (equation for determining a **Non-zero** child support)
- (2) $\text{Ln}(CS_i^*) = X2_i\beta + \varepsilon_i$ (**Child Support** amount equation)
- (3) $N_i = 1$ if $N_i^* > 0$ and $N_i = 0$ otherwise
- (4) $CS_i = CS_i^*$ if $N_i^* > 0$ and, otherwise, $CS_i^* > 0$ and $CS_i = 0$
- (5) $\text{Ln}(CS_i) = X2_i\beta + \varepsilon_i$ if $N_i^* > 0$ and $CS_i^* > 0$

where N_i^* is the latent variable describing the panel's decision to set Non-zero support, CS_i^* is the latent variable describing the panel's decision on the amount of child support, CS_i is the observed dependent variable (amount of child support set by the judges on appeal), $X1_i$ a vector of variables explaining the first decision, $X2_i$ a vector of variables, which may be different from $X1_i$ in whole or in part, explaining the second decision, and η_i and ε_i the error terms assumed to follow a normal distributions.

In addition to the specificity of the distribution of the values of the explained variable, the data used also present other specificities requiring particular attention. The structure of our data is relatively complex. The level of analysis is that of the child for whom child support has been fixed, given that some of these children may be related to other children if they have siblings for whom child support has also been fixed. In addition, decisions relating to different cases but dealt with

¹⁶ In order to check for the absence of selection bias we estimated a classical two-step selection model (Heckit). Provided that the regression coefficient of the lambda variable (inverse of Mills' ratio) in the linear regression (second step) proved to be non-significant (see Appendix 2), we are able to use a two-part model; and, while a Probit is necessary in selection models (to generate the inverse of Mills's ratio i.e the lambda variable added to the OLS), we can turn, in our two-part model, to a Logit because its odds ratios allow effects' interpretations which do not depend on the values of the control variables. In addition, a two-part model offers a sample size advantage over the selection model: it keeps as "observations used" 166 cases more for the binary model and 82 more for the OLS.

by the same panels may not be independent. Finally, decisions taken by different panels may potentially be linked to each other as long as they are under the jurisdiction of the same court of appeal. In other words, our data present a risk of non-independence of observations.

To address the strong lack of independence of decisions concerning children of the same family, we have chosen to select one child per case by drawing them at random. More specifically, the analyses were not conducted on 3,605 observations (children) but on the basis of 1,999 children (one per case).

To deal with potential higher-level non-independencies (Court of Appeal), multi-level models were used (with cases as the lower level and courts as the upper level).¹⁷ Estimated on the basis of only one child per case, these models showed that more than 95% of the variance in child support amounts was at the case level, with the Court of Appeal level explaining just over 4% of this variance. These estimates therefore suggest that higher-level non-independence remains marginal. However, in our final model we introduced a set of Court dummies to capture the possible fixed effect.

Finally, the question arises of the level at which the variable of interest, namely the gender composition of the panel, should be measured. Decisions are made by panels composed of three judges, each assigned to a particular function (president, rapporteur and deputy judge). One way to overcome this difficulty could be to assume that there is a combined effect between gender and function (for example, one might think that the gender effect would only be observable for key positions such as president or rapporteur). We thus created 13 variables crossing the genders and functions of the three judges who are members of the panel, each of which can be candidates for the status of variable of interest. The statistical analysis leads us to conclude that this interaction effect is not significant, which led us to favor the gender composition of the panel, regardless of the positions held.¹⁸

Once the choice of the variable of interest has been made, a potential identification problem remains to be solved. More specifically, we need to ensure that we do not misleadingly attribute an effect to the gender composition of the panel, which would in fact cover the impact of other factors because of their correlation with it. This risk may have two origins. The first is due to the existence of unobserved heterogeneity, which is linked to the omission from our models of factors correlated

¹⁷ The use of the multi-level methodology has made it possible to provide some answers to the question of the non-independence of observations. However, it should be noted that all Courts of Appeal are represented in the sample, and not randomly selected as the multi-level methodology recommends. Moreover, the variable of interest is not observed at the Court of Appeal level but at the panel level (another level, not hierarchically nested within the courts). Therefore, the multi-level analysis of taking the Court of Appeal as the higher level remains an unsatisfactory estimate.

¹⁸ The statistical analyses related to this issue are available from the authors on request.

with the gender composition of the panel but not observed in our data. In a classical way, one could refer here to other individual characteristics of judges (ideological preference, age, seniority in office, marital status, number of children, etc.). The correlation between the gender of the judge and her other characteristics may be relevant when the decision of a single judge is under study. However, this type of correlation is less trivial when the variable of interest is the gender structure of a panel. At all events, unfortunately, our database does not contain any individual information on judges other than gender, so we cannot formally rule out whether or not bias due to omitted variables exists in our sample.¹⁹

The second misleading source would be a non-random assignment of cases to the panel of judges, which could have the effect of assigning cases not completely randomly according to the gender composition of the panels. In French courts, the assignment of cases between judges does not result from a random distribution, because the rules on the distribution of cases are less formal than in other civil law countries such as Germany, Spain, Portugal or Italy (Jeuland, 2008). In these countries, the distribution of cases is subject to a constitutional rule and is not left to the discretion of the president of the court.²⁰ In France the distribution of cases is a simple matter of work organization; it is managed by the president of the court, thereby leaving room in theory for discretionary, or even arbitrary decisions. However, there is a judicial code that imposes upon the courts a yearly rotation order, which is decided by the president of the court after consulting the general assembly of judges. This order assigns a jurisdictional activity to the judges, who cannot be relieved of one of their jurisdictional activities without a prior modification of the rotation order. According to court surveys, cases are distributed among judges according to criteria such as the order of arrival of the case, the alphabetical order of the geographical origin of the case or the names of the parties. At the Paris Court of Appeal, for example, the rollover order specifies the area of specialization of the chambers and the Registrar assigns cases to the competent chambers on the basis of a case nomenclature (Jeuland, 2008). This nomenclature is developed nationally and in a very detailed way, leaving little room for interpretation. Where several chambers have identical competences, the Registrar will assign cases to each one on an alternate basis in such a way that they have the same number of cases. In our case (child support amount), the judicial and economic

¹⁹ A second source of unobserved heterogeneity specific to our data may exist: it would come from a lack of random assignment of judges to panels by the heads of jurisdiction (Chilton and Levy, 2015). In this case judges of the same panel may be linked by an unobserved factor that could impact their collective decision. The lack of access to the exhaustive nominal list of judges serving in the French courts of appeal at the time of the survey over the period covered by the database does not allow us to test the hypothesis of a lack of random assignment of judges to panels. It must be noticed that, given the type of decisions we study (i.e. the setting of child support, an area with no political stakes for the courts, and with no reputational or career stakes for the judges), there is little reason to believe that presidents of court have a particular interest in assigning judges to panels in a non-random manner.

²⁰ In Germany, each judge (or panel) is responsible for cases according to an alphabetical criterion with the name of the plaintiff (e.g. Judge A is assigned cases from F to H for example).

stakes are in any case quite limited, leaving little room for strategic allocation of cases to certain panels. Consequently, the risks of arbitrary assignment of cases between panels of judges remain a priori marginal. Ultimately, there is little reason to believe that the few cases allocated on a discretionary basis by the president of the court would be allocated according to the criterion of the gender composition of the panel. In order to test for this assumption we performed a multinomial Logit regression with the type of panel (by gender and status composition) as the categorical dependent variable and a selection of five categorical characteristics related to cases as covariates. Few regression coefficients are so highly significant that they might cast serious doubts about the hypothesized random assignment of cases; specifically, cases do not appear as being allocated as a function of the panels' gender composition.²¹

5.2. Control variables

The explanatory variables of the *Logit* model are those identified in the previous paragraph (4.1): a zero child support amount has already been set at first instance, the parents propose a zero amount, the debtor receives legal aid, and the amount offered by the debtor is less than the amount of the ASF (i.e. €85 per month).

With regard to the linear regression, different categories of control variables must be taken into account. First, in the French judicial procedure, judges are obliged to consider the proposals expressed by both parties. In the econometric specification, we have chosen to use the average between the offer and the demand of both parents, with a third-degree polynomial specification to consider a possible non-linearity. We have also identified cases where the proposals are different for children from the same family as this could have an impact on the estimated amount awarded. We believe that in these cases, the judges of the panel are likely to make their decision differently, studying the situation of each child and not the family as a whole.

Second, in appeal proceedings, it is very likely that appellate judges will also consider the amount of child support fixed by the judge of first instance, because it may have an anchoring effect on the amount fixed on appeal. This information is included in the model.

Finally, since the principle of child support is based on the cost of the child and a fair sharing of this cost between the two parents, we also use in our specification the main arguments usually put forward to determine this cost and its equitable distribution: the income of each of the two parents,

²¹ The same conclusion can be drawn from an analysis no longer carried out at the level of the full sample, but court of appeal by court (limited to courts – and panels within these courts – for which we have a sufficient number of cases). The dependent variable is categorical, and its values are the various panels to which cases are allocated in that court, without distinction of gender composition.

the age of the child, the number of siblings, the distribution of the duration of accommodation with each parent, the geographical distance between the two parental homes and the possible existence of exceptional expenses relating to the child. Some specific elements of the case may also influence the decision-making behavior of judges and have therefore been retained: the doubts as to the veracity of the declarations of a particular parent in terms of income, the fact that one or both parents benefit from legal aid, the fact that the couple participated in family mediation at first instance and/or on appeal, whether or not there is an agreement between the parents on the level of child support and/or on the child's accommodation, whether the appeal concerns only the child support or child support and housing arrangements, the fact that a particular parent has a new relationship, the fact that a particular parent has behaved laudably or not with regard to the children. We estimated a first model including all these control variables, but in the final version of the econometric model (Table 5) we have excluded control variables that are not relevant, i.e. whose estimated coefficient is not significant at the 10% threshold.

6. The results

The logit model (Table 5) shows that the decision of the panel of judges to set child support depends significantly on the four factors we had selected a priori. On the other hand, there is no significant relationship between the likelihood of deciding on zero child support and the gender composition of the panel of judges (no coefficient is significant at the 5% threshold). One explanation would be that this type of decision would not involve much discussion among panel members. Thus, there would be some homogeneity in the decision regardless of the gender composition of panels. Judges are likely to agree fairly easily in case of agreement between parents who do not want child support (shared custody, fair sharing of expenses, etc.). They can also decide on a consensual basis not to set child support (rather than deciding on a low amount of support that prevents access to social assistance and puts the creditor at risk of non-payment of child support, since a low amount means a low income for the debtor) if this allows a poor family to access social assistance.

A more detailed analysis, based on the odds ratio, leads to the conclusion that when the debtor receives legal aid, the odds of non-zero child support (probability of non-zero child support divided by probability of zero child support) decreases by one third. On the other hand, these odds fall much more because of the other three factors: by 94% when the debtor proposes to pay an amount of child support of less than €85/month, by 89% when the parents agree on zero child support; by 86% when the amount of child support fixed by the court of first instance was zero.

Table 5: Two-part estimation of child support amounts (log)

	First equation (Logit)			Second equation
	Coefficient	Odds ratio	Confidence interval	(OLS) Coefficient
Intercept	5.42****			4.293****
3 women panel	-0.52	0.597	0.258; 1.382	0.104
2 women panel	-0.69*	0.499	0.226; 1.106	-0.192
1 woman panel	-0.74*	0.476	0.208; 1.089	-0.003
0 woman panel	Ref.			Ref.
Child Support = 0 at first instance	-1.93****	0.145	0.095; 0.221	/
Demand = supply = 0	-2.17****	0.114	0.070; 0.186	/
Debtor receives legal aid	-0.40**	0.669	0.463; 0.966	/
Amount offered less than €85 per month	-2.78****	0.062	0.025; 0.150	/
Creditor is the mother				0.056
3 women panel * Creditor is the mother				-0.055
2 women panel * Creditor is the mother				0.190
1 woman panel * Creditor is the mother				-0.010
Amount of child support at first instance / 100				1.370****
(Supply + Demand) / 200				0.445****
(Supply + Demand) / 200, squared				-0.051****
(Supply+ Demand) / 200, cubed				0.002****
Income of the debtor / 100				0.002****
The debtor receives wealth income				0.080***
Doubt on debtor's income				0.056***
Shared custody				-0.192****
Demands are different within the siblings				0.095****
Creditor is once again living in a new relationship				-0.062***
Size of the siblings				-0.041****
Debtor does not receive legal aid while creditor does				-0.043**
Debtor receives reduced legal aid				-0.182****
Debtor receives full legal aid				-0.292****
No legal aid				Ref.
Residence and Child support as grounds of appeal				-0.032*

Source: Database on appeal decisions in separations with children, extracted from the JURICA database.

The regression includes court-level fixed effects. R²(OLS): 81.5%. ****: significant at 0.1%; ***: significant at 1%; **: significant at 5%; *: significant at 10%.

The amount of child support fixed by the panel of judges depends mainly on the financial parameters of the cases (see Table 5, last column). There are indeed positive relationships between this amount and the average value of the parties' proposals (non-linear relationship),²² the amount of the child support at first instance and the income level of the debtor parent.²³ The different combinations of legal aid (partial or full, granted to the debtor and/or creditor) show an even more negative link (with child support amount) when the debtor benefits from more legal aid. This would therefore mean that the panel of judges would be primarily concerned about the risk of insolvency of low-income debtors, setting lowered support payments.²⁴ As expected, there is a negative impact associated with shared custody arrangements, since in this case both parents are equally involved in the child's accommodation, unlike in the other situations (reference) where the child is mainly accommodated with the creditor parent. Where the grounds of appeal concern both the amount of child support and the accommodation arrangements (and not only the amount of child support), the amount fixed is, all other things being equal, lower (but the significance of the coefficient is low), which could mean that the possible arbitration between these two decisions would be unfavorable to the creditor from a child support point of view. Finally, the fact that the creditor is in a new relationship would also be unfavorable to him/her in terms of the amount of child support received, since the panel of judges may consider that the presence of a new spouse may contribute to a higher standard of living likely to indirectly benefit the child, even if, according to the law, the new partner has no obligation towards that child.

The values of the parameters estimated in the regression explaining the natural logarithm of the child support amount do not have a direct interpretation. To illustrate the impact of the gender composition of the panel of judges, considering the creditor's gender, we calculated the predicted amounts of child support (non-zero cases) for each of the categories of our variable of interest and set the control variables to their mean or mode (Table 6). In addition, we calculated, where

²² The amount of child support is increased when the creditor makes different offers for each of his or her different children. This would therefore support the hypothesis that deciding indiscriminately for all children, or deciding child by child, leads to different decisions, probably because the case by case leads to consideration of particular circumstances for a particular child. However, this is not observed when it is the paying parent who makes different offers.

²³ The positive link between the debtor's income and the amount of child support is strengthened when the debtor reports having capital income. In the database, only the existence of such income is known, not the amount, hence the use of a simple indicator because it is not possible to add these capital incomes to the total amount of income. Similarly, it is observed that judges set a slightly higher amount of child support when they point out in their judgment that they have doubts about the income declared by the debtor. Implicitly, they would therefore correct the likely under-reporting. On the other hand, doubts about the creditor's income would not affect the judges' decision.

²⁴ Conversely, they would be less sensitive to the opposite argument that a creditor receiving legal aid could argue for higher child support because of his or her limited personal income.

necessary by summing the regression coefficients, the significance of the differences in effect according to the panel categories (Table 7).

Table 6: Predicted amounts and confidence interval of child support payments (in €) according to the gender composition of the panels and the gender of the creditor

	Creditor is a woman			Creditor is a man		
	Low limit	Predicted value	High limit	Low limit	Predicted value	High limit
3 women	184	195	206	173	195	219
2 women + 1 man	174	185	197	129	145	161
1 woman + 2 men	170	183	197	150	175	203
3 men	165	185	208	138	175	223

Source: Database on appeal decisions in separations with children, extracted from the JURICA database.

Notes: predicted amounts calculated for the mean values of the control variables or, in the case of categorical variables, the mode (Court: Paris; Legal Aid: none of the parents benefits from it).

Table 7: significance (p-value) of the differences in the two-by-two effects according to the four panel categories

	Together	Creditor is a woman	Creditor is a man
3 women <i>versus</i> 0 woman	35%	35%	43%
3 women <i>versus</i> 1 woman	3,9%	4,8%	24%
3 women <i>versus</i> 2 women	0,8%	4,7%	0,01%
1 woman <i>versus</i> 2 women	92%	68%	3%
1 woman <i>versus</i> 0 woman	74%	79%	98%
0 woman <i>versus</i> 2 women	71%	97%	14%

Source: Database on appeal decisions in separations with children, extracted from the JURICA database. Percentages in bold: significant effects at the 5% threshold.

It appears (Table 7, first column) that panels of three women make significantly different child support decisions from those of mixed panels. Specifically, three-woman panels are significantly more generous (Table 6) than mixed ones; this is, in our view, the main result of our work. Since the decisions of three-man panels are not significantly different from those of three-woman panels, it would be tempting to contrast gender-homogeneous panels with mixed-gender panels. However, while three-man panels, like three-woman panels, are more generous than mixed gender panels, it must be acknowledged that the differences are not statistically significant. We must therefore conclude that only the difference between panels of three women and the other three panels is proved.

Are these behavioral differences influenced by the gender of the child support recipient? Table 7 (column 2) shows that the opposition between a mixed panel and a three-woman panel is again observed when the child support recipient is the mother. In the rarer cases where the creditor is the father (Table 7, column 3), the specificity of the decisions made by panels of three women is

less salient since it is only expressed in relation to the panels with two women.²⁵ On the other hand, tests of significance show that for three out of four types of panels, all other things being equal, child support amounts are not significantly different whether the recipient is the mother or the father.²⁶ This is our second main conclusion: the decisions of panels of judges are independent of the creditor's gender, except in one case. The behavior of two-woman panels constitutes this exception, as their decisions are very unfavorable to male creditors (whereas for female creditors, they do not differ from the decisions of one- or zero-woman panels).

7. Discussion

Possible explanations can be sought in the theoretical literature. The following table shows, for each of the above-mentioned theories, the expected effects in terms of significant differences in child support amounts between the different gender panel compositions (in bold, those observed).

Table 8: Theoretical expected effects at the panel level

Theory	Expected effect at the panel level
<i>Different voice</i>	WWW and WWM \neq WMM and MMM
<i>Representational approach</i>	WWW and WWM \neq WMM and MMM according to the gender of the creditor
<i>Informational approach</i>	MMM \neq WWW, WWM and WMM
<i>Organizational approach</i>	No difference
<i>Critical mass theory</i>	MMM \neq WWW and WMM \neq WWW if at least two men are needed or MMM \neq WWW and WMM \neq WWW and WWM \neq WWW if one man is enough
<i>Theory of polarization</i>	WWW \neq WWM and WWW \neq WMM MMM \neq WWM and MMM \neq WMM WWW \neq MMM or WWW = MMM (W and M can have the same extreme position but based on different arguments)

Note: WWW = 3 women; WWM = 2 women + 1 man; WMM = 1 woman + 2 men; MMM = 3 men

Our empirical results tend to invalidate the organizational approach, which might have seemed the most appropriate for the French judiciary (codified legal system, identical education). Indeed, we observe differences according to the gender composition of the panel since all-female panels are more generous than others; moreover, predominantly female panels behave differently from others when the beneficiary of the child support is a man. Neither the different voice approach nor the

²⁵ The amount of child support estimated for a one-woman panel is again lower than that estimated for a three-woman panel, but the difference is no longer significant.

²⁶ Panels of three women (p-value: 99%), two women (p-value: 0.1%), one woman (p-value: 52%), zero women (p-value: 64%).

representational approach seems to be able to explain our results either, since we do not observe that all-female panels set different amounts to all-male panels, even when the beneficiary's gender is taken into account. Nor does the informational approach seem to have any explanatory power with respect to our results, since panels with at least one female judge do not differ from all-male panels.

Only two theories lead to predictions that are potentially compatible with our theoretical results. Given that in French Courts of Appeal, male judges are in the minority (40%), our results seem partially compatible with the critical mass theory, since one male judge on the panel is sufficient to result in significantly lower child support amounts than those awarded by an all-female panel. Polarization theory may also shed some light on the issue, as our results tend to show that non-mixed panels behave differently from mixed panels. In fact, all-female panels are clearly different from mixed panels: they award higher amounts of child support regardless of the creditor's gender.²⁷ In particular, this theory could help explain why all-female panels tend to make more extreme decisions than other panels: women when they are in all-female panels set higher amounts than they would if they decided on their own. It could also explain why mixed (heterogeneous) panels decide on lower amounts: on the one hand, individual positions are not pushed to the extreme by the group effect and on the other hand, the presence of male judges could bring different arguments into the discussion (informational argument). Another explanation is based on the reputational dimension in the sense that women judges, in the presence of men, may be more tempted to conform to the expectations of the profession (especially to obtain a promotion, since men, even in a minority, are more represented in senior judicial positions) and therefore do not dare to propose higher amounts when they sit with their male counterparts. The argument that women judges would set higher amounts individually is further reinforced by an earlier study on the setting of child support amounts at first instance and thus by a single judge (Bourreau-Dubois et al., 2012). The individual opinions of female judges thus appear to differ from those of men, but women express this difference only in all-female panels.

8. Conclusion

In this article, we examine whether and to what extent the gender composition of a panel of three judges may have an impact on the decision of the panel in a civil law system, characterized by a large representation of females among judges. From a database of 2000 decisions from French

²⁷ On the other hand, polarization does not seem to be observed for all-male panels, which do not differ significantly from all-female panels in terms of amounts but nevertheless have more dispersed decisions so that these male-only panels may seem less homogeneous than their female counterparts.

Courts of Appeal, we show that gender composition has a significant effect on the amounts of child support. More specifically, our results show that panels composed of three female judges set higher child support amounts than mixed panels, regardless of the gender of the creditor. In addition, the diminishing effect of the panel's gender mix is particularly pronounced when the creditor is a man and the mixed panel includes two women. The explanations traditionally put forward to account for gender differences are of little relevance in understanding the above results. On the other hand, collective decision theories, such as polarization theories, provide an interesting interpretation as to why all-female panels would set higher amounts than mixed panels.

The fact that the gender composition of a panel has a significant impact on child support amounts raises an issue in terms of horizontal equity, as similar cases result in different levels of child support depending on whether they are set by all-female panels. In addition to this problem of fair treatment between cases, there are also problems of fairness according to creditor. It appears that when a panel is composed of two women and a man, the amounts of child support can differ significantly depending on whether the creditor is a man or a woman. However, our results raise other questions in terms of effectiveness, with higher stakes in terms of public policy. The amounts set by panels remain relatively small in relation to the cost of the child. The decisions studied in this article set amounts of child support, which correspond to the debtor parent's cash contribution to the cost of the child. In the interests of the child, judges must therefore ensure that the amounts sentenced against debtors properly cover the needs of the child. According to the ONPES report (2014), cited in a report of the Haut Conseil de la Famille (2015), the cost of a child living in a single-parent family varies between €650 and €750 per month for a child under 14 years of age, and between €750 and €850 per month for a child over 14. Although this cost is supposed to be shared between both parents in proportion to their respective resources, our results suggest that the amounts of child support fixed by the various panels, both mixed and single-gender, are low. Indeed, in our study, which covers the period 2006-2010, the average amount of child support fixed is €178, which corresponds to only a very small fraction of the cost of the child²⁸.

In 2010, France adopted an advisory child support guideline. One can hope that the general use of this guideline by the French judges has contributed to partially resolving the problem of horizontal inequity between families and between creditor parents that seems to be caused by the mixed composition of judges' panels. However, it is less certain that it will address the problem of low child support amounts. According to the study carried out by Belmokhtar (2014), the amount of

²⁸ In our sample, on the assumption that all children live in a single-parent family and taking into account their type of accommodation, their age, the number of siblings and the respective incomes of both parents, we estimated that the median value of child support in good adequacy with the cost of the child (calculated with the usual consumption units) should be 244€.

child support fixed at first instance was €170 in 2012, two years after the publication of the French child support guideline.

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Appendix 1:

APPEAL COURT	Decisions per Appeal Court in our survey		Number of judges	Number of women judges	% of decisions made by a panel of three women in our survey
	Number	%			
AGEN	20	0.01	4	1	0.0
AIX-EN-PROVENCE	162	0.08	13	10	0.59
AMIENS	85	0.04	7	4	0.00
ANGERS	35	0.02	5	1	0.00
BASSE-TERRE	17	0.01	11	5	0.29
BASTIA	11	0.01	6	3	0.09
BESANCON	38	0.02	8	4	0.11
BORDEAUX	72	0.04	4	2	0.00
BOURGES	17	0.01	5	3	0.94
CAEN	54	0.03	7	1	0.00
CHAMBERY	34	0.02	6	3	0.00
COLMAR	72	0.04	9	6	0.10
DIJON	46	0.02	5	2	0.00
DOUAI	162	0.08	9	6	0.57
GRENOBLE	49	0.02	7	4	0.00
LIMOGES	22	0.01	8	5	0.50
LYON	87	0.04	17	13	0.26
METZ	57	0.03	5	3	0.0
MONTPELLIER	94	0.05	13	6	0.00
NANCY	46	0.02	5	3	0.09
NIMES	44	0.02	4	3	0.00
ORLEANS	33	0.02	8	4	0.00
PARIS	195	0.10	12	11	0.75
PAU	48	0.02	5	3	0.40
POITIERS	44	0.02	3	1	0.00
REIMS	45	0.02	6	5	0.51
RENNES	106	0.05	7	4	0.00
RIOM	38	0.02	5	2	0.00
ROUEN	57	0.03	4	2	0.00
SAINT-DENIS-DE-LA-REUNION	21	0.01	5	2	0.00
TOULOUSE	77	0.04	5	4	0.60
VERSAILLES	111	0.06	7	6	0.18
TOTAL	1999				

Appendix 2:

Table: Comparing two-part model with selection model

Comparing alternative models	<i>two-part</i> models (logit or probit + OLS)				Selection model (Heckit)	
	with a logit		with a probit		two-step estimation (probit + OLS including lambda as an additional explaining variable)	
Number of cases used by the logit or the probit	N=1762				N=1596	
Number of cases used in the linear regression equation	N=1388				N=1306	
Variables	coefficient	p-value	coefficient	p-value	coefficient	p-value
Intercept	5.4177	<.0001	2.7379	<.0001	2.675899	<.0001
3 women panel	-0.5161	0.2284	-0.2286	0.2615	-0.164953	0.4195
2 women panel	-0.6942	0.0868	-0.3370	0.0805	-0.303852	0.1150
1 woman panel	-0.7423	0.0788	-0.3560	0.0765	-0.359062	0.0748
Child Support = 0 at first instance	-1.9312	<.0001	-1.1399	<.0001	-1.209060	<.0001
Demand = supply = 0	-2.1674	<.0001	-1.2911	<.0001	-1.295892	<.0001
Debtor receives legal aid	-0.4022	0.0321	-0.2212	0.0152	-0.211362	0.0257
Amount offered less than €85 per month	-2.7836	<.0001	-1.2618	<.0001	-1.315522	<.0001
Intercept	4.29331	<.0001	<i>same results as in the two columns on the left</i>		4.313518	<.0001
3 women panel	0.10414	0.4300			0.105758	0.4138
2 women panel	-0.19237	0.1376	-0.211166	0.0945		
1 woman panel	-0.00378	0.9780	-0.032108	0.8108		
Creditor is the mother	0.05558	0.6409	0.064863	0.5773		
3 women panel * Creditor is the mother	-0.05512	0.6766	-0.076800	0.5540		
2 women panel * Creditor is the mother	0.19011	0.1421	0.181235	0.1516		
1 woman panel * Creditor is the mother	-0.00994	0.9426	0.009098	0.9465		
Amount of child support at first instance / 100	1.36981	<.0001	1.347733	<.0001		
(Supply + Demand) / 200	0.43515	<.0001	0.435079	<.0001		
(Supply + Demand) / 200, squared	-0.05074	<.0001	-0.050119	<.0001		
(Supply+ Demand) / 200, cubed	0.00170	<.0001	0.001669	<.0001		
Income of the debtor / 100	0.00204	<.0001	0.001995	<.0001		
The debtor receives wealth income	0.08025	0.0048	0.082264	0.0041		
Doubt on debtor's income	0.05647	0.0098	0.052244	0.0175		
Shared custody	-0.19180	<.0001	-0.179404	<.0001		
Demands are different within the siblings	0.09473	0.0008	0.097521	0.0005		
Creditor is once again living as a couple	-0.06248	0.0038	-0.064589	0.0032		
Size of the siblings	-0.04065	<.0001	-0.039497	<.0001		
Debtor does not receive legal aid, while creditor does	-0.04339	0.0356	-0.049956	0.0161		

Debtor receives reduced legal aid	-0.18157	<.0001		-0.172134	<.0001
Debtor receives full legal aid	-0.29221	<.0001		-0.286750	<.0001
Residence and Child support as grounds of appeal	-0.03214	0.0526		-0.027546	0.0995
AGE	0.04423	0.6588		0.011732	0.9085
AIX	-0.00454	0.9016		-0.014453	0.6950
AMI	-0.00387	0.9409		-0.005002	0.9233
ANG	-0.05870	0.4296		-0.078887	0.2814
BAS	0.14049	0.2582		0.139991	0.2479
BES	-0.14657	0.0193		-0.087788	0.1593
BOR	0.05585	0.2934		0.037603	0.4932
BOU	-0.20901	0.0245		-0.195632	0.0388
CAE	0.04570	0.5989		0.017327	0.8404
CHA	-0.00346	0.9604		-0.035245	0.6326
COL	0.00073638	0.9883		0.014284	0.7817
DIJ	-0.03016	0.6232		-0.045375	0.4582
DOU	-0.01380	0.7265		-0.027309	0.4934
GRE	0.08207	0.1577		0.086442	0.1342
LIM	0.07731	0.3222		0.068556	0.3834
LYO	0.03233	0.5112		0.033378	0.4947
MET	0.02934	0.5907		0.060650	0.2665
MON	0.00088634	0.9859		-0.021336	0.6727
NAN	0.03062	0.5941		0.032282	0.5713
NIM	-0.05796	0.3427		-0.056000	0.3503
ORL	-0.00984	0.8942		-0.012804	0.8662
PAU	0.05795	0.3011		0.085009	0.1349
POI	0.02818	0.6602		-0.007654	0.9055
REI	0.10177	0.1109		0.093353	0.1496
REN	-0.04704	0.3024		-0.050452	0.2764
RIO	0.00222	0.9733		0.006404	0.9245
ROU	-0.03868	0.5165		-0.033836	0.5700
SAI	-0.18817	0.0469		-0.218047	0.0237
TOU	-0.10294	0.0257		-0.128891	0.0059
VER	0.01467	0.7249		0.010259	0.8056
λ (lambda)	-	-		-0.013504	0.4749
_Sigma.Ln_PA_CA	-	-		0.285179	<.0001
-2LnL	766.6		1001.657	933.9 for the probit, 428.2 for the second equation	
R ² and adjusted R ² (OLS)	R ² =0.815	Adj R-Sq = 0.808	same R ² and adj. R ² as on the left		