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Judicial precedents in civil law systems: A dynamic analysis

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Abstract

This paper uses a simple dynamic model to describe the evolution of judicial decision making in civil law systems. Unlike the common law systems, civil law jurisdictions do not adopt a *stare decisis* principle in adjudication. In deciding any given legal issue, precedents serve a persuasive role. Civil law courts are expected to take past decisions into account when there is a sufficient level of consistency in case law. Generally speaking, when uniform case law develops, courts treat precedents as a source of "soft" law, taking them into account when reaching a decision. The higher the level of uniformity in past precedents, the greater the persuasive force of case law. Although civil law jurisdictions do not allow dissenting judges to attach a dissent to a majority opinion, cases that do not conform to the dominant trend serve as a signal of dissent among the judiciary. These cases influence future decisions in varying ways in different legal traditions. Judges may also be influenced by recent jurisprudential trends and fads in case law. The evolution of case law under these doctrines of precedents is modeled, considering the possibility for consolidation or corrosion of legal remedies and the permanence of unsettled case law.

JEL classification: K0; K40; K13; K41

Keywords: Judicial precedent; *Stare decisis*; *Jurisprudence constante*; Legal evolution

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The doctrines of precedent of *stare decisis*[1] and *jurisprudence constante*[2] are fundamental ingredients of the evolution of judicially created rules. Although much attention has been given to the evolution of the common law under a *stare decisis* principle (Heiner, 1986; Kornhauser, 1989; von Wangenheim, 1993), legal evolution under alternative doctrines of precedent remains an open theoretical issue. To this end, we consider how legal rules may evolve under the precedential doctrine of *jurisprudence constante* in civil law.

Current theories are unable to explain why, in spite of emphasis on legal certainty and stability, the practice of civil law systems in certain areas of the law is often characterized by instability and uncertainty. Traditional explanations focus on the lack of *stare decisis* (Mattei, 1988), different judicial cultures, political instability, and different levels of separation of powers (Merryman, 1969). This paper provides an explanation based on the dynamic process with which judicial precedents evolve.

We consider legal change under civil law doctrines of precedent, contemplating different patterns of consolidation or corrosion of legal remedies in the law. Legal rules granting rights and legal protection may evolve over time and gradually consolidate into established legal entitlements. On the contrary, legal protection may be subject to gradual corrosion and certain forms of legal protection may be abandoned.[3] Finally, legal entitlements may enjoy a mixed level of recognition and such level of mixed protection may persist over time. We focus on conditions that may determine these alternative patterns of legal evolution.

Section 1 briefly introduces the theory of legal precedent from comparative and historical perspectives. Attention is given to the modern-day product of such evolution: the doctrine of *jurisprudence constante*. Although developed in a system that emphasizes certainty and stability, we suggest that this doctrine of precedent potentially leads to quite contrary results.

Section 2 proposes a model that evaluates the impact of *jurisprudence constante* on legal evolution in different litigation contexts. It highlights the interaction between established precedents and judicial fads in shaping future case law. It also explains the possible impact of exogenous shocks in the legal system on the evolution and stability of the law.

We formulate a simple model of path dependence in the law in which the rate of legal claims brought by plaintiffs in past cases affects the future state of the law. This formulation considers a legal system that specifies a minimum level of uniformity in case law. Any set of precedents that falls below such level of consistency is regarded as "split" case law and inconclusive as a source of law. Precedents that reach or surpass the required level of consistency become a persuasive source of law, affecting decisions for future similar cases. In this way, a large fraction of affirmative precedents on a specific legal issue (e.g. cases that recognize a new type of claim or cause of action) increases the probability that similar claims will be recognized in the future and a prevalence of negative precedents reduces the

[1] The legal doctrine of *stare decisis* (literally to stand by things that have been settled) implies that courts should adhere to past legal precedent on issues of law when deciding pending cases.

[2] *Jurisprudence constante* doctrines hold that judges should only consider themselves bound to follow a consolidated trend of decisions. Judicial decisions do not become a source of law until they mature into a prevailing line of precedents (Dainow, 1974; Dennis, 1993; Lambert & Wasserman, 1929).

[3] For example, causes of action in torts have historically increased in number and scope of application under both common law and civil law systems (Fon & Parisi, 2003; Lawson, 1955; Lawson & Markesinis, 1982; Parisi, 1992). Yet in other areas of the law, such as contracts and property, the domain of legal remedies has not experienced similar expansion.

likelihood of a successful claim in future cases. In such a system, the state of the law is determined by the stock of established legal precedents and the flow of recent decisions. We elaborate on this simple framework to analyze features of legal evolution under different parameters of the problem. Most importantly, we show that the stability and change of legal precedents are affected by the institutional threshold of *jurisprudence constante* and the weights attached to established precedents and recent jurisprudential trends.

Our study concentrates on the evolution of precedent within either a unitary judicial system or a system in which precedents have an intra-jurisdictional effect, rather than an inter-jurisdictional effect across different judicial branches.[4] This analysis is thus applicable to doctrines of precedent for decisions of a multi-panel Supreme Court within a typical civil law jurisdiction, where past decisions issued by other divisions of the Court are persuasive if they are sufficiently uniform, but where departures remain possible and are often observed in the presence of exogenous shocks. The model provides a testable hypothesis to explain the varying levels of consistency in case law in civil law systems.

Section 3 concludes with a few summary considerations and suggestions for applications and future extensions.

1. '*Jurisprudence constante*' and civil law doctrines of precedent

There are substantial historical and conceptual differences between the doctrines of precedent in common law and civil law traditions. Both legal traditions regard legal precedent as the presence of a sequence of consistent decisions in similar cases over time. However, these principles operate differently in the two traditions.

The principle of precedent can first be identified at the end of the 16th century when English courts started to adhere to previous custom in matters of procedure and pleading (Berman & Reid, 1996, p. 446). However, it was not until the 17th and 18th centuries that a substantive rule of precedent developed in common law systems. In that period, courts were entrusted with the task of "finding" the law, rather than "making" the law.[5] The presence of several cases recognizing the same legal principle increased the persuasive force of judicial findings: precedents became more authoritative when they were reaffirmed by a sequence of consistent decisions over time.[6] During the late 18th and early 19th centuries, under Bentham's positivist influence, the doctrine of *stare decisis* moved from practice to principle, giving rise to the common law notion of binding authority of precedent. By the end of the 19th century the concept of formally binding rules of precedent was established (Evans, 1987, pp. 36–72). The system of precedents was no longer viewed as persuasive evidence of the law, but itself became a primary source of law (Parisi & Depoorter, 2003).

[4] Daughety and Reinganum (1999) pay special attention to the inter-jurisdictional aspect of precedents, studying the "persuasive influence" of other appeals courts' decisions on an appeals court's behavior.

[5] According to Blackstone (1764), the function of common law, which consists of the original common custom and the role of courts, was to find and declare such custom and to provide persuasive evidence of its content and existence. For further discussion, see Parisi (1992) and Parisi and Depoorter (2003).

[6] In Hale's (1713) view, "a line of judicial decisions consistently applying a legal principle or legal rule to various analogous fact situations is 'evidence' of ... the existence and the validity of such a principle or rule" (Berman & Reid, 1996, p. 448).

Most civil law systems underwent quite a different evolution, relegating case law to the rank of a secondary legal source. Codes and special legislation were recognized as the only primary source of law.[7] In 19th century Europe, the doctrine of the separation of powers was understood to imply that "[t]he role of the courts is to solve disputes that are brought before them, not to make laws or regulations" (David, 1972, pp. 180–181). This strict historical conception of separation of powers was due to general distrust of courts that were manipulated by the king before the French revolution. The ideals of certainty and completeness in the law implied that legislative provisions had to be formulated and interpreted as mathematical canons to avoid any room for discretion or arbitrary decisions in the judiciary (Parisi, 1992).[8]

However, European jurists gradually developed a healthy skepticism concerning the ideals of certainty and completeness in the codified law.[9] As memories of the abuses of pre-revolution regimes began to fade, ideological concerns over the judiciary's role were assuaged. In their own judicial practices, civil law jurisdictions gradually adhered to a system of informal precedent law, where a sequence of analogous cases acquired persuasive force as a source of law. This judicial practice emerges as a way to promote certainty, consistency, and stability in the legal system that codifications had failed to achieve, while minimizing costs to administer justice.[10]

This path of legal development gave rise to *jurisprudence constante*, the doctrine under which a court is required to take past decisions into account only if there is sufficient uniformity in previous case law.[11] No single decision binds a court and no relevance is given to split case law. Once uniform case law develops, courts treat precedents as a persuasive source of law, taking them into account when reaching a decision. The higher the level of uniformity in past precedents, the greater is the persuasive force of case law. Considerable authoritative force, therefore, stems from a consolidated trend of decisions on any given legal issue.[12]

[7] In France, the "only legitimate source of the law is the law" (Troper & Grzegorczyk, 1997, p. 107). The law consists of the statutes created by the legislature and codified in the code. The "principle [of the code being the sole source of law] was formerly established by the law of 16–24 August 1790, [and] forbid[s] the courts to make rules or interfere with legislation" (Troper & Grzegorczyk, 1997, p. 117).

[8] After the French revolution "the judicial function was conceived as a mere application of statutes, by way of syllogisms" (Troper & Grzegorczyk, 1997, p. 103). These protections "enclosed [the judgment] within a constitutional framework which is intended to prevent it from ever becoming a rule of law" (Carbonnier, 1974, pp. 95–96).

[9] A prominent European legal theorist, commenting on the notion of legal logic, cynically wrote: "I have to confess that, as time passes, my distrust for legal logic increases" (Calamandrei, 1965, p. 604). Calamandrei's distrust resurfaces in a number of recent legal analyses discussing the difficulties encountered in applying codified legal rules to an ever-changing pattern of factual circumstances (for further discussion, see Parisi, 1992).

[10] For an analysis of the precedential systems of *jurisprudence constante* in civil law and mixed jurisdictions, see Dennis (1993), Dainow (1974), and Moreno (1995). For a comparative study of the rule of precedent, including Spain, Finland, Norway, Sweden, Germany, France, and the UK, see MacCormick and Summers (1997).

[11] Indeed, as one distinguished legal writer states: "[t]he practice of the courts does not become a source of law until it is definitely fixed by the repetition of precedents which are in agreement on a single point" (Lambert & Wasserman, 1929, p. 14).

[12] Under French law, this doctrinal construction, also known as *arrêt de principe*, holds that a series of decisions, all in accord, give bearing to an established rule of law (Parisi & Depoorter, 2003).

In modern legal systems, the doctrine of *jurisprudence constante* is followed in France (Troper & Grzegorczyk, 1997), Germany (Dainow, 1974), Louisiana (Carbonnier, 1974; Dennis, 1993), and other mixed jurisdictions (MacCormick & Summers, 1997). In France, precedents that consolidate into a trend or a "persisting jurisprudence" (*jurisprudence constante*) become a source of law. There is no judicial practice of citing or expressly referring to a specific precedent, but a continuous line of precedents becomes a relevant, and often decisive, factor in judicial decision making (Troper & Grzegorczyk, 1997). "[C]ourts as well as scholars tend to recognize the existence of [a case] rule and the character of '*arrêt de principe*' of the precedent when it has been followed by a line of others" (Troper & Grzegorczyk, 1997, p. 130).

Along similar lines, Louisiana law provides that a precedent becomes a source of law when it has become "settled jurisprudence" (*jurisprudence constante*). As pointed out by Louisiana Supreme Court Justice James Dennis, when a prevailing trend of cases forms a stream of uniform and homogeneous rulings with the same reasoning, the doctrine accords the prevailing jurisprudence persuasive authority. The doctrine of *jurisprudence constante* allows future courts to take into account past jurisprudential trends and to justify reliance on such precedents in deciding future cases (Dennis, 1993). Likewise, Germany has adopted the notion that a line of decisions on a certain subject creates a sort of judicial custom. A prevailing line of precedent that has been standing for some time is referred to as "permanent adjudication" (*staendige Rechtsprechung*) (Dainow, 1974). These examples are representative of a general tendency to accord persuasive force to a dominant trend of court decisions within civilian jurisdictions.

The following section models the evolution of case law under these doctrines of precedent, considering the possibility for consolidation, corrosion, and instability of legal rules. It will become clear how different variations of civil law doctrines of precedent, in requiring different levels of consistency in past decisions, would affect the evolution of the legal system.

2. A model of legal evolution under '*jurisprudence constante*'

Law and economics scholars have formulated a variety of models to study the creation of precedents and evolution of the common law. Demand-side theories formulated by Rubin (1977), Priest (1977), Priest and Klein (1984), Cooter and Rubinfeld (1989), and Fon, Parisi, and Depoorter (2002) hypothesize that cost analysis by the litigants influences legal change over time.[13] Similar results were reached by other scholars who focused on the supply side of legal decision making. Coase (1960), Ehrlich and Posner (1974), and Posner (1994) concentrated on the role of the judiciary in shaping efficient common law rules.[14] Subsequent work by Fon and Parisi (2003) looked at the combined effects of these variables, studying the role of ideology and adverse selection in legal evolution. In their model, this

[13] As noted in Priest and Klein (1984), the set of disputes selected for litigation constitutes neither a random nor a representative sample of the set of all disputes: judges can only rule on cases they see.

[14] Among the earliest contributors to this literature, see also Landes (1971).

selection mechanism was shown to potentially affect legal rules and remedial protection in the legal system.[15]

Our model adds a dynamic view to existing supply-side models, looking at ways in which the dynamics of legal evolution may differ under civil law doctrines of precedent. Whether courts' past decisions were affected by parties' case selection or judges' preferences, past precedents affect future decisions. We thus study how the more gradual and softer impacts of precedents in civil law jurisdictions affect the evolution of the law.

We consider how the degree of consistency in past case law and the likelihood of success in litigation could induce changes in legal systems. These factors explain some of the different patterns of evolution in the levels of remedial protection and the gradual consolidation or corrosion of legal principles. In examining *jurisprudence constante* doctrines, we look at two types of legal precedents. Negative precedents – those denying recognition to a filed claim or restrictively interpreting the scope of application of an existing statute – may consolidate into a negative jurisprudential rule that eliminates legal protection with respect to the legal issue. Positive precedents – those recognizing a filed claim or expansively interpreting the scope of application of an existing statute – may consolidate into a positive jurisprudential rule that grants legal protection in such a situation.

Under *jurisprudence constante* doctrines a judge is not bound by a single decision in a single previous instance.[16] Authoritative force stems from a consolidated trend of decisions on a certain point. The practice of the courts becomes a source of law when it matures into a prevailing line of precedents. Under these doctrines of precedent, if the fraction of positive judgments (or the fraction of negative judgments) with respect to a legal issue exceeds a threshold, then recognition of such legal claims in future disputes will be facilitated (or made more difficult) by the presence of such consolidated case law.[17] This creates path dependence in the process of legal evolution, since a consolidated trend of past jurisprudential rulings affects the likelihood that such rulings will be perpetuated in future case law. We denote the threshold as π. Its value is greater than or equal to 1/2 and is institutionally determined by the legal system. In most legal systems of the world such determination of the threshold π is generally established by statutes and bylaws governing judicial bodies and occasionally covered by constitutional provisions. The choice of the value of the threshold π reflects the specific conception of separation between legislative and judicial powers and the relative weight attached to the needs for stability and flexibility in the legal system.

[15] Fon and Parisi (2003), building upon existing literature on the evolution of judicially created law, consider a model of legal evolution in which judges have varying ideologies and propensities to extend the domain of legal remedies and causes of action. The selection hypothesis advanced by Fon and Parisi differs from Priest and Klein (1984) and Hadfield (1992). Along the lines of Rubin and Bailey (1994), Fon and Parisi develop an alternative model of legal evolution which takes into account some important public choice components. However, while Rubin and Bailey focus on the role of lawyers in changing the law, Fon and Parisi consider the role of judges' ideology.

[16] For example, this is generally so in Louisiana State case law. Under the Supremacy Clause, however, Louisiana judges are sometimes bound by a single decision issued by the US Supreme Court or Court of Appeals for the 5th Circuit.

[17] For example, a threshold $\pi = 1/2$ implies that a simple majority of precedents on a given legal issue is regarded as persuasive authority, increasing the chances of success for future similar cases.

In the face of any legal claim presented in court, a *jurisprudence constante* regime can therefore evolve in three possible ways. A claim may be accepted by a sufficiently large percentage of cases, giving rise to a dominant "positive" jurisprudence. A claim may be negated by a sufficiently large percentage of cases, establishing a dominant "negative" jurisprudence. Finally, if there is insufficient consensus in courts' decisions, jurisprudence is "split" and precedents do not influence future courts' decisions.

Even in the presence of *jurisprudence constante*, minority cases play an important informational role in civil law decision making. Unlike common law systems, civil law systems generally do not allow judges to attach dissenting opinions to majority decisions. Minority cases, cases decided against a prevailing trend of decisions, thus become the main way in which judges can express views that are contrary to the prevailing jurisprudential trend. Minority cases, therefore, convey information that would otherwise remain buried under the opaque majority decision of the court.[18] Although not directly applicable as a source of law, cases that do not conform to the dominant trend serve as a signal of emerging dissent among the judiciary. Although minority cases typically lose under appeal, we allow for these cases to play a signaling role, informally influencing future decisions.

Some literature (Daughety & Reinganum, 1999; Levy, 2005; von Wangenheim, 1993) has examined judicial behavior with a microeconomic analysis of judges' incentives. In this paper, we look at the dynamic macroeconomic impact of court decisions on the evolution of legal rules, focusing on how established case law and recent jurisprudential trends exert some persuasive influence over the decision of pending cases.[19]

We now consider a model of civil litigation. Litigants face a dispute where p is the probability of success for the plaintiff. In our terminology, this corresponds to the probability that a positive judgment is rendered. At period $t-1$, let p_{t-1} be the probability for a plaintiff to see his claim recognized on grounds of law on a specific legal issue. In the next period t, we assume that the previous period probability has been realized, and becomes the fraction of cases that recognized a given category of legal claims *during the last period*. That is, at time t, p_t is the current flow of cases that recognized a given category of claims. Let L_t represent the fraction of total cases that recognized a given category of legal claims *in all past periods*. Thus, L_t is the stock (in fraction) and p_t is the flow (in fraction) of case law affirming remedies at time t.

Changes in the stock of affirmative case law in the future period depend on L_t and p_t. In particular, assume that

[18] In most civil law judicial traditions, the outcome of the case is drafted and is presented as simply inevitable. The opinion does not reveal doubts that the court may have had in reaching its decision and leaves no room for dissent (Merryman, 1969; Parisi, 1992).

[19] The influence of past cases on current court decisions may vary from system to system and may be influenced both by institutional constraints and judges' incentives. Daughety and Reinganum (1999) derive consistent decision making through a Bayesian updating; Levy (2005) considers the specific incentives of careerist judges. Posner (1994) also explicitly analyzes judges' incentives in decision making. Factors such as reputation, appointment to higher courts, and promotion, all play a role in shaping judges' preferences for consistency and/or departure from past decisions.

$$\dot{L}_t \begin{cases} < 0 & \text{if} \quad L_t > p_t \\ = 0 & \text{if} \quad L_t = p_t \\ > 0 & \text{if} \quad L_t < p_t \end{cases} . \tag{1}$$

When $L_t = p_t$, the recent cases recognizing a given category of legal claims (positive case law) are generated in the same proportion as the current stock of case law. When the fraction of flow for positive case law continues at the same rate as the fraction of current stock, there is no change in the future stock value L_{t+1}. When $L_t > p_t$, the flow falls below the current stock, decreasing the resulting fraction of positive cases in the future stock of case law. This is much like the interaction between a marginal value and an average value. When the flow p_t (the marginal) is less than the stock L_t (the average), the future fraction of positive case law (the new average) declines. Likewise, when $p_t > L_t$, the fraction of flow exceeds the fraction of stock for positive case law, and the future fraction of stock for positive case law increases.

In modeling the effect of *jurisprudence constante*, we allow judges to be influenced by both established case law (tradition) and recent jurisprudential trends and fads (fashion). Recent case law can depart from past case law in response to a variety of exogenous factors, such as changes in the regulated environment and the evolution of values in society, as well as trends generated by endogenous factors or possible changes in judges' incentives.

We assume that change in the probability of success of any given category of legal claims is affected by the fraction of similar claims that successfully received relief in court in both recent and older case law, p_t and L_t. On the contrary, we also assume that past negative cases that rejected a legal claim presented to the court are important elements for reaching decisions in future similar cases as well. In other words, judges are also influenced by negative precedents that did not grant relief to the legal claim – both the flow and the stock of cases $1 - p_t$ and $1 - L_t$.

The likelihood that a plaintiff receives a positive judgment does not directly depend on the flows of positive and negative case law p_t and $1 - p_t$. Instead, the relative impact of these flows is most important. Thus, let αp_t represent the *impact* from positive recent case law and $\beta(1 - p_t)$ represent the *impact* from negative recent case law. The *relative* impacts of positive and negative recent case law $\alpha p_t - \beta(1 - p_t)$ then directly influence the probability that the plaintiff obtains recognition of a filed claim. The force of this relative impact represents the degree of influence of recent jurisprudence. If the influence of $\alpha p_t - \beta(1 - p_t)$ on the probability of success for new decisions becomes larger (the magnitude of change is larger), it indicates a stronger judicial trend or fashion. Following this interpretation, it is convenient to refer to this relative impact variable as a judicial fashion variable F_t. That is, $F_t = \alpha p_t - \beta(1 - p_t)$.

Unlike the rather informal influence of judicial fashion F_t, the impact of past cumulative case law is a formal legal effect which does not depend simply on L_t and $1 - L_t$. Under *jurisprudence constante*, past cases do not become a source of law until they mature into a prevailing line of precedents. If the rate of positive judgments L_t (or negative judgments $1 - L_t$) with respect to a legal issue is above the institutionally determined threshold π, the recognition (or rejection) of such legal claims will be affected by the presence of legal authority. The effect of past cumulative case law thus depends on differences of L_t and $1 - L_t$ from the judicial threshold π. As in the previous case of recent case law, we postulate

that it is the relative impact of the positive and the negative cumulative case law that directly influences the probability of receiving remedies for a case. Letting $\gamma(L_t - \pi)$ and $\delta((1 - L_t) - \pi)$ represent the *impacts* of existing positive and negative case law, respectively, the *relative* impact is $\gamma(L_t - \pi) - \delta((1 - L_t) - \pi)$. This relative impact directly influences the probability of success for new cases filed. A larger influence of the relative impact of positive and negative cumulative case law $\gamma(L_t - \pi) - \delta((1 - L_t) - \pi)$ on the probability of success for future similar cases indicates that the legal system gives more deference to established jurisprudential tradition. For convenience, we refer to this relative impact of past case law as the jurisprudential tradition variable T_t. That is, $T_t = \gamma(L_t - \pi) - \delta((1 - L_t) - \pi)$.

Specifically, we assume that changes in the probability of obtaining recognition of a filed claim are a function of the judicial fashion variable and the jurisprudential tradition variable with the following property:

$$\dot{p}_t = g(\alpha p_t - \beta(1 - p_t),\ \gamma(L_t - \pi) - \delta((1 - L_t) - \pi)) = g(F_t, T_t) \tag{2}$$

where

$$\begin{cases} g(F_t, T_t) > 0 & \text{if} \quad F_t > 0 \quad \text{and} \quad T_t > 0 \\ g(F_t, T_t) < 0 & \text{if} \quad F_t < 0 \quad \text{and} \quad T_t < 0 \\ g(F_t, T_t) = 0 & \text{otherwise} \end{cases} \tag{3}$$

To understand the logic behind our model, first consider the case where positive case law dominates, $L_t \geq \pi$. Here, the number of cases that recognized a given category of legal claims substantially outweighs the number of cases that denied recognition to such claims. The dominance of positive precedents satisfies the institutional threshold π. In this situation, we postulate that the impact of positive case law is greater than the impact of negative case law $\gamma(L_t - \pi) > \delta((1 - L_t) - \pi)$, and the jurisprudential tradition variable T_t is positive. Meanwhile, we assume that a judicial fashion that develops in line with a preexisting jurisprudential tradition reinforces the rule and is given greater weight than a wave of cases that could develop against such established tradition. When cumulative positive case law dominates, recent positive cases also have a larger influence than recent negative cases, $\alpha p_t > \beta(1 - p_t)$, and the judicial fashion variable F_t is positive as well.

Thus, when $L_t \geq \pi$, the model specifies that the first branch of g is valid, that $g(F_t, T_t) > 0$, and that $\dot{p}_t > 0$. Intuitively, under a system of *jurisprudence constante* with dominant positive case law, judicial tradition acquires persuasive force as a secondary source of law. When this happens, judicial trends backed by such legal tradition give courts the additional benefit of being part of a growing fashion. Judges can at the same time be fashionable and comply with their judicial obligation by following established tradition. This would not be the case for waves of cases that go against an established tradition, as a conflict would develop between the attraction of fashion and the legal force of tradition. It is thus reasonable to expect judicial fashion to follow and reinforce judicial tradition in the case of dominant positive case law.

Consider next the other extreme case of dominant negative case law with $1 - L_t \geq \pi$. Here, the number of cases that denied recognition to a given category of legal claims substantially outweighs the number of cases that recognized such claims. The fraction of negative precedents satisfies the institutional threshold, $1 - L_t \geq \pi$. In this situation, the impact of negative

case law is greater than the impact of positive case law so that $\gamma(L_t - \pi) < \delta((1 - L_t) - \pi)$ and $T_t < 0$. Likewise, the impact from recent negative cases exceeds the impact from recent positive cases such that $\alpha p_t < \beta(1 - p_t)$ and $F_t < 0$ hold. Note that $1 - L_t \geq \pi$ is equivalent to $1 - \pi \geq L_t$. Thus, when $1 - \pi \geq L_t$, the model specifies that $g(F_t, T_t) < 0$, and that $\dot{p}_t < 0$. This is intuitive, because a negative judicial tradition, like a positive judicial tradition, can acquire force as a secondary source of law. Negative judicial trends that are consistent with such a legal tradition allow courts to be part of a fashion, without violating their obligation to follow established precedents.

Lastly, consider the case of "split" case law where neither positive case law nor negative case law is sufficiently dominant to satisfy the institutional threshold. This is equivalent to the case where both $L_t < \pi$ and $1 - \pi < L_t$ hold. That is, the split case law region is characterized by $1 - \pi < L_t < \pi$. In this region of split case law, the doctrine of *jurisprudence constante* is not applicable and courts are free to decide a case anew without being bound by past precedents. In our model, this means that the impact of negative cumulative case law versus the impact of positive cumulative case law is unknown. The absence of a dominant jurisprudential tradition further implies that courts have greater freedom to follow positive or negative jurisprudential trends. Positive and negative trends can be influential in this region, as neither conflict with established case law. Hence, when $1 - \pi < L_t < \pi$, we postulate that $g(F_t, T_t) = 0$, and that $\dot{p}_t = 0$.

To summarize our specification of the dynamic behavior of the probability p_t to obtain recognition of a new filed claim qualitatively, we have the following:

$$\dot{p}_t \begin{cases} > 0 & \text{if} \quad \pi \leq L_t \\ = 0 & \text{if} \quad 1 - \pi < L_t < \pi \\ < 0 & \text{if} \quad L_t \leq 1 - \pi \end{cases} \tag{4}$$

Now consider the dynamic behaviors of L_t and p_t with the help of the phase diagram in Fig. 1. From the dynamic Eq. (1) for L_t, if $L_t = p_t$, then $\dot{L}_t = 0$. Along the 45° line on the $L_t - p_t$ space, L_t does not change over time. When $L_t > p_t$, then $\dot{L}_t < 0$: below the 45° line L_t decreases and moves to the left over time. Likewise, when $L_t < p_t$, then $\dot{L}_t > 0$: above the 45° line L_t increases and moves to the right over time. Thus, only a point on the 45° line can become a steady state, although not all points on the 45° line are steady states.

Next consider the dynamic behavior of p_t given in Eq. (4). In the region of dominant positive case law where $L_t \geq \pi$, $\dot{p}_t$ is positive and the probability of obtaining judicial recognition of a similar claim increases. Thus, p_t moves upward and increases until it can no longer do so when it reaches 1. When this happens, p_t stabilizes. In other words, the set of potential steady states where $\dot{p}_t = 0$ is represented by the horizontal line at $p_t = 1$. In Fig. 1, this is represented by the darker portion on $p_t = 1$ from $L_t = \pi$ to $L_t = 1$. Combining with the dynamic behavior of L_t, the steady state in this region of dominant positive case law is then the intersection of the 45° line and the darker portion on $p_t = 1$. It is represented by the point ($L_t = 1$, $p_t = 1$), a point where legal remedies have evolved and consolidated reaching a point of stability.

In the split case law region where neither positive case law nor negative case law dominates and $1 - \pi < L_t < \pi$, $\dot{p}_t = 0$ everywhere. Everywhere in this region, p_t does not increase nor decrease and it does not move over time. Along with the dynamic behavior of L_t, we

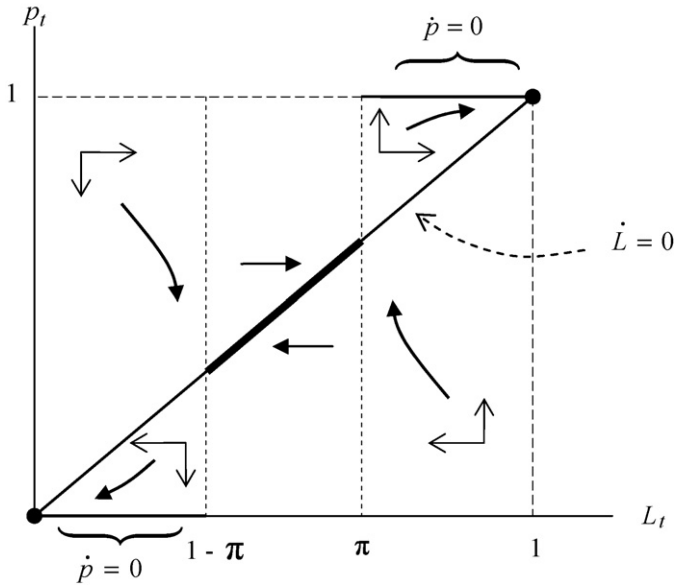

Fig. 1. The dynamics of *jurisprudence constante*.

observe that the steady states are numerous in this region of split case law. They are represented by all points on the portion of the 45° line between $L_t = 1 - \pi$ and $L_t = \pi$ (the darker portion on the 45° line). In this region, split precedents and unsettled case law can persist in the long run.

Lastly, in the region of dominant negative case law with $1 - L_t \geq \pi$ or $L_t \leq 1 - \pi$, $\dot{p}_t$ is negative and the probability of obtaining judicial recognition of a filed claim decreases as time passes. Thus, p_t decreases until it can no longer do so when it reaches 0. In other words, the set of potential steady states ($\dot{p}_t = 0$) in this region is represented by the horizontal line at $p_t = 0$. It is given by the darker portion on $p_t = 0$ from $L_t = 0$ to $L_t = 1 - \pi$ in Fig. 1. Combining with the dynamic movement of L_t, the steady state in this region of dominant negative case law is the origin ($L_t = 0$, $p_t = 0$), a point where negative precedents have entirely corroded pre-existing legal remedies.

With the help of Fig. 1, it is now easy to see that starting from a point in the region of dominant negative case law below the 45° line, over time the dynamic path will approach the steady state located at the origin. Likewise, starting from a point in the region of dominant positive case law above the 45° line, over time the dynamic path will approach the steady state located at (1,1). Also, starting from a point where both past and recent precedents are unsettled, with L_t and p_t between $1 - \pi$ and π, the dynamic path will approach a steady state in the middle portion of the 45° line with a persistent split in case law.

To further understand possible dynamic paths of case law under a doctrine of *jurisprudence constante*, take as a starting point A in Fig. 2 in the region of dominant positive case law. Courts are influenced by a positive line of precedents and the probability of obtaining recognition of a claim increases. Point A, however, lies below the 45° line. This means that

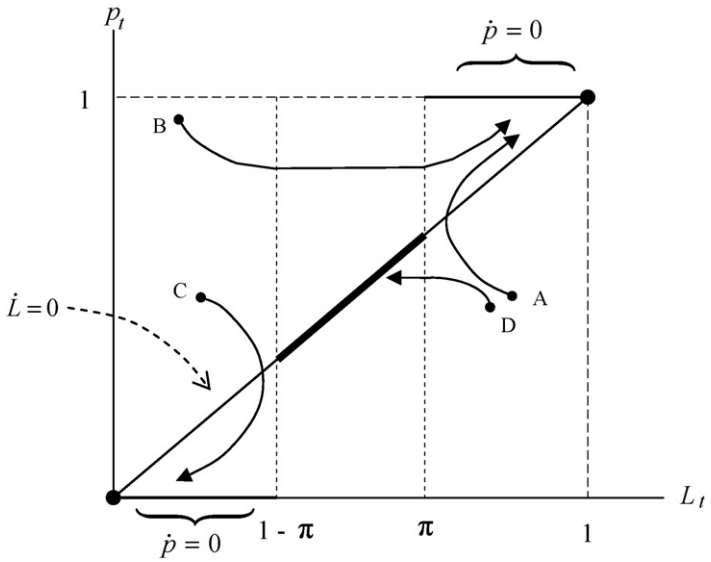

Fig. 2. Some possible dynamic paths in civil law precedents.

the fraction of positive decisions in recent cases falls below the fraction observed in the past cumulative case law, and the new fraction of cumulative case law falls. Fashion is moving away from tradition. This occasions a short-term movement towards the northwest. In spite of such short-term movement, positive case law continues to accumulate and eventually the fashion fades out until the path intersects the 45° line. From that point on fashion and tradition become self-reinforcing and the positive recognition of legal claims stabilizes at point (1,1).

The consolidation of positive precedents can also be reached when the originating point is outside the region of dominant positive case law. Take for example point B (in Fig. 2) in a region of dominant negative case law where courts are influenced by a negative line of precedents. The probability of obtaining recognition of a claim decreases over time. Point B, however, lies substantially above the 45° line. This means that the fraction of positive decisions in recent cases is substantially higher than the fraction observed in past case law. The new fraction of cumulative case law L_t thus increases quickly, approaching $1 - \pi$. A short-term movement towards the southeast is created. Due to this short-term movement, the fraction of negative precedents $1 - L_t$ is gradually lowered until it crosses the institutional threshold π. (In Fig. 2, this is read as the path originating from point B approaches and crosses $L_t = 1 - \pi$.) At that point, the previously dominant negative case law is transformed to split case law. Courts are no longer constrained by past jurisprudential tradition and can decide cases anew, following their good judgment and the information conveyed by other recent decisions. While the path from point B is in the intermediate region, the trajectory is always above the 45° line. This implies that positive cases continue to be created, gradually raising the fraction of positive cumulative case law. This process continues until the path crosses the institutional threshold π. Here the trend was able to generate a dominant

mass of positive precedents to acquire the force of positive *jurisprudence constante*. Even though the paths originating from points B and A start from different and remote regions, both lead to the same equilibrium and the positive recognition of legal claims stabilizes in point (1,1).

The path originating from point C also starts from the region of dominant negative jurisprudence, but proceeds in quite a different direction. In this region, courts are influenced by negative precedents, decreasing the probability of obtaining recognition of a claim over time. Point C also lies above the 45° line. The fraction of positive decisions in recent cases is greater than the fraction observed in past cumulative case law, increasing the new fraction of positive cumulative case law over time. Similar to the movement of the path originating from point B, the two forces occasion a short-term movement leading path C towards the southeast. However, in spite of this short-term trend, negative case law continues to accumulate. Eventually the path intersects the 45° line, at which point the negative judgments start consolidating toward the origin (0,0).

The path starting from point D shows a different trajectory in which a situation previously governed by positive case law eventually stalls in a region of split and unsettled case law. In the initial phase, courts are influenced by a dominant positive case law, increasing the probability of obtaining recognition of a claim over time. Point D, however, lies below the 45° line. This means that the fraction of positive decisions in recent cases falls below the fraction observed in the past cumulative case law, and the new fraction of positive cumulative case law falls. The joint forces occasion movement towards the northwest, similar to the initial movement of the path starting from point A. However, in this case, the fraction of positive precedents gradually declines until it crosses the institutional threshold π. At that point, tradition is corroded and the previously dominant positive case law turns into split case law. Courts are no longer constrained by past jurisprudential tradition.

The path starting from point D bears some similarity to the path originating from point B. In both cases, judicial fashion corrodes an established tradition. In the path starting from point D, however, the forces of judicial fashion are not sufficiently strong to push the path away from the intermediate region of split and unsettled case law. The trajectory ends when it reaches the darkened portion of the 45° line. The split in judicial decisions is likely to persist until an exogenous shock triggers new jurisprudential trends that can eventually consolidate into positive or negative case law.

Our analysis further reveals that the domain of the regions with consolidation versus corrosion critically depends on the institutional choice of π. More generally, a change in the institutional choice of *jurisprudence constante* may have a substantial impact on the domain of the region characterized by expansion and subsequently on the direction that the process of legal evolution may take. Consider for example the effect that an increase in the level of case consistency required for *jurisprudence constante* would have on path A. Given a high enough π, path A would cross the $L_t = \pi$ line, leading to split jurisprudence on a point along the darkened portion of the 45° line. More generally, an increase in π broadens the intermediate region of split and unsettled case law. This is intuitive because an increase in π means that greater consistency in past decisions is required before cases acquire precedential value. A higher consistency threshold implies that more situations would be deprived of the guidance of past case law. Thus, an increase in the institutional threshold increases the intermediate region of split jurisprudence, and the likelihood

of reaching certainty on a legal issue through the consolidation (or corrosion) of a past jurisprudential tradition decreases. This reveals an interesting paradox. Greater institutional demand for consistency (higher threshold values of π) may lower the actual consistency in adjudication.[20]

It is interesting also to note what would happen in the presence of some exogenous shocks to the system. For example, assume that under the current case law the probability of obtaining recognition of a given claim is represented by point A in Fig. 2. Some random event occurs, propelling the current status quo from point A to point D in Fig. 2. A real life example could be found in the exogenous shock occasioned by terrorist attacks on the judicial protection of privacy. As Fig. 2 illustrates, even a minor disturbance moving the current state from point A to D may have a very large impact on the evolution of the law. Over time, the shock produces uncertainty and split case law (the path approaches the 45° line) instead of stabilized positive recognition of legal claims (in the absence of exogenous shocks, the path would have approached the northeast corner). A small disturbance leads to long-term uncertainty. Returning to our real life example, this may indeed be the case in the future judicial developments of the law of privacy.

Now imagine what could happen if a similar shock took place under a different institutional setting with a lower *jurisprudence constante* threshold. In this setting, the intermediate region of split jurisprudence would be represented by a narrower band surrounding 1/2.[21] A shock that catapults the current status quo from point A to point D may not lead to split case law. When the region of uncertainty ($1 - \pi < L_t < \pi$) is small, the dynamic path originating from point D could resemble the path originating from point A in Fig. 2. In this case, a random shock may eventually delay stability of the positive recognition of legal claims, but would not prevent it.

3. Conclusion

This paper considers legal change under civil law doctrines of precedent, focusing on conditions that may determine consolidation or corrosion of legal remedies. We have intentionally refrained from developing normative conclusions based on the positive results of this paper, since correlation between consistency and efficiency may work in different ways. Stability may be desirable to promote stable expectations, but at times, it may hinder the opportunity for judicial experimentation and gradual consensus formation.

In our model of precedents, the stability and change of legal rules is affected by the stock of established legal precedents, the flow of recent decisions, the institutional threshold of *jurisprudence constante*, and the weights attached to established precedents and recent jurisprudential trends. We highlighted the relevance of the institutional threshold in the face of exogenous shocks, inasmuch as different dynamic paths may be produced by a similar shock under different precedent regimes.

[20] We thank an anonymous referee for pointing out this interesting paradox.

[21] In the limiting case where π equals 1/2 the model will have three equilibria, two stable ones (with consolidation or corrosion of remedies) and one unstable (with 50% split case law).

Civil law doctrines of precedent require varying degrees of consistency in past case law. Consistent decision making does not necessarily imply efficiency and the social value of consistency may vary overtime and under different circumstances. Certain aspects of contemporary law may have stabilized, while others are in a state of flux. For more traditional legal issues consistency may be desirable to promote certainty and facilitate the formation of parties' legal expectations. For new legal issues and in the presence of volatile environments, requiring consistency may be detrimental, inasmuch as it precludes experimentation with diverse legal solutions, offering the possibility to tailor legal rules to changing circumstances overtime.

The institutional variable, interacting with other exogenous variable, generates different patterns of evolution. Interestingly, our model suggests that higher thresholds (i.e. greater demand for consistency) actually lower the consistency in adjudication. This paper implies the testable hypothesis that unsettled jurisprudence noticeably characterizes civil law countries, insofar as they adopt higher thresholds. Future research should test this hypothesis in a cross-country comparison.

Future extensions could integrate more factors to enrich the model. For example, a time weight variable may be added, allowing for more recent cases to be more (or less) influential than older cases. This could allow fashion to outweigh tradition more (or less) often. For example, greater weight to recent cases may be given in situations where technological advances or other changes in the regulated environment render traditional values outdated. Alternatively, in situations where social values and tradition are at stake greater deference may be paid to older leading cases. Another extension may incorporate the idea that as law approaches certainty litigation fades out. The final stages of consolidation or corrosion may thus slow down. It would also allow a surge of fashion to have a greater impact in a low litigation environment.

Another strand of extension would concentrate on the relevance of the role of precedent in more complex systems. For example, the model can be extended to consider multiple courts with different propensities to follow judicial fashion and established tradition when deciding a case. The model could also be extended to study the impact of percolation theories, to study the effect of legal precedents across different jurisdictions or judicial bodies.

Finally, this paper does not commit to any specific view on the determinants of courts' substantive choices. In reality, the cases that reach a final judgment often constitute a biased subset of the relevant disputes. Past decisions are affected by parties' case selection and judges' ideological preferences. The study of the effect of alternative doctrines of precedent on the evolution of the law can thus be valuably extended to consider possible interactions between the identified dynamics and other potential determinants of case adjudication.

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