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The introduction of an appeals court in Dutch tax litigation

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Abstract

As of January 1, 2005, a court of appeal has been introduced in Dutch tax litigation. Before that date, the substantive merits of a tax dispute could only be heard in one instance. In this paper we investigate which consequences the introduction of the appeals court may have for the way tax payers and the tax administration solve their disputes. We focus on the following questions. Are more or less tax payers willing to go to court to solve the dispute? Is it more or less difficult for parties to agree upon a settlement? Which appeal rate can we expect? What is the role of society's confidence in the courts in the answers to the questions above?

JEL classification: K41

Keywords: tax litigation, appeals process, confidence in the courts

1. Introduction

In the Netherlands, a tax payer who wants to dispute his tax assessment first has to file a notice of objection at the tax administration itself. If at the end of that procedure he still disagrees with the final assessment, he may go to court. Before January 1, 2005 the tax payer had to bring his case to the tax section of the Court of Appeal ('Gerechtshof'). In the Netherlands, this was the only instance which considered the substantive merits of the case. Neither side could appeal the judgment of the court on the grounds that the court misjudged the facts. Since January 1, 2005, things have changed. Tax disputes are first brought to a District Court ('Rechtbank'). After its verdict, both parties have the option to appeal on substantive arguments. The 'Gerechtshof' now hears tax cases in second instance.

The goal of this paper is to gain insight in the consequences of the introduction of an appeals court for the choices made by the tax payer and the tax administration in solving the dispute. Of course, the possibility to appeal increases the number of options open to the players. The option to appeal can be an advantage, when the first trial is lost. But it can also be a disadvantage, when the first trial is won but the other party does not give up. Moreover, when players go to court for the second time, they face additional costs.

We are especially interested in the following questions:

1. Are tax payers more or less willing to go to court over the dispute?
2. Are players more or less likely to settle their dispute?
3. To what degree will players appeal the decision of the court of first instance?
4. How does society's confidence in the courts affect the answers to the questions above?

There seems to be no economic literature in which the decision to go to court in the first instance is modeled together with the possibility to appeal. The papers who study the appeals process focus on the internal organization and dynamics of the judicial system, not on the choices by the parties in the dispute. For example, Shavell (1995) investigates how the judiciary should be arranged in order to minimize the combined costs of a mistake in the last verdict and the legal costs to all parties. He finds that a court of second instance can be beneficial, if (i) the court of second instance gets relatively more means so that it is more reliable than the court of first instance, (ii) parties get the option to appeal or not, and (iii) the proper (dis)incentives to appeal, via court fees or subsidies, are in place. Spitzer and Talley (2000) analyze the policy choices that the higher court could make in reviewing verdicts of lower courts when lower courts may not only make mistakes, but may also have an ideological bias. Daughety and Reinganum (1999 and 2000) analyze how later verdicts in a case are affected if the information contained in the earlier verdicts and the decisions to appeal are taken into account.

In this paper we look at the connection of the courts in first and second instance from the other side, namely from the perspective of the parties in the dispute. How is the decision to go to a court of first instance affected if players may appeal its verdict? The paper is organized as follows. In Section 2 we introduce the general set-up of the model. Section 3 briefly discusses the old situation in which no appeal was possible. Sections 4 and 5 analyze how the new situation differs from the old one. We will see how the outcomes are affected if players learn about their chances in the court of second instance from the verdict in first instance. We also discuss the role of society's confidence in the courts. Section 6 summarizes the results and draws attention to some relevant aspects that have yet to be built into the model.

2. The set-up of the model

There are two players, the tax payer P and the tax administration A. Both players are assumed to be risk neutral. Before, P received a tax assessment from A. Disagreeing with the assessment of A, P submitted a notice of objection. At the end of that procedure, however, P still feels that the final assessment is too high, say by an amount Y. Hence there

remains a conflict between A and P. Now each player chooses its strategy to resolve this dispute. The options to the players are given in the game tree of Figure 1.

We distinguish two stages in the game, indicated by subscript g . Stage 1 refers to the choices and decisions in first instance. Stage 2, which starts after the verdict of the court of first instance, consists of two subgames: Stage 2P if player P won the first trial, and Stage 2A if player A won the first trial. Notice that Stage 1 taken by itself reflects the old situation, while Stage 2 reflects the additional options after the introduction of the appeals court.

In each part of the model players first have the option to settle (S) or not settle (NS). If the players settle, they agree on the amount (denoted by SA_g) which P should pay to A. After that the game ends. If not, the player who is put in the unfavorable position as a result of the current decision (the unsatisfied player)¹, say player i , may go to court (C) or give up (G). If i gives up, the game ends and the current decision is implemented. If i does go to court, he pays court fee f_g^i , and each player j pays his legal costs c_g^j . If player i wins that trial, his court fee for the trial is refunded.² If the last trial before the game ends is won by player P, then A is ordered for costs, that is, A has to refund part³ of the legal costs of P. This refund equals q_1 if the players only went to the court of first instance, and it equals $q_1 + q_2$ if the players went to the appeals court too. Further, let p_g^i be the probability estimate by player i of winning the trial in Stage g , and $E^i(\pi_g^i)$ his expected payoff of that trial.

We assume that there is no breakdown in bargaining if the bargaining set is non-empty. Provided that the unsatisfied player has a credible threat of going to court and that there exists some settlement amount which both players prefer to another trial, then such a settlement will be reached. As such, we can model the decision of accepting the settlement or not as the decision of the satisfied player only. Specifically, in our numerical analysis we assume that the settlement amount lies halfway between the lower and upper bound of the bargaining set.

3. The old situation: no appeal

The model for the old situation which existed until January 1, 2005 is just an application of the well-known divergent expectations model from the literature. See for example Shavell (1982). Therefore we will discuss it only briefly.

Note first that the expected pay-offs from a trial are given by

$$E^P(\pi_1^P) = p_1^P(-c_1^P + q_1) + (1 - p_1^P)(-f_1^P - c_1^P - Y), \quad (1)$$

$$E^A(\pi_1^A) = p_1^A(-c_1^A + Y) + (1 - p_1^A)(-c_1^A - q_1). \quad (2)$$

In any subgame perfect equilibrium, P will give up if a trial would cost him more than paying the disputed amount Y . From (1) it follows that P will play strategy G if and only if

$$p_1^P \leq (f_1^P + c_1^P)/(f_1^P + q_1 + Y). \quad (3)$$

So P will accept the final assessment of A, unless P has sufficient faith in his chances to win the trial (*i.e.* if p_1^P is high enough). Note that P will not have a credible threat, regardless of his estimated chances in court, if $q_1 + Y < c_1^P$, that is: if the refund of legal costs does not

¹ So player P in Stages 1 and 2A, and player A in Stage 2P.

² Court fees are paid to and refunded by the court's registry, which - as a matter of fact - is part of national government organization just like the tax administration. In terms of budget and administration, however, the tax administration and the justice department are very much separate and independently operating units. So we have chosen not to consolidate these units in the set-up of our model.

³ In the Netherlands, refunds of legal costs are based on a point system. Generally the amount refunded is (substantially) less than the actual legal costs incurred. Moreover, although it is in principle possible that tax payers are ordered to refund the legal costs made by the tax administration, this only rarely happens.

cover the real legal costs, and Y is small enough.

Obviously, A will not agree to settle if P is not willing to go to court. However, if P is willing to go to court, a settlement may still be impossible. The minimum A demands equals his expected benefit of going to court $E^A(\pi_1^A)$, while the maximum P is willing to pay is equal to his expected loss of going to court, namely $-E^P(\pi_1^P)$. Hence, a settlement is possible only if

$$p_1^A(-c_1^A + Y) + (1 - p_1^A)(-c_1^A - q_1) \leq p_1^P(c_1^P - q_1) + (1 - p_1^P)(f_1^P + c_1^P + Y). \quad (4)$$

Rearranging Condition (4) yields

$$(p_1^P + p_1^A - 1)(q_1 + Y) \leq c_1^P + c_1^A + (1 - p_1^P)f_1^P. \quad (5)$$

The right-hand side (RHS) equals the costs which parties can save by not going to trial. The left-hand side (LHS) equals the amount by which their joint claim exceeds the amount to be divided ($q_1 + Y$). Thus if the LHS is not larger than the RHS, then the costs of going to court outweigh the sum of the perceived benefits and players will choose to settle. This is always true if $p_1^P + p_1^A \leq 1$. However, if players are *jointly optimistic*, defined as $p_1^P + p_1^A > 1$, then it can occur that their joint claim exceeds the costs of trial. In that case, players will go to court.

Conditions (3) and (5) are graphically represented in Figure 2. The figure shows how, given some set of parameters, the subgame perfect strategies depend on the beliefs of the players. For each point in area G , P will give up. For each point in area S the players will settle, and for the points in area C the players will go to court.

From Condition (3) it is clear that the borderline between G and S lies more to the right the lower are q_1 and Y , and the higher f_1^P and c_1^P . Condition (5) shows that the borderline between S and C shifts to the right if q_1 or Y decreases (because the amount to be divided becomes lower), or if c_1^P , c_1^A or f_1^P increases (because the total costs of trial become higher).

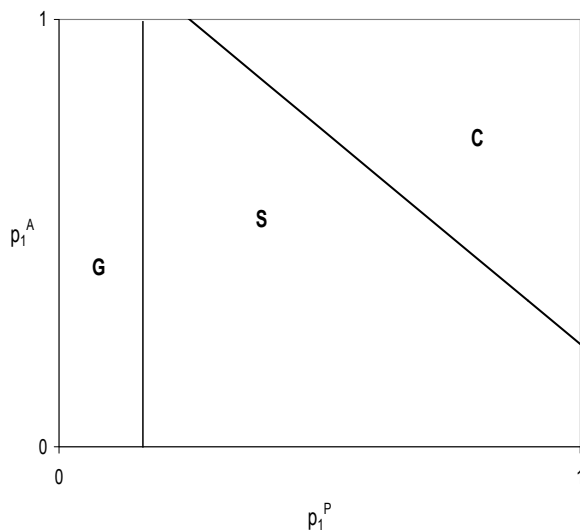


Figure 2. The old situation

Summarizing, the conclusions for the old situation are the following:

1. When the refund of legal costs is incomplete, player P has no credible threat if the disputed amount Y is sufficiently small. Such small disputes will never go to court.
2. Parties will only go to court if they are jointly optimistic, so if $p_1^P + p_1^A > 1$.
3. The probability of a trial increases in:
 - the degree of joint optimism,
 - the disputed amount Y ,
 - the refund of legal costs (q_1) if P wins,

and decreases in:

- the costs related to a legal procedure: f_1^P , c_1^P and c_1^A .

4. Players' beliefs and confidence in the courts

We now turn to the new situation since January 1, 2005. Whereas formerly the verdict of the court of first instance was the end of the game between P and A, now the player who lost the trial may continue the game by filing an appeal at the court of second instance. This has important repercussions for our analysis of the tax dispute.

Evidently, the introduction of the option of an appeal greatly enlarges the strategy sets for the players. The game tree of interest not only consists of the left half of Figure 1 (Stage 1), but also includes the right half (Stage 2). Hence, solving the model by backwards induction is rather more complicated than it was. So much is clear that the expected benefits of going to court in Stage 1 may differ from those in the old situation. The players must reconsider their strategy choices in Stage 1, taking account of the expected payoffs in Stages 2P and 2A if in the first instance they would decide to go to court and P respectively A would win the case.

But that is not all. We also should take into consideration that the players' beliefs in the merits of their case may be affected by the trial in first instance. The trial may for example uncover hitherto unknown information, and the judgment of the court itself will carry some weight too. To be able to calculate expected payoffs from Stages 2P and 2A at the moment of first stage decision making, parties must have some clue as to how their current probability estimate of winning a trial might change over time.

First, during the trial in the first stage both players have to present the information on which they base their case. Hence, if players differed in opinion because of asymmetric information, at least one player will have a reason to change his opinion at the start of Stage 2. However, the problem remains that players at the start of Stage 1 cannot foresee how really unknown information might affect their probability estimates later on.

Second, given that judges are experts in the field, their verdicts will convey information to the parties involved as to the merits of the case. Upon entrance of Stage 2P (respectively 2A), the parties know that the court in first instance has ruled in favor of tax payer P (respectively the tax administration A). In this light, parties might learn and adjust their beliefs accordingly at the start of Stage 2. But the argument reaches even further. Parties that are sufficiently far-sighted, might realize at the start of Stage 1 how the (still unknown) verdict of the court will lead them to revise their beliefs upon entrance of Stages 2P and 2A.

There are three possibilities with regard to interrelated decision making in Stages 1 and 2.⁴

1. Parties are *naive*. They stick with their initial beliefs, both in first and second stage decision making, notwithstanding any additional information that might come available. Throughout, $p_{2P}^i = p_{2A}^i = p_1^i$ for $i = P, A$.
2. Parties are *myopic*. During Stage 1 they are not aware that the verdict of the first court might affect their beliefs. Hence, during first stage decision making, $p_{2P}^i = p_{2A}^i = p_1^i$. However, once parties enter Stage 2, they become aware of the additional information contained in the court's verdict and learn to adjust their initial beliefs as to p_{2P}^i and p_{2A}^i .
3. Parties are *far-sighted*. Right from the start of the game players are fully aware how learning will affect their future beliefs. Hence, they apply the adjusted estimates of p_{2P}^i and p_{2A}^i in first stage decision making too.

In Section 4.1, we show how the learning process can be modeled. Section 4.2 discusses the consequences for the probability estimates of winning a trial.

⁴ Players might also be *ultra-naive* and fail to appreciate the interrelationship between decision making in Stages 1 and 2. We will not go into this fourth possibility, as it hardly yields additional insights. For ultra-naive players, entering Stage 1 is like entering the final stage of the game; hence the analysis of Section 3 fully applies.

4.1 Modeling the learning process

In case of a trial, a player can win in two ways. Either he is right and the court's verdict is correct, or he is wrong but the court makes a mistake. Thus, the probability with which player i thinks he will win a trial in Stage 1 (p_1^i) can be dissected into two elements. The player's *belief* about the intrinsic merits of the case are summarized in an estimate of the probability that he is *right*, denoted by ρ_1^i , $0 \leq \rho_1^i \leq 1$. And his level of *confidence* in the court is represented by the probability with which the court is expected to judge *correctly*, denoted by r_1^i , $0 \leq r_1^i \leq 1$. So in Stage 1, player i expects that his chances of winning in court are given by

$$p_1^i = \rho_1^i r_1^i + (1 - \rho_1^i)(1 - r_1^i). \quad (6)$$

We will henceforth assume that the confidence in every court is socially determined, and not individually. Therefore $r_g^i = r_g$ for any player i and at any decision point of the game.

Turning to Stage 2, there are two reasons why the probability with which player i thinks he might win a trial, can differ from the same probability in Stage 1. First, the confidence in a court of appeal may differ from the confidence in a court of first instance. Second, after the verdict of the first court player i may change his belief on the probability that he is right.

With respect to the first reason, it is quite likely that society puts more trust in a court of appeal than in a district court (cf. Shavell, 1995). Typically, judges in a court of appeal are more experienced; they can take more time for the case; and they sit in a panel, whereas the first court may consist of a single judge. Therefore we assume that $r_2 \geq r_1$.

With respect to the second reason, note that whenever $r_1 \neq \frac{1}{2}$ the verdict is effectively a signal of which player is right. We assume that players will interpret this signal in a way that is consistent with both their initial belief (their prior) and the confidence they have in the court's verdict. More specifically, players update their beliefs according to Bayes' rule. If player i won the first trial, he will adjust the probability estimate that he is right to⁵

$$\rho_{2+}^i = \rho_1^i r_1^i / [\rho_1^i r_1^i + (1 - \rho_1^i)(1 - r_1^i)]. \quad (7+)$$

Similarly, if i lost the first trial, he will adjust the probability estimate that he is right to

$$\rho_{2-}^i = \rho_1^i (1 - r_1^i) / [\rho_1^i (1 - r_1^i) + (1 - \rho_1^i) r_1^i]. \quad (7-)$$

Analogously to Eq. (6), player i can then calculate his chances of winning the appeal case after having won respectively lost the first trial, by combining his adjusted beliefs in the merits of the case (ρ_{2+}^i or ρ_{2-}^i) with his level of confidence in the appeals court (r_2):

$$p_{2+}^i = \rho_{2+}^i r_2 + (1 - \rho_{2+}^i)(1 - r_2), \quad (8+)$$

$$p_{2-}^i = \rho_{2-}^i r_2 + (1 - \rho_{2-}^i)(1 - r_2). \quad (8-)$$

4.2 Consequences for the probability estimates of winning in court

Let us first consider the special case in which the confidence in every court is perfect.⁶ If players believe that the court's verdict is always correct, i.e. $r_1 = r_2 = 1$, then Eqs. (6) through

⁵ The numerator is equal to the probability estimate by player i that he is right and wins the first trial. The denominator gives his probability estimate of winning the first trial. The ratio therefore gives player i 's probability estimate that he is right given that he won the first trial.

⁶ To avoid complications, we take for granted that initially none of the players is absolutely certain about who is right, so $0 < \rho_1^i < 1$.

(8–) can be simplified to $p_1^i = \rho_1^i$; $p_{2+}^i = 1$ and $p_{2-}^i = 0$; $p_{2+}^i = 1$, and $p_{2-}^i = 0$. While players in Stage 1 may feel uncertain about the intrinsic merits of the case and can have different beliefs, this uncertainty and divergence disappear in Stage 2. Both players accept the verdict of the court of first instance as the right one.

Next we turn to the more realistic case, where society's confidence in the courts is incomplete. Courts fail sometimes, and players know that. On the other hand, society also takes it for granted that the verdict of the courts is more reliable than the flipping of a coin. Therefore we have: $\frac{1}{2} < r_1 \leq r_2 < 1$.

We start by rewriting Eq. (6) as

$$p_1^i = (1 - r_1) + \rho_1^i(2r_1 - 1). \quad (9)$$

Then from $\frac{1}{2} < r_1 < 1$ it immediately follows:

1. The probability estimate of player i of winning the first trial, p_1^i , is positively correlated with his probability estimate of being right.
2. Therefore p_1^i is minimally equal to the probability with which the court is mistaken ($1 - r_1$), namely if $\rho_1^i = 0$, and maximally equal to the probability with which the court is right (r_1), namely if $\rho_1^i = 1$.
3. If $\rho_1^i < \frac{1}{2}$, the possibility of a mistake by the court ensures that $p_1^i > \rho_1^i$; if $\rho_1^i > \frac{1}{2}$, the possibility of wrong verdicts ensures that $p_1^i < \rho_1^i$. Moreover, the difference between p_1^i and ρ_1^i increases in the probability of mistakes by the court.

Furthermore Eq. (9) implies that

$$(p_1^P + p_1^A - 1) = (2r_1 - 1)(\rho_1^P + \rho_1^A - 1), \quad (10)$$

which yields the following two results:

4. Players are jointly optimistic with respect to their chances in court if and only if they are jointly optimistic about their chances of being right.
5. If players are jointly optimistic with respect to their chances of being right, their joint optimism increases with their confidence in the court.

We continue by considering the adjustments of the beliefs, see Eqs. (7+) and (7–). It is easily derived⁷ that $\rho_{2-}^i \leq \rho_1^i \leq \rho_{2+}^i$. The equalities occur if and only if ρ_1^i is equal to one or to zero. For then, if a verdict is consistent with a player's belief, he learns nothing new, while if the verdict is inconsistent, the player is certain that the verdict is wrong. If players are not completely certain about who is right, they will use the information incorporated in the court's verdict. The player who loses will adjust his belief that he is right downward, while the player who won will adjust his belief upward.

Finally, we consider the probability estimates of winning the appeal case, see Eqs. (8+) and (8–). We can rewrite these into

$$p_{2+}^i = (1 - r_2) + \rho_{2+}^i(2r_2 - 1), \quad (11+)$$

$$p_{2-}^i = (1 - r_2) + \rho_{2-}^i(2r_2 - 1). \quad (11-)$$

This leads to the following conclusions.

6. Taking for granted that $r_2 > \frac{1}{2}$, the probability estimate of winning an appeal trial (p_{2+}^i or p_{2-}^i

⁷ Note that, because $(1 - r_1) \leq p_1^i \leq r_1$, the denominator of Eq. (7+), p_1^i , is at most equal to r_1 , while the denominator of Eq. (7–), $(1 - p_1^i)$, is at least equal to $(1 - r_1)$.

- ⁱ) is positively correlated with the belief that one is right (ρ_{2+}^i respectively ρ_{2-}^i).
7. The range of probability estimates is limited to $(1 - r_2) \leq p_{2-}^i \leq p_{2+}^i \leq r_2$.
 8. If the confidence put in the different courts does not differ, so if $r_1 = r_2$, then it is easy to see⁸ that $p_{2-}^i \leq p_1^i \leq p_{2+}^i$.
 9. Unfortunately, in the more general case where $r_2 > r_1$, the relation between the probability estimates of winning in Stages 1 and 2 is unclear. The reason is that both the beliefs and the confidence in the accuracy of the verdict change. For instance: suppose that the player who won at the first trial believed that he was probably wrong. As a result of winning, his belief in being right will grow, but it may still end up being smaller than $\frac{1}{2}$.⁹ Thus the player would like to see that the appeal judges make a mistake. Suppose now that confidence in the judgment by a court of second instance is higher than by a court of first instance, so a mistake in the second trial is thought less likely than in the first trial. Then in total the player may think that his chances of winning in Stage 2 are smaller than the chances he gave himself in Stage 1.

Furthermore, Eqs. (11+) and (11-) imply that

$$p_{2+}^i + p_{2-}^j - 1 = (2r_2 - 1)r_1(1 - r_1)(\rho_1^i + \rho_1^j - 1)/[p_1^i(1 - p_1^j)], \text{ where } i \neq j. \quad (12)$$

Hence there is joint optimism with respect to the chances in court in Stage 2 if and only if there is such joint optimism in Stage 1. But we do not know, generally speaking, whether players are jointly more or less optimistic in the second stage than in the first stage.

5. Two stage decision making

In this section we analyze the interrelationship between decision making in Stages 1 and 2. We begin in Section 5.1 by studying the decisions of the players during Stage 2. We then use these results in Sections 5.2 through 5.4 to derive the consequences for Stage 1 decision making, for naive, myopic and far-sighted players respectively.

5.1 Stage 2: The decision to appeal

After the verdict by the first court, players may (again) choose to settle or, if not, to appeal. We derive under which conditions players will settle, go to the court of second instance or abide by the standing verdict. Suppose first that P won the first trial. Analogously to Condition (3), we know that A will give up if

$$p_{2P}^A \leq (f_2^A + c_2^A + q_2)/(f_2^A + q_1 + q_2 + Y). \quad (3P)$$

If A is not giving up and is indeed willing to appeal, the players may decide to settle. That will occur, in analogy with Condition (5), if the costs of a second trial are not exceeded by the amount by which the players jointly overestimate their expected benefit in the appeals court:

$$(p_{2P}^P + p_{2P}^A - 1)(q_1 + q_2 + Y) \leq c_2^P + c_2^A + (1 - p_{2P}^A)f_2^A. \quad (5P)$$

If A won the first trial, the corresponding conditions are

$$p_{2A}^P \leq (f_2^P + c_2^P)/(f_2^P + q_1 + q_2 + Y), \quad (3A)$$

$$(p_{2A}^P + p_{2A}^A - 1)(q_1 + q_2 + Y) \leq c_2^P + c_2^A + (1 - p_{2A}^P)f_2^P. \quad (5A)$$

⁸ Recall that p_g^i increases in ρ_g^i and that $\rho_{2-}^i \leq \rho_1^i \leq \rho_{2+}^i$.

⁹ This happens if the confidence in the first court is low enough.

These conditions are represented graphically in Figures 3a (for Stage 2P) and 3b (Stage 2A). The areas are again denoted by G (give up), S (settle), and C (going to court). Clearly, there can only be an appeal if the players are jointly optimistic at the time.

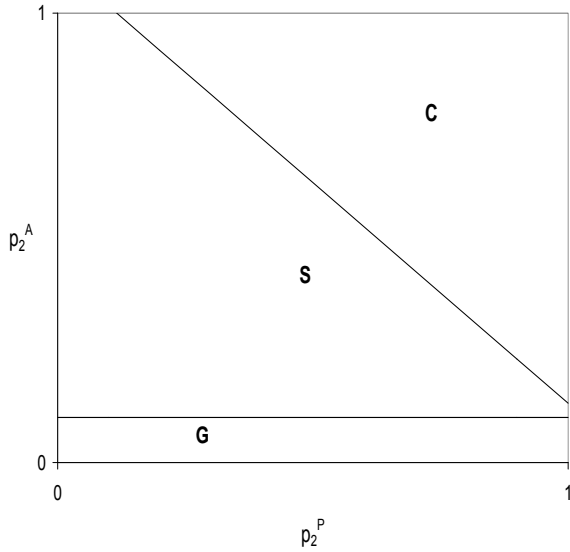


Figure 3a. Stage 2P summarized

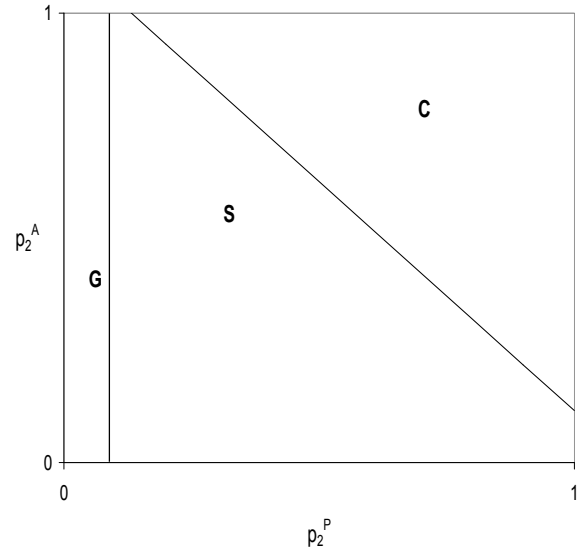


Figure 3b. Stage 2A summarized

5.2 Two stage decision making by naive players

We can now address the consequences of the presence of Stage 2 options for Stage 1 decision making. To develop our argument we start with the relatively simple case of *naive* players. These players stick with their initial probability estimates of winning in court, be it because they are stubborn, or because they lack the informational and computational skills. It holds throughout, both in first and second stage decision making: $p_{2P}^i = p_{2A}^i = p_1^i$, for $i = P, A$.

To illustrate how the model is solved through backwards induction, we start with the set of players' probability estimates that contradict both Conditions (5P) and (5A) derived above. From Figures 3a and 3b we then know that were the players to go to court in Stage 1, there would follow an appeal trial for sure, regardless of which player would lose. Knowing this, the expected payoff to player P from going to court in Stage 1 would be equal to

$$E^P(\pi_1^P) = p_1^P [p_{2P}^P (-c_1^P + q_1 - c_2^P + q_2) + (1 - p_{2P}^P)(-c_1^P - c_2^P - Y)] + (1 - p_1^P) [p_{2A}^P (-c_1^P - f_1 - c_2^P + q_1 + q_2) + (1 - p_{2A}^P)(-c_1^P - f_1 - c_2^P - f_2^P - Y)]$$

which, with the help of $p_{2P}^P = p_{2A}^P = p_1^P$, can be rearranged into:

$$E^P(\pi_1^P) = -c_1^P - c_2^P + p_1^P(q_1 + q_2) - (1 - p_1^P)(f_1^P + (1 - p_1^P)f_2^P + Y). \quad (1')$$

Player P would only be willing to go to court if the expected payoff would yield a better result than just paying the disputed amount Y. So, P would give up if

$$p_1^P \leq [c_1^P + c_2^P + (1 - p_1^P)f_1^P + (1 - p_1^P)^2 f_2^P] / (q_1 + q_2 + Y). \quad (3')$$

We note that, in general, it cannot be ruled out there exist values of p_1^P which satisfy Condition (3') within the set of probability estimates we are considering at the moment. For this to happen, the legal costs for the tax payer associated with the trial in first instance

should be relatively high.

If P would have a credible threat, then the players might decide to settle. Analogous to Condition (5), a settlement would occur only if

$$(p_1^P + p_1^A - 1)(q_1 + q_2 + Y) \leq c_1^P + c_1^A + (1-p_1^P)f_1^P + c_2^P + c_2^A + (1-p_1^P)^2f_2^P + (1-p_1^A)^2f_2^A. \quad (5')$$

As in Condition (5), the RHS gives the expected costs of going to court. It contains both the expected costs of the first and the second instance, because at present we are considering those cases where an appeal is certain. The LHS gives the amount by which the parties jointly overestimate the money that the final verdict will assign them. Clearly, parties would only go to trial (opening the way to the appeals court later on) if their joint optimism would be sufficiently high.

Having thus analyzed the set of probability estimates that give rise to strategy choice C in both Stages 2P and 2A, we can turn to sets of probability estimates that would result in other outcomes (G and G, G and S, S and G, and so on) and analyze these in a similar fashion. Next step would be to combine all the various Conditions like (3') and (5'), demarcating the concomitant strategy choices in Stage 1, in one graphical presentation comparable to Figure 2. Then we could easily predict how the introduction of the appeals court affects the strategy choices in first instance. However, Conditions like (3') and (5') are quadratic in the probability estimates of the players and depend on a large number of parameters. Since the magnitude of the parameters relative to each other may vary widely, certainly at a general level, it is well-nigh impossible to derive meaningful results in a purely analytical way. Thus, we will not pursue that line any further, but instead switch to a numerical approach.

Table 1. Description of the Scenarios

#	Y	c_1^P	c_1^A	c_2^P	c_2^A	$q_1 = q_2$	f_1^P	f_2^P	f_2^A
0	1.000	200	2.000	100	1.000	20	37	103	414
1	20.000	3.000	2.000	1.500	1.000	800	276	414	414
2	20.000	3.000	3.000	1.500	1.500	800	276	414	414
3	20.000	8.000	3.000	4.000	1.500	800	276	414	414
4	20.000	8.000	3.000	4.000	1.500	1.200	276	414	414
5	100.000	8.000	3.000	4.000	1.500	800	276	414	414
6	1.000.000	50.000	4.000	25.000	2.000	1.200	276	414	414

In Table 1 we present 7 scenarios, constructed after conversations with Dutch tax advisors,¹⁰ which jointly should give a fairly representative insight in the relevant factors. In Scenario 0, the tax payer is an individual who will represent himself in court. In Scenarios 1 to 6 the tax payer is a firm that will hire professionals to represent it in court. We make two more assumptions in Table 1. First, we assume that the legal costs during an appeal are half the legal costs during the first trial, for the case has been prepared and argued before. Second, we assume that the refund of legal costs is the same in first and second instance.

Figure 4 shows our results for Scenario 1. The figures summarizing the results for scenarios 2 through 6 are similar and are available from the authors upon request. Scenario 0 yields a different picture, which we will discuss in a moment. The dotted lines give the results for the old situation (cf. Figure 2), while the solid lines pertain to the new situation. These solid lines originate from Conditions like (3') and (5'). The areas G and S denote the set of probability estimates for which player P will give up in first instance respectively the players will settle the dispute. In area C, the players will go to the court of first instance.

¹⁰ These conversations took place in the summer of 2006. Moderate inflation since then has affected the absolute values somewhat, but did not change the relative proportions, which is what counts for our analysis.

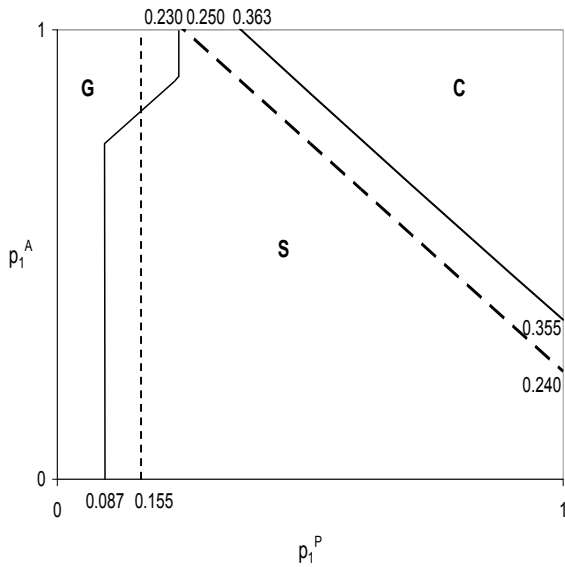


Figure 4. Strategy choices in first instance, old vs new (dotted vs solid lines): Scenario 1

Comparing the results in the old and the new situation, we see that it is less likely that disputes will be brought to court in the new situation. This result can be explained as follows.

First, we note that court fees in Dutch tax cases are small compared to legal costs and these court fees are not much larger in second instance than they are in first instance. Second, legal costs in an appeal are substantially smaller than in the trial of first instance, as the case has already been prepared and defended. So commonly, the total costs to the players of the second trial will be lower than those of the first trial. We further note that the joint money claim that is involved, is similar. Taking these stylized facts into account, it follows that the reasons to go to court in Stage 2 are generally stronger than in Stage 1.¹¹ Therefore the players can be certain that the losing party will file an appeal.

But if an appeal is certain, then players know upon entrance of Stage 1 that going to court will bring them the combined costs of trial in two instances, while under the old situation they only had to face the costs of trial in one instance. As the joint money claim that is involved, is similar, players have stronger incentives to settle in the new situation.¹²

Figure 4 also reveals a second difference between the results in the old and the new situation. The borderline between G and S is more to the left (right) in the new situation if A's probability estimate of winning is relatively low (high). The intuition is the following. If P has a credible threat in Stage 1, he also has a credible threat in Stage 2, because the (marginal) trial costs of an appeal are substantially lower, while the joint money claim does not change much.¹³ If A rates its chances in court rather low, then P loses little by the right of A to appeal, for either A has not even a credible threat, or A has a relatively weak bargaining position so that P will obtain a favorable settlement. And if P loses the first trial, then he still gets a relatively favorable settlement. Hence, not giving up is more appealing to P in the new situation. But it is also clear that as A's chances in court increase, any settlement in the second stage becomes less favorable to P. So, from some point onwards, the minimum value of p_1^P ($= p_{2P}^P = p_{2A}^P$) such that P has a credible threat increases in p_1^A ($= p_{2P}^A = p_{2A}^A$). This gives the upward sloping borderline. If p_1^A and p_1^P are sufficiently large, then an appeal is certain. In that case p_1^A does not affect the benefits which P expects from going to court.

¹¹ Compare Conditions (5P) and (5A) on the one hand and Condition (5') on the other hand.

¹² Compare Conditions (5') and (5).

¹³ Compare Conditions (3') and (3A).

Hence, for p_1^A large enough, the borderline is vertical. This piece is to the right of the borderline under the old situation, because the amount of legal costs that is refunded by court order will typically not cover all P's costs. So, his expected costs associated with trial in the new situation (both first and second instance) are higher than they were in the old situation. To have a credible threat in the new situation P must then rate his chances at a higher level.

Scenarios 2 through 6 produce a similar picture as Scenario 1. The odd one out is Scenario 0, of which the results are depicted in Figure 5. It differs in the sense that the players will never end up in court. They will always prefer a settlement, as the total costs of a trial are larger than the amount under dispute. Whether P can threaten credibly, still depends on his expected payoff from going to court. Figure 5 points out that player P will even sooner have a credible threat in the new situation than in the old one. P's own trial costs in second instance are somewhat lower yet than in first instance, making it relatively easy for him to start an appeal if A would win in court, while at the other side high trial costs ensure that A will leave aside its option to appeal if P would win in court.

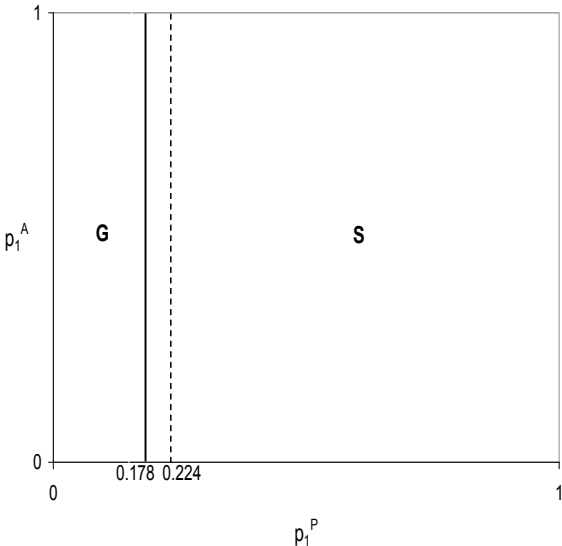


Figure 5. Strategy choices in first instance, old vs new (dotted vs solid line): Scenario 0

Summarizing, we conclude for the new situation, when players are naive:

1. The introduction of an appeals court leads to less trials in first instance.
2. All trials in first instance are followed by an appeal. Hence, the appeal rate equals one.
3. It is uncertain whether tax payers who disagree with their tax assessment will more or less often give up. This depends on the actual distribution of the parties' probability estimates of winning in court.

5.3 Two stage decision making by myopic players

In this section we consider *myopic* players. These players do not realize beforehand that the verdict in first instance contains information which may change their beliefs. Hence, the analysis of Section 5.2 fully carries over, as far as decision making in Stage 1 is concerned. However, once the court of first instance has given its verdict and players enter Stage 2 of the game, they learn and adapt their beliefs. As a result of that, they reconsider their original plans. With naive players in Section 5.2 we had an appeal rate equal to one. With updating this no longer needs to be true.

We take Scenario 1 as an example and start with the case that society has relatively

much and equal confidence in the courts: $r_1 = r_2 = 0.95$.¹⁴ The strategy choices in first instance are - once again - given by the solid lines in Figure 4. But there is one important caveat. In the analysis up till now, the players' probability estimates of winning in court served as our independent variables. However, they become *dependent* variables once players learn. Given the level of confidence in the courts, r_i , and taking for granted that the parties' probability estimates of being right, ρ_1^i , can only have values in the interval $[0, 1]$, we know from Section 4.2 that $(1 - r_1) \leq \rho_1^i \leq r_1$. When reading Figure 4, we thus should be aware that the probability estimates of winning cannot take any conceivable value in the interval $[0, 1]$ if $r_1 = 0.95$. Instead, they are confined to the interval $[0.05, 0.95]$.

The real consequences of learning obtain in Stage 2. The player who won the first trial gains some faith in the intrinsic merits of his case, and the player who lost in court loses some of his faith. Therefore, the latter may now prefer giving up to filing an appeal. And when the unsatisfied player still has a credible threat, the players may now jointly be less optimistic than in the first stage. As a result, it is possible that the players - despite their original plans - do not go to court in Stage 2 after all.

The results for Scenario 1 are summarized in Figure 6. Note that the axes now contain ρ_1^P and ρ_1^A instead of p_1^P and p_1^A .¹⁵ The areas G1 and S1 denote the set of parameters for which player P will give up in Stage 1 respectively the players will settle the dispute in Stage 1. The remaining area corresponds with the set of parameters for which the players go to court in Stage 1. This latter area is subdivided, with G2, S2 and C2 denoting the eventual outcome (giving up, settlement, and court trial in second instance) in Stage 2.

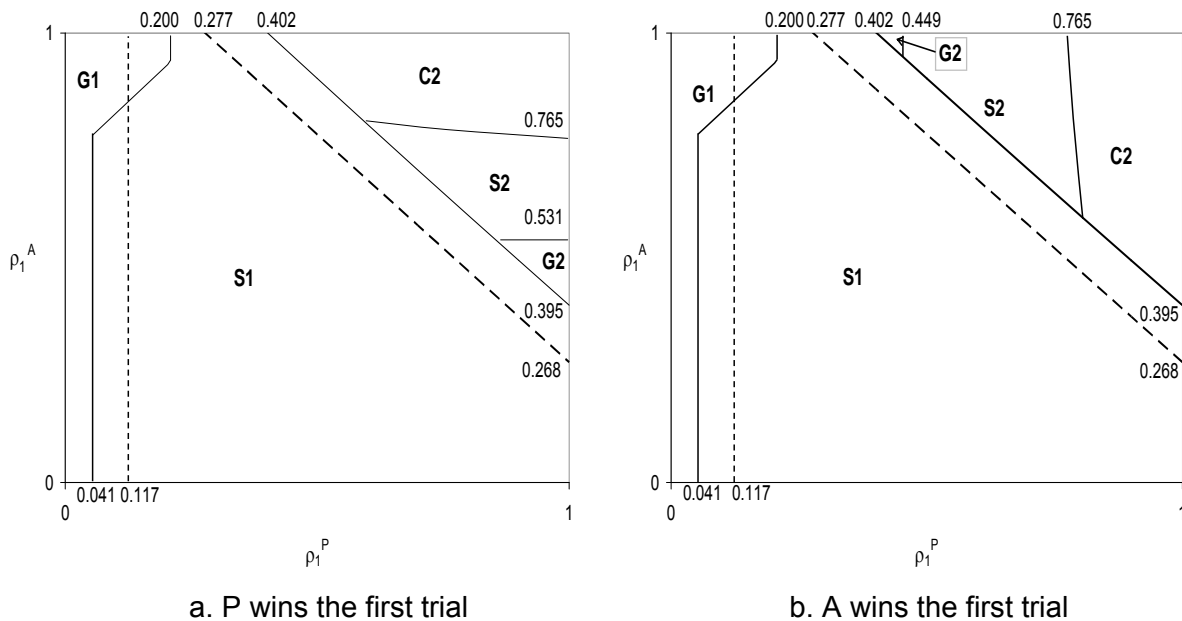


Figure 6. Scenario 1, myopic players, $r_1 = r_2 = 0.95$, old vs new (dotted vs solid lines)

Let us now vary the level of confidence in the courts. Suppose it gets lower for all instances, say at $r_1 = r_2 = 0.8$. This affects the analysis in several ways. See Figure 7.

For one, we must be aware that the probability estimates of winning in Stage 1 change if the confidence in the courts changes, *given* the parties' beliefs in the intrinsic merits of the case. Stated differently: while the probability estimates of winning could take values in the interval $[0.05, 0.95]$ when r_1 was equal to 0.95, that interval shrinks to $[0.2, 0.8]$ when $r_1 = 0.8$.

¹⁴ Below, we will discuss cases where the confidence is lower.

¹⁵ Eq. (9) shows that there is a positive linear relation between ρ_1^i and p_1^i , given r_1 . For $r_1 = 0.95$, it is given by $p_1^i = 0.05 + 0.9\rho_1^i$. The line $p_1^P = 0.155$ in Figure 4 therefore corresponds to the line $\rho_1^P = 0.117$ in Figure 6.

The effects can be seen in Figure 4, which - again - portrays the strategy choices in first instance. First of all, notice that area G gets fully out of sight, if the probability estimates of winning would be confined to the interval [0.2, 0.8]. The argument is straightforward. Once confidence in the court declines, even players who have very little belief in their own case can begin to hope for a mistake in the verdict. As the probability of winning grows, the reason for giving up may disappear. Figure 4 also points out that area C loses part of its size, if the probability estimates get confined to the interval [0.2, 0.8]. This follows from Eq. (10), which tells us that any joint optimism of players will decrease as confidence in the courts declines. Hence, players are less likely to end up in a trial when confidence in the courts is lower.

In Stage 2 players adjust their beliefs. When the confidence in the court of first instance is lower, players will be less inclined to follow its verdict at face value, and hence adjust their beliefs to a smaller degree. These beliefs are then translated in probability estimates of winning in appeal, taking account of the reduced confidence in the court of second instance. The combined effect is analytically unclear. The numerical results in Figure 7 suggest that the unsatisfied player is more likely to have a credible threat at the lower level of confidence in the courts. Figure 7 further points out that joint optimism grows, so the appeal rate is higher (in fact, it is equal to one in the figure), when the confidence in both instances is lower.

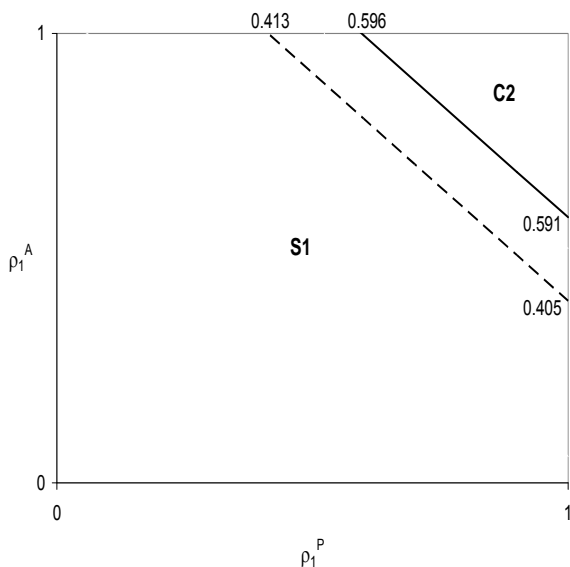


Figure 7. Scenario 1, myopic players, $r_1 = r_2 = 0.8$ (both if P and A wins the first trial)

Finally, we are interested in the effects of having different levels of confidence in the courts of first and second instance. To gain some insight in this matter, we analyze Scenario 1 for $r_1 = 0.8$, $r_2 = 0.95$. Figure 8 shows the results.¹⁶ It is assumed that the players, although myopic, are aware upon entering Stage 1 that the court of appeal is more 'reliable'. The probability estimates of winning in second instance in use during Stage 1 are equal to

$$p_2^i = \rho_1^i r_2 + (1 - \rho_1^i)(1 - r_2). \quad (13)$$

Figure 8 is, not unexpectedly, a cross between Figures 6 and 7. Note that, during Stage 1,

¹⁶ Figure 8 does not include dotted lines to demarcate the old situation, because it is not immediately obvious which of the two levels of confidence should be adopted. One could argue for the Netherlands that the quality of the single instance in the old situation is likely to be similar to that of the second instance in the new situation. For the 'Gerechtshof', the only court to hear tax cases before January 1, 2005, has now become the appeals court. If indeed $r_1 = 0.95$ would be the best choice for the old situation, the reader can transfer the dotted lines from Figure 6 to Figure 8.

the probability estimates of winning in appeal and the expected outcomes for the second stage are the same as in Figure 6. However, the probability estimates of winning the first trial are somewhat different. This results in outcomes of first stage decision making that differ, but only slightly, between Figures 8 and 6. That does not hold in a similar manner for the results upon entrance of Stage 2. Because players learn relatively little from the verdict of the first court, their beliefs about being right do not change by much. In most cases the players will then prefer to go to court in the second stage if they did so in the first stage. But there are some particular instances in which the reduction in the level of joint optimism may be large enough to make a settlement acceptable to the players.

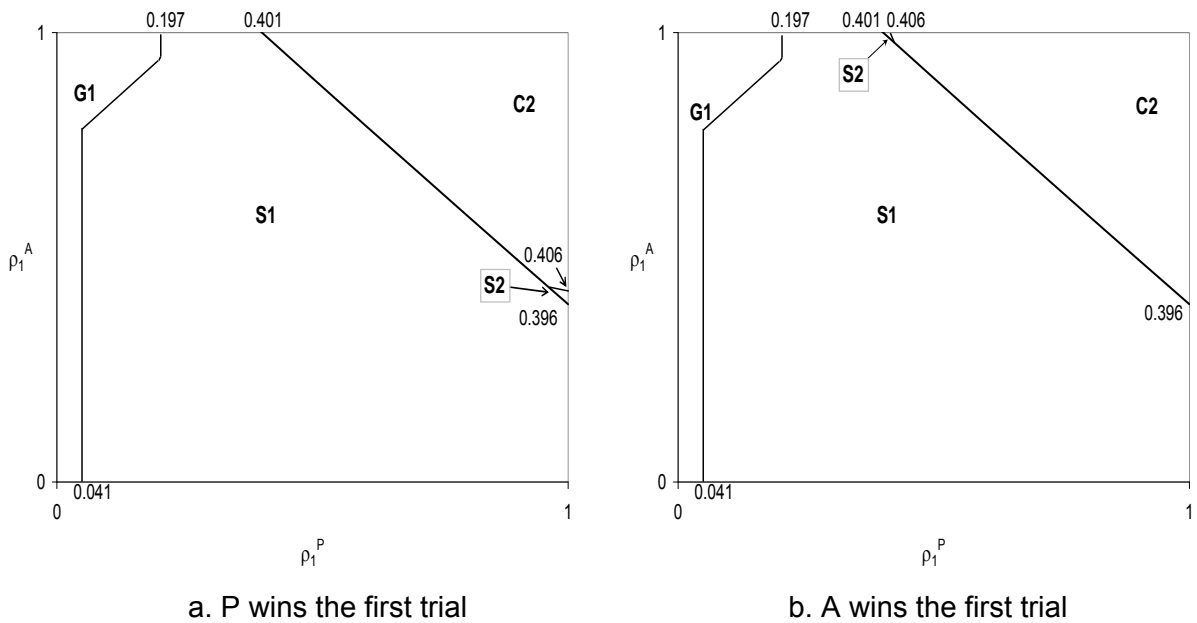


Figure 8. Scenario 1, myopic players, $r_1 = 0.8$, $r_2 = 0.95$

Summarizing, for the case with myopic players we conclude:

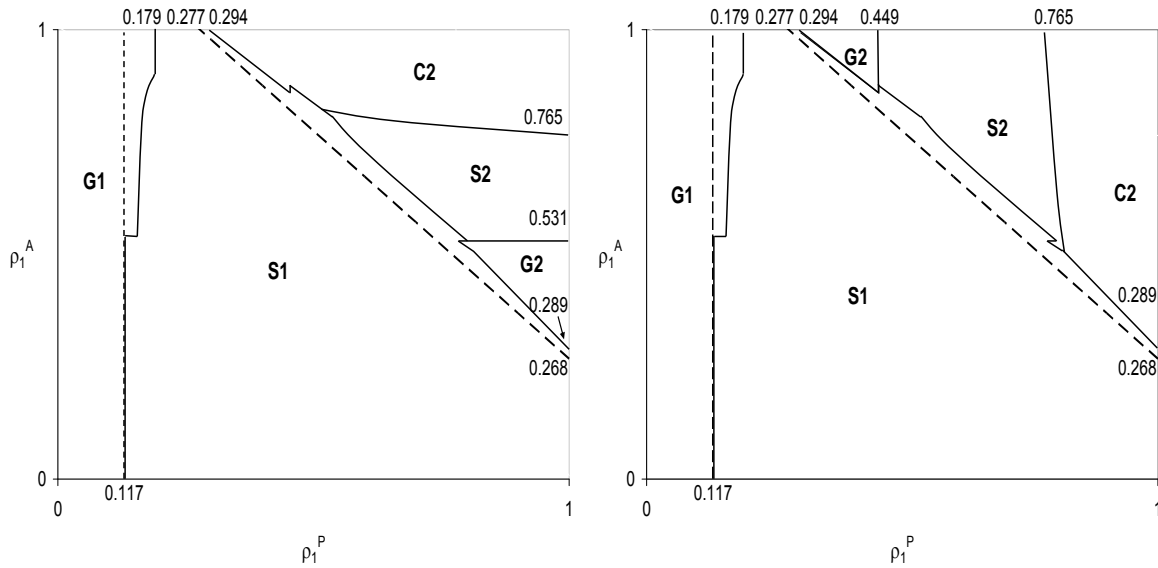
1. Myopic players do not take into account, *ex ante*, that they will learn from the verdict of the court of first instance. Hence Conclusion 1 of Section 5.2 that the introduction of the court of second instance leads to less trials in first instance applies here too.
2. As players learn from the verdict, *ex post*, they may act differently from Section 5.2. The appeal rate may vary from 0 to 1, depending on the level of confidence in the courts.
3. Given joint optimism by the players about being right, they are more likely to go to the court of first instance when the overall level of confidence in the courts is higher. The appeal rate will, however, be lower.
4. The results suggest that the confidence in the appeals court is of major importance for the decision to go to trial in first instance, while the confidence in the court of first instance is of major importance for the decision to appeal the verdict in second instance.

5.4 Two stage decision making by far-sighted players

Now the stage is set to analyze *far-sighted* players. While myopic players learn in the wake of the verdict of first instance and apply the adjusted probability estimates of p_{2P}^i and p_{2A}^i in second stage decision making only, far-sighted players are fully aware how learning will affect their future beliefs throughout first and second stage decision making.

Figure 9 presents the results for Scenario 1 if $r_1 = r_2 = 0.95$. During Stage 2 myopic and far-sighted players choose of course similar actions (cf. Figure 6). Looking at Stage 1, far-sighted players are more likely to go to court. Far-sighted players have different expectations in Stage 1 about second stage outcomes, because they realize they will learn from the

verdict in first instance. The unsatisfied player may, for instance, give up (because he will lose too much faith in the merits of his case), or the players may agree to settle (because the level of joint optimism decreases sufficiently). If players in Stage 1 are aware that players in Stage 2 may either give up or settle, they are more likely to go to court in first instance because the expected trial costs will be lower.



a. P wins the first trial

b. A wins the first trial

Figure 9. Scenario 1, far-sighted players, $r_1 = r_2 = 0.95$, old vs new (dotted vs solid lines)

It can also be observed, comparing Figures 9 and 6, that giving up is more likely with far-sighted than with myopic players, unless A has much faith in being right. This can be explained in the following way. Note that P loses faith in the merits of his case if he loses in first instance, but becomes more confident if he wins. Suppose now that A is not too sure about the case. In the neighborhood of the borderline between G and S, P expects to lose. Moreover, after losing in Stage 1 P loses so much faith, that he will not have a credible threat in Stage 2. Combined, this outweighs the gains which P has after winning in first instance. Consequently, P is more likely to give up at the start. Now suppose that A is quite sure about the case. Then it is less important whether P has a credible threat after losing in first instance: the resulting settlement (if a settlement is at all possible) is quite unattractive to P anyhow. However, if P wins, the settlement may become worthwhile, since A loses faith. This second effect outweighs the first if initially A has much faith in being right.

Note that the appeal rate depends on the joint distribution of beliefs ρ_1^P and ρ_1^A . When these beliefs are uniformly distributed over the interval $[0, 1]$, the appeal rate is lower with far-sighted players than with myopic players.

Finally, we look at the role of the confidence in the courts by considering two alternative cases, similar to Section 5.4. Figure 10 presents the results for $r_1 = r_2 = 0.8$ and Figure 12 those for $r_1 = 0.8$ and $r_2 = 0.95$.

Figure 11 differs only marginally from Figure 8. Because players know that their beliefs will change after the first verdict, their expected trial costs of an appeal increase, and their incentives to go to court in first instance decrease. Figure 12 is a cross between Figures 10 and 11, just as Figure 9 was a cross between Figures 7 and 8.

In summary, the main conclusions for myopic players also apply to far-sighted players:

1. The introduction of a court of second instance leads to less trials in first instance.

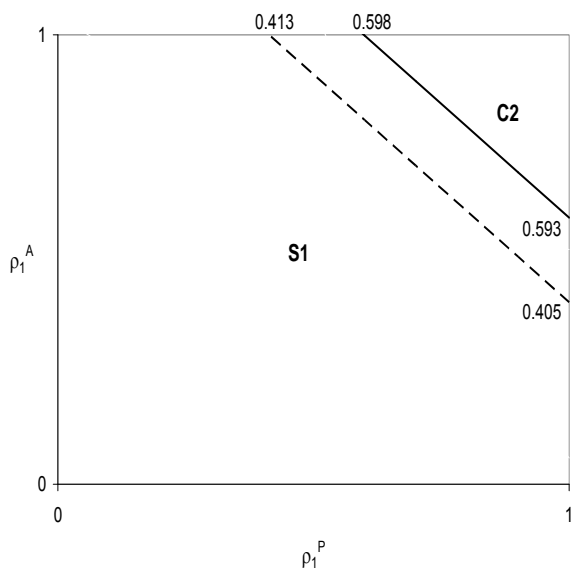
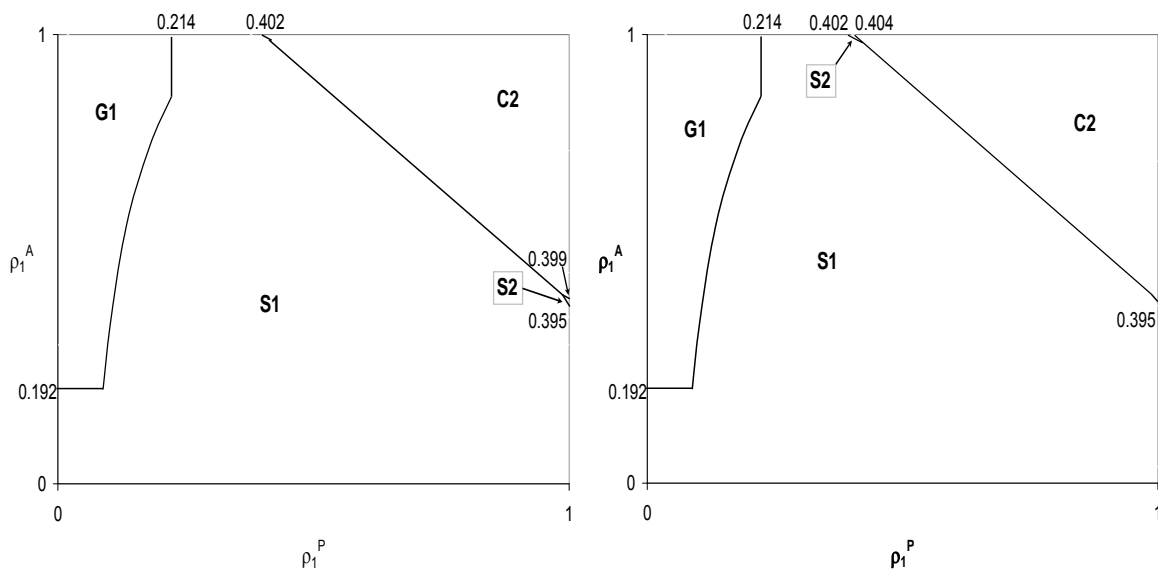


Figure 10. Scenario 1, far-sighted players, $r_1 = r_2 = 0.8$ (both if P and A wins the first trial)



a. P wins the first trial

b. A wins the first trial

Figure 11a. Scenario 1, far-sighted players, $r_1 = 0.8$, $r_2 = 0.95$

2. Depending on the level of confidence in the courts, the appeal rate may vary from 0 to 1.
3. Given players' faith in the merits of their case, when confidence in the courts is higher players are more likely to go to trial in first instance. The appeal rate, however, is lower. Comparing the results for myopic and far-sighted players further suggests:
4. If the confidence in courts is high and the appeal rate is clearly smaller than 1, then players are more likely go to court if they are far-sighted than if they are myopic.

6. To conclude

As of January 1, 2005, a court of second instance has been introduced in Dutch tax litigation. In this paper, we extended the standard divergent-expectations model to study the consequences for the handling of disputes between tax payers and the tax administration.

We further extended the model by dissecting the players' probability estimates of winning in court into two components: (i) players' beliefs about the intrinsic merits of the case, summarized in probability estimates of being right, and (ii) society's level of confidence in the courts, summarized in probability estimates of the courts delivering correct verdicts. Where non-linearities and a large number of model parameters prevented us from deriving analytical results, we employed numerical simulations to supplement the analysis.

In general, it appeared to be unclear whether tax payers will take action against a tax assessment more or less often after the second instance has been introduced. This depends on the actual joint distribution of the players' probability estimates. What we can say is that, given this distribution, players will less often go to trial than before. In other words, players should jointly be more optimistic before they go to court. The model further predicts that the appeal rate equals one, when the players are naive; but when they learn from the verdict in first instance, the appeal rate may vary from zero to one.

Society's confidence in the courts affects the results in several ways. If the confidence in the courts is perfect, the verdict of the first court will be accepted by the players as the right one; the appeal rate will be equal to zero. Moreover, far-sighted players will act exactly as in the old situation without the appeals court, for they know *ex ante* that all players will abide by the verdict of the first court. The results are different when the confidence in the courts is less than perfect. For one thing, the range of values that the players' probability estimates of winning in court can adopt is limited by the level of confidence in the courts' verdicts. Further, players' joint optimism (if any) appears to be lower if the general level of confidence in the courts is lower. Fewer cases go to court in the first stage, but the appeal rate is higher.

Subsequent empirical analysis should point out whether and in how far our model fits reality. Alas, it will take several more years before data have accumulated that will permit a first test. To complicate matters: our model starts from existing tax disputes. In other words, the substantive tax laws are considered given. Naturally, these change over time too.

That brings us to our final observations. Several elements which may be relevant for a full appreciation of the introduction of an appeals court, are still missing from our model.

First, the judgment of a court also depends on *case law*. The court's verdict in a case may become legal precedent for similar future cases. Tax payers are most likely one-shot players in the terminology of Galanter (1974), who generally will not expect to get involved in a similar tax dispute again. But the tax administration is a repeat player. In a simple model with one instance the effects of legal precedent are relatively clear. Because the tax payer (P) is a one-shot player, he is only interested in the outcome of the dispute at hand. The tax administration (A) however knows that if it goes to court now, it may never have to do so again on the matter, because tax payers in similar future cases will know how the court's verdict will read. Therefore, if A expects similar cases in future, the expected benefits to A of going to court are larger, while the expected costs are the same. Hence, players are less likely to settle; they will end up in court. Upon the introduction of an appeals court, however, the analysis becomes more complicated. Are verdicts of courts in first and in second instance equally important in case law? And if they are not, which weight (if any) is attached by the appeals court to the verdict of the court of first instance? If players expect that the verdict of the appeals court depends (to some degree) on the verdict in first instance, then players will realize that their chances in the appeals court depend on whether they won or lost in the court of first instance. Hence players should condition the estimates of their chances in second instance on the outcome in first instance. Such an analysis is outside the scope of this paper.

Second, from the literature on *tax evasion* (cf. the review by Andreoni, Erard and Feinstein, 1998) we know that noncompliance can be discouraged by raising the expected penalty (by increasing either the fine or the audit probability). In that perspective we should verify whether the introduction of a second instance might affect the attractiveness of tax evasion. If the tax payer (P) gets caught at evading taxes, the tax administration (A) will

charge him for an amount (Y) equal to the amount of taxes evaded plus some fine. Because the tax payer knows that he is wrong (tax evasion is intentional), he will have relatively little faith in the merits of his case. The tax administration, in contrast, will have relatively much faith. According to our model, it is more likely then that the tax payer has no credible threat and will give in. Which would help to discourage tax evasion. But there may also be another effect. When tax inspectors would be forced to spend more time in court, first and second instance combined, there would be less time left for detecting fraud. The net effect remains unclear without more information.

Finally, a substantial strand of the literature gives *asymmetric information* as an explanation for cases in court. See for instance Bebchuk (1984), Reinganum and Wilde (1986) and Daughety and Reinganum (2005). When players cannot verify each other's information, asymmetry in information may lead to different probability estimates to win in first instance. But once all information is revealed during the first trial, there is no asymmetry in information left in second instance. Hence, if all differences in the probability estimates were due to asymmetric information, players will end up sharing the same view on who is going to win in appeal. But then they will not go to trial in the second stage. In this respect it is worthwhile to note that parties in an appeals case may only rely on evidence that was used in the court of first instance and on new evidence which that party did not have before. Concluding, in as far as differences in players' probability estimates result from asymmetric information, and given that this asymmetry is removed in the court of first instance, the appeal rate will tend to zero.

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