

Summary

Forecasting model for the civil and administrative justice chains: model improvements 2005/2006

In 2003, the Ministry of Justice, the Ministry of Finance, the Ministry of the Interior and Kingdom Relations, and the Ministry of General Affairs agreed that the Ministry of Justice would take the lead in the development of an integral forecasting model for the different judicial chains (Dutch abbreviation: PMJ). The aim of this model is to estimate the workload of the various partners in these chains for the years ahead. The insights and outcomes of this model would then be used in the preparation of the budget for the Ministry of Justice. Currently, the model consists of two parts: one part for the *criminal justice chain* (PMJ-V) and one part for the *civil-law chain and administrative-law chain* (PMJ-CB). PMJ-V is already being used for budget preparation. The development of PMJ-CB is a joint project conducted by the Research and Documentation Centre [*Wetenschappelijk Onderzoek en Documentatiecentrum (WODC)*] and the Council for the Judiciary [*Raad voor de rechtspraak (Rvdv)*]. The first version of this model was completed in 2005 (for a detailed description, see Leertouwer et al., 2005), but was not considered to be mature enough yet for use in budget preparation. The explanatory power and predictive power of this initial version of the model was deemed too limited for a number of case types. Added to this, a number of links that are relevant to the budget are still missing in the model. In 2005/06, the Research and Documentation Centre and the Council for the Judiciary have made efforts to improve and extend the scope of the model. This publication will report on these activities. The model for the criminal justice chain will not be discussed in this report.

Objective

The objective of the project is to arrive at an improved and extended version of the part of the Forecasting Model for the Judicial Chains, which relates to Civil and Administrative Law [*Prognosemodel Justitiële Ketens, onderdeel Civiel en Bestuur (PMJ-CB)*]. The model has to produce reliable policy-neutral forecasts of the inflow and outflow of civil and administrative cases in the individual courts, for the medium-long term (6 to 7 years in the future). Policy-neutral means that the developments resulting from new or recently-introduced policy and/or legislation, which have not yet been, or which cannot yet have been, incorporated into the data used in the modelling, will be disregarded in the PMJ forecasts. Apart from inflow of court cases, the model should also generate forecasts for the number of instances of legal aid provided by the legal aid boards [*Raden voor Rechtsbijstand*]. These are funded by the Ministry of Justice, in accordance with the Legal Aid Act [*Wet Rechtsbijstand*]. These forecasts must contribute to budget proposals of the Council for the Judiciary and the Ministry of Justice.

The improvement of the first version of PMJ-CB focuses on increasing its explanatory power. Another part of the improvement programme involves the quality of external forecasts, i.e. forecasts of the explanatory variables in the model, which are made and provided by third parties. As regards the extension of the model, legal aid will now be added to the model. Legal aid was not included in the first version of the model. Nor is the outflow of cases included in the model yet. Initial steps will also be made to model the outflow of cases, stocks that are present in the system and case-specific handling times.

Increasing explanatory power

In PMJ-CB, a distinction is made between a number of case types, based among other factors on the court that settles the case type in question. Model specifications have been produced for each of these case types, in which the influence of background factors has been operationalised on the basis of measurable explanatory variables, and then related to the development of the number of legal cases, at the district level. The background factors have been chosen on the basis of academic theories on the emergence of disputes, how actors respond to them and how disputes are ultimately resolved. The impact of these explanatory variables on the development of the number of civil cases and administrative cases was estimated using econometric models and historical data, per case type and court type.

In order to strengthen the theoretical basis of the model, a number of case types have been selected for which less satisfactory model specifications were found in the first version of PMJ-CB. This selection of cases was achieved on the basis of the following three criteria:

- The model specification contains a relationship that it is difficult to interpret or the direction of the relationship is contrary to theoretical expectations;
- The degree of explanatory power of the model specification (measured by the statistical performance indicator R²) is low; the norm has been set at less than 20%;
- The autonomous trend estimated in the model specification is very high (in an absolute sense). Generally, effects of explanatory variables that were not taken into consideration could be behind this. The norm has been fixed at an annual autonomous growth of more than 10% (or less than -10%, in the case of a falling trend).

The case types selected on the basis of (one or more of) these criteria have been subjected to further analysis, consisting basically of four steps. Firstly, (academic) literature was used to ascertain whether the estimated relationships correspond to the insights taken from literature and, in the case of relationships that are difficult to interpret, whether there are empirical studies that can interpret these relationships to some extent. Secondly, the exact composition of cases within a certain case type was examined in more detail. Thirdly, legal sources were used to ascertain whether large, isolated increases or decreases in the inflow of cases in certain years can be ascribed to changes in legislation and/or regulations. Finally, the knowledge of various experts from the field was

drawn on. Where prompted by the new insights, new explanatory variables have been determined. Steps have also been taken to establish whether there are any useful data sources that could add substance to these variables. After this, the effect of these new explanatory variables on the development in the number of cases was assessed.

Results

Both the applications and summonses for *rent cases* that are instituted before the subdistrict courts were subjected to the improvement programme. Payment problems by tenants form the background for the majority of cases (rent arrears, dissolution of the lease, eviction from the property). Added to this, the variables used in the first version of the model seem to be too general and to focus insufficiently on the kind of rent problem itself. The distinction between the social sector and market sector would also seem useful for rented property. Most cases started by an application concern disputes set in the social rent sector. It has also been found that rent increases can be a potential source of conflict. The falling trend in the number of cases started by an application is due in part to the falling trend in the number of cases dealt with by the rent assessment committee [*Huurcommissie*], given the fact that some of the applications progress from the rent assessment committee to the subdistrict court. The rising trend in cases commenced by a writ of summons can be explained in part by a growth in market forces in the rented property sector. As a result, many rented properties are moving from the regulated sector to the liberalised sector. Most rent disputes in the regulated sector are handled by the rent assessment committee, whereas disputes in the liberalised sector are brought primarily before the subdistrict court (summons procedure). The new Rent Act in effect from 2002 consists of various elements that have resulted in a number of shifts. The new insights have led to the modification of the model specifications, both for applications and summonses. From a statistical point of view, no real improvement with the applications model can be observed, although an improvement can be observed in the interpretation of the estimated relationships. As regards summonses, the autonomous trend estimated has been reduced by 2 percentage points per year, and the explanatory power (R^2) increased by 10 percentage points.

The *employment cases* instituted before a subdistrict court via a summons procedure have primarily been found to be cases involving 'poor employership' (e.g. about not paying wages in time, bad working conditions). Many of these are dismissal cases that are not included in the applications submitted to the Centre for Work and Income [*Centrum voor Werk en Inkomen (CWI)*] and are separate from cases settled through a standard subdistrict court formula [*kantonrechtersformule*]. Those cases are instituted via an application. Based on the participation theory, attempts have been made to select more specific groups, for which the chance of employment disputes is relatively high (employed labour force, employees, self-employed individuals) and variables, that are assumed to be linked to employment disputes (the number of jobs). Over the years, a number of relevant changes have been made to legislation and regulations (for example, the Working Hours Act [*Arbeidstijdenwet*] of 1995 and

the Flexibility and Security Act [*Flexwet*] of 1999). Despite the new insights as a result of our analyses and the inclusion of possible new explanatory variables, it has not been possible to improve the model specification in the first version of the model for employment disputes before the subdistrict courts. As such, the 'old' model specification will remain.

A large number of *family cases* (civil section, applications) focus on problems of juveniles (children, adolescents) resulting from divorce and the dissolution of cohabitative relationships involving children (custody, access, maintenance). The role of young people and 'young adults' has been looked at in more detail, since young adults enter into and end relationships relatively more often, and children are sometimes involved. Added to this, financial problems are often accompanied by family and/or relationship problems. This applies particularly in the aftermath of divorce. The number of marriages may also be important, since some of the family cases concern the dissolving of postnuptial agreements between couples who are already married. The negative relationship between family cases and the number of individuals divorcing, which was found in the first version of PMJ-CB, is contrary to literature on this subject. Various studies show that the effect must in fact be positive. The new insights induce, however, no modification of the model specifications, since the estimated effects of the new variables were not found to be significant.

Approximately half of the number of *summary proceedings* (civil section, summonses) concern special agreements (rent, purchase, exchanges and the provision of services). Added to this, there are a relatively large number of summary proceedings in the field of family law (access/custody, maintenance). The nature of many of the summary proceedings is similar to the cases in the first instance, in the case types distinguished in the model (proceedings on the merits). The most important difference is the urgent nature of the dispute, in this case making summary proceedings the most logical way to bring a dispute before the court. For this reason, the new insights on rent cases and family cases have been utilised for this case type. This has led to an improved model specification, where the degree of explanatory power has more than doubled.

Civil servant cases (administrative section) particularly concern cases instituted by civil servants in connection with employment disputes with their employer. Four out of five cases fall within the framework of the Central and Local Government Personnel Act [*Ambtenarenwet (AW)*]. The remaining cases fall largely under the Military Personnel Act [*Militaire Ambtenarenwet (MAW)*]. With the participation theory in mind, steps have been taken to ascertain whether the number of individuals falling under the Central and Local Government Personnel Act and the Military Personnel Act has a positive effect on the number of civil servant cases. In this context, the privatisation operations of recent years are important; these operations saw many jobs move from the public sector to the private sector. The government is also trying to reduce the differences in terms of legal position between the public services and the private sector. The analyses conducted were not found to result in any improvement to the model.

Tax cases can be broken down according to the type of tax concerned: national tax (income tax, road tax, several others), local tax and water control authority tax (property tax/the Valuation of Immovable Property Act [*Wet waardering onroerende zaken (WOZ)*], pollution levy, other) and some social security contributions. The inflow of cases in relation to national tax matters is very different to the inflow of cases involving local taxes, and, as such, evidently has different backgrounds. Added to this, for national tax, changes to procedures in the tax chain prior to the courts (i.e. the tax authorities such as the water control authority, local governments, and the Tax and Customs Administration [*Belastingdienst*]) and a reduction in the tax burden (i.e. the ratio of total tax amount to national income) may both have had an important reducing effect on inflow. As regards local taxation, besides the Valuation of Immovable Property Act, developments in the field of parking tax seem to be dominant. The revenues generated by this type of tax have increased considerably. The inclusion of tax burden in the model has improved the specification significantly; the estimated falling autonomous trend of 11% per year has been reduced to 2% per year. In addition, the relationships that were difficult to interpret in the first version of the model (regarding for instance legal costs) have been removed from the model specification.

The *social insurance cases* group (administrative section) is a diverse collection of cases that can be broken down according to different acts. Most cases involve the Disability Insurance Act [*Wet op de Arbeidsongeschiktheidsverzekering (WAO)*] and the Unemployment Insurance Act [*Werkloosheidswet (WW)*]. An effort has been made to relate the number of appeals before the administrative courts, to both the rejected social insurance applications (by CWI) and the subsequent objections dealt with (both the Disability Insurance Act and the Unemployment Insurance Act). This exercise has not led to an improved model specification.

The model specification for administrative appeals *in relation to construction and spatial planning cases* (administrative section; so-called 'ex-arob cases') in the first model version was based on data from proceedings on the merits, including also injunctive relief (administration, entire category). These two types of proceedings can be distinguished and two different model specifications have been developed for them. Model improvements have been sought in the number of planning permissions granted and the development of housing stock as problem-frequency indicators. An improved model specification has been found for proceedings on the merits in ex-arob cases. It has not been possible to formulate a model specification for the injunctive relief. For the time being, development in this type of case is modelled via extrapolation of historical trends.

Quality of external forecasts

Forecast errors in the explanatory variables are the rule rather than the exception. These errors are particularly commonplace in the field of economic development. Thus, errors of this nature can have an impact on forecasts (produced using PMJ-CB) of the workload of the judicial system. Besides this, the frequency and time horizon of the various external forecasts differ

considerably, not only between institutions, but also in the different forecasts produced by an individual institution. Often an 'average/expected' or 'most likely' development is outlined, and sometimes variants or scenarios are used in the forecasts. The question arises as to whether it is wise to adopt approaches of this nature in PMJ-CB. The forecasts produced with PMJ-CB are primarily intended to achieve the optimal substantiation of a budget. Forecasts are geared chiefly towards the formulation of a budget for next year.

The following considerations apply for future activities:

- In preparation for the budget, there is a need, firstly, to estimate the development of the inflow of cases in the first year ahead, using the model. This means that forecasts may not systematically yield an underestimation or overestimation;
- Added to the above, it is possible to give an indication of the (relative) uncertainty surrounding the forecast per type of case for the budget year;
- On a regular basis (in advance of cabinet formations, for example), it is useful to outline several scenarios and their consequences for the workload of the judicial system for the (medium-)long and longer term (5 to 10 years into the future).

Legal aid

PMJ-CB has been extended to include a module for the number of cases in which subsidised legal aid is granted in accordance with the Legal Aid Act. When developing this first legal aid module, a simple approach was adopted. The development in the number of cases awarded by the legal aid boards has been related to social and policy-related background factors. No formal link has been specified to the relationships that have been found between background factors and the inflow of cases before the civil and administrative courts. Cases in which legal aid is applicable have been broken down into 8 civil-case types and 3 administrative-case types. Wherever possible, this classification reflects the classification of cases in the first instance. Due to limitations in the registration of subsidised legal aid, no distinction could be made between cases commenced by applications and cases commenced by writs of summons. When developing the different legal aid models, the same set of explanatory variables was used as the one applicable for the development of the model for cases in the first instance. Development of a suitable model has been unsuccessful for a small number of case types.

The model estimates based on data on past legal aid cases seem to be reasonable. Although, on average, prediction errors are high, in most cases they are lower than when using simple trend extrapolation. In general, there has been a steady growth in the number of legal-aid cases awarded in recent years, and this is expected to continue in the medium-long term.

Case load and handling times

It is possible that (expectations about) handling times play some part in the decision of individuals seeking dispute resolution to institute legal proceedings. Incidentally, the relationship can go in one of two directions: if people want to achieve a solution to a certain problem as soon as possible, short proceedings will be more attractive as they are quicker. However, when the objective is to achieve a postponement or delay, longer proceedings may be more attractive.

The average handling time can be estimated using data on the number of cases that are being dealt with, also referred to as case load. By combining an estimate of the current case load with figures on inflow and outflow over a series of years, we can estimate the case load over a series of years. So, the case load (at the start of a given year) and the outflow (in the same year) ratio is a rough indicator of the average handling time in a year. In a future improvement programme, a simple approach will be used to incorporate handling times into the model, whereby the time estimated will be incorporated into the model as an exogenous variable. At a later stage, it will be necessary to ascertain whether the endogenous nature of the handling times must be taken into account, given the fact that they are actually partly dependent on inflow and outflow in previous years.