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The Dutch Recidivism Monitor

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Memorandum

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1 Introduction¹

The Dutch Recidivism Monitor is a long-term research project that conducts standardised measurements of recidivism amongst diverse groups of offenders. This project will enable the Ministry of Security and Justice to obtain a clearer overview as to the disposals of penal interventions and the course of criminal careers amongst both juvenile and adult offenders. Measurements as part of the Recidivism Monitor are carried out using the same fixed method. Consequently, the results of the research are mutually comparable. In the case of important groups of offenders, measurements are repeated at specific intervals, so that it is possible to depict the development of recidivism and to examine the subsequent criminal career courses of offenders in these groups.

¹ The authors wish to thank Elmarije van Straalen for her contribution to this English version of the Memorandum.

2 Methodology of the Dutch Recidivism Monitor

2.1 The Research and Policy Database for Judicial Documentation

Data for the research is taken from the Research and Policy Database for Judicial Documentation [Onderzoek- en Beleidsdatabase Justitiële Documentatie, OBJD], a database that has been developed especially with the Recidivism Monitor in mind. The OBJD is a copy of the JDS, the official judicial documentation system that is managed by the Judicial Information Service [Justitiële Informatiedienst, JustID] in Almelo. All data in the OBJD is pseudonymised; data such as names are missing and other identifying data (for example the Public Prosecutor's office registration number) are encrypted. The JDS provides an overview of all natural and legal persons that have come into contact with the judicial system in the Netherlands, and of cases they were suspected of. For every criminal case is registered when and at which Public Prosecutor's office the case was recorded, along with details of the criminal acts involved and how and by which authority the case was resolved. Every three months, the OBJD is updated with the most recent data from the JDS. An important difference between the OBJD and the JDS is that the data in the OBJD is not deleted when the legal storage term has expired; it remains available for research purposes. Data in the JDS is deleted when the legal storage term for the offence concerned has expired. A pre-condition for inclusion in the JDS is that the person or entity came into contact with the judicial system after 1996. If this is not the case, it may be that the cases of which the person or entity is suspected have not yet been entered into the system. This means that they will also not appear in the OBJD²

Box 1 Judicial Documentation

The Judicial Document Service (JDS) contains current and historical penal documentation of any natural and legal person who in any way came into contact with the judicial system. New data is immediately added to the JDS system from other systems such as the Integrated Process System Criminal (GPS), formerly Communication Public Prosecutor Administration System (COMPAS), of the Public Prosecutor's offices. The JDS was created at the beginning of the 1990s. Until that time, all information on offences and the disposal of cases was recorded by the district Public Prosecutor's offices using a card-based system. These were sent to the then Central Judicial Documentation Service (CJD) – now the JustID – where the data relating to cases that were not prescribed (not past the period of limitation) was photographically recorded and stored as images. Spent or prescribed cases were recorded on micro film.

The JDS (and therefore also the OBJD) provides a total overview of the criminal cases involving individuals who came into contact with the judicial authorities after 1996. By the end of 2010, the OBJD entailed data of almost 3.8 million individuals and about 12 million criminal cases. When the JustID receives notification of a new criminal case involving an individual, it also examines whether this person was in-

² When however there is a request for information received by the JustID as a result of a suspect who came into contact with the judicial system before 1996, the cases will still be entered in the JDS and will automatically appear in the OBJD three months later.

involved in any cases that were stored as an image. If that is the case, these old cases are entered into the JDS. Also in the event that investigations are being carried out regarding specific individuals who have not been the subject of any notifications since 1996, cases that have been captured as an image are still entered. Spent or prescribed cases recorded on file are, in principle, no longer entered and are therefore lost as far as future investigations are concerned.

Box 2 Data quality

In the JDS all crimes and minor offences as for natural and legal persons are registered, as appointed in the Dutch law concerning data used in judicial settings and criminal proceedings [Wet justitiële en strafvorderlijke gegevens]. The data in the JDS is for the greater part automated delivered into all the district Public Prosecutor's offices and criminal courts. In the Judicial Data Act [Besluit justitiële gegevens] is explicitly provided what judicial data in the judicial documentation is registered.

It is possible that the data of one individual is registered on the name of two seemingly different individuals. The JustID continually investigates this phenomenon and corrects possible registration errors.

The WODC also closely monitors the quality of the data. For example – every time the data is refreshed – a check is made whether unexpected changes have occurred, counts are kept and set preconditions are verified. Also – when the data is refreshed – reconviction rates are recalculated with retrospective effect for all year cohorts and compared with the older data. This produces an extra insight on the quality of the new data.

2.2 Research into specific interventions or offender groups

The OBJD contains only basic details of the disposals. The type of punishment or measure is recorded, along with the extent or duration thereof³. The data does not however include information such as the specific education programme that an individual has followed or the institution in which his or her custodial sentence was served. In any research as to interventions that do not appear in the OBJD, the data of those offenders cannot be drawn directly from the database and it is therefore necessary to introduce an intermediary stage that involves the JustID. Upon request, the JustID will supply the encrypted numbers under which the relevant persons can be found in the OBJD. In order for this intermediary stage to take place, the following information must be available in respect of each person that forms part of the study group:

- full forenames, prefixes and surname;
- date of birth, place and country of birth; and
- if applicable the Public Prosecutor's office registration number of the criminal case (including district code).

Instead of name and birth records, the citizen service number (BSN), the VIP-number (Reference Index Criminal Law) or the criminal justice system number (SKN), can also be used, with for example the date of birth as a verification. Based on the information above, the JustID will retrieve the encrypted numbers under which the relevant persons are registered in the OBJD. Using these encrypted numbers, it is

³ Appendix 1 subdivides the outcomes of cases that appear in the OBJD according to category.

possible to extract all relevant information relating to the crime, the case, and the disposal from the OBJD. As this procedure infringes upon the anonymity of the respondent, the permission of the Minister of Security and Justice is required for research of this type. All applications for information from the OBJD are handled by the Research and Documentation Centre (WODC). See also Chapter 5.

2.3 Processing of raw research data

The data from the OBJD and possible from additional files, is often not directly suitable for analysis, but needs to be processed first of all. This is carried out by means of several stages:

- **Appointing index case**
To be able to measure recidivism, for every person has to be decided which criminal case is starting point for the measurement. This case is called 'index case'. Usually, the index case is a criminal case that is registered in the OBJD. Sometimes an OBJD registration is missing. This happens, for example, with recidivism measurements for juveniles with a placement under a family supervision order (a civil measure) or with recidivism measurements for participants of an educational traffic offence (an administrative measure). Then, an extra line is added to the research database which is the starting point of the recidivism measurement. We call this a 'fictive index case'. This is the same when we, because of registration errors, cannot find the criminal case that serves as starting point in the Judicial Documentation. Then also we add an extra line to the research database which is the starting point in the recidivism measurement. Sometimes the starting point is formed by several criminal cases at the same time. For example, when a person has been incarcerated for several criminal cases. By determining the recidivism (and the size of the criminal past) these criminal cases are not taken into consideration.⁴
- **Determining the starting point of the recidivism measurement**
The starting point of the observation period – the period for which the recidivism is set – is the date on which the index case is *registered* with the Public Prosecutions Service (OM). That way we depict recidivism from the moment the interference of the Ministry of Security and Justice starts. Research into specific interventions mostly considers the date the intervention has *ended*. For example with research on ex-prisoners, former inmates of juvenile detention centres, former patients of forensic psychiatric centres (FPC's)⁵ and former probation and after-care service clients. The recidivism measurement for these groups start at the moment a person is released from the institution or – in the case of former probation and after-care service clients – when the intervention has ended. It often happens that a stay in an institution is made out of several separate stays. A person has – because of a certain criminal case or combination of criminal cases – for example first been in pre-trial detention, has than been suspended for some time to finally undergo the remaining part of the detention. Here, the starting point of the observation period is the moment the last part of the detention for

⁴ The same goes for cases that are heard in a joint action. There is a joinder of case when two or more registered criminal cases are joined by the Public Prosecutions Service or the judge to treat this as one criminal case.

⁵ Offenders placed under a mandatory treatment in a forensic psychiatric centre due to a mental disorder. In Dutch 'tbs' (article 37a, b Dutch Criminal Code).

the criminal case in question (or criminal cases) has ended. To calculate the length of detention, prior stays are also reviewed.

- Summarisation of information on the committed crime
The details of committed crimes are recorded in the OBJD in the form of the laws that have been contravened. Each punishable offence consists of a maximum of five items of law. The (maximum) statutory penalty is entered for each offence. In cases involving one of the Articles referred to in Title IV or V of the Penal Code, such as a punishable attempt to commit or complicity in a criminal act, the statutory penalty is corrected in accordance with the Penal Code. Furthermore, each offence is subdivided according to the standard classification for offences 1993 used by Statistics Netherlands [Centraal Bureau voor de Statistiek]. Where a case involves both principal and alternative charges, the details of the principal offence will be used, unless this case ended in an acquittal or clearance of charges by the court (e.g. to bar the prosecution or invalidate a summons). In this instance, the alternative offence will be used.
- Summarisation of information on the type of disposal
Criminal cases may be settled in a variety of different ways. A case may incorporate more than one penalty component, there is no maximum to the number of sentences that can be recorded. The details of the disposals are summarised. This is carried out in two ways. In the first instance, each case is examined in order to establish the type of disposal. Then, the disposals are subdivided into one of the following main categories: custodial measures, non-suspendable prison sentences, community service orders, suspended sentences⁶, fines, transactions and discretionary dismissals (see also Appendix 1). By adopting this approach, we can keep sight of the occurrence of combinations of different sentence components, but we are also aware of the highest penalty that was handed down in a particular case. Alongside the type of disposal, the extent or duration of the penalty is also recorded.
- Determining the starting point of the recidivism measurement
The starting point of the observation period – the period for which the recidivism is set – is the date on which the index case is registered with the Public Prosecutions Service (OM). That way we depict recidivism from the moment the interference of the Ministry of Security and Justice starts. Research into specific interventions mostly considers the date the intervention has ended. For example with research on ex-prisoners, former inmates of juvenile detention centres, former patients of forensic psychiatric centres (FPC's)⁷ and former probation and after-care service clients. The recidivism measurement for these groups start at the moment a person is released from the institution or – in the case of former probation and after-care service clients – when the intervention has ended. It often happens that a stay in an institution is made out of several separate stays. A person has – because of a certain criminal case or combination of criminal cases – for example first been in pre-trial detention, has then been suspended for some time to finally undergo the remaining part of the detention. Here, the starting point of the observation period is the moment the last part of the detention for

⁶ A 'conditional sentence' means that the punishment is decided upon, but is not executed. When the offender reoffends within a set probation time or ignores certain conditions set by the judge, the punishment can still be executed.

⁷ Offenders placed under a mandatory treatment in a forensic psychiatric centre due to a mental disorder. In Dutch 'tbs' (article 37a, b Dutch Criminal Code).

the criminal case in question (or criminal cases) has ended. To calculate the length of detention, prior stays are also reviewed.

- Determining the sequence of and the time at which the cases took place
In order to be able to determine whether and when an offence is a repeated offence, the criminal cases must be placed in sequence. This is carried out on the basis of the date of the first offence committed in a case. If this date falls prior to the date on which the index case was registered (i.e. the case for which a person has been included in the study group), the case will be classed as a 'previous conviction'. If the date of the first offence falls after the date on which the index case was registered, the case is classed as a 'repeated offence'. Sometimes a number of the offences in a case were committed before and a number after the date on which the index case was registered. In this instance, the case is regarded as a repeated offence. The recidivism date is the same as the date on which the first offence was committed after the date on which the index case was registered. The date committing the offence is, particularly with offences that were registered prior to 1997, often unknown. In this instance by the determination of the order and time of criminal cases, the case is classified according to the date on which it was registered at the Public Prosecutor's office. This date is estimated on the basis of the year of registration and always falls between the date of the offence (if known) and the date on which a judgment was handed down in the case. In doing this, account is taken of other cases registered during the year in question and – when applicable – the date on which the remand has started or the date of death, where appropriate. For cases that were registered for the first time in the JDS after July 1st 2005, we have the registration date in JDS. When the date of the offence is unknown, we use this date for determining the order and date of the criminal cases instead of the probable less reliable estimation of the date on which the index case was registered by the Public Prosecutor's office.

2.4 Definition of recidivism

The decision to use the OBJD as a data source implies that for the purposes of the Recidivism Monitor, only those crimes that are handled by the Public Prosecutions Service are charted. No statements are made as to crimes that are not detected and prosecuted.

As a rule, minor offences are also not taken into consideration. Not all minor offences are included in the JDS. Only those minor offences in respect of which it is laid down in law that a more severe sanction shall be imposed in the case of a repeated offence, are entered in the system (see the 'Judicial Data Act'). Almost three-quarters of the minor offences of natural persons in the JDS are traffic offences, of which thirty percent is an exceeding of the speed limit. In the past, researchers from the WODC often only included crimes. The Recidivism Monitor follows this practice.⁸ Cases ending in acquittal, dismissal by reason of unlikelihood of conviction or clearance of charges by the court are also not taken into account. Cases are only included if they are settled by the Public Prosecutor by means of a discretionary dismissal or a transaction or in which the judge gives a guilty verdict. In these situations, the case is classified as having a 'valid disposal'. Cases that

⁸ Where the study brief so dictates, the minor offences registered in the OBJD are indeed incorporated, e.g. in the event of research into traffic crime.

have not yet been settled or that are being heard on appeal are also included, as the chance that these cases will result in a technical decision is negligible. Cases heard in a joint action are also included. Except cases that are joined by the index case; these are left aside when we look at the criminal past or recidivism.⁹

2.5 Criteria for recidivism

Six fixed criteria are used in order to determine recidivism. A description of these can be found in Table 1. The first four criteria – general, serious, very serious and ovs (unconditional prison sentence) recidivism – differ from one another solely in relation to the seriousness¹⁰ and the disposal of the crimes brought to court. They always have the same meaning, i.e. in each study group. This does not apply to special or specific recidivism. The meaning of these criteria depends upon the nature of the final case, namely the case for which a person has been included in the relevant study group. Special recidivism stands for: reconvictions as a result of the same type of offence as that in the index case, for example traffic offenders who are once again prosecuted for a traffic crime, irrespective of the type of traffic crime. Specific recidivism is taken to mean: reconvictions based upon a contravention of the same statutory article as in the index case. For example drunk drivers who are once again prosecuted for drunk driving (art. 8 of the Dutch Road Traffic Act 1994). Additional criteria are used in specific research. For example in research on former patients of FPC's¹¹ the so called 'FPC-worthy' recidivism is calculated (Bregman & Wartna, 2010) and in research on traffic crimes are except crimes also traffic offences included (Blom, Bregman & Wartna, in preparation).

Table 1 Criteria for recidivism

Criterion	Description
General recidivism	Reconvictions* as a result of any crime, irrespective of the nature and seriousness of the crimes committed.
Serious recidivism	Reconvictions* in relation to any crime that carries a minimum sentence of 4 years.**
Very serious recidivism	Reconvictions* in relation to any crime that carries a minimum sentence of 8 years.
Ovs-recidivism	Reconvictions* in relation to any crime punished with a (partly) unconditional prison sentence (ovs).
Special recidivism	Reconvictions* in relation to the same type of crime as in the index case.***
Specific recidivism	Reconvictions* in relation to the same crime as in the index case.****

* Cases disposed of by the Public Prosecutor's Service (excluding dismissal by reason of unlikelihood of conviction and cases that are transferred to another district), cases ending in a guilty verdict by the judge and cases that are not yet decided upon.

** Crimes with a lower maximum sentence, but for which the perpetrator may be held on remand, also fall within this category.

*** An example of special recidivism is repeatedly committing a traffic crime.

**** An example of specific recidivism is repeatedly drink and drive.

⁹ Appendix 2 contains an overview of the cases that are not, and those that are, included. The latter category is referred to by the term 'valid involvement with the judicial authorities'.

¹⁰ Appendix 3 contains an overview of common crimes according to seriousness.

¹¹ Offenders placed under a mandatory treatment in a forensic psychiatric centre due to a mental disorder. In Dutch 'tbs' (article 37a, b Dutch Criminal Code).

2.6 Analysis

Based upon the above criteria, the repeated offence is assigned to a study group. We make a distinction between the following aspects:

- The prevalence of recidivism: the percentage of repeat offenders in the (sub) group.
- The frequency of recidivism: the average number of reconvictions per repeat offender.
- The volume of recidivism: the total number of reconvictions within the study group.

The *prevalence* of recidivism is determined on the basis of survival analysis. This is a statistical technique that takes account of the small differences in the time period during which it was possible to monitor the individuals that form part of the research.¹² For each of the criteria, the percentage of the study group that was subsequently involved with the judicial authorities is calculated. This is not carried out over a fixed period, but for each period for which observations are available. For each subsequent year following the index case, a figure is established relating to the section of the study group that has already reoffended (Figure 1).

The *frequency* of recidivism is calculated for the repeat offenders in a group and is expressed in terms of the average number of reconvictions that they have accumulated since the index case (Figure 2). For each year, the number of reconvictions is divided by the number of people who have reoffended up to that point in time, according to the definition of recidivism.¹³

In conclusion, the total *volume* of recidivism is illustrated as in Figure 3. The lines on the graph show how many reconvictions were accumulated by the entire group during the course of a number of years, as a result of relatively minor, serious, or very serious crimes. In order to enable comparisons to be drawn with the outcomes of other research, the numbers are always calculated across a group consisting of 100 offenders (i.e. repeat offenders as well as non-repeat offenders).

¹² See appendix 4 for a more detailed explanation of the analysis techniques used in the Recidivism Monitor.

¹³ Until 2010 another definition of recidivism was used: the average number of new criminal cases divided by the total number of repeat offenders. The frequency of serious recidivism was defined until 2010 as the number of new, serious criminal cases divided by the number of repeat offenders (i.e. individuals with at least one case of recidivism, irrespective of the nature and seriousness). The definition was changed in 2010 into the number of new, serious criminal cases divided by the number of serious repeat offenders (i.e. individuals with at least one serious case of recidivism).

Figure 1 Prevalence of general recidivism for offender group A and B (fictive data)

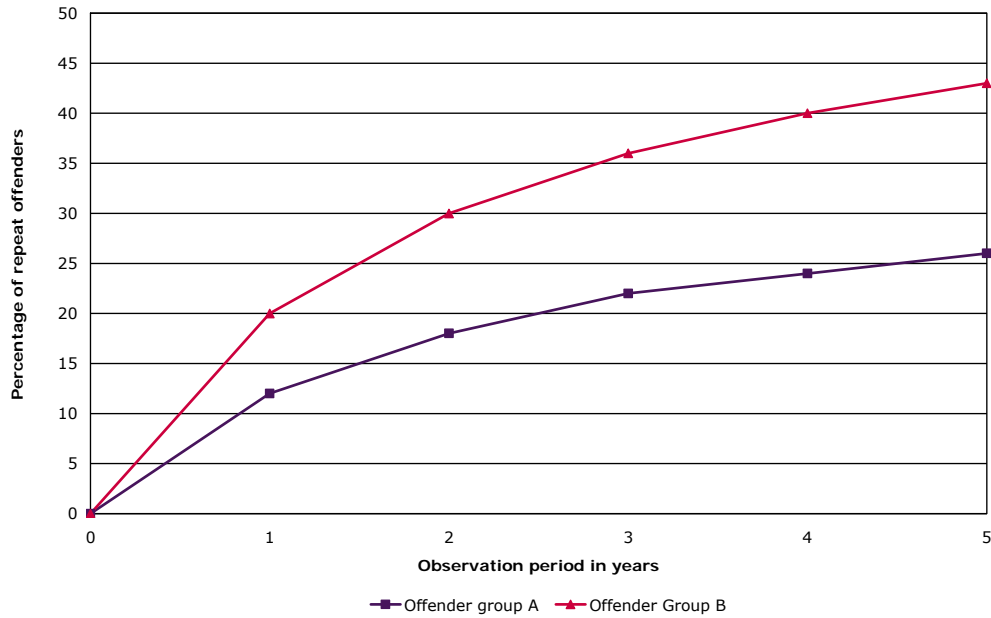


Figure 2 Frequency of recidivism, according to the definition of recidivism (fictive data)

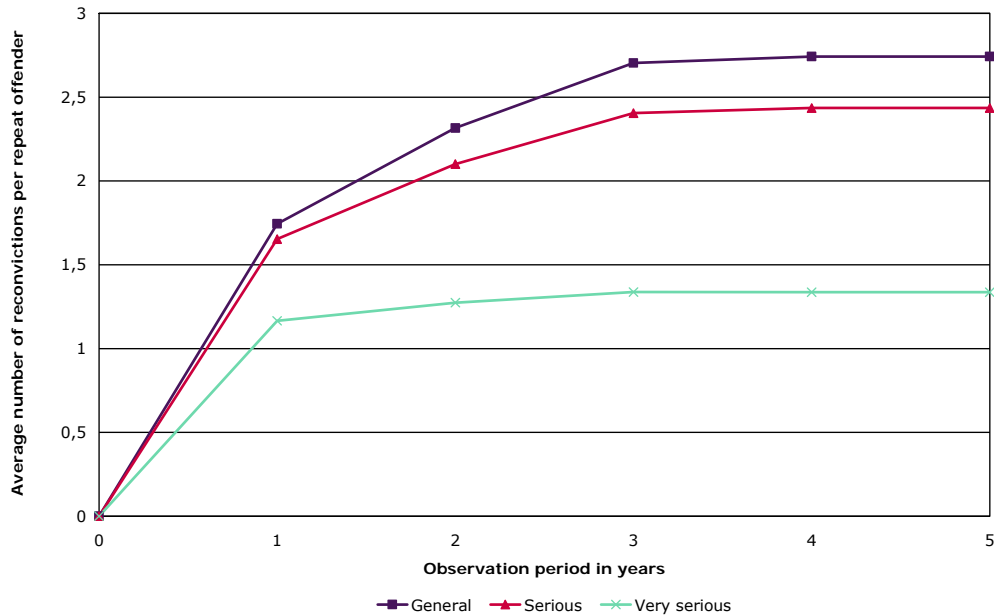
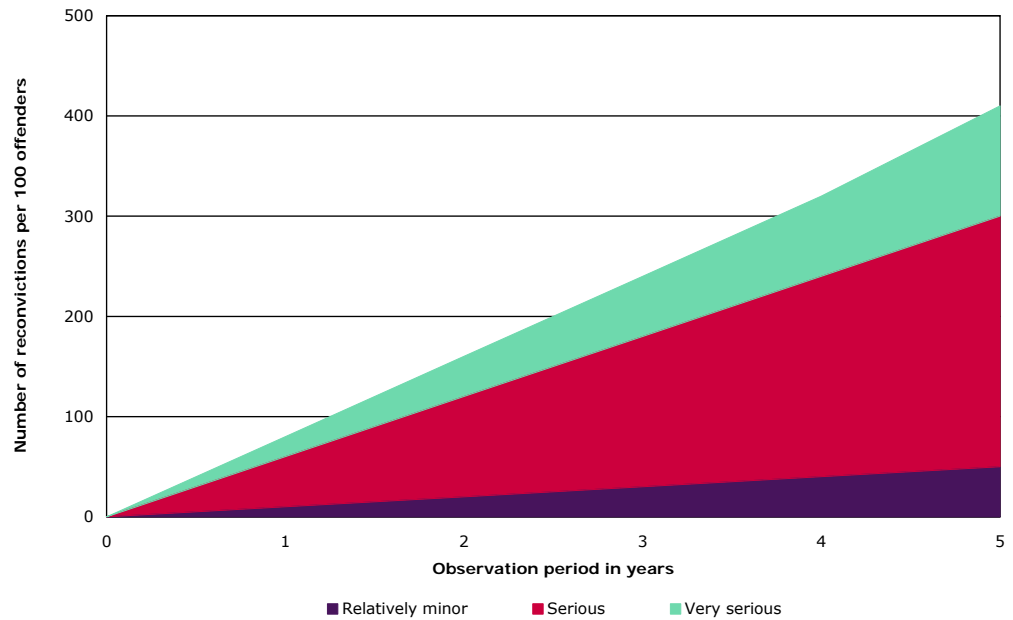


Figure 3 Volume of recidivism, according to the seriousness of the crimes committed (fictive data)



The percentage of repeat offenders, the average number of further involvements with the judicial authorities and the volume of recidivism are statistics that create a picture as to the scope of recidivism within a group. Wherever possible, it is investigated what factors influence an individual to continue his/her criminal career. Additional data is required in order to carry out analyses of this type: information on the personal background of the respondents, diagnostic data, data as to the course of the relevant intervention or regarding the circumstances in which the party found him or herself, once the sentence had been carried out. Where such data is available, it is then linked to the information from the OBJD which enables us to study the links between the various quantities, for example with the help of Cox regression analysis (see Appendix 4). Recidivism is linked to characteristics such as the sex, age and birth country of the offender, the type of offence committed, the number of prior criminal cases and the age at first conviction. Changes in the offender population for these characteristics cause fluctuations in the level of recidivism. The influence of these fluctuations can be neutralized through the use of statistical models, by which insight is gained into the 'net development' of recidivism. This is what we call 'corrected recidivism'. Box 3 contains a more extensive explanation on the origin of corrected recidivism data and provides information on other implementations of statistical (prediction) models within the Dutch Recidivism Monitor.

Box 3 The use of predictive models

Based upon the data from the OBJD, the WODC has developed predictive models for the specific groups of offenders studied by the monitor: juvenile and adult offenders subject to criminal proceedings, former detainees, former residents of correctional institutions for juvenile offenders, former patients of FPC's and former probation and after-care service clients. For each of these offender groups is studied what influence certain offender characteristics have upon the likelihood of future reoffending. These characteristics include the offender's gender, age and country of birth, the type of crime that he or she committed, the number of previous convictions with the judicial authorities and the offender's age at the time of his or her first conviction. The national clear-up rate is also included in the models. According to the links that were established, it is possible, on the basis of these characteristics, to produce a prognosis for all categories of offenders, which indicates the percentage of offenders that will have reoffended after a period of time. Possible shifts in the offender population on the above mentioned characteristics are taken into account. The models were drawn up with the help of survival and logistic regression analysis (see Appendix 4).

Prediction models are used in various ways within the Dutch Recidivism Monitor:

- **Correction of raw recidivism data**
Shifts in the groups of offenders under the abovementioned characteristics cause fluctuations in the level of recidivism. The models can be used to counteract the influence of these shifts and provide an insight into the real development into recidivism. See for example Recidivism Report 1997-2007 (Wartna, et al., 2010).
- **Risk assessment**
Based on the models, it is possible to make a (rough) estimate of the risk of recidivism for each group, but also for individual offenders. The predictions can be used in scenario studies and in the validation of formal instruments for the purpose of risk assessment. See for example StatRec (Wartna, Tollenaar & Bogaerts, 2009).
- **Benchmarking**
Within each sector of correctional institutions (prison systems, correctional institutions for juvenile offenders and FPC's), the risk that individuals held in these institutions will reoffend varies. If these differences in intake are taken into account, it is possible to compare the outflow results of the institutions more effectively and apply them in a wide-ranging quality system (benchmark).
- **Effect studies**
The models provide the possibility to compile 'virtual comparison groups'. After all, it is possible to calculate for each offender group how many individuals are likely to reoffend, based on their background characteristics. If the actual rate of recidivism is higher or lower than the predicted one, then this may be the result of the sanction that the offenders have undergone. If it is not possible with an evaluation study to create a control group, the predicted rate of recidivism within the study group can be used as reference material. See for example Recidive onder werkgestrafte jongeren (Alberda, Drost & Wartna, 2010).

3 Ongoing and completed research

Seven groups of offenders are currently being monitored by means of annual measurements within the context of the WODC Recidivism Monitor (see Table 2). In addition to these groups, statistics are also compiled and periodic reports produced on 'persistent offenders'. See for example Monitor *Veelplegers 2010* (Tollenaar & Van der Laan, 2010). From 2012 on, this also applies to domestic violence offenders. The method employed in the Recidivism Monitor is also used for the purpose of carrying out single measurements, usually as part of wider-reaching evaluation studies. We participate in research into certified behavioural interventions and contribute to the evaluation of measures in the field of traffic crimes. Also, there are recidivism figures in relation to juveniles who have attended the Glen Mills Schools (Beijersbergen & Wartna, 2007), former residents of the Den Engh correctional institute for juvenile offenders (Wartna, Kalidien & Essers, 2006) as well as in relation to former residents of Exodus and other aftercare organizations (Van Wingerden et al., 2010). An overview of ongoing and completed research can be found at <http://english.wodc.nl/RecidivismMonitor>.

Table 2 Offender groups

Group	Description
Offenders subject to criminal proceedings	Individuals with a valid* reconivction in relation to a crime.
Adult offenders subject to criminal proceedings	Individuals with a valid* reconivction in relation to a crime that falls within the scope of adult criminal law.
Juvenile offenders subject to criminal proceedings	Individuals with a valid* reconivction in relation to a crime that falls within the scope of juvenile criminal law.
Former detainees	Adults who have been released from a correctional institution, with the exception of those released within the context of detention of foreign nationals and individuals who are awaiting repatriation.
Former inmates of correctional institutions for juvenile offenders	Young people who have been released from a correctional institution for juvenile offenders. This includes young offenders convicted under both criminal and civil law who have been released from a custodial or treatment institution.
Former patients of forensic psychiatric centres	Individuals whose (partly) intramural hospital order has been formally terminated.
Former probation and after-care service clients	Individuals who completed a community service order or who ended a course while under supervision of the probation service.

* Cases disposed of by the Public Prosecutor's Service (excluding dismissal by reason of unlikelihood of conviction), cases ending in a guilty verdict by the judge and cases that are not yet decided upon.

4 REPRIS

A vast majority of the data is stored in REPRIS, an interactive web application accessible through the WODC website. Researchers, policy advisers and others who are interested can through REPRIS select for them relevant statistics.¹⁴ The data in REPRIS is based on data from the judicial documentation. REPRIS shows the raw data, not corrected for changes in the composition of the research population. They show the level of recidivism, but show no causes or effects. They are solely descriptive statistics not reducible to individual persons. For technical and privacy reasons, statistics are not shown when the research group is smaller than 15 or when the reconviction rates are higher than 90%.

At present REPRIS is only available in Dutch. Expectations are that an English version of the application will be finished in 2012.

¹⁴ An extract from REPRIS is accompanied with an explanatory note, but the WODC is not responsible for the use of the data.

5 Data delivery

Researchers, who would like to perform their own analysis on the source material of the Dutch Recidivism Monitor, can file a request with the WODC. The delivery of individual data, mostly judicial career data from the OBJD, is under explicit conditions. This is to protect the privacy of the offenders concerned. Micro data are only supplied for research purposes. Moreover, when it comes to supplying judicial data, the Minister of Security and Safety has to grant his permission on beforehand.

Requests for micro data from the OBJD are discussed in the WODC management team. In case of a positive decision, The Recidivism Monitor team provides the data. There can be costs involved with the handling of a request. The extern researcher signs an agreement in which he/she agrees on the conditions that are attached to the data application. The conditions are stated in the circular 'Informatiebeveiliging en gegevensbeheersplan WODC' of December 8th 2008. This circular is retrievable at the WODC.

Applicants of micro data have to consider a relatively long lead time. It takes time to take up the request, for possible matching of the personal data by the JustID and for processing the raw OBJD data into analysable data.

More information about the Dutch Recidivism Monitor can be obtained from the WODC website (<http://english.wodc.nl/>). It is also possible to contact the secretary of the Recidivism Monitor (RecidivemonitorWODC@minjus.nl).

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Appendix 1 Classification of disposals

Research within the context of the Dutch Recidivism Monitor is carried out on the basis of data from the OBJD, an anonymised copy of the Judicial Documentation System. Criminal cases may be settled by means of more than one 'penalty component'. The Recidivism Monitor records what penalty component applies for each case. Then, the disposals are subdivided into one of the nine main categories (see Table B1). The penalty component that appears first in the table is used for this purpose. Cases in which both a fine and a non-suspendable prison sentence are handed down are therefore assigned to the non-suspendable prison sentence category.

Table B1 Disposals featured in the OBJD according to main category

Main category	Disposal
Custodial measure	measure to influence behaviour, placement in a special youth treatment centre, placement in an institution for juvenile offenders, placement in an institution for persistent offenders, placement in a psychiatric hospital, placement under a supervision order, placement under compulsory treatment for addicts, placement under a (juvenile) hospital order with treatment provided, placement under a conditional hospital order, placement under a (juvenile) hospital order without treatment provided, placement under a hospital order with treatment provided by the government
Non-suspendable prison sentence	judgment, imprisonment, custody, juvenile detention, life imprisonment, military detention, placement in a state labour institution, placement in a state reformatory school
Training order	participation in an alcohol traffic awareness course as a special condition in the case of a suspended sentence, training order and transaction education project
Community service order	community service as a special condition in the case of a suspended sentence, community service within the context of a discretionary dismissal, community service, transaction damage recovery work, transaction community service, transaction community service order, community service order
Suspended sentence	judgment, imprisonment, custody, juvenile detention, military detention, placement in a state labour institution, placement in a state reformatory school
Fine	fine, compensation measure, payment to the guarantee fund, compensation, payment to the Criminal Injuries Compensation Fund and payment to an institution as a special condition in the case of a suspended sentence, allowing of civil action, transaction sum, transaction compensation, transaction security deposit, compensation, transaction fine and security deposit
(Other) transaction	ceding of objects, condition to perform, follow instructions of authority, confiscation of unlawfully acquired assets, disqualification from driving, delivery of goods
Discretionary dismissal / no (substantial) punishment or penalty	other than penal intervention prevails, limited circle, reprimand, civil and administrative law, juvenile measure under a civil suit, corporation subject to legal proceedings, effected as a result of an offence or consequences, limited involvement in an offence, a minor offence, an offence that is only deserving of minor punishment, changed circumstances, state of health, settled in a military court, national interest, age, leader prosecuted, conflict of social interests, contributory negligence on the part of the injured party, verbal caution, insufficient national interest, old offence, recent punishment, legal entity subject to legal proceedings, interest of the probation and after-care service, written caution, found guilty but let off without a sentence or measure, social security fraud, committal to a special treatment centre for juveniles, placement under a hospital order, imposed during the limitation period, suspect untraceable, relationship to injured party formalised, expired, prosecution contrary to the interests of the injured party, legislative amendment
Joinder	joinder ad informandum, joinder of cases at sentencing, joinder of cases at hearing
Dismissal by reason of unlikelihood of conviction / clearance of charges by the court	civil court not competent, offender not punishable, offence not punishable, no legal proof, Public Prosecutor inadmissible, illegally obtained evidence and appeal proceedings invalidated, court not competent, case against convicted person inadmissible, acquittal
Miscellaneous	rejection of civil action, case of injured party inadmissible, confiscation of illegally obtained assets, withdrawal of confiscated assets from circulation, disqualification from certain rights, disqualification from certain powers, disqualification from aviation service, disqualification from driving, disqualification from practising as counsel or administrator, disqualification from holding public office, disqualification from certain professions, disqualification from the armed forces, disenfranchisement, publication of verdict, court incapable of enforcing attachment, cessation of a company, undoing of illegal acts, provision to the entitled party up to 3 months following final judgment, return of confiscated assets, confiscation, the performance of such acts that were unlawfully omitted, performances for the purpose of making amends

Appendix 2 What cases are and what cases are not included?

The Dutch Recidivism Monitor bases its measurements on the prevalence of new criminal cases. Not all cases are included, but rather only those convictions with a 'valid' disposal. Below you find a list of the cases that are and those that are not taken into account when determining the recidivism rate respectively. Particularly in those studies involving a short observation period, it is possible that cases that already appear in the OBDJ have not yet been settled. These cases are however taken into account in determining the recidivism rate, as experience has taught us that only a relatively small percentage of criminal cases end in acquittal, dismissal by reason of unlikelihood of conviction or a technical decision by the court. Nine out of ten cases brought to the attention of the Public Prosecution Service end in a 'valid' disposal.

Cases that are not taken into account in determining the recidivism rate

- Sub district court cases. These are cases in which all offences fall within the jurisdiction of the sub district court.
- Cases that are transferred to another Public Prosecutor's office.
- Cases ending in dismissal by reason of unlikelihood of conviction.¹⁵
- Cases ending in dismissal of all charges or another judicial decision in which a finding of guilt is not pronounced, for example: summons (appeal) invalidated, prosecution barred, notice to attend (appeal) invalidated, court not competent, case against convicted person inadmissible.
- Cases ending in a full acquittal. These are cases in which the suspect or suspects are acquitted of all offences.

Cases that are taken into account in determining the recidivism rate

- Cases that have not yet been settled.
- Cases that are joined (ad informandum, joinder of cases at sentencing or at hearing) to another case.
- Cases settled by means of a transaction.
- Cases ending in a discretionary dismissal.¹⁶
- Cases ending in a measure (for the restriction of liberty), a (non-)suspendable custodial sentence, a community service order, a fine or financial measure or another (additional) punishment or measure.

¹⁵ The following may be put forward as grounds: civil court not competent, offender not punishable, offence not punishable, insufficient evidence, inadmissible, illegally obtained evidence, criminal court not competent, incorrectly named as a suspect.

¹⁶ The following may be put forward as grounds: other than penal intervention, limited circle, civil and administrative law, committal to a special treatment centre for juveniles under civil law, corporation subject to legal proceedings, effected as a result of an offence or consequences, limited involvement in an offence, minor offence, an offence that is only deserving of minor punishment, changed circumstances, state of health, settled in a military court, national interest, age, leader prosecuted, conflict of social interests, contributory negligence on the part of the injured party, insufficient national interest, old offence, recent punishment, legal entity subject to legal proceedings, interest of the probation and after-care service, social security fraud, committal to a special treatment centre for juveniles, placement under a hospital order, imposed during the limitation period, suspect untraceable, relationship to injured party formalised, expired, prosecution contrary to the interests of the injured party and legislative amendment.

Appendix 3 Classification of offences into seriousness

This appendix provides an overview of the maximum sentences carried by the most frequently occurring offences recorded in the OBJD during 2006 (Table B2). One offence may be covered by more than one article of a law (up to a maximum of five). A distinction is drawn between minor, serious and very serious offences. The 'minor offences' category includes offences that carry a maximum custodial sentence of less than 4 years. The 'serious offences' category covers all offences that carry a maximum custodial sentence of 4 to 8 years. Offences that carry a maximum custodial sentence of 8 or more years fall under the 'very serious offences' category.

If the information on an offence in the OBJD does not state what maximum sentence applies, the lowest sentence is selected. For example, infringement of Article 2 paragraph 1 (b) of the Opium Act [Opiumwet] carries a maximum custodial sentence of 6 months. However in the case of intent, a maximum custodial sentence of 8 years applies. Whether or not an offence involved intent is not recorded in the OBJD in all cases. Where this has not been recorded, the lowest sentence is selected. No maximum sentences are assigned to articles of laws, with the exception of the Dutch Penal Code, the Opium Act, the Road Traffic Act [Wegenverkeerswet] and the Road Traffic Act 1994, the Firearms Act [Vuurwapenwet] and the Weapons and Ammunition Act [Wet wapens en munitie].

Table B2 The maximum sentences carried by the most frequently occurring offences

a Relative minor offences (carrying a maximum custodial sentence of less than 4 years)				
Act	Article	Maximum sentence	Offence categorie	Description
Copyright Act 1912 [Auteurswet 1912]	31A/C	1 year	Miscellaneous	Intentional infringement
Opium Act	2/C	6 months	Drugs	Prohibitory provision relating to substance list I
Opium Act	3/B	1 month	Drugs	Prohibitory provision relating to substance list II
Penal Code	138/1	6 months	Vandalism, mild aggression and public order	Unlawful entry of a dwelling
Penal Code	180	1 year	Vandalism, mild aggression and public order	Resistance
Penal Code	184/1	3 months	Vandalism, mild aggression and public order	Failure to comply with an official order
Penal Code	266/1	3 months	Miscellaneous	Defamation
Penal Code	266/1 + 267/2	4 months	Miscellaneous	Defamation
Environmental Management Act [Wet Milieubeheer]	10.2/1	n/a	Miscellaneous	illegal disposal (of waste substances)
Environmental Management Act	10.23/1	n/a	Miscellaneous	municipal waste substances bye-law
Road Traffic Act 1994	7/1/A	3 months	Traffic	Leaving the scene of an accident
Road Traffic Act 1995	8	3 months	Traffic	Driving under the influence
Road Traffic Act 1994	9/1	3 months	Traffic	Driving whilst disqualified
Road Traffic Act 1995	9/2	3 months	Traffic	Driving following invalidation of driving licence
Weapons and Ammunition Act [Wet wapens en munitie]	13/1	9 months	Miscellaneous	Prohibitory provisions in respect of weapons from category I
Weapons and Ammunition Act	26/1	9 months	Miscellaneous	Prohibition in respect of possession
b Serious offences (carrying a maximum custodial sentence of 4 to 8 years)*				
Act	Article	Maximum sentence	Offence categorie	Description
Penal Code	141/1	4.5 years	Vandalism, mild aggression and public order	Act of violence in a public place committed by two or more persons
Penal Code	285/1	2 years	Violence	Threatening a person's life
Penal Code	300/1	3 years	Violence	Assault
Penal Code	310	4 years	Property, not involving violence	Theft
Penal Code	311/1/4	6 years	Property, not involving violence	Aggravated theft
Penal Code	311/1/5	6 years	Property, not involving violence	Aggravated theft
Penal Code	350/1	2 years	Vandalism, mild aggression and public order	Malicious damage to property
Penal Code	416/1/A	4 years	Property, not involving violence	Deliberately handling stolen goods

c Very serious offences (carrying a maximum custodial sentence of 8 years)				
Act	Article	Maximum sentence	Offence categorie	Description
Opium Act	2/A + intent	12 years	Drugs	Prohibitory provision relating to substance list I
Opium Act	2/B + intent	8 years	Drugs	Prohibitory provision relating to substance list I
Penal Code	157/1	12 years	Vandalism, mild aggression and public order	Arson etc.
Penal Code	242	12 years	Violence	Rape
Penal Code	246	8 years	Violence	Indecent assault
Penal Code	287	15 years	Violence	Manslaughter
Penal Code	302/1	8 years	Violence	Aggravated assault
Penal Code	312/1	9 years	Violence	Theft with violence or threat of violence

* Offences that carry a lower maximum sentence but in respect of which pre-trial detention may be imposed also fall within the 'serious offences' category.

Appendix 4 Analysis techniques

This appendix provides a brief explanation of a number of analysis techniques used within the context of the Recidivism Monitor.

Survival analysis

The aim of survival analysis is to measure the length of time before an event takes place, in this instance the length of time until recidivism occurs. The period in respect of which data is available generally varies from person to person. Not everyone in the study group has been at risk to reoffend for the same amount of time. This problem can be solved by setting the observation period for each person to be the minimum duration that a person could be observed. This means that some of the data collected cannot be used, as reconvictions that fall outside of the minimum observation period are not taken into account. This problem can be overcome, however, with the help of survival analysis. The risk of recidivism is not just determined once (for example only after 2 years), but at any time between the beginning and end of the entire observation period. In each instance, the proportion of repeat offenders is calculated on the basis of the number of individuals at risk at that point in time. A person will therefore only be included in the calculation for as long as it is possible to monitor him or her. Survival analysis is incorporated in SPSS. A good introduction to the technique can be found in SPSS Advanced Models (2006).

Cox regression

Cox regression is a survival model that can be used to estimate the effect of personal background on the risk of recidivism. Personal background characteristics can be both categorical and continuous variables. Using Cox regression it is possible to establish how background characteristics such as gender, country of birth and the number of previous convictions are connected to the risk of recidivism. The effect is expressed in a coefficient: the beta exponent (e^β). The size of this coefficient indicates the strength of the connection. In the case of categorical variables, such as gender, the e^β expresses how much the so called 'hazard ratio' of recidivism increases in the case of a specific value of the variable. The hazard is the ratio of the chance to reoffend at a certain time and the cumulative chance to not reoffend until that certain time. For example, a coefficient of 2.5 for the category 'man' means that the hazard that male offenders will reoffend is 2.5 times greater than the hazard of recidivism amongst female offenders. In the case of numerical variables, such as the number of previous convictions or the offender's starting age (so-called 'continuous' variables), the coefficient indicates the percentage by which the hazard of recidivism rises or falls as the value of those variables increases by 1 unit. For example, a coefficient of 1.05 in respect of the number of previous convictions means that with each previous reconviction the hazard of recidivism at a later date increases by 5%, and a coefficient of 0.97 in respect of starting age indicates that the hazard of recidivism falls by 3% with each year that passes subsequent to the date on which the offender's first criminal case took place. Cox regression is incorporated in SPSS. However, Stata offers a larger number of standard features. For a detailed discussion of the technique, see for instance Klein & Moeschberger (1997).

Logistic regression

In the case of certain applications of the predictive model, for instance individual risk assessment (see box 4), logistic regression analysis is used. Logistic regression is a technique specifically designed for the purpose of analysing a dichotomous out-

come (whether or not an individual has reoffended). Unlike survival analysis, the length of time until recidivism is not taken into account in the analysis. Logistic regression assesses the risk of recidivism over a fixed period of time, for example within the 2 or 4 year period following the date of the index case or release from the institution. In addition, the output (and the interpretation of this) is comparable to that of the survival analysis. See Hosmer & Lemeshow (2000) for a more detailed explanation.

Poisson regression

Poisson regression can be used to carry out additional analyses of the recidivism rate. This technique is particularly suited to the analysis of 'count outcomes'. Where linear regression is intended for continuous dependent variables, logistic analysis for dichotomous outcome variables and Cox for dichotomous time-dependent variables, Poisson regression is applied in situations in which the dependent variable is a discrete variable that indicates how often an event (in this case an instance of recidivism) has taken place. SPSS only incorporates a limited number of features for the purpose of applying Poisson regression. Stata, however, incorporates the most frequently occurring variables as standard, including the so-called 'zero inflated negative binomial model' (ZINB). This model is ideally suited to those situations in which there are a relatively large number of non-repeat offenders. See Cameron & Trivedi (1998).