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OGRS 3: the revised Offender Group Reconviction Scale

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Offender Management and Sentencing Analytical Services exist to improve policy making, decision taking and practice in support of the Ministry of Justice purpose and aims to provide the public and Parliament with information necessary for informed debate and to publish information for future use.

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The Offender Group Reconviction Scale (OGRS) is a predictor of re-offending based only on static risks – age, gender and criminal history. It allows probation, prison and youth justice staff to produce predictions for individual offenders even when the use of dynamic risk assessment tools (e.g. The Offender Assessment System (OASys) or Asset) is not possible. It will form the basis of an improved static/dynamic predictor in OASys, and also assist researchers in controlling for expected levels of re-offending when comparing samples.

OGRS has been in use by probation staff and corrections researchers since the late 1990s. It is updated from time to time to reflect changing patterns of offending.

The new version, OGRS 3, improves on OGRS 2 in several ways. It can be scored more quickly and accurately as it requires fewer, simpler risk factors; its predictions are more valid and cover a more comprehensive measure of re-offending, and it offers a one-year as well as a two-year prediction.

OGRS 3 was implemented in the Probation Service in England and Wales in March 2008. This involved changes to various IT systems and circulation of user guidance on producing scores and the known limitations of OGRS. Revisions to Offender Management Tiers and intervention targeting standards will take effect at the beginning of the 2009/10 financial year. Implementation in prisons will also occur early in this financial year.

The considerable potential of OGRS 3 will be maximised if:

- it is implemented in youth justice, as well as prisons and probation;
- it is used, in conjunction with OASys/Asset, to target offenders to interventions effectively;
- ongoing training and quality assurance ensures that staff produce and interpret scores correctly

Context

Accurate, reliable estimation of the likelihood of re-offending forms the foundation of reporting on, assessing and managing offenders. Since the late 1990s, the Offender Group Reconviction Scale (OGRS) has been the standard method of predicting re-offending in the Probation Service of England and Wales. This report explains the production of a new version, OGRS 3. The update was necessary in order to:

- make OGRS more user-friendly and reliable and quicker to complete, with fewer, less complex questions;
- move to a more comprehensive, realistic measure of re-offending, making the best use of information held on the Police National Computer (PNC);
- ensure the predictor continues to reflect contemporary patterns of offending and is valid for prisoners as well as those on non-custodial sentences.

This report also explains the steps taken to ensure that OGRS 3 is acceptable to, and used properly by, probation staff. It summarises three more detailed papers: the OGRS 3 model was developed by Francis, Soothill & Humphreys (2007), and validated for prisoners by Whiting (2007). User guidance was disseminated in NOMS (2008a).

Approach

Data

Offenders whose at-risk period for re-offending started in January–March 2002 were selected as described in Francis, Soothill & Humphreys (2007). After data cleansing, the sample comprised 71,519 offenders who received non-custodial sentences and 7,675 offenders who received custodial sentences, split 60/40 into calibration and validation datasets. (Whiting (2007) used an additional, larger sample of custodial offenders.)

An extract from the PNC, managed by the Ministry of Justice, was used to trace the criminal history and re-offending of these offenders within one- and two-year follow-up periods. The definition of a re-offender was “an offender who has committed a recordable offence within the follow-up period and who has had the offence ‘proved’ within the follow-up period and a confirmation period of three months, either by the offender accepting a caution, warning or reprimand, or by being found guilty in a court of law“.

Creating the OGRS 3 model

A large number of candidate predictive variables were generated from the PNC data. These allowed the predictive validity of various measurements of criminal history to be compared. The questions considered by Francis, Soothill & Humphreys (2007) included the following.

- Should OGRS count previous proven offences or sanctioning occasions (i.e. court appearances or occasions where cautioned/reprimanded/warned, whether for one or many offences)?
- How should current offences be grouped?
- What mathematical form should the ‘Copas rate’ (which combines the extent and rapidity of the offender’s criminal history) take?
- Is the relationship between age and re-offending different for male and female offenders?

When building the OGRS 3 algorithm, there was a strong focus on parsimony – that is, minimising the burden upon staff who will complete OGRS 3 by ensuring that the model contains as few variables as possible without appreciable loss of predictive validity.

An ordinal logistic regression model was fitted. In this model, the same factors predict proven re-offending within one and two years, and there is a fixed relationship between the pair of predictions.

User consultation

After the model had been created, probation staff were consulted to obtain their views on the validity and practicality of the items in the model and the usability of a draft of the user guidance document (NOMS, 2008a). OGRS 3 was considered along with two new OASys-based predictors (Howard, 2008). OASys is the national risk/need assessment tool for adult offenders in England and Wales. Unlike OGRS, it considers dynamic risk factors and risk of harm, but it is used on a narrower group of offenders than OGRS.

Two forms of consultation were undertaken. Firstly, some 40 staff in four probation areas (one in summer 2007, three in early 2008) piloted the predictors for a month, scoring around 300 offenders. They then participated in focus groups covering topics such as face validity, court reports and sentencing, and training and documentation. Secondly, a National Reference Group was created

in late 2007, including managers from the four areas and other stakeholders. Its bimonthly meetings had oversight of the second stage of the pilot, and continue to consider user guidance, policy and implementation issues.

Results

Creating the OGRS 3 model

The Appendix lists the full model. The model includes:

- age at start of at-risk period (i.e. non-custodial sentence or discharge from custody) and gender (22 combinations – 11 age bands each for males and females);
- current offence (20 categories);
- the Copas rate (a logarithmic function based on number of previous sanctions and time between current and first sanction);
- 'sanctioning history' (whether the current sanction is a conviction or not, with further differentiation of first- and second-time sanctions).

Differences between OGRS 2 and OGRS 3

OGRS 3 substantially improves the prediction of proven re-offending. For all offenders, OGRS 3 improves AUC (the standard measure of predictive validity) to 80%, compared with 78% for OGRS 2. For prisoners only, it has an AUC of 84% compared with less than 83% for their existing predictor, the Sentence Planning Risk Predictor (SPRP).

The following table lists other differences between OGRS 2 and OGRS 3.

Difference	Advantage / (disadvantage) of adopting OGRS 3
OGRS 3 requires six pieces of information, OGRS 2 requires nine.	Can be calculated more quickly with less opportunity for error. The above AUC comparison assumes no errors, so the improvement is likely to be greater in practice.
OGRS 3 can be used where the current sanction is a caution, reprimand or final warning.	Can be used comprehensively in youth justice.
OGRS 3 counts previous sanctions including cautions, reprimands and final warnings; OGRS 2 counts previous convictions only.	More complete record of previous offending. (May sometimes be difficult to obtain complete information for older offenders.)
OGRS 3 counts previous sanctions for all recordable offences; OGRS 2 for 'standard list' offences only.	More complete record of previous offending. Eliminating this artificial constraint makes scoring easier and less error-prone.
OGRS 3 calculates the effect of age differently for female and male offenders.	More accurate predictions for female offenders.
OGRS 3's 'proven re-offending' outcome includes caution, reprimand or final warning as well as conviction.	More complete measure of re-offending.
OGRS 3's outcome is based on date of re-offending rather than of reconviction.	More accurate measure of offending behaviour. (Slows down research as extra time must be allowed for offences to be converted into convictions or other sanctions.)
OGRS 2's additional predictor of sexual and violent reconviction has been withdrawn and not replaced.	This predictor gave the misleading impression that sexual/violent re-offending was only likely among those with previous convictions for these offences. It had poor validity as a predictor of sexual re-offending. (It had good validity as a predictor of violent re-offending, among those with previous violent convictions.)

User consultation

Focus and reference group members were fundamentally comfortable with OGRS 3, but required clear guidance on several issues.

- Exact explanation of what OGRS 3 predicts, as some staff had treated OGRS 2 scores as abstract quantities rather than predictions of a specific event within a specific timescale.
- How to calculate scores during the custodial portion of a sentence, especially when the release date had not yet been determined.
- The relationship between OGRS 3's one- and two-year predictions. Limitations, and how to mitigate them, should be identified e.g. recognising that the prediction is likely to be an underestimate when the offender has an overseas criminal record.

Implications

OGRS 3 is a simpler but more predictive version of the tool, and should be made available to practitioners at the earliest opportunity. Given its applicability to offenders of all ages in both custody and the community, it should be implemented in probation, prisons and youth justice. OGRS 3 was implemented in probation in March 2008, through co-ordinated changes to OASys, case management and OGRS-specific IT applications and the issuing of user guidance (NOMS, 2008a). At the time of writing (January 2009), it is expected that OGRS 3 will become available to prison OASys practitioners upon the release of OASys IT version 4.3, anticipated for summer 2009. It will eventually replace SPRP in LIDS, the prison case management system, within the Prison NOMIS application.

Even in probation, several of the implications of OGRS 3 are still being worked through. These include changes to Offender Management Tiering and intervention targeting rules (e.g. NOMS, 2008b), staff training and Quality Assurance. In the future, the greater simplicity of OGRS 3 will save further staff time by allowing shortening of the Criminal History section of OASys.

Controlling for expected levels of re-offending is important in recidivism research. Where only limited data are available, OGRS 3 is an excellent way to match samples. However, researchers should also consider dynamic factors (e.g. through OASys or Asset) and other sample characteristics such as geographic area and time period wherever possible.

References

Francis, B., Soothill, K. & Humphreys, L. (2007). *Development of a reoffending measure using the Police National Computer database.* Manuscript in preparation, Lancaster University.

Howard, P. (2009) *Improving prediction of reoffending using the Offender Assessment System (OASys).* Ministry of Justice.

NOMS (2008a) *Guidance: Offender Group Reconviction Scale: Version 3.* London: Ministry of Justice. Available at <http://www.probation.homeoffice.gov.uk/files/pdf/Offender%20Group%20Reconviction%20Scale%20v3%20Guidance.pdf> <http://www.probation.homeoffice.gov.uk/files/pdf/Offender%20Group%20Reconviction%20Scale%20v3%20Guidance%20(Appendix).pdf>

NOMS (2008b) National rules for tiering cases and associated guidance. Probation Circular 08/2008. London: National Probation Service. Available at <http://www.probation.justice.gov.uk/files/pdf/PC08%202008.pdf>

Whiting, E. (2007) *Comparison of re-offending measures: OGRS2, OGRS3 and the SPP*. Unpublished internal report. London: Home Office.

Appendix: Ordinal logistic regression model for OGRS 3

This model takes the form
probability of proven reoffending = exp(z) / (1+exp(z))
where
z = A + B1 + B2 + B3 + B4
Note that B1 = the Copas rate * 1.251124
The Copas rate = log (number of sanction occasions / (10 + years between first and current sanction))
It is a single measure which reflects both the intensity and length of the offender's criminal career.

Risk factor	Category	Estimate
A: Reoffending within 1 or 2 years?	Within 1 year	1.402562384
	Within 2 years	2.121705678
B1: Copas rate	(Multiply rate by)	1.251124464
B2: Sanctioning history – current sanction is…	1st caution/reprimand/warning, never convicted	0
	2nd caution/reprimand/warning, never convicted	0.083100501
	1st conviction, never cautioned/ reprimanded/warned	0.126142106
	Any other caution/reprimand/warning	0.34859587
	Any other conviction	0.463062792
B3: Age and sex	Male, aged 10 or 11	0
	Male, aged 12 or 13	0.083922902
	Male, aged 14 or 15	0.075775765
	Male, aged 16 or 17	-0.061594199
	Male, aged 18 to 20	-0.625103618
	Male, aged 21 to 24	-1.051515067
	Male, aged 25 to 29	-1.166679288
	Male, aged 30 to 34	-1.325976554
	Male, aged 35 to 39	-1.368045933
	Male, aged 40 to 49	-1.499690953
	Male, aged 50 or over	-2.025261458
	Female, aged 10 or 11	-0.785038489
	Female, aged 12 or 13	-0.613852078
	Female, aged 14 or 15	-0.669521331
	Female, aged 16 or 17	-0.959179629
	Female, aged 18 to 20	-0.897480934
	Female, aged 21 to 24	-1.028488454
	Female, aged 25 to 29	-1.052777806
	Female, aged 30 to 34	-1.129127959
	Female, aged 35 to 39	-1.42187494
	Female, aged 40 to 49	-1.524652221
	Female, aged 50 or over	-2.44983716
B4: Principal current offence	Violence	0
	Robbery	-0.634795912
	Public order	0.181917975
	Sexual (not against child)	0.003276327
	Sexual (against child)	-0.653434071

	Soliciting or prostitution	0.760608858
	Burglary (domestic)	-0.12394352
	Burglary (other)	0.240604429
	Theft (non-motor)	0.661244321
	Handling stolen goods	0.351866973
	Fraud and forgery	0.159910192
	Absconding or bail offences	0.733378677
	Taking & driving away and related offences	0.380059431
	Theft from vehicles	0.427225615
	Other motoring	0.262228428
	Drink driving	-0.121439408
	Criminal damage	0.204960477
	Drug import/export/production	-0.795556373
	Drug possession/supply	0.077165871
	Other offence	-0.060667525