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COMMUNITY SERVICE VERSUS ELECTRONIC MONITORING—WHAT WORKS BETTER?

Results of a Randomized Trial

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The present study is based on a controlled experiment in Switzerland with 240 subjects randomly assigned either to community service or to electronic monitoring. Measures of outcome include reconvictions, self-reported delinquency and several measures of social integration such as marriage, income and debts. The findings, based on subjects who successfully completed their sanction, suggest, with marginal significance ($p < 0.10$), that those assigned to electronic monitoring reoffended less than those assigned to community service, that they were more often married and lived under more favourable financial circumstances. Electronic monitoring may be an alternative to non-custodial sanctions. With increasing demands for non-custodial sanctions, it is crucial having more alternatives available.

Keywords: community service, electronic monitoring, randomized trial, recidivism, social integration

Introduction

Over the last generation, non-custodial or 'alternative' sanctions have gained considerable attention in many Western countries and beyond (Junger-Tas 1994; van Kalmthout 2002; Petersilia 1997; Tonry 1998). They have been seen as ways to reduce prison populations, budgets of corrections and, although with many qualifications, of reoffending. The problem here is not to see whether these claims are justified or not, but rather to test the outcomes after two widely used new sanctions, namely community service and electronic monitoring. In this paper, we shall compare reoffending (i.e. new convictions) and several measures of social integration (such as marital status and financial circumstances) following community service and electronic monitoring.

Community service has become, over the years, one of the widely used sanctions, at least throughout Europe (Harris and Wing Lo 2002). According to the forthcoming 2010 edition of the *European Sourcebook of Crime and Criminal Justice Statistics*, community service was, in 2006, applied, in 33 out of 42 nations. It is, next to financial penalties, more often applied than custodial sentences for most offences. The large success of community service, first introduced in England and Wales and in Switzerland at the beginning of the 1970s, has provoked several problems of implementation, particularly in relation to the availability of appropriate 'jobs' that could reasonably be assigned to persons sentenced to such a sanction, and to the backlog of cases awaiting execution. Research in England, for example, insisted on the need that work assigned to those sentenced to community service should be meaningful (McIvor 1992). Much research

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was devoted to issues of implementing adequately community service and to improve compliance among those sentenced to this sanction (Rex *et al.* 2004). The difficulty to meet these often conflicting demands has stimulated the search for new available options, such as electronic monitoring.

In Europe, electronic monitoring was first introduced in 1989 in England and Wales, followed in the 1990s by Sweden and the Netherlands. Nowadays, it is in use in almost every country around the world (Renzema and Mayo-Wilson 2005). After the first tests in England and Wales in 1989 (where it was an alternative to remand prisoners, Nellis 1991), electronic monitoring serves frequently as an alternative to classical supervision of parolees, or as a way to make parole available to inmates who, despite being eligible on the grounds of their time served, are seen as problematic, given their profile. Beyond a correctional arrangement (as in the case of parole), electronic monitoring has also been recommended as a substitute to bail or to continued pre-trial detention (Villettaz and Killias 2003; Black and Smith 2003; Renzema and Mayo-Wilson 2005; Marklund and Holmberg 2009) or, as in cases of domestic violence and other threats of continued violence against specific victims, as a means of supervision (combined with GPS) of offenders banned from certain geographic areas (Nussbaumer 2008). Electronic monitoring has, however, also been recommended as an 'alternative' sanction that could replace some other non-custodial sanctions, such as day fines and community service (Whitfield 2001). As such, it has not been as widely accepted as community service. Indeed, many practitioners feel that sitting at home under curfew during nights and leisure-time hours does not require a 'real effort' (like community service) and may, therefore, not be sufficiently punitive.[1] In Switzerland, for example, electronic monitoring has been easily accepted in some cantons (e.g. Geneva, Basel and Vaud), but fundamentally rejected in others (e.g. Zurich). One might ironically see this 'clash' of penal cultures as an outcome of protestant work ethics (favouring community work) versus catholic views of restraining the sinners.

Evaluations of electronic monitoring have, particularly in England and Wales, focused on issues of feasibility and implementation in the legal environment (Nellis 1991; Mair 2005; Dodgson *et al.* 2001). The results, although not really positive, did not discourage policy makers from seeking extensions of electronic monitoring to new areas of implementation (Bottomley *et al.* 2004). Issues related to reoffending and rehabilitation have been studied mostly under the form of quasi-experiments in which reconvictions and other feasible outcomes are being compared with more conventional sanctions (Finn and Muirhead-Steves 2002; Padgett *et al.* 2006; Gainey *et al.* 2000; Maxfield and Baumer 1990; Jolin and Stipak 1992; Bonta *et al.* 2000; for an overview, see Renzema and Mayo-Wilson 2005). Recently, in Sweden, reoffending among subjects released from prison under the condition of electronic monitoring has been shown to be lower than among those whose early release has been denied (Marklund and Holmberg 2009). In England and Wales, reconvictions after six months among prisoners discharged on home-detention curfew (i.e. electronic monitoring) in May and June 1999 were compared to reconvictions in a control group of similar prisoners discharged during October and November 1998 who would have been eligible for home-detention curfew if that

[1]About the experience of home confinement on EM, see Gainey and Payne 2000; Lilly *et al.* 1993; Lilly and Ball 1992: Baumer and Mendelsohn 1992. According to these studies, EM is sufficiently painful to deter clients from future actions. Offenders in the study of Martin *et al.* (2005) perceive EM as a punitive criminal sanction.

scheme had been in operation at that time (Dodgson *et al.* 2001). Reconviction rates turned out to be very similar in both groups, but far lower than among those who were not granted discharge on home-detention curfew. Further research addressed the issue of whether electronic monitoring may promote desistance from offending through reducing offenders' links with situations, people, places and networks correlated with offending (Hucklesby 2008), and how electronic monitoring could be seen as a testing ground for compliance theories (Hucklesby 2009). However, these studies were usually based on quasi-experiments, such as the Oregon Department of Corrections (2002) study, or convenience samples of offenders assigned to electronic monitoring (Hucklesby 2008). Quasi-experiments are not suitable to compare outcomes across different sanctions, since results may be systematically biased in favour of non-custodial sanctions (Villettaz *et al.* 2006; Wilkins 1969) including electronic monitoring. The most common problems are selection bias and the lack of adequate control groups. For this reason, the lack of evaluations based on randomized controlled trials has been deplored by Renzema and Mayo-Wilson (2005) and Hucklesby (2008) notes that, actually, little is known on the effects of electronic monitoring on offenders and their further lives. The lack of randomized controlled trials comparing electronic monitoring with other non-custodial sanctions, such as community service, is particularly unfortunate, since electronic monitoring, if it is to become (or remain) a criminal sanction in its own right, may most likely replace other 'alternative' sanctions rather than imprisonment. For this reason, it is important to know whether electronic monitoring is followed by outcomes that are equal, less fortunate or eventually preferable than those of community service or any other 'alternative' sanction.

The Electronic Monitoring versus Community Service Trial

Legal background of the trial

The present experiment started in June 2000, when electronic monitoring became available in Switzerland. It was originally planned that it should end in December 2002, but it continued in practice about one year longer. Vaud, the largest French-speaking canton situated North of Lake Geneva, was one among six cantons who volunteered to test electronic monitoring as a new sanction.

The experimental design was made possible thanks to a fortunate legal surrounding. In 1971, Switzerland had adopted an amendment to the criminal code (Art. 397*bis*, s. 4, now Art. 387, s. 4a) that entitles the Federal Government to introduce, locally and for limited periods of time, new forms of punishment not provided for by law. This provision made the introduction of community service and of electronic monitoring legally possible—both sanctions were implemented as forms of executing short custodial sentences of up to six months. The government ordinance that regulated such experiments required the outcomes to be evaluated. Although nobody probably had, in 1971, ever envisaged random assignment of subjects, there is no legal obstacle to such a design. However, serving a short custodial sentence under the experimental form of community service or electronic monitoring is voluntary, and subjects keep the right to insist on being treated according to the law and to serve the sentence in prison, as ordered by the court. The voluntary character of participation in this programme may reduce the evaluation's external validity, but leaves the internal validity unaffected. Although

crucial in legal respects, the practical importance of having a voluntary programme was minimal, however, because very few eligible candidates refused to participate. Random assignment was, as argued by Weisburd (2000), easy to justify given that the capacity of the new programme was insufficient to accommodate all volunteers. Given these arrangements, nobody was legally entitled to claim serving his sentence under a particular form, such as community work or electronic monitoring. Despite all these safeguards, it was only thanks to the strong commitment to evidence-based policy making of the Director of local correctional services and the support by the Minister of Justice[2] that the political climate made such a design feasible.[3]

The two sanctions: electronic monitoring and community service

In the Canton of Vaud, community service had been introduced in the early 1990s as an experimental sanction and with comparable legal arrangements. Persons assigned to this sanction had usually to perform work in welfare institutions, such as homes for the elderly and hospitals, or work in programmes of 'cleaning up' resort areas. Due to increasing demand, the correctional service has set up a centre for community work in which persons assigned to this sanction that could not be placed elsewhere were required to perform whatever jobs that could be made available. In practice, the work performed in this centre had many commonalities with work arrangements in correctional institutions, although subjects remained obviously free and no housing was available at the centre (Périsset and Vuille 2006).

Electronic monitoring was executed under the form of a curfew order. The technology relied on radio frequency (RF) transmissions.[4] In practice, subjects received, around their left leg, a technical device that continuously emitted a signal to a receiver unit connected to a central supervision office. The devices were used only to monitor the subjects' presence at or absence from their homes. Since the system used is unable to track an offender's movements, it serves primarily detention purposes (Black and Smith 2003). It was programmed in a way that allowed participants to go to work during the day. They could not leave home before a certain hour and had to be back home by a pre-fixed hour again. During leisure time and weekends, they were not allowed to leave home. This sanction obviously applies only to subjects who live in stable circumstances, who own or rent a home and whose family consents to the arrangement. Persons out of work were also eligible for this sanction and were allowed to leave home for a certain time every day for shopping and other basic needs (Villettaz and Killias 2003). During the entire programme, 45 equipments for electronic monitoring were available. Both groups received assistance from the probation service and benefitted from therapeutic support like alcohol and drug treatment (Villettaz and Killias 2005). According to the survey conducted in 2004 (see below), both groups reduced their alcohol and drug consumption in similar proportions.

[2]André Vallotton served, during the critical years, as director of corrections and Claude Ruey as minister of justice of the Canton of Vaud.

[3]For example, the Geneva Chief Prosecutor categorically rejected the idea of a randomised trial on the grounds that electronic monitoring was insufficiently punitive and, therefore, not an acceptable sanction. His resistance to conduct a trial did not prevent, however, this sanction from being introduced as a pilot project.

[4]For more details about electronic monitoring technology, see Caputo 2004; Lilly 2006; Baumer and Mendelsohn 1992. The different monitoring systems (GPS and RF) are equally effective in reducing reoffending (Padgett *et al.* 2006).

The selection of subjects

All persons convicted in the Canton of Vaud and sentenced, between 2000 and 2002, to an immediate custodial sanction of no more than three months were informed, by the correctional service, that there might be an option to serve this time under the form of community service or electronic monitoring. Short custodial sentences were, at that time, very frequently imposed in Switzerland, especially for serious traffic offences, such as drunken driving, minor thefts and minor drug offences. According to subjects' criminal records, about three in four pre-programme convictions and about three in five convictions during the follow-up period were related to serious traffic offences.[5] Several conditions had to be met for candidates of community service (particularly with respect to their professional abilities) and of electronic monitoring (that required, among other things, stable living arrangements including a fixed-net telephone connection, as set out above). During a first interview by staff of the correctional service, it was assessed whether subjects met the eligibility criteria for community service, electronic monitoring or both (or neither of the two). Subjects who were considered eligible for *either* community service *or* electronic monitoring kept a chance to be selected for any of these programmes, but without random assignment (and without being part of the RCT). The few subjects who were not considered eligible for any of the two alternative programmes served their time in prison. Those who were considered eligible *for both* community service *and* electronic monitoring were part of the RCT. They were randomly assigned to either of the two conditions. Random numbers were provided by the evaluation team in order to keep assignment out of control of those directly in charge of the programme. In all, 240 subjects were randomly assigned to the two sanctions during the programme. The sample matched an average population sentenced to short prison terms in Switzerland. Six per cent were female, about one-third were foreign-born and the median age was 38 years. Slightly (though not significantly) more participants in the community service group were married at the beginning (39 per cent) than in the electronic monitoring group (34 per cent).

The subjects available for the evaluation

As usual in the case of evaluations, a few among the randomized subjects were lost for the follow-up. Table 1 gives the full details.

As indicated in Table 1, three subjects were lost for technical reasons (one subject had been randomly assigned twice and two subjects were from the onset not eligible because they were sentenced to prison terms well beyond the limit). Five subjects died before the evaluation started (their records were deleted). Finally, ten subjects dropped out before the execution of the programme, mostly because of programme violations, sometimes, however, also because of new arrests (for new or newly discovered offences). During the first record checks in 2006, it was not possible to relocate 27 subjects (11 per cent of the original valid sample). An additional effort was made in fall 2009 to find missing subjects

[5]The high proportion of serious traffic offenders in the sample reflects sentencing policies at that time, using short prison sentences frequently for this category of offenders (including DWI). It does not mean that the programme was aimed particularly at traffic offenders—the sample includes also subjects found guilty of minor drug trafficking, minor violence and theft (Villettaz and Killias 2003).

TABLE 1 *Subjects in the original sample and available for the evaluation*

Among subjects randomly assigned to ...	Electronic monitoring	Community service	Total
... were in the original sample	120	120	240
...were double-counts	1	0	1
... did not meet eligibility criteria	2	0	2
... were actually randomly assigned (original valid sample)	117	120	237
... of which died before the execution of the 'alternative' sanction	2	3	5
Net sample (randomized)	115	117	232
... of which did not complete the sanction	9	1	10
Final sample (treated)	106	116	222

through searches at the Correctional Service.[6] With the exception of five subjects who died, all could be finally relocated in the criminal records. Overall, 98 per cent of subjects in the original valid sample are included here and all who had completed the sentence they were assigned to (i.e. 94 per cent of the original sample).

Results

Reconvictions

The search in the criminal registers allowed locating criminal records for 232 out of (originally) 240 subjects for an observation period of three years. As in all randomized controlled trials, it is a matter of debate whether subjects should be analysed *as (randomly) assigned*, or whether they should be analysed *as treated*. Both analyses will be presented.

A further matter of debate is how the follow-up period should be defined. In the present case, we have taken into consideration three starting points: (1) the date of random assignment to either one of the two sanctions, (2) the date subjects started serving their time (under curfew at home or in a community service programme) and (3) the date the sanction was executed. The first option was preferred here because the date of random assignment is always known whereas there is often some ambiguity about the date a sanction like community service (with frequent interruptions) is actually completed. To the extent that 'alternative' sanctions, such as electronic monitoring or community service, are mainly designed to avoid incarceration and to provide for a different form of punishment, but not to expose subjects to any therapeutic treatment, it is not unreasonable to assume that the assignment to either one sanction is having an effect independent of the experience subjects undergo during the sentence.

In Table 2, subjects are analysed as they were randomly assigned (no matter whether they actually experienced the sanction to which they were assigned). According to the results presented in Table 2, reconviction rates do not significantly differ in the two groups during the follow-up period, although reoffending (including the average number of new offences per subject) tends to be higher in the community service group.

[6]Thanks are due to Alexandre Viscardi and François Grivat from the Vaud Correctional Service, and to Roger Dolder, Head of the Criminal Records Office, for their invaluable assistance in relocating subjects.

When, as in Table 3, subjects are analysed as they were *actually treated*, the results become more favourable to electronic monitoring and the difference in prevalence of convictions and average numbers of new verdicts reaches marginal significance ($p < 0.08$). Although the number of drop-outs (ten) who did not experience the sanction that they were assigned to is small (4 per cent), significance levels are obviously sensitive to small variations in the number of available cases. It is a matter of debate whether a difference that does not reach significance at the level of 5 per cent should be taken into consideration. Weisburd (2000) advocates relaxing standards to 10 per cent in experimental research, arguing that a too rigid stance on this issue may lead to the rejection of almost all hypotheses tested through randomized trials and produce, thus, unacceptably high risks of type-2 errors. In the present case, the differences between the two groups are often substantial, reaching a proportion of nearly 3:2 in many instances. In addition, all (but one) differences are consistently in favour of electronic monitoring. Therefore, dismissing all these findings as 'non-significant' may lead to wrong conclusions. Since the exact levels of significance are indicated, the reader can decide about how much confidence the findings deserve. Even if the null hypothesis is preferred, the findings suggest that community service does *not* reduce reoffending more than electronic monitoring. Given that electronic monitoring is easier to organize and to enforce, this outcome has in itself important practical implications that will be discussed below.

Data on self-reported delinquency

The evaluation included a survey among programme participants. The purpose was, first of all, to know respondents' experience with the sanction and their attitudes towards the correctional services as well as any justice personnel they may have had to deal with before conviction (police officers, prosecutors, judges, etc.). Existing evidence suggested that sanction type (e.g. custodial versus non-custodial sanctions) greatly affects attitudes towards the criminal justice system (Killias *et al.* 2000*a*). This survey needed to take place at a time when memory of the correctional experience was still relatively fresh. The

TABLE 2 *Reconvictions (percentage reconvicted and average number of offences) during three years after random assignment to electronic monitoring or community service (analysed as randomized)*

Reconvictions	Electronic monitoring (N = 115)	Community service (N = 117)	Significance (p <) (N = 232)
Reconvicted	23%	31%	NS ($Chi^2 = 1.97$)
Number of new offences	0.32	0.41	NS (Mann-Whitney)

TABLE 3 *Reconvictions (percentage reconvicted and average number of offences) during three years after random assignment to electronic monitoring or community service (analysed as treated)*

Reconvictions	Electronic monitoring (N = 106)	Community service (N = 116)	Significance (p <) (N = 222)
Reconvicted	21%	31%	0.082 ($Chi^2 = 3.03$)
Number of new offences	0.30	0.41	0.080 (Mann-Whitney)

questionnaires were sent to the homes of 217 (out of 239) subjects in September 2004, namely about 16 months since the last subjects had been randomly assigned to either of the two sanctions (in May 2003). By that time, 23 subjects had not completed their sentence yet and were, thus, excluded from the sample. An equal number of participants from both conditions (109 from electronic monitoring and 108 from community service) received the questionnaire. The follow-up period covers one to two years after the execution of the sentence. The response rate was, in both groups, 55 per cent. For the analysis, 119 questionnaires were available.

This questionnaire included items on self-reported delinquency, namely self-reported new police contacts and reconvictions. These results will be presented here, whereas the results on subjects' correctional experience will be discussed later. With regard to self-reported offending, the survey suffered, however, from a major short-coming, since the follow-up (post-intervention) period reached the critical limit of 24 months for no more than 28 subjects in the community service and 38 in the electronic monitoring group. It was decided, therefore, to consider self-reported new offences, new police contacts and new convictions over the entire time that had elapsed since the sanction was served. For those assigned to electronic monitoring, the follow-up period was, on average, 34 months, and for those assigned to community service, 27 months. This difference reflects the fact that community service often extends over longer periods of time because of defendants' other obligations, whereas electronic monitoring is usually executed without interruption. The usual procedure of standardizing the follow-up period to, say, 12 months was impossible because it was not known, with sufficient precision, when self-reported new offences had occurred exactly. In Table 4, the prevalence rates of self-reported new offences were weighted, therefore, in order to make the rates comparable across groups.[7]

On the whole, both groups had identical rates of reoffending. However, participants in the electronic monitoring group admitted somewhat less often having been driving while under the influence. Since this offence has a relatively high rate of detection and prosecution, it is plausible that this difference translates into higher probabilities of new police contacts and reconviction among those assigned to community service. Although the differences across groups are statistically not significant, they point into the same direction as those observed in Tables 2 and 3. Overall, self-reported new police contacts

TABLE 4 *Self-reported new offences and self-reported police contacts and convictions for new offences since time served (on average, 34 months in the electronic monitoring and 27 months in the community service group)*

Self-reported delinquency	Electronic monitoring (N = 60)	Community service group (N = 59)
Any new offence	41% (31)	41% (24)
Drunken driving (DWI)	17% (13)	29% (17)
Self-reported new police contacts	9% (7)	17% (10)
Self-reported new conviction	9% (7)	15% (9)

None among the comparisons across groups is significant. N = 119 subjects responding to mail questionnaire, weighted to adjust to unequal follow-up periods.

[7]The prevalence rate (percentage) of subjects admitting to new (i.e. post-intervention) offences or to new police contacts or convictions in the EM group was multiplied by 27/34 in order to correct for the longer reference period.

and reconvictions, as well as self-reported drunken driving underline the validity of the findings based on criminal records.

Social integration

The data According to widespread beliefs, sanctions differ in undesirable side effects such as deteriorating defendants' work and family life. Higher reconviction rates are regularly attributed to des-integrative effects of certain sanctions (e.g. imprisonment). Thanks to data made available by the Internal Revenue Service (IRS) of the Canton of Vaud, important aspects of social integration among subjects from both groups could be assessed through this source.[8] Fiscal data usually include, beyond income and faculty, information on marital status, welfare or unemployment payments and debts. The search in the data files of the IRS occurred during spring and summer 2006 and was completed in fall 2009. The data used here all concern the year 2004, since fiscal data were available on most subjects on that year at the time the archives were searched.

All 237 subjects who originally had been validly assigned either to community service or to electronic monitoring were searched in the IRS database. Twenty subjects (11 EM, nine CS) could not be located in this database, either because they lived in other areas but were convicted in the Canton of Vaud (and were, thus, included in the programme) in connection with an offence committed in this canton or they had moved out of the Canton of Vaud and were, thus, no longer in the fiscal records of this canton. Three subjects (one EM, two CS) resided abroad but worked in the Canton of Vaud and paid their taxes directly via their employer. The 'loss' of subjects due to out-of-canton residence is unlikely to be related to social integration. Finally, nine subjects (two EM, seven CS) could not be traced in the records. Some of them may have died before the tax declaration for 2004 was due. As for the analyses on criminal records, the following comparisons will be made on the full sample (i.e. all subjects will be analysed as originally assigned) as well as on those only who completed the sentence they were randomly assigned to.

According to Swiss tax laws, any person living in the country has to file each year a declaration of incomes including other relevant information to the IRS of the canton of residence. Those who fail to comply with this obligation will, after due warnings, be taxed on the base of an official assessment by the IRS. Among those assigned to community service, failure to file a tax declaration or having no IRS file was slightly (though not significantly) more frequent. This holds true for both subjects originally assigned and those who completed the sanction. The information on subjects having failed to file a tax declaration was extremely incomplete and could, therefore, not be used for the following analyses.

Being taxed on the base of a regular tax declaration is in itself an excellent indicator of social integration. Although none of the differences in Table 5 is significant (even at the $p < 0.10$ level), the fact that non-compliance with the obligation to file a tax declaration is slightly more common among those assigned to community service should be considered as an indication that the following comparisons are likely to be biased against electronic monitoring.

[8]We sincerely thank Mr Philippe Maillard, Head of the Internal Revenue Service, for having permitted searching the 237 subjects' IRS records and thus to have made possible the inclusion of data on life circumstances.

Marital status and family configuration More subjects in the electronic monitoring group are currently married (41 versus 28 per cent), and this difference is marginally significant, at $p < 0.10$, as Table 6 illustrates.

Considering that more subjects were married in the community service group (39 per cent) than among those assigned to electronic monitoring (34 per cent) when the trial started, the effect on marriage is probably stronger than the differences shown in Table 6 suggest. Cohabitation is unlikely to change this assessment, since nothing points to the possibility that cohabitation should be more common in one group over another, although Swiss fiscal data only record formal marriage.

Subjects in both groups had, in 2004, children below the age of 18 to support at comparable rates (36 per cent among those assigned to community service and 37 per cent among those assigned to electronic monitoring). However, 21 (compared to 28) per cent live with children together and 15 versus 9 per cent pay for children living with a former partner.[9] These differences are not significant, but point, once more, to a slightly better family integration among those assigned to electronic monitoring.

Financial well-being In order to give the best picture of subjects' financial situation, the following analyses show whether debts exceeded, in 2004, the household's faculty, whether subjects received, in 2004, any unemployment benefits and whether the combined monthly family income was, among married subjects and despite the partner's earnings (of at least 1,000 Swiss Francs or US$1,000 per month), above or below the threshold of 4,000 Swiss francs (or roughly US$4,000) (Table 7). This threshold is a good measure of relative poverty (only married couples with working partners were considered here, given that income reflects, to a large extent, marital status). As in the preceding tables, subjects were first analysed as randomized and, in a second round, as treated.

TABLE 5 *Subjects (analysed as* randomized *versus analysed as treated) located in the IRS data base (year of reference: 2004)*

	Analysed as randomized		Analysed as treated	
	EM (N = 102)	CS (N = 103)	EM (N = 95)	CS (N = 101)
Filed tax declaration	77%	72%	80%	72%
No tax declaration filed, assessed by IRS	21%	23%	19%	23%
No data for 2004	2%	5%	1%	5%

None among the comparisons across groups is significant.

TABLE 6 *Marital status by sanction served, in 2004: analysed as* randomized *versus analysed as* treated

Marital status	Analysed as randomized		Analysed as treated	
	EM (N = 79)	CS (N = 76)	EM (N = 72)	CS (N = 72)
Not married	59.5%	72%	59%	72%
Married	40.5%	28%	41%	28%

Compared as randomized: $Chi^2 = 2.703$, df = 1, p = 0.100. Compared as treated: $Chi^2 = 2.772$, df = 1, p = 0.096.

[9]The rates are identical for subjects analysed as randomised or as treated.

TABLE 7 *Financial circumstances of subjects, by sanction served, in 2004: analysed as* randomized *versus analysed as treated*

Financial status	Analysed as randomized			Analysed as treated		
	EM	CS	N	EM	CS	N
Faculty exceeds debts	43%	38%	152	42%	38%	149
Received unemployment benefits	11%	19%	152	12%	19%	149
Family income below 4,000 SF	34%*	60%*	152	35.5%**	65%**	51

*$p < 0.07$; ** $p < 0.04$.

The differences are not significant regarding debts or unemployment benefits, although subjects who served community service tend to be slightly less well-off than those assigned to electronic monitoring. Regarding family income, there is, however, a significant difference in the sense that among those whose partner earns at least 1,000 Swiss francs per month, the family income is more often below the poverty threshold of 4,000 Swiss francs if the subject had been randomized into community service. This difference is significant, both if subjects are analysed as randomized ($p < 0.07$) or if they are analysed as treated ($p < 0.04$).

How did both groups experience their time served?

Before the randomization, the large majority of defendants expressed, during the interview with the staff of the correctional service, a clear preference for electronic monitoring over community service. One might suspect, therefore, that those randomly assigned to electronic monitoring felt having 'drawn the great lot'. The interviews conducted one to two years later with those who had served their time (see above) do not support, however, the idea that those assigned to electronic monitoring had experienced their sanction more positively. Indeed, 100 per cent among those assigned to electronic monitoring and 95 per cent among those assigned to community service said they would recommend a friend, in the case of a conviction, serving it under the form they did. In both groups, the contacts with the police and justice were substantially more negative than the contacts with the probation officer. Nearly all subjects speak positively about the probation service. However, about one subject in two (49 versus 47 per cent in the electronic monitoring and the community service groups, respectively) talk negatively about the police officer(s) they had to deal with, and even more are unsatisfied with the judge (53 versus 56 per cent in the electronic monitoring and in the community service groups, respectively). There were only slight differences (75 versus 81 per cent for electronic monitoring and community service, respectively) regarding the question of whether or not the respondent felt having 'paid' his 'debt' towards the society (or the victim) in connection with the offence. Subjects may, therefore, have experienced the sanction quite positively overall, without much difference between the two groups. This finding is in clear contrast with the evaluation of community service compared to short custodial sanctions a few years ago (Killias *et al.* 2000*a*) where former prisoners expressed far more feelings of disappointment and frustration than those randomly assigned to community service. The overall positive assessment of both sanctions suggests that subjects assigned to community service felt the work to be performed was

'meaningful'—a prerequisite of the success and legitimacy of this sanction, as pointed out by McIvor (1992).

In this sense, having been assigned to electronic monitoring may not have worked as a particular motivating factor and the slightly (though often not significantly) better outcomes of electronic monitoring may not be related to a Hawthorn (or, eventually, a placebo) effect.[10] In experimental evaluations of criminal justice interventions in which double-blinding the nature of the treatment is not feasible, competing interpretations like this should not be ruled out, however (Killias 2006).

Discussion

Overall, subjects randomly assigned to electronic monitoring fared consistently and, in some instances, marginally significantly better than those assigned to community service with respect to reconvictions and several measures of social integration. The results were more positive for electronic monitoring if only subjects who ended the sanction were included. The number of drop-outs was more important than with community service (nine versus one), presumably because electronic monitoring allowed detecting more violations of programme rules (Hucklesby 2009). In any case, the differences in outcomes cannot be explained away by pre-existing differences between the two groups. In this sense, electronic monitoring seems to have had some positive effect on the subjects of this trial that community service did not produce. How did this happen?

Unfortunately and as stated in the introduction, few studies have assessed reoffending after electronic monitoring compared to other sanctions, even fewer (if any) have tested this under the form of a randomized controlled trial and none has, to our knowledge, ever attempted to compare it with community service. Therefore, there are no other studies whose results could be used to discuss the findings presented here or that could be helpful in exploring causal mechanisms. One may speculate that subjects may have benefited from being prevented from going out and from spending more leisure time with families, as suggested by Hucklesby (2008) and Martin *et al.* (2009). This, in turn, may have improved relationships among partners and family members more than performing community work somewhere else. At least, the findings do not support the idea that electronic monitoring might increase family violence or disharmony. Particularly the positive outcomes regarding marital status are consistent with this interpretation. Finally, community service is often performed in company with other offenders assigned to jobs in nature resorts or specialized facilities. Being exposed to peer influences may produce negative outcomes that have been observed also in connection with other trials, such as in comparisons of half-way house imprisonment compared to community service (Killias *et al.* 2010) or during evaluations of batterers' programmes in which programme participants attend common sessions (Ashcroft *et al.* 2003). Electronic monitoring may, thus, produce better results because it isolates defendants from other offenders.

A final possibility is the existence of a Hawthorn effect. Since most subjects were more interested to be assigned to electronic monitoring, one might speculate whether those randomly assigned to the 'desired' sanction were more motivated to comply (and succeed) and, as a result, developed more favourably for this reason alone. However, those

[10]We prefer seeing here a Hawthorn effect, but we admit that the nuance between the two is of little importance in the present context.

assigned to electronic monitoring did not experience their sanction more positively than those assigned to community service. Even if a Hawthorn effect had been at work, it would be hard to argue why it not only reduced reoffending, but stimulated marriage and improved marital relations.

Conclusions

With the increasing use of ever more 'alternative' sanctions, such as day fines, community service and electronic monitoring, the question becomes increasingly pressing to know more about how they affect defendants' later lives. Evaluations, so far focused on issues related to implementation and reoffending, should be widened to include measures of successful integration in other areas, such as work, financial well-being, family life and other networks. Basically, all 'alternative' (i.e. essentially non-custodial) sanctions were introduced because they allegedly produced better results on these wider aspects of life. It may be time to assess whether such claims are really justified, not only with respect to imprisonment (Killias *et al.* 2010), but also in comparison to other 'alternative' sanctions. Particularly in England and Wales, with its long-standing tradition of evaluations of new sanctions, it is surprising that a randomized trial comparing electronic monitoring with other sanctions had never been started (Farrington and Welsh 2006).

Beyond methodological concerns, the present findings are challenging because they show that differences in outcomes between 'alternative' sanctions can be far more substantial than anticipated so far in the literature. There are many studies concluding that electronic monitoring may be a valid alternative to custody, but that it is doing better than community service may come as a surprise. Perhaps it is time to reconsider certain implicit assumptions about the benefits from community service that has been so enthusiastically welcomed throughout the Western world over the last 20 years. Although intrinsically congenial and easily compatible with protestant work ethics, community service may, as it is usually implemented, have several shortcomings and side effects, such as 'contamination' by co-offenders that should be addressed more carefully in the future. Community service may also be less 'beneficial' in economic terms than often assumed and, eventually, go along with net-widening (Spaans 1998; Killias *et al.* 2000*b*) and backlogs of defendants waiting for their turn. Delayed and, ultimately, often unenforced sentences may undermine the legitimacy and the deterrent effects of criminal law. While net-widening may also be produced by electronic monitoring (Caputo 2004; Renzema and Mayo Wilson 2005), it may be easier to bring the number of electronic surveillance devices in line with increasing demand. Looking at it in these terms, electronic monitoring may be an attractive alternative in any criminal justice system in which non-custodial sanctions are widely used and in which, therefore, day fines or community service may reach their 'natural' limits.

The results presented here are encouraging for policies tending to extend the number of 'alternative' sanctions available to decision makers. Of course, the next and most pressing question is whether the present findings have reasonable external validity. For the time being, we simply do not know, and we can only encourage scholars from other countries to replicate similar trials in other settings with different criminal justice systems.

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