What works in France?
Questions and Answers about Recidivism and Electronic Monitoring

Anaïs Henneguelle
Assistant Professor in Economics at Rennes 2 University

Thursday 14 February 2019, ICC, Sydney
Applied Research in Crime and Justice Conference
A recent increase in the use of electronic monitoring (EM) in many countries (United States, France, England, North Africa...):

- much cheaper than prison
- to cope with prison overcrowding
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General background

A recent *increase* in the use of electronic monitoring (EM) in many countries (United States, France, England, North Africa...):

- much cheaper than prison
- to cope with prison overcrowding
- often assumed to lower recidivism
However, there is little evidence on the effects of EM on recidivism, due to an important selection bias.

A collective research project

Main contributions
- Estimate the effect of EM (versus incarceration) on future criminal activity
- Explore heterogenous effects and potential mechanisms
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Outline

Introduction
  Theory and evidence
  Institutional context

Data
  Databases
  Descriptive statistics

Empirical strategy

Results
  Benchmark estimates
  IV estimates
  Qualitative effects

Potential mechanisms
  Why is EM effective?

Conclusion
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Theory

- Seminal model of Becker, 1968
- Abrams, 2013: prison sentences prevent crime through incapacitation and deterrence

But might other forms of punishments be more effective?

Detrimental effects of incarceration

- Adverse impacts on labor-market outcomes and family relationships (Mueller-Smith, 2014)
- Degrading prison conditions (Drago et al., 2009)
- Peer effects inside prison (Bayer et al., 2009)

Detrimental effects of EM

- Specific deterrence theory (Berecochea and Jaman, 1981, Kuziemko, 2013)
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Main empirical challenge

Omitted Variable Bias: offenders who obtain EM may differ on observables and unobservables from those who end up in prison.

Only a few convincing papers

- Argentina 2013 (Di Tella and Schargrodsky): first to provide compelling evidence of crime-preventing effects of EM
- England 2015 (Marie): first to provide evidence in Europe
- Denmark 2014 (Andersen and Andersen): investigate how EM affects unemployment
Existing estimates

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The French setting - 1/4

Figure: Number of inmates (black line), prison beds (light grey dotted line), and convicts under electronic monitoring (grey dashes) in France from 2000 to 2019
EM eligibility conditions:

1. All offenders convicted to prison sentences shorter than 1 year...
2. ... who have a fixed-line telephone...
3. ... and whose family and landlord accept the electronic device

Selection process
In the 4 months after conviction, all eligible cases are treated by a second judge ("Juge de l’application des peines") who:

- requests a social investigation
- conducts individual hearing with offenders.

The decision to grant EM or not is likely based on observables and unobservables.
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The French setting - 3/4

An experiment (2000-2002) followed by a gradual roll-in

1. 1997: law on EM as a (full) substitute for incarceration

2. October 1st 2000 - October 1st 2001: implementation of EM as a pilot experiment, in only four High Courts

3. January 1st 2002: all French courts are allowed to grant EM to eligible offenders

4. December 2002 - May 2003: first wave of adoption of EM, including 13 new courts (over about 190 courts).
The French setting - 4/4

Figure: Map of EM roll-in in French courts (2000-2002)
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Conclusion
Data

• Two nation-wide surveys conducted by the French Prison Administration:

• Sociodemographic data, full criminal records, recidivism

• Sample restrictions to improve the comparability between both groups:
  • exclude back-door EM
  • exclude sentences > 1 year
  • exclude homeless
  • exclude pre-trial detainees and bench warrants

• 2,827 offenders, including 457 front-door EM and 2,370 incarcerated

Variable of interest
Recidivism: defined as any reconviction (or new prison conviction) within 5 years after release
(+ reincarceration of 26 EM offenders before the end of EM for repeated incidents)
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</thead>
<tbody>
<tr>
<td><strong>Socio-demographic characteristics</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>88.3%</td>
<td>93.2%</td>
<td>87.3%</td>
<td>***</td>
<td>[0;1]</td>
</tr>
<tr>
<td>Age</td>
<td>30.6</td>
<td>33.2</td>
<td>30.1</td>
<td>***</td>
<td>[13.6;100.6]</td>
</tr>
<tr>
<td>Employment</td>
<td>41.9%</td>
<td>63.9%</td>
<td>37.7%</td>
<td>***</td>
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</tr>
<tr>
<td>Couple</td>
<td>32.0%</td>
<td>42.9%</td>
<td>29.9%</td>
<td>***</td>
<td>[0;1]</td>
</tr>
<tr>
<td>Children</td>
<td>42.6%</td>
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<td>41.1%</td>
<td>***</td>
<td>[0;1]</td>
</tr>
<tr>
<td><strong>Prior incarcerations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>61.5%</td>
<td>69.4%</td>
<td>60.0%</td>
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</tr>
<tr>
<td>Average number</td>
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<td>2.9</td>
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The sample is composed of offenders who were sentenced to a prison term < 1 year, had a home and who started serving their sentence (in prison or under EM) strictly after their date of conviction.

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<td>(1.6)</td>
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<td><strong>Type of initial offense</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acts of Violence</td>
<td>17.2%</td>
<td>18.4%</td>
<td>16.9%</td>
<td>n.s.</td>
<td>[0;1]</td>
</tr>
<tr>
<td>Sexual assaults</td>
<td>4.6%</td>
<td>4.8%</td>
<td>4.6%</td>
<td>n.s.</td>
<td>[0;1]</td>
</tr>
<tr>
<td>Traffic</td>
<td>20.5%</td>
<td>27.1%</td>
<td>19.2%</td>
<td>***</td>
<td>[0;1]</td>
</tr>
<tr>
<td>Property</td>
<td>39.0%</td>
<td>32.4%</td>
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</tr>
<tr>
<td>Drugs</td>
<td>10.7%</td>
<td>8.5%</td>
<td>11.2%</td>
<td>*</td>
<td>[0;1]</td>
</tr>
<tr>
<td>Immigration</td>
<td>1.9%</td>
<td>0.0%</td>
<td>2.3%</td>
<td>***</td>
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</tr>
<tr>
<td>Weapons</td>
<td>2.0%</td>
<td>2.2%</td>
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</tr>
<tr>
<td><strong>Prison sentence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial sentence (months)</td>
<td>4.8</td>
<td>5.4</td>
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<tr>
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Descriptive statistics - 3/3

Figure: Recidivism over time

- EM: any reconviction
- Prisoners: any reconviction
- EM: prison reconviction
- Prisoners: prison reconviction
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Cross-court disparity as instrumental variables (IV)

- 3 types of courts:
  1. Pilot courts (n=4): Agen, Aix-en-Provence, Grenoble, Lille
  2. Early-adopter courts (n=13)
  3. Late-adopters (n=176)

- Source of variation in the individual probability of EM treatment

Main concern: endogenous selection of courts into EM

1. Anecdotal evidence
2. No differences before introduction of EM in recidivism, crime, overcrowding
3. Robustness checks
A quasi-natural experiment

Cross-court disparity as instrumental variables (IV)

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- Source of variation in the individual probability of EM treatment

Main concern: endogenous selection of courts into EM

1. Anecdotal evidence
2. No differences before introduction of EM in recidivism, crime, overcrowding
3. Robustness checks
### Table: Differences in 5-Year Recidivism Before the Introduction of EM

<table>
<thead>
<tr>
<th></th>
<th>2002 cohort</th>
<th>1996-1997 cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot court</td>
<td>-0.0296 (0.0384)</td>
<td>0.0031 (0.0587)</td>
</tr>
<tr>
<td>Early-adopter court</td>
<td>-0.0002 (0.0219)</td>
<td>-0.0027 (0.0404)</td>
</tr>
<tr>
<td>Ref: late-adopters</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Initial sentence length</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Demographics</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Past convictions</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>N</td>
<td>2 270</td>
<td>2 207</td>
</tr>
</tbody>
</table>

The table reports $\hat{\beta}$ (s.e.) from OLS regressions of 5-year recidivism after controlling for large set of individual characteristics. The 2002 sample only includes prisoners who were incarcerated before the first EM was granted in their court (if any). Prison releasees of 1996-1997 are matched to the future type of their corresponding court, based on the location of their prison.

* $p<10\%$, ** $p<5\%$, *** $p<1\%$
Objective
"ATT effect" of EM treatment: causal effect of serving a prison sentence at home under EM rather than in prison on individual probability of recidivism.

Two-equation model:

\[ \text{Recid}_{i,c}^{*} = \beta_0 + \beta_1 \text{EM}_i + X'_i \beta + \epsilon_{i,c} \] (1)

\[ \text{EM}_{i,c}^{*} = \alpha_0 + \alpha_1 \text{CourtAlreadyUsedEM}_{i,c} + \alpha_2 \text{ShareEM}_{i,c} + X'_i \gamma + \epsilon_{i,c} \] (2)

- Two instruments capturing EM availability at the court level:
  1. CourtAlreadyUsedEM
  2. ShareEM

- \( X = \text{initial sentence length} (q, q^2) + \text{demographics} \) (sex, age, age^2, parent, couple, employed) + prior convictions (dummies for prison/probation, number in each category) + date of release + weighted sampling (offence type, early-release)
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Two-equation model:

\[
Recid_{i,c}^* = \beta_0 + \beta_1 EM_i + X'_i \beta + \epsilon_{i,c} \tag{1}
\]

\[
EM_{i,c}^* = \alpha_0 + \alpha_1 CourtAlreadyUsedEM_{i,c} + \alpha_2 ShareEM_{i,c} + X'_i \gamma + e_{i,c} \tag{2}
\]

• Two instruments capturing EM availability at the court level:
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Econometric specification

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\[ \text{EM}_{i,c}^* = \alpha_0 + \alpha_1 \text{CourtAlreadyUsedEM}_{i,c} + \alpha_2 \text{ShareEM}_{i,c} + X'_i \gamma + e_{i,c} \]  (2)

• Two instruments capturing EM availability at the court level:
  1. CourtAlreadyUsedEM
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  Descriptive statistics

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Results
  Benchmark estimates
  IV estimates
  Qualitative effects

Potential mechanisms
  Why is EM effective?

Conclusion
### Benchmark estimates

**Table: Electronic Monitoring and Recidivism**

<table>
<thead>
<tr>
<th></th>
<th>Y= Any Reconviction In The Next 5 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td><strong>Probit Model</strong></td>
<td></td>
</tr>
<tr>
<td>Electronic Monitoring</td>
<td>-0.1523***</td>
</tr>
<tr>
<td></td>
<td>(0.0409)</td>
</tr>
<tr>
<td><strong>Pseudo R²</strong></td>
<td>0.17</td>
</tr>
<tr>
<td><strong>Linear Prob. Model</strong></td>
<td></td>
</tr>
<tr>
<td>Electronic Monitoring</td>
<td>-0.1614***</td>
</tr>
<tr>
<td></td>
<td>(0.0440)</td>
</tr>
<tr>
<td><strong>Adj. R²</strong></td>
<td>0.21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Past convictions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>2 827</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses, clustered at court level. All regressions control for the variables used for weighted sampling. Probits report Average Marginal Effects.

* p<10%, ** p<5%, *** p<1%.
Table: Electronic Monitoring and Recidivism

<table>
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<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Electronic Monitoring</td>
<td>-0.1523*** (0.0409)</td>
<td>-0.1276*** (0.0320)</td>
<td>-0.0832*** (0.0286)</td>
</tr>
<tr>
<td>Linear Prob. Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Monitoring</td>
<td>-0.1614*** (0.0440)</td>
<td>-0.1344*** (0.0351)</td>
<td>-0.0954*** (0.0318)</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.21</td>
<td>0.26</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Demographics Past convictions
N 2827 2827 2827

Robust standard errors in parentheses, clustered at court level. All regressions control for the variables used for weighted sampling. Probits report Average Marginal Effects.
* p<10%, ** p<5%, *** p<1%.
Causal estimates from cross-court variation

<table>
<thead>
<tr>
<th></th>
<th>Probit (1)</th>
<th>Bi-Probit with 1 IV (2)</th>
<th>Bi-Probit with 2 IV (3)</th>
<th>OLS (4)</th>
<th>2SLS with 1 IV (5)</th>
<th>2SLS with 2 IV (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Y₁ = Recidivism</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EM</td>
<td>-0.0832***</td>
<td>-0.0705**</td>
<td>-0.0711**</td>
<td>-0.0954***</td>
<td>-0.0553*</td>
<td>-0.0571*</td>
</tr>
<tr>
<td></td>
<td>(0.0286)</td>
<td>(0.0323)</td>
<td>(0.0341)</td>
<td>(0.0318)</td>
<td>(0.0316)</td>
<td>(0.0343)</td>
</tr>
<tr>
<td><strong>Y₂ = EM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CourtAlreadyUsedEM</td>
<td>0.1294***</td>
<td>0.0956***</td>
<td>0.6365***</td>
<td>0.3813***</td>
<td>(0.1042)</td>
<td>(0.1042)</td>
</tr>
<tr>
<td></td>
<td>(0.0078)</td>
<td>(0.0145)</td>
<td>(0.0481)</td>
<td>(0.0481)</td>
<td>(0.1731)</td>
<td>(0.1731)</td>
</tr>
<tr>
<td>ShareEM</td>
<td>0.0582**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0254)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.66</td>
<td>0.65</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ρ -0.12 -0.13
Hansen Test 0.706
F-stat: 1598 250 119
N 2 827 2 827 2 754 2 827 2 754

Robust standard errors in parentheses, clustered at court level. All regressions control for the variables used for weighted sampling, demographics, and past convictions. Values for probit and biprobit estimates are Average Marginal Effects from maximum likelihood regressions. 2SLS = two-stage least squares; IV = instrumental variable; OLS = ordinary least squares. * p<10%, ** p<5%, *** p<1%.
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<th>Bi-Probit with 2 IV</th>
<th>OLS</th>
<th>2SLS with 1 IV</th>
<th>2SLS with 2 IV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>$Y_1 =$ Recidivism</td>
<td></td>
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</tr>
<tr>
<td>EM</td>
<td>-0.0832***</td>
<td>-0.0705**</td>
<td>-0.0711**</td>
<td>-0.0954***</td>
<td>-0.0553*</td>
<td>-0.0571*</td>
</tr>
<tr>
<td></td>
<td>(0.0286)</td>
<td>(0.0323)</td>
<td>(0.0341)</td>
<td>(0.0318)</td>
<td>(0.0316)</td>
<td>(0.0343)</td>
</tr>
<tr>
<td>$Y_2 =$ EM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CourtAlreadyUsedEM</td>
<td>0.1294***</td>
<td>0.0956***</td>
<td></td>
<td>0.6365***</td>
<td>0.3813***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0078)</td>
<td>(0.0145)</td>
<td></td>
<td>(0.0481)</td>
<td>(0.1042)</td>
<td></td>
</tr>
<tr>
<td>ShareEM</td>
<td>0.0582**</td>
<td></td>
<td></td>
<td>0.4986***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0254)</td>
<td></td>
<td></td>
<td>(0.1731)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.66</td>
<td>0.65</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\rho$</td>
<td>-0.12</td>
<td>-0.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Hansen Test</td>
<td></td>
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<tr>
<td>N</td>
<td>2 827</td>
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<td>2 754</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Robustness checks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Probit</strong></td>
</tr>
<tr>
<td>100km neighboring courts</td>
</tr>
<tr>
<td>N = 1 666</td>
</tr>
<tr>
<td>Local crime rate (level + 2 year change)</td>
</tr>
<tr>
<td>N = 2 716</td>
</tr>
<tr>
<td>Released 3/1/2002 - 3/31/2003</td>
</tr>
<tr>
<td>N = 2 578</td>
</tr>
<tr>
<td>Alt. Starting Date</td>
</tr>
<tr>
<td>N = 2 754</td>
</tr>
<tr>
<td>Courts with &gt;20 convicts</td>
</tr>
<tr>
<td>N = 2 408</td>
</tr>
<tr>
<td>Instr: Pilot, early-adopter</td>
</tr>
<tr>
<td>N = 2 827</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses, clustered at court level. All regressions include the full set of control variables. Values are Average Marginal Effects.

* p<10%, ** p<5%, *** p<1%.
Qualitative effects

Type of new offences

- We model simultaneously the probability of a new offence in 3 categories (3SLS):
  1. Property crime
  2. Traffic crime
  3. Others

- Little evidence of crime-specific effects of EM

Seriousness of new offences

- We rely on two indicators:
  1. Any new prison conviction or not
  2. Total amount of new prison sentences accumulated over the 5-year follow-up

- Evidence of de-escalation after EM: offences committed after EM are less serious
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Qualitative effects: crime seriousness

Table: Seriousness of new crime(s) over the Next 5 Years

<table>
<thead>
<tr>
<th></th>
<th>Any New Prison Sentence</th>
<th>Total Length of New Prison Sent.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.0823***</td>
<td>-0.0973***</td>
</tr>
<tr>
<td></td>
<td>(0.0320)</td>
<td>(0.0291)</td>
</tr>
<tr>
<td></td>
<td>-8.7884***</td>
<td>-8.9771***</td>
</tr>
<tr>
<td></td>
<td>(3.0985)</td>
<td>(2.2792)</td>
</tr>
<tr>
<td>Conditional on Recid</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>2768</td>
<td>1583</td>
</tr>
<tr>
<td>Sample Average</td>
<td>45.7%</td>
<td>73.5%</td>
</tr>
<tr>
<td>Estimated effect of EM (%)</td>
<td>-18</td>
<td>-13</td>
</tr>
<tr>
<td></td>
<td>-45</td>
<td>-45</td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

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<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>2 768</td>
<td>1 583</td>
</tr>
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Why is EM effective?

Short-term incapacitation (at home)?

Heterogeneity by individual profiles

Intensity of Supervision under EM
# Short-term incapacitation?

## Table: Causal effects at different time windows

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM</td>
<td>-0.0290</td>
<td>-0.0578*</td>
<td>-0.0933***</td>
<td>-0.0848***</td>
<td>-0.1148***</td>
<td>-0.0906***</td>
<td>-0.0711**</td>
</tr>
<tr>
<td></td>
<td>(0.0269)</td>
<td>(0.0307)</td>
<td>(0.0263)</td>
<td>(0.0308)</td>
<td>(0.0346)</td>
<td>(0.0313)</td>
<td>(0.0341)</td>
</tr>
<tr>
<td>N</td>
<td>3 001</td>
<td>3 001</td>
<td>3 001</td>
<td>3 001</td>
<td>3 001</td>
<td>3 001</td>
<td>2 827</td>
</tr>
<tr>
<td>% Recid.</td>
<td>16.6%</td>
<td>27.5%</td>
<td>39.3%</td>
<td>51.9%</td>
<td>60.3%</td>
<td>63.9%</td>
<td>65.4%</td>
</tr>
<tr>
<td>EM Effect</td>
<td>(-17.5%)</td>
<td>(-21.0%)</td>
<td>-23.7%</td>
<td>-16.3%</td>
<td>-19.0%</td>
<td>-14.2%</td>
<td>-10.9%</td>
</tr>
</tbody>
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Robust standard errors in parentheses, clustered at court level. Values are Average Marginal Effects. All regressions are bivariate probits with the same two instruments, and the full set of control variables.

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<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
</tr>
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<tbody>
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<td><strong>EM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>(0.0307)</td>
<td>(0.0263)</td>
<td>(0.0308)</td>
<td>(0.0346)</td>
<td>(0.0313)</td>
<td>(0.0341)</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>3 001</td>
<td>3 001</td>
<td>3 001</td>
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<td>2 827</td>
</tr>
<tr>
<td>% Recid.</td>
<td>16.6%</td>
<td>27.5%</td>
<td>39.3%</td>
<td>51.9%</td>
<td>60.3%</td>
<td>63.9%</td>
<td>65.4%</td>
</tr>
<tr>
<td><strong>EM Effect</strong></td>
<td>(-17.5%)</td>
<td>(-21.0%)</td>
<td>-23.7%</td>
<td>-16.3%</td>
<td>-19.0%</td>
<td>-14.2%</td>
<td>-10.9%</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses, clustered at court level. Values are Average Marginal Effects. All regressions are bivariate probits with the same two instruments, and the full set of control variables.

* p<10%, ** p<5%, *** p<1%.
Profiles and Supervision

Table: Heterogeneity of Effects by Profile and Supervision

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<tr>
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<tr>
<td>Younger than 28</td>
<td>-0.0811**</td>
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</tr>
<tr>
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<td>-0.0944*</td>
<td>Obligation: work</td>
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**Short-term incapacitation (at home)?**

- Long-standing effect

→ EM promotes *long-term change*

**Heterogeneity by individual profile**

- Little evidence by age, parenthood, employment
- Difference by prior experience of prison

→ Importance of *specific deterrence and/or reciprocal behavior*

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- Length of supervision
- Work obligations

→ *Specific deterrence again and rehabilitation through work*
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Introduction
  Theory and evidence
  Institutional context

Data
  Databases
  Descriptive statistics

Empirical strategy

Results
  Benchmark estimates
  IV estimates
  Qualitative effects

Potential mechanisms
  Why is EM effective?

Conclusion
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Main results

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1. A large reduction in recidivism of 6-7 pp or 9-11%
2. A long-standing effect (5 years), driven by long-term change (specific deterrence + rehabilitation), and not by short-term incapacitation
3. A de-escalating effect too, with far less prison reconvictions and shorter sentences in case of recidivism

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The French setting: pilot courts

Figure: Number of Electronic Monitoring Sentences granted in Pilot Courts
Differences between Pilot and Other Courts 1/2

Figure: Prison overcrowding

- All prisons
- Maisons d’Arrêt

Overcrowding rate (%)

- Pilot Courts
- Early-Adopter Courts
- Late-Adopter Courts
Differences between Pilot and Other Courts 2/2

Figure: Crime rates
Date of release

**Figure:** Density of dates of release in both samples
The Boom in EM

Figure: The massive development of EM in France since the 2000s
Little change in the selection of EM offenders

Figure: Observable characteristics of EM offenders
Less Intensive Supervision

Figure: Supervision and Incidents under EM
Semi-liberty

Figure: Number of Semi-Liberty Offenders in France from 1990 to 2018
Research perspectives on other forms of sanctions

1. **Halfway houses**: work in progress with B. Monnery and F-C. Wolff
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2. **Community service, parole or judicial supervision**:
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