Demographic Analysis of the Penal System: A Different Approach to Sentencing

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At the end of the 1970s, with an education in the physical sciences, mathematics, and demography, I became unexpectedly involved in the study of a rather unusual population—the prison population. The French National Correctional Administration was in the process of computerizing its systems and was seeking to analyze the statistical data that would emerge from these new systems. It was somewhat by chance that they recruited a demographer, rather than a statistician, for this task.

Since then and for nearly 35 years, I have worked in the criminological field and sought, through quantitative analysis, to shed new light on *prison trends and issues*. My research on prison demography has focused both on "populations under correctional control" (whether detained or monitored in the community) and on the administrative and judicial decision processes that impact these populations. This work has encouraged me to reflect on the terms and concepts employed by those who have initiated criminal justice and prison policies, that is, those who hold a direct or indirect stake in these policies (i.e., judges, prison staff, unions and professional or associated organizations, the media, etc.). These policies have targeted issues such as clearance rates, the growth or reduction of the prison population, prison overcrowding, alternative sanctions, the enforcement of criminal sanctions, early release decisions, as well as the rates of recidivism or returns to prison and the prevalence of repeat offenders. These political terms commonly used in the penal system needed to be revisited with the rigor required of any serious quantitative approach. The goal was to better understand the changes in the penal field and make comparisons within the European context, and to create explanatory and evaluative tools regarding promising policies.

I thus sought to formalize the results of this long-term work, and to analyze everyday vocabulary and its evolution over time. My aim was to define these concepts, as well as to create new concepts, and to include them within the public discourse in France and in other countries. The materials required for such a study was first gathered through my work with French data (from the end of the 1960s until today), but the bulk of it was acquired when I served as a specialist for the Council of Europe (from 1983 through 2005). These initiatives include the creation and development of the *Council of Europe Annual Penal Statistics (SPACE)*, which I initiated, and particularly the very complex expansion of this system to community measures (*SPACE 2)* at the beginning of the 1990s; participation in the *Sourcebook* program to create a database with all European crime statistics; preparation of the recommendations on prison population inflation and the overcrowding of prisons, adopted on September 20, 1999, by the Committee of Ministers; preparation of the recommendations on conditional release, adopted on September 24, 2003; collaboration within the Criminological Scientific Council in a book addressing "good practices" in criminal justice and correctional policy.[1]

[1] Council of Europe. *Crime policy in Europe. Good Practices and Promising Examples* (Strasbourg: Council of Europe Publishing, 2004).

This research on terms and concepts thus led me to create a dictionary of prison demography. What follows are some key entries from this dictionary.[2]

1. Of some concepts

COMMITTAL (ou commitment, peut-être?): Committal is the judicial act whereby a person is placed in a correctional facility, under the responsibility of its director, from a certain date, based on a certain committal order, and on the basis of a given motive (prosecuted or punishable offenses). According to French law, article 432-6 of the penal code states that "the reception or retention of a person by an agent of the prison administration, without a warrant, a judgment or detention order drafted in conformity with the law, or the undue extension of detention, is punished by two years' imprisonment and a fine of €30,000." It is important to distinguish between the committal of a free person and the committal of a person transferred from another correctional facility.

Committal to prison does not imply detention. Such is the case when a convict is placed under electronic surveillance *ab initio*, a form of alternative sanction, introduced in the bill enacted on December 19, 1997. In this case, the person is committed to prison, but not detained.[3]

PENAL DEMOGRAPHY: In practice, there is often no distinction made between *prison demography, correctional demography,* and *penal demography.* It is preferable to use the term *prison demography* to designate the study of carceral populations and the expression *correctional demography* to signify the study of being placed under judicial supervision either in closed containment or in the community. The expression *penal demography* has a much broader meaning and is also sometimes referred to as *criminal demography*. This concept includes the study of all populations involved in the criminal justice system in the broad sense of the term: individuals arrested by the police, brought before the public prosecutor's office, indicted, detained, convicted, incarcerated, etc.

Strictly speaking, prison demography studies the different aspects of prison populations, their criminal and socio-demographic characteristics, their evolution over time, and their spatial distribution. The existence of these populations is essentially regulated by the following basic mechanism:
- individuals are committed and thus become part of the prison population;
- individuals are released, freed, and thus leave this population;
- a certain period of time elapses between a person's committal and release; the time spent in prison, which varies depending on the person, ensures the coexistence, at any moment, of a changing number of individuals that make up the prison population.

Demographic analysis seeks to understand the mechanism by which the population is renewed; for example, we try to identify the connections that exist between the modalities of the committal and release processes (flows) and the number of individuals (stock) that comprise the prison population. This highlights the crucial distinction between stock and flows in this discipline. Prison demography also studies all judiciary, administrative, and human events that might influence the time spent in prison or in detention, as well as the conditions and duration of the detention period.

[2] Pierre V. Tournier, *Dictionnaire de démographie pénale. Des outils pour arpenter le champ pénal* (Paris: L'Harmattan, 2010).
[3] See appendix: Data on the committed population on January 1, 2013 (throughout France).

"STOCK-FLOW" EQUATION: Consider an interval of time [t_0; t_1]. Let P_0 be the size of the prison population at the initial date t_0 (period start), P_1 the size at date t_1 (period end). Let E be the total number of entries into prison during the period and S the total number of releases during the same period (except for transfers). The "stock-flow" equation is expressed in the following relation: $P_1 = P_0 + E - S$, or $P_1 - P_0 = E - S$. Both express the absolute increase during the period, or the balance.

INDICATOR OF THE AVERAGE TIME SPENT IN PRISON: This indicator can be calculated by comparing the average number of people in prison for year n (P) to the flow of entries into prison for the year (E): $d = 12 \times P/E$ or $P = E \times d/12$ (d expressed in months).

Strictly speaking, this formula corresponds to the demographic model of "stationary population": the number of entries is constant from year to year, with the same release schedule for all cohorts of entries. Of course, prison populations do not generally follow this model. Also, this indicator hardly makes sense in economic terms, but it proves very useful in determining basic trends (hence why I developed this expression in 1981).

EVENT: In the study of the penal system, we are not only interested in populations involved in the criminal justice system, but also in the decisions that occur throughout the criminal justice process (for example, indictment, committal, dismissal, conviction, release) or other issues that impact these decisions (escape, suicide in prison, etc.). We generally seek to identify the number of *events*, usually over a calendar year (flow), and their relative frequency. The frequency is calculated by creating a ratio of the number of events in a year to the population that is susceptible to experiencing that event (rate): rate of entries to prison or detention per population size, and rates of mortality or suicide in prison. We are also interested in the time lapsed between two events.

Among all these events, we make a distinction between those that are *renewable*, that can happen again during the lifetime of a single person (e.g., new convictions for acts committed after release), and those that are not renewable (e.g., death, conviction for the first acts committed after release).

2. Two major variables: the nature of the offense and the penal category

In general demography, the most important variables are, for obvious reasons, sex and age. Unsurprisingly, in the field of penal demography, the nature of the offense and the penal category are central variables. These two variables are particularly complex to analyze, both judicially and statistically. Sex and age also relate to the sociological dimension of the penal field but at a secondary level, as do family situation, foreign origin, nationality and origin, education, profession or work situation, health, addictive behaviors, etc.

OFFENSE: In French law, criminal offenses are classified, according to their seriousness, as *felonies, misdemeanors,* or *petty offenses* (art. 111-1 of the Penal Code). Petty offenses are subdivided into five classes. With regard to felonies, the maximum penalty—*criminal imprisonment (ordinary offenses) or criminal detention (political or military offenses)*—is life imprisonment. For misdemeanors, the maximum penalty is 10 years imprisonment. Penalties for petty offenses include fines (a maximum of 1500 euros for fifth-class offenses and in some cases, 3000 euros for repeat offenders) and the

forfeiture or restriction of rights, as indicated in article 131-14 of the Penal Code. Since the new penal code was adopted on March 1, 1994, penalties entailing the deprivation of liberty can no longer be applied to fifth-class petty offenses.

Of the 603,994 convictions registered in the criminal records in 2011, there were 2,529 felonies (0.4%), 560,259 misdemeanors (93%), and 41,206 fifth-class petty offenses (6.8%). Of the felonies, 50% of the convictions involved incidents of rape. As for misdemeanors, drunk driving was the most prevalent (22%), followed by intentional assault and battery with temporary interruption of work (TIW) for eight days or less, with aggravating circumstances (8%). Fifth-class petty offenses primarily consist of incidents of excessive speeding (35%) and intentional assault and battery with TIW for eight days or less (22%).[4]

MULTIPLE OFFENSES: A prison sentence may be linked to multiple cases, and each case could originate from a different offense. However, even within a single case, there might also be several indictable or punishable offenses. A conviction, for example, might include rape, threat of death, and robbery. If, when looking at a group of convictions, the aim is to determine the statistical distribution according to the type of punishable offenses, it is tempting to try to simplify things by basing the analysis on the concept of *primary offense*. In a certain number of cases, the definition is straightforward. If the conviction involves a felony and misdemeanors, the felony would be designated as the primary offense. In the case of several felonies (or several misdemeanors), the felony (or the misdemeanor) with the heaviest sentence, as defined by the penal code, would be designated as the primary offense.

Example 1. Rape (punishable by 15 years imprisonment, art. 222-23 of the Penal Code) and robbery (3 years imprisonment and 45,000 euros, art. 311-3). Primary offense = rape.

Example 2. Death threat with an order to fulfill a condition (punished by 5 years' imprisonment and 75,000 euros, art 22-18) and robbery. Primary offense = threat of death with an order to fulfill a condition.

But this approach has its limits.

Example 3. Death threat (3 years' imprisonment and 45,000 euros, art. 222-17) and robbery. Primary offense = ?

The rationale may be that harm done to individuals outweighs harm targeted at goods. It is also possible to have felonies (or misdemeanors) of the same type with similar sentences. Thus, when looking at two offenses, it is not always possible to determine which one is more serious than the other, based solely on the prescribed sentence. According to statistical sources and studies, this problem can be resolved in a practical way, and the primary offense can be determined on the basis of which offense is mentioned first in the concerned document (committal document, memorial of judgment, etc.).

PENAL CATEGORY: At a period *t*, the prison population comprises defendants and inmates. An inmate is an incarcerated individual who has been convicted and received a final ruling: the person must have exhausted his/her judicial remedies (appeal and cross-appeal). However, the additional appeal time available to the prosecution is not taken into account. A distinction is also made between inmates serving a sentence of imprisonment

[4]O. Timbart, *Les condamnations, année 2011*. Secrétariat général du Ministère de la Justice et des Libertés (Paris: SDSE, 2013).

and those serving a term of imprisonment or criminal detention for either a fixed or life term.

Defendants are individuals in prison who have not received a final ruling, who are in pretrial detention. They may be subject to proceedings involving a misdemeanor or a crime. They may be awaiting a preliminary ruling or have already received an initial ruling.

If the person is involved in several cases, the status of inmate takes precedence over the status of defendant. The penal category is determined at a particular moment in time and may, of course, change during the period of detention; this is a characteristic of stock.

PENAL CATEGORY AT PRISON ENTRY: When entering prison, a person has the status of defendant or inmate. Inmates are individuals imprisoned after a final ruling, while defendants, defined in negative terms, are those who have not yet received a final ruling.

CHRONOLOGICAL PENAL CATEGORY: This concept only has meaning once the prison term has been completed. Penal status is attributed to the time spent in prison on the basis of the imprisoned person's penal category, either defendant or inmate. Time spent in prison is thus broken down into the length of time spent in pre-trial detention and length of time spent as an inmate. One of these factors of course may be null for any given time spent in prison. Also, when a person is required to remain in prison over a period of time for multiple cases, this breakdown necessarily involves making prioritized choices. Let us look at an example:

- January 1, 2005: Committal to prison of Victor D. under a committal order for rape in case 1.
- March 1, 2005: Memorial of judgment in case 2. One year imprisonment for petty theft. Credit towards a reduced sentence of 3 months, with a sentence end date of December 1, 2005.
- December 1, 2005: End of sentence in case 2. Victor D is held in detention due to the committal order in case 1.
- April 1, 2006: Judgment by the Assize Court in case 1 results in the acquittal and release of Victor D.

Between March 1 and December 1 (9 months), the status of inmate (in case 2) takes precedence over that of defendant in case 1. The breakdown of this detention of a year and three months based on the chronological penal category is the following: detention as a defendant = 6 months (or 40%), detention as an inmate = 9 months (or 60%).

This concept of chronological penal category should be distinguished from that of penal category on date t. Let us look at a second example:

- January 1, 2005: Committal to prison of Clara H. under a committal order for robbery and driving without a license.
- March 1, 2005: Order to send the case to the criminal court.
- June 1, 2005: Judgment by the criminal court. Clara H. is sentenced to 18 months' imprisonment, of which six months were suspended. Three months' credit for a reduced sentence. End of sentence: October 1, 2005.
- October 1, 2005: Release from prison; end of sentence.

Here is the breakdown of the 9 months, done a posteriori: time spent as a defendant = 5 months (or 56%); time spent as an inmate = 4 months (or 44%). We know that at the end of the time spent in prison, Clara H. did not appeal the criminal court's decision. Thus, a posteriori the conviction became final as of June 1. In reality, Clara H. held the status of defendant longer. If we ask what her penal category was in the days following

the June 1 ruling, the answer is "defendant," because she was still in the period where she could lodge an appeal or give notice of appeal.

In a now dated study,[5] based on a sample of entering inmates from 1983 who were followed for up to 27 months (enough time for more than 95% of entering inmates to be released), the breakdown of time spent in prison was as follows: time in prison as a defendant = 50.1%, time spent as an inmate = 49.9%. This type of calculation, which did not include the 5% of inmates who spent more than 27 months in prison, has not been replicated since the publication of this study.

3. Calculation of rates

RATES: The quantitative approach in the correctional field obviously involves manipulating several *rates*: rate of population increase, rate of detainee supervision (per correctional officer), rate of individuals in prison per inhabitant, rate of detention per inhabitant, rate of entries into prison per inhabitant, rate of entries into detention per inhabitant, rate of mortality in prison, etc. Note that in related situations, the following terms are also used: *proportion* (e.g., the proportion of individuals in pretrial detention), *index* (specific frequency index of a sanction or measure applied in the community), *weight* (weight of the temporary detention, weight of alternatives to detention), and quotient (quotient of recidivism). In each case, the aim is to calculate a ratio of two quantities, *A* and *B*; however, the relationships that exist between these two figures may be different in kind.

First case. In this case, the goal is to measure the relative frequency of an event in a given population, generally throughout a calendar year, whether the event is renewable or not. The number of events (*A*) is thus compared to the average population that might experience this event (*B*). The relative frequency of a non-renewable event could be considered as an experimental measure of the likelihood of its occurrence. This is how the prison mortality rate is calculated.

Second case. This case involves the division of a part by the whole. *A* and *B* are of the same kind (persons or events) and *A* is a part of *B*. In this case, the preferable term to use is *proportion* or *weight*. Some examples are the proportion of women or foreigners in the prison population (these are also commonly referred to as the rate of women or the rate of individuals of foreign origin), the proportion of individuals in prison not yet tried (*A* and *B* are individuals in prison), the proportion of entries into prison before a final ruling (*A* and *B* are "entries into prison" events), and the weight of detention alternatives.

Third case. The dividend and the divisor belong to different categories. This is the case for the rate of detainee supervision (per correctional officer), where *A* is a number of detainees and *B* a number of officers, and for the specific frequency index of a community sanction or measure. This case is also known as a *ratio*.

In what category do we place the clearance rate found in statistics concerning incidents reported by the police and the gendarmerie (relating the number of reported incidents to cleared incidents from the same year)? Neither case 1 nor case 2 applies in this example. Indeed, the cleared incidents from year *n* are not a sub-group of reported incidents from the same year, since some of these clearances may have resulted from proceedings from a

[5]Marie Danièle Barré, Pierre V. Tournier, and Bessie Leconte. *La mesure du temps carcéral, observation suivie d'une cohorte d'entrants* (Paris: CESDIP, 1988).

previous year. This is, therefore, a simple ratio, which for certain offenses may be greater than 100.

Relating, in a mathematical sense, one quantity (*A*) to another (*B*) is one of the first stages of analysis. The meaning of the operation will obviously depend on the types of quantities.

4. The stories of cohorts

COHORT: A cohort is any group of persons who experience the same event within a given time frame, usually a calendar year. Demography's traditional cohorts (cohorts of births, of generations, or of deaths, etc.) give way to cohorts of individuals committed to prison or detained, cohorts of persons benefiting from a release, etc. Whether it involves observation over time (e.g., observation of cohorts of people committed to prison) or retrospective analysis (e.g., of cohorts of those released), the value of this kind of approach can be explained in this way: "The fact is that biographical events do not occur according to clear groups, only to be lost in a mass of statistics. On the contrary, these events are submitted to the analyst as individual stories, which allow for particularly rich analyses due to the network of connections that can be brought out between the different types of events at play."[6] Even if this approach is not the prerogative of demographers, it has greatly contributed to the visibility of our way of understanding the correctional field. In our work, analyses of cohorts have primarily focused on the three following areas, which are more or less interwoven: the study of incarceration trends and trajectories and the lengths of time spent in prison, early release and alternative sanctions and finally, the issue of "recidivism."

LONGITUDINAL ANALYSIS: This expression is synonymous with analysis by cohort. Observations over time (prospective analysis) and retrospective analysis are the two main methods employed to collect longitudinal data. It is fundamentally different from cross-sectional analysis.[7]

RETROSPECTIVE COHORT ANALYSIS: As its title indicates, retrospective cohort analysis is a return to the past. Here is an example: to study changes and trends in early release decisions, we use cohorts of inmates freed during a certain period, and we examine, retrospectively, the decisions that affected them throughout their time in prison—convictions, credits toward reduced sentences, possible withdrawal of those reduced sentences after particular incidents, anticipated conditions of release, etc. We are thus able to reconstitute a history of the time in prison.

In this type of research, the study of modified sentences and early releases are usually combined with the study of "recidivism."[8] The retrospective analysis of what occurred before release (during the time in prison, or even before that period) includes the observation over time of what occurs afterwards (new cases).

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[6] R. Pressat, *Dictionnaire de démographie* (Paris: PUF, 1979).

[7] Pierre V. Tournier, "Note technique sur le diagramme de Lexis," in *Travaux & Documents*, 2 (Paris: Direction de l'administration pénitentiaire, 1980).

[8] A. Kensey and Pierre V. Tournier. "Prisonniers du passé? Cohorte des personnes condamnées libérées en 1996–1997: examen de leur casier judiciaire 5 ans après la levée d'écrou (échantillon national aléatoire stratifié selon l'infraction)," in *Travaux & Documents*, 68 (Paris: Direction de l'administration pénitentiaire, 2005).

CROSS-SECTIONAL ANALYSIS: cross-sectional analysis involves phenomena that appear during a set period of time, usually a calendar year, within a set of cohorts.[9] It is fundamentally different from longitudinal analysis. Here is an example: consider a cohort of persons committed to prison. Through observation over time, we can learn who among the inmates of this cohort will benefit from temporary leave during their detention. This follow-up can persist up until their release. By ranking these leaves (1st leave, 2nd, etc.), we can analyze the conditions under which these leaves took place (without incident, late return to the detention facility, escape). This would be a longitudinal analysis.

However, in a cross-sectional study, we might also look at all the leaves granted in a particular year to the population of convicted detainees. These detainees would belong to an entirely different set of imprisoned cohorts and would represent a heterogeneous population with regard to the length of time already spent in prison.

OBSERVATION OVER TIME: Unlike *retrospective cohort analysis,* which looks to the past, the *observation of a cohort over time* looks toward the future. As an example, let us look at one of the first correctional studies carried out in France using this method. It involved the 6,745 entries into detention in February 1983.[10] In cases where one person entered several times, only the first entry of the month was considered. Thus, we can in fact refer to them as *incoming inmates*. The study began in 1983 and involved three periods.

During the first period, we analyzed the socio-demographic and criminal structure of this cohort. After determining a representative sample of these incoming inmates (n=1326), we allowed for a sufficient period of time to pass so that most incoming inmates were released. Following a few tests, we decided to end this period of observation after 27 months: 95% of the incoming inmates had been released at that point. Fifty percent had been released after 2.5 months (median of the duration of detention). It was then possible to analyze the time spent in prison: the schedule of exits, the study of detention, of pre-trial detention and of (short) sentence modification.

The third step of the observation over time involved examining the individual criminal records of the sample, on average five years after release. For those released before a ruling was issued, it was possible to determine whether they had ultimately been convicted and if so, of the nature of the sentence. For all cases, we could determine whether they had been involved in a new offense after their release, and whether they were convicted (study of the cohort's judicial follow-up). Fifty-nine percent of those released were involved in a new case, punishable by a penalty of some kind, and the rate of return to prison was 39%.

5. Prison population inflation and overpopulation of prisons

PRISON POPULATION INFLATION: Any mention of prison population inflation suggests that the increase in the number of persons in prison is “very high” (stock data). In other words, it does not correspond with the increase in the number of inhabitants.[11]

[9] Tournier, “Note technique.”
[10] Barré, Tournier, and Leconte, La mesure.
[11] Council of Europe. *Prison overcrowding and prison population inflation,* recommendation No. R (99) 22, adopted by the Committee of Ministers on September 30, 1999, and report prepared with

Example: In France, between January 1, 1975, and January 1, 1995, the number of persons in prison became 1.98 times higher, an increase of 98% compared to only a 10.3% increase in the number of inhabitants (metropolitan France). Thus, in 20 years, the rate of incarcerated individuals, which can be calculated based on a constant number of inhabitants, went from 49 to 89 per 100,000 inhabitants. Looking at things this way, we can assess the magnitude of the increase in the prison population rate, without having to address issues of causality (i.e., is it because of the increase and structural transformation of crime and criminality? Or the increased severity of trial courts?), and without having to refer to issues relating to the capacity of detention facilities.

The concept of prison population inflation (which only makes when observing over a sufficiently long interval of time such that changes are not merely circumstantial) is distinct from the concept of overpopulation of detention facilities. Overpopulation only involves detained persons and refers to the situation on a given date *t*.

If the number of incarcerated individuals decreases significantly over a certain period of time, this would indicate prison deflation. This was the case in France between 1996 and 2000. Again, as previously mentioned, it is important to make a distinction within the prison population between those individuals in prison who are detained and those in prison who are not detained.

PRISON OVERPOPULATION: In everyday language, this expression has two fairly distinct meanings: (A) A general sense that "there are too many detainees," without any indication of what criteria are being used to make this claim; (B) a more precise meaning referring to the capacity of detention facilities. This second meaning describes the fact that, at a given moment *t*, the number of detainees does not correspond to the detention facilities' capacity. Overpopulation is thus evaluated according to prison density and the surplus number of detainees. It is important to make a distinction between overpopulation and the inflation of the number of individuals in prison, or even of the number of persons detained. For example, there could be an increase in overpopulation while the number of detainees remains constant (and therefore no inflation). This would occur, for example, with the closure of a dilapidated facility, the conversion of cells into workshops, etc. Of course, overpopulation and prison inflation are usually linked, but this link can be complex. If there is not enough construction, inflation increases the problem of overpopulation. Yet, does overpopulation mobilize public authorities to decrease inflation by decreasing the use of prisons? Does under-population (which occurs when policies to develop prison buildings are poorly conceived) encourage inflation? Because of the lack of research in this area, we cannot speak with certainty and are compelled to hypothesize. However, it should be noted that making a distinction between the two concepts at least enables us to consider the ways in which they are connected.[12]

NUMBER OF SURPLUS DETAINEES: This indicator is crucial for measuring the state of prison overpopulation.[13] Let us consider two detention facilities *A* and *B*. On date *t*, *A* has 100 functional spaces and *B* has 150, for a total of 250 spaces.

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the assistance of André Kuhn, Pierre V. Tournier and Roy Walmsley, et al. (Strasbourg: Council of Europe Publishing, 2000).

[12] Council of Europe, *Prison overcrowding*.

[13] Pierre V. Tournier, *La Prison. Une nécessité pour la République* (Paris: Les Editions Buchet & Chastel, 2013).

First case. *A* receives 120 detainees and *B* 180 detainees. Overall, there are 300 detainees for 250 spaces, a difference of 50. There is a surplus of 20 detainees in *A* and a surplus of 30 detainees in *B* (20 + 30 = 50). The total number of surplus detainees corresponds to the positive difference between the total number of detainees and the total number of spaces.
Second case. *A* receives 80 detainees and *B* 110 detainees. Overall, there are 190 detainees for 250 spaces, a difference of –60. There are 20 free spaces in *A* and 40 free spaces in *B* (20 + 40 = 60). The total number of free spaces corresponds to the difference (negative) between the total number of detainees and the total number of spaces.
Third case. *A* receives 80 detainees and *B* 180 detainees. Overall, there are 260 detainees for 250 spaces, a difference of + 10 (apparent overpopulation). In reality, there are 20 free spaces in *A* and 30 surplus detainees in *B*, for an overall number of surplus detainees of 30. The difference, positive in this case, between the total number of detainees and the total number of spaces does indeed indicate a state of overpopulation, but does not measure the number of surplus detainees.

Surplus detainees = apparent overpopulation + number of free spaces (30 = 10 + 20).

Fourth case. *A* receives 110 detainees and *B* 120 detainees. Overall, there are 230 detainees for 250 spaces, a difference of –20 (apparent under-population). In reality, there are 10 surplus detainees in *A* and 30 free spaces in *B*, for a total number of surplus detainees of 10. The negative difference between the total number of detainees and the total number of spaces simply indicates that not all the facilities are overpopulated.

Surplus detainees = apparent overpopulation + number of free spaces. (10 = –20 + 30)

6. Should we limit the use of prison?

DYNAMIC TYPOLOGY OF ALTERNATIVE MEASURES AND PENAL SANCTIONS TO PRISON AND/OR DETENTION: It was after work done for the Council of Europe's Council for Penological Co-operation on the overpopulation of detention facilities and prison population inflation that we proposed an original typology of alternatives to prison and/or detention.[14] This classification is based on an analysis of the ways in which the prison population is renewed (individuals in prison): Analysis of stock based on that of entries into prison and length of time spent in prison.

A first-category alternative is any measure or penal sanction (MPS) that reduces the number of entries into prison. Such is the case when, during proceedings, a free defendant is given a suspended sentence or a suspended sentence with probation and is placed under court supervision *ab initio* (decided before any pre-trial detention) or given community service. These alternatives are sometimes regarded as radical.

Second-category alternatives reduce the length of time spent in prison. This is a measure of lesser evil since it is partial or relative: Recourse to prison could not be avoided, but time spent in prison is reduced by some means. Accordingly, reductions of sentences are second-category alternatives.

Of course, this dichotomy does not mean we can classify all MPSs into two separate categories since many belong to one or the other depending on how they were applied.

[14] Council of Europe, *Prison overcrowding*.

Thus, court supervision is a first-category measure if it is declared *ab initio*. But if the decision is reached while the defendant is in pre-trial detention, it is a second-category measure: it reduces the time spent in prison while awaiting judgment. It is the same with suspended sentences: it is a first-category sanction if the accused was not in temporary detention, and a second-category sanction in the opposite case. Conditional release (CR) falls into the second category. Of course it does not reduce the time served for the sentence, but it does enable anticipated release—with discharge from prison—with the remainder of the sentence to be served in open custody. Thus, questions concerning early release decisions are an integral part of the issues surrounding alternative sanctions.

The limitations of the preceding dichotomy within the group of alternative sanctions are thus clearly evident. What then, for example, of inmates placed under electronic surveillance? This would not fall under the first category, because the person is committed to prison. Nor does it fall under the second category, because it does not reduce the amount of time spent in prison. Thus, third-category alternatives are MPSs that reduce the real time spent behind the walls of detention facilities, without discharge, and thus without reducing the time spent in prison. This third category therefore includes measures such as electronically monitored house arrest, for which the person committed to prison is not detained, in the sense of being housed in a detention facility. But we can also find measures where the person is housed, but whose time spent behind walls is reduced in some way: semi-custody, extra-mural placement with housing, leave of absence.

As argued in the recommendations put forth by the Council of Europe in 1999, the best way to combat prison inflation is to develop, simultaneously, the three types of alternatives.[15]

VIRTUAL ALTERNATIVES TO PRISON AND/OR TO DETENTION: When a person, who has not yet been subjected to pretrial detention, is placed under court supervision *ab initio* and later receives a simple suspended sentence (total), it might seem that this individual supervision measure effectively allowed this person to escape from prison. However, one could also suggest that the judge would not have made use of pretrial detention if court supervision had not existed in law. The judge used an additional guarantee. If this is the case, court supervision is not serving as an alternative to detention, but is instead a virtual alternative. As a consequence, it *widens the net of social control*; this is the theory of *net-widening*. This same question can, in fact, be raised for all first-category alternatives. Would an offender sentenced to public service have received a fixed prison term if public service were not included in the range of penalties? Would the offender not have rather *benefited* from a suspended sentence, or even from a fine?

In the realm of second-category alternatives, the matter is quite different. An offender who still has three years of solitary confinement to complete, and who receives conditional release (CR), benefits from a real alternative. He will complete the remaining three years of his sentence outside prison walls. And yet...

In France, CRs are uncommon. Suppose that this measure were one day more commonly used. Would it not lead to a compensatory increase in the number of sentences handed down by jurisdictions frustrated by the *erosion* of *their* sanctions? Thus, a very

[15] Council of Europe, *Prison overcrowding*.

real "micro" second category alternative, which clearly benefits the offender, might become virtual at the "macro" level.[16]

7. Foretelling the future?

POPULATION PERSPECTIVE: Similar terms also used are *projection* or *forecast.*[17] Projection refers to calculations regarding a population's future evolution based on certain hypotheses that are not necessarily plausible. This is generally the case when calculating the amount of time required for a population to double. We simply look at the consequences a change may have on the rate of relative annual constant increase over a period of time.

When the hypotheses are more or less plausible, we then speak of perspective. The term "forecast" is only used when the hypotheses upon which they are based appear very probable.

In addition, there are distinctions between *descriptive* and *explanatory* perspective models. At the beginning of the 1980s (2), Marie Danièle Barré and I used a very simple descriptive model to study the prison population, using only time to explain changes in trends. This model is based on the linear extrapolation of past tendencies (chronological series) and the consideration of the prison population's seasonal variations (stocks on the first day of the month). For instance, using the prison population on December 31, 2005, this technique makes it possible to estimate the number of individuals in prison on the first day of each month in 2006 and 2007 (unless there are "disruptive phenomena" not taken into account in the calculation). Thus on that date, we might suppose, but without any certainty, that there will be an amnesty after the presidential election in May 2007; it is simply a tradition of the Republic and nothing requires Parliament to make such a law. This is the first uncertainty. The second uncertainty is that, if there is a vote, this law may be more or less lenient and may therefore have a greater or lesser effect on the prison population. A third uncertainty is whether the law will be combined with a collective pardon. While these calculations cannot claim to "foretell" and require frequent adjustments, they do show the numerical consequences of a simple hypothesis: if changes continue according to the trend of recent years, where are we headed? They are also a good economic tool, allowing calculations to be made for budgetary purposes, monthly statistics to be put into perspective (taking seasonal variations and so on into account), and the effects of an amnesty or collective pardon to be measured. Nonetheless, the model we introduced in 1979 has since been taken up for the study of correctional administration and seems to have been of some use.

Explanatory models are much more ambitious.[18] They can be either *mechanistic* or *theoretical*. In the first case, the formation process of the prison population is broken down into its different stages: crime submitted to the court, crime prosecuted, crime

[16] Pierre V. Tournier, "Real Alternatives Versus Virtual Alternatives: On the Theory of Net-Widening Applied to Electronic Monitoring in France," in *Will Electronic Monitoring Have a Future in Europe?* eds M. Mayer, R. Haverkamp, and R. Lévy (Freiburg: Max Planck Institute, 2003), 177-186.

[17] Louis Henry. *Dictionnaire démographique multilingue, volume français* (Liège: Ordinal Editions, 1981).

[18] Marie Danièle Barré. "Résistible progression des effectifs de la population carcérale en France? Réflexion sur les projections." Paper presented at the 8th National Demographic Colloquium, Grenoble, France, 1987.

penalized by being committed to prison. Without attempting to explain the stages, we measure them and their sequence based on a perspective of the affected population, ending with the provisional number of persons in prison. With a theoretical model, we empirically verify a hypothesis concerning the role of a certain number of variables (unemployment, the level of urbanization, etc.) in the crime and consequently in the prison population.

This poses a two-fold problem: the model does not adapt well to perspective because it requires perspectives on explanatory variables to be used; it brings variables into play that are difficult to act on over the short or medium term.[19]

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This contribution to the journal, *Criminology,* is potentially the first stage of a larger project I envisioned when I published my prison demography dictionary in French in 2000. I hope to leverage the skills needed in order to present the most important terms and concepts of that work in several languages (English, German and Spanish). Dealing with language will clearly play an important role in this kind of approach, and not just in terms of translation. It will also be necessary to consider how to transfer concepts. The most obvious example is the word "probation," which, in English, encompasses very different penalties, depending on the country.[20] In England or Wales, as well as in Sweden and Denmark, "probation" suggests an "autonomous penalty after being found guilty, without a sentence entailing the deprivation of liberty." "Probation" in France refers to a suspended prison sentence (with a defined quantum). The suspension might be total or partial. At the Council of Europe, the word "probation" is used in a general sense to indicate the enforcement of a penalty or measure applied in any community.[21] Thus, if we are not careful, there is considerable risk of confusion in international comparisons.

Paris, March 19, 2013.

[19] Home Office. *International Seminar on Prison Population Projections, Report of Proceedings.* Vol. 1–2. Shrigley Hall, July 9–11, 1991.

Pierre V. Tournier, "Godot is Arrived. When French Parliament at the End Vote the Promised Prison Law," in *Punitivity: International Developments,* eds. H. Helmuth Kury, and E. Shea (Hagen, Germany: Universitätsverlag Dr. N. Brockmeyer, Vol. II, 2011), 551-584.

Tournier, *La Prison.*

[20] Tournier, *La Prison.*

[21] According to the Council of Europe's terminology, community sanctions and measures (CSM) are penalties and measures besides detention, and are combined with "supervision" measures, that is, measures for support, assistance, and supervision.

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Appendix

Population held in custody on January 1, 2013 (France as a whole)
** Based on data supplied by the Correctional Administration*

On January 1, 2013, 76,798 were under correctional control in France: 16,454 individuals were in pretrial detention, 50,118 individuals were convicted and incarcerated (for a total of 66,572 detained individuals), 9,653 individuals were placed under electronic surveillance (9,029 individuals through early release, 624 individuals via an end-of-sentence parole condition), and 573 individuals in extra-mural placements, without prison housing. The rate of committal to prison was 117 per 100,000 inhabitants, and the detention rate was 102 per 100,000 inhabitants.

The rate of defendants among the persons in prison was 21%. It was 25% compared to the detained population.

Twenty percent of inmates in prison have received a modified sentence, in prison (partial release, electronic surveillance, extra-mural placement with or without detention housing). This indicator does not take account of the 624 inmates placed under electronically monitored house arrest at the end of their sentence (application of the penal law dated November 24, 2009).

The number of minors detained is 724. Of them, 261 (or 36%) are in facilities for minors. These facilities are under-occupied (348 functional spaces, of which 87 are unoccupied).

Change over the last 12 months

The number of individuals in prison has increased over 12 months (3,018 more persons in prison, an annual rate of increase of +4.1%). The number reached on January 1, 2003 [2013?] (76,798) was less than the record high reached on July 1, 2012 (78,262). The annual growth rate has been decreasing for a year: 10.2% on January 1, 2012, 7.9% on April 1, 6.7% on July 1, 5.6% on October 1, 4.1% on January 1, 2013.

The number of detainees is also increasing (1,785 more detainees during the previous 12 months, an annual rate of increase of + 2.8%). The number reached on January 1, 2013 (66,572) was less than the record high reached on December 1 (67,674). The annual rate of increase has been decreasing for a year: 7.0% on January 1, 2012, 4.7% on April 1, 4.1% on July 1, 4.0% on October 1, 2.8% on January 1, 2013.

The number of minors detained has increased slightly (12 fewer detainees over the last 12 months, an annual rate of increase of + 1.7%).

Overpopulation

Over the previous 12 months, the number of functional spaces in detention went from 57,236 to 56,992 (244 fewer spaces in a year, an annual rate of increase of –0.4%). The number of surplus detainees is 12,194. This is an increase from a year ago (11,251 12 months ago, or 943 more, for an annual rate of increase of +8.4%). This indicator measures the state of overpopulation by taking account of each facility's situation, and of

each section in detention centers. During the "2004–2012" period, the maximum was noted on June 1, 2004 with a number of surplus detainees of 16,086. The minimum was noted on August 1, 2006, with a surplus number of detainees of 7,717. The number of detainees sleeping on a mat on the floor is 639 as of January 1, 2013.

Annual entries into prison and indicator of the average duration of time in prison

In 2011, the increase in the average number of persons in prison was linked to an increase in the number of entries into prison, which was 6.4% higher compared to 2010 (88,058 versus 82,725). The indicator of the average duration of time spent in prison remained stable, but at a record level (9.8 months).

Field: The whole of France

	2006	2007	2008	2009	2010	2011
Annual entries into prison (*E*)	86,594	90,270	89,054	84,355	82,725	88,058
Average population in prison (*P*) (i)	59,938	63,268	66,716	67,362	67,317	71,755
Average duration in prison (*d*, in months) (ii)	8.3 m	8.4 m	9.0 m	9.6 m	9.8 m	9.8 m

(i) Average of the numbers on the first day of each month.

(ii) This indicator of average time spent in prison (*d*) is calculated according to the equation $P = E \times d$ (where P is the average number throughout the year and E is the number of committals to prison in the year), an equation based on the hypothesis of stationarity (constant annual committals to prison, with identical release schedules for all imprisoned cohorts).

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