



Wetenschappelijk Onderzoek- en
Documentatiecentrum

Cahier 2022-11

Bezetting van het gevangeniswezen

Ontwikkelingen 2015-2019

Summary

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Cahier

De reeks Cahier omvat de rapporten van onderzoek dat door en in opdracht van het Wetenschappelijk Onderzoek- en Documentatiecentrum is verricht. Opname in de reeks betekent niet dat de inhoud van de rapporten het standpunt van de Minister van Justitie en Veiligheid weergeeft.

Summary

Prison occupancy rate in the Netherlands

Developments 2015-2019

After years of declining occupancy rates in the prison system, an increase is observed since 2017. It is unclear where this increase comes from, as registered crime declined through 2018 and has only started to rise again since 2019. The question why the occupancy is increasing or decreasing, and more generally, whether or not prison sentences are becoming stricter, is a regularly recurring question, which has so far been difficult to answer. This research should therefore not be seen as a one-off project, but as a first step towards a possible structural solution for answering similar questions.

The main question is what causes the observed increase in prison occupancy rates? Prison occupancy in this study is defined as the number of beds in the prison system that are occupied on a reference date, excluding people with a prison sentence placed outside the prison system. But there are some fundamental problems with this notion. Occupancy rates are only a snapshot and it is not known what happens in between two snapshots. For example, in between two reference dates, the occupancy can rise or fall without being noticed. The question is also to what extent there is a relationship between the occupancy rates at two different reference dates: are they the same detainees or other detainees? Another problem is that occupancy rates are difficult to interpret. It is a combination of inflow, outflow and length of stay. If the occupancy increases, does the inflow increase, or the outflow decrease, or does the length of stay increase? Furthermore, it is (implicitly) assumed that the reference dates are representative of all dates on which the occupancy rate is not observed. To address these issues, an alternative definition for occupancy rate is proposed. To avoid confusion, this is called the capacity utilization rate. The capacity utilization rate in a certain period is the total number of detention days within this period.

In order to answer the main question, data on the length of stay of male detainees in the prison system in the period 2015-2019 was analyzed. The data comes from the Dutch Custodial Institutions Agency. Using this data, time series on a monthly basis were constructed for total capacity utilization and for various subcategories. Several time series methods were deployed, such as estimation of simple trend models, autoregressive integrated moving average models and exponential smoothing. The main purpose of the time series analysis is to determine a possible trend rather than a search for the best model.

The results show that increases or decreases can be observed in a number of subcategories, but at different moments in time and with different growth rates. Nevertheless, because irrevocable custodial sentences are responsible for almost half of prison occupancy, developments in this area largely determine the trend in the total occupancy. Inspecting the pattern in the period 2015-2019, it appears that the capacity utilization of irrevocable custodial sentences follows the same pattern as the total capacity utilization. A more detailed breakdown shows that the custodial

sentences for violent crimes in particular are responsible for the increase since 2017. This increase is reinforced by the strong growth in the number of prison sentences for drugs and sexual offenses and the strong growth in the number of habitual offenders. In addition, we also investigated whether nationality or age had an effect, but this did not lead to new insights.

The question that always arises when analyzing capacity utilization (or occupancy) is whether the trend in the amounts or in the length of stay dominates. The trends in the amounts and the average length of stay are usually not the same, but it appears that in these cases the developments in the amounts usually dominate and determine the trend in capacity utilization. This suggests that capacity utilization has not increased in the period 2015-2019 due to stricter custodial sentences for comparable offences. What the underlying determinants of the increase or decrease are, was not investigated in this study. It may be that the inflow has increased or decreased, but it may also be that the Public Prosecutor issues a summons more or less often in comparable cases.

Time series analysis of high-frequency occupancy data or capacity utilization is tempting because of the availability of data and the free or built-in software for this type of analysis. However, seasonal effects, stability issues, representativeness of the reference dates, opposing trends of inflow and length of stay and the associated problematic interpretation of stock data mean that the results are surrounded by some uncertainty. These problems are only partly solved by working with the capacity utilization rate instead of the occupancy rate. Moreover, the results appear to be highly dependent on the method used. Correction for stability and autocorrelation (ARIMA models) typically leads to a change in trend direction and trend type and more seasonal effects. In order to avoid interpretation problems, it is advisable to analyze numbers and average length of stay separately in the future, if possible. International literature shows that this is also a more common practice. Time series analysis on the flow data, such as the inflow into the prison system, are easier to interpret than time series analysis on stock data, such as occupancy. The outflow dates can be determined either by calculating the average length of stay of comparable detainees or by means of a survival analysis in which the expected time until the outflow of the detainee from the prison system is estimated using micro data.

Due to the method of administration, there are limitations to using data from Dutch Custodial Institutions Agency for research purposes. If in the future the input of the data could be entered in a better-coordinated way with the necessary logical checks on the input and if data is stored according to the current database standards, this would significantly reduce the efforts to achieve a good quality research data.

Het Wetenschappelijk Onderzoek- en Documentatiecentrum (WODC) is het kennisinstituut voor het ministerie van Justitie en Veiligheid. Het WODC doet zelf onafhankelijk wetenschappelijk onderzoek of laat dit doen door erkende instituten en universiteiten, ter ondersteuning van beleid en uitvoering.

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