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The Cost of Detention

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The Cost of Detention

UNANNOTATED, ABRIDGED VERSION

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1. EXECUTIVE SUMMARY

In our study, we assess the per capita costs of detention in Hungary. No such cost estimate has been calculated using Hungarian data before: **we measure the cost increase per detainee to determine by how much costs would increase if the prison population were to grow.** Such a calculation is indispensable for responsible policy and strategy making: there are many policy measures (be they in the field of crime prevention or punitive policies) that affect the number of detainees; our results help assess such measures.

In our calculation, we used **two scenarios** to make our estimations. In the **unchanged scenario** we suppose that new detainees are accommodated under **conditions similar to the current ones**, hypothesizing that prisons are operating at 144% of capacity. In the **ideal scenario**, we suppose that new detainees are accommodated under **conditions in line with European standards and regulations** (without changing the conditions of the current detainees). Under both scenarios, we defined upper and lower limits to the calculation parameters, so we obtained interval estimations as a result; instead of one or two specific values, we have defined a range for the two scenarios. In the study, we present the calculation that answers the question: what would be the cost increase in each scenario if there is an increase in the prison population by 1,500 detainees.

Table 1 Costs of detention per capita per year (2013, HUF)

	Unchanged	Ideal
Convicted	1,544,724	2,094,966
Pre-trial detention	1,599,373	2,215,445
Overall*	1,598,288	2,156,922

*Average value when taking the current ratios of 70% convicted and 30% in pre-trial detention into account

According to the results of the calculation (Table 1), **under unchanged conditions, a 1,500 increase in the number of detainees would create a cost a total of 1,598,288 Hungarian forints (HUF) per capita per year.** Under the same increase, **assuming ideal conditions, the overall cost of detention would be 2,156,922 HUF per capita per year.** This includes the costs of the prison building (converted to an annual costs), maintenance and operation, personnel and non-personnel costs, catering and sanitary expenditures, employment costs and incomes, and the legal expenses representing the “price” of overcrowding.

2. INTRODUCTION

This text presents an abridged English language version of the main findings of the 44-page study written in Hungarian by the Budapest Institute and commissioned by the Hungarian Helsinki Committee, available online¹. It is downloadable from the websites of both organizations and includes calculations based on interviews and data provided by the Hungarian Prison Service Headquarters (hereinafter referred to by its abbreviation in Hungarian as BVOP), and supplemented by acknowledgements, methodological details, detailed citations and an appendix.

3. INTRODUCTORY THOUGHTS ON THE METHODOLOGY OF COST-ESTIMATION

Currently, there is only average cost data available for the per capita costs of detention; these numbers come from dividing the total expenditure of the penitentiary system by the number of detainees. The results, however, are misleading for our context: the total expenditure does not depend at all on the number of detainees in correctional institutions at any given time. Rather, we are concerned with an increase in the current prison population size. Therefore, if the number of detainees grows by one, the penitentiary expenses would not grow by the current average cost of one detainee. The current data on the average costs overestimates the actual costs of detainment.

Consequently, we need a different approach to estimate the real costs of the penitentiary system; we need to estimate the so-called marginal costs (Henrichson and Galgano, 2013). By calculating marginal costs, we are estimating the costs attributed to any possible changes in the current prison population size. We are looking for answers for thought-experiments, such as: what would happen if the number of detainees grew by 10, 100, or 1,000, or if the population size doubled? It can also be a relevant question to ask how much could be saved if less people had to be detained overall.

It is important, however, to differentiate between estimating additional costs caused by an *increase* of detainees and estimating cost savings caused by a *decrease* of detainees; the two approaches could lead to significantly different results. For example: if 5,000 less detainees were to be accommodated, no correctional institutions could be closed down (the Hungarian penitentiary system operates at 144% of its capacity), but if there were 5,000 new detainees, it would be necessary to build new, expensive prisons. Taking the current detention trends into consideration, we expect an *increase*, rather than a *decrease*, in the number of detainees. Therefore, we are estimating the additional costs caused by different possible scales of prison population growth.

¹ http://www.budapestinstitute.eu/uploads/helsinki_141218_Long_FINAL.pdf

For our calculations, we had to determine which budget items would change if the size of the prison population increased. Since the aggregate expenditures of the penitentiary system do not form a sufficient ground at all for drawing up such an estimate, so we had to make several assumptions to make adequate calculations about the increase in cost of certain expenses. To do so, knowledge of the specific characteristics of the investigated field was essential, which led us to involve the heads of specialist BVOP departments, and the financial manager of a correctional institution, into our work. We based most of our assumptions on the background information gained from these interviews.

As our results are based on a number of assumptions, we did not want to provide an outcome based on a specific value. Therefore, we used an *interval estimate* to define a range of values, instead of providing a specific number. Basically, we estimated the costs within the framework of two scenarios, which are summarized in Table 2. To determine the lower estimated value, we examined the costs of accommodating new detainees under the *unchanged* conditions of the penitentiary system (e.g.: 144% capacity utilization, approx. 70% participation rate among prisoners in either work or education). For the upper estimated value, we used calculations under the *ideal* state, in which the European standards regarding the conditions of detainment are maintained (e.g.: a maximum of 100% of capacity utilization, 100% participation rate among prisoners). Within each of the two scenarios, there were also different outcomes because, according to our expert consultations, the current amounts spent on catering, maintenance and other non-personnel costs fall well short of ideal amounts.

Table 2 Characteristics of the unchanged and the ideal scenario

<i>Variables</i>	<i>Unchanged</i>	<i>Ideal</i>
Capacity utilization	144%	100%
Cell space per capita	4.67	8.65
Participation rates	70%	100%

4. PREVIOUS HUNGARIAN COST ESTIMATES

No such marginal cost estimations, using similar methodology and focus, have been conducted before but there have been Hungarian studies in the general context of crime, law enforcement and penitentiary, which relate to our topic.

István Vavró (1996) explains the theoretical background of the calculation of social costs connected to crime.

Klára Kerezsi, József Kó and Szilvia Antal (2011) developed calculations on the social costs of crime based on Hungarian data, which gave a more detailed picture of the theoretical considerations underlying the calculation. According to their results, crime caused a damage of 760 billion HUF in Hungary in 2009, 43 billion HUF of which are the costs of the penitentiary system (Kerezsi et al., 2011).

Nevertheless, this study does not focus on the cost estimate of the penitentiary system and only uses a yearly aggregate budgetary amount.

Klára Kerezsi and Mária Dér (1998a, 1998b) measured the costs of alternatives to criminal justice, specifically focusing on community service and parole supervision. For their estimate, they used the court statistics of the Ministry of Justice (IM), the financial reports of the county courts since 1996, and the working day photos of parole officers with a detailed description of their daily routine (Kerezsi and Dér, 1998a, 1998b).

Ágnes Kövér wrote about the cost context of criminal justice but her work focused on the system of law enforcement, including the costs of the work conducted by the detectives, prosecution, attorneys and judges (Kövé, 2002).

Mónika Burik's doctoral thesis, written in 2010, compares the economic activities of the Hungarian, the Slovakian and the German penitentiary systems (Burik, 2010).

5. DETAILS OF THE CALCULATION

In this section (which the busy reader might wish to skip), we shortly present the assumptions we made during our calculation and the costs we measured presuming different conditions. The amounts below – unless indicated otherwise – refer to the year 2013. The amounts of Hungarian forints included in the study should all be understood as forints as they were valued in 2013.

We divided the factors of our assumptions into two groups (Table 3):

- *Scenario variables* include the factors concerning the prison conditions. Lower and upper limits of these variables characterize the *unchanged* and the *ideal* prison conditions, respectively. We defined value limits for the variables based on related legislation, European standard values, and reports from experts and officers of the penitentiary system. These variables include, for example, capacity utilization, or the number of detainees per one member of the prison personnel.
- *Calculation parameters* are the parameters used for the practical implementation of the calculations. Based on methodological guides and relevant literature, we attributed a lower and an upper value limit to each of these. This category includes the discount rate used to convert the one-off costs of prison building to a yearly expenditure, and the minimum optimal size (capacity in terms of the number of detainees) which, according to the relevant literature, cannot be defined accurately (Schmidt and Witter, 1984; Trumbull and Witte, 1981).

Table 3 Scenario variables and calculation parameters

Scenario variables	Calculation parameters
Capacity utilization	Discount rate
Ratio of detainees to personnel	Optimal scale
Cell space per capita	Construction, home
Participation rate of detainees, regarding the ratio of those involved in education / work	improvement and other price indexes
	Building costs / m ²
	Maintenance cost
	Equipment costs

In the end, there were a total of four results, each of which was calculated based on possible interactions of two categories of the parameters. Practically, we prepared an interval estimate for both scenarios, calculating first with the lower, then with the upper, value limits of all the calculation parameters.

We must make a remark that Hungarian correctional institutions have a broad diversity regarding the building age, rate of capacity utilization, financial situation and several other characteristics. Our study, unless indicated otherwise, is based on the average values representing the entire penitentiary system.

5.1 Cost items

5.1.1 Prison building

The most significant cost in the penitentiary system is cost of building a correctional institution. During our calculations, we assumed that the building of a new correction institution only takes place when the increase of the number of detainees reaches the “optimal size” (optimal number of detainees per prison). According to the relevant international literature, the optimal size is between 700 and 1,600 people (Schmidt and Witter, 1984; Trumbull and Witte, 1981). The main difference between the *ideal* and the *unchanged* scenario in case of building new prisons is that in the *ideal* scenario, the number of detainees accommodated in the new institution corresponds to the official capacity, while in the *unchanged* scenario, the number of detainees accommodated in the new institution corresponds to the current rate of capacity use (144% in the case of the Hungarian system). We estimated the cost of building a prison based on the costs of building two new institutions in Tiszalök and Szombathely in 2008, which were built in PPP (public-private partnership). Our calculations are summarized in Table 4. In our calculation, we assumed that in the *unchanged* scenario, those who cannot fit in the newly built institution are accommodated in the already existing institutions while in the *ideal* scenario, an expansion in capacity provides sufficient space for the accommodation of new detainees.

Table 4 Costs of prison building and capacity expansion

Increase in the number of detainees		1,500 people	
Assumptions	Unchange	Ideal	
Scale	800	800	
Discount rate	6%	6%	
Capacity utilization	144%	100%	
Cost of building a new prison (in HUF)	Unchange	Ideal	
Building costs / gross square meters	260,000	260,000	
Number of new prisons required	1	1	
Number of detainees in new prisons	1,152	800	
Total area of one prison to build (gross) / prison (m ²)	30,238	30,238	
Total cost of building a prison	7,861,946,149	7,861,946,149	
Yearly cost of building a prison	471,716,769	471,716,769	
<i>Yearly cost of building a prison / capita</i>	<i>409,476</i>	<i>589,646</i>	
Cost of building a prison /capita / day	1,122	1,615	
Capacity expansion	Unchanged	Ideal	
Number of detainees in a new cell block of 25	36	25	
Number of detainees in a new cell block of 35	50	35	
Number of detainees in a new cell block of 80	115	80	
Number of new required blocks of 25	0	1	
Number of new required blocks of 35	0	1	
Number of new required blocks of 80	3	8	
Number of new bed places	0	700	
Total cost of capacity expansion	0	1,465,249,716	
Yearly cost of capacity expansion	0	87,914,983	
<i>Yearly cost of capacity expansion / capita</i>	<i>0</i>	<i>125,593</i>	
cost of capacity expansion / capita / day	0	344	
Yearly costs of building Corr. Inst. per	314,478	373,088	

Source: Own calculation, based on data received from BVOP after a public information request and on PPP contracts

Note: The costs of prison building and capacity expansion converted to one detainee (in Italics in the table) that are shown in the table are extrapolated to the number of detainees accommodated in the new institution and in the new bed places. The per capita cost in the last line of the table extrapolates the costs of prison building and capacity expansion to the entire increase of the number of detainees, 1,500 people.

We have considered in our model that overcrowding and worsen prison conditions that result from overcrowding have a “price”: we will discuss this below, in chapter 5.1.9.

If we examine the costs incurred by accommodating 1,500 new detainees, our results show that the yearly costs of prison building and capacity expansion fall

between 314,478 HUF and 373,088 HUF, depending on whether we assume *unchanged* or *ideal* conditions.

5.1.2 Maintenance of institutions

Regarding the maintenance of the institutions, we made calculations using the maintenance data from operating state-run institutions in the *unchanged* scenario, while in the *ideal* scenario we used the data from the PPP construction (in Szombathely and in Tiszalök), assuming that the maintenance operated in line with the European standards.

As can be seen in Table 5, we assumed that the optimal capacity is at 800 people. Assuming *unchanged* maintenance costs, the yearly maintenance costs of the new correctional institution would be around 35 million HUF, which is almost one tenth of the amount we get assuming *ideal* conditions (341 million HUF). (A part of the high PPP-maintenance costs are likely to cross-finance with the building cost of the institution).

Table 5 Maintenance costs

Increase of the number of detainees		1,500 people	
Assumptions	Unchanged	Ideal	
Scale (person)	800	800	
Capacity utilization	144%	100%	
Data of the new prisons	Unchanged	Ideal	
Total area of one prison built (m ²)	30,238	30,238	
Number of prisons built	1	1	
Number of detainees in one prison built	1,152	800	
Maintenance costs	Unchanged	Ideal	
Maintenance costs / square meter from PPP contracts	-	11,267	
<i>Yearly maintenance costs of the new institution</i>	34,931,812	340,686,654	
<i>Yearly maintenance costs of the new institution /</i>	30,323	425,858	
<i>Maintenance costs of the new institution / capita /</i>	83	1,167	
<i>day</i>			
Yearly maintenance costs of Corr. Inst.-s			
(in case of 1,500 new detainees)	34,931,812	340,686,654	
Yearly maintenance costs of Corr. Inst.-s /			
capita	23,288	227,124	
Yearly maintenance costs of Corr. Inst.-s/capita/day	64	622	

Source: Own calculation, based on data received from BVOP after a public information request and on the PPP contracts

5.1.3 Operation of institutions (overhead costs)

While making calculations regarding the operation of the institutions, we measured costs per square meter and assumed that each institution has a fixed overhead

cost that is the same for every institution, regardless of its size. Therefore the overhead costs only increase if a new institution is built, or if the capacity of the institution is expanded.

According to the data of the state-run institutions in operation, the fixed overhead cost of an institution – that occurs independently from the size of the institution – is 17.7 million HUF. Add to that 6,084 HUF per square meter. When calculating with the conditions shown in 5.1.1 in the *unchanged* scenario, the yearly overhead costs per capita would be 134,446 HUF, while they would be 235,615 HUF in the *ideal* scenario.

5.1.4 Personnel

Prison personnel wages carries a significant cost within the penitentiary system, although an accurate estimation of the associated costs depends on a number of assumptions. According to interviews with representatives from BVOP and one correctional institution, the number of personnel employed in a correctional institution only increases if a new institution is to be opened or if capacity is expanded. Therefore, one of the important differences between the *ideal* and the *unchanged* scenario in the cost of personnel wages is that in the *ideal* scenario, even a “little” increase in the number of detainees results in an increase in the number of the personnel (even before a new prison needs to be built), because conditions are based on a fixed detainee-to-employee ration under European regulations. On the other hand, in the *unchanged* scenario, new employees are hired only if a new institution is opened or if capacity is expanded.

Today in Hungary there is an average of 2.38 detainees per one employee, ranging in value between 1.36 and 3.4 detainees per employee. It is important to highlight that this ratio is typically higher in institutions of larger scale, so to have more than two detainees per one employee there would be a total of at least 11,750 detainees accommodated in the institutions. Similarly, it is not unusual to have 60-100 detainees per one parole officer (*nevelőtiszt*). By comparison and according to the opinion of the experts with whom we consulted, international recommendations state that this number should be around 1-2 detainees per one parole officer. Therefore, when preparing *ideal* and *unchanged* scenario calculations, we had to take this into account as a difference between the two scenarios. We included this aspect in our calculation: in the *unchanged* scenario, the ratio deteriorates concurrently with the increase in the number of the detainees, while in the *ideal* scenario, when new detainees arrive, existing institutions expand their staff so that they can keep the current detainee-to-employee ratio.

When calculating wage costs, the question arises as to what part of the gross wage cost the state should regard as expenditure. To answer this question, we examined the characteristics of the labour market of the potential employees that would work for the correctional institutions – the market of “potential guards”. In our calculations

we assumed that if these potential employees did not have jobs in the correctional institution, then most of these “potential guards” would be unemployed, while some of the “potential guards” who are “more apt” could find jobs in the private sector for a higher salary. If correctional institutions did not employ these individuals, then no other employer would pay their contributions. Thus, instead of a gross wage, we calculated costs from wages that did not include the personal income tax or the health care contribution, as these parts of their wage do not flow back to the state budget.

In our calculation, we also took the training costs of newly hired employees into account.

Table 6 Personnel costs

Increase of the number of detainees		1,500 people	
Assumptions	Unchanged	Ideal	
Scale (person)	800	800	
Capacity utilization	144%	100%	
Data of the new prisons			
Number of prisons built	1	1	
Number of detainees accommodated in new prisons	1,152	800	
Method 1. Calculating from the data of operating inst.-s			
Personnel costs			
Yearly personnel costs in the new prisons	1,644,924,608	1,186,003,200	
Yearly personnel costs in the new prisons / detainee	1,427,886	1,482,504	
Yearly personnel costs in the new prisons / detainee / day	3,912	4,062	
Yearly cost of the increase of the number of the personnel in the existing institutions	0	912,627,800	
Yearly cost of the increase of the number of the personnel in the existing institutions / detainee	0	1,303,754	
Yearly cost of the increase of the number of the personnel in the existing institutions / detainee /day	0	3,572	
Yearly costs of personnel training	3,280,201	4,271,095	
Yearly costs of personnel training / detainee	2,187	2,847	
Yearly costs of personnel training / detainee / day	6	8	
Yearly personnel costs	1,245,198,280	1,588,737,500	
Yearly personnel costs / capita	830,132	1,059,158	
Yearly personnel costs / capita / day	2,274	2,902	

Source: Own calculation, based on data received from BVOP

We made these calculations using the current salary levels in both scenarios so the differences in totals between the scenarios are due to the number of employees working in correctional institutions, not due to a difference in wages. We did not

take into account that in the *ideal* scenario, higher wages might be reasonably expected.

5.1.5 *Non-personnel costs*

Non-personnel costs refer to all kinds of material expenditures that cannot be classified under any other category. This includes, among others, the cost of the uniforms of the detainees and employees, the costs related to the cells, public spaces, offices, pieces of furniture, cleaning products and instruments, or the fuel costs for the transportation of detainees. For calculating marginal costs, we had to categorize the cost items based on whether they were per detainee, per employee or per square meter.

According to the interview with the representative of the correctional institution, the amount spent on non-personnel costs is just enough (or rather a bit less than that) to cover their necessary expenses, but to reach the *ideal* state, about 20% more money would be needed. Based on that, we distinguished the *unchanged* scenario from the *ideal* simply by calculating 20% higher expenses in the latter than the data retrieved from the currently operating institutions. According to our calculations, the yearly non-personnel costs per detainee would be about 100,000 HUF in the *unchanged* scenario, and about 136,000 HUF assuming *ideal* conditions.

5.1.6 *Catering*

Regarding the costs of prison catering we had quite an easy job, as the cost is roughly directly proportional to the number of detainees. The standard cost of basic catering and those concerning detainees with different dietary considerations are statutory². Therefore, we only took the procurement of the required materials into consideration: we accounted the labour force used in catering not in the “catering” category but in the category of personnel costs and, as a result of detainee employment in the kitchen, this was also accounted for in the category of participation costs of the detainees.

According to the data received from BVOP after a public information request, the daily per capita cost of the procurement of the materials required for catering was 394 HUF in 2013, which means a yearly expenditure of 143,990 HUF per detainee. It was interesting to find that, based on the data of the currently operating institutions, the daily per capita costs of catering are lower than the net basic catering standard (400 HUF in 2013), to which the additional standards concerning different groups of detainees (e.g.: juveniles, those engaged in light physical work) are added.

² Annex 7 of the IM statute 6/1996. (VII. 12.) on the order of the execution of imprisonment and of provisional detention contains the daily catering standards of convicts in Joule. The amounts of financial standards are included in “Annex 2 of the 1-1/3/2012. (I.16) provision of the Commander of BVOP on the order of victualling and management”.

5.1.7 Health care costs

In the category of health care costs, we only accounted for the pharmaceutical expenditure as all other health care costs are included in other cost categories (e.g.: the transportation subcategory of non-employee costs includes the costs of transportation of detainees for medical care, while the wage costs of the doctors employed is included in the employee costs category). For health care costs, we calculated the current per capita costs in both scenarios, which did not cause a problem as, compared to the others, the size of this item is negligible – yearly cost of 13,083 HUF per detainee.

5.1.8 Participation in work

In contrast with the items above, the net budgetary profit of the work participation of detainees can *lower* the costs of detainment. In other words, this is the only cost item that can be negative. This can happen if the institutions yield a higher gain through detainee work than the expense of detainee education, as the word participation refers to both activities: detainee education or employment proper.

Theoretically, today, every convict in Hungary has to be provided with the possibility to work (since only the convicted have this possibility, there is a remarkable cost difference between those in pre-trial detention and convicts regarding this item).

While calculating the net costs of detainment we had to make reasonable assumptions about the detainee work rates: for instance, if the number of detainees increased by 1,500, how many could work? According to the expert reports we consulted, prison jobs (tasks related to the maintaining and operation of the institutions completed by detainees, e.g.: cleaning, cooking, cutting hair) is fulfilled at 100% of capacity - there are no tasks remaining for new detainees. That is why we assumed that new detainees would only work if new institutions were opened where there are new budget-reducing positions to fill, such as those mentioned above.

In the *unchanged* scenario, we assumed that no new work opportunities would become available to business companies³ and, aside from primary education there would be no new education or training opportunities either – at least not in the short to medium term. So in the *unchanged* scenario, participation costs would only change if, as a result of the increasing number of detainees, a new institution had to be opened.

In the *ideal* scenario, we assumed that all detainees would be involved in some kind of participation activity; they would do budget-reducing jobs, would work for a business company, or would take part in education. We determined the two endpoints of the *ideal* case interval by taking into account that the penitentiary

³ Business companies are ventures owned by BVOP where detainees work for a salary

system can make a profit by employing detainees, while education is a net expenditure. For the lower limit, we assumed that all new detainees began to work immediately, while for the upper limit, we assumed that every detainee had to be educated and/or trained before they could begin to work.

Table 7 Participation costs

	Unchanged	Ideal
Number of new prisons required	1	1
Number of detainees in the new prisons	1,152	800
Training costs / capita	1,296,350	1,296,350
Employment rate among the new convicted detainees (involved in education or working for business organization)	0%	100%
Employment rate among the new convicted detainees	0%	68%
Rate of those involved in education or training among the new convicted detainees	0%	17%
Rate of those doing prison jobs among the new convicted detainees	22%	15%
Employment costs	0	-311,864,616*
Education and training costs	0	230,511,066
Prison employment	55,753,930	38,718,007
Overall yearly costs	55,753,930	-42,635,543
Yearly cost per capita	37,169	-28,424
Daily cost per capita	102	-78

Source: Own calculation, based on data received from BVOP and Budapest Institute's calculation of vocational education unit cost (Adamecz et al., 2014).

* Employment costs are marked with a negative sign because, due to the income generated by business companies, this means a net profit. This value is different from the 390 million cited in the paragraph above the table because it is extrapolated to the entire increase of the number of detainees, including those who do not participate in the employment by business companies (as, for example, they are in pre-trial detention or do budget-reducing jobs)

Employment costs are summarized in Table 7. We assumed that 20% of the new convicts participate in education while 80% of them work (aside from those who do budget-reducing jobs in the new institution). The main difference between the *unchanged* and the *ideal* scenario is that in the *ideal* scenario, the income that is generated by employment proper is higher than the costs of the other types of participation, so it appears as a negative cost, which means it is a net gain. In the *unchanged* scenario, the yearly per capita cost of participation is 37,169 HUF, while

in the *ideal* scenario, detainee employment generates a yearly income of 28,424 HUF per capita for the institutional budget.

5.1.9 Legal expenses

The main difference between the *ideal* and the *unchanged* scenarios was based on whether the number of detainees matches or exceeds the institutional capacity – the latter of which usually happens in most of the institutions today. Of course, costs are lower if there are overcrowded accommodations, where detainees are placed in smaller spaces or in fewer institutions than advised. Nevertheless, we tried to take into account that the price of overcrowding is not only subjective, limited to the living conditions of the detainees, but that it also has a monetary price. Costs related to overcrowding are based on the costs of legal cases brought to the European Court of Human Rights (ECHR), in which the Hungarian state has been obliged to pay a compensation for the mistreatment of the detainees.

In our calculations, we only took the legal cases into account in which the inappropriate size of the cells was at least one of the reasons behind the court case, as this is the criterion that is a direct result of overcrowding.

We found 12 such relevant cases and agreements closed in 2013 in which Hungary had to pay 123,350 Euro (37 million HUF) in total compensation for pre-trial detentions which violated the European Convention on Human Rights, and for not providing appropriate prison conditions.

We simply assumed that if the detainees are kept in as overcrowded of conditions as they are now, and if the court continues to refuse to apply the alternative sanctions of pre-trial detention, which do not include the deprivation of liberty, we have to expect this cost to occur yearly, which means an additional legal expense of 2,039 HUF per detainee per year. According to the experiences of the Helsinki Committee, the number of cases increased significantly in 2014 and a further increase in the number of the cases is expected, as successful cases generate new ones – new detainees and lawyers turn to the European Court of Human Rights. This expenditure does not occur in the *ideal* scenario, as the new institutions are not overcrowded.

As of today, this cost is negligible but we still found it important to highlight that it is crucial to draw the attention to the costs of the insufficient prison conditions. First, it helps us keep in mind that if the overcrowding does not abate, and, as a result of any external effect (e.g.: stronger advocacy of rights, providing the detainees with information on their rights), the number of those turning to the Strasbourg Court grows, then the amount of the money spent on compensations could significantly increase. (In practice, this is going to happen within a few months, because – encouraged by the success of previous similar cases – more and more such complaints are filed at the ECHR; there are law firms that build their entire business on filing such complaints.) Second, if we raise the cost estimate to a new level, and we try to give an estimation of the overall social costs of the penitentiary

system (aside from the monetary costs of the budget), then the amount of compensation awarded in the lawsuits can serve as benchmarks to decide the monetary value of the adverse effects that the detainees are exposed to physically and mentally. The preparation of an in-depth analysis on this topic could be a potential addition to our study.

6. OVERALL RESULTS

6.1 Summary

In this chapter, we provide a summary of the results of our cost per detainee yearly expenses estimation. In the *unchanged* scenario, the accommodation of 1,500 or more detainees would cost between 248 thousand and 1.63 million HUF per capita per year, while in the *ideal* scenario, the per capita costs of detention would be between 1.3 and 4.53 million HUF per year. The results are summarized in Table 9. The table also includes the current per capita expenses of the state on the cost categories we used – totaling 1.3 million HUF.

In Table 8, we summarized our assumptions regarding the scenario variables and the calculation parameters. The main difference between the *unchanged* and the *ideal* scenarios results from the assumed capacity utilization: institutions run at 144% capacity in the *unchanged*, and 100% (maximum) in the *ideal*, scenario. Consequently, there was also a difference between the per capita cell spaces. The third major difference is the number of new detainees being involved in any kind of participation activity (i.e. work or education). In our calculations we assumed that under *unchanged* conditions, new detainees would not have the opportunity to get involved either in employment or in education – aside from the budget-reducing jobs if there is a new institutions. As an *ideal* scenario, we assumed a state in which every new inmate is involved in some kind of participation activity.

Table 8 Parameter and variable values used to present the results

Increase in the number of detainees		1500	
Scenario			
<i>Variables</i>	<i>Unchanged</i>	<i>Ideal</i>	<i>Chosen</i>
Capacity utilization	144%	100%	-
Cell space per capita	4.67	8.65	-
Participation rate among the new convicted detainees	0%	100%	-
Calculation parameters			
<i>Parameters</i>	<i>Unchanged</i>	<i>Ideal</i>	<i>Chosen</i>
Scale (person)	1,600	700	800
Discount rate	5%	8%	6%
Prison building cost /m ²	258,059	262,806	260,000

Maintenance cost /m ²	9,590	12,943	11,267
Personnel training cost / capita	6,700	10,720	8,246
Catering cost / capita / day	394	600	400
Work (among those in participation activity)	100%	0%	80%
Education (among those in participation activity)	0%	100%	20%

As far as the calculation parameters are concerned, we chose a plausible value in every case – including the lower and upper limits – and used that value in our calculations. In both scenarios, the main difference between the lower and upper limits of the interval resulted from what we assume to be the optimal scale, counting how many and how big of new institutions are built. At the lower limit, we regard the institutions with a capacity of 1,600 as optimally effective; hence we assume that the building of a new prison takes place only if there are at least 1,600 new detainees that need to be accommodated. The same limit value exists for the upper limit of 700 people. Consequently, in the case of the *unchanged* and the *ideal* scenarios, at the lower limit, no new prison will be built at all. In the *ideal* scenario, the necessary capacity increase is carried out through the most economical expansion, while in the *unchanged* scenario new detainees would be accommodated in the existing institutions without the expansion of their capacities (see: Table 9, row 1). There was a difference between the two scenarios in that under the *unchanged* circumstances, the prison building only took place if, as a result of the overcrowding, 1.44 times as many new detainees have to be accommodated, as the optimal scale would allow. This is how we can see that in the higher estimate of the *unchanged* scenario, the building of only one prison takes place, while in the higher estimate of the *ideal* scenario there would be two prisons built.

Table 9 Results of the calculation

Cost of detention (per detainee per year, 2013 HUF)	Currently	Unchanged			Ideal		
		Min	Max	Chosen	Min	Max	Chosen
<i>Number of new institutions</i>		0	1	1	0	2	1
Building		0	373,885	314,478	103,282	1,504,250	373,088
Maintenance of institutions	28,150	0	18,354	23,288	0	460,344	227,124
Operation of institutions (overhead)	149,528	0	119,994	134,446	216,790	251,550	235,615

costs)								
Personnel	916,230	0	735,937	830,132	986,648	1,131,940	1,059,158	
Non-personnel	100,878	89,810	120,496	100,226	121,969	183,483	135,606	
Catering	143,988	143,988	219,000	146,000	143,988	219,000	146,000	
Employment	-34,350	0	32,523	37,169	-272,824	766,893	-28,424	
Health care costs	13,083	13,083	13,083	13,083	13,083	13,083	13,083	
Legal costs	2,03999	2,039	2,039	2,039	0	0	0	
Overall	1,319,546	254,006	1,636,977	1,600,862	1,322,215	4,531,160	2,161,251	

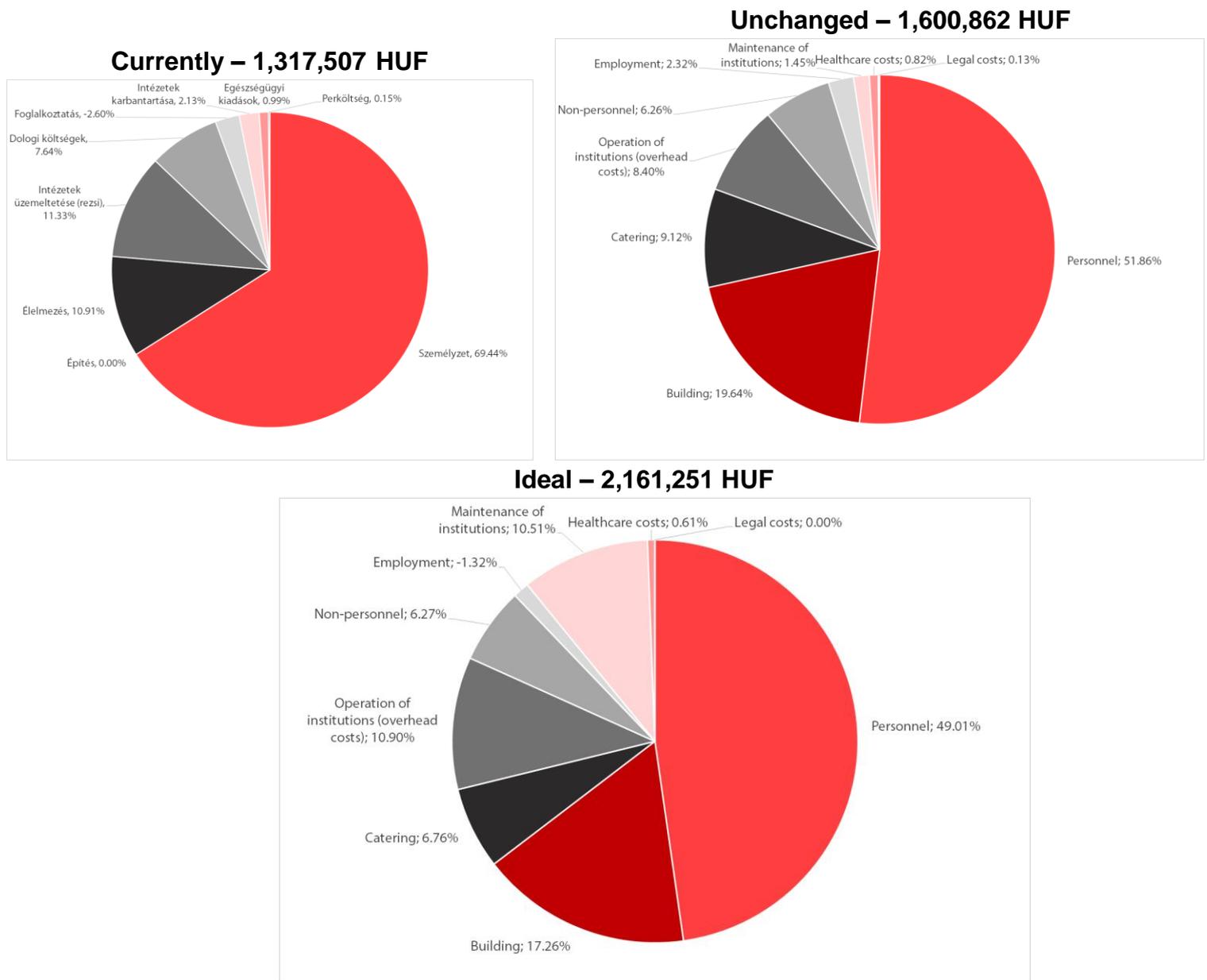
Source: Own calculation, based on data received from BVOP, on the PPP contracts and on the data of Adamecz et al. (2014)

The results are summarized in Table 9. Aside from the building itself, there are four more items that do not change assuming *unchanged* conditions (unless the building of a new prison takes place): the maintenance of the institutions, the operation of the institutions, the personnel costs and the (net) costs of employment. Of these four items, it is only the maintenance that, in the absence of prison building, does not change in the *ideal* scenario either.

In the table, it is worthwhile to compare the outcomes when using the chosen parameters of the *unchanged* scenario to those of the *ideal* scenario. This tells us that under *unchanged* conditions, the accommodation of 1,500 new detainees would cost 1.6 million HUF per detainee per year while under *ideal* conditions, the accommodation of the same number of new detainees would cost a yearly 2.2 million HUF per detainee.

In Figure 1, we illustrate the differences in the share of specific cost items compared to the total cost between the current, the *unchanged* and the *ideal* scenarios. From the current cost-structure (which depicts the per detainee amounts of the expenditures of existing institutions), the building costs are left out. The sizes of the pie charts demonstrate the relative total costs occurring in the given cases.

Figure 1 The layout of certain cost items currently, and under unchanged and ideal conditions in case of an increase of the number of detainees



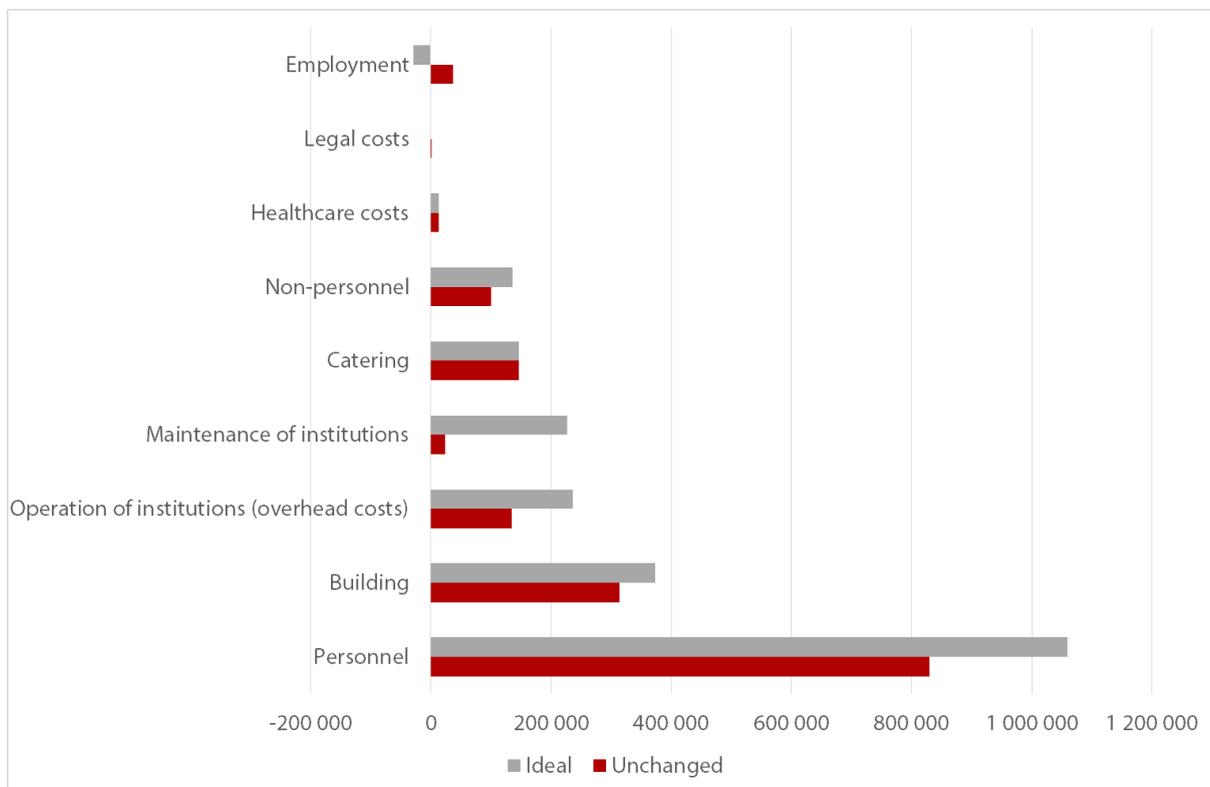
Overall we can see that the yearly per detainee costs under the assumptions of the *ideal* scenario would be 35% higher than under *unchanged* conditions. In all three diagrams, the largest cost item is the personnel-related expenses. In the *ideal* scenario, its ratio is a bit smaller compared to in the *unchanged* one.

A significant difference can be found regarding the maintenance costs, which constitute 10.53% of the total costs in the *ideal* state but only 1.46% in the *unchanged* scenario. It is also important to highlight that in the *unchanged* state, the costs of detainee participation are positive, while they are negative under *ideal*

conditions, which means that in the latter they occur as an income to the overall budget.

Figure 2 shows the nominal cost of each item in the *ideal* and the *unchanged* scenarios. The operation of the institutions and the amount of personnel expenses in the *ideal* scenario exceed those in the *unchanged* scenario due to the building of a new prison. The difference regarding the maintenance costs of the institutions – where there is the largest proportional difference – occurs because the cost of maintenance included in the PPP contracts are considered to be ideal, but are significantly higher than what we saw in the data of the existing state penitentiary institutions. At last, it is important to emphasize that while in the *ideal* state, detainee participation produces a net income for the entire penitentiary system; under *unchanged* conditions, it results in a net expenditure.

Figure 2 Extent of cost items in ideal and unchanged scenarios



6.2 People in pre-trial detention vs. convicts

During our calculations, we tried to differentiate between per capita costs of convicted prisoners and those in pre-trial detention. We were unable to do make the differentiation directly, as BVOP does not breakdown data in this manner. Therefore, we tried to make realistic assumptions on the size of the two detainee groups based on our expert interviews.

One of these assumed costs was that of transportation. We did not get any data explaining how often people in pre-trial detention have to be transported versus convicts, but as those in pre-trial detention have to be transported much more often, we made a simplifying assumption that the yearly transportation costs are only divided among those in pre-trial detention. This means a yearly cost of 55,000 HUF per capita. The cost of transportation cost is included in the category of non-personnel costs in our calculations (see Table 10.).

Table 10 Detention costs of convicts and people in pre-trial detention

Cost of detention (per detainee per year, 2013 HUF)	Currently	Unchanged			Ideal		
		Min	Max	Chosen	Min	Max	Chosen
<i>People in pre-trial detention</i>							
Non-personnel costs	100,878	128,065	158,751	137,301	142,748	220,573	161,376
Employment	-34,350	0	0	0	0	0	0
Overall	1,317,507	285,780	1,639,647	1,599,373	1,606,539	3,800,739	2,215,445
<i>Convicts</i>							
Non-personnel costs	100,878	73,416	104,101	82,652	113,064	167,588	118,377
Employment	-34,350	0	0	0	-389,748	1,031,032	-77,480
Overall	1,317,507	231,131	1,584,998	1,544,724	1,187,107	4,778,786	2,094,966

The other difference between convicted prisoners and those in pre-trial detention lies in the category of detainee participation, as only convicts take part in employment or education. With our chosen parameters, according to the *unchanged* and the *ideal* conditions, the yearly per detainee costs of pre-trial detention would be between 1.64 million and 2.22 million HUF, while the specific costs in respect to convicts would be a bit lower: between 1.58 and 2.1 million HUF.

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