

Efficient Personnel Management | Factsheet

Analysis of the relationship between personnel characteristics and efficiency of public administration and services departments of Dutch municipalities



What do we want to know?

Within public services, the human resource factor plays a significant role. In most sectors of public services, the share of personnel costs in the total costs fluctuates around 70 percent. This means that the efficiency of government organizations largely results from an efficient deployment of personnel. This raises the immediate question of whether efficiency can be influenced by (effective) personnel management. To answer this question, it is crucial to understand the best control options. This research contributes to this by analysing the effect of various personnel characteristics on efficiency.

Case: municipal departments responsible for administrative support services

For this purpose, a case has been selected that is well-suited for such analysis: the efficiency of Dutch municipal departments responsible for providing administrative support services to council, to other municipal departments and services to citizens and businesses in 2021. The public administration and services departments employ the majority of municipal personnel, accounting for over 40 percent of the personnel costs of all municipalities in 2021.

Key administrative support services

- Supporting the political-administrative process within the municipality;
- Providing services to citizens and businesses in the form of document issuance, registration activities, and collection of municipal taxes;
- Supporting all municipal departments.

What do we mean by efficiency?

We use the term efficiency, but in fact, we are referring to productivity: the ratio between output and input. When comparing performances between organisations, we refer to efficiency. If the efficiency of an organisation – in this case, a municipality – is 100 percent, no other municipality can be found that delivers the same output with lower input. For example, if the efficiency of municipality X is 60 percent, there is another municipality delivering the same output with only 60 percent of the input of municipality X. That means municipality X can achieve cost savings of 40 percent.

Which personnel characteristics can affect efficiency?

From the literature, it is evident that various personnel characteristics may influence efficiency. Examples include the composition of the personnel (gender, age), the form of employment relationships (permanent/temporary, grading, part-time), personnel turnover and absenteeism, and organisational management (proportion of managers). Remarkably, there is little consensus in the literature regarding the direction of the efficiency effects of different personnel characteristics. However, based on the literature, we can expect that training yields positive effects, while a high employee turnover and a high sickness absenteeism rate will have a negative impact. These hypotheses are tested based on the analysis results. Additionally, we estimate the effects of various other personnel characteristics. In the ultimate analysis, the efficiency effects of seven personnel characteristics have been analysed.

Personnel characteristics in the final analysis

- Part-time factor
- Inflow and outflow (%)
- Personnel share (%)
- Employment ≥ 10 years (%)
- Absenteeism (%)
- Permanent employment (%)
- Training costs per employee

Based on available data on these characteristics of municipal personnel and data on output, input, and environmental factors, we have been able to assemble a largely representative sample of 141 municipalities with the desired data. This sample has been analysed using an econometric model.

The results of this analysis follow below, followed by a summary overview that also includes the outcomes of the analyses of two more extensive samples. These samples of 181 and 305 municipalities contain a smaller number of personnel characteristics and have been used to investigate the robustness of the results of the small sample. The overview also includes the results of an analysis conducted on the data of all Dutch municipalities, excluding personnel characteristics.

More information about the research approach and results can be found in the [background document of this factsheet \(in Dutch\)](#).

What are the results?

Efficiency based on personnel characteristics

From the analysis of the sample with data from 141 municipalities containing the most personnel characteristics, the average efficiency, calculated based on personnel characteristics, is 75 percent. This means that an average municipality department responsible for administrative support services can deliver the same output at 25 percent lower costs. The efficiency of the 141 municipalities ranges from 40 to 100 percent, with scores below 60 percent being exceptional. Figure 1 illustrates the efficiency scores.

Figure 1 Efficiency in administrative support services based on personnel characteristics (141 municipalities, 2021)



Unobservable Efficiency

Additionally, we estimated the efficiency for these municipalities that cannot be linked to personnel characteristics. This so-called unobservable efficiency averages 89 percent, with a variation from 44 to 100 percent. Scores below 65 percent are rare. Figure 2 displays the scores of unobservable efficiency for the 141 municipalities.

Figure 2 Unobservable efficiency in administrative support services (141 municipalities, 2021)



Efficiency effects of personnel characteristics

Regarding the effects of various personnel characteristics on efficiency, we find the following results. There are four characteristics that have a positive influence on efficiency:

- A high part-time factor;
- A high personnel cost share;
- A high percentage of personnel with employment of more than 10 years;
- A high investment in training.

Personnel characteristics with a negative effect on efficiency are:

- High sickness absenteeism;
- A high percentage of personnel with permanent employment.

The results of the analyses of the other samples, as well as the analysis of the data without personnel characteristics, are presented in a summary overview following this section.

Summary of results

The table below displays, for each applied analytical model, the efficiency scores (average, minimum, and maximum) and indicates which personnel characteristics have a positive or negative effect on efficiency.

Model 1 Small sample, many characteristics (N=141)	Avg	Min	Max
Efficiency based on personnel characteristics	74.8%	40.6%	100.0%
Unobservable efficiency	89.1%	44.1%	100.0%
Personnel characteristics with positive effect			
Part-time factor, personnel share, employment ≥ 10 years, training			
Personnel characteristics with negative effect			
Sickness absenteeism, permanent employment			
Model 2 Medium-sized sample, medium number of characteristics (N=181)	Avg	Min	Max
Efficiency based on personnel characteristics	81.2%	46.3%	100.0%
Unobservable efficiency	89.1%	44.7%	100.0%
Personnel characteristics with positive effect			
Part-time factor, inflow and outflow, personnel share, employment ≥ 10 years			
Personnel characteristics with negative effect			
Sickness absenteeism			
Model 3 Large sample, few characteristics (N=305)	Avg	Min	Max
Efficiency based on personnel characteristics	81.7%	49.7%	100.0%
Unobservable efficiency	87.8%	34.1%	100.0%
Personnel characteristics with positive effect			
Part-time factor, personnel share			
Personnel characteristics with negative effect			
Inflow and outflow			
Model 4 Full dataset, no characteristics (N=351)	Avg	Min	Max
Unobservable efficiency	86.1%	34.7%	100.0%

Conclusions and recommendations

From the study on the efficiency of Dutch municipal departments responsible for administrative support services in 2021, the following conclusions can be drawn.

There are significant differences in efficiency among municipal departments in this field, both when calculated based on personnel characteristics and without these characteristics. The results of the sample with the most personnel characteristics (141 municipalities) indicate that some municipalities could provide the same services within this field at less than half of the current costs. On average across all 141 municipal departments, efficiency is 75 percent, indicating that an average municipality could deliver the same output at 25 percent lower costs. Although this figure is surrounded by uncertainties, it seems that efficiency improvement is possible for many municipalities.

These efficiency differences are partly attributed to variations in personnel characteristics. Six characteristics are found to influence the efficiency of municipal departments responsible for administrative support services to some extent. As also indicated in the literature, investments in employee training have a positive effect on efficiency, and a high sickness absenteeism rate has a negative impact, although the effect is relatively small. Notably, there is a strong positive effect of high labour intensity (a high percentage of personnel costs in total costs) and a strong negative influence of a high percentage of permanent staff (a high percentage of personnel with a permanent employment contract). However, if a significant portion of permanent staff has been employed for ten years or more, the effect becomes positive. Experience or seniority appears to have a favourable influence. Furthermore, the results suggest a strong positive impact of a high part-time factor, although this effect has low statistical reliability.

While further research may be needed to understand the backgrounds of the found effects for certain characteristics, this study indicates that targeted management of these personnel characteristics can significantly contribute to improving efficiency. Especially municipalities with low efficiency scores can likely achieve substantial cost savings through this approach.