

Waste Management Incentive Programs and Municipal Finance

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Standard model of municipal waste management today relies on peoples' willingness to behave in a certain way. Most municipal waste management systems consist of either bring-in collection points or door-to-door collection of waste. As people consume, they naturally also generate waste, and then put this waste into the waste bins. However, what might represent a waste to one, can be a potential resource to other. Therefore, substantial efforts have been made to promote waste separation (followed by recycling) and a generally more responsible waste-related behaviour in order to reduce wastage of potential resources and utilize resources more efficiently. This is in accordance with the waste hierarchy, where recycling is positioned much higher than plain landfilling or incineration, as it yields much more benefits.

But exhibiting appropriate waste-related behaviour requires additional effort from the people, who are in the end primary originators of the municipal waste and thus represent the most crucial link in the municipal waste management process. Advanced technologies are of no use if people do not understand them or do not behave in the ways that these technologies and solutions were designed. A good example can be notification system with containers for recyclables. The municipality expects people to provide notifications once the container is full, so the waste management company can come and empty it. As a result, people would not face the situation when there is no more space in the container for their recyclables. Such experience can discourage people from further attempts to recycle. It is also likely that in this case people would not bring their waste back home, instead they would throw it into the closest mixed waste bin. But if no one notifies the municipality/company, such full container for recyclables is very likely to occur regularly, resulting in an overall lower amount of people that separate their waste. Assuming there are not issues of technical nature with the notification system, is in the people unwilling to cooperate with the system who make it dysfunctional.

The question is then how to make people cooperate more with the designed solutions, and by that further improve the results of waste management. A common approach is to provide some kind of incentive, so the people would become interested and motivated in behaving more accordingly with respect to how the waste management system was designed. The basic idea of incentives is to somehow make one of the decisions more attractive, or at least more preferable. The responsible entity decides what is the desired choice and then, if within its power, sets up the environment to make the person more likely to select the desired option. This is done by changing the environment so that the benefits and costs of the choices have been altered from the perspective of the people in favour of the desired one. Municipality here acts as the one that can decide what kind of incentives will be used, how they would be constructed and importantly how to communicate this to the people.

Incentives (not just) in waste management can be sometimes perceived as a form of nudging, or a certain form of paternalism where the architect of the nudge creates such environment and such options that people are led towards a specific decision, but still have the opportunity to choose something else. In the paper we provide an overview of the theory behind the concept of nudging and its application in the waste management. While some argue that nudging might sometimes represent a form of psychological manipulation, other consider this as an appropriate measure when aiming to achieve some widely accepted goal that is generally regarded as beneficial to the society, but due to the certain market and public sector failures difficult to achieve without proper interventions.

From the municipal perspective, however, probably the most important aspect of waste management is its financial side. And this should not be limited only to the expenditures and should include revenues as well. Therefore, in this paper we examine municipal finance related to waste management and the difference that the use of incentives can make. We aim to go beyond the commonly analysed expenditure side, and include also the revenues in the analysis, specifically the gap between them. Our research question is then whether the municipalities that use some form of incentive program in the waste management exhibit better results compared

to municipalities without any incentives. We examine this on a sample of municipalities from the Czech Republic using the data from 2010-2016 period. By using multiple time period we cover also the development of the incentives effect on municipal finance, as some of the examined municipalities adopted incentives during the examined period, so we have data both before incentives and once they were introduced. Where available, we provide also information about the development of municipal waste generation.