

What motivates people to separate waste and how to improve it – comparison of Taiwan and the Czech Republic

Michal Struk, Ekaterina Vasileva

Faculty of Economics and Administration
Masaryk University

Introduction

- Performance of waste management policies (WMP) and waste separation
- Attitudes of residents at municipal level
- Different tools to affect attitudes
 - „Mandatory“, based on incentives and monetary effects
 - „Moral“, based on moral obligations, like environmental concerns

Motivation

- Different countries approach the goal of increased waste separation in different ways
- Evidence from Taiwan shows very good levels of municipal waste separation
 - What are the drivers and factors that influence this, how is the system set? Are there any problematic aspects?
- What can we learn from these practices?
 - Can we somehow utilize the knowledge and experience?

Goal of the study

- Comparison of municipal waste management practices in Taiwan and the Czech Republic
- Identify good practices and drivers
- Propose how can one learn from the other to improve WM practices (both ways)

Taiwan and the Czech Republic

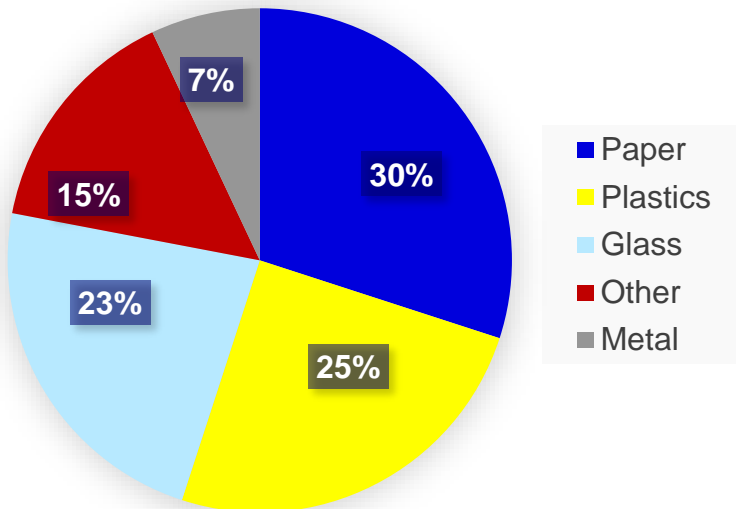
- Taiwan – a high density (650/km²) island in East Asia, 24 mil. population, 36k km²
 - Semi-mandatory source waste separation since 2000
- Czech Republic – landlocked country in central Europe, 11 mil. population, 79k km²
 - Voluntary source separation slowly growing since 2010s
- WM is under municipal jurisdiction in both cases

Comparison of WM aspects

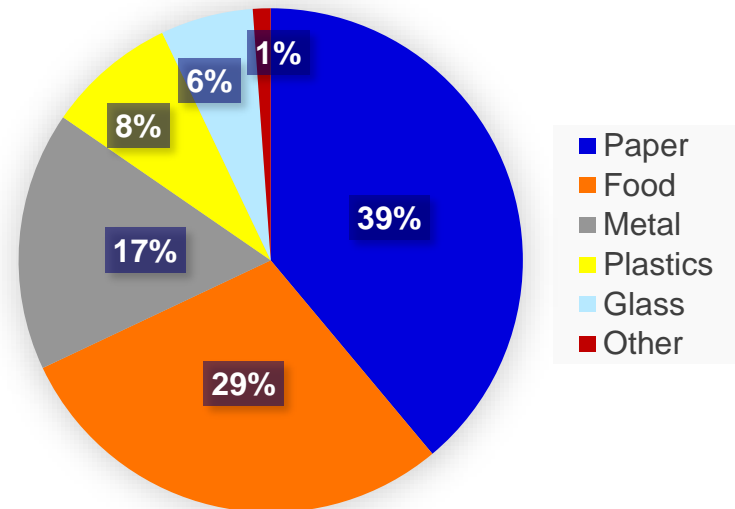
- People generate cca 0.8 kg waste/day in both
- Dominant flat fee per capita (CZ) X combination of fixed fees and penalties (TW)
- Bins at specified places with regular pick-up, unlimited time access (CZ) X scheduled door-to-door pick-up by trucks (TW)

Composition of recyclable waste

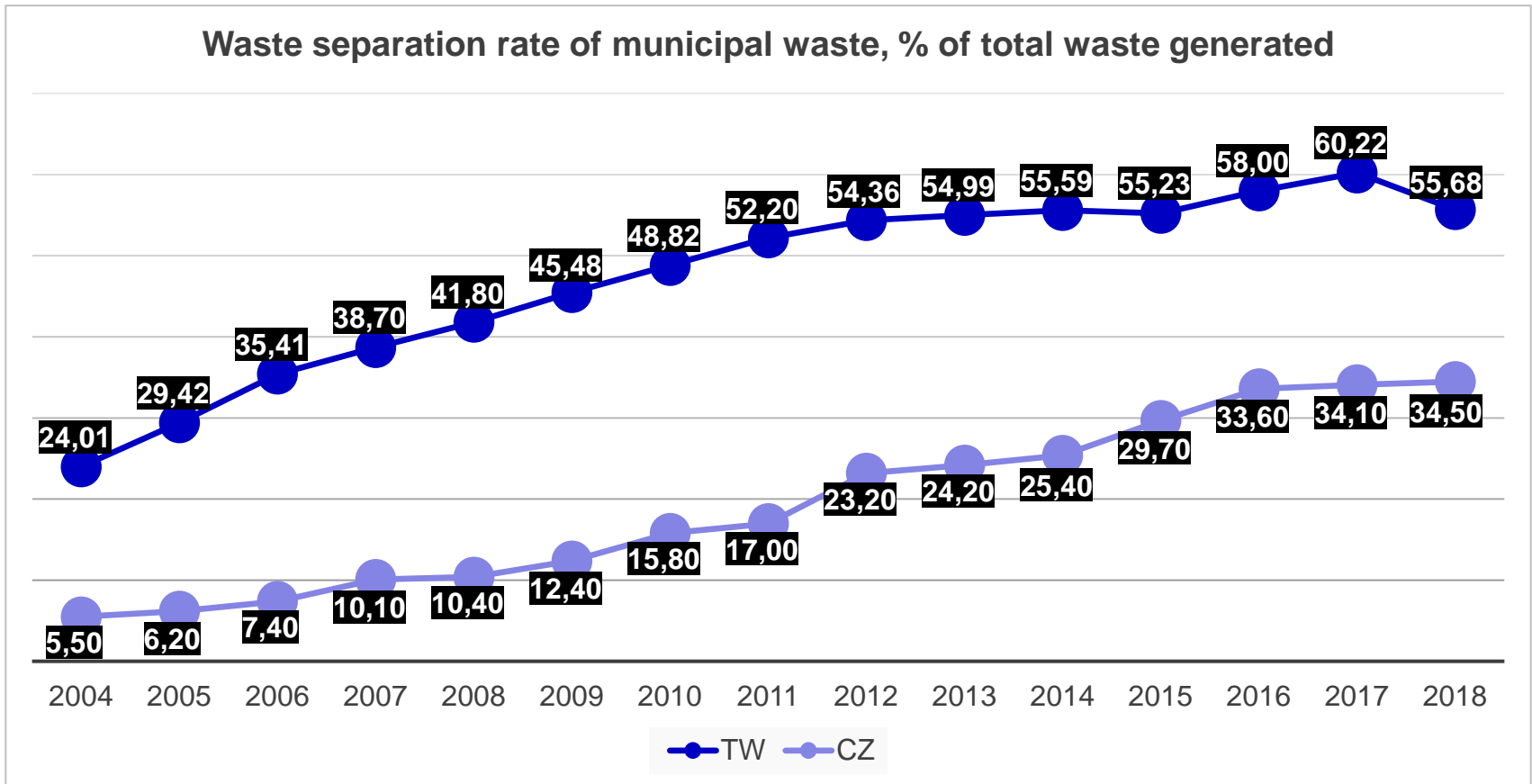
Composition of recyclable waste:
Czech Republic, 2018



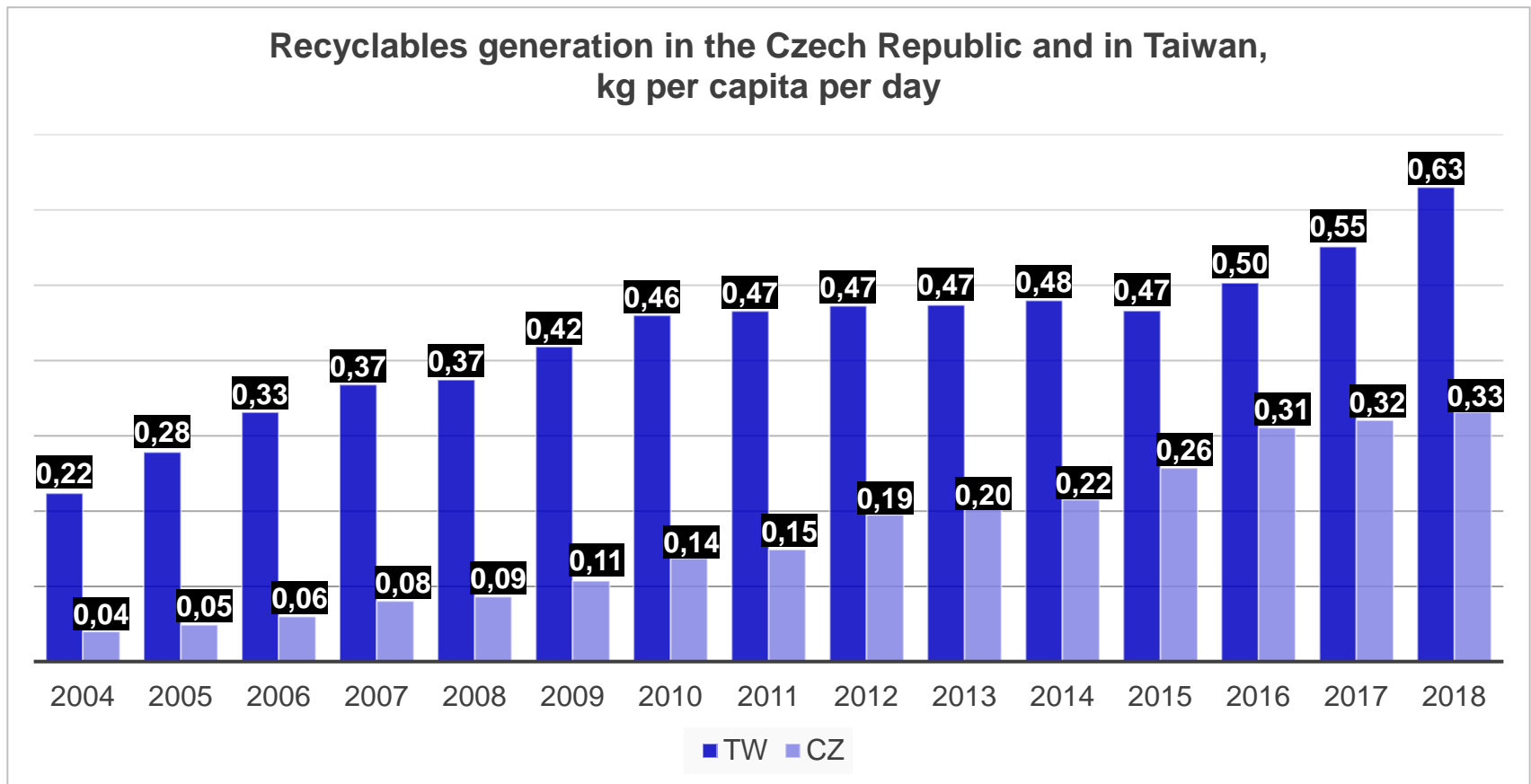
Composition of recyclable waste:
Taiwan, 2018



Waste separation results



Waste separation results



Reasons of TW's good results?

- Waste pickups only using designated bags
 - Different prices according to volume, basically volume-based fees
- Free disposal of recyclables (incl. kitchen waste)
- Much stricter control over waste separation
- Very few bins with unlimited public access
- Inspectors + volunteers check compliance
 - Post online photos for public shaming of non-compliers
 - Photos are deleted after penalty is paid (up to 30x avg. annual fee)

But what about the perception?

- Qualitative aspects of citizens' perception of WMPs in both countries
- Semi-structured interviews with people with experiences of living in both countries
 - 10 Taiwanese, 11 Czech, spent at least 3 months in country and thus experienced WMP in practice

Values and knowledge

- Ecological concerns typically trigger positive waste sorting behavior
- Significant difference between TW and CZ:
 - All TWs were taught at schools and families, regular lessons about waste separation importance, engaging activities at schools
 - On the other hand, while CZs received some information at schools, it was not regularly emphasized, little to no practice, not compulsory part of the curriculum

Social factors

- Social background can play an important role
 - TWs consider waste separation to be a common practice that is beneficial to the society, they basically consider it as a civil duty
 - CZs consider waste separation to be an activity for minority, or that it is just becoming something more common
 - CZs often expressed feeling of social pressure and demotivation
 - But majority of CZs agree that such activity is beneficial for the society, and it is likely to eventually become a social norm
 - TWs consider waste separation as norm, no social pressure at all, rather a natural activity

Convenience

- Convenience strongly influences decision to sort
 - TWs have to bring their waste to the pick-up trucks at certain times
 - All types of recyclables can be brought to the same place
 - Some residences offer temporary storage of waste, thus accessible
 - Convenient as long as people are used to it, and the timetable fits, but generally prefer permanently accessible alternative
- CZs disliked fixed timetables, sometimes resulting in improper behavior, once they missed the pick-up
- Unlimited access to bins much more preferred by both TWs + CZs
- Czech system offers much room for irresponsible behavior
- Sometimes not all bins for all fractions at one place

Incentives

- Presence of incentives is often found to significantly influence one's behavior
 - TW and CZ utilize the opposite approaches, with TW focusing on penalties, while CZ focusing on rewards (if present)
 - TWs do not consider positive incentives as necessary, as waste separation is a norm, why deserve any reward?
 - CZs welcome rewards and consider them motivational
- On the other hand, TWs see themselves as polluters, while CZs consider producers to be the main problem and shift responsibility

Summary

- Essential motivation for waste separation is habit
 - In TW strongly rooted in systematic education
- Availability and convenience help greatly
 - TWs in the Czech Republic tend to separate less carefully
 - CZs in Taiwan separate more thoroughly
- Strict control and penalties result in better rates
 - Being under different system influenced behavior both ways

Suggestions

- Critical role of education – separation a norm
- Strict penalties and public shaming questionable
- Permanently accessible waste storage preferred
 - But not publicly available
- Collective penalties demotivational
- Flat fee can lead to carelessness in separation

Conclusion

- Taiwan shows impressive waste separation rates
 - Combination of education, tradition, incentives and availability
- Czech Republic represents much younger system with significantly worse results
 - Great potential to learn from practices
- Both approaches show pros and cons
 - Minor changes based on experiences could further improve results

Thank you for your attention

Michal Struk, Ekaterina Vasileva
struk@muni.cz