



# Tradable mobility credits and permits: state of the art and future research directions

Louis Balzer, Jesper Provoost, Ludovic Leclercq, Oded Cats

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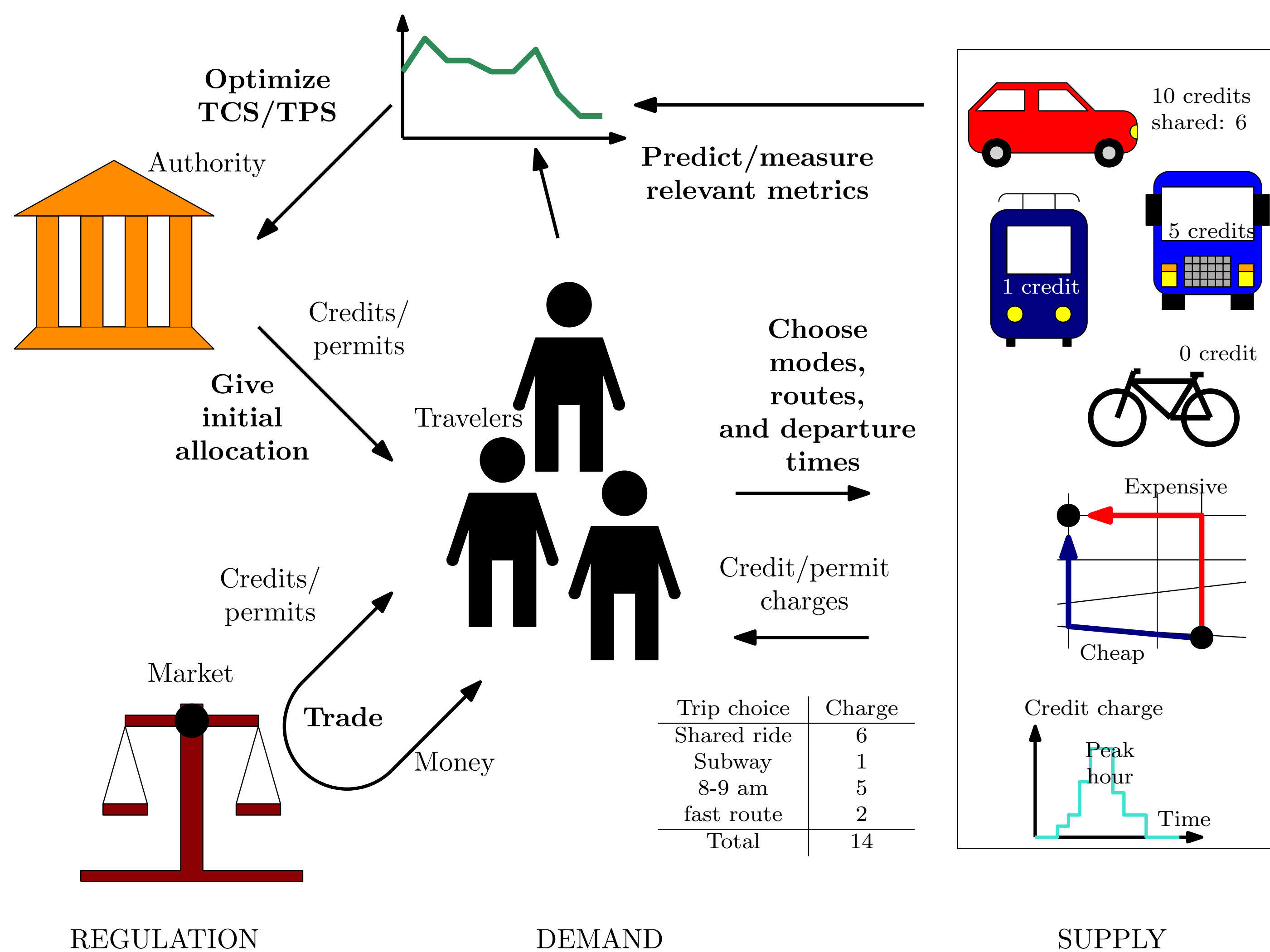
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## Tradable mobility credits and permits: state of the art and future research directions



### TCS and TPS from the literature

#### Objectives/KPI

Reduce congestion  
Reduce pollution  
Ensure equity

#### Charging schemes

Link  
Time  
Distance  
Area  
Class  
Vehicle  
Negative charge

#### Market settings

Free initial allocation / auction  
Market clearing condition  
Regulator updates the price  
Double-auction market  
Transaction costs

### Credits and permits

Urban mobility faces challenges to be more **sustainable** (pollution, congestion, equity). The redistribution of the travel demand in space, time, and transportation modes can improve the efficiency of the transportation network.  
**User equilibrium → System optimum**

**Tradable Credit and Permit Schemes (TCS/TPS)** are **quantity-based policies**: the regulator fixes the quantities, and the price is an outcome of the market.  
**Credits and permits** are commodities needed to access the transportation network.

The **credits** are **indifferentiable**, while **permits** are **specific** to a link and a timeslot.

Each travel alternative requires a given amount of credits (TCS) or a specific permit (TPS).

L. Balzer, J. Provoost, O. Cats, and L. Leclercq, *Tradable mobility credits and permits: state of the art and concepts*. Deliverable D4.1 in the project DIT4TraM (2021).  
<https://dit4tram.eu/downloads/>

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### Limits and future research directions

Most contributions are based on Vickrey's bottleneck (fixed capacity and same trip length) and BPR function (no dynamics) to compute the travel times.

→ Use **Macroscopic Fundamental Diagram (MFD)** and **agent-based simulators**.

Most contributions deal with only car driving: changing routes and departure times. Some account for carpooling or transit riding but no on-demand services.

→ Investigate TCS/TPS to regulate **multimodal networks** with **on-demand services**.