PERSONAL MOBILITY AND SELF-ORGANIZED TRANSPORT SYSTEMS: A SOLUTION TO SURVIVE?

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Abstract

Transport systems in major cities of southern countries usually evoke apparently archaic services with anarchic organization. These stereotypes result from a lack of understanding of these systems. Today, several metropolises of southern countries have transport services without any centralized management. Alternative solutions have appeared which are based on individual initiatives. Owing to the weak standard of living in developing countries, individual cars owners are rare. A lot of megapolis exceeds one million people without public transportation system. Furthermore, in many cases bicycle is not used. However, despite a considerable technological delay, some megacities succeed to constitute an effective urban transport network, although it is informal.

We offer an analysis of these systems in order to understand their spatial, social and economical structures. We focus on spatial dynamics and temporal fluctuations, treating specifically the case of Lima. We based on survey data sensed on the field with partnership of IRD in the course of 2012. The system of urban transportation is based on short-term profitability of the different providers operating in a market. The economical sector concerned is defined as artisanal and governed by liberal principles. For service operators, profit maximization rests on the capacity to adapt to direct demand. Therefore, competitive and complementarity relations develop. It pushes the operators to open new routes to reach unexploited markets with the aim of earn better wages. This mode of operation allows for an extended coverage of the urban area.

However, the auto-constructed suburbs seem left behind. We defined spatial disparities in terms of quality of service to gauge the efficiency of such a way of functioning. Our results highlight strong socio-spatial disparities. Populations at both extremes of the income scale have more restricted access to urban transportation compared to middle strata.
Understanding Economic and social issues

Spatial structure

Offer – Demand

Artisanal transit systems
Population density in Lima

- Hab / Km²
- 0
- [1 - 5000]
- [5000 - 15 000]
- [15 000 - 30 000]
- [30 000 - 56 863]

Source: INEI (2007)

Economic centers in Lima

In a context where public authorities give up with transit system management, alternative ways of management appear:

Queue of buses looking for passengers
Lima 2012

Speed chase
Lima 2012

Bus stopped at green light, waiting for passengers
Lima 2012
A self-organized system

Group: 
*a priori* not determinable phenomenon

Individus: 
Actions and interactions

Macro Level

**Emergence**

**Limited information**

Micro Level

Contraints and needs

**Personal mobility and self-organized transports**

**Method**
Self-organization: a management solution for collective transports

- Group: Transit system (Macro Level)
- Individus: Provision of mobility solutions (Micro Level)

Emergence
- Limited information

Absence or inefficiency of public transports
Municipalidad Métropolitana
GTU

Lines Concessionnaires

Vehicles Owners

Control Agents

Operators

Informants

Offer concessions

Grant concessions

Manage

Rent

Pay

Control

Pay

Inform
Minimal recurring expenses

Running rights + Vehicles rental = 100 S.(/

Operators resources
Bus capacity: 15 passengers
Ticket price: 1 S./

Operators need to board more than 100 persons every day
Personnal mobility and self-organized transports
The demand point of view

**AREAS SITUATED 500M FAR FROM A BUS ITINERARY**

**POVERTY AND ACCESSIBILITY**

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POVERTY AND FREQUENCIES OF BUSES

Fréquences
*Buses / Hour (7h-9h)*

- 8164
- 3896
- 635

Poverty levels

- Very Poor
- Poor
- Medium
- Above average
- Rich

*Source: INEI (2007), Protransporte (2009)*
*Léa Wester - Camille Michel - 2014*
Self-organized collective transport system
An emergency solution

Spatial structure
Large service cover
Polarization on the city center

Offer
Market law
Rentabilty

Demand
Disparties of service
Exclusion of the poorest
Thank you for your attention

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