Residential demand in urban-rural relationships: modelling in PLUREL IP

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Content of the presentation

- Main objective of the study
- Relationships between demography and housing demand
- Demographic models already existing and their limits
- Housing location model in Plurel
- Conclusion
Urban sprawl – a European challenge

- Today 75% of European population live in urban areas, by 2020 approximately 80% will be living in urban areas

- Functional interactions established between urban centres and surrounding rural areas (FUAs binding urban and rural spaces by daily commuting, ESPON 2006)

- Growth of cities driven by various micro and macro socio-economic trends: means of transportation, price of land, individual housing preferences, demography ….

- An increasing residential dynamics and housing demand
1. A response function for housing demand in PLUREL project

- Main objective: a better understanding upon urban shape (monocentric vs polycentric), the relations between residential demand and three major factors of change,
  - Demography (population increase, migrations, ageing population)
  - Economic factor (evolution of households’ incomes, employment, etc)
  - Spatial factor (evolution of land use)

- A specific focus on demography
- Quite numerous demographic models based on standard empirical estimation of quantitative housing demand (households number)
- Few taking into account local dynamics of land market (supply conditions), households’ characteristics, local economic dynamics
2. Demography, a narrow relationship with housing demand

- Key variables projection: households number and size, age composition
  - Simulating demographic scenarios and converts demographic patterns in housing investment needs (Bessy, 1997; Omphale, 2000)

- The related projection of the potential housing demand proceed in three steps:
  - Projection of population’s number + assumptions on fertility, mortality and migrations
  - Projection of households’ number based on population and assumptions on households cohabitation behaviours
  - Calculation of the potential residential demand on a projection of households’ numbers, assumptions on residential stock and proportions of vacant residences and second homes to ensure the fluidity of the real-estate market.
Many shortcomings to establish relationships between demographics trends and housing demand

- Dynamics of the land market (supply conditions)
- Households’ solvency
- Economic dynamics (availability of infrastructures, employment, etc)


- Based on micro-economic model and household database, the relation between real housing demand and demographic trends is established by econometric regression
- A main explanatory variable for housing services demand: the age structure of population
- Housing services demand per capita = f(age structure of population, real estate market price and other economic variables)
3. Demographic housing demand models (2/2)

- Age as unique explanatory variable does not allow to distinguish life-cycle effect from cohort-effect with cross-section data.

- Coefficient relating to demographic indicator in housing demand = to 1 ; demographic factors will impact housing demand in a proportional effect.

- Controversial results in the econometric analyses:
  - A positive correlation between demographic housing index & market.
  - Ageing of population would entail market prices fall about 50% between 1990 and 2010.

- Most of following works diverge from the initial model from Mankiw and Weil.

- These models are fitted to analyse housing demand at national level and are away from usual urban economics.
A PLUREL demographic housing demand model: Life Cycle and Localization

- A theoretical model, standard urban economics framework
  - Monocentric urban area
  - Households heterogeneity (life cycle), young households / adult households / Retirees
  - Bid-rent function concept

- Continuous space (1)
  - Trade-off between accessibility and house surface
  - Localization behavior
  - Residential equilibrium, comparative statics

- Discrete zones (2)
  - 3 discrete zones with independent political identity: the central city and two peripheral rings
  - Natural amenities and level of public services
  - Residential equilibrium
  - Impact of policy decisions and demographic changes
Conclusion

- A classical urban economics assumption: market mechanisms (evolution of real estate market prices) constitutes the main filter to spatial repartition of various household classes

- First, this model will allow to underline the interdependency between households’ location choice and structure of age

- Secondly, this localisation choice can be related to preferences in terms of environmental characteristics, availability of households' services and to some extent to distance to work

- Econometric test at NUTS 5 level

- The spatial dimension of these residential choices can be to some extent translated to urban shape mapping and development of periurban areas