



International Seminar on Strategic Planning
“Methods of Analysis of the Potential for Territorial Development”
Saint-Petersburg, 10-19 June, 2012.

DEMOGRAPHIC SUSTAINABILITY IN REGIONAL DEVELOPMENT PLANNING: A CASE STUDY OF PORTUGAL

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INTRODUCTION

CONCEPTUAL-METHODOLOGICAL FRAMEWORK

RESEARCH OBJECTIVES & METHODS

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CONCLUSIONS

INTRODUCTION

THE CONCEPT OF SUSTAINABILITY

A state difficult to reach

An objective difficult to attain

The most widely accepted definition:

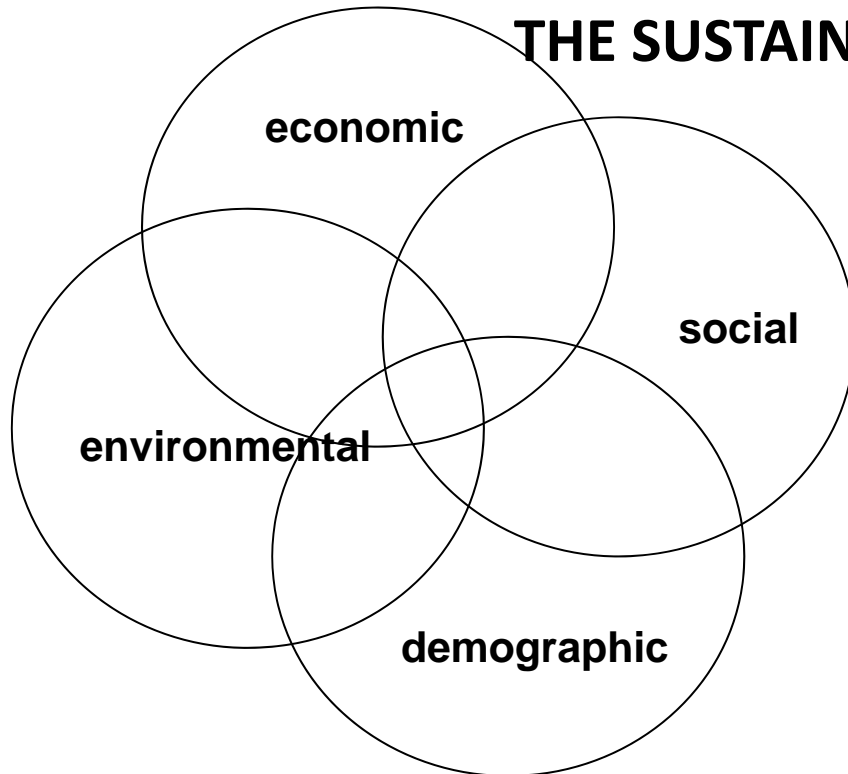
Balanced system of environmental, economic, social and cultural interacting sub-systems

However, it omits the demographic subsystem – **Population**

The structural frame of the society and the economy

INTRODUCTION

THE SUSTAINABILITY SYSTEM



It is important to understand the interconnections within the system, the action of each component upon the others and their mutual effects

First step: to understand **each** of the sustainability subsystems

INTRODUCTION

THE CONCEPT OF DEMOGRAPHIC SUSTAINABILITY

No consensus

Too simplistic:

- ✓ Optimum growth rate of the population corresponding at least to a 2.1 fertility rate
- ✓ Optimum relationship between old and working age population
- ✓ Optimum sex-ratio balance

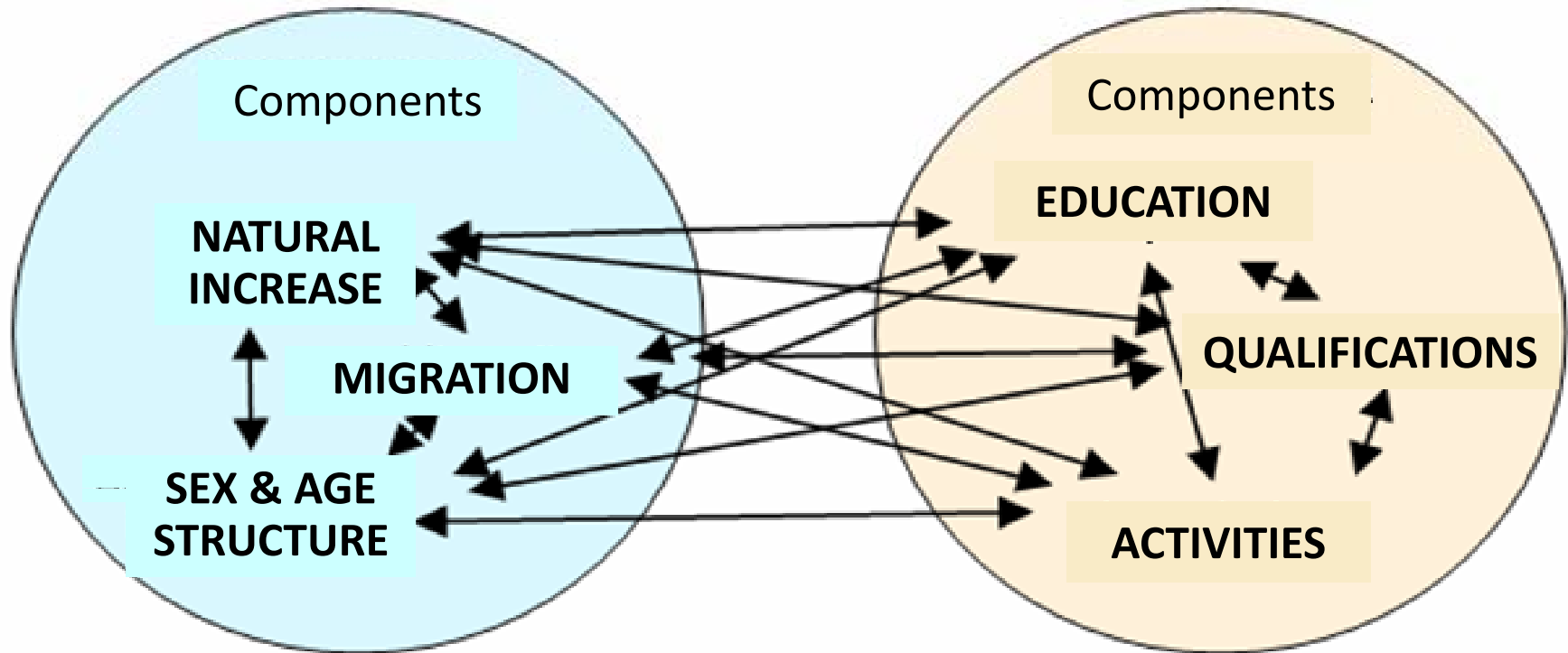
CONCEPTUAL-METHODOLOGICAL FRAMEWORK

A CONCEPT PROPOSAL

Two dimensions of the demographic sustainability subsystem

QUANTITATIVE DIMENSION

QUALITATIVE DIMENSION



Little research has been developed on the linkages between these dimensions

CONCEPTUAL-METHODOLOGICAL FRAMEWORK

Demographic sustainability in quantitative terms

A territory is quantitatively sustainable when an optimal relation among sexes and age groups is achieved relative to their size and growth.

CONCEPTUAL-METHODOLOGICAL FRAMEWORK

Demographic sustainability in qualitative terms

Human capital of a territory - the knowledge, skills, competencies and attributes embodied in the population.

The level of human capital formation and use is reflected on the socioeconomic characteristics of the population.

*A territory is demographically sustainable in qualitative terms when an optimum **level of labour force participation, education and skills** of the population is reached.*

CONCEPTUAL-METHODOLOGICAL FRAMEWORK

Demographic sustainability

Demographic sustainability is possible when a balance between its quantitative and qualitative dimensions is reached due to an optimum interaction between its components.

CONCEPTUAL-METHODOLOGICAL FRAMEWORK

The demographic sustainability subsystem components

In the short and medium run, but **not in the long run**, one component of demographic sustainability can **counterbalance** another in order to maintain or achieve the state of equilibrium of this subsystem.

RESEARCH OBJECTIVES & METHODS

Main research goal

*To build a **typology of demographic sustainability** in Portugal by taking into account the **linkages between its quantitative and qualitative dimensions**.*

RESEARCH OBJECTIVES & METHODS

Territorial unit of analysis: **county**

Period of analysis: **1991 – 2001**

RESEARCH OBJECTIVES & METHODS

VARIABLES

Quantitative dimension:

- natural increase
- migration
- sex
- age
- place of birth
- citizenship

Qualitative dimension:

- educational attainment
- economic activity
- socioeconomic status
- occupation
- working hours
- place of work in relation to place of residence of the population

RESEARCH OBJECTIVES & METHODS

STATISTICAL METHODS OF ANALYSIS

Factor analysis

- The factors enable to identify structural relations among variables/indicators that could not be achieved with the original set of variables
- Extraction method: Component analysis
- Orthogonal rotation: Varimax method

STATISTICAL METHODS OF ANALYSIS

FACTOR ANALYSIS

Initial number of indicators – 56

Included in the analysis - 36

Factor 1

Quantitative dimension of demographic sustainability (natural change and age composition)

Factor 2

State of the qualitative dimension of demographic sustainability (education and skills)

Factor 3

Dynamics of the quantitative (migration) and qualitative dimension of demographic sustainability

STATISTICAL METHODS OF ANALYSIS

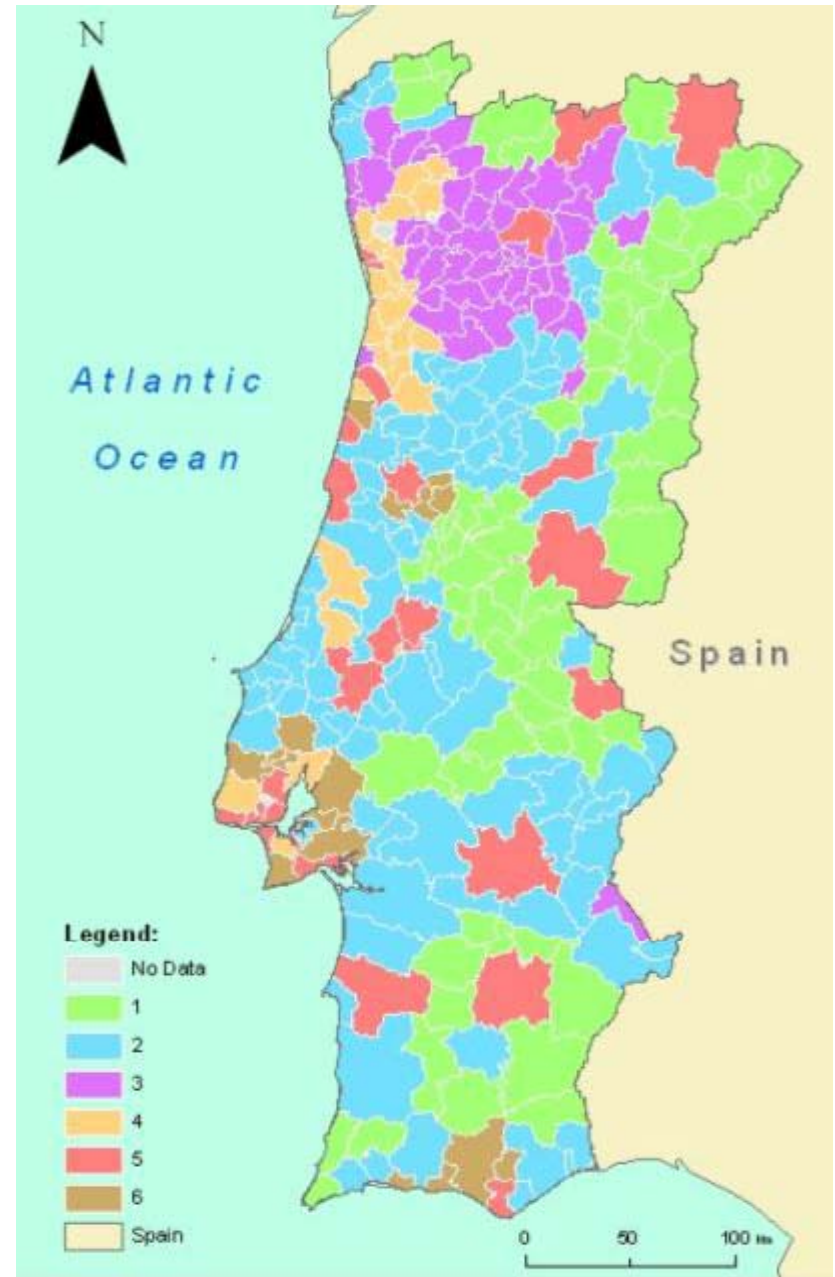
Hierarchical cluster analysis

Agglomeration method: Ward (minimizes intra-clusters and maximizes inter-clusters variance)

Observations: scores of the factor analysis for the counties

THE CLUSTER ANALYSIS

Six clusters were obtained, each containing a combination of the three factors representing the **level and dynamics of the quantitative and qualitative dimensions of demographic sustainability.**



THE CLUSTER ANALYSIS

Cluster 1

61 counties (22%) (rural areas)

- The quantitative dimension is weak:
 - ✓ Depopulation
 - ✓ Population ageing
- The qualitative dimension is also weak
 - ✓ Low level and weak dynamics of education and skills
 - ✓ Negative net migration



THE CLUSTER ANALYSIS

Cluster 2

98 concelhos (36%) (rural or rurban areas)

- The quantitative dimension of demographic sustainability is relatively weak:
 - ✓ Low or negative natural change
 - ✓ Population ageing
- The migration component counterbalances these negative trends, but only in the short and medium run
- The level of education and skills is quite low but the rates of change are significant



THE CLUSTER ANALYSIS

Cluster 3

46 concelhos (17%) (areas of diffused urbanisation)

- Quite strong quantitative dimension of demographic sustainability (natural change and age composition) **versus**
- The lowest levels of education and skills (high rates of school dropouts)
- Quite low rates of increase of the population with high levels of education and skills



THE CLUSTER ANALYSIS

Cluster 4

24 concelhos (9%) (counties of metropolitan areas)

- The strongest quantitative dimension (natural change and migration)



THE CLUSTER ANALYSIS

Cluster 5

29 concelhos (10%) (large and medium-sized cities)

- The highest level of education and skills
- Relatively strong quantitative dimension due to the highest shares of population in active age

versus

- Negative net migration
- The lowest rates of change of the population with high levels of education and skills



THE CLUSTER ANALYSIS

Cluster 6

17 concelhos (6%) (peri-urban areas)

- Strong positive net migration
- the highest rates of increase of the population with high levels of education and skills

versus

- low or negative natural change
- relatively low level of education and skills



CONCLUSIONS

In the 1990s:

- **No** demographic sustainability, both in quantitative and qualitative terms, in most of the interior counties of Portugal
- In other parts of the interior, but also on the coast, the migration component counterbalanced the weak natural change – but, in the long run, these counties are **at risk**.
- Peculiarity of the north-western region:
 - Demographic sustainability in **quantitative** terms:
 - No demographic sustainability in **qualitative** terms.

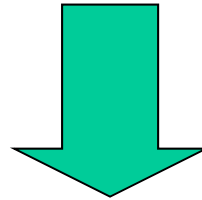
CONCLUSIONS (cont.)

In the 1990s:

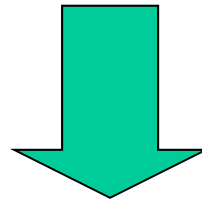
- Demographic sustainability, both in quantitative and qualitative terms, was guaranteed in the long and/or medium/short run:
- In Lisbon and Oporto metropolitan areas and in medium-sized cities on the coast and in the interior
 - In peri-urban areas

CONCLUSIONS (cont.)

Expansion of the daily commuting areas



Population exchange between urban centres and peri-urban areas



Demographic sustainability of urban regions as a whole is guaranteed

CONCLUSIONS (cont.)

In the beginning of the 2000s, population structure and dynamics of the majority of Portuguese concelhos put at risk the sustainability of spatial development which is heavily based on the use of endogenous resources, mainly human capital.

CONCLUSIONS (cont.)

Territory that are depopulated and ageing as well as low level of education and skills do not have enough critical demographic mass to sustain and develop economic activities and to provide the continuity of basic social and cultural infra-structures and services (e.g. schools and health centres)



Subsystems of economic and social sustainability

CONCLUSIONS (cont.)

Negative population trends caused the abandonment of fields and forests e, consequently the associated environmental risks increased significantly (e.g. soil degradation and fires)



Environmental subsystem

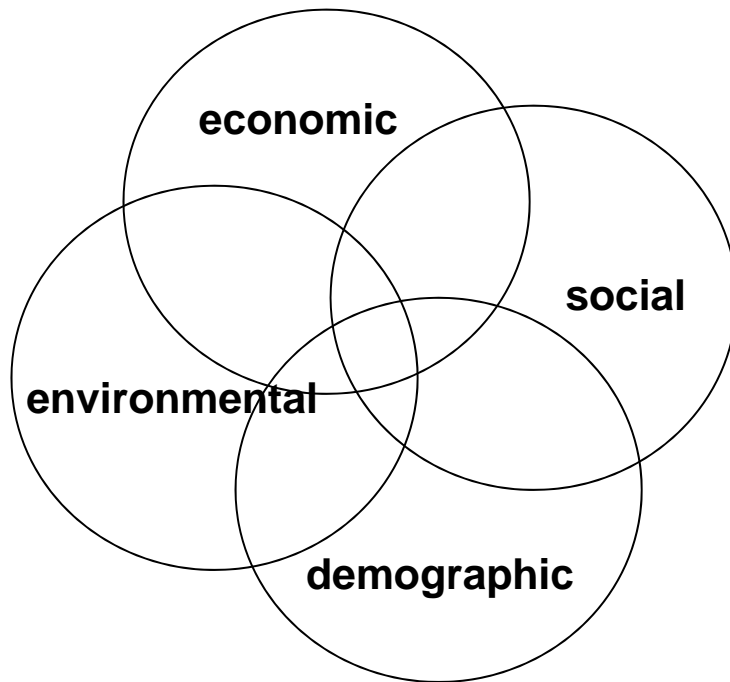


CONCLUSIONS (cont.)

The demographic deficit and its consequences for the sustainability of spatial development will tend to aggravate if there is no coordinated action of local and external agents of the public and private sector and or organizations of the civil society.

CONCLUSIONS (cont.)

POPULATION: biological framework of society and economy on a given territory



Population variables need to be integrated in spatial development policy and planning in efforts to attain the goals of spatial sustainability

QUANTITATIVE DIMENSION

QUALITATIVE DIMENSION

THANK YOU FOR YOUR ATTENTION !

