Ain Shams University

Faculty of Engineering

Department of Urban Planning

Spatial and Socio-economic Factors: Mutual Implications in informal Areas

A Thesis submitted in partial fulfillment of the requirements of the degree of Doctor of Philosophy in Architectural Engineering (Urban Planning)

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Statement

This thesis is submitted as a partial fulfillment of Doctor of Philosophy in Architectural Engineering Engineering, Faculty of Engineering, Ain shams University.

The author carried out the work included in this thesis, and no part of it has been submitted for a degree or a qualification at any other scientific entity.

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Thesis Summary

This thesis seeks to prove how socio-economic factors are very dependent on spatial variables. Cairo, a fragmented city where rich and poor people live side by side, is chosen as a case study to test out various interdisciplinary approaches and theories.

Guided by literature on relationships of societal and spatial factors the research develops a 'comprehensive approach' derived from *Space Syntax* theory, to investigate the mutual relations of the spatial layout of built environment and socio-economic aspects at both a city and a settlement levels. Four methodological procedures (space syntax, observation, questionnaire, document analysis) are employed to fill in the items of the developed framework. After reviewing different insights on physical and social issues, a methodology chapter is introduced to elaborate the elected research methods.

The empirical part of this thesis consists of three chapters, first of which investigates the implications of the spatial configuration of the street network on the socio-economic profile in various neighborhoods in Cairo metropolitan area. Second of which extends the findings of the previous chapter through investigating the correlation between spatial factors and the distribution of internal and edge commercial land use. Furthermore, the relationship between spatial parameters and pedestrian movement pattern is examined in this chapter. Third of which incorporates the results of the previous chapters in the interpretation phase, questionnaire. That is to understand issues related to demographic profile, belongingness, places of interaction and safety, as well as revealing the correspondence between physical and social segregation. The cases used here are three informal areas in Cairo: Ezbet Bekhit, Ezbet Al-Nasr and Abu Qatada. The first two areas are located on State owned desert land close to the city center, while the third area is located on private agricultural land illegally built on the fringe

of the city. Informal settlements are chosen because they are self-grown and not influenced by plans or land use regulations.

The findings at a city level showed that social factors are significantly correlated with the spatial structure of the street network on city-wide scales. Zooming in, disadvantaged areas display a strong internal spatial structure, while at the same time lacking external links to the surrounding areas and the whole city. On the other hand, the findings at a settlement level showed that the distribution of commercial activities takes place on plots that are located along the spatially most integrated parts of the neighborhoods in relation to the whole city. Furthermore, syntactic variables were related significantly to pedestrian movement flow. Besides, the results of questionnaires demonstrated that informal settlements have territorial preference, and are generally socially excluded. Seemingly, this complements the results of previous chapters.

Taken all together, urban and social segregation are closely related. Seemingly, spatial segregation makes the framework for aggravating social segregation. Therefore, improving the spatial integration should also stimulate social as well as economic integration.

The current planning practice in Cairo, however, contributes to create the spatial conditions for aggravating the social segregation processes between various social groups. Studying the forces which produce these poor spatial conditions would invariably help reverse the vicious cycle of urban decline apparent in the city. There is also a challenge to implement the use of space syntax analyses in strategic urban planning in Cairo. Nonetheless, improving connectivity is likely to generate new movement patterns that will draw in new economies, stimulate investment and so stimulate the “virtuous cycle” of regeneration.

Keywords: social segregation, spatial segregation, space syntax, informal areas

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TABLE OF CONTENTS

TABLE OF CONTENTS I
List of Figures V
List of Tables X

PART ONE LITERATURE REVIEW

Chapter One: **Introduction**
1.1 INTRODUCTION 1
1.2 THE PROBLEM 3
1.3 RESEARCH QUESTIONS 8
1.4. HYPOTHESIS 9
1.5. OBJECTIVES 9
1.6. SCOPE and LIMITATIONS 10
1.7. WHAT IS NEW? 12
1.8 CASE STUDIES SELECTION 13
1.9. RESEARCH SIGNIFICANCE 15
1.10. MEASURING THE INFLUENCE OF SPATIAL CONFIGURATION ON SOCIAL ASPECTS 17
1.11. METHODOLOGY 18
1.12. THESIS STRUCTURE 20

Chapter Two: **Literature Review on Space and Social Life**

2.1. INTRODUCTION 24
2.2. THE IMPCAT OF SOCIETY ON SPACE 25
2.2.1. Solidarity, Conflict and Space 25

2.2.2. Boundaries of Society....30
2.3. THE IMPACT OF SPACE ON SOCIETY....34
2.3.1 Harvey's Space of Capital....39
2.3.2. Giddens's Structuration Theory....40
2.3.3. Lefebvre's Space....42
2.3.4. Space Syntax Theory and Methodology....44
2.4. MIGRATION, SEGREGATION AND DEPRIVATION....54
2.4.1 Migration and slum formation....54
2.4.2. What is an informal settlement?....55
2.4.3. What is segregation?....56
2.4.3.1. Spatial Patterns of urban segregation and human activities....57
2.4.3.2 Segregation: good or bad?....64
2.4.3.3 Commercial Land Use and Socio-Economic Improvements....65
2.5. CONCLUSION....68

Chapter Three: **Research Methodology**
3.1 INTRODUCTION....74
3.2. RESEARCH DESIGN....75
3.3. SPACE SYNTAX MEASURES....78
3.4. URBAN BLOCK SIZE – GRANULARITY....78
3.5. STATISTICAL ANALYSIS....80
3.5.1 Banding Method....80
3.5.2. The accessibility rank....81
3.5.3. The Gini Coefficient....82
3.6. OBSERVATIONS AND FIEDL RECONNAISSANCE ANALYSIS..83
3.6.1 Virtual Gates Method....84
3.7. QUESTIONNAIRES....84
3.7.1 The design of the survey form....87
3.7.2. Measuring Sense of Community....88

3.8. DATA NEED AND AVAILABILITY 91
3.10. CONCLUSION 92

PART TWO EMPIRICAL PART

Chapter Four: **Greater Cairo Region**

4.1. INTRODUCTION 93
4.2. THE DEFINITION OF GCR 93
4.3. MAJOR PLANNING TRANSFORMATIONS 94
4.3.1. Historical background of planning practices in Cairo 94
4.4. CONFIGURATIONAL ANALYSIS 113
4.4.1. Global Integration through Time 115
4.4.2. Generative Spatial Structures in Cairo 129
4.4.3. The Integration Core of Cairo through Time 127
4.4.4. Spatial Characteristics of Cairo's Informal areas 131
4.5. CORRELATING SOCIAL AND SPATIAL FACTORS 136
4.6. CONCLUSION 143

Chapter Five: **Spatial Analyses of Local Settlement areas inside Cairo**

5.1 INTRODUCTION 145
5.2. DESCRIPTION AND HISTORICAL CONTEXT OF THE CASE STUDY AREAS 146
5.3. COMMUNITY'S GENERATING ACTIVITIES IN THE CASE STUDY AREAS 155
5.4. SYNTACTIC ANALYSES 160
5.5. PEDESTRIAN MOVEMENT PATTERN 172
5.6. THE CORRELATION BETWEEN COMMERCIAL RATE AND SYNTACTIC PARAMETERS 178
5.7. CONCLUSION 182

Chapter Six: **Measuring Social Ties inside Local Areas**

6.1 INTRODUCTION 184
6.2. SOCIO-ECONOMIC ASPECTS 185
6.3. SOCIAL TIES AND INTERACTIONAL PLACES 190
6.4. URBAN SAFETY AND SENSE OF COMMUNITY 195
6.5. THE INTER-RELATIONSHIP OF SOCIAL VARIABLES 199
6.6. GROUP STATISTICS AND INDEPENDENT SAMPLES T-TESTS 203
6.7. RESIDENTS' SATISFACTION AND PROBLEMS 213
6.8 CONCLUSION 214

PART THREE Conclusions and Directions for Future Research

Chapter Seven: **Discussion and Conclusions**

7.1. INTRODUCTION 220
7.2. CONCLUSIONS 221
7.3. A LONG HISTORY OF POOR-RICH DIVISION 224
7.4. REALMS OF CONTRIBUTION 226
7.4.1. Methodological aspects 226
7.4.2. Policy Aspects and Design Recommendations 227
7.5. FURTHER WORK 231
BIBLIOGRAPHY 232

APPEDNICES

Appendix 1 Historical maps of Cairo 271
Appendix 2 Spatial and socio-economic analyses 275
Appendix 3 Case studies Gallery 279
Appendix 4 Movement observation 287
Appendix 5 Questionnaire 288

List of Figures

Figure1.1. Informal settlements in GRC: they look like a belt of poverty surrounding GCR 2
Figure 1.2. The Deprivation Index in Cairo showing that many deprived areas are located in strategic locations within the city 5
Figure1.3. The case study areas in the context of Cairo metropolitan area ..15
Figure 1.4. The methodology model 19
Figure 1.5. Diagram showing thesis structure. 23
Figure 2.1 Boundaries of society 47
Figure 2.2. Relation between space and activity: Space is not a background of activity but an intrinsic aspect of it. 48
Figure 2.3 The influence of spatial configuration on movement and attraction 49
Figure 2.4. Convex and axial maps 49
Figure2.5. The foreground network and the background network of London 50
Figure 2.6. Three models of the city 60
Figure2.7. Ford model of Latin American city structure 61
Figure2.8. Southeast Asian City model 62
Figure2.9. African city model 63
Figure2.10. A presumptive square neighborhood of 9 plots and the commercial to residential ratio calculation. A scatterplot of the commercial ration against the gross number of plots in a log-log scale 67
Figure 2.11. The relationship of space and society 71
Figure 3.1 Research approach 75
Figure 3.2. A detailed research framework 77
Figure 3.3. Urban block size and node count (R800m) in Cairo CBD and Nasr City 79

Figure 3.4. The true commercial ratio for each band of segments in Ezbet Bekhit, Ezbet Al-Nasr and Abu Qatada 81
Figure3.5. The Lorenz curve of Ezbet Bekhit curve 83
Figure 4.1 Boundaries of Greater Cairo Region. 94
Figure4.2. The first Muslims' settlements 95
Figure4.3. Fatimid Cairo and Mamluk city 97
Figure4.4. Ottoman city and Khedivial Cairo 99
Figure4.5 The urban agglomeration of metropolitan Cairo in 1968 and 1977 and the 1970 master plan 106
Figure4.6. The urban agglomeration Cairo metropolitan in 1982 and the scheme of 1983 109
Figure4.7. Greater Cairo Region master plan 1990 updating 110
Figure4.8 Greater Cairo master plan 1997 updating 111
Figure 4.9 Cairo metropolitan area in 2012 112
Figure4.10. The study area within Greater Cairo Metropolitan 2012 114
Figure4.11. Normalized angular global integration in Cairo in 1517 and 1744 116
Figure 4.12. Normalized angular global integration in Cairo in 1809 117
Figure 4.13. Normalized angular global integration in Cairo in 1888 118
Figure 4.14. Normalized angular global integration in Cairo in 1920 and 1933 120
Figure 4.15. Normalized angular global integration in Cairo in 1958 122
Figure 4.16. Normalized angular global integration in Cairo in 2012 123
Figure 4.17. Normalised angular choice Rn through selected eras 124
Figure4.18. Segment angular integration showing the integration core of Cairo through time 129
Figure4.19. Global and local-scale angular choice, and local angular integration analysis 132
Figure4.20. Map of informal and deteriorated areas 135