A Proposal for Affordable Housing Policy in Greece

Maria FILIPPAKOPOULOU and Chryssy POTSIOU, Greece

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SUMMARY

This paper reports on a 3-year research on investigating the current emerging housing market challenges during the global financial crisis, and on developing a sustainable mechanism for providing affordable rental housing for low-income households in Greece. More specifically, the research is focused on an investigation of the general socio-economic country profile of Greece within the general European picture, and on an investigation of the impact of the crisis on the Greek real estate market, the residential real estate and its affordability. The research has identified that due to the current economic situation there is a growing number of vacant and old residential units. Real property taxes are significantly increased while at the same time the buying demand has dramatically decreased due to the income decrease and buying capacity of local people. Ownership of such units has become a financial burden for the property owners, since there is no buying interest while any improvement of such units to make them attractive for renting is proved to be unprofitable. In parallel, there is a growing number of low-income households that cannot afford to buy or rent at market prices. The authors have developed and proposed a sustainable mechanism through which the state may provide financial incentives, such as tax exemptions or subsides for energy efficiency improvements, and fair regulations so that property owners will be willing to invest in the vacant residential units and make them available for affordable rental housing to a specific target group of low-income households for a fixed 3-year period. Through this fair mechanism, the state will manage to upgrade the existing residential stock, improve the environment while creating job positions, and activate the "blocked capital" while providing for affordable rental housing. Property owners will be offered an option to activate their "blocked assets" and low-income earners will be offered a fair chance for affordable rental housing.

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1. OBJECTIVES OF THE RESEARCH

The object of this research is to develop and propose a sustainable mechanism/tool for affordable rental housing in Greece, adjusted to the current market dynamics and challenges. The basic principles for the development of such a tool include a social, economic and environmental perspective.

The tool is targeted to satisfy the rapidly increasing housing need of "low-income households" in Greece, that cannot afford either home-ownership or rental-housing at market prices.

The methodology followed included:

a. Literature research on the current challenges in terms of property markets and housing affordability in Europe and Greece under the stress of the economic crisis and the general socio-economic data about Greece as well as the general international policy trends;
b. Identification of the type, condition, location and number of the vacant privately-owned residential units, that represent a "blocked" capital (through a research in the municipality records, interviews and field work);
c. Investigation of the economic challenges and costs for upgrading these vacant residential properties in order to transform them into "productive" capital
d. Identification of the challenges and the necessary incentives that may convince the owners of such real estate to consider activating their assets
e. Identification of the characteristics and parameters of the low-income households in need of affordable housing solutions, and
f. Design and proposal of a policy tool that will activate this "blocked" capital, while at the same time, providing for affordable housing

According to the general international experience and modern policy trends in the good management of "land", a fit-for-purpose tool, among other things, should be sustainable and inclusive, clearly regulated, fair and simple to understand and implement, flexible and adjustable to the local specific conditions, attractive to all parties involved (property owners and tenants, private sector, state, society) in order to operate efficiently and on a voluntary basis (Potsiou, 2015). These basic policy principles and the general model may be valid for any tool of that type regardless of the local legal and socio-economic framework that may vary in the various countries. However, the proposed tool is mainly targeted to serve the current need for affordable rental housing in Greece, therefore it is modelled according to the current local challenges, metrics and characteristics.

2. CURRENT HOUSING CHALLENGES IN EUROPE

An increasing global housing need is a result of the rapid urbanization as well as of the global financial crisis (GFC) and the recession that followed. The social housing waiting lists in 2014, in the United Kingdom, according to UK government, were at 1.8 million, and 1.7 million in France, according to the French government. In 2014, the United States of America, according to Harvard University, marked a shortage of 5.3M social housing units while, according to UNECE, the waiting period for this type of housing in the Russian Federation is estimated to be 20 years and in Ukraine 90 years. A rising share of the population in the greater European region does not have the means to access decent and affordable housing. Increased housing cost affect more than 100 million low and middle income people who spend more than 40 % of their disposable income on housing.

The impact of the GFC on the sale- and rental-housing markets in many countries (limited housing supply; access to mortgage finance is more restricted; in many regions interest rates are high) inflates the demand for affordable housing policies and solutions.

In Italy, for example, the economic crisis raised the percentage of low income people who cannot afford to pay the price either to buy or to rent a dwelling. Since 2008 the financial crisis and the economic recession impacted on inequality and poverty levels for Italian households and caused a reduction in the employment rate. As a consequence of the crisis the number of housing sale transactions decreased by 30% and correspondingly the sale prices went down -25% in 2012. In the first quarter of 2013 the transaction rate and the average sale prices continued to decrease -7.7% and -14% respectively compared to the equivalent quarter of 2012. Since 2009 the percentage of mortgages decreased since the most recent fiscal policies of the Italian Government made home ownership less attractive than in the past. In 2012 the Government decided to consider house taxation a key measure to increase revenue and therefore introduced a new tax on home ownership which replaced the previous one and is much heavier. As a consequence of the crisis rental affordability has become a national emergency (Bargelli and Bianchi, 2013). Property prices in Italy dropped a further 0.7 percent during the first three months of 2015 as the country's housing market struggled to recover from the economic crisis. Prices were 3.4 percent lower than in the same period of the previous year, according to preliminary data from Istat, the Italian National Statistics Agency (http://en.istat.it/). Istat announced their data confirmed that 2015 had started with "*the continuing downward trend in house prices that has lasted for over three years*." But the sluggish market is spelling opportunities for foreign buyers, especially because of the weaker euro, with plenty of bargains to be found across the country for those with the money to invest.

According to the reports of the Bank of Spain, between 1976 and 2003, the cost of housing in Spain has doubled in real terms. In the period of 1997-2006, the cost of housing in Spain had risen about 100% in real terms. It is stated that from 2000 to 2009, 5 million new housing units had been added to the existing stock of 20 million (Bardhan et al., 2011). In 2008, the real estate market began to fall, and home costs decreased dramatically by 8% in that year (The Economist, 2008). In the period of 2007-2013, Spanish home costs had fallen by 37%

(Karaian, 2013). However, decline in credit, high unemployment, shrinking wages and rising interest rates eventually crippled the new housing demand. Only people who have enough resources to buy without credit could access homeownership by purchasing these cheaper homes without a great proportion of debt (Leal, 2013). According to Eurostat data, after reaching a minimum of 8% between 2006 and 2007, the rate of unemployment in Spain grew quickly exceeding 20% in 2010 and 25% in 2012. Even though unemployment in some regions of Spain is less than in others, the general rate is one of the highest in the European Union.

Similarly, the Greek real estate market had experienced significant growth rates and activity by 2007 up to the middle of 2008. Prices rose due to low interest rates, rising incomes and intense investment activity. As a result, the economic climate was one of general euphoria. Moreover, the taxation on real estate was relatively low. Since mid-2008 onwards, however, the Greek market is in crisis. A fall of real estate investments, the decline in number and value of transactions in real estate as well as the inevitable price drop per year have caused very unfavorable market conditions. The ongoing financial crisis, lack of liquidity, uncertainty of households on employment and future income caused by volatile economic climate and inconclusive institutional and fiscal framework have cultivated bleak prospects for the future of the market. The approximately 26% decline in GDP of the country in recent years, combined with the rapid increase in unemployment, have led to a reduction of disposable income and respectively in lack of any demand for investment in property, and eventually a reduction in their prices. This reduction appears not to have reached the lowest level until March 2016 (when this part of research was compiled). Signs are ominous. As a result of the afore-mentioned characteristics of the market the crisis tends to permanence, and, at least for the foreseeable future, it appears that demand will continue to fall compared to oversupply while prices tend to move to new low levels. The prospects of the real estate market are totally dependent on the removal of uncertainty, the restoration of a stable macroeconomic environment and the rationalizing of taxation of real estate (Hellenic Valuation Institute workshops on the state of the Greek real estate market).

It is obvious that the housing sector is going through a significant reassessment in the majority of European countries. Governments in the greater region have redefined spending plans concerning state funding on social housing, mostly affecting the housing sector. They also recalibrate the role of the state and its intervention in the housing markets. Unlike the practices of past decades when home ownership was broadly affordable for middle class households, while social housing policies were targeted to the vulnerable and the poor, today following the GFC, middle-income as well as middle-class households are in dire need for social or affordable housing (UNECE, 2015). Countries are at a crossroad between the old policies and practices that resulted to the crisis and the experimentation with new and innovative solutions (Voss, 2012). "*The housing sector needs to respond to the current housing needs, adjust to the new dynamics of the housing markets and meet new aspirations, such as energy efficiency and customer adjusted design*" says Christian Friis Bach, UNECE Executive Secretary.

3. GENERAL SOCIO-ECONOMIC DATA ABOUT GREECE IN MID-CRISIS

In order to describe the economic crisis impact on household income, unemployment and non-performing loans, the results of a research, conducted on a sample of 1,200 representative households in the whole of Greek territory in December 2015 are presented. This research is part of the regular annual surveys of the General Confederation of Greek Practitioners, Craftsmen and Merchants GSEBEE (in collaboration with the company MARC AE) (http://www.gsevee.gr/meletes-2/342-2014-01-23-13-03-18). Briefly, more than one in three Greek households state that they live with an annual family income less than € 10,000. 70% of households expected deterioration of their income in 2015 and 2016, while only 5.1% expected an improvement in their financial capabilities. These perspectives are disappointing, worrying and overwhelmingly negative. Greek households became poorer in 2015; 80% of Greek households live in much worse conditions (quantitative and qualitative) in comparison with the previous period.

About 36.3% of households have an annual income less than €10,000. The reduction of the consumer potential of Greeks continued in 2015, albeit at lower rates compared to 2013 and 2014. About 15.2% of households stated that their incomes are not sufficient to meet their basic needs; if there was an emergency need to pay 500 euros, 15.2% said they could not carry it out, while 52.9% would cover this expenditure with great difficulty. More than half of the households (56.5%) are unable to adequately meet the nutritional needs of the family and to ensure a satisfactory level of heating, while 94.2% of households show a significant reduction in revenue, since the outbreak of the crisis. Indeed, reduction of income was recorded in 2015 for 77.9% of households. Unemployment is increasing. About 33.9% of households, (more than one million households), have at least one family person unemployed. The main source of income for 51.8% of households consists of pensions while the corresponding figure in 2012 was 42.3%. On the other hand, households whose main source of income is business-related amount to 6.1% while the corresponding figure in 2012 was 12.6%.

In terms of financial obligations, one out of five households have debts to the tax office that are overdue; 12.5% of households have overdue debts to the banks; 2.2% believe that they will not be able to meet their tax obligations; 14.7% of household state that they are unable to pay the annual taxes on real property (ENFIA); 33.7% believe that they are unable to meet their debt obligations in 2016. One out of four households is living in private homes that are mortgaged 15.4% of those debtors are in arrears in their mortgage payments. One out of four (24.6%) households express fear of losing their homes, both because of accumulated obligations and additional charges (loans, taxes and other). The vast majority of households either uses money from savings or borrow from relatives and friends in order to meet their obligations in the last four years. In 2015 there is a reduction in the use of savings by 6.2%, because eventually household savings are exhausted. Credit cards debt increased from 15.8% in 2012 to 31% in 2015.

Consumption is dramatically decreased. The demand for goods and services such as clothing and footwear, gifts, household goods, consumption in restaurants, café-bars and travel, has

decreased, while spending on education and public utilities has increased. Households increased their spending on medicines and healthcare for the second consecutive year as well, apparently because of reduction in public expenditure on health care. 70.1% of households state that they would face serious financial problems in case of further food price increases. It is evident that the VAT increase imposed recently on a wide range of consumer goods and food from 13% to 23% worsened the economic status of households. Throughout the Greek territory, at least 120,000 households acquired basic living supplies through social groceries (GSEBEE, 2015). According to bank data, by the end of 2015 the percentage of non-performing housing loans was 38%, while the percentage of the total non-performing loans was up to 42.1%.

Two out of five Greeks, or about 41% of the population spend more than 40% of their disposable income to meet housing needs. This figure is double of any other country in the European Union, except in Serbia, where the rate is 28%. This is reported, inter alia, in statistical data released by Eurostat concerning the quality of life of households in the EU during 2014 (EUROSTAT, 2015). Greek households appear to be the most financially burdened, and are forced to spend too much money for housing needs. The European average for overly burdened households in relation to housing expenditure as a percentage of disposable income does not exceed 11.4%. Housing expenditure includes rent for tenants, or the mortgage payment for owners, as well as communal, heating and utility costs such as water supply, electricity and telephone. In this context, 55.8% of tenants have to pay more than 40% of their disposable income for their housing needs, though owners, even if they have a mortgage, seem to be better off, as "only" 29.2% of them faces a problem of excessive housing costs. However, it is clear that the constant decline in household income (e.g., salary and pension reductions), combined with the steady increase of other costs, such as electricity, have placed a large number of households in a very difficult economic position. It is worth noting that the percentage of the Greek population that spent more than 40% of their income for housing in 2013 stood at 33%, which was also the highest in the EU.

An equally important factor which contributed significantly to the reduction of disposable income is the dramatic increase in real estate taxations. According to data presented by the Hellenic Property Federation (POMIDA) (http://www.pomida.gr/english/) Greek households payed eight times more in taxes on their property in 2016, compared to 2010, the year when the economic crisis began. In particular, according to the Ministry of Finance data, in 2010, revenues from property taxes did not exceed the amount of 487 million euros. In 2011 the amount increased to 1.17 billion euros, while in 2012, relevant tax revenue amounted to 2.85 billion euros. In 2014 property tax revenue was 3.47 billion euros. Finally, in 2016 property tax revenues was approximately 3.8 billion euros. The tax burden on property owners increased significantly during a period in which the rental market had collapsed, thousands of properties were vacant and neglected by the owners, rents were considerably reduced, if indeed collected at all. It is apparent from the data provided by Eurostat, that tenants appear to be particularly burdened financially. The imposition of high periodic taxes on property, in tandem with a lack of interest to buy or lease due to the recession, makes it unprofitable to either possess or invest on real estate. Residential real estate transactions have fallen in number, volume and value dramatically every year of the crisis and property possession is

currently seen as a burden. There is a large number of privately owned vacant residential properties, in many of which electricity and water supply service has been disconnected. Such residential real estate represents a dead capital. At the same time, the Social Housing Organization (OEK) was abolished as a public entity through articles 1§6 and 2§1 of Law 4046/12 (1st Memorandum) (Filippakopoulou et al, 2014). Alternatively, government has decided to freeze foreclosures of primary residences with a value below a certain threshold.

4. VACANT PRIVATELY-OWNED RESIDENTIAL REAL ESTATE

This research is mainly focused on the municipality of Athens, Greece (Figure 1 top right). There is no record of vacant privately-owned residences in Athens. Therefore, it was concluded that the vacant residences should be at least as many as the old non-electrified residential units.

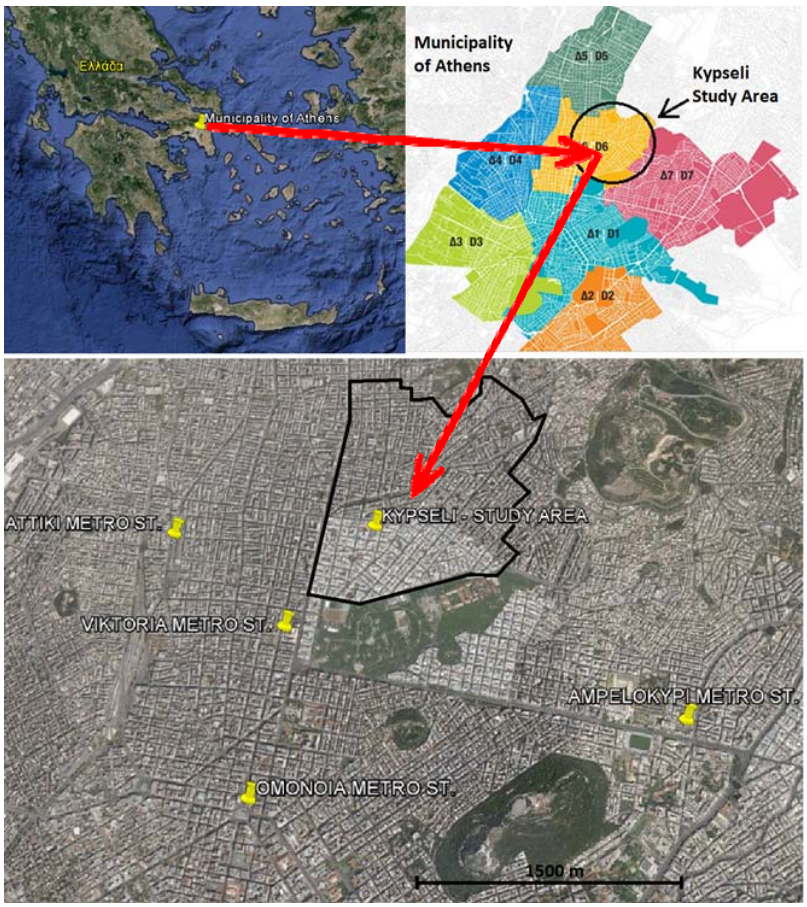

Figure 1. Map of Greece (top left); Map of the municipality of Athens (top right); the case study area in Kyspeli (bottom)

A thorough research through the records of the Municipality of Athens, conducted by the authors in 2014, identified that more than 8% of the total amount of apartments in the

municipality of Athens had no electricity supply; which amounts to more than 41,000 units. In order to activate this "blocked" capital, incentives should be offered to encourage energy efficiency improvements and basic renovation of the vacant and old residential stock.

A central residential area of 150 hectares of originally good construction quality of privately-owned building stock, but of poor maintenance, is chosen for a detailed research for the following criteria:

- It is close to the center of Athens
- The existing building stock is not environmentally friendly, but it could easily be upgraded
- During the prolonged recession period market prices have fallen at an average rate higher than in other sections of the Municipality of Athens
- In this section, there is a large discrepancy between market values and tax assessed values, which is the tax base for levying property taxes
- According to data derived from Athens Municipality there is a large number of vacant non electrified residencies (4,132) in this section, corresponding to a percentage of 11% of the total number of vacant non electrified residencies in Athens Municipality is 40,886 corresponding to 8%
- The area still retains quality features though a large part of the population is currently comprised by low income immigrants.

During the 1960's and '70's there was a building boom in Kipseli in which hundreds of multi-story apartment buildings were constructed. The population grew rapidly and the area was very well served by buses and trolleys. In the '80's and '90's fewer apartment buildings were erected since the number of unbuilt plots was limited; the area was densely populated mostly by middle class families.

Since late '80's a large number of wealthy residents of the area gradually relocated to the northern suburbs of Athens (Figure 2) metropolitan area and Kypseli started to be inhabited by average income households as well as by African and Balkan immigrants of low income. As a result, today most of the buildings are in moderate or poor condition, while 11% are vacant; in addition, the area faces public safety issues. In order to determine the condition of the residential properties a sample field survey was conducted. All blocks of plots in the study area were recorded. In total the area consists of 329 blocks of plots. A random sample of 10% of the total was chosen, corresponding to 33 blocks of plots. A field survey was conducted and all buildings on each block of plots in the sample were recorded, and classified according to the age (decade of construction) of each building, its type (single house or apartment building), its level of maintenance (excellent, very good, good, moderate, poor) depending on the improvements and refurbishments that the building has undergone since its construction.

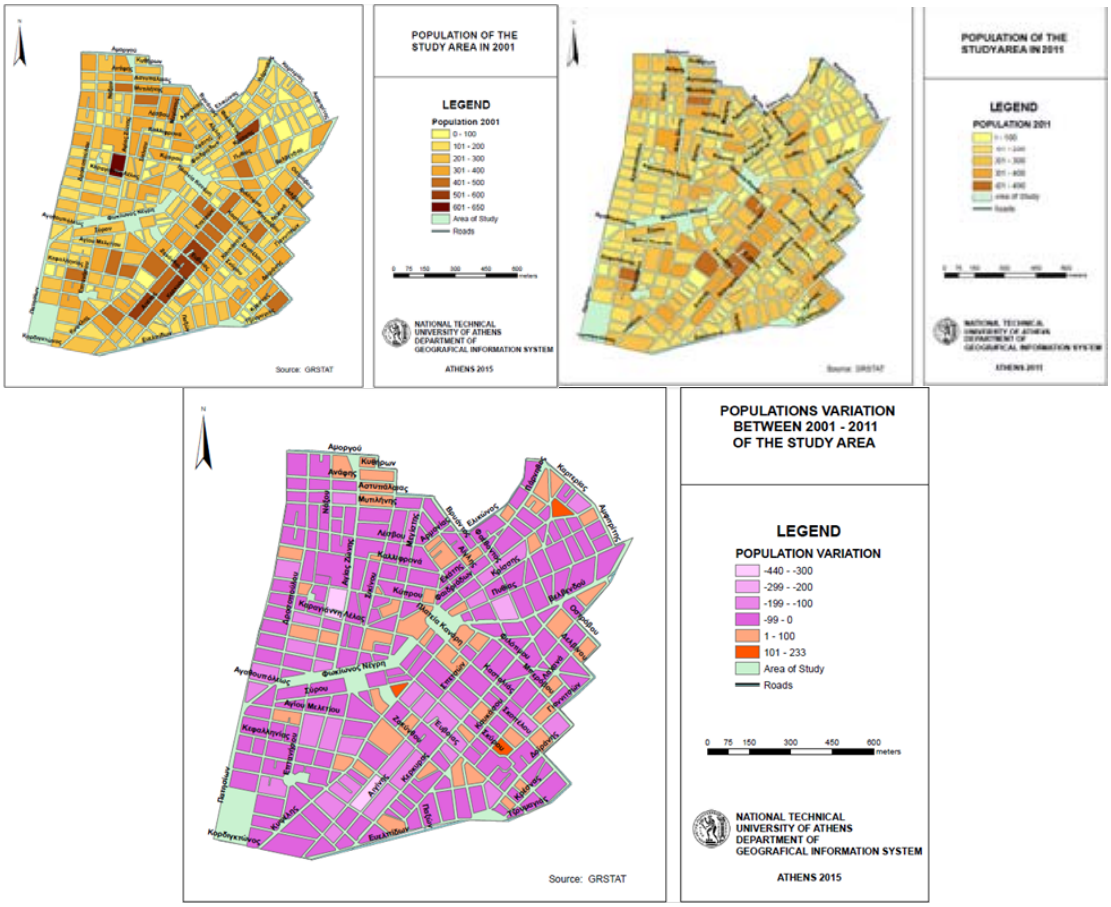

Figure 2. Population of the study area in 2001 (top left), in 2011(top right), and population variation (bottom) (source: Bregu, 2015)

The results of the field survey are as follows: The 33 blocks of plots comprise 427 parcels which, with one exception, have been developed mainly from the mid-1920's until the 2000's. On average each block comprises 12.5 buildings. Out of a total of 426 buildings 341 are apartment buildings corresponding to 80% of the total building stock in the area under study, while the remaining buildings are either houses or duplex houses.

Almost all buildings have residential use although some apartment buildings house commercial shops on the ground floor. The majority of the existing building stock is more than 40 years old. In particular, 63% of the buildings have been built in the 1960's and 1970's; 20% of the buildings were constructed in the 1950's or earlier; 38% during 1960's; 25% in the 1970's; 13% of the buildings were built in the 1980's and 1990's, and only 4% of the buildings from 2000 onwards (Figures 3, 4 and 5).

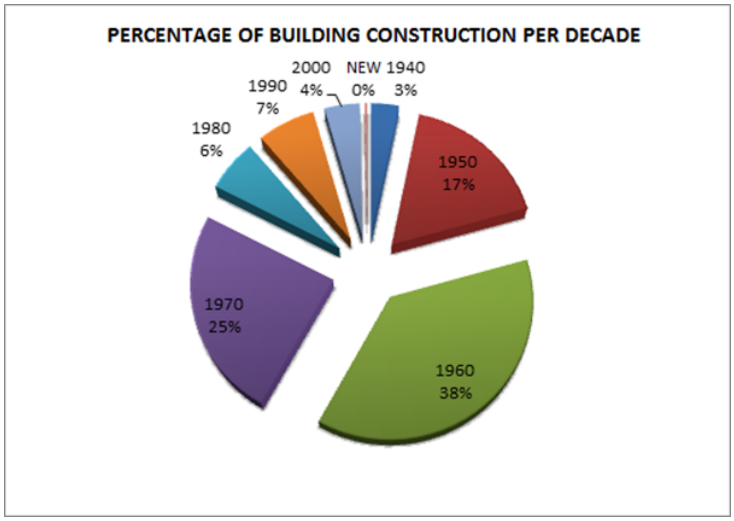

Figure 3. Percentage of Building Construction per Decade (source: Bregu, 2015)

Figure 4. Typical sample of blocks of apartments build during 1950's (top left), 1960's (top right), 1970's (bottom left) and 1980's (bottom right)

The state of maintenance of most of the buildings is moderate or poor (89%) (Figure 6). Most fall into class G or H, the least favorable categories in terms of energy consumption. Buildings in moderate state of maintenance are those that have not undergone any external improvement or refurbishment since their construction.

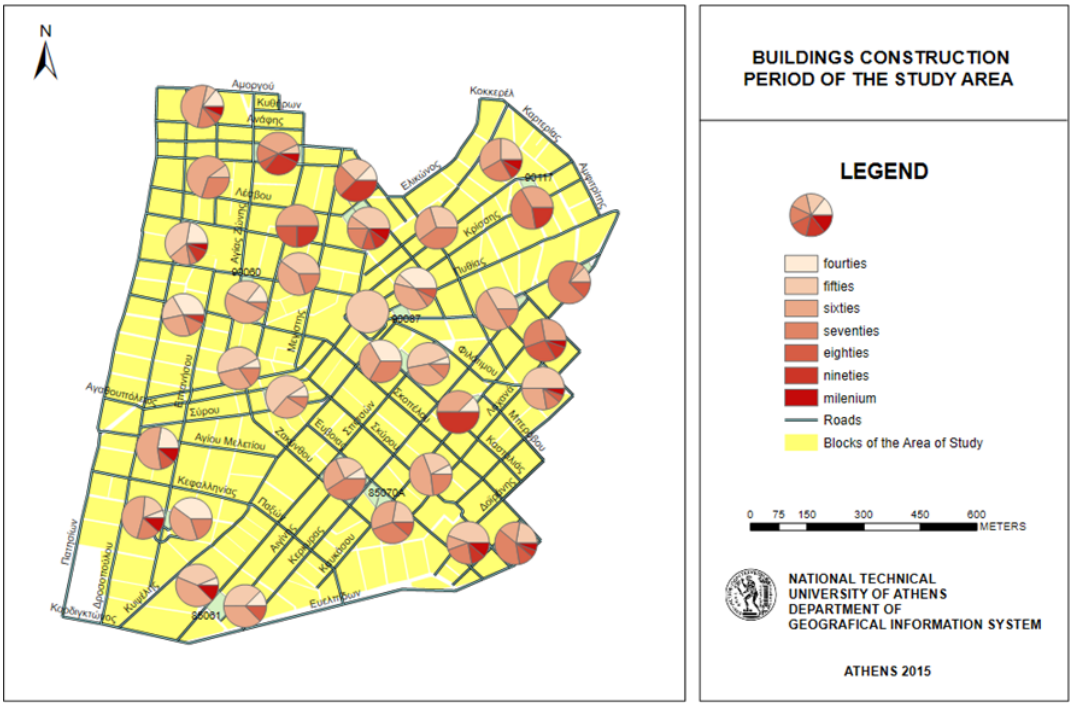

Figure 5. Building distribution within the study area according to age (source: Bregu, 2015)

Seven percent of the buildings are of poor maintenance and only 11% of buildings are in good, very good or excellent condition. It should be noted that the state of maintenance of the buildings is directly related to their age (Figures 6 and 7). Regarding the state of maintenance of the apartment buildings only 6% can be characterized as excellent or very good and this percentage refers to buildings constructed between 1990 and 2010.

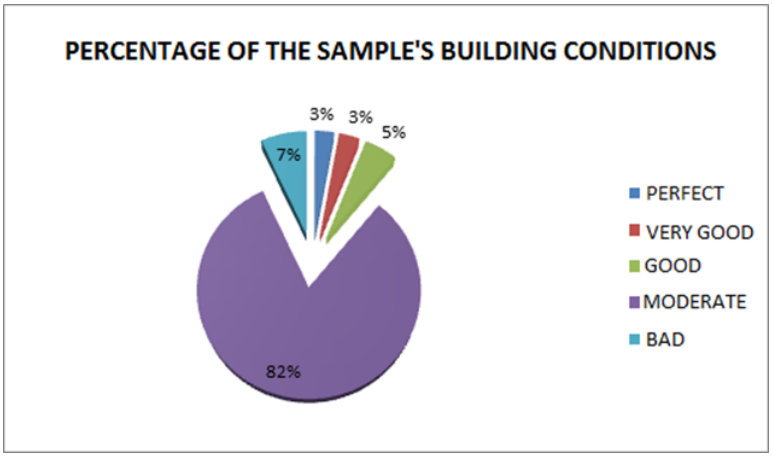

Figure 6. Building State of Maintenance (source: Bregu, 2015)

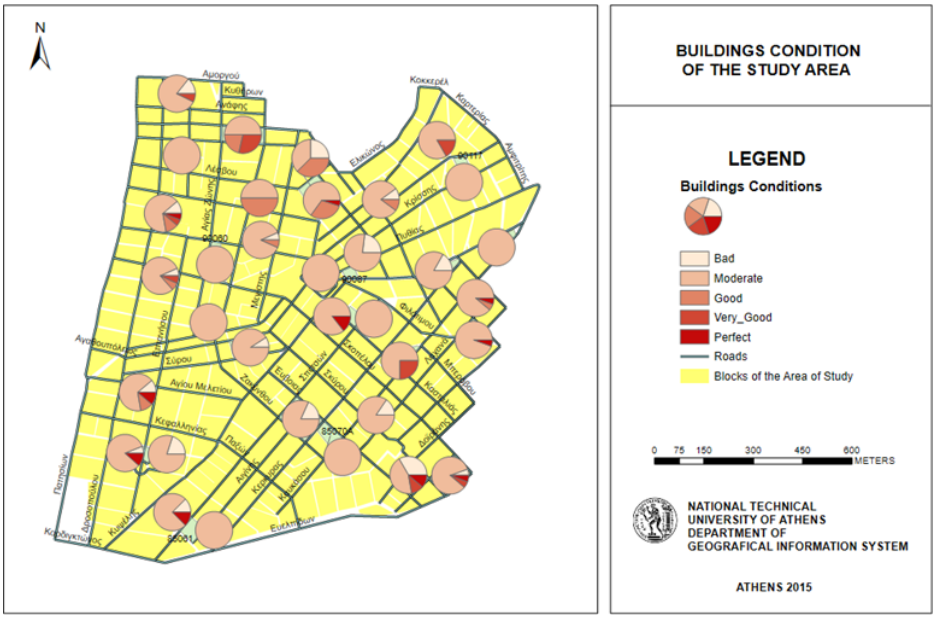

Figure 7. Building distribution within the study area according to construction condition (source: Bregu, 2015)

The average number of apartments per building is 15 with a maximum of 58 apartments while 50% of the buildings are composed of 8-20 apartments. Of the 83 houses and duplexes 22 are vacant, in poor or uninhabitable condition, corresponding to 26% of such buildings. Fifty-three buildings corresponding to 64% of the total buildings of this category are in use but their state of maintenance is poor whilst only one house was in a very good condition. Also, only two single houses have been constructed in the 70's whilst all others are older.
In conclusion the majority of the buildings are old and poorly maintained.

The research in the records of the Section of Contributory Fees, of the Department of Municipal Revenues of the Athens Municipality referring to Kypseli shows the following:

- Total number of buildings in Kypseli area: 4,145
- Total number of individual properties: 42,303
- Total number of individual residential properties: 38,462
- Total area size of individual residential properties: 2,822,176 m^2
- Total number of non-electrified individual residential properties: 4,132.

The above data show that the average area size of individual residential properties is 73.4 m^2. The total area of non-electrified individual residential properties is 303,185.5 m^2, corresponding to 11% of all individual residential properties.

It should be noted that as mentioned earlier the respective percentage for non-electrified individual residential properties in the whole Municipality of Athens is 8%. It was assumed that the vacant properties are those non-electrified; however, it may be possible that the number of vacant apartments probably exceeds the number of those non-electrified.

This means that the property owners of those vacant properties do not live in them or use them; they do not rent them and bear the corresponding percentage of sharing monthly common expenses costs (they do not earn revenue while being burdened by various tax liabilities) and finally they have in their possession properties that, due to unfavorable market conditions, may be neither sold nor leased.

5. CHALLENGES IN ACTIVATING THE DEAD CAPITAL

This chapter reports on a research made to investigate the current challenges a property owner is faced with in order to transform the "blocked capital" of a vacant and old apartment into a productive capital. The methodology followed includes: research to estimate the sale market value as well as the rental market value of a typical vacant apartment; to estimate the costs for energy efficiency improvements necessary in order for the vacant apartment to become marketable; to estimate the annual property taxes the owner should pay, according to the current legislation and the tax value as fixed by the state; to estimate the annual income taxes the owner must pay once the apartment will be rented; and to estimate the recovery period of the investment for renovation /upgrading. The research is based on the market and taxation data as valid during the first quarter of 2015. An example is given for a typical vacant apartment of 70 m^2 in Kypseli, built in 1970, on the 2nd floor, not renovated and therefore classified to be in energy class H.

5.1 Estimate of sale/rental market value and tax value of a typical vacant apartment

Since 2008 values of residential properties declined significantly at an average annual rate of 10%; properties have lost more than half of their value since the beginning of the crisis. While in 2008 the market price of a typical old apartment in Kypseli was around €1000/m^2, by the first quarter of 2015 this had fallen to €300/m^2. There is an excess supply of properties for sale, while demand is limited; the market is unable to absorb the available stock. Due to increased annual property taxes a large number of owners are struggling to meet tax liabilities arising from the ownership of properties that do not generate any income. In addition, the fact that there is no particular interest in renting properties discourages owners from carrying out renovations to upgrade these properties; even if they invest in upgrading these old apartments it will be hard to find tenants for a return on this investment.

As a result, a large number of owners feel that owning an apartment is a burden unless they use it as their own residence. According to interviews with real estate agents operating in the region, during 2015 prices dropped while property taxes increased. The above situation leads to further devaluation of property prices.

Transactions at the first quarter of 2015 have taken place only at bargain prices ranging from 200 € to 450 €/m^2, depending on the specific characteristics of each property. Representative recent transactions realized in Kypseli in 2015 are mentioned below:

- at #50, Caucasou St, apartment of 56 m^2 area, built in 1960, on the 5th floor, was sold at 12000 € e.g., 214 €/m^2
- at #14, Kythiron St, apartment of 102 m^2 area, built in 1985, on the 2nd floor, in excellent

condition was sold at 45000 € e.g., 441 €/ m^2
- at Agia Zoni St, apartment of 108 m^2 area, built in 1970, on the 5th floor, with a large terrace of 40 m^2 with view, was sold at 45000 € e.g., 416 €/m^2
- at #8, Thassos St, apartment of 37 m^2 area, built in 1962, on the third floor, was sold at 11500 € e.g., 310 €/m^2
- at Velvendous St, apartment of 47 m^2 area, built in 1960, on the 3rd floor, was sold at 10000 € e.g., 213 €/m^2

(The relevant information is reliable and derived from local real estate agents).

At the website of Chrysi Eukeria (the major Greek newspaper with real estate classified ads) about 100 typical old apartments with asking prices ranging from 200 € to 400 €/m^2 were advertised in the first quarter of 2015. It should be noted that these apartments were neither on the ground level nor underground. There were also about 200 typical old apartments advertised with asking prices ranging from 400€ to 520€/m^2 (http://www.xe.gr/property/poliseis|gis.html). The above mentioned classified ads referred to published asking sales prices, which due to the crisis were usually above the transaction prices.

Regarding the rental market, interest was limited and focused on good condition properties or newly renovated ones. Rental prices for typical old apartments ranged from 3 € to 4 €/m^2 depending on their maintenance condition.

The tax assessed value (objective value defined by the state) for a newly built apartment in Kypseli was 1500 €/m^2. According to the tax system the tax rate is scalable depending on the owner's total property assets. For this research it is assumed that the property owner is taxed at the lower rate. Consequently, the minimum taxable value of a typical old first floor apartment in Kypseli is 900 €/m^2, while according to comparative values as presented above, the market price of an old apartment was about 300 €/m^2. The taxable value, then, of the property is triple its market price, which means that the owners pay taxes for values that do not exist in the current market.

5.2 Estimate of energy efficiency upgrading costs for a typical vacant apartment

Most of the buildings in Kypseli, due to lack of renovation, face issues such as:
- partial or complete lack of insulation,
- obsolete frames (frames / single glazed window)
- inadequate solar protection of the southern and western faces,
- insufficient use of the high solar potential of the country, and
- poor maintenance of heating / air conditioning systems resulting in low efficiency.

The Ministry of Environment and Energy introducing the institutional framework for energy efficiency in buildings, has offered since 2009, and subsidized by EU, a scheme of financial incentives in order to contribute to the energy upgrading of residential buildings, through the program "Saving at Home" (http://www.ypeka.gr/).

In order for a residential real estate to be eligible, the following conditions should be met:

- should be located in regions with zone tax value lower or equal to 2100 €/m^2. As mentioned earlier, the zone tax value in Kypseli is 1500 €/m^2.
- should have a legal building permit. In case the building permit is not available, other relevant legal documents should be submitted establishing that the building is legal
- should be graded according to the Energy Performance Certificate (EPC) in a category less than or equal to D. As proved by this research, the vast majority of the building stock in Kypseli are graded in energy classes G and H, which are the most unfavorable due to age and because of the building regulations in force at the time of their construction, and
- should not have been set for demolition.

Obviously buildings in Kypseli satisfy the above conditions.

Entitled to participate in this program are only people who have the right of ownership (full or limited) or the usufruct in an eligible dwelling, and meet the income criteria of the following categories A1 or A2 or B. These individuals are called beneficiaries of the Program.
Beneficiaries categories:

A1: beneficiaries whose personal declared income does not exceed 12000 € or family declared income does not exceed 20000 €.

A2: beneficiaries whose personal declared income is greater than 12000 € and does not exceed 40000 € or family declared income is greater than 20000 € and does not exceed 60000 €.

B: beneficiaries whose personal declared income is greater than 40000 € and does not exceed 60000 € or family declared income is greater than 60000 € and does not exceed 80000 €.

Eligible categories of energy upgrading interventions are:

1. Replacement of window frames (frames / glazing) and installation of shading systems.
2. Installing insulation in the building.
3. Upgrading the heating system and hot water supply.
   - Category incentives A1: Loan of 30% with 100% interest subsidy and a grant of 70% on the final eligible budget.
   - Category incentives A2: Loan of 65% with 100% interest subsidy and a grant of 35% on the final eligible budget.
   - Category incentives B: Loan of 85% with 100% interest subsidy and a grant of 15% on the final eligible budget.

The proposed energy upgrading interventions for old apartments in Kypseli is replacement of exterior obsolete window frames and installation of a solar water heater. Implementation guide of "Saving at home" program (http://exoikonomisi.ypeka.gr)
The cost of the proposed upgrading for a 70 m^2 apartment, on the second floor, built in 1970, which has not been renovated (and therefore graded in energy class H) amounts to 6300 € as calculated in detail in Appendix 7 (Form Proposal Interventions according to the Energy Performance Certificate (EPC) for "Saving at Home" program, http://exoikonomisi.ypeka.gr). Following completion of these works the apartment classification rises by two energy categories achieving annual primary energy savings of 34%, equivalent to 67kwh / m^2 and an annual reduction in carbon dioxide emissions of 21.6%.

5.3 Estimate of annual property tax for a typical vacant apartment and expected annual rental income tax

The owner of an apartment must pay the following annual taxes:
- ENFIA (Flat Annual Tax on Property Ownership)
- Rental income tax that derives from leases, if the property is leased.

For a typical old apartment in Kypseli, of 70 m^2, on the second floor of an apartment building, built in 1970, of moderate maintenance (upgraded as above), with one facade towards the street, a reasonable rent would be around 250 €/month. The relevant taxes imposed by the Greek state are calculated as following.

<u>ENFIA Calculation</u>
Main tax = (Building surface) x (Basic Tax) x (Building age factor) x (Floor factor) x (Facade factor) x (Auxiliary Spaces factor) x (Factor of Unfinished Buildings)
Where:
- Basic Tax: The zone value is 1500 €/m^2 so the basic tax is 3.70 as indicated by the Ministry of Finance tables
- Building age factor: for buildings older than 26 years is 1
- Floor factor: for flats on the first and second floors is 1.01
- Façade factor: for apartments with one façade is 1.01
- Auxiliary Spaces factor: in this particular case it is not applied because this is a space of main use
- Factor of Unfinished Buildings: in this particular case it is not applied because the construction of the apartment is completed.

Therefore: 70 x 3.70 x 1 x 1.01 x 1.01 = 264.20 € (Law 4223/2013 flat tax on property ownership).

If the taxable value of the entire property of the taxpayer exceeds the amount of €300000, then the taxpayer is subject to additional ENFIA for the excess amount, ranging from 0.1% to 1% depending on the total value of his real estate property.
For this research it is assumed that the taxable value of the taxpayer's entire property does not fall into the above mentioned category, which is however statistically rarer.

<u>Calculation of Rental Income Tax</u>
According to Law 4172/2013, valid at the time of the research, rental income is taxed independently with a separate scale. The tax rate amounts to 11% for annual rental income up to 12000 € and for the excess amount the tax rate amounts to 33%.

The annual income tax in case the apartment will be rented is
250 €/month x 12 months x 11%) = 330 € (Law 4172/2013 taxation of rental income).
Therefor the total annual tax liability amounts to 594.2 €.

5.4 Estimate of the recovery period for the investment

In order to activate the capital blocked in such an apartment, the owner should invest energy efficiency upgrading. Expenses: 6300 €

Once the apartment is rented the owner would pay 594.2 €/year
6300 € + (Total tax = 594.2 €/year x 3= 1782.6 €) = 8082.6 €
Revenue: rent 250 €/month x 12 x 3 = 9000 €

Assuming that the rent will be paid regularly and the tenant does not cause any arrears or damage, a recovery time of 32 months is needed before the owner will manage some profit. Taking into consideration the current instable economic situation, it is highly unlikely that this scenario will be realized. Therefore, the capital "blocked" in such real estate will not be easily transformed into a productive capital, unless special incentives will be offered to the property owners.

6. THE PROPOSED TOOL FOR AFFORDABLE RENTAL HOUSING FOR LOW-INCOME EARNERS

It was difficult to investigate the size of the target group of low-income earners that cannot afford decent housing at market sale or rental prices. One of the main reasons is the fact that there are no statistics available on foreclosures due to non-performing housing loans.

Noting that there is no social housing policy available and there is limited access to credit while the country is going through a period of economic crisis which combined with the increase in property taxes, makes home ownership unsustainable and unaffordable for many people, it is expected that the number of low-income families in need of affordable rental housing will increase dramatically.

The amount spent by a household for housing costs, including energy and communal costs, should not exceed 30 % of its gross income (United States Department of Housing and urban Development). The above rule cannot be met by a large number of people with low income. According to the National General Collective Labour Agreement (Appendix 7 - Form Proposal Interventions according to the Energy Performance Certificate), which determines minimum conditions of employment wages and salaries in the private sector the basic wage in Greece is 586 €. The internationally proposed amount for affordable housing should then be 175 €, which should include rent, common expenses, electricity bills, etc. A proposed affordable rent may then be €84/month.

Most of the existing building stock in Greece is high-energy consuming and, due to its age, does not incorporate modern technology. As a result, energy operational costs are high for the users. Furthermore, these kinds of buildings are not at all environmentally efficient. Activating the "blocked" capital, by offering incentives to property owners to improve their properties will create job positions, while reducing unemployment and poverty, thereby stimulating the market.

In the case study area of Kypseli there are 4,132 vacant apartments. The "dead" or "blocked" capital in this neighborhood is: 4,132 residencies x 300 €/m^2 x 70 m^2/residency = 86,772,000€ and this is about 10% of the total dead capital of that type in Greece.

It is proposed that the financial incentives regarding the "Saving at Home" scheme should be the same for all of the categories of property owners regardless their financial situation, in order to make the program more attractive to a larger number of real estate owners in the area of application. The proposal suggests that the scheme should subsidize 70% of the cost for energy improvements for any vacant apartment that will participate in the affordable rental housing tool. Improvements should include:

- replacement of exterior doors and windows by aluminum frames with double glazing
- installing a solar water heater.

The pre-conditions should be that the apartment, once upgraded, will be offered for rent at affordable rent of €84/month to the low-income target group for 3 years. The state or the municipality should define the members of this target group.

The costs for the owner for 3 years will then be:

annual possess tax + income property tax = 264 € + 110 € = 374 € x 3 = 1122 €.

The owner will also undertake his/her share of the improvement cost, which will be 1890 €. Therefore, the total expenses for the owner will be about 3012 €. This amount will be easier recoverable through the rental income: 84 €/month x12 x 3 = 3024 €.

It should be mentioned that the given example is based on the estimates and the socio-economic data valid at the first quarter of 2015, therefore it may vary as these data change through time. What is actually proposed is the model of such a tool.

The suggested tool should include pragmatic incentives for the property owners, and should be clearly regulated and developed by the state. The proposal is for this tool to be implemented in two stages:

(a) A pilot optional scheme should be made available. It is important that it will be optional for both sides: the property owners and the tenants. The tool should be clearly regulated and well-advertised, and it should be fair for both sides. The pilot area may be either the case study area of Kypseli or the whole municipality of Athens. The tax value assessment should be adjusted to the market values for a more attractive and fair policy. The subsidies for energy improvements should be available for any old and vacant real estate regardless the financial record of the owner. It is important that the agreed affordable rent should be streamed directly from the salary of the tenant to the owner.

(b) Following the evaluation of the pilot project the tool may be improved and applied broadly in Greece.

7. CONCLUSIONS

This research has shown that there is an urgent need for developing a modern tool for affordable rental housing for low-income earners in Greece. A proposed win-win model for

subsidizing energy-saving improvements for the old, vacant apartments in Greece that represent a total amount of dead capital of approximate € 870M has a potential towards this direction. It helps property owners to capitalize their assets, it provides opportunities for affordable rental housing, it helps toward poverty reduction and creation of job positions, and it benefits the environment. It is estimated that there will be annual energy savings of 34%, equivalent to 67kWh/ m^2 and an annual reduction of CO_2 emissions of 21.6%. Low-income earners will have access to decent housing for about 30% of their income; owners after 3 years in the scheme will be able to exit and rent the property at market rates; the state will have managed to establish a fair system, improved the environment, energized labor and financial market, and will have managed to improve existing housing stock and activate the dead capital.

REFERENCES

Adam, M., 2012. Tales from my neighborhood and… a bit further - Kypseli 1919-1959. Zacharakis M.K. editions, 296 p.

Bardhan, A., Edelstein, R., Kroll, C., 2011. The Financial Crisis and Housing Markets Worldwide. Global Housing Market: Crises, Policies, and Institutions, Kolb series in Finance, Wiley, New Jersey, ISBN 978 -0-470-64714-1.

Bargelli, E., Bianchi, R., 2013. Economic Crisis and Rental Affordability in Italy. Proceedings of the Seminar on "The Housing Markets in Southern Europe in Face of the Crisis", Hochschule Zittau, Gorlitz.

Bregu, E., 2015. Establishment of a GIS for the analysis of Real Estate Market and the Management of Energy Improvements of Old Apartment Units in Kypseli within a Framework for Affordable Rental Housing. Diploma Thesis, Post-graduate course 'Geoinformatics', National Technical University of Athens, Greece, http://dspace.lib.ntua.gr/handle/123456789/40676 (in Greek).

EUROSTAT, 2015. Quality of life in Europe - facts and views - overall life satisfaction. http://ec.europa.eu/eurostat/statistics-explained/index.php/Quality_of_life_in_Europe_-_facts_and_views_-_overall_life_satisfaction

Filippakopoulou, M., Siana, L., Potsiou, C., 2014. A research on the Greek Housing Policy. South-Eastern European Journal of Earth Observation and Geomatics, Special-Thematic Issue 3(1S), pp. 3-22.

Karaian, J., 2013. The Pain in Spain - Spanish real estate has lost more than a third of its value, but it's still overvalued. Quartz, http://qz.com/124088/spanish-real-estate-has-lost-more-than-a-third-of-its-value-but-its-still-overvalued/

Leal, J., 2013. Evolution of Housing Markets and Housing Policies in Spain in the Last Yers from the Bubble to the Crisis. Proceedings of the Seminar on "The Housing Markets in

Southern Europe in Face of the Crisis", Hochschule Zittau, Gorlitz.

Potsiou, C., 2015. Ensuring the rapid response to change - ensuring the surveyor of tomorrow. South-Eastern European Journal of Earth Observation and Geomatics, Special-Thematic Issue 4(2S), pp. 45-64.

Rosenfeld, O., 2015. Social housing in the UNECE Region - Models, Trends and Challenges. United Nations, Geneva, Switzerland, 135 p., http://www.unece.org/fileadmin/DAM/hlm/documents/Publications/Social_Housing_in_UNECE_region.pdf

The Economist, 2008. Spain's Property Crash: Builders' Nightmare. http://www.economist.com/node/12725415

Voss, W., 2012. Promoting Affordable Housing within the Market Economy. Proceedings of FIG WW 2012 on "Knowing to manage the territory, protect the environment, evaluate the cultural heritage", Rome, Italy.