

The Student Housing as a Catalyst for Virtuous Processes of "*win-win*" Revitalization of Property Assets in Disuse

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Abstract. Higher education has been becoming increasingly globalized as a business. Currently, there are approximately 200 million University students worldwide, which is more than double the number from twenty years ago. According to several studies, this number will reach 263 million by 2025. In Italy, the structural shortage of beds barely covers 12% of the total, and there is a lack of around 100,000 beds to reach the European average. To face this emergency, the National Recovery and Resilience Plan (PNRR) has allocated 960 million Euros for new facilities for student housing, also through the enhancement of property assets in disuse. The present research addresses the issue outlined, by analyzing a case study on the economic feasibility of an investment in the recovery of a disused building for student housing.

Keywords: PNRR · Student housing · property enhancement · property valuation

1 Introduction

The scarcity of housing, the proliferation of a black market for exorbitant rents, and the growing demand for students have been leading to an increasingly difficult situation for students living away from home [1]. According to a study by the HousingIngBo project, on average, a student takes about seven weeks to find housing and about 30% of them take more than two months [2]. These issues, which have been evident for some time, have been exacerbated by the pandemic period, as many students have abandoned online classes to return to the cities [1].

A concrete response to the housing emergency for University students comes from the National Recovery and Resilience Plan (PNRR), with a budget of 960 million Euros to triple the number of available beds for students living away from home, increasing from 40,000 to 105,500 by 2026 [3]. The resources made available, according to the

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predictions of the Ministry of University and Research, are outlined into the two phases described below.

The first phase is described by the Decree No. 152/2021, whose aim was to facilitate and simplify, even in terms of timing, the restructuring and renewal of existing structures and pushing for new green-field buildings [4].

The second phase, which instead aims to more extensively involve the private sector, is described by the Decree No. 144/2022 [5] which intervenes on the regulations regarding housing and residences for University students, by inserting a new article 1-bis in Law 338/2000, entitled "New University housing", in order to create a fund for University housing of 660 million Euros. The privileged beneficiaries of the funds are private investors in agreement with universities and public entities, who will have to bind their properties for twelve years [6]. University housing will be substantially assimilated to social housing, hoping that this will be enough to convince investors [4].

Student housing is recognized as a type of construction that has social significance and for which the government provides incentives for private investors and funding for public operators. The right to University education is a significant cost for the public sector, and student housing is the function that consumes the largest share of funding for this service. The development of student housing is an important area of growth, and a viable means of revitalizing existing real estate assets [7] through government funding and induced environmental impacts on the surrounding area.

2 Aim

This research aims to analyze the main aspects related to the student housing sector. It focuses on the increasing number of University students, particularly those living away from home, who generally have to face a shortage of student housing at agreed-upon rents and a free market with rents above average. Also, it focuses on analyzing the demand and the supply present in Italy through the current dynamics and investment opportunities. In this sense, an economic evaluation case study is presented, in order to highlight the most significant aspects regarding the management of University housing initiatives by relating cost items and revenues, focusing on a business plan that is decisive in the economic return for the private investor.

The work is divided as follows. In Sect. 3, an overview of the growing number of University students is presented; the attention is focused on the Italian context, analyzing the demand and the supply, the shortage of beds and the possible future scenarios. In Sect. 4, a case study of a disused building located in Perugia (Italy) is illustrated and the financial analysis of the enhancement investment is developed. In Sect. 5, the conclusions are discussed.

3 Framework

In recent years the student housing sector has taken a prominent place among the interests of investors, also thanks to the continuous growth of the number of students, which is currently a global phenomenon [8]. Worldwide, there is a growing tendency towards the massification of higher education [9]. The number of tertiary students globally has more

than doubled over the last two decades, rising from 100 million in 2000 to 235 million in 2020 [10]. The tertiary systems in many high-income countries achieved *universal* access, prior to the turn of the millennium [11].

As identified by Oliveira B. (2016), there are pull factors that drive the student to seek education abroad in order to satisfy their own needs and preferences [12]. Throughout the world, with the progressive growth of the student's population that has started to migrate to new cities in order to obtain higher education opportunities, an impressive shortage in the housing supply has emerged, since the demand for housing from students has far exceeded the capacity of higher education institutions (HEI) to supply [13]. In many parts of the world, the growth of housing supply for students has widened with the expansion of higher education, causing concerns in both developed and developing countries [14].

3.1 Student Housing in the Italian Context

Italy counts a total of 257 schools for tertiary education: 98 are universities, while the remaining are AFAM ("Alta Formazione Artistica e Musicale") institutions legally recognised. Rome is the city with the highest number of schools (=32), followed by Milan (=21) and Firenze (=12) [15]. In addition, the top 10 Italian universities are also present in the ranking of the world's 500 best universities, making Italy an attractive location for the education.

*Demand***.** In the academic year 2020/2021, despite the Covid-19 pandemic, the number of University students registered a 4% increase compared to the previous year [16]. Italian universities counted 1,822,141 enrolled students, and just 83,613 of them in AFAM institutions [17]. In detail, the trend of enrollment in the last decade shows a decrease until the academic year 2015/2016, and then a subsequent growth with the highest peak of 1,839,846 in the academic year 2020/2021 [17]. Analyzing the current year, 2022/2023, for the second year in a row, University enrollment is decreasing. Compared to 12 months ago, the overall data is negative by 2% [18]. The reasons for this decline can be attributed to the high costs of Italian universities, which for off-site students reach prohibitive costs that include rent, transportation, and living expenses [19].

For a general overview of which regions are most populated in terms of students and where they are located, public data shows that in the academic year 2021/2022, Lombardia, Lazio, and Campania are the regions with the highest number of enrollments. The most populated regions are mainly located in the central-northern part of the country [17]. Italy, with its geographical gap, the common North-South divide, and its experience of brain drain, constitutes an interesting case in mobility analysis [20]. Student flows primarily move along the South-North direction: 20% of students who change regions move to the north and another 17% stay in the center [21]. Southern regions are structurally characterized by intense outflow mobility. In 2018, among enrollments from residents in the South, about a quarter enrolled in a University in the North-Center. The data is slightly declining compared to the peak reached in 2016 [22].

As emerged from the latest report of '*immobiliare.it insights'* the commuter student, representing about 50% of students in Italy [23], has become the dominant trend among off-site students. It is primarily the result of a combination between the good quality of

education offered by some institutions [24] and the difficulty of obtaining housing due to the high rent [25], especially in the most popular cities.

In Italy, 68% of University students live with their parents, compared to the European average of 34%. Only 5% have housing in a University residence, compared to a European average of students with a bed in a residence of 17% [24]. Despite this, according to the annual Erasmus + report, Italian students are the ones who have participated the most in mobility experiences for study and training in Europe. In 2021, there were almost 74,000 participants [26]. In 2022, as an incoming mobility flow, 188,000 chose Italy for a period of study and training, 7,000 of them from non-EU areas [27].

Public Supply. In Italy, institutional housing supply can be divided into three subgroups: residences affiliated with regional organizations for the Right to Study (DSU), residences at the Universities Colleges of Merit, and residences of the Italian Association of Colleges and University Residences.

Currently, the bed supply is over 62,000 units [28]. The beds in student housing facilities are mainly located in University residences managed by the regional entities for the DSU, which constitute for the 66% the majority of the bed supply for students in our country, another 15% is made up of beds managed by private operators, another 11% is made up of beds managed directly by universities, while the remaining 8% is made up of private and public housing for students legally recognized [29].

Private Supply. University residences managed by affiliated entities provide housing solutions aimed only at a portion of the demand with well-defined socioeconomic and academic merit characteristics [30]. Consequently, the portion of students who are unable to intercept this offer is forced to resort to individual private operators, often in an unorganized form, who substitute the void created in the supply by institutional and structured private operators, offering on the free market housing solutions that are not suitable for the needs of University students and with often high tariffs, especially in recent years.

The latest report by *immobiliare.it* has confirmed Milan's primacy as the most expensive city in Italy with the price of a single room that, for the first time, has exceeded 600 Euros, with an increasing at a rate of 20% from last year and 8.2% from pre-pandemic. The price difference with Rome, which is the second one in the ranking, is significant. In fact, in the capital, an average of 465 Euros is paid for a single room, 248 Euros for a double [31].

Demand/Supply Consistency. Between 2015 and 2019, there has been a steady growth of off-site students (5.54%), driven in particular by universities in the North such as Milan, Turin, and Bologna. The increase in off-site students is counterbalanced by the structural shortage of beds: only 12% of the total is hardly covered and 29.8% of students are beneficiaries of housing [32].

This value is clearly lower than that recorded in France (23%), Germany (14%), and Spain (11%) [28], whose student housing supply is much more substantial.

To bring the student housing supply to the levels of the best European peers, and therefore to at least 20% of the number of off-site students [28], it would be necessary to add about 260,000 beds to the existing stock [33]. Considering the structures already under construction, by 2025, it is believed that they will not be sufficient to close the gap with potential demand [15].

4 Case Study

The case study of present research concerns a building located in the central area of the Municipality of Perugia. The predominantly office use asset is currently vacant. The building, about 4,000 m^2, built with a mixed structure (reinforced concrete and masonry), underwent a significant renovation in the late 1990s. It develops over five floors above street level and two floors below street level, connected by an internal staircase and elevator (Fig. 1).

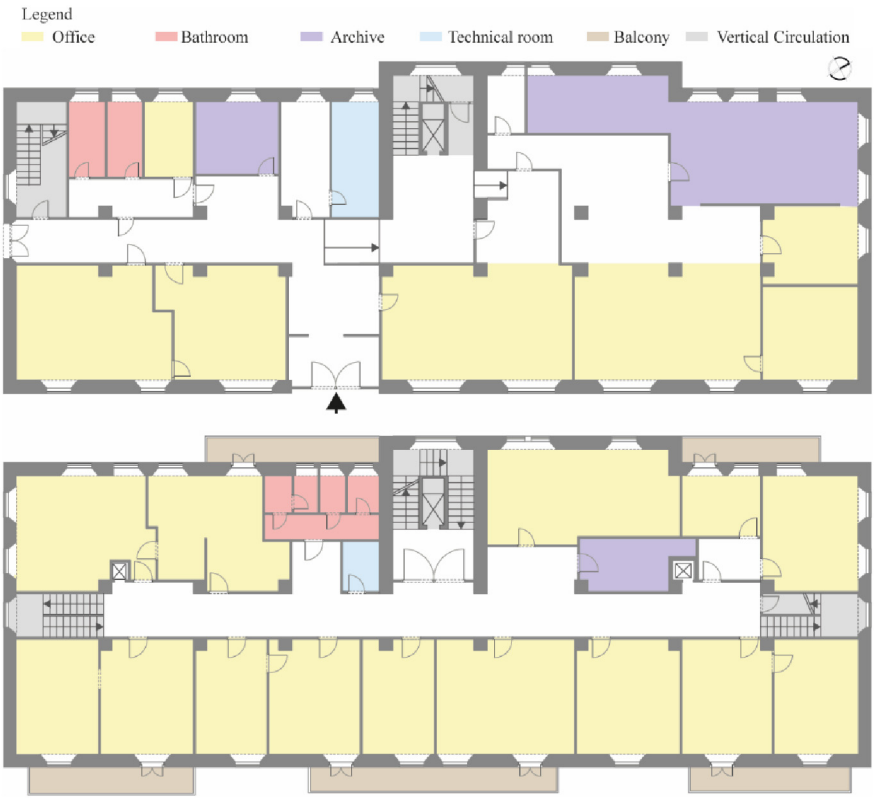

Fig. 1. Type plan of the floor below street level (above) and type plan of the floor above street level (below).

In order to enhance the property by changing its use from office to student housing, the economic feasibility is evaluated through the Discounted Cash Flow Analysis (DCFA) technique. The second semester of 2021 is the reference date of the valuation. The final result was achieved by evaluating a series of critical factors, useful for the implementation of student housing interventions, which can be traced back to: the location of the intervention, market analysis and management, economic and financial aspects.

The redevelopment of the building took place in accordance with what is provided by the current urban planning tools in the municipality of Perugia. In particular, the area subject to a landscape constraint, letters c) and d) of Decree No. 42/2004, - buildings and areas of significant public interest, characteristic complexes, and panoramic beauties, which allows for building transformation activities and interventions for the recovery of existing building heritage.

4.1 Market Analysis

*Demand***.** In the city of Perugia, in addition to the two well-known universities - the University of Perugia and the University for Foreigners of Perugia - there are other HEI, perhaps less well-known, but significant for their ability to represent a range of educational offerings available to a national and international audience. According to public data, in the 2020/2021 academic year, University students are a total of 27,193, increasing in the last 5 academic years, as a result of new enrollments. The growth particularly affected the last year, + 10.5%, confirming the attractiveness of the University institution. In the current academic year, the number continues to increase, currently there are 28,655 enrolled. Off-site students enrolled in the universities of Perugia in the 2019/2020 academic year are 11,490. In the 2020/2021 academic year, Umbria welcomed, on the total number of students that came from Italian universities, 3.7% of off-site students, with an increase over the previous year of 1.8% [17].

*Supply***.** From the supply perspective, the positive growth of the number of enrolments has not been matched by an increase in the number of beds offered by the regional right-to-study system. Various colleges have undergone important but necessary renovations. Due to delays caused by changes in the political and economic context (such as the "Superbonus 110%" Law, the Ukraine conflict, the Covid19 pandemic), these residences are still under renovation and therefore, at the beginning of the 2022/2023 academic year, the number of beds in the DSU residences is only 696, which is about 40% less than before the pandemic.

According to data from the Umbria Agency for University Rights, for the 2022/23 academic year, there are about 1700 eligible applications for a bed, compared to only 696 available beds, alarming numbers [34].

Perugia, with its century-old University tradition, offers various University housing solutions: for those attending classes in the historic center, in the suburbs, walking, or with their own transportation. It offers options for students in both private and public facilities (Table 1).

4.2 Design

The general strategy of the intervention on the existing building favors the transition from old to new, avoiding morphological transformations that alter the external perception of the image of the existing building. Inside the new building there are 114 rooms divided into 46 single and 68 double rooms for a total of 182 beds, organized in hotel-type housing units (Fig. 2).

Table 1. Private and public student housing supply in Perugia.

DSU structures	Location	Beds
Student housing	Z. Faina Street, 6	180
Ruggero Rossi College	Trasimeno West Street, 116/ter. 5	170
F. Innamorati College	F. Innamorati Street, 4	225
College of Agraria	Romana Street, 4/B	250
G. Ermini College	Benedetta Street, 42	251
Favarone College	Favarone Street, 26	116
Fatebenefratelli College	Fatebenefratelli Street, 4	23
Monteluce University Residence	Giochetto Street,25	50
Total		1365
Private structures	Location	Beds
Antinori College	Garibaldi Avenue, 226	25
Monteripido house	Monteripido Street, 8	50
Monteluce University College - Teresian Institution	Massari Street, 1/a	30
Saint Clare House	Clarisse Street, 8	22
Don Bosco University Residence	Don Bosco Street, 5	35
Total		162

Individual living units are designed to accommodate one or a maximum of two individuals. In accordance with regulations, in order to minimize the overall expenses of the housing facility, rooms located on upper floors are furnished with a shared bathroom.

In compliance with Law No. 13/89, measures have been taken to ensure accessibility for disabled individuals within the residence. Additionally, as per the requirements set forth by Law No. 338/2000, a minimum of 5% of the total beds have been allocated for disabled students. Rooms designated for disabled individuals, which meet the regulatory requirement of at least a 10% increase in net surface area, are located on the lower floors of the building.

The rooms have been designed in compliance with the dimensional standards outlined in Annex A of Decree No. 1252, dated December 2nd, 2022. The double rooms have an area of approximately 12.8 m^2, while the single rooms have an area of approximately 8.8 m^2 [35]. Each room is equipped with essential furniture including a bed, bedside table, large desk, and wardrobe. All rooms feature either a window door leading to a balcony, or windows that ensure adequate lighting throughout the space.

The building also features a variety of additional services including: a lobby, a concierge desk, toilets, a laundry facility, and outdoor green space. These spaces ensure a minimum area of 2.0 square meters per bed. The remaining space can be allocated according to individual needs and priorities [36].



Fig. 2. Type plan of the designed floor below street level (above) and type plan of the designed floor above street level (below).

4.3 Valuation

The evaluation of the enhancement investment on the case study property was developed using the DCFA technique. This monetary evaluation does not consider the intangible social impacts of the project, therefore the perspective is strictly private, meaning that for the investor the optimal behavior is to seek the maximum earning from the investment.

The analysis period was determined as a balance between the specific characteristics of the property and the ability to predict market fluctuations. In this case, the DCFA was carried out over a period of twenty-one years, by considering a lease period equal to eighteen years (9 + 9 contract), as provided by Law No. 392/1978, and three years for the sale of the entire property.

Costs. In order to determine the expected costs, the following unit parameters were adopted.

Fixed costs incurred by the property:

– administrative expenses: 1.50% of gross actual revenues, pertaining to property management cost, annually paid and variable according to the revenues;

- reserves for extraordinary maintenance: 1% of the cost of new construction of the entire property. This expense item is intended for the creation of a fund for renovation, necessary for the periodic renewal of the property. An annual down payment equal to 70,000 Euros has been assessed;
- property insurance: 0.10% of the cost of new construction, determined by borrowing parametric costs from the DEI price list [37], for similar typologies. An annual cost equal to 7,000 Euros has been assessed;
- property taxes: equal to 42,711 Euros annually, estimated by considering the Italian property taxation system and in proportion to the property's cadastral value;
- registration taxes of the lease contract: 0.50% of the annual revenues, to be paid annually and variable according to the revenues;
- lease commission: 10% of the first annual revenues, as a commission on rentals for the commercialization activities of property agents, to be paid only upon formalization of the related contracts. This cost is equal to 37,527 Euros and occurs in the second year of the analysis period.

Construction costs: borrowing the data of the DEI price list [37], a parametric cost of 683.73 Euros/m^2 was assessed. This value has undergone adjustments and has been found to be in line with the national average [38]. The total construction costs amount at 3,290,473 Euros and are referred to the first and the second years of the analysis period.

FF&E Acquisition: equal to 3,800 Euros per bed, This item refers to the cost of purchasing furniture, fixtures, and equipment for the student housing units. These may include items such as beds, wardrobes, desks and chairs. This cost is equal to 691,600 Euros and occurs in the second year of the analysis period.

Design and construction management: equal to 6% of the construction costs, amounting to 197,428 Euros, and it is referred to the first and the second years of the analysis period.

Urbanization charges: this cost includes two shares, determined according to Municipality's resolutions [39]: the first share, the construction cost contribution, is equal to 5% of construction costs, which amounts to 164,524 Euros. The second share, that constitutes the primary and secondary urbanization fees, has been assessed according to specific annexes of the Municipality's resolution, and they are equal to 70,000 Euros. Both the shares are referred to the first and the second years of the analysis period.

Contingency: this item is equivalent to 5% of the amount related to direct construction costs, amounting to 164,524 Euros. It occurs in the first and the second years of the analysis period.

Operational costs: these costs can significantly fluctuate based on the scope and quality of the services provided. In the scenario under examination, they include cleaning of common areas and rooms, bed linen change, reception service, and maintenance of garden. These services are estimated to be equal to 210,000 Euros per year. It is essential to recognize that the implementation of measures aimed at promoting student accountability and adherence to established protocols can result in a significant reduction of operational costs [40].

Financial charges: it has been considered that for the entire initiative, the investor activates a bank credit line at an annual rate of 5.0%, resulting in consequent differential financial charges, determined on the progressive positive cash flows, spread in the considered analysis period.

Revenues. They are primarily comprised of rental income derived from long-stay accommodations for the "Autumn/Spring" period, spanning a duration of ten months, as well as from short-stay accommodations for the "Summer" period, spanning a duration of eight weeks. Additional revenue is derived from the "ancillary" section, which represents a marginal percentage, approximately 2.9% of total revenue in the stabilized year.

The unit rent tariffs, categorized by bed type, have been determined through the application of a pluri-parametric market approach method, in order to estimate the monthly prices for single and double rooms, by making adjustments based on the differences between the factors of property competitors found in the territorial context (Fig. 3) and those of the subject property being evaluated (Table 2).

The implementation of the pluri-parametric market approach method has led to the following values: the unit rental tariff for double rooms has been assessed equal to 302.25 Euros per month, whereas for single rooms it is equal to 361.12 Euros per month.

Furthermore, the terminal value is estimated by capitalizing the cash flow in the last year of the analysis period using a rate of 5.0%. This results in a value of 14,235,705 Euros.

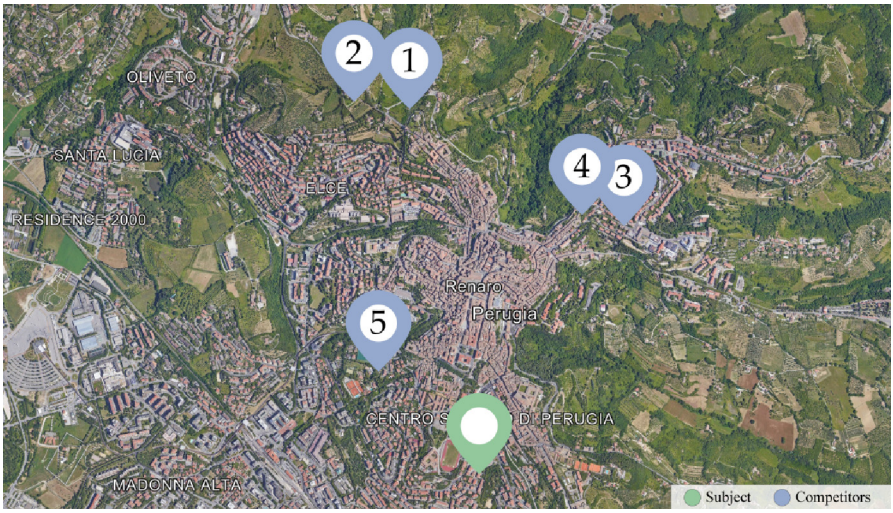

Fig. 3. Localization of the subject and the identified competitors.

The discount rate has been assessed equal to 6.5%, by taking into account the ordinary expected returns in the relevant sector and the various risk factors (context, property, tenant, etc.) that are specific to the case under analysis.

The Net Present Value (NPV) of the investment before taxes is positive, amounting to 2,182,927 Euros. The post-tax NPV, estimated by considering taxes of approximately

30% on the positive cash flows, is equal to 107,492 Euros, and the corresponding Internal Rate of Return (IRR) is equal to 6.66%. As the NPV is higher than zero and the IRR exceeds the established threshold (i.e. the discount rate used for the implementation of the DCFA), the project is financially viable.

Table 2. Factors considered in the pluri-parametric market approach method and differential adjustments applied to the competitors' tariffs compared to the property subject.

In-room kitchen					
Yes	−5%	No	0%	Absent (in the entire property)	5%
Garden					
Yes	0%	No	5%		
Private bathroom					
Yes	−3%	No	0%		
Reception					
Day-time and night-time	0%	Absent	5%		
Proximity to airport					
>13 km	3%	Approximately 13 km	0%	<13 km	−3%
Balcony room					
Yes	−3%	Partial (on the facades of the entire property)	0%	No	3%
Presence of disabled toilets					
Yes	0%	No	5%		

5 Conclusions

Despite efforts made in Italy in recent years to balance the supply and demand of housing solutions for students, a structural shortage of beds remains a significant issue. The market for student housing is far from saturated and requires efforts from both public and private entities to achieve a satisfactory and coherent ratio of beds to students, consistent with the internationalization expectations of Universities in the coming years. From an environmental perspective, Italian cities are characterized by the presence of numerous buildings in disuse, with University locations primarily situated in historic centers. Thanks to the funds allocated by the PNRR, it is now possible to concretely consider the recovery of existing real estate heritage [41, 42], also favoured by the strong involvement of the private sector [43–45].

In this perspective, the case study of the construction of a new University residence that involves the recovery and enhancement of an abandoned building has been dealt

with. In addition to generating a positive environmental impact on the intervention context, this operation also entails an appropriate earning for the investor that has been specifically assessed [46].

Starting from student housing as an asset class with a strong social vocation, putting young people and their future at the center, creating sustainable residences from an environmental, social and economic point of view thanks also to the resources allocated by the PNRR, are the springboard towards a radically different housing future for students who live away from home. The challenge is to combine the quality of design with financial convenience, by developing a new culture of design and construction of these structures, that i) pursues how to seek innovative solutions, ii) does not flatten out on "housing containers", iii) is able to generate "win-win" initiative from an environmental, social and economic points of view.

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