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Public Value Capture, Climate Change, and the ‘Infrastructure Gap’ in Coastal Development: Examining Evidence from France and Greece

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Abstract: This paper examines the role that two Public Value Capture (PVC) mechanisms could play in providing a source of funding for urban infrastructure in the case of two coastal areas in France and Greece. High development pressures in those areas have been exacerbated in recent times by the growing ‘informality of desire’. Therefore, in a context of climate change the two case study areas face the dual challenge of an increasing ‘investment gap’ and increasing vulnerability. Although the estimated costs are still based on approximate calculations, they are substantive. Using primary and secondary data, as well as analysis of the legal and policy framework, the paper shows that ‘informality of desire’ is not only tolerated but actually incentivised in both countries. This leads to substantial short-term financial benefits for private developers and property owners but also some gains for local authorities and central governments. However, the value captured via the legalisation fees and property taxation is not adequately ringfenced and in any case it is not enough to cover the infrastructure gap and the potential compensation in case of natural disasters.

Keywords: infrastructure gap; coastal development; Athens Riviera; Vendée; climate change; public value capture



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1. Introduction

There is a long history of urban development and urbanisation for second homes, leisure and recreation along the coastline, at least in the European countries that this paper is looking into. In recent decades, a key driver of coastal urbanisation has been real estate demand due to growing national incomes, increasing international and national tourist flows, ‘amenity-seeking’ migration from the European north and elsewhere, as well as global investment flows leading to real estate bubbles [1–3]. These trends are actively promoted by local, regional and national governments who see an opportunity to boost growth, improve the demographic profile and enhance the population’s wellbeing. At the same time, coastal areas in Europe are already facing multiple impacts due to climate change. Rising temperatures, droughts and lower average rainfall as well as sea level rise contribute to a nexus of adverse effects, such as wildfires, flooding, windstorms, destruction of habitats, increasing saltwater intrusion, etc. [4]

The combination of rising populations and climate change is increasing the pressure on ecosystems as well as on communities and existing infrastructures along the European coastline. It is estimated that southern and south-eastern European countries will be the hardest hit by the impacts of climate change [5], leading to a tripling of damages to critical infrastructures across Europe by the end of the 2020s [5]. These annual damages, which

Forzieri et al. [5] estimate will reach over 9.3 billion per year by the end of the 2020s, may amount to 0.56% of the gross fixed capital formation in Greece, and 0.31% in France at that time. According to the same research, another EUR 210 billion will be necessary across the European Union in order to make infrastructure climate resilient until 2080 (11 billion in Greece and 30 billion in France). Schinko et al. [6] estimate that GDP losses due to sea-level rise alone in Europe will be between 4% and 6% by 2100 in case of limited global adaptation and mitigation measures. In addition to the uncertainties of climate change, the seasonal character of demand in coastal areas poses an additional layer difficulty in planning and financing the necessary infrastructures.

Although the said issues have been analysed from an environmental point of view, and with regard to the infrastructure required for the protection of the environment [7], less research has been dedicated to the interaction between informal urbanization, vulnerability to climate change and the infrastructure needed to serve coastal urbanization in this context. Thériault et al. [8] assessed the limited effect of planning bylaws on urbanisation along the coast. An assessment of integrated coastal zone management (see European Commission's proposal for Directive COM(2013)133) in France [9] underlines the little consideration given to socio-economic impacts in such areas. Only a handful of cases [10,11] link the 'spontaneous settlement process' with increasing vulnerability.

Urbanisation and development can be theorised as a process of development rights allocation via multiple alternative development pathways (for Greece, see [12], for France, see [13]) many of them formal but some of them informal and/or unplanned. This gives rise to the organic character that is typical of the development of several coastal landscapes. Although it should not be assumed that infrastructure provision is always adequate when development occurs via formal development pathways, there is certainly a gap when it comes to funding infrastructures for development taking place via informal and unplanned pathways. What is more, in both countries examined in this paper, informality and unplanned development permeates the formally developed fabric in the form of development in excess of allocated development rights and contravening other planning regulations (i.e., extensions of existing structures, conversions and changes of use, hybrid uses mixing permanent with temporary structures, closures of open spaces such as balconies and verandas, etc.). This layer of informality, which leads to a practically unknown (but higher-than-planned) number of people using the territory, not only pushes the infrastructure requirements above what was anticipated but also enhances the seasonality effects and the vulnerability of the populations in such areas to extreme weather events or other climate change hazards. This is especially the case in coastal areas that are subject to those natural events. Our paper aims at increasing the understanding of this issue, especially in relation to coastal development. Additionally, the paper looks into the question of funding for local-level public infrastructure and its connection to PVC.

In this context, therefore, informality reinforces the 'infrastructure gap', meaning the "deficit in adequate, quality, sustainable and inclusive infrastructure services" [14] not only in global regions generally lacking in infrastructure investment [15] but also in more developed economies [8]. Therefore, the increasing infrastructure needs in European coastal areas become even more difficult to estimate, to finance and to design in a context of uncertainty about the number of users, the expected investment returns, the physical constraints to infrastructure design posed by development and the multiplication of vulnerability created by development located in high-risk areas (pine forests, floodplains, etc.). The implications of this situation are far-reaching and are linked to the arguments favouring PVC.

The academic discussion around informal and unplanned development in the Global North has often focused on what Devlin [16] called 'the informality of need', for example informal housing development to satisfy acute housing need of the poor or less well-off strata. However, in the case studies discussed in this paper, the actual issue is what Devlin [16] called the 'informality of desire'. This type of informal development displays freeriding characteristics when it comes to infrastructure provision. Common resources

are privatized by local landowners, and taxpayers are called to shoulder the portion of the cost of local infrastructure requirements which are largely caused by this freeriding. To put it in other words, plugging this ‘infrastructure gap’ via public funds raises substantial equitability and equality issues, which could be addressed, at least in theory, if PVC instruments were used in order to fund some of the infrastructure necessary to equip coastal areas.

In the Global South, informality has been often seen as a generalized mode of metropolitan urbanization, not only linked to low-income settlements. Roy [17] focuses on urban informality to emphasize the challenges of dealing with the ‘unplannable’ exceptions to formal urban development, arguing that planners must learn to work with this state of exception, with distributive justice in mind. The view that the concept of informality is mostly associated with urban development in the Global South has also changed. Harris [18] argues that what distinguishes informality throughout the world are its various modes: dominant, overt, embedded, diffuse and latent. In addition to understanding the role of informality in territorial formation, MacFarlane [19] puts forward an alternative conceptualization of both formality and informality as two forms of practice that permeate spatial planning, development and politics.

In Europe, Southern, Southeastern or Mediterranean cities have consistently trodden a path of spontaneous and informal urban development that diverges from the modalities of Anglo-American cities [20,21]. Nevertheless, Alterman and Calor [22] emphasize that there is a terminology gap, and caution should be applied when using terms such as ‘informal’ and ‘illegal’, whether exclusively or interchangeably, especially in Global North countries. The authors assert that the literature contributes to this blurring of differences, giving two examples where ‘informal’ is (mis)used: the phenomenon of illegal accessory housing in fairly affluent neighbourhoods in the United States, where noncompliance is mostly driven by economic return [23]; and irregular construction in Greece, where no differentiation based on need, socio-economic level or other exceptional circumstances is made in the literature and in practice [24]. As an alternative to ‘illegal’ (which suggests a yes-or-no status) and unauthorized (that applies solely to actions), Alterman and Calor [22] propose the use of the term ‘justifiable non-compliance’, because it addresses inaction as well as action in several degrees, and implies that within the wide realm of planning law violations, a small subgroup may be admissible—without delegitimizing planning law and the rule of law in general and its enforcement. In Global North contexts the rule of law is expected to work reasonably well and is actually the cornerstone of the system protecting and guaranteeing property rights. Chiodelli et al. [21] ponder on the use of ‘slum’ and ‘irregular’ and end up using ‘illegal’ and ‘informal’ together with ‘unauthorized’, considering them as mostly synonymous, in the Italian context.

An inverse relationship between informality, infrastructure provision and urban service provision applies, irrespective of the contextual differences in conceptualizing informality and its various guises. In the words of Smolka and Larangeira [25], “informality disrupts the functioning of land markets, . . . , pushes up land prices, . . . , generates increased difficulties in providing services, especially for the poor, because of the restricted tax base and the higher cost of servicing informally occupied areas. In short, informality begets more informality”. Even more crucially, when the authorities decide to address the issues arising out of informal urban development, the social and economic costs are much higher compared to pro-active planned urban expansion [25]. This is not only a less efficient outcome but, in the case of ‘informality of desire’, this additional cost is highly inequitable as it effectively amounts to a subsidy from the taxpayer to the more well-off social strata. Faced with the failure of policies to address these issues, Smolka and Larangeira [25] promote approaches that reduce the attractiveness of informal development practices in terms of land speculation. Their approach focuses on what they call ‘price-correction’ mechanisms. Land-value capture mechanisms (especially land re-adjustment, public participation in land price increases, public land ownership and sale of building rights) are identified as key such instruments, together with suitably targeted subsidies and fiscal charges.

Fransen and van Dijk [26] also underline the impact of “voluntary informality” for public budgets, as soon as most of these settlements are serviced. They discuss how it would be possible to capture part of the land value uplifts through the involvement of developers in places where they could avoid official rules and administrative constraints. On the contrary, Delechat and Medina [27] point at the counterproductive impact of land value capture instruments: they can discourage investments, stimulate evasion and encourage “low density villas and golf courses that ultimately pay little tax” [27] p. 253. Smolka and Amborski [28] have also pointed at these potential outcomes when PVC instruments are applied in informal settlements. Concerning European countries, Legal [29] explains the theoretical interest of PVC instruments for environmentally risky areas, and the difficulty to implement them in a context of strong property rights.

Our analysis of PVC instruments will use the classification system first introduced by Hendricks et al. [30]. He focuses on the increase in the value of land and property caused by public action, such as infrastructure provision (also see [31–33]) and the delivery of all kinds of public services (see also [34–37]). In such cases, PVC is legitimized in order to cover the expenses of public action. Hendricks [30] distinguishes between recurring and singular forms of PVC:

“Recurring forms include annual payments (e.g., real estate tax) and payments in case of sale/purchase (e.g., real estate transfer tax, capital gain tax). Singular forms are further differentiated in tools focusing on one factor of value increase (e.g., fees for infrastructure) and tools focusing on more than one factor (e.g., development agreements). Typical factors of value increase are extension of property rights (planning), reallocation of land and provision of internal and external infrastructure.”

Other classifications have also been made in the literature. Alterman [38] distinguishes between direct and indirect instruments. Suzuki et al. [39] introduces development-based instruments besides tax or fee-based instruments, which are common in North America and Asia [40]. Hendricks’ classification, however, allows us to make a link between planned and unplanned development. Last, but not least, the discussion about singular forms of value capture cannot be approached without reference to the contextual particularities in the allocation of development rights. Development rights are allocated both in the context of planned and unplanned development and in ways that are not delimited by the formal planning system [12]. The development pathways of unplanned development do not directly incorporate PVC mechanisms, resulting in a great overall deficit in the operation of the land development system. The regulations for the legalization of informal construction, adopted in 2011 in Greece and in 2015/16 in France (Law No. 2015-990 of 6 August 2015 and Town planning Code article L. 480-13 considerably restricting demolition of irregular construction), can be seen as a form of non-recurring value capture instrument, which, however, did not alleviate the ‘infrastructure gap’ created by unplanned and informal development.

The paper will look into the diffuse allocation of development rights via mechanisms of ‘informal’, ‘irregular’ or unplanned development (i.e., new construction or extension of dwellings without a permit, breaking the terms of the permit, and so on) in two coastal areas of Greece and France facing high development pressure in a context of increasing land prices. It will aim to answer the question whether there are suitable PVC mechanisms that could break the ‘infrastructure gap’ conundrum in those areas. Following the introduction, which reviews the existing research and literature, Section 2 looks into the situation in each country, Section 3 explains the methods used, Section 4 engages in a comparative discussion and Section 5 draws conclusions.

2. Method

The main method used in this research was a comparative case study between two areas in Greece and France, as described below. The key criterion that determined the selection of the case studies was to examine how urban development problems, associated with lack of PVC application, manifest themselves in two cases of coastal development that

are quite different between them. France and Greece were selected on the grounds that they represent quite different cases in the spectrum of European planning systems when it comes to the effectiveness and efficiency of territorial development control mechanisms. Whereas France's system is long-established and considered as a rather efficient one, the Greek system is comparatively new and the weak character of planning in Greece [41] is often attributed to the persistence of institutions and practices related to historical factors that shaped the process of land development [12]. The study areas represent quite different cases of coastal development, facing a similar type of problem.

Vendée is a rural area with small towns, located 430 km south-west of Paris (see Figure 1). Development there is mainly for second homes. It is located along the Atlantic coast between the cities of Nantes and La Rochelle. Coastal development is mostly driven by tourism and pensioners, a lot of them coming from the neighbouring cities and from Paris, while the inland part of the territory is influenced by sprawl from Nantes and La Rochelle.

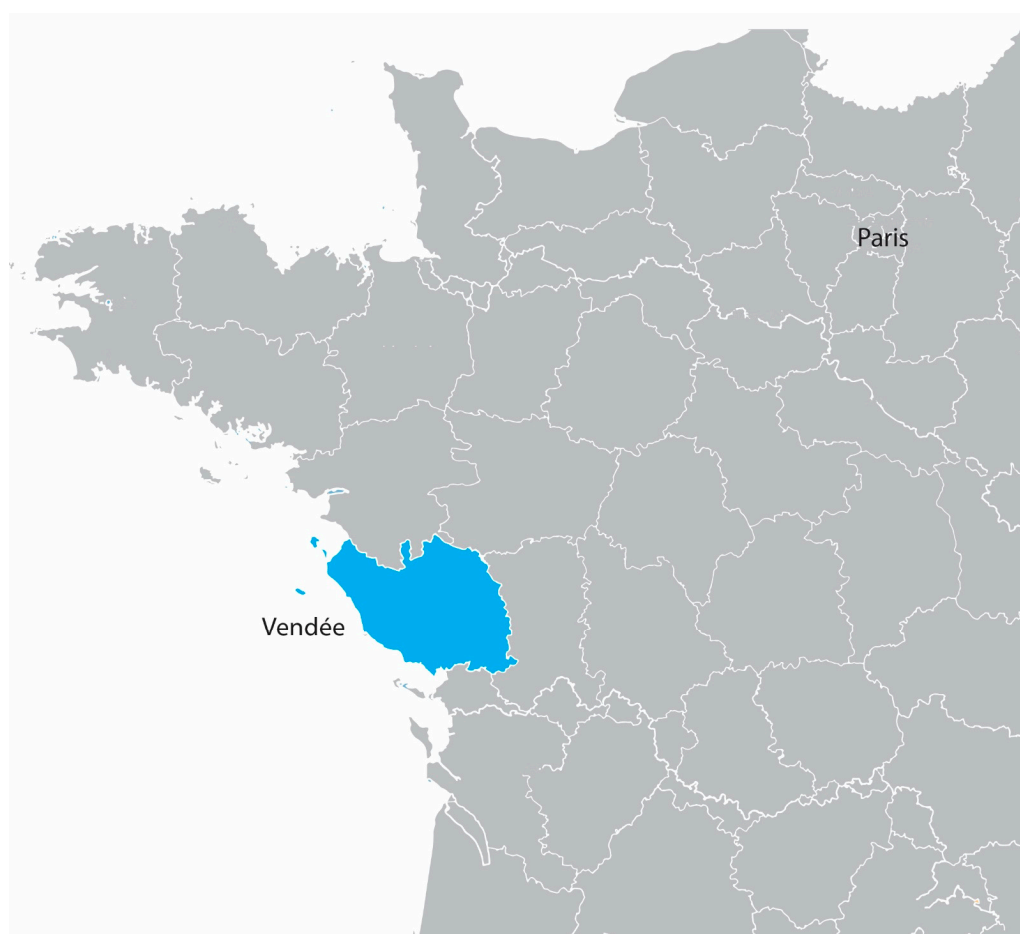


Figure 1. Location map of the French case study area.

The section of the Athens Riviera we investigate in this paper is effectively a prime part of the waterfront of the Athens Metropolitan Area (see Figure 2). Its development trends are a reflection of intra-urban spatial transformations of metropolitan Athens that have been taking place over the last fifty years. However, in both cases, informal and irregular development is quite widespread and quite well tolerated by local authorities and central government alike.



Figure 2. Location map of the Greek case study area.

The comparative analysis in this paper was based on a mixed-methods approach; that is, both qualitative and quantitative methods were used. While quantitative methods and data provided a better understanding of the scale of the phenomenon and its evolution through time, qualitative methods and data allowed us to put it into context and, in turn, validate and interpret the quantitative evidence collected. We combined the review and analysis of policy documents and legislation with descriptive statistics and calculations based on primary and secondary data, as is appropriate and proven fruitful in this topic [22,42–44]. Primary data on the square meters of legalised property and associated fines were collected in the case of Athens from the Technical Chamber of Greece, which, by law, manages the system for the registration of informal/irregular structures and fine collection for the legalization, on behalf of the Ministry of Environment. Property prices in

the case study areas in Athens were derived from the official tax authority property price catalogue (the so-called ‘Objective Values’), based on which property taxes are calculated.

In France, it was not possible to collect primary data in aggregate form as the legislation has a more limited scope, operates at a disaggregate level and is not aimed at collecting fines. However, it was possible to present indicative figures for the scale of the phenomenon in France, the impacts that natural disasters have and the size of the fines, from secondary sources. Contextual data came from official statistics collected at a national and local level [45]. In addition, some information has been collected by local agencies dealing with this issue. Concerning the Mediterranean coast, researchers from the University Paul Valéry have carried out field studies to which we refer [46]. The data concerning the situation in Vendée was collected by a special Senatorial Commission after the Xynthia storm [47]. The Commission aimed at evaluating the consequences of that disaster. It carried out more than a hundred interviews with local public officials, private stakeholders, non-governmental organizations and local residents. It also obtained data on the reimbursements of the damage from insurance companies.

Finally, we reviewed relevant policy and legal documents, referred to in the text, to understand and describe the relevant PVC mechanisms in operation in the two countries, the history and causes of informal and irregular development, the allocation of development rights and the response of planning authorities to the phenomenon (at central and local level where appropriate). The discussion is based on the two case studies’ results, in the light of the documentary analysis and the literature review. The conclusions seek to debate the workings between PVC and the ‘infrastructure gap’ in coastal development, based on the findings and insights from the analysis of the French and Greek cases. They also put forward policy and research recommendations for similar contexts.

3. Results

3.1. Greece

Although elements of the present modalities of land development in Greece can be traced back to the 18th century, a critical juncture for the formation of current practices occurred at the beginning of the 20th century and is related with the policy of sub-division of large public estates into small plots and their distribution to destitute farmers that turned agricultural land in the urban periphery into urban land [48]. In the post WWII era of intense urbanization, these practices were consolidated, systematized and spread, because they served a variety of socioeconomic development goals [49].

The social consensus in favour of this approach has been a key reason why few formal planning mechanisms were introduced in the first post-war decades. It is indicative that PVC mechanisms, in the form of obligatory land and monetary contributions, in urban development were only introduced in 1979 and eventually came into full effect with the planning reform of 1983 (Law 1337/83). Throughout the post-war years, private interests investing in land development were able to extract significant monetary returns, which the state only partially managed to capture via general taxation in order to fund urban infrastructure and other social needs. As a result, public goods provision and the infrastructures and amenities in place are not always capable to cope with the needs of the population or with shocks such as those occasioned by climate change. The introduction of spatial planning as a systematic domain of public policy in the 1990s supported by relevant institutions at the local, regional and national level did not constitute a break with the practices of the past. As a result, planning remained weak and was treated as an instrument to valorise land.

Throughout this historical trajectory, informal land development (in Greek: *αυθαίρετη δόμηση*), meaning development without permission or deviating from the planning permission, has played a structural role in the production of the built environment. Nowadays, however, the initial conditions of housing and welfare provision have changed. The informal sector spans a wide range of development categories, from illegally constructed luxury residences in high-amenity locations to small-scale rule-breaking, such as turning balconies

into enclosed living spaces. These widespread practices, which cut across different social classes, have been ‘invisible’ to the formal PVC mechanisms until recently. There was practically no institutional way to acknowledge, and therefore extract value from, this type of development. This changed in 2011 with the introduction of the legalization regulatory framework, which formed part of the institutional reforms that were introduced after the financial crisis.

The coastline of Athens on the Saronic Gulf, the Athenian Riviera, was consolidated as a leisure zone in the 1950s and 1960s in a period of post-war economic growth and cosmopolitanism. The development of second homes, hotels and beach clubs was facilitated by the presence of the international airport of Ellinikon and by the upgrade of the corniche into a main road artery. This road formed a clear development boundary between the densely built coastal residential areas and the waterfront, which comprised a combination of organized public beaches and facilities, private businesses—some of them informal—and natural zones.

Since the period of the preparation of the Olympic Games of 2004 the Athenian Riviera has become the focus of major public urban programs, such as the regeneration of Faliron Bay and the redevelopment of the former airport of Ellinikon. Meanwhile the riviera has been the recipient of major publicly funded infrastructure improvements some of them also related with adaptation to climate change, such as drainage systems, public spaces, playgrounds and sports facilities. Indicatively, the cost of turning 200 m of the coastal avenue (Peseidonos Av.) into an underground highway combined with flood protection infrastructure amounted to EUR 50 million. The full length of the stretch that will be put underground is 3 km. Such projects, combined with shifting real estate trends, have led to a property price boom.

Within this context, landowners in the coastal municipalities benefitted for several decades from the proximity to the sea and associated services. The debt crisis of Greece in 2010 marks a major milestone for the redefinition of PVC in that area. Following a period of market depression, prices started to recover and demand for luxury homes and upmarket tourism services grew rapidly. The privatization of state assets, such as the former airport of Ellinikon, further boosted the local market. Increased demand for services and additional communal infrastructures due to the growing permanent population has placed significant stress on the adequacy of existing local plan provisions to accommodate these new needs [50]. The zone where these trends are most strongly noted comprises the territory of three adjacent municipalities presented in the following Table 1.

Table 1. Key statistics of the study area (3 municipalities).

Municipality	Population (2011)	Surface (km ²)	Coastline (km)
Ellinikon-Argyroupoli	51.330	15.7 *	3.5
Glyfada	83.665	25.37	3.75
Voula-Vari-Vouliagmeni	48.399	33.94	23

* The site of the former airport currently under redevelopment is 6.2 km².

Since the 1980s local governments in Greece have gradually acquired increased responsibility in the drafting and approval of local plans based on which development permissions are granted inside urban areas. However, central government control overall has remained strong, reflecting the political importance of the allocation of development rights and constitutional constraints that have halted the delegation of plan approval responsibilities at the local level. Inside Athens Metropolitan Area, the preparation of local plans was coordinated and supervised from 1985 to 2014 by the Organization for the implementation of the Athens Metropolitan Plan, an institution controlled by central government, also responsible for approving large-scale projects and developments.

In the case study area, the allocation of development rights takes place predominantly through the mainstream process—so called public regulatory planning—which has been initiated since the 1930s and consolidated in the 1980s and 1990s. In all three municipalities,

the urban development boundary reaches up to Hymettus Mountain, which is a protected area. Glyfada, the most developed service centre in the area, is a product of formal town planning. This means that property owners have contributed to the provision of public infrastructure in the past. The municipality of Ellinikon-Argyroupoli is a special case because of the presence of the former airport of Ellinikon, which, combined with the Olympic Marina of Agios Kosmas, occupies the entire coastline of the municipality. This is currently an organized development project where the allocation of development rights is controlled by the central government. The municipality of Voula-Vari-Vouliagmeni has a more mixed character; it was created when these local authorities merged in 2010. Until the early 2000s, the area mostly comprised second homes, but it is gradually attracting an increasing number of permanent residents and associated services. The allocation of development rights is taking place both within and outside urban plan boundaries. It is worth noting that a top-end tourist resort is located there and was privatized in 2016. The zone between the sea and the main coastal avenue is generally non-urbanized and excluded from Local Plans. Development rights in that zone are granted via a special presidential decree issued in 2004 (Presidential Decree 254/D/2004, 5 March 2004), which designates permitted land uses and development parameters. In 2021, central government declared that a new special urban plan will be prepared for the Athens Riviera that will revise the development parameters in this zone.

Real estate taxes in Greece can be divided in those applying to real estate ownership and those applying to real estate transfer. The most important recurring tax, for property ownership, is the Uniform Real Estate Property Tax (UREPT, in Greek: ΕΝΦΙΑ) established in 2014 as part of the Economic Adjustment Programs. The receipts go to the central government budget. The assessment basis is the 'objective value' of the object, which is determined based on a valuation done by private sector valuers for the Ministry of Economy. 'Objective values' in the study area are typically higher along the coastline and dropping as we move inland. In Elliniko-Argyroupoli and Glyfada, 'objective values' for newbuilt dwellings range from 1500 to 2800 EUR/m², whereas in Voula-Vari-Vouliagmeni the distribution range is wider from 1400 in inland Vari to 8900 EUR/m² in the peninsula of Kavouri.

A supplementary tax (progressive rate 0.1% to 1.15%) is charged to individuals if the total value of property rights subject to UREPT exceeds EUR 250,000 (excluding the value of agricultural plots). A corporate supplementary tax is also charged, at a standard 0.55% of the total tax value of said rights. The rate drops to 0.01% if the company uses the assets for their business purposes. The other significant tax in this category is the Municipal Property Duty (MPD, in Greek: ΤΑΠ), which is charged via the electricity bill. The rates are 0.025% to 0.035% of the 'Objective Value' of the object. Buildings under construction and listed buildings are exempt. The MPD is practically the only tax that addresses the cost of local infrastructure and service provision.

Two taxes apply for the case of real estate transfer and their receipts go to the central government budget. The Real Estate Transfer Tax (RETT) has to be paid if real property changes ownership but is not subject to VAT. The tax rate is currently 3% of the purchasing price or the 'objective value', whichever is higher, plus some minor additional fees for municipal services and road building. In case of inheritance or donations, the tax rate varies depending on value and degree of kinship but is generally lower. Besides the RETT there is also a legal provision for applying a capital gains tax with a rate of 15% of the difference between the purchase price and the sale price. It does not apply if the object was owned by the seller before 1995. The application of the capital gains tax has been suspended until the end of 2022.

The legalization regulatory framework was established through a series of laws (L. 3819/2010, L. 4014/2011, L. 4178/2013, L. 4495/2017) that enabled property owners who had engaged in irregular development to be formally awarded those development rights retrospectively, for a period of 30 years, by paying a fine. Despite the criticism expressed by the professional planner community and the Council of State, this regulation

established a singular PVC mechanism, which focuses on one factor of value increase (the usurpation of development rights), complemented by a recurring PVC mechanism in the form of additional UREPT and MPD to be paid on the legalized property. The regulation was enacted in 2011 and has been revised and extended in 2013 and 2017. A total of EUR 2.4 billion had been collected from fines until 2017 while the annual amount of additional UREPT and MPD collected each year is unknown but is a fraction of that. The examination of data presented in the following tables reveals that there was a massive response of property owners in the case study municipalities to formalize the development rights for additional construction for the increased value of their properties.

As shown in Tables 2 and 3, the average fines in each municipality in 2017–2021 were 61.56 EUR/m² in Elliniko-Argyroupoli, 89.13 EUR/m² in Glyfada and 83.50 EUR/m² in Voula-Vari-Vouliagmeni. In the case of Elliniko-Argyroupoli, this amounted to approximately 4% of the minimum market prices for newly built apartments. This percentage is even smaller for the other municipalities. This highlights that the fines definitely did not have a punitive character and should be seen as a reasonably effective singular PVC mechanism that ensures that millions of previously undeclared square meters of real property will be subject to a recurring PVC mechanism (UREPT and MPD) for the next 30 years. In fact, what the tables also show is that the legalization framework and its extensions created an incentive for property owners to engage in informal development: the square meters legalized and the fines imposed after 2013 are approximately 30–40 times higher than the equivalent numbers for 2011–2013. Finally, even the low estimate for the market value of the legalized property is impressive. In Ellinikon-Argyroupoli, it exceeds EUR 400 million, and it is multiples of that for the other two municipalities. Over 96% of those amounts benefit private owners in the short term, although the UREPT does capture a small percentage of that amount on an annual basis and in the long term. Sales tax will also capture a percentage of it when the property is sold.

Table 2. Total amounts collected from fines in the study area during the three periods of implementation of legalization legislation (euros).

Municipality	2011–2013	2013–2017	2017–2021	Total
Elliniko-Argyroupoli	329,715	9,712,771.56	10,488,760.6	20,531,247
Glyfada	1,037,309	30,605,625	34,257,158.6	78,438,231
Voula-Vari-Vouliagmeni	1,207,744	38,119,835	41,579,856.5	86,325,776

Source: Technical Chamber of Greece.

Table 3. Total construction surface (primary spaces, secondary spaces and swimming pools) legalized in the study area during the three periods of implementation of the legalization legislation (m²).

Municipality	2011–2013	2013–2017	2017–2021	Total
Elliniko-Argyroupoli	4203.28	116,645.5	170,372.5	291,221.26
Glyfada	11,155.83	306,565.7	384,343.2	702,064.74
Voula-Vari-Vouliagmeni	11,327.84	353,146.2	497,932.3	862,406.32

Source: Technical Chamber of Greece.

The UREPT and the legalization regulations constitute mechanisms through which a percentage of the increase of the value of private properties is captured. Arguably, the UREPT is a more stable and reliable source of such income because the legalization fines were a one-off. Low fines have been paid for more than 1.8 million m² of construction surface in the three case study municipalities up to 2021, but owners are obliged to pay property taxes for that property. The receipts from these mechanisms, however, do not cover the infrastructure gap that is noted in the form of traffic congestion, lack of parking and other shortages caused by the transformation of said areas. They were originally planned with the standards of second home settlements and currently need to host a much higher number of permanent residents and services. Currently, there is no provision regarding

who will bear the infrastructure cost of these necessary structural adjustments and UREPT is not ring-fenced for such purposes. Moreover, only 2.5% of the amounts collected from the legalization fines per year is allocated to urban area environmental improvements. The remaining funds count as surplus in public sector accounts and therefore reduce the net total amount of public debt.

3.2. France

In France, development rights are allocated at a local level according to a well-established administrative process. Since 1982, a set of decentralization laws transferred several responsibilities from the central government level to the local and supra-local level. In particular, urban planning became the prerogative of local authorities: municipalities and intermunicipal bodies (Law No. 83.663 of 22 July 1983 and Article R*123-25 to 33 Town Planning code). Municipalities, since 1982, and intermunicipal bodies, since 2021, are entitled to draft a local land use plan (PLU: *Plan Local d'Urbanisme*) that fixes the use of the land and several requirements such as maximum building heights or building footprints. Framework law gives general guidelines. For instance, Law No. 86-2 of 3 January 1986, concerning planning, protection and valorisation of coastal areas, gives guidance on the limitation of buildings along the coast. Although they have to comply with such town planning laws, local governments are free to design the PLU according to their territorial strategy. Every building must then receive a building permit from the municipality. The municipal administration checks the compliance of the project with the PLU. The decision does not only follow an administrative process. The permit may be refused if the municipality does not have the money to provide the infrastructure required by the new project, such as new roads or new schools. Second, the decision may be influenced by pressure from the population, as the elected mayor is responsible for the permission. The administrative process does not rule out case-by-case negotiation.

PVC instruments are designed at a central government level but decided and implemented at a local level. The revenues are generally channelled to fund local authority infrastructure investment. This means that local authorities have a lot of leeway [51]. So far as ordinary land development is concerned, negotiation with the builder is becoming the prevalent mode [52]. However, the trend is for central government to change the law (with the agreement of the National Assembly) and to transfer the benefits of several PVC instruments from the local to the central level. The end result is that the government is increasingly required to provide funds for local infrastructure or to secure funds in exceptional situations which are not a local responsibility, such as natural disasters.

Along the Vendée coast, more than 50% of dwellings are secondary or temporary housing (compared to 24% in the administrative department and 11% in France) with a high proportion of detached houses (85%). Housing construction was increasing by 2.2% per year in 2000–2010 although the territory is quite densely built up already. As a result, residential land cover increased by 3.5 times during the 2000–2011 period. Average prices in the area in 2008 were 105 EUR/m², double those in the department (57 EUR/m²) [45]. On the coast, prices have increased by 98% between 2000 and 2010. The situation is similar in other coastal areas, which are under high pressure of residential demand for tourism or retirement.

In 2010, a storm called Xynthia caused floods due to wind, low atmospheric pressure and high tide levels; 50,000 ha of land flooded, 53 people died and 79 were injured. The damage to property was estimated at EUR 1.5 billion euros by insurance companies, which goes up to EUR 2.5 billion when the cost of public infrastructure (roads and dikes) is considered [47]. The Senate report [47] underlines the significance of irregular and informal construction: three quarters of the existing housing (150 units) in the devastated sectors had been built without permit, occasionally on state-owned coastal land. The storm revealed a situation that exists in other locations along the French coast, such as the Mediterranean coastline for instance. Statistics on irregular development are scarce when they do not lead to a major conflictual situation (or such a crisis). Coastal areas typically face such situations.

Very often, as is the case in the Vendée, the tenant of a camping plot rented from the state builds a small house without any permission. This process is called “cabanization”, and means the transformation of tents into houses [46].

This phenomenon is rarely controlled and recorded. Crozat [46] evaluates this process in the southern Region of Hérault, along the Mediterranean coast. He claims that it concerns 5000 to 10,000 dwellings and 20,000–30,000 people in an area with 2.5 million inhabitants in 2009. It therefore accounts for about 1% of dwellings and population. He also reports that informal dwellings are spatially concentrated so that a third of the houses could belong to that category in the periphery of Montpellier. It has to be said that informal or irregular dwellings generally benefit from all the public services (roads, water, electricity). In such places, as reported by Idt et. al. [53], local authorities find it difficult to keep up with demand for public services, especially water, sewage, roads, and car parking. In addition, in Vendée, the sea level is rising by 3 mm per year and higher dikes have to be built to preserve inland marshes. The estimated cost for this was approximately EUR 21 million.

In France, development rights are strictly controlled by a well-established system of local plans and local-level building permits, a process run by municipalities since 1967 (Law No. 67-1253 of 30 December 1967: Loi d’orientation foncière). The system was reinforced in 2000 (Law No. 2000-1208 of 13 December 2000: Loi solidarité et renouvellement urbains) and concerns almost all the municipalities, except very small towns. In addition, central government audits building permits to see if they meet all public requirements (since 1982). Nevertheless, informal and irregular development does occur, especially in places where the demand is strong and prices are on the rise.

Approval is required even for very small enlargements, such as covering a terrace or repairing a garden shed. There is generally no fee, but the process takes time. The local authority is responsible for the approval. The proposed alteration has to comply with the local regulations and all national legislation such as environmental protection. Notwithstanding the mayor’s significant discretionary powers, which can lead to questionable planning permissions, the complexity and the frequent change in legislation make it difficult for the mayor to keep abreast of the latest legal and planning framework.

In areas protected for biodiversity protection or floor management reasons, the attractive natural environment can explain the development pressures. However, situations where wealthy individuals circumvent the rules are not the majority of such cases. Irregular and informal development often involves middle-income households who want to enlarge their dwelling without seeking a permit from local authorities. The benefits of doing so, for the individuals concerned, include avoidance of administrative and planning constraints and avoidance of property taxes.

Two important taxes apply on regular ownership: a recurring property tax and a tax on capital gain when selling the property. The property tax is charged on an ‘administrative’ value per m² based on a ‘standard grid’ that considers the use and quality of the real property (location, profitability and condition of the building). The evaluation remains disconnected from the market price. The rate is fixed by local authorities and the receipts go into the local budget. They contribute to local service supply and infrastructure investments. To give an example, property taxes on the coastal areas can reach 10 to 15 EUR/m² built. When the property is sold, the capital gain is taxed, and the proceeds go into the national budget. Owners of irregular and informal dwellings will pay the recurring tax at a lower assessment, avoiding tax on undeclared square metres, but capital gains tax still applies.

When buildings with informally developed extensions or conversions are sold, local authorities rarely react. In such cases, the sale is about the entire surface of the building, which is generally described in the selling act. It is worth noting here that, in Greece, it is impossible to sell undeclared informal or irregular developments. Generally, when such property is sold in France, there is no revaluation of the property for property tax purposes, and no indemnity or other kind of penalty.

Concerning the legalisation process, different legislative codes enable the mayor or the central government to demolish irregular buildings (art. L. 480-14 of Town Planning

Code and art. L. 562-5 of Environmental Code). Since 2006 (Law No. 2006-872 of 13 July 2006 “Engagement National pour le Logement”), it has been possible to legalize a building that has been irregularly built more than 10 years ago as long as the building complies with the planning rules. In 2015, two modifications have been introduced in the Town Planning Code Article L480-13 (by Law No. 015-990 du 6 August 2015 article 111): (1) the limitation period to initiate demolition has been reduced to 2 years after the irregularity has been formally verified; and (2) demolition can only happen in natural zones or other protected areas (environmental or heritage protection zones).

When a fine is imposed, the amount can be quite steep as it ranges from 1200 EUR/m² to a maximum of 6000 EUR/m² and up to EUR 300,000 in total. However, in many cases, even if a fine is imposed, there is no follow-up and recovery is not efficient. This is similar to the situation in Greece, where fines only apply to property where the owners do not ‘legalize’ it. The limitation for such fines and for any legal implications is 6 years. Several cases have confirmed the law. For example, the Conseil d’Etat (decision No. 411991 of 26 November 2018) specified the manner to regularize irregular constructions, and the Constitutional Council (decision No. 2020-853 of 31 July 2020) has confirmed the restrictions on demolishing irregular or informal development.

4. Discussion

It appears that in the Athens Riviera as well as in the Vendée, the efforts of the central or local state to accommodate informal and irregular practices via a process of legalization have led to a regime that actually promotes informality. The fines and fees imposed were either too low (Greece) or too steep but not collected consistently (France), and in any case they are not ringfenced for the purpose of plugging the infrastructure gap in the areas directly concerned. As a result of that, the local property speculation cycle was not dampened, the infrastructure gap widens and ‘informality of desire’ plays an ever more important role in decreasing the quality of life and increasing climate vulnerability. In both case study areas, informal development is mainly about middle- and upper-class property owners breaking planning regulations (over-exploitation of land) on development built on legally owned land (as opposed to building on public land or on land owned by a third party). The profits for private developers or property owners can be substantial, as demonstrated in the case of the Athens Riviera and of the Vendée. This finding may vary between territories across Europe, depending on the context of urbanization, the property market conditions, the environmental protection regime and the capacity of local and central government authorities. However, the case studies explored in this paper confirm some trends that have been statistically acknowledged by Le Berre in Brittany [11].

This ‘informality of desire’ is very well tolerated by the authorities, at the local and central government level: in Greece, the way legalization regulations were implemented actually incentivized informal practices, whereas in France the recent changes in legislation actually create a regime of impunity for such practices. This is in line with similar experiences from other European countries where such a legal approach was taken (Italy, Portugal) but is also what the experiences of the Global South convey: informality fosters informality, in a vicious cycle that exacerbates the negative effects of land over-exploitation. The development of such areas is therefore based on the short-term lived experience of the property owners/developers and their understanding of local climate risk. Buildings are erected on what appears to be the edge of streams, or the edge of the coastline, and the soil is covered with impermeable materials. The changing climatic conditions along the European coast make this ‘personal’ assessment completely inaccurate. Increased rainfall and lower surface permeability are bound to expand the volume of water draining from catchment areas. Furthermore, rising sea levels shift the coastline inland and heatwaves are more intense and last longer; therefore, heat island effects are generated where none existed before.

This conundrum brings to the fore the question of the value added of planning. It highlights the need to take a long-term proactive approach to urban development and

reveals the conflict of interest between local authorities and central government. In both countries, the tax regime is such that the local or central state actually benefits financially from the situation, via increased property tax income. However, it is unclear what the long-term net effect is on public finances, given that eventually when the necessary infrastructure in those areas is provided, it usually comes from public funds, too. It is more likely that the reason why such practices are tolerated, if not promoted, by local and central government have to do with short-term political gains or avoidance of short-term political costs. Fines and demolitions are very unpopular, whereas public subsidies in the form of infrastructure funding are not (and in the case of Greece they are often funded by European Union funds). However, whereas political costs will be borne by politicians in the short-term, the vulnerability effects of informal development can actually be blamed on the 'unpredictability' of climate change. When a disaster occurs, the costs of reconstruction are rarely borne locally too, as the case of Vendee demonstrates and as is the case in Greece, too. Irregular and informal constructions have collective consequences that cannot be collectively supported and financed. Unfortunately, climate change has made the effects of informal development, and their monetary and human costs, more pronounced.

In both case study areas, the infrastructure gap widens and vulnerability increases, due to a booming population and densification very close to the coastline in a context of climate change. Increased vulnerability means that the potential cost to private property and infrastructure assets rises significantly, as the case of storm Xynthia demonstrated. The two case studies therefore demonstrate how short-term behaviour by private and public actors is effectively increasing long-term risks to those actors. This calls for a more strategic government intervention in order to rebalance public and private interests. 'Informality of desire' might have its roots in political inaction and real property speculation but its extent can be measured. There is public recognition in similar settings that, given the appropriate conditions of credible science and meaningful social learning engagement, progress could be made on innovative approaches to local PVC and to risk-based constraints on future urban planning and development [54].

5. Conclusions

The 'legalization' process is a mechanism that could help the authorities to efficiently measure the extent of the phenomenon of informal development and, in theory, the fines collected could fund some of the necessary infrastructure. There are two preconditions in order to achieve this: (a) that the fines are high enough; and (b) that they are ringfenced for plugging the 'infrastructure gap'. The paper's findings are in line with the state of affairs in other countries in Europe, such as Portugal, where, although out-right legalization still has not been adopted, the laws and practices rely mainly on 'retrofitting' the statutory plans and granting ex-post building permits, in order to reinstate compliance [42]. In addition to planning compliance requirements, in Portugal, there are special conditions for legalization, in two situations: (i) for ex-post parcellation permits, conditional upon upgrading of public infrastructure under special legislation; and (ii) for ex-post planning permits, with relaxation of technical and administrative requirements on building control law [42]. Nonetheless, in Italy, irregular development amnesty laws created the expectation in developers and landowners that new illegal development could be legalized, as it has happened in the past [55].

Therefore, when it comes to policy, a balance has to be struck between spatial justice and climate resilience: strong pre-emptive control is needed, combined with more drastic measures in situations of major infringement for dissuasion purposes. Legalization mechanisms could be used for comparatively minor violations of planning regulations with little consequence for the public interest, as part of a suitable range of locally applied PVC instruments. This policy combination stands a higher chance of dampening the speculative forces behind 'informality of desire' and of providing ringfenced funding towards infrastructure provision that would increase local service standards and would reduce climate vulnerability locally. With that in mind, future research could focus on investigating the

reasons why informality of desire is tolerated (or not) in different contexts and the effects of the various approaches towards it on public finances, social equitability, the environment and human well-being. Additionally, future comparative research could also explore the effects of various environmental protection and land ownership regimes on informality of desire across Europe and the Global North.

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