

Article

Dr. Rodolfo Salassa Boix*

Water Consumption and Waste Generation in Spain: A Relationship in Crisis Due to Application of the Pay-As-You-Throw Systems

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Abstract: Considering that a circular economy is a European Union's priority (EU); that pay-as-you-through systems (PAYT) are a key economic tool to achieve it; that Spain lags behind in meeting waste management goals; and that the municipal fee on waste in Barcelona, based on water consumption, does not appear to comply with these requirements, our purpose is to determine, on the basis of regulations, doctrine, and case law, whether the current wording of Barcelona's fee aligns with the PAYT systems mandated by the EU and the Spanish legal system. We first outline the main elements of Barcelona's fee, and then analyze the relevant regulations, doctrines, and case law. Our conclusions apply not only to Barcelona's fee and its controversial "waste generation-water consumption" relationship, but also to any European municipality where the tax rate is calculated based on estimations rather than the actual amount of generated waste.

Keywords: Environmental Taxation, Circular Economy, Waste Generation, PAYT, Spain, Barcelona

1 Introduction

Directive (EU) 2018/851 introduced significant modifications to the "Waste Framework Directive" (Directive 2008/98/EC), among which we highlight the obligation to implement pay-as-you-throw (PAYT) systems to finance comprehensive waste management in all Member States. This was intended to advance toward a circular economy, as consolidated in the 2019 European Green Deal, which serves as the cornerstone for building a more sustainable and circular European Union (EU).¹ As a result, these systems have influenced the vast majority of local taxes in Spain, which rely on indicators and assumptions to calculate generated waste and, ultimately, to determine the fees that taxpayers must pay. One case that has garnered particular attention in Spain is the Municipal Fee on Waste for Private Households in Barcelona (MFWPH), which has been in effect for five years amid strong criticism and legal challenges.

This tax is currently regulated by Fiscal Ordinance 3.18 of Barcelona (FO 3.18) and is collected through the water bill.² The ordinance was introduced in 2019, when this type of tax was first implemented in the city. Apart from some minor modifications, it has remained largely unchanged from the 2020 fiscal period until the present day. Its text has hardly been altered for the 2025 fiscal period, and it does not appear that any significant changes will be made for 2026. This apparent inconsistency with current EU guidelines raises critical scientific interest.

One of the key characteristics of this tax is the method used to determine the fees that taxpayers must pay, as it is based on their water consumption, thereby establishing a direct relationship between waste

*Corresponding Author: Dr. Rodolfo Salassa

Boix: Associate Professor of Public Finance and Tax Law, Pompeu Fabra University of Barcelona (Spain).
rodolfo.salassaboix@upf.edu

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¹ Its American counterpart was the "Green New Deal," whose key points are explained in Roberts (2019).

² The connection between both services has a long history in the city and has sparked various reactions from the public (Sempere 2004).

generation and water usage. This approach is not the most common model for these types of fees,³ although some Spanish municipalities have also adopted similar methods, either directly or indirectly.⁴

For some time now, this “generation-consumption” relationship has been called into question in Spain, even leading to legal challenges before the Spanish Supreme Court. However, scrutiny has intensified since the enactment of Directive (EU) 2018/851, which amended the Waste Framework Directive (Directive 2008/98/EC). Among other reforms, this directive emphasizes the need to advance toward a circular economy through measures such as PAYT systems for comprehensive waste management, both residential and commercial.⁵ The importance of the circular economy for achieving a sustainable Europe has a long history (Chioatto and Sospiro 2023), but it has gained significant momentum in the past decade with the European Green Deal.

Directive (EU) 2018/851 originated from the Circular Economy Action Plan adopted by the European Commission in 2015,⁶ which included a legislative package to revise the foundations of EU waste regulations. Following intense parliamentary negotiations—and significantly exceeding the two-year transposition deadline (July 5, 2020)⁷—Spain transposed the directive through Law 7/2022 on Contaminated Soils, Waste, and the Circular Economy (LCSWCE). The initial delay (2020/2021) can be attributed to the global health crisis, which dominated public administration priorities at the time, while the subsequent delay (2021/2022) can be explained by the tensions the law created within Spain’s regional governance system. Specifically, the law sought to introduce a new State Tax on Landfill Disposal, Incineration, and Co-incineration of Waste

(STLDICW),⁸ which directly impacts local entities as the primary taxpayers, hence it is why is directly linked to PAYT systems (Salassa Boix 2023). To address this, Herrera (2021) remarks that these entities must adjust their local waste management revenues to meet their tax obligations under the new STLDICW.

The preamble of FO 3.18 reveals a full awareness of the goals and mandates of Directive (EU) 2018/851, which were later developed in LCSWCE, as well as the need to restructure how waste tax is charged. However, the implementation of PAYT was postponed via a two-phase plan, which we will discuss later.

The Spanish law (LCSWCE) that transposed Directive (EU) 2018/851 carries fiscal consequences for all autonomous communities and local entities in Spain. In line with the directive’s guidelines, it establishes a new national waste tax (STLDICW) while setting deadlines and specific requirements⁹ for municipalities to implement PAYT systems. In the following paragraph, we examine these consequences in greater detail.

On the one hand, the implementation of the STLDICW meant that autonomous communities that had not yet regulated a similar tax could no longer introduce one,¹⁰ while those that had already done so were required to suspend their tax’s effects.¹¹ To address this, the Spanish law provided two options: either establish criteria for maintaining control over the management, assessment, collection, and inspection of pre-existing waste taxes¹² or set specific requirements that would allow Spanish autonomous communities to assume full management of the newly delegated national tax while permitting them to regulate tax rates within certain limits.¹³ On the other hand, LCSWCE also introduced specific obligations¹⁴ and a deadline (April 2025) for local entities to implement mechanisms for PAYT systems.¹⁵ At the time the law came into effect,

³ In Spain, at least until 2023, the most common approach was to apply fixed quotas (50.4% of municipalities), which were predominant in municipalities with fewer than 5 thousand inhabitants (*Observatorio de la Fiscalidad de los Residuos* 2023).

⁴ Examples include the Fiscal Ordinances on Waste Fee from the city of Valencia and the city of Seville.

⁵ “Member States should make use of economic instruments and other measures to provide incentives for the application of the waste hierarchy such as those indicated in Annex IV.a), which includes... pay-as-you-throw schemes...” (point 15). Annex IV.a) specifically refers to “pay-as-you-throw” as schemes that charge waste producers on the basis of the actual amount of waste generated and provide incentives for separation at source of recyclable waste and for reduction of mixed waste”.

⁶ COM (2015) 614 final.

⁷ Article 2.1 of Directive UE 2018/851.

⁸ Point 1 of Annex IVa of EU Directive 2018/851.

⁹ Which could have been more detailed (Herrera 2021).

¹⁰ At least while the state tax remains in force.

¹¹ All of this is due to the supremacy of similar state taxes over regional ones, which is based on the State’s exclusive original taxing power according to the Spanish Constitution (Art. 133) and the Organic Law on the Financing of Autonomous Communities (Art. 6).

¹² Additional Provision 21 of LCSWCE.

¹³ Transitional Provision 8 of LCSWCE.

¹⁴ Article 11.3 of LCSWCE.

¹⁵ This is the first time this terminology has been introduced in a Spanish state law (*Observatorio de la Fiscalidad de los Residuos* 2023).

only a minimal number of Spanish municipalities had adopted such systems (*Observatorio de la Fiscalidad de los Residuos* 2023 and Serrano 2023).¹⁶

This national law aimed to resolve some of Spain's longstanding deficiencies in waste management, which the EU has repeatedly criticized. In fact, for several years, the European Commission has warned Spain about the risk of failing to meet the objectives initially set by Directive 2008/98/EC,¹⁷ and later updated by Directive (EU) 2018/851. The original directive required Member States to increase the reuse and recycling of waste materials to at least 50% by 2020.¹⁸ However, Spain's low recycling rates in 2015 (30%) and 2016 (33.4%), according to Eurostat,¹⁹ prompted the European Commission to issue an Early Warning Report in 2018, highlighting the risk of non-compliance by 2020.²⁰ Among its recommendations, the report emphasized the need for a harmonized fiscal system for waste disposal (landfilling and incineration) applicable across all Spanish autonomous communities. This led to the controversial STLDICW established by LCSWCE. Despite a slight improvement,²¹ Spain's recycling rate in 2020 (40.4%) remained below both the 50% target and the EU average (48.8%).²²

The enactment of Directive (EU) 2018/851 further complicated matters for Spain, as it raised the recycling target to 55% by 2025.²³ Spain's 2022 recycling rate (49.2%)²⁴ led the European Environment Agency to publish another Early Warning Report in 2023, signaling the risk of failing to meet the 2025 targets.²⁵ Among other recommendations, the report strongly urged the

implementation of PAYT systems for municipal waste management in Spain and compliance with the LCSWCE deadline. It also highlighted the extremely low number of local entities that had adopted such systems, without specifying which ones.

Although this study focuses primarily on the Spanish legal framework, the pay-as-you-throw (PAYT) agenda must be understood as part of a broader environmental strategy promoted by the EU, which inevitably affects all Member States, including some Nordic countries. The EU's circular economy policies seek to harmonize waste management systems, yet their implementation remains highly diverse across jurisdictions. This diversity is not only a consequence of differing legal traditions or institutional capacities but is also shaped by non-legal factors such as geographic characteristics (urban density, climate, water availability), population behaviors, and the level of technological advancement in waste collection and tracking systems. For instance, some Nordic countries, with longstanding sustainability commitments and advanced data infrastructure, have been able to deploy fully individualized PAYT systems more quickly and effectively than others.

While a detailed comparative analysis exceeds the scope of this paper, future research could usefully examine the structural and contextual variables that influence the effectiveness of PAYT schemes across the EU. In particular, it would be relevant to assess how economic, social, and environmental dynamics—along with policy culture—shape the legal design and public acceptance of these systems. This may also shed light on how lessons from Nordic practices could inform reforms in Member States like Spain, where PAYT implementation remains fragmented and often limited to pilot programs or indirect indicators.

From this introduction, we can conclude that consolidating the circular economy is a priority for a sustainable EU, that PAYT systems are a key economic tool to achieve this, that Spain lags behind in meeting waste management objectives, that the deadline for establishing PAYT systems has expired, and that the MFWPH in Barcelona does not appear to comply with these requirements. Therefore, our objective is to determine, on the basis of regulations, doctrine, and case law, whether the current wording of Barcelona's tax aligns with the PAYT systems mandated by the EU through LCSWCE.

This study is based on a doctrinal legal approach. The main objective is to understand, through the analysis of legal and jurisprudential materials, the current meaning of the applicable environmental tax norms, and

¹⁶ One of the first municipalities to implement this pioneering pay-as-you-throw system was Torrelles de Llobregat in Catalonia (Puig 2004).

¹⁷ Although these objectives are widely accepted today, they were met with skepticism and doubt when they were first introduced (Hazel Ann Nash 2009).

¹⁸ Article 11.2.a) of Directive 2008/98/CE.

¹⁹ https://ec.europa.eu/eurostat/databrowser/view/CEI_WM011/default/table?lang=en

²⁰ Brussels, 24.9.2018. SWD(2018) 425 final.

²¹ According to the European Environment Agency (2022) between 2016 and 2019, the recycling rate for municipal waste (including composting) increased from 33.9% to 38.4%.

²² https://ec.europa.eu/eurostat/databrowser/view/CEI_WM011/default/table?lang=en

²³ Article 11.2.c) of Directive 2008/98/CE.

²⁴ https://ec.europa.eu/eurostat/databrowser/view/CEI_WM011/default/table?lang=en

²⁵ <https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to>

to explain this interpretation systematically in order to reach well-founded conclusions. This approach does not rely on empirical data but rather focuses on normative sources and legal reasoning.²⁶

The methodology is developed in two stages. The first, heuristic in nature, involves the collection, selection, and classification of relevant legal, case law, and scholarly sources. The second stage, hermeneutic in nature, focuses on interpreting those sources using legal reasoning and argumentation theory. In the interpretative phase, we primarily apply three methods of legal interpretation: literal, systematic, and teleological. First, since legal norms are composed of linguistic statements, we begin with their literal meaning. Second, given that environmental taxes are highly cross-cutting, intersecting both tax law and environmental law, a systematic reading is necessary to relate each provision to the broader legal framework. Lastly, we adopt a teleological approach to analyze the purpose and aims of these norms, particularly within the context of the circular economy and the “polluter-pays” principle.

To this end, we first outline the main elements of the MFWPH, and then analyze the relevant regulations, doctrine, and case law in order to extract arguments that help address our research question. Our conclusions apply not only to Barcelona’s tax and its controversial “generation-consumption” relationship, but also to any municipality where the tax rate is calculated based on an estimation rather than the actual amount of waste generated.

2 Municipal Waste Tax for Private Residences in Barcelona

Water has long been a hot topic in Barcelona. Whether due to the need for rainfall amid the persistent drought in the city, and in the whole of Catalonia;²⁷ the use of water guns to deter summer tourists in response to an unsustainable and overwhelming influx of visitors; the proposed law introducing a controversial tax on port emissions from large ships to address severe air pollution

near the city’s ports; or the debated municipal waste tax for private residences, which bases its tariff on water consumption. This paper focuses on the latter issue, analyzing the key aspects of FO 3.18.

The taxable event for this waste tax is the collection of municipal waste generated in private residences,²⁸ excluding urban waste from industrial and commercial activities, which is financed through public service fees. However, FO 3.18 establishes a series of exemptions and reductions that either eliminate or reduce the tax burden. These fiscal benefits are grounded in both socioeconomic and environmental considerations.

From a socioeconomic perspective, individuals holding domestic water supply contracts²⁹ who are in a situation of residential exclusion³⁰ are exempt from the tax. Additionally, a series of reductions—up to 50%—are implemented. One such reduction grants a 5% decrease in the tax for each additional person beyond three inhabitants per household,³¹ as part of the special billing benefit for potable water services established by the Metropolitan Integrated Water Cycle Service Regulation (MIWCSR).³² This reduction also applies to each registered resident in the household with a recognized disability of 75% or higher or a Level III degree of dependency.³³ However, a minimum threshold is set, ensuring that the tax applied to any residence is never lower than the rate corresponding to a water consumption of up to 6m³ per month, based on the contracted supply type.³⁴ Furthermore, a 50% tax reduction is available for individuals who hold water supply contracts and qualify for the social tariff³⁵ of the Catalan Water Agency.³⁶

From an environmental perspective, tax reductions ranging from 1% to 14% are granted to taxpayers who utilize clean points (fixed or mobile collection sites), depending on the frequency of their use throughout the year.³⁷ To qualify for these reductions, taxpayers must

²⁶ Doctrinal (or dogmatic) legal research is the traditional method used in legal scholarship. It involves the identification, interpretation, and systematization of legal norms, case law, and scholarly doctrine, with the aim of clarifying what the law *is* on a given topic (Hutchinson and Duncan, 2012).

²⁷ Villca (2024) reminds us of the impact that water scarcity is having worldwide, particularly on Europe’s coastal areas.

²⁸ Articles 1 and 2 of FO 3.18.

²⁹ Article 4.1 of FO 3.18.

³⁰ According to Law 24/2015 (art. 4.2, FO 3.18).

³¹ Article 5.1 of FO 3.18.

³² Article 118 of MIWCSR.

³³ Article 5.2 of FO 3.18.

³⁴ Article 5.3 of FO 3.18.

³⁵ The social tariff for the water levy is regulated in Article 69.8 of Legislative Decree 3/2003 and Article 123 of MIWCSR.

³⁶ Article 6 of FO 3.18.

³⁷ Two visits per year to recycling centers: 1% reduction, three visits: 2% reduction, and up to 14 visits: maximum 14% reduction (art. 7.2, FO 3.18).

provide proof of their water supply contract ownership and request the discount through the forms available at the clean points.³⁸

The taxpayers liable for the waste tax are individuals (natural or legal persons) or entities that benefit from the waste collection service and are listed as contract holders for the domestic potable water supply at the residence generating the waste. If the recipient of the waste collection service is not the same person as the water contract holder, then the property owner becomes the taxpayer's substitute.³⁹ This is where the link between "waste generation – water consumption" becomes apparent.⁴⁰

These tariffs are applied according to the type of domestic residence (classified as type A, B, C, D, E, F, G, I, or their equivalent according to pipe diameter)⁴¹, on the basis of the contracted flow rate.⁴² Within each housing category, the tax is determined by the monthly volume of cubic centimeters of water consumed,⁴³ as outlined in the following table.⁴⁴

Considering that there may be multiple holders of the potable water supply contract, the regulation clarifies that only the portion of the fee corresponding to the period during which the service was contracted within the tax year will be required, regardless of who appears as the contract holder.⁴⁵

Tax is accrued and payable on the first day of the tax period, which runs from January 1 to December 31 each year, except in cases of a new water supply contract, where it becomes effective at the time of contracting.⁴⁶

Collection is carried out by adding the fee amount to the household water supply service bill issued by the

providing entity. This entity is responsible for declaring and settling the tax and transferring the collected amounts to the municipality. Additionally, it is liable for any unpaid fees that were not passed on to service users, effectively acting as a withholding agent.⁴⁷

3 Regulatory Analysis

As mentioned in the introduction, the content of Barcelona's FO 3.18, like the ordinances of all Spanish municipalities, is currently influenced by the guidelines set by the EU on waste management (Directive (EU) 2018/851) and by the parameters and deadlines established by the State through LCSWCE, which transposed that directive in 2022.

In general terms, point 15 of that directive highlights the need to move swiftly toward a circular economy, using, among other measures, PAYT systems for comprehensive waste management. To this end, its Annex IV.b) associates PAYT systems with the imposition of fees on waste producers based on the actual amount they generate, as well as incentives for source separation of recyclable waste and the reduction of mixed waste.⁴⁸ In this way, the directive took its first steps toward the use of waste generation-based payment systems but did not provide many details. The specific details were left to the regulations of each Member State during transposition.

With this goal, LCSWCE went a step further and specified that Spanish local entities must establish, within three years from the entry into force of this law⁴⁹ (by April 10, 2025),⁵⁰ a fee or a non-tax public financial contribution (specific, differentiated, and non-deficit)⁵¹ that allows for the implementation of pay-as-you-throw systems.⁵² The regulation adds that these

³⁸ Article 7.3 of FO 3.18. At the end of the fiscal year, the municipality must approve and apply these reductions to taxpayers through their water supply bills (art. 7.4, FO 3.18).

³⁹ Article 3 of FO 3.18.

⁴⁰ Article 3 of FO 3.18.

⁴¹ Article 117.1.a) of MIWCSR defines housing types based on nominal flow rates: types A-0,25m³/h; types B-0,33m³/h; types C-0,40 m³/h; types D-0,50 m³/h; types E-0,63m³/h; types F-1,00m³/h; types G-1,60m³/h; types H-2,50m³/h; and types I-4,00m³/h.

⁴² In buildings with shared water meters, the total number of units is used to calculate the fees (art. 8.1.B, FO 3.18).

⁴³ The monthly consumption is determined on the basis of the average monthly billing of the past 12 months (art. 8.1.C, FO 3.18).

⁴⁴ Article 9 of FO 3.18.

⁴⁵ Article 9 of FO 3.18.

⁴⁶ Article 10 of FO 3.18.

⁴⁷ Articles 11.1 and 11.2 of FO 3.18.

⁴⁸ An identical definition is found in Annex V.2 of LRSCEC.

⁴⁹ On April 10, 2022 (Final Provision 13, LRSCEC).

⁵⁰ Serrano (2023) considers that this deadline too short given the significant legal effort it entails.

⁵¹ To implement these municipal reforms, Santodomingo (2024, 153) expresses that the "...economic-financial report, which must include and quantify the estimated costs of the service, as well as the revenue expected to be collected from users," will be essential.

⁵² Local entities must communicate these taxes, as well as the calculations used for their formulation, to the competent authorities of the autonomous communities (Art. 11.5, LRSCEC).

Table 1: Residential Fee Schedule Based on Monthly Waste Consumption

Monthly Water Consumption (m ²)	Housing Type	Rate Code	Fee(EUR)
Type A, B, and C			
Up to 6 m ³	Domestic residence	D11	€27.65
Between 6 m ³ and 12 m ³		D12	€51.38
Between 12 m ³ and 18 m ³		D13	€87.55
Morethan 18 m ³		D14	€131.46
Type D and E			
Up to 6 m ³	Domestic residence	D21	€64.27
Between 6 m ³ and 12 m ³		D22	€104.37
Between 12 m ³ and 18 m ³		D23	€156.65
Morethan 18 m ³		D24	€169.99
Type F, G, H, or i			
Up to 6 m ³		D31	€68.32
Between 6 m ³ and 12 m ³		D32	€111.01
Between 12 m ³ and 18 m ³		D33	€208.02
Morethan 18 m ³		D34	€216.38

systems must reflect the actual cost⁵³ (direct or indirect) of waste collection, transportation, and treatment operations.⁵⁴ This also includes the monitoring of these operations, post-closure maintenance and supervision of landfills, awareness and communication campaigns, and revenues derived from the application of extended producer responsibility for the sale of materials and energy.⁵⁵ All of this is based on the polluter-pays principle, which is explicitly recognized by both European⁵⁶ and Spanish (state level)⁵⁷ regulations as a guiding principle in waste management.⁵⁸

The wording of Article 11 of LCSWCE raises some doubts. While its content initially appears categorical

and strict in establishing a three-year deadline, the requirement becomes less clear when it speaks of imposing measures “...that allow for the implementation of pay-as-you-throw systems.” The first question that comes to mind is why, instead of requiring the implementation of these systems by that deadline, the law speaks of measures that “allow” for their implementation. This makes it unclear what is expected of municipalities by 2025. Even when LCSWCE was still a draft law (and it has remained unchanged in this regard), some authors questioned whether this ambiguous wording was a deliberate strategy by the legislator, aware of the difficulties municipalities face in implementing such systems (Herrera 2021). This could also explain why the text of the regulation does not establish sanctions for non-compliant municipalities (Navarro 2022). Although the government has recently explained the consequences of failing to comply with this article, these doubts have not been entirely dispelled.

This wording could be interpreted to mean that the April 2025 deadline does not require local entities to have already implemented these systems but only to have established the regulatory framework that allows for their future implementation. In fact, due to growing concerns among local entities about the short three-year deadline, the Ministry of Finance clarified the wording of the article, stating that “the regulation does not impose the strict obligation to require a fully individualized fee for each taxpayer starting from April 10, 2025, but rather... these systems should be progressively incorporated, in line with the waste hierarchy principle

⁵³ This opens a debate on whether this feature conflicts with the traditional stance that the waste collection tax can be charged simply for making the service available, rather than for its actual use (Herrera 2021 and Ruiz 2023).

⁵⁴ We understand that, in line with Annex IV.b) of Directive (EU) 2018/851, the Spanish law (state level) should also have clarified that such measures must provide incentives for source separation of recyclable waste and for reducing mixed waste.

⁵⁵ Article 11.3 of LRSCEC.

⁵⁶ Article 14 of Directive 2008/98/CE (modified by Directive 2018/851).

⁵⁷ Article 11.1 of LRSCEC.

⁵⁸ Just like point 2 of Annex IV.b) of Directive (EU) 2018/851, point 2 of Annex V of the LRSCEC defines “pay-as-you-throw waste payment systems” as those that “...impose charges on waste producers based on the actual amount of waste generated and provide incentives for source separation of recyclable waste and for reducing mixed waste.”

and the polluter-pays principle that underpins this regulation.” The Ministry of Finance (2024, 4) further added that local entities “...must gradually incorporate elements that take into account citizens’ behavior in waste generation, allowing, alongside systems that already enable an individualized fee, others that provide reductions or incentives for certain behaviors.”

Without this ministerial clarification, it seemed that the three-year period served as a transition phase for local entities to adjust their regulations to the requirements of PAYT fees. However, the Ministry of Finance’s explanation, with its use of the adverbs “progressively” and “gradually,” seems to dilute that initial idea and, with it, the time constraint implied by the three-year deadline. This appears to allow for a more gradual and flexible implementation of PAYT systems. However, this approach does not seem to align with the EU’s plans and requirements, as explicitly stated in its latest early warning report on Spain (European Environment Agency 2022).

Returning to FO 3.18, from its initial drafting in 2019, its authors were fully aware of the changes required by the EU and what these requirements implied for the city’s waste management, especially after the deadlines and requirements established by LCSWCE. In fact, in a sort of effort to align with the objectives of the 2018 directive, the preamble of FO 3.18 outlines a two-phase plan but does not set deadlines for each phase.

The first phase, in which we currently find ourselves, is transitional and involves establishing a fee directly related to the water consumption of the household generating the waste.⁵⁹ This is based on reports that support the reasonableness of the “generation-consumption” relationship and some legal precedents that have validated this link.⁶⁰

The second phase, which remains only a potential plan for now, acknowledges the need to reassess this relationship in order to structure the fee on the basis of each citizen’s individual behavior in waste generation and separation (i.e., under pay-as-you-throw systems). This appears to be an expression of intent to adjust the municipal tax to comply with higher-level regulations, but it does not specify the specific measures (whether as a fee or a non-tax public financial contribution) or

the date by which they will be implemented. Without a doubt, this second phase poses the greatest challenge for municipalities, especially considering the deadlines for its implementation.

These two phases outlined in the preamble of FO 3.18 implicitly acknowledge that the current financing method for waste collection (still in effect) does not meet the requirements of the PAYT systems mandated by higher regulations. Instead of reflecting the actual polluting activity of taxpayers, the current system is based on a direct relationship between waste generation and water consumption. Thus, under the current “generation-consumption” model, the MFWPH may comply with the principle of equivalence and economic capacity, which the Spanish Constitutional Court has historically required for local fees, but it does not seem to align with the polluter-pays principle or with the PAYT systems that the EU mandates for implementation.

At this point, we can affirm that the debate over the MFWPH is not so much about whether the relationship between waste generation and water consumption is reasonable (which it appears to be), but rather whether this relationship meets the new requirements set by Directive (EU) 2018/851 and the LCSWCE in applying the polluter-pays principle. If these two regulations did not exist, the debate would be entirely different—or perhaps nonexistent. This explains why Spanish case law adapts its criteria depending on when the fee is challenged and on what European and national regulations are in force at that time. Next, we examine how case law has responded in a recent Spanish Supreme Court ruling on this very fee.

4 Jurisprudential Analysis

This type of local fee has always been highly controversial in case law,⁶¹ but a few months ago, the Spanish Supreme Court issued a specific ruling on Barcelona’s MFWPH. The court identified the main issues that need to be resolved as follows: (1) whether the technical-economic report linking the value of the service to the volume of water consumed is sufficient, and (2) whether the type of meter and the nominal flow rate assigned to each supply contract are valid for determining the

⁵⁹ According to the nominal flow rate and consumption brackets.

⁶⁰ As occurred with STS 7277/2003 and even recently with STS 818/2024.

⁶¹ In particular, we can mention the well-known Spanish Supreme Court sentence num. 7277/2003 (STS 7277/2003).

tax rate. However, the court also clarified, on multiple occasions, that this ruling does not address whether Barcelona's fee complies with the criteria and deadlines set by the LCSWCE for the implementation of PAYT systems, as the lawsuit predates the moment when the state law came into force. This is directly related to what was discussed at the end of the previous section.

In its reasoning, the Spanish Supreme Court first clarifies that, to quantify the amount of fees for providing a service, the Spanish legal system⁶² refers to the actual or foreseeable cost of that service or, alternatively, the value of the service received—both of which serve as maximum thresholds for determining the fee amount. It then states that the Spanish regulations in force at the time of the lawsuit did not specify how the economic taxpayers' capacity should be considered when distributing the tax burden. This implies that the legal system grants some degree of flexibility and that, as long as compliance with this principle is justified (along with the aforementioned maximum thresholds), no objection could be raised against a municipal fee. On the basis of these premises, the Supreme Court ultimately ruled in favor of the reasonableness and sufficiency of the MFWPH's generation-consumption relationship.⁶³ Thus, under the regulations in force at that time, no legal arguments existed to challenge Barcelona's fee.

However, the court acknowledged that it could not ignore this fee in light of the polluter-pays principle, which is strongly emphasized in recent EU regulations. In this regard, the ruling states that the polluter-pays principle, by itself, does not necessarily entail "...the prior and individualized determination of the volume of waste generated by each individual subject to the fee for the collection, disposal, or treatment of urban solid waste for the purposes of calculating the tax liability." However, the ruling also implies that the

requirement to implement pay-as-you-throw systems would indeed necessitate such individualization (per capita), which is not fully considered by the current MFWPH since it continues to link waste generation to water consumption.

Given that the disputed issue predates Directive (EU) 2018/851 and the LCSWCE, the ruling explains that, before this legislation, there was no legal mandate requiring municipalities to establish PAYT systems, let alone a deadline for doing so.⁶⁴ For this reason, such a requirement could not be imposed on the MFWPH at the time of the lawsuit.⁶⁵ This is the same situation that arose in ruling STS 7277/2003, as the fee operated similarly (being linked to water consumption) and neither the LCSWCE nor its predecessor—Law 22/2011, which transposed the content of Directive 2008/98/EC—were in force.

However, although this 2024 ruling does not explicitly state it, *contrario sensu* reasoning suggests that⁶⁶ starting in 2025 the Spanish Supreme Court will no longer question that municipalities must comply with the legal requirement to implement PAYT systems for waste management. From this, it also follows that, from that moment on, FO 3.18 would be disregarding the deadlines and requirements established by the Spanish legislation (state level) that transposed the Waste Directive—unless a lenient interpretation of Article 11.3 of LCSWCE is adopted, as proposed by the Ministry of Finance and discussed in section 3 of this paper. Therefore, while the current generation-consumption relationship may still be deemed reasonable for municipal waste fees today, as of 2025, it does not appear sufficient to comply with the existing legal framework.

5 Doctrinal Analysis

For some time now, specialized literature has highlighted the benefits of PAYT systems, for both businesses and private households (Wertz 1976). These systems are defined by Skumatz (2008), in very simple

⁶² Article 24.2 of Revised Text of the Law Regulating Local Finances.

⁶³ This reasonableness is justified by the randomness of the amount of waste and the use of an objective factor, such as the volume of water consumed, since this allows for a proportional deduction of the amount of waste that the use of that water may generate. Additionally, the ruling states that "...water consumption presents a positive correlation with waste generation, which is based on the fact that water consumption depends, among other factors, on the number of people living in a household and their income level, both of which are rational and sufficient explanatory indicators of waste generation, as required by the polluter-pays principle" (third argument).

⁶⁴ Even though the polluter-pays principle was already reflected in Article 11 of Law 22/2011, which transposed the content of Directive 2008/98/EC, the latter said nothing about pay-as-you-throw systems.

⁶⁵ Third argument.

⁶⁶ In addition to the number of times the court warns that it is not evaluating the TRMDP considering LRSCEC.

terms, as mechanisms that require a greater contribution from those who generate more waste while allowing those who produce less waste to pay less. In this way, they encourage each citizen to contribute to the total cost of the service according to the actual amount of waste they generate (Elia, Gnoni, and Tornese 2015). All of this aligns with the environmental principle known as the polluter-pays.⁶⁷

Some authors suggest that the polluter-pays principle and the PAYT system, although closely related, are distinct (Elia, Gnoni, and Tornese 2015), whereas another group argues that the latter is an application of the former (*Observatorio de la Fiscalidad de los Residuos* 2023 and Serrano 2023), meaning that PAYT systems are just one way to fulfill the polluter-pays principle (Chamizo, Cano, and Muñoz 2018 and Messina, Tomasi, Ivaldi, and Vidoli 2023). We align more with this second perspective, understanding PAYT as a variation of the polluter-pays principle, leading to a more specific version of it: the generator-pays principle. However, this does not change the principle's core idea and intent.

Beyond theoretical discussions about their benefits, experience has shown that these systems are a practical, fair, and sustainable mechanism for reducing waste,⁶⁸ promoting recycling, and lowering management costs (Messina, Tomasi, Ivaldi, and Vidoli 2023). As a result, administrations are gradually moving toward the implementation of PAYT systems. However, their widespread adoption is still far off (Elia, Gnoni, and Tornese 2015).

Although these systems are often initially resisted by waste service users, interesting studies and research have shown that, after implementation, they tend to be accepted by a large majority (Brown and Johnstone 2014). This positive shift in attitude is explained by the perception that citizens' contributions to waste management are directly proportional to the waste they generate, while also encouraging waste reduction (Chamizo, Cano, and Muñoz 2018). This information undoubtedly reassures the municipalities that are considering the effects that these systems may have on their citizens.

We recognize that transitioning from traditional systems—based on various assumptions (such as property size, value, location, or water consumption)—to these new systems, in which determining the exact quantity of waste (by weight or volume) and identifying its producer is crucial (Chamizo, Cano, and Muñoz 2018), is not easy. In the latter, it is essential to determine the exact amount of waste generated (by weight or volume) and to identify the producer, thus ensuring a differentiated approach to “... those who generate waste in different quantities or types.” (Santodomingo, 2024, 116). In addition to potential initial resistance from the population, there is also the challenge of updating waste management with more sophisticated and technological processes (Elia, Gnoni, and Tornese 2015, such as “door-to-door collection or user identification through electronic or mechanical devices” (Sastre 2019, 16).

To accurately establish the amount of waste and its generators, doctrine suggests implementing a variable quota that reflects real-time data from actual waste producers, while still maintaining a fixed quota. This would be based on more objective or presumptive (less specific) parameters (*Observatorio de la Fiscalidad de los Residuos* 2023) that allow for the inclusion of all potential waste generators (such as property type, registered use, number of residents, registered value, surface area, and location) (Spanish Ministry of Finance 2024).⁶⁹ Consequently, as we discuss in the following paragraphs, water consumption could be considered a valid criterion for structuring the fixed quota, but it does not seem like an appropriate basis for the variable or specific quota required by these systems.

On this last point, doctrine has long recognized that waste management financing is often linked to water or electricity supply bills. At the same time, it warns that these systems—where payment is not tied to waste generation but rather to water or electricity consumption—are ineffective for incentivizing waste reduction (Skumatz 2008).⁷⁰ Thus, the link between water consumption and waste generation is too weak

⁶⁷ Similarly, we could talk about the sub-principle of “who emits pays” or the “emitter-pays” (in the climate field).

⁶⁸ In this regard, the *Observatorio de la Fiscalidad de los Residuos* (2023, 38) states that “...pay-as-you-throw systems are the option that ensures a fairer distribution of waste management service costs, as well as an incentive for prevention and recycling”.

⁶⁹ This document from the Ministry of Finance does not explicitly mention household water consumption, but merely provides an illustrative list of assumptions, among which, without a doubt, we could include the consumption currently used in Barcelona. In fact, authors often cite water consumption as an example of a measure that some administrations have used to estimate waste generation (Puig 2008).

⁷⁰ In the Spanish context, we should also mention the research of Rozas (1997).

and indirect to justify the variable quota.⁷¹ With this generation-consumption relationship, “...recycling more or producing less waste does not result in lower payments,” (Puig 2008, 115) meaning that the only environmentally acceptable alternative would be for the waste fee to be directly dependent on waste generation and selective collection.⁷² Some even argue against using water consumption as a basis for the fixed quota (Herrera 2021), though this is not the majority position. All of this suggests that the wording of the MFWPH does not meet current criteria to be considered a PAYT system, although it should be acknowledged that the environmental reduction of the fee for using clean points is a significant first step and a sign of transition towards the mechanisms required by the EU today.

6 Concluding Remarks

The goal of this research was to determine whether, considering current regulations, doctrines, and case law, Barcelona’s waste fee can be considered aligning with the PAYT systems required by the EU. This fee is regulated by FO 3.18 and has been applied with virtually no modifications since 2020. One of its unique features is that its taxable event—the collection of municipal waste generated in private households—is directly linked to the consumption of potable water in residences, which is why it is charged through the water bill. This “generation-consumption” relationship has been maintained for 2025, the year in which the deadline established by LCSWCE will be reached. Hence, the importance of our research objective.

Municipal waste fees in Spain are subject to the regulatory framework set by Directive 2008/98/EC, as amended by Directive (EU) 2018/851, and by LCSWCE, which in 2022 transposed the Directive’s content into the Spanish legal system. The revised directive encourages waste management through PAYT systems

in order to reinforce a circular and sustainable economic model in the EU. However, it did not establish deadlines or details for implementation, leaving these matters to each Member State. It only provides a definition of such systems, emphasizing their main objectives: waste reduction and recycling incentives. LCSWCE adopted this same definition and provided some details on financial instruments for implementation, the characteristics required, and a three-year deadline for execution. However, the wording of the law is quite brief and sometimes ambiguous.

This three-year period is one of the biggest concerns for Spanish municipalities, as the wording of the national law is not entirely clear on what is expected of them by April 10, 2025, nor on what penalties they might face for full or partial non-compliance. In response, the Ministry of Finance clarified in 2024 that the deadline marks the beginning, rather than the end, of the period for gradually implementing PAYT systems.

This interpretation presents a very different scenario from what was initially expected from the LCSWCE and it seems to reassure Spanish municipalities while also raising concerns within the European Commission. This is because this interpretation does not appear to align with the EU’s intent, as evidenced by various reports from the European Commission warning Spain about its delays in meeting waste-related targets and urging the immediate adoption of financial measures based on PAYT systems. Ultimately, it will be up to the courts to interpret how this rule should be applied in practice.

The much-anticipated Spanish Supreme Court ruling STS 851/2024, issued in May 2024, merely confirmed the justification and reasonableness of the generation-consumption relationship on the basis of the legal framework in Spain in 2019 (the date of the lawsuit). However, it took no stance on the new and complex regulatory framework created by LCSWCE. Nonetheless, given the court’s repeated clarifications throughout the ruling, it appears that Barcelona’s current waste fee would not be sufficient to comply with the PAYT systems required by the new European and Spanish legal (state level) framework.

Doctrine generally frames PAYT systems within the polluter-pays principle, under the “generator-pays” approach. In line with the EU’s goals, the implementation of these principles means that each citizen contributes to the total cost of the service according to the actual waste generated, with the aim of reducing waste and encouraging recycling. There is widespread awareness that transitioning from traditional systems to PAYT

⁷¹ Along these lines, the *Observatorio de la Fiscalidad de los Residuos* (2023, 32) warns that “...there are many factors that explain differences in water consumption between households, such as the presence of swimming pools, consumption habits, hygiene habits, etc., which have nothing to do with waste generation”.

⁷² Serrano (2023, 182) clarifies that “...the municipal waste management service tax, in the pay-as-you-throw system, has a dual incentive: first, the reduction of waste itself; and second, the taxpayer’s participation in selective collection by paying a higher charge on residual waste generation”.

is highly complex and requires a combination of two quotas: a fixed quota based on reasonable indicators and a variable quota based on generation, which allows for the exact measurement of waste (by weight or volume) and the identification of its producer. A considerable part of both Spanish (state level) and international doctrine agrees that assumptions based on property size or water consumption could be used to configure the fixed quota, but not the generation fee, as they do not genuinely incentivize waste reduction, which is one of the main goals of PAYT.

Looking ahead, several legal and operational challenges arise for municipalities and Member States in ensuring that PAYT systems comply not only with formal EU directives but also with the broader transformative ambitions of the circular economy. In the short term, many local governments must navigate administrative inertia, technological constraints, and public skepticism regarding behavior-based taxation. In the Spanish case—particularly in Barcelona—reliance on proxy indicators such as water consumption might remain legally defensible under current interpretations, but it does not fully reflect the polluter-pays principle as envisioned in EU policy.

Moreover, PAYT systems demand more than regulatory compliance: they require citizen involvement, technological infrastructure (e.g., individual waste tracking), and long-term institutional commitment. This raises a fundamental question: do current municipal approaches, such as the MFWPH, represent a transitional step toward true circularity, or do they risk institutionalizing suboptimal models that fail to incentivize real behavioral change? From a critical perspective, while these systems may be politically expedient and administratively feasible in the short term, their long-term sustainability is questionable without deeper alignment with environmental goals and measurable reductions in waste generation. A successful PAYT model, therefore, must go beyond minimum legal requirements and become an effective catalyst for systemic change at both the local and European level.

Ultimately, regulations, case law, and doctrine lead to the conclusion that the current MFWPH does not appear to align with PAYT systems in the manner or the timeframe required by the EU. Not because the relationship between water consumption and waste generation is unreasonable or unjustified, but because the PAYT system goes much further, requiring a more precise determination of waste and its generators. However, this does not necessarily mean that this fee will automatically become legally non-compliant as of April 10, 2025.

Unless case law interprets it otherwise, the wording of LCSWCE and the Ministry of Finance's interpretation of it suggest that, from that date, municipalities must demonstrate a transition toward PAYT systems, but not that they must have already fully implemented them. While this may reassure Spanish municipalities, it is also likely to trigger increased scrutiny from the EU with regard to Spain's lack of a stricter and faster PAYT system implementation plan.

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