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Methodology for Determining Lost Income in Cases Involving Holders of the Scientific Degree "Doctor of Sciences": Legal Nature of the Scientific Degree, Evidentiary Logic, and an Extended Mathematical Model Based on Total Documented Professional Income

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Abstract
This article proposes an extended methodology for the quantitative assessment of lost income in cases involving a person holding the scientific degree "Doctor of Sciences". The starting point is the distinction between documented income and analytically attributed income. A scientific degree constitutes an objectively verifiable fact and, within certain legal relationships, may have a direct impact on remuneration. This, however, does not establish a general rule that a particular percentage of a person's total income should be regarded as "income attributable to the scientific degree". The proposed approach retains total professional income as the principal observable variable, while separately identifying only those components that are individually specified by law or supported by documentary evidence. It introduces a multi-level mathematical framework comprising reference income, median estimation and analysis of variation, a stability index, time weighting, a structural change test, a scenario interval, and a separate causation filter. The purpose is not for the formula to replace legal assessment, but to make the economic component of the expert examination transparent, verifiable, and reproducible.

Keywords: Causation, Doctor of Sciences, Forensic Accounting Expertise, Lost Profits, Mathematical Model, Reference Income, Reproducibility, Sensitivity, Total Income

1. Introduction: The Problem of Income and the Limits of Expert Modelling

When a court is required to determine pecuniary damage associated with income that was not received, the natural objective is to arrive at a specific numerical amount. The difficulty lies not in the arithmetic calculation itself, but in the basis on which a particular quantity is accepted as a measure of the increase in assets that failed to materialise. If that basis is insufficiently clear, mathematical precision may create an appearance of certainty without eliminating the uncertainty inherent in the model itself.

In the monograph "Methodological Problems of Forensic Accounting Expertise: Legal and Economic Analysis of the Expert Opinion", this problem is examined through the boundary between factual establishment and modelling. The principal conclusion is that income is linked to a specific legal source, whereas its subsequent internal allocation according to scientific degree, scientific field, or professional domain does not constitute an autonomous normative construct. Such allocation must be treated as an analytical model rather than as a directly established accounting fact [1].

This distinction does not imply that the scientific degree is economically irrelevant. It may constitute an advantage in obtaining a position (which need not necessarily be academic or related to research activity), in professional advancement, in access to particular activities, or in receiving specifically higher remuneration. However, the economic influence of a given characteristic and the legal creation of a distinct component of income are separate issues, and any methodology must preserve that distinction.

2. The Legal Threshold Prior to Mathematical Calculation

In cases of lost profits, quantitative calculation is not the first step. There must first be a factual basis for concluding that an increase in the person's assets would have occurred. Interpretative Decision No. 3 of 13 January 2023 in Interpretative Case No. 3/2021 of the General Assembly of the Civil and Commercial Chambers of the Supreme Court of Cassation holds that lost profits caused by a tort must be proven with certainty, just as lost profits resulting from contractual non-performance must be. The Supreme Court of Cassation proceeds from the understanding that lost profit is actual rather than hypothetical damage and cannot be presumed.

An important methodological consequence follows: a statistical or economic model cannot itself create a missing factual premise. It can quantify only after facts have been established that reasonably support the continuation of the income trajectory. In this sense, the mathematical framework is secondary to the evidentiary process, although it remains necessary for quantitative assessment.

3. Core Hypothesis of the Proposed Methodology

The core hypothesis is as follows: where there is no statutory or contractual basis for separating an autonomous "income attributable to the scientific degree", the least arbitrary measurable basis is the total documented professional income realised during a comparable period and under comparable conditions. The scientific degree operates as a characteristic of the professional environment and as a possible source of expressly differentiated payments, but it is not assigned a predetermined percentage weight.

This avoids a formula of the type $D_DSc = k \times D_total$ where k is selected without a statutory rule or an empirically validated model. Such a formula may be mathematically impeccable while remaining methodologically indeterminate, because the result depends directly on the choice of k.

4. Observed Variables and Information Base

For each month i of the reference period, let the total documented professional income D_i be known. Only amounts traceable to a primary document or an official register are included. Where a separately accrued additional remuneration for a scientific degree exists, it is recorded as an observable component S_i, but it is not used to construct a fictitious share within the remaining income.

$$D_i = B_i + S_i + H_i + P_i + E_i + \dots$$

B_i denotes basic employment or public-service remuneration; S_i denotes separately documented remuneration for a scientific degree; H_i denotes documented fees; P_i denotes project income; and E_i denotes other comparable professional income. The decomposition serves an accounting and descriptive function. It does not mean that each component has the same legal significance when damage is assessed.

5. Selection of the Reference Period

The reference period must be sufficiently long to reflect sustained professional activity, yet sufficiently close to the damaging event so as not to describe a professional phase that is no longer comparable. In the case of relatively stable employment, a period of 36 months is a reasonable starting point; where income is project-based, seasonal, or highly variable, periods of 48 or 60 months may be examined. These values are methodological guidelines rather than legally prescribed periods.

To prevent the choice of period from becoming outcome-oriented, the expert should specify in advance the criteria for its beginning and end: acquisition of the degree, commencement of a comparable position, a lasting change in professional status, interruption of activity, or another documented structural event.

6. Central Estimate of Income

The simplest estimate is the arithmetic mean:

$$\mu = (1/n)\ \Sigma(i=1\dots n)\ D_i$$

It uses all available information but is sensitive to isolated high or low payments. The median should also be calculated:

$$m = \text{median}\ (D_1, D_2, \dots, D_n)$$

When μ and m are close, the distribution of income is relatively stable. A substantial divergence indicates asymmetry or atypical values and requires further analysis.

7. Control-Adjusted Mean and Robust Reference Income

For project-based and fee-based income, individual values may materially affect the mean. Instead of excluding them subjectively, an α-control-adjusted mean may be used. After arranging income in ascending order, an equal small proportion of the lowest and highest observations is removed:

$$\mu_ctrl = [1 / (n - 2k)]\ \Sigma(i=k+1\dots n-k)\ D_(i),\ k = \text{floor}(\alpha n)$$

At $\alpha = 0.10$, 10% is removed from each tail. This estimate does not replace the mean; it serves as a check on whether the result is driven by a small number of extreme payments.

8. Coefficient of Variation and Assessment of Stability

To measure the stability of historical income, the standard deviation σ and coefficient of variation CV are calculated:

$$\sigma = \text{sqrt}\{\ [1/(n-1)]\ \Sigma(D_i - \mu)\text{^}2\ \}$$

$$CV = \sigma / \mu$$

CV does not determine the damage. It describes the reliability of using a single central value as representative of the income history. With low variation, mean income is more informative. With high variation, a single figure should be accompanied by a scenario range and an analysis of the causes of fluctuation.

9. Time-Weighted Model

Where income develops over time and more recent observations are more representative of the situation immediately preceding the damaging event, a weighted mean may be used:

$$D_w = \Sigma(i=1\dots n)\ w_i\ D_i,\ \Sigma\ w_i = 1,\ w_i \geq 0$$

The weights should not be selected according to the desired result. One reproducible option is exponential decay:

$$w_i = \lambda(1-\lambda)^{(n-i)} / \Sigma(j=1\ldots n)\ \lambda(1-\lambda)^{(n-j)},\ 0 < \lambda \leq 1$$

A larger λ places greater emphasis on the most recent months. This model is admissible as an analytical scenario only where it is explained why older income is less representative. Otherwise, the unweighted mean remains more transparent.

10. Trend Model

If the income history shows a sustained upward or downward trend, a static mean may underestimate or overestimate expected income. A linear relationship may then be estimated:

$$D_t = a + b\,t + \varepsilon_t$$

The parameters a and b are estimated by the method of least squares. The projected income for the relevant month t is:

$$\hat{D}_t = \hat{a} + \hat{b}\,t$$

The trend model should be applied by considering all income received during the relevant period, which is justified by the indivisible nature of that income. It is more powerful than simple averaging, but also more dependent on the assumption that the observed trend would have continued. Given the requirement that lost profit must not be hypothetical, the trend is appropriate as a control or supplementary scenario where it is stable, statistically observable, and supported by facts indicating continuation of the professional activity.

11. Test for Structural Change

A significant risk arises where the reference period includes a change of position, employer, professional activity, or remuneration regime. In such circumstances, a single mean combines two different income structures. A practical test is to divide the period into subperiods A and B and compare their means μ_A and μ_B, medians, and variations.

$$\Delta_{struct} = |\mu_B - \mu_A| / \max(\mu_A, \mu_B)$$

Δ_{struct} is not a statutory criterion but a diagnostic indicator. A high value requires an explanation as to whether the change is incidental or reflects a new and lasting professional situation. If the latter is the case, the earlier period may have lower predictive value.

12. Basic Model of Lost Income

After determining the reference value R_t – which may be a constant μ, median m, weighted value D_w, or projected value $\hat{D}_t$ –the actually realised comparable income F_t is compared with it:

$$L_t = \max(0, R_t - F_t)$$

$$L = \Sigma(t=1\ldots T)\ L_t$$

This is a quantitative estimate of the shortfall. It is not automatically equal to the legally recoverable compensation, because the causation and legal filters must subsequently be applied.

13. Causation Filter

Let C_t be an indicator of whether, for the relevant period, a legally relevant causal link has been accepted between the damaging event and the income shortfall:

$$C_t \in \{0,1\}$$

$$L_c = \Sigma(t=1\ldots T)\ C_t \cdot \max(0, R_t - F_t)$$

The binary form is preferred to an arbitrary percentage representing a "degree of causation", because the latter could easily become another subjective coefficient. Where the applicable law permits contributory fault or another statutory reduction, it should be applied separately and on the legal basis that justifies it, rather than being concealed within the economic model.

14. Model in Cases of Partial Professional Unavailability

In some cases, the damaging event does not interrupt all professional activity, but only a particular documented activity. In that situation, instead of allocating total income among scientific factors, the specifically documented activity j is separated:

$$D_i = \Sigma(j=1\ldots q)\ D_{ij}$$

$$L_t = \Sigma(j \in J^*)\ \max(0, R_{jt} - F_{jt})$$

J* contains only those activities for which a factual link to the damaging event has been established. This approach differs fundamentally from assigning a percentage to the scientific degree: the separation is made by actual sources of income rather than by abstract personal characteristics.

15. Scenario Interval Instead of a Single Figure

Where the data are variable, it is scientifically more appropriate for the court to receive a principal estimate together with a sensitivity range. The following may be determined:

L_{low} = result based on a conservative basis (for example, the median)

L_{base} = result based on the principal basis (mean/robust mean)

L_{high} = result under a justified trend scenario

These values do not represent "minimum, fair, and maximum compensation". They show how sensitive the quantitative result is to permissible methodological choices. The legal amount is determined by the court; however, the court cannot replace specialised expert analysis with unrestricted interpretation in matters requiring professional competence and expertise.

16. Model Sensitivity Index

To demonstrate the dependence of the result on the selected method, a simple index may be used:

$$SI = (L_{high} - L_{low}) / L_{base}$$

The smaller SI is, the less the final calculation depends on the choice among reasonable alternative models. A high SI is a warning that the expert result should not be presented as an unequivocal figure without a detailed explanation of the assumptions.

17. Documentary Coverage Index

The quality of the input data may be described through the proportion of income directly supported by primary or official documents:

$$DC = \Sigma D_verified / \Sigma D_included$$

In a properly constructed forensic accounting data set, DC should approach 1. The indicator is not a legal standard but an instrument of transparency. If part of the included amounts is derived from indirect estimates, this should be made visible.

18. Integrated Formula

For expert purposes, the individual elements may be combined within a common formal framework:

$$L^* = \Sigma(t=1\ldots T)\ C_t \cdot \max[0, R_t(D_1\ldots D_n; M) - F_t]$$

M denotes the selected and previously described method for determining reference income. The essential point is that C_t, R_t, and F_t are separate logical variables. In this way, the causal premise, the expected-income model, and actual income are not merged into a single opaque coefficient.

19. Where Exactly the "Doctor of Sciences" Degree Enters the Model

The scientific degree enters at four verifiable points: in defining the comparable professional phase; in including expressly accrued additional remuneration for the degree; in establishing the requirements for a particular position or activity; and in the factual assessment of whether the income history was formed in a professional environment in which the degree had genuine relevance. None of these points requires an arbitrary percentage allocation of total income.

This solution is consistent with the conclusion developed in the monograph that the scientific degree and professional orientation are legitimate and provable facts, but their establishment does not automatically mean that an autonomous share of realised income can be attributed to each characteristic [1].

20. Reproducibility of the Expert Examination

Reproducibility requires that another specialist, working with the same data and the same description of the method, be able to replicate the quantitative result. The monographic analysis correctly raises this issue in relation to models that do not derive from a legally mandatory algorithm. Where different choices of weights or factors produce materially different results, methodological justification becomes part of evidentiary reliability rather than a merely technical appendix [1].

Every expert calculation should be accompanied by the input-data table, the rules for inclusion and exclusion, the selected reference period, the formulas, intermediate results, the alternative scenario, and the sensitivity analysis. Without these elements, the final figure may be checked arithmetically but not methodologically.

21. Illustrative Numerical Example

Assume, for illustrative purposes, that during the 36 months preceding the damaging event professional income was established with a mean value of BGN 5,200, a median of BGN 5,050, and a 10% control-adjusted mean of BGN 5,120. For a relevant period of 12 months, the actually realised comparable income averaged BGN 2,900 per month. Under the simplified assumption of equal monthly values, the basic model yields:

$$L_base = 12 \times (5{,}200 - 2{,}900) = \text{BGN } 27{,}600$$

- **The conservative median scenario yields:**

$$L_low = 12 \times (5{,}050 - 2{,}900) = \text{BGN } 25{,}800$$

- **The control-adjusted scenario yields:**

$$L_ctrl = 12 \times (5{,}120 - 2{,}900) = \text{BGN } 26{,}640$$

The difference among the three estimates is limited, indicating relative robustness with respect to the choice of central measure. These figures may, however, be used as an estimate of lost profit only if the factual basis for continuation of the relevant professional activity has been established and a legally relevant causal link has been demonstrated. The example is illustrative and does not constitute a calculation for a specific case.

22. Limitations of the Mathematical Model

None of the proposed indicators eliminates the uncertainty arising from the future-oriented nature of lost profit. The mean does not prove continuation of income; the trend does not prove that the tendency would have persisted; the median does not prove causation; and high documentary coverage does not resolve the legal question of recoverability. The strength of the model lies elsewhere: it makes clear what is fact, what is assumption, and how each assumption affects the numerical result.

It is precisely here that the principle developed in the monograph becomes relevant: accounting findings that can be verified through primary documents and analytical conclusions that depend on the selected model should not be placed on the same evidentiary level.

23. Proposed Algorithm for Forensic Expert Application

For the practical application of the developed methodology, the individual stages of analysis must be arranged in a clear and sequential procedure ensuring traceability from primary evidence to the final quantitative result. The proposed algorithm systematises this sequence by integrating the legal and factual basis, documentary verification of income, selection of the reference basis, statistical assessment, the causation filter, and sensitivity analysis. This limits the possibility of introducing arbitrary assumptions and creates a reproducible model for determining lost income without allowing the economic calculation to replace legal assessment (See Figure 1).



Source: Developed by the authors

Fig 1: Algorithm for Determining Lost Income in Cases Involving Holders of the Scientific Degree "Doctor of Sciences"

The figure presents the sequence of the proposed methodology, from establishing the legal and factual basis and verifying documented income to determining reference income, applying a causation filter, and conducting scenario analysis. The algorithm preserves total documented professional income as the principal observable variable and does not permit its arbitrary allocation according to the contribution of individual professional characteristics. The final result constitutes an economically reasoned and verifiable quantitative assessment that assists, but does not replace, the court's legal assessment.

24. The Scientific Degree "Doctor of Sciences" as a Qualification Rather Than a Position

The scientific degree "Doctor of Sciences" does not constitute an academic position, a profession, or an autonomous employment relationship. Bulgarian legislation distinguishes the acquisition of scientific degrees from appointment to the academic positions of "Chief Assistant Professor", "Associate Professor", and "Professor". The degree certifies an attained level of scientific achievement and research qualification. It may be relevant to professional development, access to particular activities, and the amount of certain remuneration, but it does not in itself generate a universal and autonomous stream of income.

This distinction is fundamental to the methodology. Competences acquired through scientific development are manifested in an integrated manner across teaching, research, project, expert, managerial, and authorship activities. In an actual professional biography, there is no parallel observation showing what the exact same person's income would have been under identical conditions but without the scientific degree. Thus, in the absence of a statutory, contractual, or empirically validated criterion, it is not objectively possible to determine a fixed percentage of each income item as "income attributable to the Doctor of Sciences degree".

Statutorily individualised additional remuneration represents a different situation. Article 11(1) of the Ordinance on the Structure and Organisation of Salaries provides for additional monthly remuneration for the scientific degree "Doctor of Sciences" where the degree is related to the work performed. From 1 January 2026, the minimum amount is EUR 25.56. This provision shows precisely when the degree has a separately measurable monetary component: when the legal source individualises it. It does not follow that the remainder of total income may be allocated proportionally between the degree and the other professional characteristics.

The distinction between a scientific degree and a position is not merely terminological; it has substantial methodological significance. A position denotes a specific organisational place within a particular institutional structure and is associated with defined employment or public-service functions, rights, obligations, and a remuneration regime. By contrast, a scientific degree certifies a permanently acquired level of qualification that is not exhausted by a particular workplace, employer, or job description. The holder does not cease to possess the acquired scientific qualification upon changing position, employer, or form of professional activity. For this reason, it is methodologically incorrect to reduce the economic significance of the degree to remuneration attached to a single position or to a separate supplement to salary.

The scientific degree "Doctor of Sciences" certifies not a single professional skill but a high level of scientific autonomy and a complex set of interrelated competences.

These include the capacity to formulate and solve complex scientific and applied problems; critically analyse large and conflicting bodies of information; construct and test conceptual and methodological models; justify decisions under conditions of incomplete information; assess risks and alternatives; create new knowledge; and transfer that knowledge into teaching, expert, managerial, project, and consultancy practice. These competences are not activated only when the individual formally performs a "scientific" activity. They form part of the manner in which professional activity is exercised as a whole and may simultaneously influence the quality, complexity, scope, and economic value of different forms of professional work.

Advanced scientific qualification functions as an integrated element of the individual's human capital. Accumulated expertise, analytical capacity, methodological culture, professional judgement, capacity for synthesis, and ability to work with complex problems cannot reliably be allocated among separate remuneration items as if they were independent accounting assets with predetermined prices. The same set of competences may be used in teaching, scientific supervision, preparation of an expert opinion, project management, consultancy, authorship, or participation in a collective management process. The economic effect of the qualification may thus be real and significant without being capable of separation as an autonomous percentage of each specific payment.

An important evidentiary boundary follows. It cannot be assumed that, merely because a particular remuneration item is not labelled as payment "for a Doctor of Sciences degree", the scientific qualification played no part in producing the professional result underlying that income. The opposite proposition would be equally unfounded: total income cannot automatically be characterised as income arising from the degree. The scientifically defensible position is that total professional income results from the combined operation of multiple inseparable factors: education, scientific qualification, experience, reputation, specialised knowledge, organisational functions, contractual relationships, individual professional contribution, and the specific market or institutional environment. In the absence of an external statutory or documentary criterion, the expert examination has no objective basis for determining precisely what percentage of the total result is attributable to each factor.

25. Core Thesis: Total Documented Professional Income as the Reference Basis

Where the subject of assessment is the pecuniary consequence of restricting or losing the opportunity to realise one's professional potential, it is economically more defensible to use total documented professional income for a comparable preceding period. It reflects the income level actually attained by the person in his or her specific professional state: with the acquired scientific degree, accumulated experience, positions held, contractual relationships, and activities actually performed.

For the purposes of this methodology, the concept of "professional income" should denote the aggregate documented income from professional activity realised after acquisition of the scientific degree "Doctor of Sciences", irrespective of the specific workplace, employer, type of legal relationship, or organisational form through which that activity was carried out. Acquisition of the degree marks a new, objectively ascertainable qualification status of the individual, which is neither terminated nor altered by a subsequent change of employer, position, or form of professional activity. Income realised after that point and arising from comparable professional activity may form a unified reference income history, provided that it is documented and satisfies the criteria of comparability. What is decisive is not which employer paid the particular remuneration, but whether it represents the result of the person's professional activity in the qualification status attained after acquiring the scientific degree "Doctor of Sciences". It is precisely this professional income that should serve as the baseline variable for determining reference income, without artificially allocating its individual components according to employer, position, or the presumed contribution of the scientific degree.

In this sense, total documented professional income should be understood as an indivisible observable economic quantity, insofar as it constitutes the actual realised and documentable pecuniary result of the person's professional activity. Indivisibility does not mean that separate sources of payment, salary, fee, project income, authorship remuneration, or another documented amount, cannot be distinguished for accounting purposes. Rather, it means that, once these payments have been generated through the simultaneous use of the same person's combined professional qualities and competences, there is no reliable ex post method for decomposing each income item into percentages according to the part generated by the scientific degree, experience, expertise, or the other elements of the professional profile.

An attempt at such internal allocation would replace an observable quantity with a hypothetical construct. If, for example, 10, 20, or 30 per cent of a particular income were attributed to the scientific degree without a statutory source, contractual clause, express accounting accrual, or empirically validated model, the selected percentage would not be derived from the evidence but introduced externally by the analyst. This creates a circular dependence: the amount of the claimed damage begins to depend not on the established income history but on a prior assessment of the "contribution" of a qualification characteristic. The mathematical operation does not reduce uncertainty; it conceals it behind a numerical form.

For this reason, the reference function of total income is particularly important. It represents the empirically observed result of the actual professional activity of the specific individual in the state in which that person actually existed during the reference period. If, during that period, the person held the "Doctor of Sciences" degree, performed activities in which accumulated scientific and professional competence was used, and generated stable documented income, that factual income history constitutes the relevant starting point. In the counterfactual assessment, the question is not what abstract price the scientific degree has in itself, but what income the person would, with a sufficient degree of evidentiary certainty, have continued to realise if comparable conditions had been preserved and the damaging event had not occurred.

This approach simultaneously avoids two opposite methodological errors. The first is undervaluing the scientific degree by reducing it solely to the statutory supplement attached to the degree. The second is overvaluing it by arbitrarily attributing a fixed share of all income to it. Between these extremes lies the more evidentially robust

understanding: the degree is a material part of professional capital and may have broad economic manifestations, but where its contribution is not separately individualised, it remains integrated into the result. The expert task is to establish and model documented total professional income rather than create a non-existent accounting boundary among the interacting qualities of the individual.

Total income is not used as automatically recoverable compensation, but as a reference economic basis for determining counterfactual income. The actually realised comparable income for the relevant period is deducted from this basis. The legally recoverable amount depends on the established causal link and the applicable substantive legal regime.

$$D_{total,i} = D_{employment,i} + D_{degree,i} + D_{fees,i} + D_{project,i} + D_{authorship,i} + D_{other,i}$$

$$D_{ref} = (1/n) \times \Sigma_{(i=1\ldots n)} D_{total,i}$$

$$LI_t = \max(0; B_{ref,t} - D_{fact,t})$$

$$LI = \Sigma_{(t=1\ldots T)} LI_t$$

These formulas contain no K_DSc coefficient for the "Doctor of Sciences" degree. If such a coefficient were introduced without an external verifiable criterion, the result would depend on a preselected weight rather than on primary evidence. The scientific degree enters the model as a characteristic of the professional state in which total income was historically formed and, separately, only through those payments that are individualised by statute or contract as remuneration for the degree.

26. Bulgarian Case Law on Lost Profits

Interpretative Decision No. 3 of 12 December 2012 in Interpretative Case No. 3/2012 of the General Assembly of the Civil and Commercial Chambers of the Supreme Court of Cassation holds, in the context of contractual liability, that lost profit is actual rather than hypothetical damage and that there must be certainty that the increase in assets would have occurred. By Interpretative Decision No. 3 of 13 January 2023 in Interpretative Case No. 3/2021, the same General Assembly applies the same requirement to lost profits caused by tort: they must be proven with certainty and cannot be presumed.

For the proposed model, this means that historical total income is not sufficient in itself. It must be established that the professional activity had a real prospect of continuing, that the period used is comparable, and that the income shortfall did not arise from independent causes. This is precisely why the model separates the economic calculation from the legal assessment of causation.

27. European Case Law and Comparative Reference Points

In Magyarországi Evangéliumi Testvérközösség v. Hungary (just satisfaction), 25 April 2017, the European Court of Human Rights articulated two important principles: there must be a clear causal link between the pecuniary damage claimed and the violation, and loss of income (lucrum cessans) must be convincingly established rather than based on mere assumption or probability. At the same time, the Court recognises that precise assessment of future losses may be complicated by their inherent uncertainty and that a genuine loss of opportunities may also justify pecuniary compensation.

Of particular relevance to the present methodology is the manner in which the European Court of Human Rights uses actual data from preceding periods and average values when assessing continuing pecuniary consequences. This does not mean mechanically projecting past income into the future, but using documented historical professional activity as an empirical basis where facts support continuation of the activity.

As a comparative reference point, the case law of the Court of Justice of the European Union in Case C-113/22 may also be noted, where the principle of full reparation for damage actually sustained within the scope of EU law was emphasised. The judgment does not concern scientific degrees and does not prescribe a methodology for professional income; its relevance here is limited to the general principle that compensation should be directed towards actually established damage rather than an abstract value assigned to a personal characteristic.

28. Refinement of the Statistical Framework

The arithmetic mean remains the principal descriptive indicator where the reference period is comparable. The median is used as a control for the influence of isolated high or low payments. Automatic exclusion of extreme values should not be the principal method in forensic accounting assessment, because every payment actually received must first be analysed according to its economic and documentary nature. If a particular income item is one-off and non-comparable, its exclusion must be specifically justified rather than resulting solely from a statistical rule.

29. Final Methodological Conclusion

The scientific degree "Doctor of Sciences" should be regarded as a qualification and professional fact, rather than as a position or an autonomous accounting source of income. Where the degree is integrated into the person's overall professional activity and there is no statutory or contractual mechanism for quantitatively separating its contribution, calculating compensation through an arbitrary percentage of income would create a new and unproven factual construct. The more reliable basis is total documented professional income, adjusted only through transparent criteria of comparability, actually realised income, and proven causation.

The scientific degree "Doctor of Sciences" cannot be treated as a position-related status to which a particular part of remuneration is mechanically attached. It is a permanently certified qualification that changes and enriches the holder's professional capacity and is manifested in the manner in which the person analyses, solves problems, creates, manages, teaches, and provides expert knowledge. Precisely because these manifestations are multidirectional and permeate different income-generating activities, their economic effect is generally integrated. Where the evidence does not establish a separate price for a particular component, total professional income is not merely a practically convenient but a methodologically more appropriate measurable basis, because it preserves the actual observed result and introduces no unproven internal proportions.

30. Conclusion

Expanding the mathematical framework should not lead to complexity for its own sake. In forensic expert examination, a sound model is one in which each additional mathematical operation addresses a specific evidentiary problem. The mean measures the centre; the median and control-adjusted mean test robustness; standard deviation and CV show variation; time weighting and the trend may examine dynamics; the structural test examines comparability; and the scenario interval and SI show sensitivity. None of these instruments creates a legal basis for compensation.

In cases involving the scientific degree "Doctor of Sciences", the methodologically most defensible approach is to retain total documented professional income as the starting variable and to separate only those components that are genuinely individualised by a statutory instrument, contract, payroll record, or other document. In this way, the scientific degree retains its actual significance without being transformed into an arbitrary coefficient.

The proposed model continues the central thesis of the monograph: a number acquires evidentiary value not because it has been produced by a complex formula, but because the path from the document to the result is visible, reasoned, and verifiable. This is also the boundary within which a mathematical model can assist the court without replacing its legal assessment.

By embedding the mathematical operations directly within the legal parameters established by legislation, interpretative case law, European jurisprudence, and empirical expert practice [2–18], the model ensures that the quantitative assessment remains strictly bound to evidentiary reality. In this way, the algorithm provides a transparent bridge between documented financial history and judicial decision-making.

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