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VALUATION OF THE UNION'S REAL ESTATE ASSETS: AN APPROACH FOR BETTER ACCOUNTING TO BE SHOWN IN THE UNION'S BALANCE SHEET

Pedro de Medeiros

ABSTRACT

The Union's property laws and public accounting standards require the technical evaluation of real estate assets registered in the Secretariat of Union Property (SPU) system to update the Union General Balance (BGU). This obligation poses a significant challenge for the SPU, responsible for the Special Use Real Estate Management System (SPIUnet), vital to the Integrated Financial Management System (SIAFI). Although obtaining the market value of certain properties is costly for the public sector, this information often does not effectively reflect the value of the properties, limiting its utility. This document suggests a comparative analysis between market value and the reference value adopted by the SPU, followed by a new approach that considers the competencies of management units for more effective management of public property values in the BGU.

Keywords: Market and reference value. Accounting evidence. Reference Value Report.

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1. UNION REAL ESTATE AND THE SPU

Federal properties are a considerable part of the country's public wealth, so measuring and updating them in the light of an efficient valuation methodology and routine can guarantee better administration, with repercussions on transparency, accounting adequacy and, consequently, more realistic balance sheets.

When properly managed, the Federal Government's real estate assets can be a great vector of social and economic development for the country, with consequent positive externalities by promoting their best use and destination, contributing to fiscal responsibility, the creation of specific funds, better financial performance, budget plans, increased revenue, improved public activity, and, with the proper updating of real estate values in the BGU, contributing to better decisions and greater security in the implementation of real estate policy.

That said, SPU plays an important role. It is one of the oldest secretariats in the country, regulated by Decree No. 1.318, of January 30, 1854, at the time called the General Department of Public Lands - RGPT, which, after the Proclamation of the Republic, in 1909 was renamed the Directorate of National Patrimony - DNP, linked to the Ministry of Finance, when in 1988, through Decree No. 96.911, it was renamed the Secretariat of Patrimony of the Union - SPU. In 1999, SPU was transferred to the Ministry of Planning, Budget and Management, with an expanded and more complex structure, consisting of a central administration and twenty-seven regional superintendencies (Paiva and Fonseca, 2016). In 2019, through Decree No. 9745, it became part of the Ministry of Economy, and was recently changed in 2023 with the publication of Decree 11.437, which became part of the Ministry of Management and Innovation in Public Services-MGI. Among its responsibilities is the accounting of the real estate assets under its management, which subsidizes the composition of the BGU, which is consolidated by the National Treasury Secretariat - STN.

1.1. Accounting disclosure of federal real estate

Dados em: R\$ milhões

Fonte: Siafi

	31/12/2022	31/12/2021	AH (%)
Bens de Uso Especial	1.042.065	1.067.532	(2,39)
Bens de Uso Comum do Povo	331.335	431.720	(23,25)
Ativos de Concessão de Serviços	205.941	15.801	1.203,31
Bens Dominicais	103.379	97.615	5,90
Bens Imóveis em Andamento	51.545	51.256	0,56
Instalações	4.896	5.157	(5,06)
Outros	2.351	2.245	4,77
Total Bruto (I)	1.741.513	1.671.327	4,20
Depreciação/Amortização Acumulada (II)	4.133	8.524	(51,52)
Redução ao Valor Recuperável (III)	15.133	15.197	(0,42)
Total Líquido (IV = I - II - III)	1.722.247	1.647.606	4,53

Figure 1: Consolidated financial statements - BGU <https://www.tesourotransparente.gov.br/publicacoes/balanco-geral-da-uniao-bgu->

As seen in figure 1, the 2022 financial statements consolidated in the BGU recorded a total of R\$1,722,247,000.00 (one trillion, seven hundred and twenty-two billion, two hundred and forty-seven million reais).

Article 99 of the Civil Code of 2002, in accordance with Law No. 10.406 of January 10, classifies public property as: domain property, special use property and common use property. Properties classified as being for special use are registered and updated primarily in SPIUnet, while those for public use are registered almost exclusively in SIAPA - the Integrated Asset Management System. Both systems are managed by SPU.

It is important to note that although the properties registered in the SPU systems are the main source of information in the SIAFI for the composition of the entire BGU, there are situations in which some public properties are accounted for directly in the SIAFI, without the need for registration in the SPU systems, such as assets for the common use of the people, which are mostly classified as "Highways and Roads" and accounted for directly by the National Department of Transport Infrastructure - DNIT, as shown in figure 2.

Tabela 80 – Bens de Uso Comum do Povo
Dados em: R\$ milhões
Fonte: Siafi

	31/12/2022	31/12/2021	AH (%)	AV (%)
Rodovias e Estradas	324.444	342.543	(5,28)	97,92
Eclusas	5.862	6.277	(6,62)	1,77
Portos e Estaleiros	974	866	12,42	0,29
Pontes	52	52	-	0,02
Ferrovias	3	81.981	(100,00)	0,00
Subestações de Transmissão de Energia Elétrica	0	0	(31,20)	0,00
Total	331.335	431.720	(23,25)	100,00

Figure 2: BGU 2022 (<https://www.tesourotransparente.gov.br/publicacoes/balanco-geral-da-uniao-bgu->

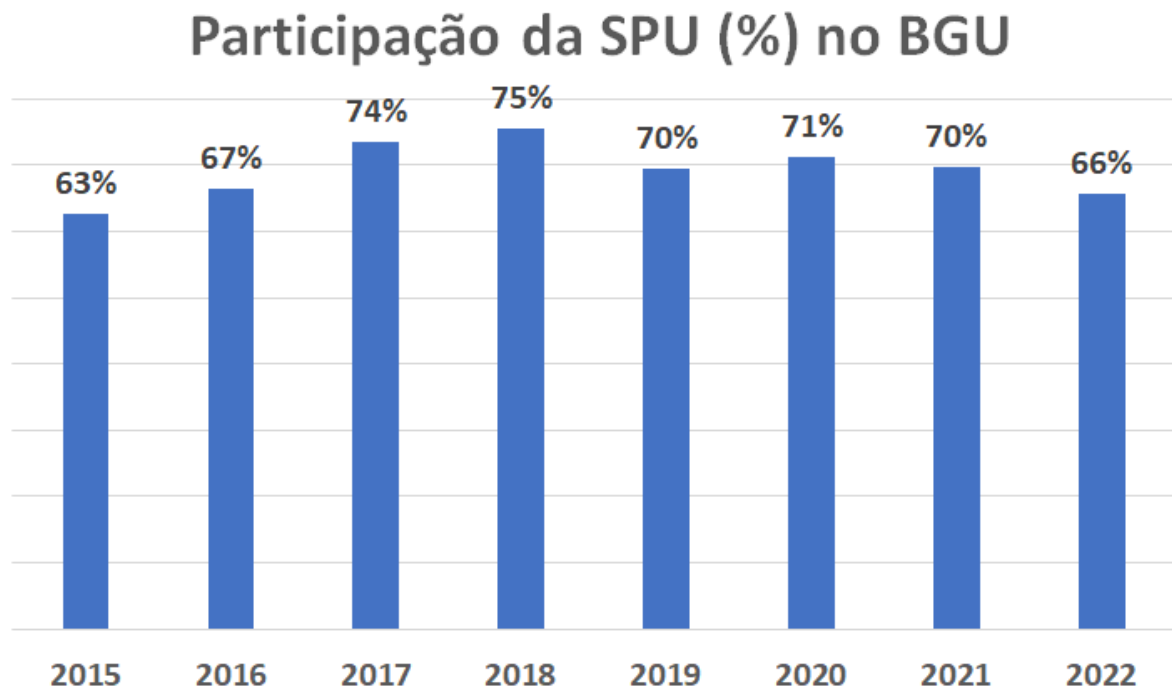


Figure 3: BGU 2022 (<https://www.tesourotransparente.gov.br/publicacoes/balanco-geral-da-uniao-bgu->

Therefore, SPU's most effective contribution, via the SPIUnet and SIAPA systems in asset accounting with SIAFI, is based on assets for special use and dominion, which historically, over the last eight years, have made up an average of 70%, as can be seen in figure 3.

1.2. Property as a country's public wealth

The governments of countries around the world have billions of dollars in real estate that is accounted for as part of their public wealth (Detter,D and Folster,S. 2015). However, better accounting disclosure is a major challenge, as many of these countries, including Brazil, which, given its potential, still has limited knowledge of its real estate portfolio.

Part of this knowledge, which, in addition to the various actions required, such as: identification, registration and incorporation of ownership, involves the proper technical assessment of the value of these properties, which as a general rule will be shown in the BGU as asset wealth.

If we consider that a country's public wealth is the sum of its "financial assets" - which include bank accounts and funds - its "public assets" - which include roads and parks - and its "commercial assets" - which include companies and real estate - we can easily recognize the challenge and potential of better highlighting Brazil's public wealth, given its continental size, diversity and the amount of real estate that has so far been registered and accounted for.

The Control Bodies play an important role in assisting and monitoring the Union's asset management. As an example, at the end of 2022, the Federal Court of Auditors - TCU, through the Consolidated Statements Financial Audit Board, consulted SPU about the existence of a large amount of land and land plots with values of less than R\$ 1,000.00, and for buildings with values of less than R\$ 100,000.00. On that occasion, the SPU informed him that, as of 2023, considering SPU Normative Instruction 67/2022 and Joint SPU/STN Ordinance 10/2023, the 637 uses of the "buildings" account and the 1,124 uses of the "land and glebas" account initially identified would be prioritized for revaluation through the RVRs, and would be linked to the SPU's institutional goal.

Of the total number of properties for special use accounted for in 2022 (figure 1), 17,761 are directly under the responsibility of the SPU Management Unit, relating to its twenty-seven superintendencies, as shown in figure 4.

The real estate included in its uses under SPU management totals just over R\$129 billion, and it is worth noting that the outdated percentage is close to 65%. The metric for the out-of-date framework is valuations for accounting purposes that are more than five years old from the date they were last updated, in accordance with IN No. 67/2022 and Joint SPU/STN Ordinance No. 10/2023.

As for the accounting gap, it is worth highlighting Rio de Janeiro and São Paulo, which, as the two main management units in terms of number of properties, also have among the highest percentage gaps, 92% and 81% respectively.

General Portfolio			Portfolio with values more than 5 years out of date		
UG- SPU	Book Value	No. of uses	Book Value	No. of uses	Percentage gap
AC	R\$ 165.115.756,19	88	R\$ 10.821.460,35	10	11%
AL	R\$ 392.349.562,16	156	R\$ 201.565.495,21	60	38%
AM	R\$ 1.959.049.389,87	168	R\$ 1.620.571.891,83	120	71%
AP	R\$ 3.069.685.944,68	58	R\$ 3.613.636,67	3	5%
BA	R\$ 1.811.233.036,23	360	R\$ 1.213.966.272,64	293	81%
EC	R\$ 734.561.489,42	277	R\$ 499.046.512,30	196	71%
DF	R\$ 4.543.298.494,68	2042	R\$ 1.268.274.948,64	988	48%
ES	R\$ 28.611.160.575,08	107	R\$ 1.006.464.678,42	29	27%
GO	R\$ 852.443.002,91	262	R\$ 195.898.619,49	142	54%
MA	R\$ 968.759.147,83	246	R\$ 357.596.346,50	182	74%
MG	R\$ 4.851.495.773,11	962	R\$ 329.490.068,88	18	2%
MS	R\$ 621.364.131,27	784	R\$ 160.850.743,33	343	44%
MT	R\$ 1.623.836.042,28	227	R\$ 108.991.677,61	89	39%
PA	R\$ 2.576.100.305,15	269	R\$ 1.273.095.038,62	142	53%
PB	R\$ 2.439.141.364,22	259	R\$ 389.460.919,63	126	49%
PE	R\$ 707.736.352,33	397	R\$ 178.995.253,62	249	63%
PI	R\$ 149.130.664,00	208	R\$ 83.903.581,54	165	79%
PR	R\$ 19.379.390.812,12	757	R\$ 485.008.373,53	284	38%
RJ	R\$ 14.323.321.655,51	2442	R\$ 12.593.539.297,97	2253	92%
RN	R\$ 979.266.137,26	296	R\$ 196.435.415,52	138	47%
RO	R\$ 22.223.632.512,92	231	R\$ 22.163.243.132,91	215	93%
RR	R\$ 4.496.194.723,69	72	R\$ 15.078.968,29	24	33%
RS	R\$ 1.286.392.975,48	900	R\$ 695.184.626,82	648	72%
SC	R\$ 4.975.146.676,86	549	R\$ 1.475.551.139,56	258	47%
SE	R\$ 343.957.670,30	149	R\$ 91.004.132,32	73	49%
SP	R\$ 5.028.770.914,79	5396	R\$ 3.196.180.720,96	4354	81%
TO	R\$ 179.049.719,53	99	R\$ 57.228.643,13	47	47%
Grand Total	R\$ 129.291.584.829,87	17761	R\$ 49.871.061.596,29	11449	64%

Figure 4: <https://paineis.gestao.gov.br/extensions/SPU/SPU.html> (base date: October 17, 2023)

1.3. Legal provisions on valuation and accounting standards

One path to better accounting for the Union's real estate, to be shown in the BGU, points to shared compliance with the provisions of the Accounting Manual Applied to the Public Sector - MCASP, under the management of the STN, with the provisions of the SPU on the valuation of real estate, currently materialized in Normative Instruction No. 67, of September 22, 2022, as well as Joint Ordinance SPU/STN No. 10, of July 4, 2023.

- With regard to MCASP, we highlight an important definition:

Asset valuation is the attribution of monetary value to asset and liability items resulting from a judgment based on consensus between the parties and which reasonably reflects the evidence of administrative acts and facts. (emphasis added)

Highlight:

"Law No. 4.320/1964, Art. 85: Accounting services shall be organized in such a way as to enable the monitoring of budget execution, knowledge of the composition of assets, the determination of the costs of industrial services, the drawing up of general balance sheets, the analysis and interpretation of economic and financial results."

"Compliance with the asset-based approach to accounting includes recording and showing the composition of the public entity's assets (articles 85, 89, 100 and 104 of Law 4.320/1964). In this respect, the accounting standards for the recognition, measurement and disclosure of assets and liabilities and their changes in equity must be complied with, contributing to the process of convergence with international standards, while respecting the national legal basis. Understanding the logic of asset records is important for understanding the formation, composition and evolution of assets. (MCASP 9th edition, 2022)"

• Quanto à Instrução Normativa da SPU nº 67/2022, destacamos importantes definições:
appraisal report: a report with technical and scientific grounds drawn up by a qualified professional or official, in accordance with NBR 14653, to appraise a property according to its market value or another value compatible with the purpose of the appraisal.

market value: is the most probable amount, always derived from an appraisal report in accordance with NBR 14653, for which an asset would be voluntarily and knowingly traded, on a reference date, under current market conditions

reference value: is the acceptable amount, derived from a reference value report, by which the Secretariat for the Coordination and Governance of the Patrimony of the Union refers to the value of a property, determined by a qualified professional or server, on a reference date.

reference value report (RVR): a technical report drawn up by a qualified professional or civil servant to determine the reference value of a property.

Highlight:

"The current Normative Instruction brings important innovation regarding the type of valuation called RVR, which is suitable for updates for accounting purposes, as this document has been duly strengthened with greater technical substantiation with a specific section of the

items to be covered and a tutorial guide to be followed."

"Art. 21: The Reference Value Report (RVR) will be accepted for the following purposes:

I - revaluation of assets for accounting purposes;"

- With regard to Joint Ordinance SPU/STN No. 10/2023, we highlight an important definition:

fair value: value determined by means of an appraisal report or a Fair Value Report.

Reference for accounting purposes.

Highlight:

"In order to standardize the methods and criteria for accounting for real estate for special use so as to make accounting and asset management standards and concepts compatible, Joint Ordinance No. 10 of July 4, 2023, signed by the SPU and STN, was published."

The aim is to improve the quality and consistency of the information that makes up the Federal Government's real estate assets through its accounting disclosure. We should also point out that although the aforementioned infralegal regulations provide for the RVR and its reference value, this term is provided for in a higher law, see Law No. 9.636, of May 15, 1998, which contributes to legal certainty regarding the use of the RVR for accounting purposes.

Law no. 9.636/1998. Art. 11-A. For the purposes of this Law, property appraisal is considered to be the activity carried out by a qualified professional to identify the value of real estate, its costs, fruits and rights and to determine the feasibility indicators of its economic use for a given purpose, by means of its market value, the value of the bare land, the venal value or the reference value, considering its physical and economic characteristics, based on examinations, surveys and research.

1.4. Valuation Report and Reference Value Report

The current IN nº67/2022 states that properties that are appraised individually will be appraised using two methods: appraisal report or RVR. Both modalities must be carried out by qualified civil servants, considered to be those with academic training in architecture or engineering, observing the specialties and their respective areas of activity.

Both modalities are based on the expected stages of scientific methodology, such as observation, questioning, construction and analysis of hypotheses to support their conclusion.

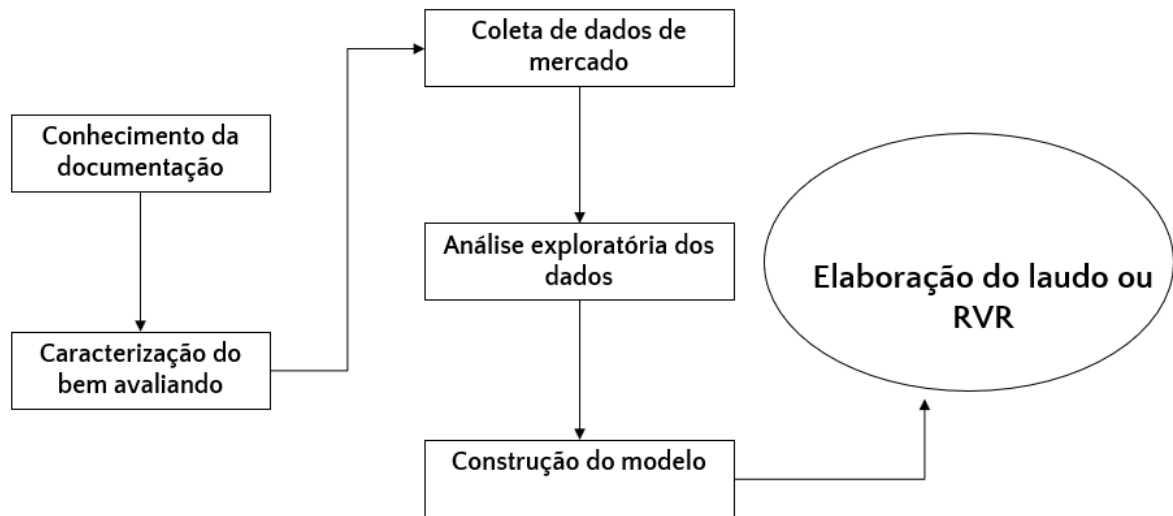


Figure 5: Basic roadmap for SPU evaluations

Considering that every appraisal is an estimate, since the population is not surveyed, but only a sample that will be duly analyzed to evaluate the property, it can be inferred that the major procedural difference between the modalities lies in the conditional compliance of the report with NBR 14653, in which the following stand out: greater exploration of data collection and characterization of the property being appraised by means of an in-person technical inspection, as well as compliance with statistical assumptions when using inferential statistics.

It is these statistical assumptions, such as Linearity; Normality; Homoscedasticity; Auto-correlation; and Multicollinearity, which ensure that the sample used is reliable and represents the population of properties with the closest estimate to market value.

However, the current RVR model used by SPU has been updated and substantially strengthened with a technical basis, which prioritizes backing by market research, whose reference value should be as close as possible to the market value, with at least one descriptive statistic.

It should also be noted that, in the case of RVR, when using MCDDM, this market research should be carried out whenever possible with samples that are more similar to the one being evaluated, in order to avoid the model being biased.

The real estate appraisal methods outlined in NBR 14653, especially the comparative market data method, as well as the evolutionary and involutive methods, are applicable to both reports and RVRs. The comparative market data method, most commonly used by SPU when drawing up an appraisal report, when applying inferential statistics, meets all the assumptions set out in Annex A of the aforementioned NBR: Linearity; Normality; Homoscedasticity; Auto-

correlation; and Multicollinearity.

In compliance with accounting rules, it is obligatory for the registered property to be divided into the value of land and improvements. However, especially for appraisal reports, this separation is uncommon for properties that have been built and appraised using the comparative methodology, so an auxiliary calculation is necessary for accounting purposes. These values can be assessed in the following ways according to IN 67/2022:

Art. 33 Sole paragraph

a) the value to be set for the land will be based on the value of the Planta de Valores of the Secretariat for the Coordination and Governance of the Patrimony of the Union or of the municipality if urban and INCRA if rural;

b) the value of the property referring to the improvement will be the value adopted in the appraisal report less the value defined for the land as per item "a", considering a Commercialization Factor (FC) equal to 1;

c) for the cost of rebuilding the improvement, applying the CUB depreciated using the ROSS-HEIDECKE model, or another method established in technical literature, which is at the discretion of the appraiser

d) by means of the budget required to restore the property to new condition, depreciated using the ROSS-HEIDECKE model, or another method established in technical literature, which is at the discretion of the appraiser;

e) by applying a depreciation coefficient that takes into account age and state of repair, and this coefficient is applied to the depreciable value;

f) other forms, provided they are technically justified by the assessor.

As for the RVRs, the section on the values of land and improvements is already induced in the technical document itself, which, aided by a pre-formatted spreadsheet, conditions the value of the improvement with tabulated guidelines to reference values on useful life, apparent life, equivalent area, basic unit cost - CUB, benefits and indirect expenses - BDI, and depreciation.

As for the use of factor-based treatment, although it is rarely used in SPU reports, it is permitted if it complies with item B.1 of Annex B of NBR 14.653 part 2, if urban, and part 3, if rural. With regard to RVRs, their use is more common without observing the restrictive conditions of temporality, scope and publicity. Figure 6 shows a comparative table between the two modalities, where the central point is that both are applicable to updating land registry records for accounting purposes.

Requirements	Valuation report	Report and reference value
Governance - applicable to updating records for accounting purposes	Attend	Attend
Governance - based on standardized technical procedures	Attend	Attend
Professional excellence procedures according to item 5 of NBR 14653:1	Attend	Attend
Inspection of the appraised property in accordance with item 6.3 of NBR 14653:1	Attend	Dispensable
Data collection according to item 6.4 of NBR 14653:1	Attendance: face-to-face and remote	Service: remote
Evaluation methodology according to item 6.6 of NBR 14653:1	Attend	Attend
Evaluation result according to item 6.8 of NBR 14653:1	Minimum and maximum value ranges	value adopted
Assumptions, caveats and limiting factors according to item 6.9 of NBR 14653:1	Attend	Attend
Evaluation specification according to item 8 of NBR 14653:1	Attend	Partially meets
Presentation of the evaluation according to item 9 of NBR 14653:1	Attend	Attend
Evaluation methodology based on statistical treatment and market research	Attend	Partially meets
Verification of assumptions in linear regression models, according to Annex A of NBR 14653:2	Attend	Partially meets
Verification of the assumptions for the use of factor treatment, according to Annex B of NBR 14653:2	Attend	Partially meets
Specification of the value of land and improvements for registration and accounting	Partially meets	Attend
Product	Market value	Reference value

Figure 6: Comparative table of appraisal report and RVR by SPU

2. DATA ANALYSIS

This section is divided into three parts. The first presents the results obtained in the 2023 financial year, base date from January to October, for each valuation method (report and RVR), the second shows the comparison between the methods with emphasis on the values of the properties valued, and the third analyzes the comparative advantage of the RVR considering the production opportunities of each method.

The samples come from the monthly monitoring carried out by the SPU, whose real estate appraisals have been carried out under the responsibility of the twenty-seven Superintendencies, so that the information presented here comprises truthful data, instructed in processes at the SPU, with an adequate level of traceability for the composition of the GIAPU institutional target, indicator A - Appraisal of Federal Real Estate.

2.1. Individualized modalities

All SPU Superintendencies have at least one employee who is qualified and trained to draw up the RVR and the appraisal report. As for the appraisal report, according to INº 67/2022, its preparation is required for onerous instruments, especially purchases, sales, exchanges and donations of real estate, and it is also suitable for updating the accounts.

Avaliações realizadas por Laudo de avaliação				
UG- SPU	Nº de Utilizações avaliadas	Valor antes (soma)	Valor depois (soma)	Valor Incremento contábil
AC	26	R\$ 40.495.784,00	R\$ 76.531.883,00	R\$ 36.036.099,00
AL	2	R\$ 0,00	R\$ 1.820.000,00	R\$ 1.820.000,00
AM	45	R\$ 37.178.067,00	R\$ 62.744.544,00	R\$ 25.566.477,00
AP	9	R\$ 29.550.703,00	R\$ 162.621.033,00	R\$ 133.070.330,00
CE	5	R\$ 19.483.602,00	R\$ 37.944.790,00	R\$ 18.461.188,00
DF	2	R\$ 1.786.574,00	R\$ 3.000.000,00	R\$ 1.213.426,00
ES	5	R\$ 3.830.933,00	R\$ 12.460.000,00	R\$ 8.629.067,00
GO	50	R\$ 33.079.719,00	R\$ 120.362.632,00	R\$ 87.282.913,00
MA	1	R\$ 0,00	R\$ 10.726.836,00	R\$ 10.726.836,00
MG	65	R\$ 964.616,00	R\$ 982.517.094,00	R\$ 981.552.478,00
MS	59	R\$ 45.086.047,00	R\$ 86.738.657,00	R\$ 41.652.610,00
MT	1	R\$ 56.250,00	R\$ 476.000,00	R\$ 419.750,00
PA	1	R\$ 5.253,00	R\$ 8.000,00	R\$ 2.747,00
PB	13	R\$ 1.017.200,00	R\$ 2.628.450,00	R\$ 1.611.250,00
PE	12	R\$ 164.008.856,00	R\$ 164.506.697,00	R\$ 497.841,00
PR	7	R\$ 36.676.683,00	R\$ 90.325.602,00	R\$ 53.648.919,00
RR	8	R\$ 8.801.901,00	R\$ 11.334.822,00	R\$ 2.532.921,00
SC	10	R\$ 5.025.562,00	R\$ 92.702.049,00	R\$ 87.676.487,00
SE	4	R\$ 7.974.536,00	R\$ 18.158.689,00	R\$ 10.184.153,00
SP	35	R\$ 488.707.630,00	R\$ 681.827.834,00	R\$ 193.120.204,00
TO	6	R\$ 3.247.034,00	R\$ 8.307.148,00	R\$ 5.060.114,00
Total	366	R\$ 926.976.950,00	R\$ 2.627.742.760,00	R\$ 1.700.765.810,00

Figure 7: Reports prepared by the Superintendencies (Jan-Oct 2023)

As can be seen in figure 7, from January to October there were 366 reports drawn up by SPU Superintendencies, totaling R\$2.6 billion in appraised uses, which represented a positive increase in book value of more than R\$1.7 billion. In percentage terms, the average accounting increase was 183%. Although there are trained and qualified technicians in the UG-SPU (BA, PI, RJ, RN, RO and RS), these Superintendencies did not record any reports in the period. Con-

sidering the 43 weeks from January to October, SPU's average production was 8.5 reports per week.

As for the RVR, according to IN 67/2022, its preparation is allowed for free instruments, with emphasis on assignments to municipalities, deliveries to agencies and entities of the direct federal administration, as well as the accounting update.

Avaliações realizadas por RVR				
UG- SPU	Nº de Utilizações avaliadas	Valor antes (soma)	Valor depois (soma)	Valor - Incremento contábil
AC	12	R\$ 3.428.675,00	R\$ 7.113.500,00	R\$ 3.684.825,00
AL	26	R\$ 4.998.104,00	R\$ 18.228.584,00	R\$ 13.230.480,00
AP	3	R\$ 136.626,00	R\$ 2.211.477,00	R\$ 2.074.851,00
BA	68	R\$ 38.110.630,00	R\$ 187.437.992,00	R\$ 149.327.362,00
CE	20	R\$ 25.058.658,00	R\$ 58.646.941,00	R\$ 33.588.283,00
DF	39	R\$ 119.270.763,00	R\$ 172.614.733,00	R\$ 53.343.970,00
ES	120	R\$ 148.541.197,00	R\$ 193.931.212,00	R\$ 45.390.015,00
GO	5	R\$ 130.456,00	R\$ 11.893.467,00	R\$ 11.763.011,00
MA	70	R\$ 42.165.204,00	R\$ 77.120.640,00	R\$ 34.955.436,00
MG	103	R\$ 53.737.064,00	R\$ 1.148.456.289,00	R\$ 1.094.719.225,00
MS	22	R\$ 11.284.353,00	R\$ 62.899.650,00	R\$ 51.615.297,00
MT	60	R\$ 254.174.246,00	R\$ 717.740.416,00	R\$ 463.566.170,00
PA	42	R\$ 585.296.523,00	R\$ 970.210.758,00	R\$ 384.914.235,00
PB	76	R\$ 50.429.874,00	R\$ 68.715.526,00	R\$ 18.285.652,00
PE	70	R\$ 180.512.942,00	R\$ 274.449.996,00	R\$ 93.937.054,00
PI	67	R\$ 24.889.043,00	R\$ 169.405.494,00	R\$ 144.516.451,00
PR	89	R\$ 26.674.144,00	R\$ 871.690.556,00	R\$ 845.016.412,00
RJ	11	R\$ 43.372.353,00	R\$ 78.467.131,00	R\$ 35.094.778,00
RN	104	R\$ 445.448.317,00	R\$ 333.705.884,00	-R\$ 111.742.433,00
RO	8	R\$ 13.643.148,00	R\$ 39.500.425,00	R\$ 25.857.277,00
RR	21	R\$ 5.350.252.961,00	R\$ 6.069.174.336,00	R\$ 718.921.375,00
RS	16	R\$ 9.500.000,00	R\$ 17.826.055,00	R\$ 8.326.055,00
SC	256	R\$ 45.173.814,00	R\$ 1.310.008.989,00	R\$ 1.264.835.175,00
SE	109	R\$ 11.329.171,00	R\$ 590.112.133,00	R\$ 578.782.962,00
SP	241	R\$ 68.645.203,00	R\$ 936.771.362,00	R\$ 868.126.159,00
TO	44	R\$ 0,00	R\$ 18.920.364,00	R\$ 18.920.364,00
Total	1702	R\$ 7.556.203.469,00	R\$ 14.407.253.910,00	R\$ 6.851.050.441,00

Figure 8: RVR prepared by the Superintendencies (Jan-Oct 2023)

As can be seen in figure 8, from January to October 1,702 RVRs were registered at SPU Superintendencies, totaling R\$14.4 billion in appraised uses, which represented a positive increase in book value of more than R\$6.8 billion. In percentage terms, the average accounting increase was 90.67%. Although it has trained and qualified technicians in the UG-SPU (AM), this Superintendence did not record the preparation of RVRs in the period. Considering the 43 weeks from January to October, SPU's average production was 39.5 RVR per week.

It is also worth highlighting the scope of cadastral sanitation in the appraisals carried out

by SPU. While there was the possibility of properties being overestimated in their originally registered values, as seen in the sum of the uses appraised in the UG-SPU (RN), after the RVR was drawn up, following the market verification procedures, it was possible to identify these distortions, culminating in the sum of more realistic values, correcting the accounting increase, totaling a sum of less than the originally registered value.

From April onwards, the RVR gained prominence in SPU's current management with the establishment of a virtual unit called "E-SPU Avaliação", linked to the Central Unit, under the care of the General Coordination of Valuation and Accounting. The justification for its creation was to act exclusively in the preparation of RVR, taking over some demands from the Superintendencies when duly agreed. During this period, it had three technicians exclusively dedicated to preparing RVRs, with a focus on updating the base pre-identified by TCU, prioritizing the portfolio of the UG-SPU (SP) and meeting the demands defined by SPU's senior management as priorities.

As can be seen in figure 9, from April to October, 282 RVRs prepared under the "E-SPU Appraisal" were registered, totaling R\$1.5 billion in appraised uses, which represented a positive increase in book value of more than R\$1.0 billion. In percentage figures, the average accounting increase was 309%. It should be noted that the figures identified in figure 9 make up the total identified in figure 8.

Avaliações realizadas por Relatório de Valor de Referência no âmbito do E-SPU				
Mês	Nº de Utilizações avaliadas	Valor antes (soma)	Valor depois (soma)	Valor Incremento contábil
abr	37	R\$ 215.790.066,59	R\$ 240.076.403,88	R\$ 24.286.337,29
mai	53	R\$ 34.306.920,30	R\$ 344.647.621,78	R\$ 310.340.701,48
jun	30	R\$ 958,00	R\$ 32.525.205,38	R\$ 32.524.247,38
jul	24	R\$ 21.244.682,87	R\$ 42.239.163,39	R\$ 20.994.480,52
ago	53	R\$ 16.982.942,96	R\$ 75.795.377,85	R\$ 58.812.434,89
set	20	R\$ 40.478.797,28	R\$ 140.970.807,12	R\$ 100.492.009,84
out	65	R\$ 152.593.531,28	R\$ 624.194.424,96	R\$ 471.600.893,68
Total	282	R\$ 481.397.899,28	R\$ 1.500.449.004,36	R\$ 1.019.051.105,08

Figure 9: RVR prepared by E-SPU Evaluation (Jan-Oct-2023)

2.2. Comparative modalities

In the cases in which a property appraisal using the RVR method followed an appraisal using an Appraisal Report, it was possible to compare the two methods with an emphasis on the values of the properties appraised. According to figure 10, in the analysis of 37 true samples from SPU processes, it was possible to infer that the reference value (product of the RVR) comprised an average variation of approximately 21% in relation to the market value.

It should be noted that the assessments of the samples identified were carried out at different times, with the majority of the reports (26 samples corresponding to 70% of the total) being carried out between 2019 and 2020, while the RVRs were all carried out in 2023. The average annual variation between the RVR and the report was 6%. Figure 11 shows a summary table of the variation in value between the properties appraised.

Amostra	UF	Município	Tipologia	Data Laudo	Valor Laudo	Data RVR	Valor RVR	Varição RVR/Laudo
1	AM	Manaus	Terreno	02/09/2022	R\$ 4.420.000,00	06/11/2023	R\$ 4.501.935,60	2%
2	AM	Manaus	Terreno	03/09/2022	R\$ 4.350.000,00	06/11/2023	R\$ 4.553.562,32	5%
3	AM	Manaus	Terreno	03/09/2022	R\$ 4.350.000,00	06/11/2023	R\$ 4.536.880,25	4%
4	BA	Salvador	Terreno	09/10/2019	R\$ 960.000,00	31/10/2023	R\$ 470.699,71	-51%
5	DF	Brasília	Apartamento	23/08/2022	R\$ 942.000,00	10/08/2023	R\$ 983.664,45	4%
6	DF	Brasília	Apartamento	21/11/2019	R\$ 1.375.244,85	22/09/2023	R\$ 1.716.407,29	25%
7	DF	Brasília	Apartamento	09/12/2020	R\$ 541.464,45	20/11/2023	R\$ 689.315,51	27%
8	DF	Brasília	Apartamento	09/12/2020	R\$ 350.000,00	20/11/2023	R\$ 387.563,35	11%
9	DF	Brasília	Apartamento	25/11/2020	R\$ 454.716,83	20/11/2023	R\$ 408.449,20	-10%
10	DF	Brasília	Apartamento	25/11/2020	R\$ 323.132,05	20/11/2023	R\$ 372.427,21	15%
11	DF	Brasília	Apartamento	25/11/2020	R\$ 401.463,42	20/11/2023	R\$ 381.088,90	-5%
12	DF	Brasília	Apartamento	25/11/2020	R\$ 360.000,00	20/11/2023	R\$ 392.077,11	9%
13	DF	Brasília	Apartamento	25/11/2020	R\$ 349.761,52	21/11/2023	R\$ 387.563,35	11%
14	DF	Brasília	Apartamento	25/11/2020	R\$ 404.150,28	21/11/2023	R\$ 381.872,54	-6%
15	DF	Brasília	Apartamento	19/10/2020	R\$ 1.039.258,64	21/11/2023	R\$ 1.299.605,56	25%
16	DF	Brasília	Apartamento	19/10/2020	R\$ 1.020.000,00	21/11/2023	R\$ 1.235.402,24	21%
17	DF	Brasília	Apartamento	06/11/2019	R\$ 1.033.646,22	21/11/2023	R\$ 1.299.605,56	26%
18	DF	Brasília	Apartamento	06/11/2019	R\$ 1.185.000,00	22/11/2023	R\$ 1.391.269,83	17%
19	DF	Brasília	Apartamento	20/11/2019	R\$ 1.082.637,30	22/11/2023	R\$ 1.347.443,64	24%
20	DF	Brasília	Apartamento	05/11/2020	R\$ 562.480,32	22/11/2023	R\$ 755.249,78	34%
21	DF	Brasília	Apartamento	05/11/2020	R\$ 635.000,00	22/11/2023	R\$ 893.697,91	41%
22	DF	Brasília	Apartamento	28/10/2020	R\$ 1.222.250,08	23/11/2023	R\$ 1.733.570,41	42%
23	DF	Brasília	Apartamento	06/03/2020	R\$ 700.737,27	23/11/2023	R\$ 847.773,19	21%
24	DF	Brasília	Apartamento	26/10/2020	R\$ 668.132,49	23/11/2023	R\$ 852.101,46	28%
25	DF	Brasília	Apartamento	26/10/2020	R\$ 930.000,00	24/11/2023	R\$ 1.048.579,55	13%
26	DF	Brasília	Apartamento	29/07/2019	R\$ 654.664,30	24/11/2023	R\$ 861.880,25	32%
27	DF	Brasília	Apartamento	25/11/2020	R\$ 484.901,74	24/11/2023	R\$ 716.512,78	48%
28	ES	Vitória	Predio	12/09/2022	R\$ 3.600.000,00	09/11/2023	R\$ 3.850.000,00	7%
29	GO	Goiania	Predio	11/08/2022	R\$ 2.224.440,94	09/11/2023	R\$ 2.348.281,98	6%
30	PB	João Pessoa	Predio	19/09/2017	R\$ 3.475.508,44	30/10/2023	R\$ 4.990.000,00	44%
31	PE	Petrolina	Terreno com benfeitoria	24/09/2019	R\$ 10.030.000,00	15/05/2023	R\$ 12.341.995,24	23%
32	PI	Oeiras	Predio	28/03/2017	R\$ 994.000,00	19/09/2023	R\$ 1.313.000,00	32%
33	RJ	Rio de Janeiro	Terreno	03/01/2014	R\$ 6.029.950,00	26/10/2023	R\$ 8.345.000,00	38%
34	RO	Porto Velho	Terreno com benfeitoria	26/06/2019	R\$ 1.147.000,00	10/08/2023	R\$ 1.445.611,78	26%
35	RS	Porto Alegre	Predio	06/07/2021	R\$ 4.900.000,00	10/11/2023	R\$ 3.808.000,00	-22%
36	RS	Santanado Livramento	Terreno	16/11/2020	R\$ 3.410.000,00	10/11/2023	R\$ 1.760.000,00	-48%
37	SC	Florianópolis	Terreno	28/07/2022	R\$ 3.350.000,00	08/11/2023	R\$ 3.250.000,00	-3%
Variação média RVR/Laudo								21%

Figure 10: Comparison of values and dispersion between RVR and report

Varição	Número das amostras identificadas
30 amostras (81% do total) com variação positiva do RVR em relação ao Laudo	1 a 3, 5 a 8, 10, 12, 13 e 15 a 34
18 amostras (48% do total) com variação positiva do RVR em relação ao Laudo superior a 20%	6, 7, 15 a 17, 19 a 24, 26, 27 e 30 a 34
8 amostras (21% do total) com variação positiva do RVR em relação ao Laudo superior a 30%	20, 21, 22, 26, 27, 30, 32 e 33
4 amostras (10% do total) com variação positiva do RVR em relação ao Laudo superior a 40%	21, 22, 27 e 30
7 amostras (19% do total) com variação negativa do RVR em relação ao Laudo	4, 9, 11, 14, 35, 36 e 37

Figure 11: Summary table between the samples in figure 10

Considerations:

- As for the thirty samples with a positive RVR variation in relation to the report, it is inferred as satisfactory, given that all of them are 2023 updates, i.e. the RVRs minimally followed the originally registered market values followed by an average update of 6% per year.

- As for the eighteen samples with a positive RVR variation in relation to the report of more than 20%, this is inferred to be satisfactory, given that all of them are 2023 updates, i.e. the RVRs have at least kept up with the originally registered market values, followed by an average update of 7% per year.

- As for the eight samples with a positive RVR variation in relation to the report of more than 30%, it is inferred as satisfactory, given that all of them are updates from 2023, i.e. the RVRs minimally followed the originally registered market values, followed by an average update of 10% per year.

- As for the four samples with a positive RVR variation in relation to the report of more than 40%, it is inferred as satisfactory, given that all of them are updates from 2023, i.e. the RVRs minimally followed the originally registered market values, followed by an average update of 14% per year.

- As for the seven samples with a negative RVR variation in relation to the report, we note sample 37 where the report was carried out in 2022, so in one year, a variation of -3% is considered acceptable. The same applies to samples 9, 11 and 14, where the reports were carried out in 2020, so in three years the variation of -3%, -2% and -2% respectively is considered acceptable. As for sample 35, although the RVR includes a variation of -22% in relation to the report, it can be considered acceptable because it is a public building, where the annual average of -11% can be justified by the state of conservation and depreciation of the property. Finally, samples 4 and 36 are inferred to be "*outliers*", because even though the average variation of both does not reach -20%, we can infer that they are specifying the RVR by extrapolating variables or collecting insufficient amounts of remote data.

Therefore, considering the different frameworks between the technical pieces, shown in Figure 6, it can be inferred that the RVR is acceptable in a range between -20% and +20% of the market value. In the sample analyzed in Figure 10, it can be inferred that the figures are quite satisfactory, where 80% showed a positive variation, which, considering the time lapse between appraisals, the RVR minimally kept pace with the market value.

For greater accuracy in the analysis, another sample was compared, comprising ten pro-

properties appraised in the same period, some with a high degree of appraisal complexity and all duly selected by SPU senior management to be included in a specific federal government program in a non-onerous classification, therefore suitable for both modalities (appraisal report or RVR). The appraisal reports were the responsibility of a major development bank with which SPU has an existing contract, while the RVRs were the responsibility of SPU, notably the technicians from the "General Coordination of Appraisal and Accounting and E-SPU Appraisal". Figure 12 shows a summary table of the variation in value between the properties appraised in the same period using both methods.

Amostra	UF	Município	Tipologia	Data Laudo	Valor Laudo	Data RVR	Valor RVR	Variação RVR/Laudo
1	AM	Manaus	Prédio	30/10/2023	R\$ 7.381.711,00	29/10/2023	R\$ 7.320.000,00	-1%
2	AM	Manaus	Prédio	11/12/2023	R\$ 13.074.623,00	06/01/2023	R\$ 13.250.000,00	1%
3	BA	Vitória da Conquista	Gleba	29/11/2023	R\$ 97.730.000,00	09/11/2023	R\$ 164.000.000,00	68%
4	MG	Uberlândia	Galpão	14/12/2023	R\$ 51.460.000,00	30/10/2023	R\$ 47.554.975,76	-8%
5	PA	Belém	Terreno	08/11/2023	R\$ 17.487.000,00	27/11/2023	R\$ 16.172.897,98	-8%
6	RS	Porto Alegre	Predio	15/12/2023	R\$ 1.727.000,00	10/11/2023	R\$ 3.808.000,00	120%
7	SP	Campinas	Terreno	17/11/2023	R\$ 57.617.000,00	09/11/2023	R\$ 46.706.300,00	-19%
8	SP	São Bernardo	Terreno	28/11/2023	R\$ 4.460.000,00	19/10/2023	R\$ 4.884.668,81	10%
9	SP	Santos	Prédio	30/11/2023	R\$ 7.270.000,00	23/10/2023	R\$ 3.800.000,00	-48%
10	SP	São Paulo	Casa	30/11/2023	R\$ 7.400.000,00	09/03/2023	R\$ 10.514.000,00	42%
Variação média RVR/Laudo								33%

Figure 12: Comparison between report and RVR carried out in the same period

The dispersion of the results was considered satisfactory, reaching an average variation of the RVR in relation to the report of around 33%.

Considerations:

- As for samples 1, 2, 4, 5 and 8, it is inferred as satisfactory, given that the dispersions presented are within the range of (-10%;+10%), and it should be noted that in sample 8, the author of the report chose to arbitrate the lower value within the admitted range due to the state of conservation of the property detected in the technical inspection.

- As for sample 7, it is inferred to be satisfactory given that the dispersion shown is within the range (-20%;+20%). It should be noted that the appraisal report adopted a slightly larger area than that considered in the RVR (2.5%), which ends up increasing the total value of the property.

- As for samples 9 and 10, taking into account that indirect appraisal methodologies were adopted, if the value of the properties estimated in the respective reports were considered according to the range of the field of discretion, the dispersion would be close to the range of (-30%;+30%), which we infer to be satisfactory.

- As for sample 3, taking into account the fact that it is a property valued using an indi-

rect methodology that uses models based on simulating scenarios (optimistic, realistic and pessimistic) and which are naturally very sensitive to the arbitration of rates and terms, if the value of the estimated property were considered according to the range of values of its scenarios, the dispersion would be close to the (-30%;+30%) range, which we infer to be satisfactory.

- As for sample 6, it is inferred as an "outlier", given the fact that the property was invaded when the appraisal report was drawn up, which adopted an indirect methodology for valuing the asset and which had as a sensitive point in the comparison between the results achieved the state of conservation of the improvement.

Thus, disregarding sample 6, the dispersion of the results would reach an average variation of the RVR in relation to the report of around 23%, reinforcing what had been inferred as acceptable that the RVR can comprise a range between -20% and +20% of the market value.

2.3. Opportunity cost and comparative advantage of adopting RVR

In addition to their regulatory suitability, from a technical point of view, considering the comparison made between the report and the RVR due to the dispersion of the values presented, we assume that both methods are suitable for accounting purposes when estimating the fair value of the property. Finally, we will discuss the possibilities of producing both.

The originally qualified server has eight hours a day. Assuming that he can devote this time to real estate appraisals at SPU, Figure 13 shows the amount of time that each type of appraisal consumes. The figures presented below come from the survey of actual appraisals monitored by SPU, with an adequate level of tracking for the composition of the GIAPU institutional target, indicator A - Appraisal of Federal Property.

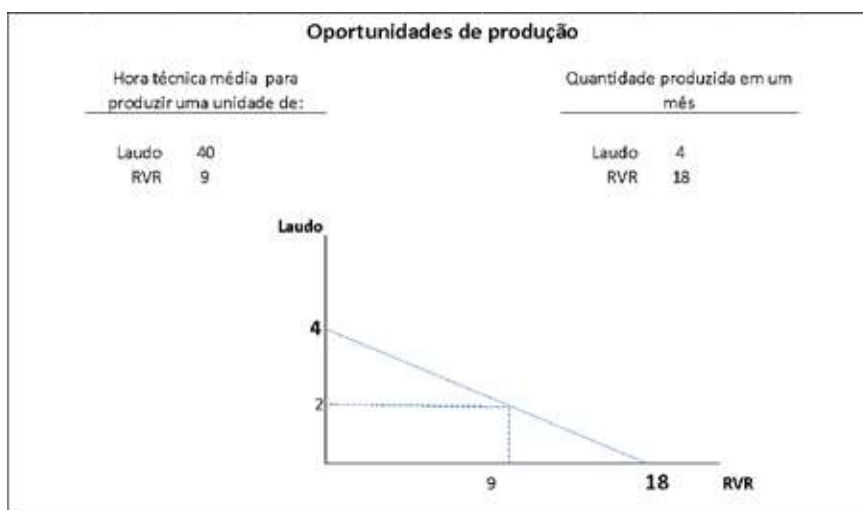


Figure 13: Production opportunities between report and RVR at SPU

Assuming that the server dedicates all his time to producing the report, he will not produce the RVR and vice versa. If he divides his time equally between the two modalities, he could produce two reports and nine RVRs every month.

The appraisal report, because it is bound by strict regulations, naturally requires more time to prepare, including an *on-site* inspection of the property. Another comparative analysis that deserves to be highlighted is the time it takes to receive and deliver the demand, since it is not only the technical hour dedicated to the appraisal work that should be computed, but also the marginal time cost involved in the various bureaucratic rites, among which we highlight travel authorizations and property characterization activities, such as registration certificates, plans and descriptive memorials. Figure 14 shows the average number of days it takes to deliver the appraisal.

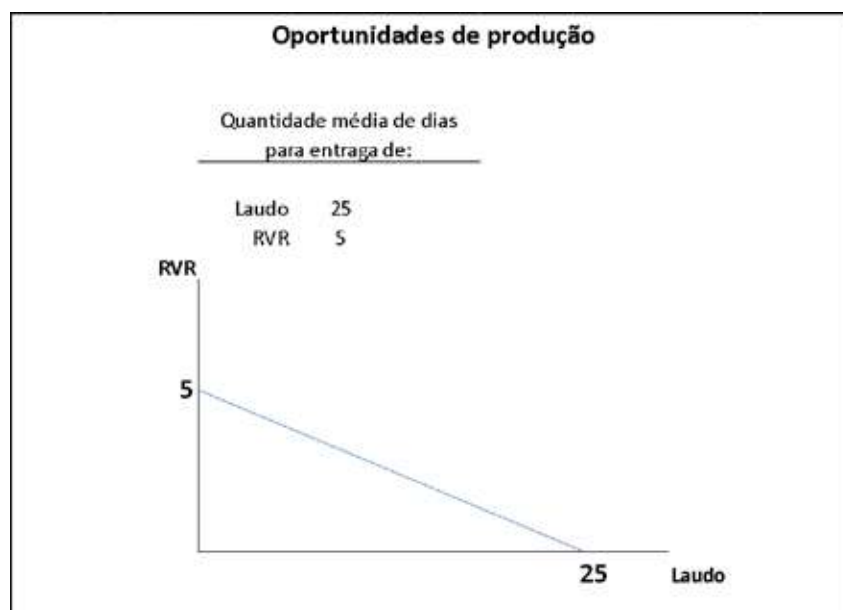


Figure 14: Production opportunity considering receipt and delivery of demand

These production opportunities are useful for demonstrating the *tradeoffs* that the server has to face, although it is not up to them to make this choice. Taking into account market accuracy, the report can achieve greater rigor in terms of the regulatory framework (NBR14653) and more satisfactory tracking conditions, so we can assume that this modality apparently has an absolute advantage when compared to RVR.

However, the choice of which method would be the best, based on the principle of com-

parative advantage, is based on the following question: What is the best way to value real estate for accounting purposes at the lowest cost and in the shortest time? In this other approach, instead of comparing the input "market accuracy", we can compare the opportunity costs involved in drawing up a report and an RVR.

The civil servant spends eight hours a day working, so the time spent preparing a report reduces the time available to prepare the RVR, so that by reallocating time between preparing a report and RVR, the civil servant gives up preparing one type of report to prepare another.

Considering time as the main input, in Figure 15, when analyzing production opportunities, the *tradeoff* of both modalities can be measured according to their opportunity cost. The server spends an average of nine hours preparing an RVR. As he needs an average of forty hours to prepare a report, nine hours of work would earn him 0.23 reports, while forty hours of work would earn him 4.44 RVRs. Therefore, since the opportunity cost is lower, the RVR has a greater comparative advantage over the report.

Custo de oportunidade	
<u>Para 1(uma) unidade de laudo</u>	<u>Para 1(uma) unidade de RVR</u>
4,44 de RVR	0,23 de laudo

Figure 15: Cost and opportunity of preparing a report and RVR at SPU

Another approach to the comparison refers to the price paid to evaluate the property. For a report to be drawn up by an SPU official, when the property is located outside the metropolitan region of its headquarters, it is necessary to involve travel costs, including per diem and airfare. When the report is prepared by the development bank with which SPU has an existing contract, it is priced according to the contract's specific tariff. To evaluate the sample contained in figure 12, the total spent by SPU represented 57% of all the resources available for use in the contract, considerably reducing the balance available for use where the appraisal report modality is mandatory, see the costly instruments. Figure 16 shows a summary table of the use of the contract.

<u>Preço pago avaliação Amostra figura 12</u>	<u>Valor Empenhado permito no contrato</u>
R\$ 286.000,00	R\$ 500.000,00

Figure 16: Summary table - value contracted and value used in sample 12

The gains resulting from production possibilities should not only be based on absolute advantage, but also on comparative advantage. Therefore, assuming that both methods are suitable for updating the accounts, choosing the method with the greatest comparative advantage, such as RVR, achieves the common interest of promoting more realistic balance sheets.

The study found that SPU benefits from the increased production of RVRs. As the server has a predetermined working time limited to 8 hours a day, the time spent preparing a report reduces the time available to produce an RVR, with this modality having an average output five times greater.

3. DISCUSSION

The research described in the comparative analysis study is considered to have achieved the objectives of validating a new approach to the best accounting for real estate to be shown in the BGU. The study's main objective was to justify and induce the adoption of the RVR valuation modality so that, from this, in the future, an even more sophisticated modeling of the effective accounting of the Federal Government's real estate can be studied, answering the necessary questions of how much our real estate wealth is worth.

It should be pointed out that the report has a prominent place as a mandatory part of one-rous instruments, so that for accounting updating, the RVR has a greater comparative advantage and with a dispersion considered satisfactory between the reference value and market value, both understood as fair value.

Finally, in figure 17, we present a table with questions and answers that may lead to a greater understanding of the proposed approach.

Quesitos	Respostas
O RVR é aplicável à atualização cadastral para evidênciação contábil?	Sim, o valor e referência, produto do RVR, encontra-se disposto no Art. 11 da Lei nº 9.636/1998; Art. 21 da IN nº 67/2022 e Art 2º, XIV da Portaria Conjunta STN/SPU nº 10/2023.
A dispensa da vistoria técnica não seria um dificultador na correta estimativa de valor do imóvel?	O RVR baseia-se em pesquisa mercadológica, estando referenciado o mais próximo possível ao valor de mercado, sendo uma alternativa viável às atualizações contábeis, considerando seu custo de oportunidade e vantagem comparativa em relação ao laudo.
Há alguma dispersão tolerada entre valores para o imóvel avaliado por laudo e RVR?	Consideramos aceitável que o valor de referência possa compreender um intervalo entre -20% e +20% do valor de mercado.
Quais aspectos seriam fundamentais para boa gestão dos imóveis avaliados por RVR?	Elaboração conforme IN nº 67/202 e correto cadastramento nos sistemas corporativos de administração de imóveis da SPU, observadas suas gradativas evoluções.
Quais os principais ganhos na adoção do RVR para atualização contábil?	Enquadramento normativo legal; Escalabilidade; Menor custo operacional e financeiro; BGU mais realista.

Figure 17: Summary table - questions for a better understanding of the proposed model

4. LIMITATIONS

This work used historical information cataloged in SPU administrative files and digital archives, some of which were produced and altered over the course of past administrations. This may have led to distortions in the data.

Figure 16 dealt with the pricing for the preparation of the report only in the light of the current contract that SPU has, and was not the subject of a survey of the cost composition of the technical server hour.

It should be noted that SPU's corporate real estate management systems are gradually evolving, so that there is often a need to match information, especially with regard to the technical documents entered into the Electronic Information System - SEI, with the registration in SPU's systems and the correct accounting entry in SIAFI, which receives the information from SPIUnet and SIAPA and only makes the accounting entries, based on the property events defined jointly (SPU and STN).

SPIUnet is an external SPU system, in which the Federal Public Administration bodies register and keep up to date the properties under their jurisdiction, so the management unit is responsible for updating the information in this system, which is reflected in SIAFI. SPU only manages the system, making it accessible to all agencies, checking for inconsistencies in filling in existing fields and, when it finds such an inconsistency, it will contact the management unit responsible so that it can regularize the situation, since the responsibility for updating the information in SPIUnet lies with the management unit that owns the property.

5. FUTURE AGENDA

Considering the technical and normative suitability for adopting the RVR for cadastral value updates for better accounting disclosure in the BGU, the first item to be discussed is the induction of this technical piece to the management units, encouraging guidance and facilitation regarding its preparation, which culminates in respective action plans, so that in a predefined horizon the properties are updated, thus promoting more realistic balance sheets.

Considering the figures shown in Figure 4, their correlation with Figures 8 and 9, both allied to SPU's operational capacity, currently comprising approximately 70 (seventy) technicians qualified and trained in appraisal engineering, it becomes feasible that, given a structured action plan, a significant part of the real estate portfolio belonging to SPU's management units will be updated by 2026.

In order to structure a feasible action plan, it would be advisable to carry out an exploratory analysis of the entire SPU portfolio associated with a survey of the types of properties to be appraised, in order to verify their most relevant characteristics, in light of the complexity of the appraisal process for each property related to its negotiating instruments that have already been implemented or are in the process of being implemented. It would then be possible to better define priorities in order to improve the efficiency and effectiveness of the human resources available.

Another item to be discussed is the gradual and continuous improvement of the RVR, which, considering its exemption from the technical inspection of the property being appraised, becomes a type of appraisal suitable for current data modeling techniques, arising from artificial intelligence through machine learning, so that its combination - mathematics and database - contributes to the RVR becoming an automatic appraisal model, further increasing the efficiency and effectiveness of accounting updates within acceptable safety margins.

Finally, gradual and continuous systemic developments are imperative, such as the current phase of transition from SPIUnet to SPUnet, since the correct registration of property values, in accordance with accounting rules, is what will promote proper accounting disclosure and more realistic balance sheets for measuring the country's wealth.

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