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The impact of intellectual property rights protection on enhancing the value of OCOP products in Vietnam

Nguyen Huu Phuong[1], Vu Quynh Nam[2*]

[1]*Tuyen Quang Province, Vietnam.*
[2]*Thai Nguyen University of Economics and Business Administration, Vietnam.*

Corresponding author: Vu Quynh Nam (*Email: quynhnam@tueba.edu.vn*)

Abstract

In the context of globalization and rural economic restructuring, intellectual property rights (IPR) are increasingly regarded as a strategic instrument for enhancing the value of agricultural and local specialty products. This study examines the impact of IPR protection on the multidimensional value of products under Vietnam's "One Commune One Product" (OCOP) program. Building on the theoretical foundations of property rights, intangible assets, competitive advantage, community-based development, and sustainability, the research model incorporates three value dimensions - economic, social, and environmental - while testing the mediating roles of governance capacity and innovation capability, as well as the moderating effect of policy-legal frameworks. Using survey data from 370 OCOP entities, exploratory factor analysis (EFA) and multiple regression were employed. The results reveal that IPR protection exerts positive and statistically significant effects across all three dimensions, with the strongest impact on social value, followed by economic and environmental value. Governance and innovation capabilities further mediate the translation of IPR into tangible outcomes, while supportive institutional frameworks amplify these effects. The findings underscore that IPR serves not only as a legal safeguard but also as a driver of competitiveness, cultural preservation, and sustainable development, thereby providing critical policy implications for maximizing the value of OCOP products and strengthening their position in the process of international integration.

Keywords: Intellectual property rights, OCOP, Sustainable Development, Vietnam.

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1. Introduction

In the context of globalization and intensifying competition, intellectual property rights (IPR) are regarded as a pivotal instrument to protect knowledge, foster innovation, and enhance national competitiveness [1]. Particularly in agriculture and local specialty products, IPR not only secures economic benefits for producers but also contributes to brand reputation, the preservation of traditional knowledge, and sustainable development [2]. The 1994 TRIPS Agreement marked a turning point in the globalization of the IPR legal framework, compelling many countries, including Vietnam, to establish institutional systems aligned with international standards [3].

In Vietnam, the "One Commune One Product" (OCOP) program, launched in 2018, has rapidly become a key driver of rural economic development and local branding [4]. OCOP emphasizes agricultural products, food, and handicrafts that leverage local advantages and are community-driven. However, in order to enhance product value and expand markets in the context of integration, IPR protection has emerged as a decisive factor [5]. Collective trademarks, certification marks, and geographical indications (GIs) have been widely applied, contributing to the commercial value of prominent OCOP products such as Phu Quoc fish sauce, Thai Nguyen tea, and Ha Long shrimp paste [4].

Although international evidence suggests that IPR protection positively influences agricultural productivity international trade [6] and the added value of specialty products [7] research also indicates that such impacts are uneven across countries and, in many cases, may increase farmers' dependency on seed suppliers [8]. Conversely, Boldrin and Levine [9] caution that IPR may create barriers to economic equity, particularly in middle-income economies [9]. This underscores the "double-edged" nature of IPR: it is both a driver of innovation and a potential source of inequality.

In the field of GIs and community trademarks, numerous studies have demonstrated the positive effects of protection on product value. The case of Café de Colombia illustrates how GIs enable small farmers to strengthen their position in the value chain and obtain premium prices due to consumers' willingness to pay [7]. Similarly, in Indonesia, GIs have promoted product diversification and improved farmers' incomes [10]. In Vietnam, collective trademarks and GIs have enhanced reputation, expanded distribution channels, and contributed to rural sustainability [4].

Nevertheless, the literature highlights a critical research gap. Most international studies have focused on biotechnology, agricultural trade, and GIs [2, 11] but there is limited empirical evidence on the impact of IPR protection on the economic, social, and environmental value of OCOP products in Vietnam. The lack of quantitative analysis clarifying the mechanisms through which IPR protection enhances the value of OCOP products calls for more comprehensive research.

Building on this context, this study aims to evaluate the impact of IPR protection on enhancing the value of OCOP products in Vietnam across three dimensions: (i) economic value - through revenue, profit, and competitiveness [6]; (ii) social value - through brand reputation, preservation of indigenous knowledge, and community participation [2, 10] and (iii) environmental value - through sustainable production, counterfeiting prevention, and consumer trust [12, 13]. Furthermore, the study examines the mediating roles of governance capacity and innovation capability [1, 14] as well as the moderating influence of policy and institutional frameworks [3, 15]. Drawing on a combination of theoretical foundations - property rights, intangible assets, competitive advantage, community development, and sustainability - the study expects to contribute in three ways: first, by providing empirical evidence on the effects of IPR protection within the unique OCOP program in Vietnam; second, by clarifying the mediating and moderating mechanisms linking IPR protection and value creation; and third, by offering policy recommendations to enhance the effectiveness of IPR protection and intellectual asset development associated with OCOP, thereby fostering sustainable rural development and international integration.

2. Literature Review and Research Hypotheses

2.1. Literature Review

Intellectual property rights (IPR) have long been recognized as a tool for fostering innovation, safeguarding economic interests, and enhancing competitiveness in agriculture and the food industries. According to Merges [1] IPR reduces transaction costs, builds trust among stakeholders, and thereby encourages long-term investment Merges [1]. Trommetter

[11] show that in biotechnology and agriculture, appropriate protection mechanisms can stimulate research, improve crop varieties, and expand markets, although they may simultaneously increase farmers' dependence on seed suppliers [8, 11]. The 1994 TRIPS Agreement is considered a turning point in standardizing and globalizing the IPR system, requiring many developing countries to establish legal frameworks in line with international norms Drahos [3]. Campi [5] demonstrated that strengthening intellectual property rights protection can enhance crop productivity [5] while Rahmah also emphasized its uneven effects on trade benefiting high-value products but increasing costs for farmers in middle-income countries [10]. Thus, IPR is inherently "double-edged": both a driver of innovation and a potential barrier to economic equity [9].

A particularly important domain is geographical indications (GIs) and collective trademarks. Quiñones-Ruiz, et al. [7] showed that GIs such as Café de Colombia enabled small-scale producers to strengthen their position in global value chains and increase commercial value due to consumers' willingness to pay premium prices [7]. Similarly, research in Indonesia [10] demonstrated that GIs not only provide protection but also stimulate product diversification and improve farmers' incomes.

From a legal perspective, IPR protection refers to state recognition and enforcement of rights over intellectual creations such as patents, trademarks, industrial designs, geographical indications, literary and artistic works, and trade secrets [16]. The purpose of protection is to encourage innovation, foster investment and commercialization, and prevent infringements [1]. In agriculture and local specialty products, IPR protection is closely associated with collective trademarks, certification marks, and GIs, which safeguard community reputation, indigenous knowledge, and geographical origin [7, 10]. In Vietnam, the Intellectual Property Law together with the OCOP program underscores the role of IPR protection in enhancing economic, social, and sustainable development value of specialty products [17].

The OCOP (One Commune One Product) program has been approached from multiple perspectives, reflecting its multidimensional nature. JICA described OCOP as the outcome of leveraging local advantages to create distinctive commodities with market competitiveness JICA (Japan International Cooperation Agency) [18]. Chibanda, et al. [19] viewed OCOP as the product of collective action, arising from collaboration among households, cooperatives, and enterprises, with government guidance [19]. From a socio-cultural perspective, Thu Nguyen argued that OCOP products embody cultural symbols and indigenous knowledge, reflecting regional identity [20]. From the governance and value chain perspective, the World Bank and Nguyen and Ho [21] emphasized that OCOP products are the outputs of production processes linked to standards, branding, and modern distribution systems [21, 22].

In Vietnam, numerous local specialties have been protected by IPR, such as the GI for Tan Cuong tea (Thai Nguyen), Cao Phong orange (Hoa Binh), and Phu Quoc fish sauce (Kien Giang); the certification mark for Thach Den Thach An jelly (Cao Bang); and the collective trademark for Ha Long shrimp paste (Quang Ninh). These forms of protection have enhanced reputation, expanded distribution, and contributed to rural development sustainability Hoang, et al. [4]. Vu and Chu [23] proposed a management and control framework for OCOP and agricultural products in the Northern Midlands and Mountainous region, affirming that IPR protection is a prerequisite for OCOP development [23]. Similarly, Van Dong and Quynh Nam [24] in a study on place-named products in Bac Ninh province, confirmed that consumers prioritize products protected under community branding (collective trademarks, certification marks, GIs, or OCOP labels) [24].

Alongside the legal framework, the Vietnamese government has promulgated policies to promote OCOP product development, notably Decision No. 148/QD-TTg, which provides criteria and procedures for evaluating and ranking OCOP products. This document highlights the central role of IPR, as criteria on trademarks, GIs, collective and certification marks are integrated into product quality assessment and marketing capability, serving as essential conditions for achieving 3 - 5 star certification [25]. Thus, IPR is not only a legal instrument for protecting origin, quality, and reputation but also a key criterion for brand recognition, value addition, and competitive advantage in domestic and international markets.

Beyond economic impacts, IPR is also linked to cultural preservation and sustainability. Yu emphasized that IPR contributes to safeguarding cultural heritage and indigenous knowledge [2] while ensuring equitable benefit-sharing for communities. Esty and Porter [12] and Delmer, et al. [13] further argued that, if appropriately designed, IPR can align with circular economy strategies, simultaneously enhancing competitiveness and mitigating negative environmental impacts [12, 13].

2.2. Research Gap

Although international studies have provided in-depth analyses of the role of IPR in biotechnology innovation, agricultural trade, and the enhancement of specialty product value through geographical indications (GIs) and collective trademarks, empirical evidence on the impact of IPR on OCOP products in Vietnam remains limited. First, there is a lack of systematic quantitative research evaluating both the direct and indirect effects of IPR protection on the economic, social, and environmental value of OCOP products. Second, mediating mechanisms - such as cooperative governance capacity, technological innovation, and green marketing strategies - and moderating factors - such as government support policies, institutional frameworks, or agriculture - tourism linkages - have not been sufficiently explored in the relationship between IPR and OCOP value. Third, most domestic studies have been confined to descriptive case studies, with limited application of statistical testing methods to quantify impacts.

This research gap underscores the urgent need for a comprehensive empirical study to analyze the mechanisms through which IPR protection affects the value of OCOP products in Vietnam, thereby providing scientific evidence to inform rural development policies for sustainability. Furthermore, in the context of deepening international economic integration, where export markets increasingly demand traceability, sustainability, and brand certification, clarifying the relationship between IPR protection and OCOP value holds not only domestic relevance but also strategic significance for the global competitiveness of Vietnamese agricultural products.

2.3. Theoretical Foundations

This study draws on several economic and management theories to explain the mechanisms through which IPR protection influences the value of OCOP products:

Property Rights Theory [26]: Clearly defined and enforceable property rights incentivize investment and reduce risks of expropriation. In the OCOP context, legal protection via GIs, collective trademarks, or certification marks ensures community ownership of products, forming the basis for quality improvement and market expansion.

Intangible Asset Theory [27]: Brands, reputation, and indigenous knowledge are intangible assets capable of generating substantial value. IPR serves as a tool to formalize and transform these assets into tangible economic benefits, fostering consumer trust and premium pricing.

Competitive Advantage Theory [28]: Differentiation and uniqueness are essential for sustaining market position. Protected OCOP products leverage geographical specificity and traditional knowledge to build sustainable competitive advantage, especially in international markets.

Community-Based Development Theory: Emphasizes the central role of local communities in managing and benefiting from intellectual property. OCOP products, often managed by cooperatives or households, rely on IPR to ensure equitable benefit-sharing, strengthen participation, and reinforce social cohesion.

Triple Bottom Line [29]: Sustainable development requires balancing economic, social, and environmental objectives. IPR protection of OCOP products promotes higher income and market access (economic), preserves cultural heritage (social), and deters counterfeiting while encouraging sustainable production (environmental).

Institutional Theory [30]: The effectiveness of IPR protection depends on institutional environments, including legal frameworks, policy support, and governance capacity. In Vietnam, the management of OCOP entities and state policies are critical in shaping how IPR translates into value-added outcomes.

Taken together, these theories provide a multidimensional lens for this study. IPR is conceptualized simultaneously as a protective mechanism, a strategic intangible asset, a driver of competitive advantage, and a catalyst for community-based sustainable development. This integrated framework guides hypothesis development and empirical testing, allowing for deeper understanding of both the direct and indirect pathways through which IPR enhances the value of OCOP products in Vietnam.

3. Methodology

3.1. Research Design

This study employs a quantitative research design, using structured questionnaires to collect data and measure key constructs. The latent variables include: Intellectual Property Rights protection (IPR), Economic Value (EV), Social Value (SV), Environmental Value (ENV), Governance Capacity of OCOP production and business entities (GOV), Innovation Capability (INN), and Policy & Legal Framework (POL). All constructs were measured using five-point Likert scales (1 = strongly disagree, 5 = strongly agree), adapted from prior studies to fit the OCOP context in Vietnam.

The measurement scales were developed based on theoretical foundations and refined from previous empirical research. The proposed research model and measurement system are designed to test the impact of IPR protection (independent variable) on the multidimensional value creation of OCOP products, represented by three dependent variables: economic value (EV), social value (SV), and environmental value (ENV). The model also examines the mediating roles of governance capacity (GOV) and innovation capability (INN), as well as the moderating influence of the policy–legal framework (POL).

3.2. Data Collection and Processing

Data were collected through a structured questionnaire survey distributed to entities participating in the OCOP program in Vietnam. A total of 370 valid responses were obtained, meeting the sample size requirements for exploratory factor analysis (EFA) and multiple regression analysis [31]. A combination of convenience sampling and stratification by locality was employed to capture diversity in age, OCOP experience, education level, revenue scale, and labor size.

The data processing procedure involved three main steps. First, the reliability of measurement scales was tested using Cronbach's Alpha, with items showing item–total correlations below 0.3 removed to ensure internal consistency. Second, exploratory factor analysis (EFA) was conducted to identify latent factor structures, with the conditions that the KMO value exceeded 0.5 and Bartlett's Test of Sphericity was statistically significant ($p < 0.05$). Factors were retained when their Eigenvalues were greater than 1 and cumulative variance explained exceeded 50%. Third, after confirming the factor structure, multiple linear regressions were performed separately with economic value (EV), social value (SV), and environmental value (ENV) as dependent variables. IPR protection served as the main independent variable, while governance capacity (GOV) and innovation capability (INN) were included as potential mediators, and the policy–legal framework (POL) as a moderator. All data were processed using SPSS 22.0 to ensure accuracy and reliability in statistical analysis.

3.3. Research Model and Hypotheses Development

Grounded in the theories of Property Rights [26], Intangible Assets [27], Competitive Advantage [28], Community-Based Development, and Sustainable Development [29], this study develops a conceptual framework to examine the impact of Intellectual Property Rights (IPR) protection on the multidimensional value creation of OCOP products.

In this framework, IPR protection is identified as the main independent variable; the three dimensions of value of OCOP products-economic value (EV), social value (SV), and environmental value (ENV) -serve as the dependent

variables. Governance capacity (GOV) and innovation capability (INN) are considered mediating variables, while the policy - legal framework (POL) moderates the relationship between IPR protection and the value of OCOP products.

To test these relationships, three separate regression models are developed, corresponding to the three dependent variables: EV, SV, and ENV.

3.4. Research Hypotheses

H_{1a}: IPR protection has a positive effect on the economic value (EV) of OCOP products.

H_{1b}: IPR protection has a positive effect on the social value (SV) of OCOP products.

H_{1c}: IPR protection has a positive effect on the environmental value (ENV) of OCOP products.

H_{2a}: Governance capacity mediates the relationship between IPR protection and the economic value (EV) of OCOP products.

H_{2b}: Governance capacity mediates the relationship between IPR protection and the social value (SV) of OCOP products.

H_{2c}: Governance capacity mediates the relationship between IPR protection and the environmental value (ENV) of OCOP products.

H_{3a}: Innovation capability mediates the relationship between IPR protection and the economic value (EV) of OCOP products.

H_{3b}: Innovation capability mediates the relationship between IPR protection and the social value (SV) of OCOP products.

H_{3c}: Innovation capability mediates the relationship between IPR protection and the environmental value (ENV) of OCOP products.

H_{4a}: The policy–legal framework moderates the relationship between IPR protection and the economic value (EV) of OCOP products.

H_{4b}: The policy–legal framework moderates the relationship between IPR protection and the social value (SV) of OCOP products.

H_{4c}: The policy–legal framework moderates the relationship between IPR protection and the environmental value (ENV) of OCOP products.

4. Results

4.1. Performance of the OCOP Program in Vietnam

According to reports from the Central New Rural Development Coordination Office, the number of OCOP products in Vietnam by economic region is as follows:

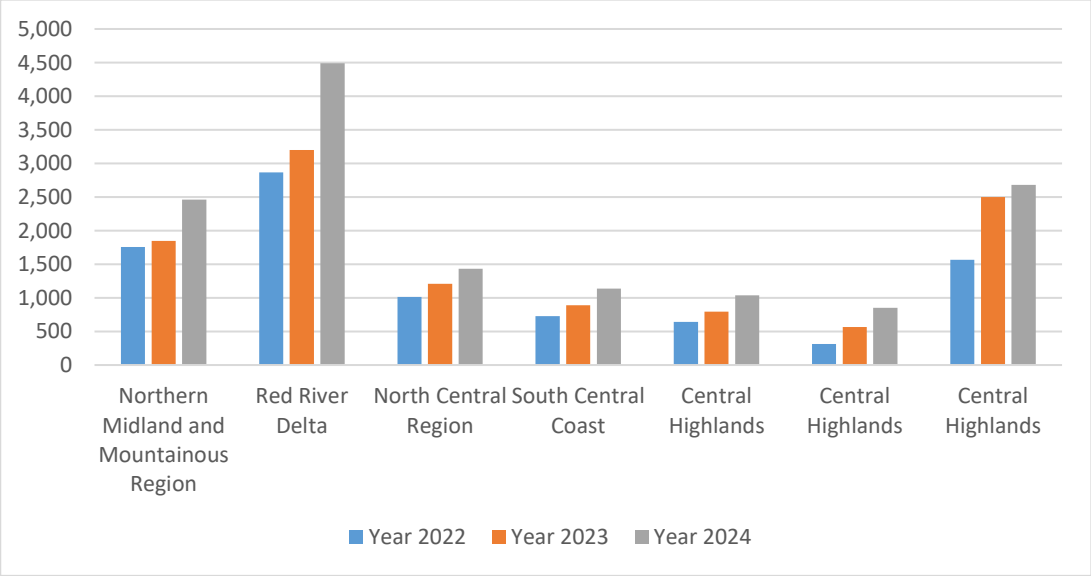

Figure 1.
Number of OCOP Products in Vietnam, 2022 – 2024.
Source: Central Coordination Office for New Rural Development [32].

As of 2024, Vietnam recorded 14,085 OCOP products rated three stars or higher, representing an increase of 58.6% compared to 2022 (8,885 products) and 28% compared to 2023 (11,000 products), with an average annual growth rate of approximately 25.9%. Among the regions, the Red River Delta led with 4,490 products (31.9%), followed by the Mekong River Delta with 2,680 products (a 70% increase compared to 2022), and the Northern Midlands and Mountainous region with 2,460 products. The North Central Coast, South Central Coast, and Central Highlands maintained stable growth, while the Southeast region recorded the fastest growth rate (164.5% compared to 2022) despite its smaller scale.

These results demonstrate that the OCOP program has expanded significantly, reaffirming its role in promoting rural economic development, enhancing the value of regional specialties, and laying a foundation for international market integration.

The number of OCOP production and business entities in Vietnam, according to the Central New Rural Development Coordination Office, is as follows:

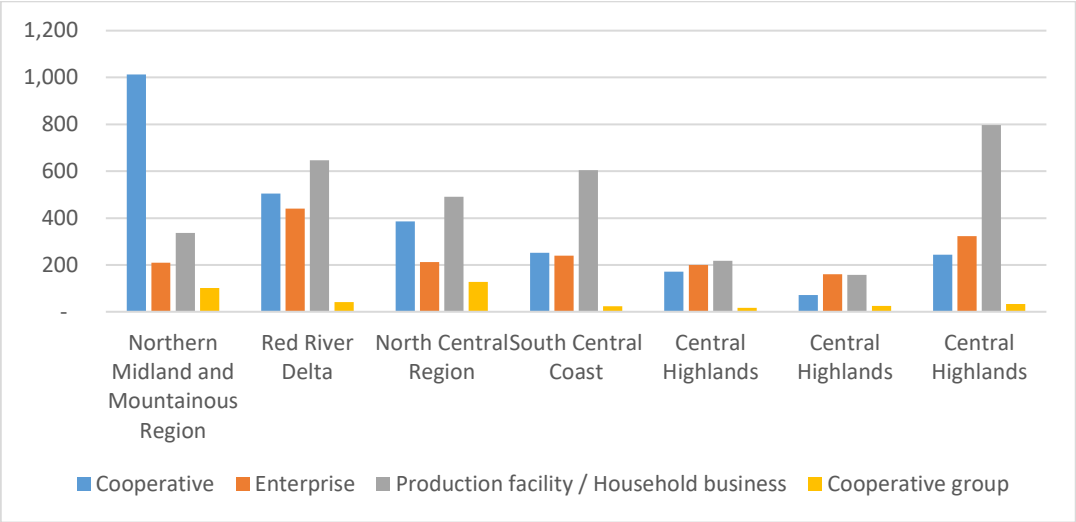

Figure 2.
Number of OCOP Entities in Vietnam, 2024.
Source: Central Coordination Office for New Rural Development [32].

In 2024, OCOP entities were distributed diversely across regions. Cooperatives (HTX) dominated in the Northern Midlands and Mountainous region (1,013 cooperatives) and the Red River Delta (505 cooperatives). Enterprises were concentrated mainly in the Red River Delta (441 enterprises) and the Mekong River Delta (323 enterprises). Household/business establishments were most notable in the Mekong River Delta (797 units), the South Central Coast (604 units), and the Red River Delta (647 units). Cooperative groups (THT) were fewer in number, with the highest concentration in the North Central Coast (127 groups).

This structure reflects a combination of cooperatives, enterprises, and household producers, consistent with the regional characteristics of OCOP development in Vietnam.

Table 1.
General Characteristics of Surveyed Respondents.

Characteristic		**Frequency (N)**	**Percent (%)**
Age (year)	≤ 30	189	51.08
	31- 60	107	28.92
	> 60	74	20.00
OCOP (year)	0-3	102	27.57
	4-7	161	43.51
	8-10	67	18.11
	>10	40	10.81
Education level	Junior high school	24	6.49
	High school	68	18.38
	Vocational/College	106	28.65
	University	170	45.95
	Postgraduate	2	0.54
Annual OCOP revenue (VND)	0-100 million	72	19.46
	101-300 million	170	45.95
	301million - 1 billion	87	23.51
	1 - 5 billion	28	7.57
	5.1 - 10 billion	11	2.97
	>10 billion	2	0.54
Production labor (people)	0-2	72	19.46
	3-5	208	56.22
	5-10	62	16.76
	11-50	20	5.41
	> 50	8	2.16

Among the 370 surveyed respondents, the group aged ≤ 30 years accounted for the largest share (51.08%). The majority had 4 - 7 years of OCOP experience (43.51%) and an educational level of university or higher (46.5%). Annual revenue was concentrated mainly in the 101 - 300 million VND range (45.95%), while the most common labor size was 3 - 5 people (56.22%). Overall, the sample reflects a predominantly young workforce with relatively high educational attainment and small- to medium-scale production among OCOP entities.

4.2. Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) was conducted to assess the dimensionality and construct validity of the measurement scales. The results of the Kaiser-Meyer-Olkin (KMO) test (0.901) and Bartlett's Test of Sphericity (χ^2 = 4781.563, df = 300, $p < 0.001$) confirmed sampling adequacy and significant correlations among observed variables, confirming the statistical adequacy of the dataset for factor extraction (Table 2). Six factors with Eigenvalues greater than 1 were extracted, jointly explaining 64.65% of the total variance (Table 3). All items loaded strongly on their respective factors (≥ 0.612), confirming both convergent and discriminant validity (Table 4).

Table 2.
KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.901**
Bartlett's Test of Sphericity	Approx. Chi-Square	4781.563
	df	300
	Sig.	0.000

Table 3.
Total Variance Explained.

Component	**Initial Eigenvalues (% of Variance)**	**Cumulative %**
1	8.662 (34.467%)	34.648%
2	2.445 (9.781%)	44.429%
3	1.617 (6.4667%)	50.896%
4	1.328 (5.310%)	56.206%
5	1.074 (4.295%)	60.501%
6	1.036 (4.146%)	64.647%

Table 4.
Rotated Component Matrix.

Item	**Factor 1**	**Factor 2**	**Factor 3**	**Factor 4**	**Factor 5**	**Factor 6**
POL1 (Policy & Legal Framework)	0.772	-	-	-	-	-
POL 2	0.791	-	-	-	-	-
POL 3	0.842	-	-	-	-	-
POL 4	0.790	-	-	-	-	-
EV1 (Economic Value)	-	0.903	-	-	-	-
EV2	-	0.861	-	-	-	-
EV3	-	0.871	-	-	-	-
EV4	-	0.871	-	-	-	-
SV1 (Social Value)	-	-	0.738	-	-	-
SV2	-	-	0.714	-	-	-
SV3	-	-	0.754	-	-	-
SV4	-	-	0.710	-	-	-
ENV1 (Environmental Value)	-	-	-	0.643	-	-
ENV2	-	-	-	0.685	-	-
ENV3	-	-	-	0.612	-	-
ENV4	-	-	-	0.714	-	-
GOV1 (Governance capacity)	-	-	-		0.698	-
GOV2	-	-	-	-	0.650	-
GOV3	-	-	-	-	0.643	-
GOV4	-	-	-	-	0.671	-
INN1 (Innovation Capability)	-	-	-	-	-	0.817
INN2	-	-	-	-	-	0.801
INN3	-	-	-	-	-	0.763
INN4	-	-	-	-	-	0.759

Subsequently, three regression models were estimated to test the hypothesized relationships between IPR protection and the economic, social, and environmental value of OCOP products (Tables 5–7). The economic value (EV) model achieved $R^2 = 0.659$, the social value (SV) model $R^2 = 0.714$, and the environmental value (ENV) model $R^2 = 0.590$, all

with Durbin–Watson statistics within the acceptable range (1.5–2.5), indicating no serious autocorrelation. These findings demonstrate that the models exhibit satisfactory explanatory power and robustness.

A comparative overview reveals a hierarchy of explanatory effects: IPR protection exerts the strongest influence on social value ($R^2 = 0.714$), followed by economic value ($R^2 = 0.659$), with environmental value being the weakest ($R^2 = 0.590$). This finding reflects the trajectory of OCOP development in Vietnam, where IPR primarily strengthens community reputation, cultural preservation, and social cohesion, while its impact on environmental sustainability remains comparatively limited.

Table 5.
Model Summary – Economic Value (EV).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.812[a]	0.659	0.647	0.452	1.910

Note:
a. Predictors: IPR, GOV, INN, POL.
b. Dependent Variable: Economic Value (EV).

Table 6.
Model Summary– Social Value (SV).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.845[a]	0.714	0.703	0.421	1.876

Note: a. Predictors: IPR, GOV, INN, POL
b. Dependent Variable: Social Value (SV).

Table 7.
Model Summary– Environmental Value (ENV).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.768[a]	0.590	0.574	0.478	1.932

Note: a. Predictors: IPR, GOV, INN, POL.
b. Dependent Variable: Environmental Value (ENV).

Table 8.
Coefficients of Regression Models for Economic, Social, and Environmental Value.

Predictor Variables	B (EV)	Beta (EV)	Sig. (EV)	B (SV)	Beta (SV)	Sig. (SV)	B (ENV)	Beta (ENV)	Sig. (ENV)
Constant	0.845	–	0	0.692	–	0	0.774	–	0
Intellectual Property Rights (IPR)	0.31	0.342	0	0.365	0.398	0	0.225	0.242	0.001
Governance Capacity (GOV)	0.215	0.221	0.002	0.228	0.236	0	0.167	0.163	0.023
Innovation Capability (INN)	0.178	0.165	0.017	0.194	0.176	0.004	0.142	0.131	0.038
Policy & Legal Framework (POL)	0.142	0.119	0.03	0.115	0.092	0.048	0.095	0.087	0.047

Source: Dependent Variables: EV = Economic Value; SV = Social Value; ENV = Environmental Value. Source: Authors' calculation.

Table 8 reports the regression coefficients for the three models. IPR protection has statistically significant effects across all dimensions, with the strongest standardized impact on SV ($\beta = 0.398$, $p < 0.001$), followed by EV ($\beta = 0.342$, $p < 0.001$) and ENV ($\beta = 0.242$, $p = 0.001$). Governance capacity ($\beta = 0.221$–0.236) and innovation capability ($\beta = 0.131$–0.176) emerge as consistent mediators, reinforcing the translation of IPR protection into tangible outcomes. The policy–legal framework exerts a smaller yet significant moderating effect ($\beta = 0.087$–0.119), underscoring the enabling role of institutional support.

4.3. Regression Analysis Results

The regression analyses were conducted separately for the three dependent variables: economic value (EV), social value (SV), and environmental value (ENV). The results confirm the robustness of the measurement scales and demonstrate that the factor structure obtained through EFA is consistent with the proposed conceptual framework.

4.3.1. Economic Value (EV)

The regression model for EV reported $R = 0.812$, $R^2 = 0.659$, and an adjusted $R^2 = 0.647$, indicating that approximately 64.7% of the variance in EV is explained by the predictors. The Durbin–Watson statistic (1.910) confirmed the absence of autocorrelation in the residuals.

The regression coefficients showed that IPR protection exerts a positive and statistically significant effect on economic value ($p < 0.05$), confirming H1a. Governance capacity (GOV) and innovation capability (INN) also made significant contributions, supporting their mediating roles (H2a and H3a). These findings suggest that IPR protection enhances product revenue, competitiveness, and profitability, while effective governance and innovation mechanisms are necessary to transform IPR advantages into tangible economic outcomes.

4.3.2. Social Value (SV)

The SV model produced the strongest results, with R = 0.845, R^2 = 0.714, and an adjusted R^2 = 0.703, explaining 70.3% of the variance in social value. The Durbin–Watson statistic (1.876) indicated that the residuals were independent.

The findings validate H1b, showing that IPR protection exerts the greatest impact on social value among the three dimensions. This highlights the role of IPR in strengthening brand reputation, preserving indigenous knowledge, and promoting community cohesion. The results align with community-based development theory, which emphasizes that collective participation and co-ownership are critical for sustainability. In addition, both governance capacity and innovation capability showed significant effects, supporting H2b and H3b.

4.3.3. Environmental Value (ENV)

The regression model for ENV yielded R = 0.768, R^2 = 0.590, and an adjusted R^2 = 0.574, indicating that 57.4% of the variance in environmental value was explained. The Durbin–Watson statistic (1.932) again fell within the acceptable range, confirming no autocorrelation.

Although the effect was weaker compared to EV and SV, the results support H1c, demonstrating that IPR protection contributes to environmentally friendly production, quality control, and counterfeit prevention. These findings are consistent with sustainable development and triple bottom line perspectives, which link competitiveness with environmental protection. However, the relatively modest coefficients suggest that environmental outcomes remain underdeveloped compared to economic and social dimensions, highlighting the need for stronger "green" policies and eco-oriented marketing strategies.

4.3.4. Comparative Overview

Taken together, the results reveal a clear hierarchy of effects: social value emerged as the most responsive dimension (R^2 = 0.714), followed by economic value (R^2 = 0.659), and environmental value (R^2 = 0.590). Across all models, the 95% confidence intervals for the regression coefficients excluded zero, confirming the robustness of the estimates.

These findings underscore that IPR protection significantly enhances the multidimensional value of OCOP products. Social value and governance capacity play particularly central roles, while innovation capability and the policy–legal framework provide complementary support in strengthening both economic and environmental outcomes.

5. Discussion

The empirical results provide robust evidence that intellectual property rights (IPR) protection significantly enhances the multidimensional value of OCOP products in Vietnam. By conducting three separate regression models, the study demonstrates that the explanatory power of IPR protection varies across the economic, social, and environmental dimensions, thereby offering a nuanced understanding of how IPR functions as a development instrument in the context of community-based rural economies.

5.1. Theoretical Contributions

First, the finding that social value (SV) is the most strongly affected dimension (R^2 = 0.714) advances community-based development theory by highlighting the pivotal role of IPR in reinforcing collective branding, safeguarding indigenous knowledge, and fostering community participation. This result resonates with Burri [2] and Rahmah [10] who emphasized that geographical indications (GIs) and collective trademarks not only protect products but also strengthen social cohesion. In the Vietnamese context, where OCOP products are deeply embedded in cultural identity, IPR protection thus becomes a mechanism for cultural preservation and social empowerment.

Second, the confirmation that economic value (EV**)** is positively influenced by IPR protection (R^2 = 0.659) aligns with property rights theory [26] and intangible asset theory [27]. Clearly defined and enforceable rights incentivize investment and reduce risks of expropriation, while intangible assets such as brands and reputation are transformed into tangible benefits. This echoes empirical findings by Campi [5] and Quiñones-Ruiz, et al. [7] demonstrating that IPR improves agricultural productivity and generates premium market prices. Importantly, the mediating roles of governance capacity and innovation capability emphasize that the translation of IPR protection into economic outcomes requires strong organizational capacity and continuous innovation, consistent with institutional theory [30] and innovation capability theory [1].

Third, the relatively modest effect on environmental value (ENV) (R^2 = 0.590) reflects the partial alignment between IPR protection and sustainability theory [29]. While IPR contributes to quality assurance, counterfeit prevention, and eco-friendly practices, its environmental impacts remain underdeveloped in Vietnam compared to economic and social dimensions. This suggests that the triple bottom line framework has not yet been fully realized in practice, requiring stronger institutional support and green policy interventions.

Collectively, these findings contribute to the literature by integrating multiple theoretical perspectives - property rights, intangible assets, competitive advantage, community-based development, and sustainability - into a unified framework for analyzing the role of IPR in local product development.

5.2. Practical Implications

The study also provides several practical insights for policymakers and OCOP stakeholders.

Strengthening community branding: Since social value is the most responsive dimension, policies should prioritize building collective trademarks and GIs that emphasize cultural identity and community ownership, thereby maximizing the social benefits of IPR.

Enhancing governance and innovation: The mediating effects of governance capacity and innovation capability suggest that IPR protection alone is insufficient. Training programs for cooperatives and enterprises, together with support for technological upgrading and product diversification, are essential to unlock the economic potential of IPR.

Promoting green growth: The weaker impact on environmental value highlights the need for policies that integrate IPR with sustainable production standards, eco-certification, and green marketing. Institutional incentives, such as subsidies for environmentally friendly production or stricter enforcement against counterfeit products, could strengthen the environmental dimension of OCOP.

Improving institutional frameworks: The moderating role of the policy - legal framework underscores that strong institutions are indispensable for maximizing the benefits of IPR. This requires coherent legislation, effective enforcement mechanisms, and alignment with international agreements such as TRIPS and EVFTA.

5.3. Limitations and Future Research

While the findings provide strong evidence of the positive effects of IPR on OCOP product value, some limitations should be acknowledged. First, the study relies on cross-sectional data, which restricts the ability to capture dynamic changes over time. Future research could employ longitudinal designs to assess how IPR protection influences value creation in the long run. Second, although mediation and moderation were tested within a regression framework, advanced methods such as SEM (Structural Equation Modeling) could provide more rigorous validation of indirect and interactive effects. Finally, the study focuses on Vietnam's OCOP program; comparative studies with similar initiatives in other countries (e.g., Japan's One Village One Product, Thailand's OTOP) would enhance generalizability and offer broader policy lessons.

6. Conclusion

This study provides comprehensive empirical evidence on the impact of intellectual property rights (IPR) protection on the multidimensional value creation of OCOP products in Vietnam. By employing exploratory factor analysis (EFA) and multiple regression models, the research confirms that IPR protection significantly enhances economic, social, and environmental values, although with varying magnitudes. Among the three dimensions, social value emerged as the most responsive, followed by economic and environmental values.

From a theoretical perspective, the study advances the integration of property rights theory, intangible asset theory, competitive advantage, community-based development, and sustainability into a unified analytical framework. The findings highlight that IPR is not only a legal mechanism to safeguard ownership but also a strategic resource that fosters community reputation, strengthens governance and innovation, and contributes to sustainable development.

Practically, the results underscore that IPR protection should be complemented by effective governance structures, continuous innovation, and supportive institutional frameworks in order to maximize its economic and environmental benefits. Policy interventions are particularly needed to reinforce green production, eco-certification, and sustainability-oriented marketing, thereby aligning IPR protection more closely with the triple bottom line framework.

Overall, the study contributes to bridging the research gap on IPR and local specialty products in Vietnam, providing evidence-based insights for policymakers, cooperatives, and enterprises engaged in the OCOP program. Future research should extend the analysis through longitudinal data and advanced modeling techniques (e.g., SEM) to further explore mediating and moderating mechanisms, as well as conduct cross-country comparisons to enhance the generalizability of findings.

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