

# Determining factors for economic upgrading in the global value chain of the blackberry fruit cluster in Los Reyes, Michoacán, Mexico

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## ABSTRACT

**Objective:** to measure the impact of variables such as innovation, public policy, dependency and inequalities among actors and at the level of organization so that the producer of blackberry fruit (*Rubus* sp.) can achieve upgrading in the global value chain (GVC).

**Design/Methodology/Approach:** a partial least squares technique was used for measurement, and SmartPLS<sup>®</sup> software for modeling and graphing relationships among variables.

**Results:** dependency, inequalities, innovation, and public policies largely explain the upgrading potential of producers of blackberry fruit in the global value chain. To the extent that these social actors can reduce dependency level and inequality; while innovation and public policies to support their production activities are developed.

**Limitations/Implications of the study:** there is no official record of blackberry fruit producers. The internal level of organization did not present a positive association with the economic upgrading of producers in the chain. However, it was positive in relation to external factors; it is important then to strengthen the individual positioning of each producer towards increasing productive capacity, as well as improving skills on marketing and sales of the product.

**Findings/Conclusions:** reduction in inequality and level of dependency that producers experience compared to the rest of the value chain, as well as innovation are the variables that positively impact economic upgrading of blackberry fruit producers in the municipality.

**Keywords:** blackberry fruit, stakeholders, social actors, economic upgrading, GVCs.

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## INTRODUCTION

The terminology associated with the concept of global value chain includes various approaches. The one based on the theory of comparative advantages uses the term global value chain (GVC) which refers to the international insertion of stakeholders. This global-scale insertion occurs from the specialization of certain links in the chain whose processes make it possible to obtain a final good (Gereffi & Fernandez-Stark, 2016).

Updated research serves as a basis for evaluating the relationships, functions, behavior, performance, and outcomes of stakeholders interactions within these chains. Two of the central pillars of the study of global value chains are governance and economic upgrading.



These elements interact and directly influence the capacity of stakeholders in a chain to act, as well as to benefit from those markets where large profits can be achieved (Opoku-Mensah *et al.*, 2024).

Governance refers to the relationships of authority and power that determine the flow and allocation of financial, human and material resources allocated within a value chain (Lee *et al.*, 2017). According to Reyes *et al.* (2023), governance is described as the leaders management within an entire value chain. On the other hand, upgrading refers to the scaling up in economic terms of those stakeholders dedicated to a certain productive activity within a global dynamic. Thus, this term is used to highlight the paths of advancement of stakeholders for improvement. This means progress for economic purposes in their positioning in the global chain (Ponte *et al.*, 2023).

The concept of specific trajectories is developed in some published studies, referring to the potential for economic upgrading of an organization, through four types of trajectories that can be adopted towards upgrading. These trajectories are process improvement, which occurs when value is added to existing tasks; product improvement, occurring when the value of goods increases; functional improvements, when companies increase the overall qualification content of activities; and chain improvement, which is generated by a horizontal shift to new GVCs that produce greater added value per production unit (Bassetti & Troncoso, 2020).

There are various analyses of agricultural GVCs in Mexico for products such as avocado, berries, and coffee, which highlight low-tech global governance, which primarily falls on marketing companies (González-Ramírez *et al.*, 2020; Reyes *et al.*, 2023). Our research contributes with the case-study of the value chain of blackberry fruit locally produced in a municipality; considering the theoretical elements described above, then analyzing how the local producers of blackberry fruit are positioned as stakeholders in the value chain, within the economics environment in the municipality of Los Reyes, Michoacán, México. The objective of this study was to measure the impact of variables such as innovation, public policy, dependency and inequalities among actors and at the level of organization so that the producer of blackberry fruit (*Rubus* sp.) can achieve upgrading in the global value chain (GVC).

## MATERIALS AND METHODS

As a background for the analysis, some factors were selected that can facilitate upgrading for the producer in the global dynamics. Such as, innovation, inequalities or imbalances, and dependency at the level of organization. Local governance dynamics is a key to analyze these factors.

Fernandez-Stark & Gereffi (2019) defined five types of governance which are identified within global value chains, we analyzed those types in adapting them to describe blackberry fruit value chain (Table 1).

Then, based on Lema *et al.* (2019) we selected innovation as a variable to economic upgrading. Those authors described four innovation trajectories in organizations, in terms of the type of capacity required in a company to innovate, and consequently entering GVCs. Inequalities or imbalances and the level of dependency among stakeholders and

**Table 1.** Types of governance identified in the global value chain of blackberry fruit (Los Reyes, Michoacán, México).

Market	Involves relatively simple transactions, specifications for products are transmitted to suppliers and manufactured.
Modular	Suppliers manufacture products to customer specifications, using generic technology that limits specific asset investments.
Relational	Complex interactions between buyers and sellers, creating high asset specificity
Captive	Small suppliers depends on larger buyers, characterized by a high degree of monitoring and control by lead firms.
Hierarchical	Vertical integration dominated by managerial control of affiliates and subsidiaries.

Fuente: Fernandez-Stark & Gereffi (2019), modified for this study.

social actors, according to Kano (2018), who observed these factors make vulnerable those positions (or links) with fewer resources and capacities in the GVCs. Also, public policies that can act as catalysts for the growth and expansion of a production cluster within the global value chains (Mudambi & Santangelo, 2016; De Marchi *et al.*, 2018).

Finally, the level of organization between companies, which increases the probability that local companies can have an advantage by owning an established brand in the market (Mudambi & Santangelo, 2016; Pietrobelli *et al.*, 2021). To measure the importance of each of the factors selected for analysis of the economic upgrading of the producers of blackberry fruit in the GVCs, the partial least squares (PLS) technique was used, which is a method to estimate the parameters of a system of equations that includes observed or manifested variables, and unobserved or latent variables (Evermann & Ronkko, 2023).

### Creation of the structural model

Hair *et al.* (2017) indicated the stages for the creation of a structural equation model. A: model description, which consists of determining the relationships of the model with the latent variables (LV) and their indicators. B: validity and reliability of the model, which require to verify the main measurements at this stage through the analysis of internal validity; individual reliability; construct reliability; convergent validity and discriminant validity. Lastly, C: structural model assessment, where hypotheses are contrasted by examining path coefficients and running a Bootstrapping analysis.

Data collection for analysis was done through a survey applied to producers of blackberry fruit in the municipality of Los Reyes (Michoacan) Mexico. These social actors constitute the core of this economic activity, generating fruit production that is marketed and distributed to international markets. A 35-item Likert-type questionnaire was designed to measure innovation, public policies, imbalances and level of dependency among stakeholders, and the level of organization to evaluate economic upgrading of fruit producers in the GVCs. Each questionnaire was administered directly or digitally from May to August 2024, obtaining a total of 52 responses.

Then, we determined the operationalization of study variables, as well as defined the correspondent measurement indicators (Table 2).

**Table 2.** Operationalization of variables in the case-study of the value chain of blackberry fruit (Los Reyes, Michoacan, Mexico).

Conditions	Indicators	Item	PLS indicator
Innovation	Importance	1,2	IN1- IN2
	Development of new products	3	IN3
	Comercialization	4	IN4
	Development of new processes	5	IN5
	Diffusion of innovations	6	IN6
	Cooperation with research centers	7	IN7
Public policies	Activity growth	8	PP1
	Producer and government cooperation	9	PP2
	Network	10	PP3
	Usefulness	11	PP4
	Integration level	12	PP5
	Practice regulations	13	PP6
	Price improvement	14	PP7
Actor dependence	Extensive network buyers	15	AD1
	Price negotiation capacity	16	AD2
	Integration level	17	AD3
	Earning profits	18	AD4
	The need to sell in advance	19	AD5
	Debt level	20	AD6
	Trading companies control	21	AD7
Organization level	Frequency of business meetings	22	OL1
	Cooperation between producers degree	23	OL2
	Agreements compliance	24	OL3
	Diffusion of personal knowledge	25	OL4
	Bargaining power of purchase conditions	26	OL5
	Group formation	27	OL6
	Government cooperation	28	OL7
Upgrade in GVC	Conditions	29	UG1
	Up-grading needs	30	UG2
	Up-grading preferences	31	UG3
	Advantage in sale terms	32	UG4
	Economic and commercial evolution	33	UG5
	Sales and marketing ability	34	UG6
	Skills enhacement	35	UG7

**Determining the sample for the producers survey**

Historically, the municipality of Los Reyes is one of the main in terms of agriculture production areas in the state of Michoacan (Mexico). Due to a high concentration of stakeholders for the analysis, we selected this area; with the limitation that there is no

official record that determines the total number of producers in the municipality. In 2022, the Mexican Secretariat of Agriculture and Rural Development (SADER) called for producers to register for the “Strategic Project for the Rescue and Comprehensive Care of Blackberry Fruit Cultivation,” which aimed to address plantations health problems caused by several agents, through the provision of financial resources. To that official program, 150 producers were registered, which lands cover the municipalities of Los Reyes, Peribán, Tocuambo, and Tacámbaro (NotiGuía, 2022). Based on this record, which constitutes one of the few available lists of producers in the region, we determined the sample for this study that we consider as representative, since it was integrated by a third of the producers.

### Graphing the structural model

Variable modeling was done using the software SmartPLS<sup>®</sup> version 4, which allowed for the creation of the structural model and the measurement of indicators related to the selection variables. To run the model, as the endogenous (LV) latent variable (this is, the dependent variable) we considered the economic upgrading of producers in the global value chain, which is determined by the causal factors evaluated, according to the theory on GVCs.

## RESULTS AND DISCUSSION

In 2023, total blackberry fruit production in Mexico, according to data from the national Agri-Food and Fisheries Information Service (SIAP, 2024), recorded a total of 236 989 tons (Megagrams, Mg) produced nationwide. Of which 90.29% were obtained from the state of Michoacán, followed by the state of Jalisco, with 0.6% of national production. These data shows the importance of the state of Michoacán in blackberry fruit production. In regard to Los Reyes municipality, blackberry fruit production (2018 to 2023) had the trend summarized in Table 3.

The representativeness and importance of the municipality studied is high, as it constitutes one of the geographical areas with the highest production in the state from 2018 to 2022. In 2023, a decrease in the percentage of production and representativeness of Los Reyes is noted, as the municipalities of Peribán and Tocuambo (also in the state of Michoacán) significantly increased their blackberry fruit production.

**Table 3.** Blackberry fruit production in the municipality of Los Reyes (Michoacan), compared to the total produced in the state of Michoacán (Mexico).

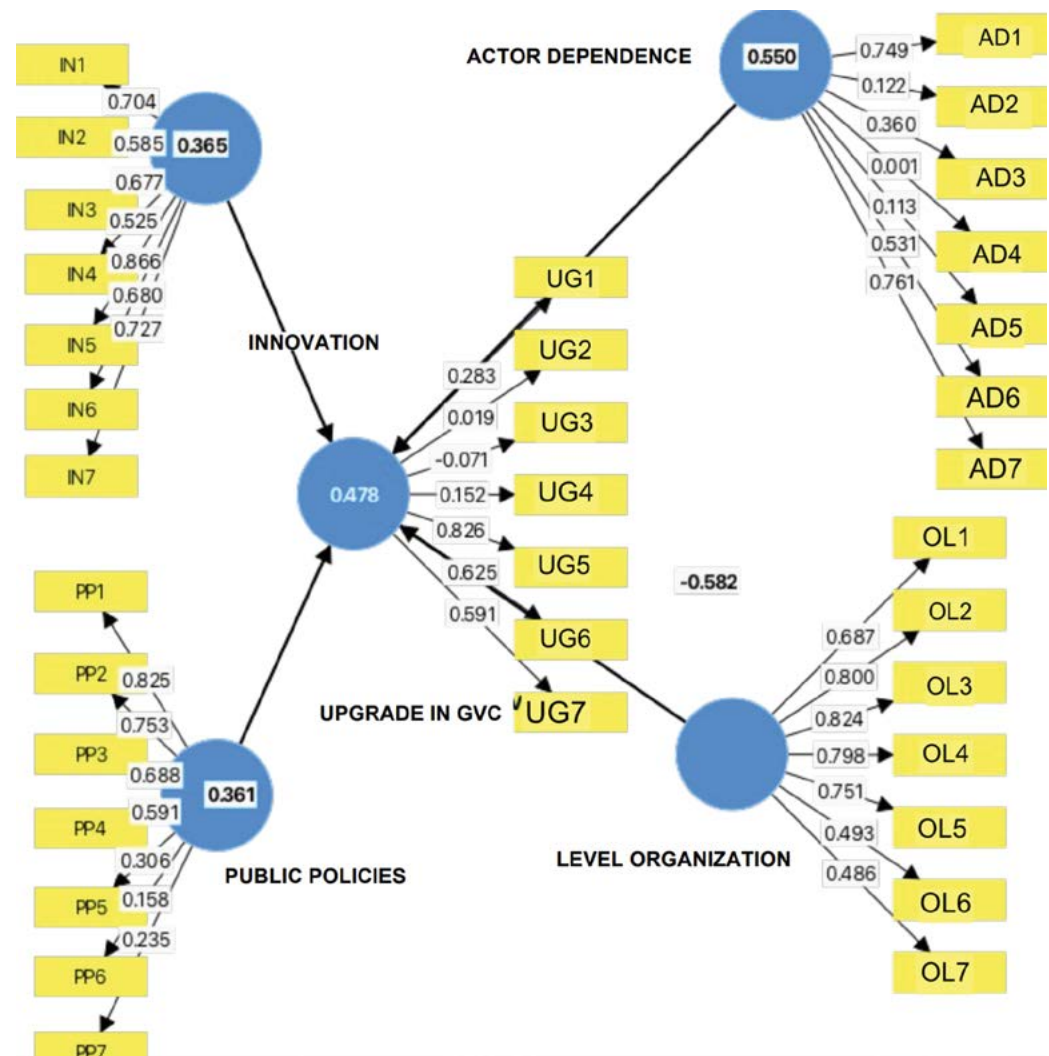
Agricultural year	Total production in Los Reyes (ton)	Total production in Michoacan (ton)	Share of total production (%)
2018	119,944.00	246,801.38	48.60
2019	137,246.40	285,601.55	48.06
2020	94,374.00	201,335.53	46.87
2021	86,448.00	197,486.75	43.77
2022	86,448.00	205,066.16	42.16
2023	77,430.00	213,991.35	36.18

Source: Mexico’s Agri-Food and Fisheries Information Service (SIAP, 2024).

As a result of the series of regression equations, the path coefficients (Hair *et al.*, 2017) were obtained. The graphic representation of the model created, with the interrelations of variables is shown (Figure 1).

The proposed model integrates path coefficients and the relationship between each of the indicators and the study variable. This estimate shows that innovation, level of dependency and inequality, as well as public policies, explained 47.8% of the variance in economic upgrading of producers in GVCs.

If we agree to consider that this study is a pioneer approach, since there are no previous studies that support the factors required for this productive activity, as determinants for producers upgrading in GVCs, the percentage we obtained is satisfactory. Thus, the variables we selected for analysis would largely determine the chances for stakeholders towards reaching better positions (upgrading) in the global value chains.



**Figure 1.** Model of interrelations of the variables for economic upgrading of producers of blackberry fruit (Los Reyes, Michoacán, Mexico) in the global value chains.

The strongest relationship between upgrading and the analysis variables was found in level of dependency and inequality; then, in innovation, and afterwards in public policies. The level of organization was not positively related to the level of upgrading, as it was indicated by the path coefficients (Table 4).

It was evident that innovation explained 36.5% of the variance of the economic upgrading of producers in global value chains. This emphasizes the importance of innovation in production. According to Rikap (2018), the growing gaps between the innovation capacity of companies within a productive branch force non-innovators companies to prefer being dominated. On the other hand, in opinion of Sako & Zylbergberg (2019), economic upgrading only occurs when companies increase added value, and appropriate it within a value chain.

Public policies explained 36.1% of the variance in the producer's ability to upgrade their economic position in the GVC. According to De Marchi & Alford (2022), the facilitating and regulatory role of the Government is required, one that allows strategies to improve participation in value chains and an increase in the capture of value from production activities. In agreement with Filippo *et al.* (2024), we highlight the need for public policies that promote productivity, sustainability and resilience, in order to improve integration and adaptation to new global conditions.

Even more crucial was the factor related to level of dependency and inequality, which explained 55% of the economic upgrading of producers in the GVCs. If we agree on considering that in the municipality studied, the marketing companies make it possible to export the product to international markets; also considering that those companies are primarily formed with foreign capital, the need to reduce producer's level of dependency can be understood. In order to achieve such a reduction, those aspects related to the most important sources of inequality need to be addressed; such as income distribution, added value, risks, and the environmental and social costs caused by production activities (Ponte & Bair, 2023).

The behavior of the impact of the selected indicators, on each of the study variables, is expressed through the external coefficients of the items (Table 5).

Based on the coefficients shown in the table above, the emphasis is important on the interpretation for each of the causal factors, and to the resultant variable.

**Innovation:** all indicators were positively related to the study variable, confirming the importance of each of the elements considered for the innovation trajectories described by Lema *et al.* (2019).

**Table 4.** Results of the path coefficients in the model that explain economic upgrading of blackberry fruit producers (Los Reyes, Michoacán, Mexico).

	Upgrade
Innovation (IN)	0.365
Public policies (PP)	0.361
Actor dependence (AD)	0.55
Organization level (OL)	-0.582

**Table 5.** Measurement of external coefficients that influence on the indicators for economic upgrading of the blackberry fruit producer (Los Reyes, Michoacán, México).

	IN	PP	AD	OL	UG
IN1	0.704				
IN2	0.585				
IN3	0.677				
IN4	0.525				
IN5	0.866				
IN6	0.68				
IN7	0.727				
PP1		0.825			
PP2		0.753			
PP3		0.688			
PP4		0.591			
PP5		0.306			
PP6		0.158			
PP7		0.235			
AD1			0.749		
AD2			0.122		
AD3			0.36		
AD4			0.001		
AD5			0.113		
AD6			0.531		
AD7			0.761		
OL1				0.687	
OL2				0.8	
OL3				0.824	
OL4				0.798	
OL5				0.751	
OL6				0.493	
OL7				0.486	
UG1					0.283
UG2					0.19
UG3					-0.071
UG4					0.152
UG5					0.826
UG6					0.625
UG7					0.591

IN: innovation; PP: public policies; DD: level of dependency and inequality; LO: level of organization; E: economic upgrading.

**Public policies (PP):** current public policy does not clearly address the regulation of commercial practices (PP6) used by the exporting companies. Although some institutional reforms have been implemented to improve foreign trade, policies to address transformation, reconversion, or access to production and commercial incentives are limited. These conditions increase dependence on certain export markets (Baena-Rojas *et al.*, 2023).

**Imbalances and level of dependency (DD):** selling price to the producer (DD4) does not allow them to individually sustain autonomous processes of production or sales. Producers are generally tied to pre-harvest sales contracts (DD5), signed at imbalanced and unfavorable conditions.

**Level of organization (LO):** all external coefficients on the level of organization were positively related to the economic upgrading of the producer.

**Economic upgrading in the value chain:** there are no overall conditions (E2 and E3) for producers upgrading in global value chains, mainly due to the lack of skills on marketing and sales of the product.

### Results on the structural model assessment

The results of reliability and internal consistency, both evaluated through Cronbach's alpha coefficient (CA) and the composite reliability of the construct (CR) as measures of internal consistency, presented in each case and for at least two factors, the expected level of indices (0.7, modest reliability in the early stages of the research; 0.8 for basic research). The convergent validity criterion considered the average variance extracted (AVE); this measure is only applicable to VLs composite of reflective indicators. When 0.5 is the lowest limit, AVE is acceptable; this means that more than 50% of the variance of the construct was explained by selected indicators. In this way, indicators fitting is significant and they are highly correlated (Hair & Alamer, 2022).

**Table 6.** Coefficients for the proposed model in the reliability and internal consistency tests.

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Actor dependence	0.526	0.491	0.326
Upgrade IN GVC	0.474	0.548	0.619
Innovation	0.817	0.849	0.573
Organization level	0.845	0.893	0.596
Public policies	0.842	0.448	0.521

In addition, results are presented of the measure of discriminant validity, this is, the Heterotrait-Monotrait ratio (HTMT). In this test, the limit proposed by Roemer *et al.* (2021) is 0.85, to be considered as a valid and reliable measurement (Table 7).

**Table 7.** Test results of the Heterotrait-Monotrait (HTMT) ratio, the measure of discriminant validity of the proposed model.

	ACTOR DEPENDENCE	UPGRADE IN GVC	INNOVATION	LEVEL ORGANIZATION	PUBLIC POLICIES
Actor dependence					
Upgrade in GVC	0.844				
Innovation	0.686	0.658			
Level organization	0.806	0.56	0.761		
Public policies	0.819	0.653	0.687	0.843	

## CONCLUSIONS

The reduction in inequality and level of dependency that producers experience compared to the rest of the value chain, as well as innovation are the variables that positively impact economic upgrading of blackberry fruit producers in the municipality under study. Innovation oriented to the internal processes of production and agriculture management is the most needed, as well as that related to the capacity to generate value-added products, such as new varieties, or improved production cycles.

The public policy variable is relevant to effectively reduce inequality and producers dependence to other actors in the global value chain, as well as to promote innovation. This study is the first approach towards identifying the potential options and mechanisms to the economic upgrading of blackberry fruit producers. In order to improve their position in production and sales, within the international dynamics of global value chains.

## REFERENCES

- Baena-Rojas, J., Mackenzie-Torres, T., & Guerrero-Molina, M. (2023). Políticas de comercio exterior: las exportaciones mexicanas tras su ingreso a la OMC 1995-2019. *Revista Científica General José María Córdova*, 21(42), 453-476. <https://doi.org/10.21830/19006586.1072>
- Bassetti, M., & Troncoso, C. (2020). Economic upgrading in global value chains: concepts and measures. *Revista Brasileña de Innovación*, 19. <https://doi.org/10.20396/rbi.v19i0.8654359>
- De Marchi, V., & Alford, M. (2022). State policies and upgrading in global value chains: A systematic literature review. *Journal of International Business Policy*, 5, 88-111. <https://doi.org/10.1057/s42214-021-00107-8>
- De Marchi, V.; Giuliani, E., & Rabellotti, R. (2018). Do global value chains offer developing countries learning and innovation opportunities?. *The European Journal of Development Research*, 30, 389-407. <https://doi.org/10.1057/s41287-017-0126-z>
- Evermann, J., & Ronkko, M. (2023). Recent Development in PLS. *Communications of the association for information systems*, 52, 663-691. <https://doi.org/10.17705/1CAIS.05229>
- Fernandez-Stark, K., & Gereffi, G. (2019). Cadenas Globales de Valor- Un Manual Básico. In: Handbook on Global Value Chains (pp.54-76) Chapter: 2, Publisher: Edward Elgar Publishing DOI:10.1017/9781108559423.012
- Filippo, A., Guaipatin, C., Navarro, L., & Wyss, F. (2024). Productive development policies in face of the new imperatives of global value chains. Inter-American Development Bank. <http://dx.doi.org/10.18235/0012914>
- Gereffi, G., & Fernandez-Stark, K. (2016). Global value chain analysis: A primer. The Duke center on globalization, governance and competitiveness at the social science research institute. Duke Center on Globalization, Governance & Competitiveness. <https://hdl.handle.net/10161/12488>
- González-Ramírez, G., Santoyo, V., Arana, J., & Muñoz, M. (2020). The insertion of Mexico into the global value chain of berries. *World Development Perspectives* (20), 1-11. <https://doi.org/10.1016/j.wdp.2020.100240>
- Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, 1(3). <https://doi.org/10.1016/j.rmal.2022.100027>

- Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2017). A Primer on Partial Least Square Structural Equation Modeling (PLS-SEM). SAGE Publications. Chapter 1.
- Kano, L. (2018). Global value chain governance: A relational perspective. *Journal of International Business Studies*, 684-705. <https://doi.org/10.1057/s41267-017-0086-8>
- Lee, K., Szapiro, M., & Mao, Z. (2017). From Global Value Chains (GVC) to Innovation Systems for Local Value Chains and Knowledge Creation. *The European Journal of Development Research*, 30, 424-441. <https://doi.org/10.1057/s41287-017-0111-6>
- Lema, R., Pietrobelli, C., & Rabellotti, R. (2019). Innovation in global value chains. En S. Ponte, G. Gereffi y G. Raj-Reichert, Handbook on Global Value Chains. Aalborg University, pp: 370-384 <https://doi.org/10.4337/9781788113779.00032>
- Mudambi, R., & Santangelo, G. (2016): From Shallow Resource Pools to Emerging Clusters: The Role of Multinational Enterprise Subsidiaries in Peripheral Areas. *Regional Studies*, 50(12), 1965-1979. <https://doi.org/10.1080/00343404.2014.985199>
- NotiGuía (2022). Nota destacada: 150 productores registrados en el proyecto de atención y rescate del cultivo de la zarzamora. Blog de noticias del Municipio de Los Reyes, Michoacán.
- Opoku-Mensah, S., Mahama Al-Hassan, R., & Awo, M. (2024). Relationship, governance and upgrading opportunities in the Shea value chain. A descriptive analysis from Northern Ghana. *Forest, Trees and Livelihoods*, 33, 158-178. <https://doi.org/10.1080/14728028.2024.2314126>
- Pietrobelli, C., Rabellotti, R., & Van-Assche, A. (2021). Making sense of global value chain-oriented policies: The trifecta of tasks, linkages, and firms. *Journal of International Business Policy*, 4, 327-346. <https://doi.org/10.1057/s42214-021-00117-6>
- Ponte, S., & Bair, J. (2023). Power and inequality in global value chains: Advancing the research agenda. *Global networks a Journal of transnational affairs*, 23(4), 679-686. <https://doi.org/10.1111/glob.12456>
- Ponte, S., De Marchi, V., Di Maria, E., & Bettiol, M. (2023). The horizontal governance of environmental upgrading: Lessons from the Prosecco and Valpolicella wine value chains in Italy. *Environment and Planning A: Economy and Space*, 55(8), 1884-1905. <https://doi.org/10.1177/0308518X231176553>
- Reyes, H., Martínez, E., Aguilar, J., & Aguilar, N. (2023). Gobernanza de la cadena global de valor en el aguacate. *Ciencia y Tecnología Agropecuaria*, 24(2), 1-29. [https://doi.org/10.21930/rcta.vol24\\_num2\\_art:3120](https://doi.org/10.21930/rcta.vol24_num2_art:3120)
- Rikap, C. (2018). Innovation d'economic power in Global Value Chains. *Revue d'economie industrielle*, 35-75. <https://doi.org/10.4000/rei.7226>
- Roemer, E., Schuberth, F., & Henseler, J. (2021). HTMT2-an improved criterion for assessing discriminant validity in structural equation modeling. *Industrial Management Data Systems*, 121(12), 2637-2650. <https://doi.org/10.1108/IMDS-02-2021-0082>
- Sako, M., & Zylbergberg, E. (2019). Supplier strategy in global value chains: shaping governance and profiting from upgrading. *Socio-Economic Review*, 687-707. <https://doi.org/10.1093/ser/mwx049>
- SIAP (Servicio de Información Agroalimentaria y Pesquera) (2024). Zarzamora. [https://nube.siap.gob.mx/avance\\_agricola/](https://nube.siap.gob.mx/avance_agricola/)