The Effects of Adopting International Standards on Firms' Performance: A Brief Literature Review

Introduction

This brief literature review examines the economic impacts of adoption of international *standards* on firms' performance, with particular attention to *outcomes related to sales, profitability, employment, wages, productivity, and exports*. Its main objective is to assess the size and direction of these impacts on firms' performance.

The review draws on literature published in peer-reviewed journals spanning fields such as development economics, international business, production and operations management, quality management, organizational behavior, and environmental management. It also considers working papers and reports from international organizations. Only studies that directly address the research questions using rigorous quantitative methods are included; purely qualitative studies are excluded. The review considers publications from 1999 onward, giving priority to studies based on more recent data and those that have been cited more frequently.

For each study considered, the review examines research type, empirical methodology, independent and dependent variables, hypotheses and conclusions, type of standard investigated, the country or region where the study was conducted, and whether the context involved a high-, middle-, or low-income country.

The sample includes 28 quantitative studies comprising 26 articles in peer-reviewed journal articles and 2 working papers issued by international organizations. Of these, 22 apply econometric techniques such as regression analysis, instrumental variables, difference-in-differences, fixed effects, and generalized estimating equations. They draw on a geographically diverse evidence base, with 11 studies conducted in high-income countries and 17 in low- or middle-income ones.

The review found no studies involving randomized controlled trials or experimental studies that robustly corrected for the possibility of selection bias in adoption of international standards.

In general, and with potential publication bias acknowledged, the reviewed studies suggest that adopting *standards leads to expanded sales; increased profitability, employment, and wages; greater productivity; and stronger export performance, all of which provide firms with a competitive advantage*.

Table 1 summarizes the evidence obtained as a result of the review. For consistency, each study is recorded only once for the same outcome category. However, if a study examines multiple standards or certifications, the number of standards or certifications it assesses determines the number of outcomes recorded in the table. The unit of analysis is therefore the study-standard evaluated. When a study reports mixed findings, the review classifies it based on its main conclusion. In cases in which a single study assesses multiple outcomes, the review records all combinations of variables and outcomes. For example, Vanderhaegen et al. (2018) assess the impact of two different certification combinations (UTZ–Rainforest Alliance–4C and Fairtrade-Organic) on two outcome categories (profitability and productivity), so its results are recorded four times: twice in the category of profit growth and twice in the category of productivity.

Table 1. Summary of evidence on the impacts on firms of adopting standards

OUTCOME	NEGATIVE IMPACT (NUMBER OF STUDIES)	NON-STATISTICALLY-SIGNIFICANT IMPACT (NUMBER OF STUDIES)	POSITIVE IMPACT (NUMBER OF STUDIES)	SHARE OF STUDIES IN DEVELOPING COUNTRIES (%)	SHARE OF STUDIES IN PEER-REVIEWED PUBLICATIONS (%)	SHARE OF STUDIES USING AN ECONOMETRIC FRAMEWORK (%)
Sales growth	0	0	12	42	100	67
Profit growth	2	1	13	56	100	69
Employment growth	0	0	2	50	100	100
Wages	0	0	3	67	67	100
Productivity	1	1	7	67	78	89
Exports	0	2	4	67	100	67

Source: WDR 2025 team.

Note: The table summarizes results of 28 studies; 26 of these studies were peer reviewed, and the remaining 2 are working papers at international institutions. "Number of studies" represents the number of evaluation studies for an individual standard. Some studies evaluate more than one standard and, therefore, appear more than once in the table.

Most of the studies found in the literature focus on internationally recognized standards such as International Organization for Standards (ISO) 9000 and ISO 14001, as well as voluntary sustainability standards such as those from Fairtrade and Rainforest Alliance and country-level organic certifications; some also consider other domestic standards typically issued by national governments in low- and middle-income countries. Most studies use a dummy variable to indicate whether a firm has or has not adopted a particular standard. For example, Blyde (2025) sets an independent variable to 1 if a firm holds ISO 14001 certification and 0 if it does not. Goedhuys and Sleuwaegen (2013) set an independent variable to 1 if a firm has adopted any of the international standards or certifications they considered (ISO 9000, ISO 9002, and ISO 14000). One study evaluates the impact of multiple certifications, recording each certification a firm holds as one study in its summary table. In another rare case, the independent variable the study employs represents the total number of certifications, both international and domestic, held by a firm at a specific time (Zhang et al. 2019). The following sections examine each of these outcomes in more detail.

Adoption of standards and sales growth

Evidence from 12 studies investigating the relationship between adoption of standards and sales growth in adopting firms consistently indicates that *standard adoption has a positive effect on sales growth*. All 12 of these studies were published in peer-reviewed journals, with 8 employing econometric approaches and five focusing on low- or middle-income countries.

The 12 studies employ a variety of approaches in different contexts to assess the relationship between certification and sales. For example, Carrillo-Labella et al. (2024) find that ISO 14001 certification in small and medium Spanish agrifood enterprises is associated with an increase in both domestic and foreign sales, and Liu et al. (2021) show that Hazard Analysis Critical Control Points (HACCP) certification in Korean food firms leads to rapid sales growth immediately after the firms obtain the certification. Starke et al. (2012) consistently find positive and statistically significant coefficients for the relationship between ISO 9000 adoption and sales revenues in publicly traded companies, indicating a direct positive contribution of the former to the latter. Siltori et al. (2021) report that adoption of ISO 9001:2015 increases firms' sales volume. Levine and Toffel (2010) show higher sales among firms adopting ISO 9001 in California, and Corbett et al. (2005) and Terlaak and King (2006) provide evidence of production and sales boosts associated with ISO 9000 certification among US firms. Chatzoglou et al. (2015) reinforces these findings with respect to Greece, linking ISO 9000 adoption there to increased sales revenue and improved financial performance more broadly.

The results of studies focusing on low- or middle-income countries suggest that certification has strong positive effects on sales in these countries. Goedhuys and Sleuwaegen (2013) analyze data from 59 low- or middle-income countries and transition economies, showing that certification to international standards increases sales growth, with statistical significance, especially in low- or middle-income countries where the quality of institutions is weak. Dragusanu et al. (2022) find that Fairtrade certification of coffee mills in Costa Rica is associated with greater sales and higher revenues, particularly when global coffee prices are low and the minimum price guaranteed by certification is binding. Similarly, Calza and Goedhuys (2021) find strong positive effects in micro-, small, and medium Vietnamese manufacturing enterprises, with domestic certificates linked to a 22 percent increase in sales growth and international certificates to a 33 percent increase and particularly strong effects for firms led by women. Both Siltori et al. (2021) and Starke et al. (2012) show consistent increases in Brazil in sales linked to ISO certification, further underscoring the importance of adoption of standards in emerging market economies.

Collectively, these findings provide positive evidence that obtaining certification increases sales across diverse industries and institutional environments.

Adoption of standards and profit growth

Among the 16 studies reviewed that examine the relationship between adoption of standards and profitability, *13 report positive effects, 2 report negative effects, and 1 finds no statistically significant impact*. All 13 studies were published in peer-reviewed journals, with 11 employing econometric methodologies. Nine of the studies specifically address low- or middle-income countries, offering insights into how certification influences financial performance in countries in which institutions are less mature.

The studies collectively provide detailed evidence on how certification is linked to outcomes in the area of profitability. Corbett et al. (2005) find that statistically significant abnormal improvements in return on assets (ROA) and return on sales (ROS) follow certification to ISO 9000, typically within two years of certification, and persist for up to five years. Similarly, Benner and Veloso (2008) show that adoption of ISO 9000 improved financial performance, particularly for firms that adopted the standard early, with gains in ROS and ROA; however, firms that adopted the standard later experienced weaker effects as competitive advantages diminished over time. Regarding adoption of ISO 14001, Su et al. (2015) show that implementing the standard earlier than rivals provided US manufacturing firms with a performance advantage, resulting in positive and statistically significant improvements in ROA and ROS in years following implementation. Studies of firms in China (Wen and Lee 2020; Zhang et al. 2019) provide strong evidence that environmental and quality certifications positively affect firms' profitability. Carrillo-Labella et al. (2024) observe, however, that although adoption of ISO 14001 has a positive relationship with sales, the gains in sales do not translate into increased profits, likely because of the costs of certification and compliance, which raise firms' costs overall.

Nine studies provide direct evidence from low- or middle-income countries, underscoring both opportunities and limitations. Wen and Lee (2020) show that Chinese firms benefit substantially from environmental labeling certifications, with green policies for government procurement amplifying gains in ROA. Zhang et al. (2019) also find profitability increases for foreign firms operating in China, though the effects are contingent on firm size, firm age, and the degree of regional marketization. Mitiku et al. (2017) find that in Ethiopia, Rainforest Alliance, Fairtrade-Organic, and Fairtrade certifications increase coffee income, whereas Organic certification results in coffee incomes that are lower (with statistical significance), chiefly owing to lower yields resulting from changes in practices needed to obtain the certification. Similarly, Vanderhaegen et al. (2018) report that in Uganda, UTZ–Rainforest Alliance–4C certification significantly increases coffee income, but Fairtrade-Organic certification reduces it, because the price premium offered by Fairtrade-Organic certification fails to offset yield losses resulting from changes firms make to obtain the certification. Kusumah and Fabianto (2018) report no statistically significant short-term impact of adoption of ISO 9000 on profitability among firms in Indonesia; however, they observe that efficiency gradually increases and financial performance improves over time in firms that consistently implement the requirements of the standard.

Together, these results demonstrate that adoption of standards is generally associated with increased profitability, although the magnitude and persistence of the effects vary.

Adoption of standards and employment growth

Two peer-reviewed studies examine the relationship between adoption of standards and employment, and both find *positive effects*. Both employ econometric frameworks, and together they provide evidence from both high-income and low- or middle-income countries.

The evidence from advanced economies shows a clear benefit associated with certification with respect to employment. Levine and Toffel (2010), studying single-plant manufacturers in California, show that adoption of ISO 9001 increases employment by approximately 10 percentage points compared with that in matched firms that have not adopted the standard. This effect not only persists but grows stronger over time, with small firms benefiting disproportionately. The study's difference-in-differences framework provides robust evidence that certification stimulates expansion in workforce size.

A study by Trifković (2017) provides specific insights into contexts in low- or middle-income countries. Using matched employer-employee panel data, the study demonstrates that adoption of ISO 9001 and ISO 14001 in small and medium Vietnamese enterprises increases the likelihood that workers in these enterprises will receive formal contracts; specifically, adoption of standards increases the share of employees with formal contracts by 25 percent. Firms with certifications to these standards, when compared with their noncertified counterparts, also show structural differences in regard to working conditions, with formal contracts and social insurance being three times more likely in certified firms. Although only a limited number of studies investigate the connection between adopting internationally recognized standards and employment and job security, the findings of those that do consistently indicate that adopting such standards contributes to employment growth and increases job security.

Adoption of standards and wages

As are those examining the relationship between adoption of standards and employment, studies examining the relationship between adoption of standards and wages remain limited. Of the three studies identified, two overlap with the employment literature, and the third study, focusing on low- and middle-income countries, was published as a working paper from an international institution and also applies an econometric framework. *All three report positive effects on wages*.

Each of the three studies highlights wage growth as a key outcome of certification, though through slightly different mechanisms. Levine and Toffel (2010) show that adoption of ISO 9001 increases total payroll in firms in California by 17.7 percent relative to that in matched control firms, with annual wages rising 7.5 percent on average. These effects grow stronger over time, with payroll growth ranging from 14 percent in the early years after adoption to 36 percent nearly a decade later. The authors attribute these gains to greater employee involvement and training and to requirements for continuous improvement embedded in the firms' quality management systems.

The two studies conducted in low- or middle-income countries underscore how certification can enhance labor market outcomes in contexts in which institutions are weaker and informal employment

is common. Trifković (2017), studying small and medium Vietnamese firms, report that firms with ISO 9001 and ISO 14001 certifications pay higher wages, on average, likely because they encourage training, formal education, and adherence to labor laws while also reducing their reliance on unskilled or informal labor. Similarly, Gallego and Gutiérrez (2017) find that ISO 9001 certification raises wages in Colombian manufacturing firms by about 8 percent, with stronger effects for firms relying more on permanent workers. They find a positive, but not statistically significant, effect on wages for firms with a higher proportion of temporary workers. Both studies underscore human capital formation as a key mechanism through which certification influences wages.

Together, these studies consistently link certification to international standards with wage premiums.

Adoption of standards and productivity

Nine studies investigate the relationship between adoption of standards and productivity, with *seven reporting positive effects, one showing a negative effect, and one finding no statistically significant impact*. Of these nine studies, seven are peer-reviewed journal articles and two are working papers from international institutions. Eight of the nine employ econometric frameworks, and six focus specifically on low- or middle-income countries.

The studies present consistent findings that certification can increase firm-level productivity. Liu et al. (2021) show that in Korea, HACCP certification leads to an enhancement of manufacturing productivity. This finding is consistent with the operational perspective on HACCP certification, which suggests it improves manufacturing quality and reduces the number of defective products. Delmas and Pekovic (2013) find that in France, adoption of environmental standards has positive effects on productivity. Similarly, Wen and Lee (2020) find that environmental labeling certifications increase productivity among Chinese manufacturers. Gallego and Gutiérrez (2017) report that in Colombia, ISO 9001 certification leads to an increase in labor productivity. Goedhuys and Mohnen (2016) report striking gains in productivity, across 55 Sub-Saharan African countries, from management certifications. Goedhuys and Sleuwaegen (2013) highlight how certification raised total factor productivity in 59 low- and middle-income and transition countries. The only study among those examined that does not show a clear positive impact of certification on productivity is Levine and Toffel (2010), which observes that California firms adopting ISO 9001 had above-average productivity before adoption, pointing to selection effects.

The six studies conducted in low- or middle-income countries provide strong evidence that certification significantly boosts productivity in environments in which increases in efficiency can yield competitive advantages. Wen and Lee (2020) demonstrate that in China, environmental labeling certifications increase total factor productivity among Chinese listed manufacturers. Gallego and Gutiérrez (2017) show that adoption of ISO 9001 increases labor productivity by 12 percent in Colombian manufacturers. Evidence from Sub-Saharan Africa further strengthens these conclusions: Goedhuys and Mohnen (2016) show that international management certifications raise labor productivity—by 75 percent in manufacturing and 50 percent in services, with statistical significance in regard to both sectors. Vanderhaegen et al. (2018) find that in Uganda, UTZ–Rainforest Alliance–4C certification increases coffee yield and labor productivity, both with statistical significance, whereas

Fairtrade-Organic certification has the opposite effect, reducing both yield and labor productivity, again with statistical significance. Goedhuys and Sleuwaegen (2013), examining firms across 59 low- and middle-income and transition countries, find that international certification—covering ISO 9000, ISO 9002, and ISO 14000—enhances total factor productivity, with statistical significance, and with stronger effects observed in environments in which institutions are weak.

Taken together, the studies provide robust evidence that adopting standards generally enhances productivity, though results may vary depending on the type of standard and country context.

Adoption of standards and exports

Six studies examine the relationship between adoption of standards and exports, with *four identifying positive impacts and two finding no statistically significant effect*. All six of the studies use firm-level data rather than aggregate, country-level data. All six studies were published in peer-reviewed journals, and four employ econometric frameworks. Four of the studies focus specifically on a low- or middle-income country.

Carrillo-Labella et al. (2024) provide evidence from small and medium Spanish agrifood enterprises, showing that adoption of ISO 14001 increases both the percentages of their sales that result from exports and the gross amounts involved, supporting the view that environmental certification can help firms overcome trade barriers and strengthen their competitiveness abroad. Similarly, Volpe Martincus et al. (2010) find robust positive impacts of ISO 9001 certification on Argentine firms' export performance, with certified firms showing greater growth in overall exports, exports to a greater number of destination countries, and higher export volumes per product and per market. By contrast, Simmons and White (1999), analyzing electronics firms in Canada and the United States, report no statistically significant differences in foreign sales between certified and noncertified companies.

Four studies focusing on low- or middle-income countries provide mixed but generally positive evidence on the relationship between certification and export performance. Volpe Martincus et al. (2010) find that in Argentina, ISO 9001 certification increases exports, with statistical significance. Goedhuys and Sleuwaegen (2016), examining firms across 89 low- or middle-income and transition countries, conclude that certification to international standards positively affects both export participation and the scale of exports. Blyde (2025) finds that in Ecuador, holding ISO 14001 certification increases the likelihood a firm will become an exporter the year after the certification is obtained but finds no evidence of a causal impact on the firm's level of exports or export growth rate. Additionally, Schuster and Maertens (2015) show that certification to private standards in general and to specific individual private standards (including GLOBALGAP, HACCP, and BRC) has no statistically significant impact on the export performance of Peruvian asparagus firms, whether measured by export volumes or by values.

Overall, the studies suggest that certification to international standards can be an important driver of internationalization, although the effects of certification may depend on industry, geography, and the specific standard adopted.

Conclusion

In conclusion, the evidence from the 28 studies reviewed indicates that adoption of standards generally enhances sales, profitability, employment and wages, productivity, and export performance. Only in a few cases have studies found a negative impact on profits. The evidence is also positive for studies focusing on low- or middle-income countries.

When these results are interpreted, it is important to consider the potential for publication bias and also the fact that not all studies included in the review address selection bias adequately. Although the positive impacts of adoption of standards are clear, if more productive or better firms are selected into adoption standards, this may play a role in explaining these impacts. More experimental evidence is needed to address these concerns.

Bibliography

Ballina, Francisco Javier, Luis Valdés, and Eduardo A. Del Valle. 2020. "The Signalling Theory: The Key Role of Quality Standards in the Hotels Performance." *Journal of Quality Assurance in Hospitality and Tourism* 21 (2): 190–208. https://doi.org/10.1080/1528008X.2019.1633722.

Benner, Mary J., and Francisco M. Veloso. 2008. "ISO 9000 Practices and Financial Performance: A Technology Coherence Perspective." *Journal of Operations Management* 26 (5): 611–29. https://doi.org/10.1016/j.jom.2007.10.005.

Blyde, Juan S. 2025. "The ISO 14001 Environmental Standard and Exports." *International Trade Journal* 39 (2): 115–28. https://doi.org/10.1080/08853908.2022.2155270.

Calza, Elisa, and Micheline Goedhuys. 2021. "Just a Piece of Paper? Domestic Standards Certification and Small Firm Growth in Viet Nam." *Journal of Development Studies* 57 (8): 1351–72. https://doi.org/10.1080/00220388.2021.1873289.

Carrillo-Labella, Rocío, Fatiha Fort, and Manuel Parras Rosa. 2024. "The ISO 14001 Standard's Effect on Agrifood Small- and Medium-Sized Enterprises' Performance: Literature Review and Empirical Evidence." *Business Strategy and the Environment* 33 (7): 6547–64. https://doi.org/10.1002/bse.3818.

Chatzoglou, Prodromos, Dimitrios Chatzoudes, and Nikolaos Kipraios. 2015. "The Impact of ISO 9000 Certification on Firms' Financial Performance." *International Journal of Operations and Production Management* 35 (1): 145–74. https://doi.org/10.1108/IJOPM-07-2012-0387.

Corbett, Charles J., María J. Montes-Sancho, and David A. Kirsch. 2005. "The Financial Impact of ISO 9000 Certification in the United States: An Empirical Analysis." *Management Science* 51 (7): 1046–59. https://doi.org/10.1287/mnsc.1040.0358.

Delmas, Magali A., and Sanja Pekovic. 2013. "Environmental Standards and Labor Productivity: Understanding the Mechanisms That Sustain Sustainability." *Journal of Organizational Behavior* 34 (2): 230–52. https://doi.org/10.1002/job.1827.

Dragusanu, Raluca, Eduardo Montero, and Nathan Nunn. 2022. "The Effects of Fair Trade Certification: Evidence from Coffee Producers in Costa Rica." *Journal of the European Economic Association* 20 (4): 1743–90. https://doi.org/10.1093/jeea/jvac026.

Gallego, Juan Miguel, and Luis H. Gutiérrez. 2017. "Quality Management System and Firm Performance in an Emerging Economy: The Case of Colombian Manufacturing Industries." IDB Working Paper IDB-WP-803, Institutions for Development Sector, Inter-American Development Bank. https://publications.iadb.org/en/quality-management-system-and-firm-performance-emerging-economy-case-colombian-manufacturing.

Goedhuys, Micheline, and Pierre Mohnen. 2016. "Management Standard Certification and Firm Productivity: Micro-Evidence from Africa." UNU-MERIT Working Paper 2016–012, Maastricht Graduate School of Governance; United Nations University–Maastricht Economic and Social Research Institute on Innovation and Technology. https://unu-merit.nl/publications/wppdf/2016/wp2016-012.pdf.

Goedhuys, Micheline, and Leo Sleuwaegen. 2013. "The Impact of International Standards Certification on the Performance of Firms in Less Developed Countries." *World Development* 47 (July): 87–101. https://doi.org/10.1016/j.worlddev.2013.02.014.

Goedhuys, Micheline, and Leo Sleuwaegen. 2016. "International Standards Certification, Institutional Voids, and Exports from Developing Country Firms." *International Business Review* 25 (6): 1344–55. https://doi.org/10.1016/j.ibusrev.2016.04.006.

Guasch, José Luis, Jean-Louis Charles Racine, María Isabel Sánchez, and Makhtar Diop. 2007. *Quality Systems and Standards for a Competitive Edge*. Directions in Development: Trade Series. World Bank. https://openknowledge.worldbank.org/server/api/core/bitstreams/4ddf17d4-9229-

5ca0-8a01-23a6ec324b7d/content.

Kusumah, Lien Herliani, and Yoke Susilo Fabianto. 2018. "The Differences in the Financial Performance of Manufacturing Companies in Indonesia Before and After ISO 9000 Implementation." *Total Quality Management and Business Excellence* 29 (8): 941–57. https://doi.org/10.1080/14783363.2016.1237285.

Levine, David I., and Michael W. Toffel. 2010. "Quality Management and Job Quality: How the ISO 9001 Standard for Quality Management Systems Affects Employees and Employers." *Management Science* 56 (6): 978–96. https://doi.org/10.1287/mnsc.1100.1159.

Liu, Feng, Hosun Rhim, Kwangtae Park, Jian Xu, and Chris K. Y. Lo. 2021. "HACCP Certification in Food Industry: Trade-Offs in Product Safety and Firm Performance." *International Journal of Production Economics* 231 (January): 107838. https://doi.org/10.1016/j.ijpe.2020.107838.

Mitiku, Fikadu, Yann de Mey, Jan Nyssen, and Miet Maertens. 2017. "Do Private Sustainability Standards Contribute to Income Growth and Poverty Alleviation? A Comparison of Different Coffee Certification Schemes in Ethiopia." *Sustainability* 9 (2): 246. https://doi.org/10.3390/su9020246.

Schuster, Monica, and Miet Maertens. 2015. "The Impact of Private Food Standards on Developing Countries' Export Performance: An Analysis of Asparagus Firms in Peru." *World Development* 66 (February): 208–21. https://doi.org/10.1016/j.worlddev.2014.08.019.

Siltori, Patricia F. S., Izabela Simon Rampasso, Vitor W. B. Martins, Rosley Anholona, Dirceu Silva, and Jefferson de Souza Pinto. 2021. "Analysis of ISO 9001 Certification Benefits in Brazilian Companies." *Total Quality Management and Business Excellence* 32 (13–14): 1614–32. https://doi.org/10.1080/14783363.2020.1756246.

Simmons, Bret L., and Margaret A. White. 1999. "The Relationship Between ISO 9000 and Business Performance: Does Registration Really Matter?" *Journal of Managerial Issues* 11 (3): 330–43. http://www.jstor.org/stable/40604275.

Starke, Francisco, Rangamohan V. Eunni, Nuno Manoel Martins Dias Fouto, and Claudio Felisoni de Angelo. 2012. "Impact of ISO 9000 Certification on Firm Performance: Evidence from Brazil." *Management Research Review* 35 (10): 974–97. https://doi.org/10.1108/01409171211272697.

Su, Hung-Chung, Suvrat Dhanorkar, and Kevin Linderman. 2015. "A Competitive Advantage from the Implementation Timing of ISO Management Standards." *Journal of Operations Management* 37 (1): 31–44. https://doi.org/10.1016/j.jom.2015.03.004.

Terlaak, Ann, and Andrew A. King. 2006. "The Effect of Certification with the ISO 9000 Quality Management Standard: A Signaling Approach." *Journal of Economic Behavior and Organization* 60 (4): 579–602. https://doi.org/10.1016/j.jebo.2004.09.012.

Trifković, Neda. 2017. "Spillover Effects of International Standards: Working Conditions in the Vietnamese SMEs." *World Development* 97 (September): 79–101. https://doi.org/10.1016/j.worlddev.2017.03.040.

Vanderhaegen, Koen, Kevin Teopista Akoyi, Wouter Dekoninck, et al. 2018. "Do Private Coffee Standards 'Walk the Talk' in Improving Socio-Economic and Environmental Sustainability?" *Global Environmental Change* 51 (July): 1–9. https://doi.org/10.1016/j.gloenvcha.2018.04.014.

Volpe Martincus, Christian, Sebastián Castresana, and Tomás Castagnino. 2010. "ISO Standards: A Certificate to Expand Exports? Firm-Level Evidence from Argentina." *Review of International Economics* 18 (5): 896–912. https://doi.org/10.1111/j.1467-9396.2010.00915.x.

Wen, Huwei, and Chien-Chiang Lee. 2020. "Impact of Environmental Labeling Certification on Firm Performance: Empirical Evidence from China." *Journal of Cleaner Production* 255 (May): 120201. https://doi.org/10.1016/j.jclepro.2020.120201.

Yang, Lijuan. 2024. “The Economics of Standards: A Literature Review.” *Journal of Economic Surveys* 38 (3): 717–58. https://doi.org/10.1111/joes.12555.
Zhang, Jianhong, Jiangang Jiang, and Niels Noorderhaven. 2019. “Is Certification an Effective Legitimacy Strategy for Foreign Firms in Emerging Markets?” *International Business Review* 28 (2): 252–67. https://doi.org/10.1016/j.ibusrev.2018.09.003.