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ARTICLES/ARTÍCULOS

Exploring diverging paths: identifying gaps in Nordic and Latin American comparisons

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Abstract

This article reassesses Nordic–Latin American comparisons: two regions with similar 19th-century export specializations diverged. Reviewing 24 comparisons, it shows explanations cluster around institutions and reforms, human capital, and industrial diversification, tracing overlaps, contradictions, and gaps. It tests these claims through Chile and Norway. "Nordic advantages" are less clear-cut: both built technical education, negotiated resource control through regulation, and combined liberal trade with targeted support. These factors mattered as specific configurations whose effects depended on timing, sequencing, and industry. Drawing on Marc Bloch and others, the article separates correlation from causation and outlines a mixed-methods strategy linking macro-indicators to sectoral and archival studies of taxation, education, regulation, unions, and coalitions to specify the concrete channels through which these factors operated.

Keywords: comparative studies; Nordic countries; Latin America; natural resources

JEL classifications: N53; N54; N56

Resumen

Este artículo reevalúa las comparaciones nórdico-latinoamericanas: dos regiones con especializaciones exportadoras similares en el siglo XIX divergieron. Tras analizar veinticuatro comparaciones, muestra que las explicaciones se agrupan en torno a las instituciones y las reformas, el capital humano y la diversificación industrial, identificando coincidencias, contradicciones y brechas. Estas afirmaciones se examinan a través de los casos de Chile y Noruega. Las "ventajas nórdicas" son menos evidentes: ambos países impulsaron la educación técnica, negociaron el control de los recursos mediante la regulación y combinaron el libre comercio con apoyos específicos. Estos factores fueron relevantes como configuraciones específicas cuyos efectos dependieron del momento, la secuencia y el sector. Inspirándose en Marc Bloch y otros autores, el artículo distingue entre correlación y causalidad y describe una estrategia de métodos mixtos que vincula los macroindicadores con estudios sectoriales y de archivo sobre impuestos, educación, regulación, sindicatos y coaliciones para especificar los canales concretos a través de los cuales operaron estos factores.

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1. Introduction

Comparisons between Latin America and the Nordic countries have a long history. They build on a puzzle: both regions were richly endowed with natural resources and early on relied on primary exports, yet the Nordic countries are now classified as high-income, diversified, and relatively egalitarian, while most Latin American economies remain more dependent on primary goods and show higher and persistent inequality and a weaker institutional approach to environmental issues. A comparative literature—surveyed, among others, by Álvarez *et al.* (2022a)—links this divergence to differences in state reforms and fiscal policies, ownership structures, industrial diversification, knowledge institutions, and formal education. At the same time, these historical comparisons face important limitations: they often rely on aggregated regional categories, treat "Nordic" and "Latin American" trajectories as internally uniform, and rely on broad correlations that leave the underlying mechanisms unclear and sometimes yield inconsistent results. How far do Nordic–Latin American comparisons go in explaining why the regions developed differently, and where do their explanations prove inadequate?

This paper examines how comparative studies between the Nordic countries and Latin America have been conducted and critically assesses the theoretical, empirical, and methodological frameworks on which they rest. It evaluates whether these approaches adequately capture the complex and layered factors behind the regions' divergent development paths. The article asks: what do Nordic–Latin American comparisons actually explain well, and where do they explain outcomes poorly, or only partially? How does a focused comparison of Chile and Norway refine the literature's claims about institutions, human capital, and industrial policy? In light of this reassessment, what knowledge gaps remain and what should be the next steps for research? The paper offers an analytical interpretation of what we can reasonably claim to know, what remains uncertain, and how future comparative research can more directly address the causes of divergence between the two regions.

The paper uses a three-step empirical approach. First, I review 24 books, chapters, and articles that employ historical comparative methods to analyze one or more Latin American and Nordic countries and seek to explain their divergent economic development paths, differences in inequality, or contrasting approaches to environmental issues (see Table 1). I analyze and interpret these studies and group them by thematic focus and methodological approach, asking what assumptions support their comparisons and where they fall short in explaining regional divergence. Second, I discuss some of the key factors emphasized in this literature through a focused comparison of two of the countries that have been most frequently compared: Chile and Norway. This comparison examines whether the variables most often cited as drivers of divergence—state institutions, human capital, and industrial policy—are as one-sided or clear-cut as these studies suggest. Third, drawing on the Chile–Norway comparison and a methodological discussion, I identify the main knowledge gaps and propose a way forward to explore similarities and differences between the regions, with the aim of moving closer to the mechanisms underlying their divergent development paths.[1]

[1] ChatGPT has been used some places in the text for language editing purposes: OpenAI. (2026). ChatGPT (GPT-5.2 Thinking). https://chat.openai.com/.

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Table 1. Historical comparative studies of natural resource-intensive economies: Latin America and the Nordic countries

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Álvarez *et al.* (2022b)	Comparison of economic growth trajectories using Thirlwall's Law, historical GDP, and export and import data.	1870–1970	Nordic countries, Australasia, and Rio de la Plata region	Foreign trade and economic growth	Nordic countries transitioned to industrial exports, achieving sustained growth, while the Rio de la Plata region remained dependent on unstable agricultural exports. Australasia diversified post-WWII but could not sustain its early lead.
Álvarez *et al.* (2022c)	Comparison of economic trajectories using historical GDP data, statistics on manufacture, and export data.	1870–1970	Nordic countries, Latin America, and Rio de la Plata region	Industrial growth and economic development	Nordic countries achieved stable industrialization and structural transformation, while Southern Settler Societies (SSS) in Latin America and Australasia experienced fluctuating and inward-focused industrialization.
Álvarez and Menéndez (2022)	Comparison of land-ownership systems and agrarian income distributions using historical data on population, GDP, wages, rents, income, and secondary literature.	1870–1930	Denmark, New Zealand, and Uruguay	Economic performance and income distribution	Denmark's egalitarian land ownership increased income growth and agricultural productivity, while Uruguay's concentrated ownership led to income inequality. New Zealand had a more balanced distribution, supporting small- and medium-sized producers.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Badia-Miró *et al.* (2021)	Comparison of copper export patterns using historical copper prices, trade statistics, and copper production data.	1850–1913	Chile and Norway	Copper industry and economic impacts	There were discrepancies between Chile and Norway in copper exportation due to market forces and geographical proximity. Emphasis on heterogeneity in copper quality and processing stages.
Bengtsson and Morgan (2022)	Comparison of democratization and economic redistribution using historical data on suffrage, election results, tax data, social spending, and income distribution.	19th and 20th centuries	Sweden and Brazil	Democratization and economic redistribution	Effective redistribution needs social mobilization, political participation, and a favorable socioeconomic context, as democratization alone is not enough. In Sweden and Brazil, redistributive reforms were driven by social movements and economic conditions, not just democratization.
Bergquist *et al.* (2021)	Comparison of environmental policies in the copper industry using historical sources on environmental regulations, emissions, and secondary literature.	Long-term, but focus on 19th and 20th centuries	Sweden and Chile	Corporate environmental policies	Sweden's early pollution controls due to strong regulations contrasted with Chile's later improvements influenced by foreign investment and global economic integration.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Blomström and Meller (1991)	Review of political reforms, the role of the state, education, exploitation of natural resources, trade, foreign technology and capital using historical statistics and secondary literature.	19th and 20th centuries	Nordic and Latin American countries (focus on Chile, Ecuador, Colombia, and Uruguay)	Economic development	Scandinavian countries have thrived economically due to strong institutions, welfare systems, sound policies, stability, and social trust. In contrast, Latin American countries have faced weaker institutions, economic mismanagement, instability, and social fragmentation.
Bull (2019)	Comparison of inequality reduction strategies using historical Gini coefficients and data on inequality, GDP, wages, unionization rates, and secondary literature.	2002–2019	Scandinavian and Latin American countries	Inequality reduction and social policies	Scandinavian success is linked to democratic institutions, social movements, and comprehensive social policies. Latin America's gains face challenges such as political instability and weaker state capacities.
Ducoing (2021)	Comparison of sustainability trajectories using historical data on genuine savings and secondary literature.	1860–2020	Scandinavian and Latin American countries, focusing on Norway, Sweden, Chile, Bolivia, and Peru	Sustainability and natural capital	Sweden successfully transitioned from resource dependency to industrialization, while Andean countries struggled with resource depletion. Advocates for comprehensive measures like genuine savings.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Ducoing *et al.* (2018)	Review of historical data on GDP per capita, trade, and taxation.	Mid-19th century to present	Bolivia, Chile, Peru, Finland, Norway, and Sweden	Economic outcomes	Differences in institutional quality, economic policies, and external shocks influenced divergent economic paths. Better management of natural resource revenues and innovative fiscal policies helped Nordic countries achieve sustainable growth.
Havro and Guimaras (2010)	Examination of two case studies and policy analysis using trade statistics, HDI statistics, and other historical data.	1950s–2008	Norway, Chile, and other resource-rich countries	"Resource curse" and development policy	Norway and Chile have turned natural resource wealth into sustainable development through effective fiscal policies, strong institutions, and investments in human capital and infrastructure.
Kang and Nilsson (2022)	Comparison of educational reforms and modernization using enrolment rates, years of schooling, and secondary literature.	1870–1930 and 1945–1973	Brazil and Sweden	Educational reforms and modernization	Sweden's well-educated population used education for industrial growth, while Brazil's slower educational expansion delayed industrialization.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Lara and Prado (2022)	Comparison of labor productivity trends using historical GDP data and industrial statistics.	1912–2014	Brazil and Sweden	Labor productivity and manufacturing sectors	Brazilian productivity grew faster until the 1980s, then stagnated, while Swedish productivity accelerated, showing phases of convergence and divergence.
Lingarde and Tylecote (1999)	Analysis of historical data and secondary sources focusing on economic policies, institutional frameworks, and external factors influencing technological development.	1870–1970	Nordic countries (Norway, Sweden, Denmark, and Finland), Argentina, Uruguay, and Brazil	Technological development	Economic differences stem from unequal land distribution and political power. Nordic countries' technological success resulted from state intervention and human capital development.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Maloney (2007)	Comparison of technical education and innovation capacity using historical GDP data, literacy data, and secondary sources.	Late 19th and early 20th centuries	Australia, Sweden, Argentina, Colombia, Chile, Ecuador, and Uruguay	Technical education and innovation capacity	Higher densities of engineers in Sweden, Finland, and Denmark drove technological advancements and economic success, while lower densities in Latin America hindered innovation.
Molinder *et al.* (2022)	Comparison of living standards and wage inequality using historical data on workers, wages, income, consumption, and GDP.	1830–1920	Brazil and Sweden	Living standards and wage inequality	Sweden experienced wage growth and reduced regional disparities, while Brazil's wages stagnated and regional inequalities persisted.
Peres-Cajías *et al.* (2021a)	Analysis of export diversification and economic development using historical trade and export data.	1870–2017	Chile and Norway	Export diversification and economic development	Norway achieved a more diversified export basket, while Chile remained dependent on natural resources.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Peres-Cajías and Ranestad (2021)	Comparison of engineering education and innovation differences using historical sources on education and patents.	1850–1939	Andean and Nordic countries	Engineering education and innovation	Higher literacy rates and earlier engineering institutions in Nordic countries led to greater innovation and economic growth compared to the Andean countries.
Peres-Cajías *et al.* (2021b)	Comparison of the evolution of tax systems using historical data on GDP and taxes.	1850–2010	Andean and Nordic countries	Fiscal policies and economic development	Nordic countries' tax systems supported economic growth and welfare development, while Andean countries' reliance on trade taxes and resource revenues led to narrower fiscal contracts and economic instability.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Rivero-Cantillano and Llorca-Jaña (2021)	Comparison of demographic and human capital trends using population data, infant mortality, literacy and life expectancy rates, heights, and schooling data.	19th and 20th centuries	Norway, Sweden, Bolivia, Chile, and Peru	Demographic trends and human capital	Nordic countries outperformed Andean countries in economic development and living standards. Public health policies and education influenced the divergent paths.
Ranestad (2020)	Comparison of employment practices at multinational mining companies using biographies, historical reports, and business archives.	1870–1940	Chile and Norway	Multinational companies and knowledge transfer	In Chile, foreign recruitment by multinational mining companies hindered knowledge transfer, while in Norway, local managerial involvement promoted networks and job mobility. Institutional frameworks explain these varying employment patterns.
Ranestad (2018)	Comparison of mining sectors using graduate biographies, business records, university annuals and accounts, and engineering reports.	Ca. 1860–1940	Chile and Norway	Innovation and economic development	Norway accumulated more knowledge than Chile, creating a gap linked to graduates, practical learning opportunities, and geological surveys. Norway's state actively supported knowledge development, while Chile prioritized it less.

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Table 1. (*Continued.*)

Authors and references	Method/approach	Period	Countries compared	Research area	Results/arguments
Ryggvik (2021)	Comparison of the development of oil industries using historical sources and data on production and consumption.	1960s onward	Norway and Brazil	Oil industry development	Norway's strategic policies and favorable conditions fostered local industry growth, while Brazil faced economic crises and relied on foreign expertise.
Senghaas (1985)	Comparison of responses to global economic pressures during the First Globalization using secondary sources.	First Globalization	Former British colonies and Scandinavian and Latin American economies	Economic development	Modernization theories are criticized, and auto-centric growth is contrasted with peripheral development, emphasizing the role of institutional factors, resource distribution, income equality, and political shifts in shaping agricultural and industrial growth.

Source: Author's own compilation based on 24 historical comparative studies.

The results are threefold. First, I show that the comparative historical literature can be grouped into three broad categories: (1) studies that explain divergent economic development paths, (2) studies that explain inequality, and (3) studies that explain environmental outcomes. The first category is the largest. Within it, I identify three recurring explanations: (i) "resource management, institutions, policies, and reforms," which stress the role of strong public and private institutions, stable fiscal systems, and reforms; (ii) "human capital," which emphasizes differences in education and technical skills; and (iii) "industrial diversification," which underlines shifts from primary exports toward more diversified manufacturing and service economies. These categories align with an established interpretation: Nordic success is credited to strong institutions, early investment in education, and diversification, while Latin American countries are constrained by weaker, unstable institutions, lagging human-capital formation, and continued reliance on natural-resource exports.

Second, the review and the Chile–Norway case study comparison suggest that this description overstates a simple contrast between "successful" Nordic and "unsuccessful" Latin American trajectories. Many comparative studies aim to identify causes but, in practice, rely on broad regional correlations, treating "Nordic" and "Latin American" paths as uniform blocks and paying limited attention to underlying mechanisms. The Chile–Norway comparison shows that many of the advantages attributed to the Nordic countries either also appear in Chile or are less clear-cut than the comparative literature suggests. Chile and Norway both developed several technical and higher educational institutions, both relied on state regulation and negotiation over natural resources, and both combined liberal trade with targeted forms of industrial support. This does not deny the importance of institutions, education, or policy; rather, it indicates that their effects work through historically specific configurations that macro-comparisons alone cannot capture. I therefore find that some popular explanations should be reformulated as necessary but not sufficient conditions for divergence, and that we need to identify more precisely the channels through which institutions, education, or political reforms operated.

Third, drawing on a review of methodological approaches used in comparative literature and on the Chile–Norway analysis, the article suggests a historically grounded agenda for future work. It rethinks Nordic–Latin American comparisons more explicitly as choices about which countries to compare, and at which levels of analysis, and proposes a holistic, mixed-methods research strategy that specifies where macro-correlations remain informative and where they must be complemented by sectoral, archival, and micro-level studies in order to get closer to the causes of the diverging paths.

This paper advances the Nordic–Latin American comparative debate by shifting it from stylized regional contrasts to mechanism-sensitive historical explanation. Building on a systematic mapping of the historical comparisons, it clarifies how much of the literature converges on institutions, human capital, and industrial policy and shows where this consensus rests on macro-level correlations that under-specify causality and obscure within-region variation. It also contributes with a controlled Chile–Norway comparison to review these "standard" explanations and demonstrates that the familiar contrasts—strong versus weak states, advanced versus lagging skills, interventionism versus markets—blur once we trace concrete trajectories and policies: the key issue is here not *whether* institutions, education, and industrial support mattered—they most probably did—but *how* their effects depended on historically specific configurations and chronology. The paper draws on comparative methods and Bloch's comparative logic to separate correlation from causation: comparison is used to test claims against plausible counter-cases, to filter out "pseudo-causes," and to reclassify some arguments as context-bound hypotheses while strengthening others that survive closer scrutiny. The paper then proposes a multilevel,

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mixed-methods agenda that treats cases as layered historical configurations and links long-run indicators to sectoral and archival work—precisely to uncover the micro-level processes through which, e.g., fiscal contracts, education systems, regulatory regimes, and interest-group relations translated into divergence.

The article is organized as follows. Section 2 outlines why and how the Nordic countries and Latin America have been compared. Section 3 reviews the standard explanations in this literature. Section 4 discusses methodological choices. Section 5 examines Chile and Norway in more detail. Section 6 draws together the review and the Chile–Norway comparison to suggest directions for future research. Section 7 concludes.

2. The motivations to compare the Nordic and Latin American countries

Comparative studies between Nordic and Latin American countries often draw on the "resource curse" theory, introduced by Sachs and Warner (1995). This theory shows a negative long-term relationship between resource wealth and economic growth. It argues that countries rich in natural resources, such as minerals and oil, tend to experience slower economic growth, weaker democracies, and lower overall development than countries with fewer resources. While the idea has been debated since the 1950s (Prebisch, 1950), it gained attention in the 1990s through Sachs and Warner's analysis, which linked resource abundance to slower economic growth. The theory indicates that poor management of natural resources can lead to conflict, weakened state institutions, and economic instability, often due to the rapid entry of income from resources. However, recent studies show that some resource-rich countries, e.g., the Nordic countries, Canada, and certain settler economies, notably Australia and New Zealand, have managed to avoid this curse. These countries have successfully used their natural resources to promote sustainable economic growth and strengthen their institutions, or "rules of the game" (North, 1991), as noted by, e.g., Ville and Wicken (2012), Lederman and Maloney (2007), Ducoing and Peres-Cajías (2021), and Ranestad (2020).

Scholars have been interested in comparing Nordic and Latin American countries because of their many similarities. Both regions have been rich in natural resources and initially served similar roles in the global market as exporters of raw materials. In the late 19th century, as they were drawn into the Atlantic economy, both regions remained peripheral to the industrial cores, primarily supplying essential commodities. They have developed similar industries around their natural resources, notably agriculture, fishing, timber, and metals and minerals (Blomström and Meller, 1991). Countries like Chile, Bolivia, Sweden, and Norway have possessed similar natural resources, including waterfalls, forests, fish, minerals, and metallic ores, and have developed industries centered on these resources. Since their earliest development, natural resource industries have accounted for the largest share of GDP and exports in both regions.

The comparative literature seeks to understand why these two regions experienced different development paths despite similar conditions in the 19th century. Initially, both regions had similar GDP per capita growth until the 1920s and 1930s (Bolt and Van Zanden, 2024). From that point, the Nordic countries experienced sustained economic growth, becoming some of the wealthiest nations globally, with high productivity and income levels (Fagerberg *et al.*, 2009). In contrast, Latin American countries faced economic instability, marked by inflation, trade deficits, and foreign debt (Pinto Santa Cruz, 1959). While the Nordic countries evolved into prosperous welfare states with low social inequality, Latin American countries remained dependent on primary goods, struggling with slow growth and poverty. The comparative studies aim to identify the reasons behind the Nordic countries' success in growth, compared to Latin American countries, and to explore the factors

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leading to these divergent economic and social paths. Researchers typically explore the following questions: considering the similar economic and industrial starting point in the 19th century, how did the Nordic countries develop to become some of the richest, developed, and socially equal countries in the world, while Latin America did not?

3. Standard explanations in Nordic–Latin American comparisons: a critical overview

This section reviews 24 historical comparisons between Nordic and Latin American countries identified through library and online searches. The aim is to clarify what these studies compare, which explanations for divergence they focus on, and where they leave important questions unanswered.

3.1. Factors explaining diverging economic paths

3.1.1. Resource management, institutions, policies, and reforms

I group a set of studies under "resource management, institutions, policies, and reforms" because they explain Nordic–Latin American divergence by examining how natural resources were governed and how state and private institutions were built around them. These contributions emphasize predictable public regulations and laws, stable legal and fiscal frameworks, strong state organizations and private businesses, and clear reform trajectories as key to Nordic growth, while portraying Latin American countries as constrained by weaker regulatory frameworks, political instability, external dependence, and volatile resource revenues.

Blomström and Meller's book introduction broadly compares the economic development of the Nordic countries and Latin American countries, stressing how social policies and political stability have fostered growth in the former, while weaker states and regulations and instability have hindered the latter (Blomström and Meller, 1991). Senghaas' book analyzes the responses of the Nordic and Latin American economies, along with former British settler colonies, to global pressures during the First Globalization. He distinguishes between successful economies, which transitioned to mature capitalist systems, and those lagging behind due to differences in institutional quality and resource distribution. While primarily based on secondary sources, his analysis calls for deeper empirical comparisons to better understand aspects of economic development (Senghaas, 1985). Ducoing and colleagues also examine broadly why resource-rich Andean countries have lagged behind their Nordic counterparts, emphasizing the impact of economic policies and external shocks (Ducoing *et al.*, 2018). These studies offer broad descriptions that place institutions, resource management, and policy choices at the center of their explanations. Their strength lies in formulating hypotheses and illustrating contrasts that subsequent work can investigate more closely. However, they mainly build on secondary literature and macro-level indicators and pay little attention to how specific institutions operated in practice or how policies and regulations were applied differently across countries.

Lingarde and Tylecote offer a comparison of why countries like Norway, Sweden, Denmark, and Finland succeeded in technological advancement, while Argentina, Uruguay, and Brazil did not, using historical data from 1870 to 1970. They associate the differences with economic policies, institutional frameworks, and external factors, stressing state intervention, human capital development, and inequality in land and political power as key factors (Lingarde and Tylecote, 1999). Peres-Cajías, Torregrosa-Hetland, and Ducoing examine the evolution of tax systems, comparing the strong fiscal contracts in Nordic countries, which supported economic growth, with the "narrower" contracts in Andean countries, which relied on trade taxes and resource revenues, leading to instability and limited state

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capacity (Peres-Cajías *et al.*, 2021b). Both studies identify differences and formulate plausible explanations based on rich historical evidence. However, their arguments rest largely on broad correlations between policies, institutions, and long-run outcomes and downplay internal diversity within the Nordic and Andean regions. They say little about how specific fiscal or institutional arrangements worked in practice, or how policy instruments varied across countries and sectors. Their claims are therefore better treated as important hypotheses than as final explanations.

Ryggvik focuses on the development of the oil industries in two countries, Norway and Brazil, using historical data on production and consumption. Both began offshore drilling in the 1960s, but Norway developed a competitive offshore supply industry and avoided many negative effects of oil dependence, while Brazil faced economic crises and struggled with local industry growth due to social inequalities (Ryggvik, 2021). Havro and Guimaras examine Norway and Chile, focusing on the strengths they share rather than their differences. According to them, both avoided the resource curse through cautious fiscal policies, strong national regulations, and investments in human capital (Havro and Guimaras, 2010). Álvarez and Mercedes Menéndez explore how land ownership and income distribution shaped economic outcomes in three countries from 1870 to 1930. Denmark's egalitarian land ownership increased income growth and productivity, while Uruguay's concentrated land ownership led to significant inequality. New Zealand had a more evenly distributed land ownership than Uruguay, resulting in a less concentrated agrarian structure and more widely shared export income among rural producers (Álvarez and Menéndez, 2022). These studies thus suggest that policy choices, institutional reforms, and investments in human capital are central. However, they mostly work at an aggregate level, comparing country or regional averages and stopping at correlations between institutions, policies, and outcomes. The next step would be to examine how specific reforms, institutions, and policies worked in practice, and how their implementation differed across countries and sectors.

3.1.2. Human capital

I group a second set of studies under "human capital" because they explain Nordic–Latin American divergence mainly through differences in education and skills. These analyses emphasize that the Nordic countries expanded basic schooling early, invested heavily in technical and higher education, and built a large pool of skilled workers, which supported industrialization and technological adoption. Latin American countries are described as reforming their school systems later and more unevenly, with limited access to technical training, thereby constraining the supply of skilled labor and slowing the diffusion of new technologies. Thus, these studies treat human capital as the central mechanism behind the regions' diverging development paths.

Maloney draws on historical GDP and literacy data, and secondary sources, to compare technical education and innovation in Latin America, Australia, and the Nordics. By 1920, Australia had five times as many technical school graduates per capita as Argentina, and Sweden nearly ten times as many engineers per capita as Colombia or Chile. He argues that high engineer densities in Sweden, Finland, and Denmark supported development, while Argentina, Chile, Ecuador, and Uruguay lagged due to limited technical human capital and reliance on foreign engineers (Maloney, 2007). Peres-Cajías and Ranestad explore how differences in engineering education and innovation shaped the two regions' divergent economic paths. They show that the Nordic countries had higher literacy rates, established engineering educational schools earlier, and produced more engineers per capita than the Andean countries. This led to greater innovation and economic growth in the Nordics, driven by higher technical capacity and better integration of engineers into the workforce (Peres-Cajías and Ranestad, 2021). Rivero-Cantillano and Llorca-Jaña compare demographic and human-capital trends in Norway, Sweden, Bolivia, Chile, and Peru using

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infant mortality, literacy, life expectancy, height, and schooling. They show that Norway and Sweden outpaced the Andean countries in development and living standards from the mid-19th century, while Chile improved in life expectancy and literacy but still lagged behind the Nordics (Rivero-Cantillano and Llorca-Jaña, 2021). These studies show that human capital and welfare indicators differed between Nordic and Andean countries, and they document strong correlations between schooling, engineering capacity, and economic performance. Nevertheless, they do not demonstrate that higher human capital drove divergence or explain how skills translated into productivity and growth. They rely on country averages, treating "the Nordics" and "Latin America" (or "the Andean countries") as opposing blocs rather than diverse trajectories, and they rarely examine how engineers and other skilled workers were deployed within specific sectors or firms.

By focusing only on one sector, mining, in two countries, Chile and Norway, Ranestad's archival research shows that there was a knowledge gap between the two countries. Norway developed more knowledge due to its stronger support for education and research, with more graduates, practical learning opportunities, and organized geological surveys. Chile prioritized these areas less (Ranestad, 2018). Ranestad also examines employment practices in multinational mining companies from 1870 to 1940, finding that in Chile, foreign workers dominated management, hindering knowledge transfer, while in Norway, local workers filled these roles, fostering strong industry networks. These differences were driven by varying state support for capacity building (Ranestad, 2020). Kang and Nilsson compare how educational reforms in Brazil and Sweden influenced modernization. From 1870 to 1930 and 1945 to 1973, Sweden's well-educated population encouraged industrial growth, while Brazil's slow educational expansion, hindered by its colonial past, delayed modernization. After World War II (WWII), Sweden continued to advance with strong educational investments, while Brazil struggled with illiteracy and limited reforms (Kang and Nilsson, 2022). These studies document important differences in education, state support for knowledge formation, and the use of skilled labor and, in the Chile–Norway comparison, add sector-specific nuance to the broader human-capital literature. However, they do not fully isolate the causal mechanisms linking educational reforms and capacity-building to long-term growth: although they explore specific industries more deeply, they lack comparative evidence on how schooling and technical training translate into productivity changes.

3.1.3. Industrial diversification

I group some studies under "industrial diversification" because they explain Nordic–Latin American economic divergence through differences in how far economies moved beyond primary exports. These studies argue that the Nordic countries gradually moved from raw-material dependence toward more diversified economies, with expanding manufacturing and services, and complex exports. By contrast, Latin American economies remained reliant on fewer primary commodities, were exposed to volatile world prices, and had weaker incentives to build broad industrial bases.

The chapters "Trade specialization, industrial growth, and economic development" and "Foreign trade and economic growth" compare Nordic countries with Southern Settler Societies in Latin America and Australasia, 1870–1970 (Álvarez *et al.*, 2022b, 2022c). In the late 19th century, these settler economies had higher per capita GDP and strong primary-export growth, but by 1970, the Nordics had caught up through steadier industrialization, diversified production, and a shift toward industrial exports. The Rio de la Plata region remained dependent on agricultural exports and stagnated, while Australasia diversified somewhat after WWII but did not sustain its early lead. Peres-Cajías and colleagues compare how natural resource exports shaped economic development and export diversification in Chile and Norway from 1870 to 2017. They show that Chile became increasingly dependent on a single resource, while Norway diversified its exports, including both primary

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resources and technological goods (Peres-Cajías *et al.*, 2021a). Badia-Miró and colleagues compare copper export patterns in Chile and Norway before World War I. Using historical data on prices, trade, and production, they find that Chile exported refined copper to Britain, while Norway exported copper ore and older refined copper to Britain and Germany. This reversal of expectations—Chile exporting refined products and Norway exporting raw materials—shows the importance of considering copper quality and processing stages in understanding economic impacts (Badia-Miró et al., 2021). Lara and Prado compare labor productivity trends in Sweden and Brazil. They show that Brazilian productivity outpaced Swedish growth until the early 1980s, with strong gains from 1912 to 1949. After the 1980s, Brazil's productivity stagnated while Sweden's accelerated. By then, Brazil's labor productivity had declined relative to Sweden (Lara and Prado, 2022). These analyses generate hypotheses about how industrial diversification may have shaped long-run development. Using aggregate trade and productivity data, they link diversification to growth in Nordic and Latin American (or Southern Settler) economies, but they largely remain at the level of correlation. The next step would be to trace the causal mechanisms—how policies, regulations, and firm- or sector-level processes produced these outcomes.

3.2. Factors explaining inequality

I group some studies under "inequality" because they explain Nordic–Latin American differences in terms of income, wealth, land distribution, and social policies. They argue that egalitarian land structures, democratic institutions, and expanding welfare states made Nordic inequality reduction more stable, whereas concentrated landownership, fragmented welfare regimes, and political instability in Latin America produced fragile and short-lived gains.

Bull argues that Scandinavia reduced inequality through strong democratic institutions, coordinated wage-setting, and expansive social policy. In Latin America (2002–2014), declines were accompanied by favorable global conditions, education initiatives, and social programs but proved less durable due to political instability, commodity dependence, and weaker state capacity (Bull, 2019). Her framework helps explain why Scandinavian inequality reduction was more durable than Latin America's but is based on contemporary aggregate data and says little about cross-country variation or historical mechanisms. It is best treated as hypotheses for more historically grounded comparisons.

Bengtsson and Morgan examine whether democratization has led to economic redistribution in Sweden and Brazil. They find that extending voting rights alone does not guarantee redistributive reforms. Redistribution depends on social mobilization, political participation, and the broader socioeconomic context. In Sweden and Brazil, reforms have often been driven by social movements and economic conditions rather than democratization alone (Bengtsson and Morgan, 2022). Molinder and colleagues compare the roots of inequality in Sweden and Brazil using GDP per capita, real wages, and wage dispersion across regions and groups. They find early-20th-century wage growth and declining regional gaps in Sweden, but wage stagnation and persistent regional inequality in Brazil, and argue that 20th-century developments—not only colonial legacies—shaped today's outcomes (Molinder *et al.*, 2022). The strength of these studies lies in their combination of long-run data with attention to political participation and democratization. The next step would be to explore the specific policies, social alliances, and organizations involved.

3.3. Environmental issues

Ducoing contrasts the sustainability paths of Nordic and Andean countries. He finds that Sweden shifted from resource dependency to industrialization, while Andean countries

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faced challenges with resource exhaustion. Ducoing encourages the use of broader measures, notably genuine savings, to better account for environmental and economic well-being (Ducoing, 2021). Bergquist and colleagues compare the environmental policies of the Swedish and Chilean copper industries. Boliden adopted early pollution controls in response to national regulations, while Chile's industry, dominated by foreign investment, lacked environmental policies until the 1990s. Global economic integration and foreign companies eventually pressured Chile to improve its environmental standards (Bergquist *et al.*, 2021). These studies add an environmental lens, arguing that regulation and international pressure shaped different Nordic and Latin American approaches to depletion and pollution. They link environmental policy to long-run development, introduce sustainability measures, and point to the need for more systematic, historically grounded comparisons of environmental governance.

4. Methodological choices when comparing Scandinavian and Latin American countries

The overarching aim of comparing the Nordic and Latin American countries is twofold. First, such comparisons should systematically map similarities and differences between the two regions and between individual countries, rather than assuming that "Nordic" and "Latin American" trajectories are uniform blocks. Second, they should analyze these differences in greater depth to assess whether, and through which mechanisms, they have contributed to divergent development paths over time. The review in the previous section shows that research has made progress on the first task, but we know less about the second, which raises a set of methodological choices that I discuss below.

Comparative studies pose particular methodological challenges. As shown, many comparisons between Latin America and the Nordic countries document differences in factors such as ownership structures, industrial policies, human capital, and social inequality, but the macro-level analyses often privilege broad regional explanations and pay less attention to country-specific or sectoral nuances. Their strength is that they offer comparable indicators across many countries and long time periods, making it possible to identify broad patterns in, e.g., growth, inequality, education, or trade. Their general weakness is that they tend to treat "Nordic" and "Latin American" trajectories as internally homogeneous and to stop at correlations, saying relatively little about the mechanisms that produced these patterns. There are fewer comparative qualitative or archival studies, but where they exist, they allow for deeper analysis of regulatory change, policy choices, and historical contingencies that shaped outcomes in ways not necessarily predetermined. The trade-off is that such studies often cover fewer cases and may be less easily generalizable. These contrasts underline the need for mixed-method approaches that connect macro-level comparisons to more detailed qualitative analyses and for a careful assessment of the strengths and limitations of each approach when comparing the two regions.

The arguments developed by comparative historians and social scientists can help refine and sharpen future Nordic–Latin American comparative historical analyses. Charles C. Ragin argues that comparative analyses should examine cases holistically, considering their unique characteristics and interconnections, drawing on empirical sources (Ragin, 2014). Theda Skocpol finds that the goal of historical comparisons is to identify broader patterns while maintaining contextual specificity. By integrating macro-social trends with case-specific insights, comparative historical analysis can move beyond mere description to refine theoretical understanding (Skocpol, 2014).

Bartlett and Vavrus (2017) identify two main comparative approaches: the traditional "compare and contrast" method, which isolates specific units to test hypotheses, and the processual approach, which traces phenomena across different contexts and time periods.

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The former, rooted in positivism, seeks to control variables to establish causality, while the latter emphasizes the interconnectedness of actors, institutions, political reforms, and historical trajectories. This distinction is particularly relevant when comparing Latin America and the Nordic countries. Strict comparisons work well for factors largely restricted within national boundaries, such as state policies on education or resource management. However, many economic processes, private businesses, informal norms, and organizations have operated across borders, requiring a more flexible, process-oriented framework. The processual approach allows scholars to examine historical developments as part of interconnected, multilayered systems rather than as isolated national trajectories (Bartlett and Vavrus, 2017). This method can be considered useful for studying economic divergence, as it focuses on the role of transnational actors, global markets, and international practices and adaptations in shaping development paths. In particular, knowledge transfer and technological impulses from abroad, together with an "outward-looking" attitude, are seen as key drivers of industrial and economic development in the Nordic countries (see, e.g., Bruland, 1989; Grönberg, 2019). By incorporating perspectives from multiple locations and levels of analysis, this relational and cross-border approach can, for example, capture and compare the dynamic interplay between international markets, foreign technology and investments, and domestic policies in Latin American and Nordic countries.

James Mahoney's arguments on comparative-historical analysis are also relevant here (Mahoney, 2004). He emphasizes that a function of the comparative approach is identifying necessary and sufficient causes of social phenomena. Mahoney shows that empirical techniques can distinguish between trivial and nontrivial necessary causes and tautological and nontautological sufficient causes, thereby helping researchers assess whether proposed explanations have real explanatory value. Applying this to Latin America and the Nordic countries, one might ask whether, e.g., abundant natural resource endowments are trivial necessary causes—common to both regions yet insufficient to explain economic divergence. Recognizing such pitfalls is crucial for refining the methods used in comparisons.

William H. Sewell's discussion of Marc Bloch's comparative method is particularly relevant here. Bloch argues that comparison is essential for establishing explanatory relationships among historical phenomena, and he shows how it serves to distinguish correlation from causation. Bloch applies a logic analogy to hypothesis testing: if a historian associates a particular development (A) in one society to a specific condition (B), they can verify this claim by investigating other societies where A appears without B or vice versa. If the hypothesis withstands multiple comparative tests, its credibility strengthens; if contradictory cases arise, it must be revised or abandoned. In such cases, comparisons can identify the uniqueness of individual societies and lead to the formulation of new research questions. This approach mirrors the logic of experimentation in the natural sciences, adapted for historical analysis. Bloch's study of gold coins in medieval Europe is a concrete example of how comparison can sharpen historical explanations. Many historians had assumed that Florence and Genoa were the first to issue gold coins simply because they were rich and experienced economic growth. Bloch showed that this could not be the whole story because Venice was just as rich and commercially important, yet it started minting gold coins several decades later. By comparing these cities, he pointed to a more precise explanation. Florence and Genoa earned gold by exporting cloth to the Orient and being paid in gold, which they then used for coinage. Venice, by contrast, used gold to buy oriental goods and sold these goods at home for silver, which meant it did not build up large gold reserves. The key difference was therefore not general prosperity, but how trade was organized and how gold and silver actually moved. In this way, Bloch used comparison to replace

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a vague explanation with a more specific, historically grounded one about trade patterns and capital flows (Sewell, 1967).

Bloch's approach is directly relevant to comparisons between Latin America and the Nordic countries, where differences are often read as evidence of Latin American underdevelopment and Nordic success, without demonstrating the causal mechanisms underlying these outcomes. Many of the comparative studies reviewed here show correlations—higher human capital and more effective Nordic policies correlate with higher growth, while weaker human capital and policies in Latin America correlate with lower growth—but they rarely trace the concrete links and mechanisms that produced these patterns. Bloch's perspective is useful for assessing specific hypotheses; for example, the claim that rapid population growth explains Latin America's economic divergence (Blomström and Meller, 1991; Rivero-Cantillano and Llorca-Jaña, 2021). Blomström and Meller argue that fast population growth in the Andean countries strained resources and diverted savings from productive investment. Yet similar demographic trends in Australia did not prevent sustained economic development (Bolt and Van Zanden, 2024), and Norway's high 19th-century emigration was, by contrast, long viewed as an obstacle to growth because it drained the country of "talent and labor" (Bergh *et al.*, 1983). Viewed through Bloch's comparative lens, these contrasting cases suggest that demographic factors cannot, on their own, account for divergence. They need to be examined within broader historical contexts, and some simple population-based explanations should be revised.

Bloch showed that comparison is just as useful for rejecting explanations as for supporting them. In a review, he criticized a historian who claimed that church institutions in Normandy stopped holding mortgages at the end of the 12th century because the Church condemned moneylending. Bloch pointed out that Hans van Werveke's research on the Low Countries showed something different: there, religious institutions continued to hold mortgages well into the late 13th century. If church doctrines were the main reason, the pattern should have been similar in both places. The fact that it was not suggests that other factors, e.g., local economic conditions, not general religious rules, explain the decline in Normandy. Thus, comparison helped Bloch replace a broad, misleading "pseudo-cause" with a more precise, historically grounded explanation (Sewell, 1967). The same logic applies to some of the explanations found in the Nordic–Latin American literature. For example, many studies present "strong Nordic institutions" or "higher human capital" as overarching reasons for success, but they do not explain, e.g., why similar institutional reforms or investments in education in specific Latin American countries failed to produce outcomes comparable to those in the Nordic countries. From Bloch's perspective, such explanations risk becoming pseudo-causes unless they are tested through careful comparisons that look for counter-examples and specify the mechanisms. This underlines the need for a nuanced methodological approach that uses comparison to scrutinize, and where necessary revise or abandon, assumed causal relationships rather than accepting them at face value.

5. Chile and Norway: showing nuances in divergent development paths[2]

This section compares Chile and Norway to test how far three standard explanations in the Nordic–Latin American literature—state regulation, human capital formation, and industrial policy—remain valid once we look past broad regional averages. Following Bloch's insight about "pseudo-causes," and distinguishing correlation from causation, the Chile–Norway comparison is used here to examine these established explanations and to see where they hold, where they need to be qualified, and where they fail.

[2] This section is partly based on chapter 7 of the author's thesis (Ranestad, 2015).

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Both Chile and Norway are small, resource-rich economies that relied heavily on mining, fisheries, timber, and hydropower, and they are among the most frequently compared country pairs in the existing literature. Their long-run trajectories have diverged, even if Chile has experienced some of the highest growth rates in Latin America. This comparison allows broad structural conditions—such as geography and natural resource endowments—to be treated as broadly comparable, while analyzing how state regulation, education systems, and industrial policies were configured differently, and how these differences may have contributed to divergent outcomes. The aim is, first, to reassess the explanatory power of these three factors in light of a detailed Chile–Norway comparison; and second, to identify where current explanations remain under-specified and where further, more detailed empirical research is needed to understand why the Nordic countries and Latin America developed differently.

5.1. State regulations

The comparative literature stresses resource management, state policies, and reforms as key areas of divergence and links these differences to the two regions' contrasting economic trajectories (Blomström and Meller, 1991; Senghaas, 1985; Lingarde and Tylecote, 1999; Ducoing *et al.*, 2018). Peres-Cajías and colleagues find that the Nordic countries' strong fiscal contracts supported economic growth and welfare, while the Andean countries' reliance on trade taxes and resource revenues led to narrower contracts, instability, and limited state capacity (2021b). Blomström and Meller make a related point. In the Nordic countries, they argue, firms paid relatively low taxes on profits they reinvested, but higher taxes on profits paid out to owners. This encouraged companies to reinvest and expand. In many Latin American countries, by contrast, governments found it harder to collect personal income taxes and therefore taxed firms more heavily. According to Blomström and Meller (1991), this heavier tax burden on companies tended to discourage investment and weaken economic growth.

While the direct impact of tax differences on firms and industrial development still needs closer analysis, Chile did not always use tax policy in a way that discouraged investment. In 1955, the country introduced a copper tax law on its main export, explicitly intended to raise revenue and support production. It set a basic tax of 50%, with an additional variable tax linked to output, and offered tax breaks when firms increased electrolytic copper production. Companies that invested in education, social services, health, or housing for their workers also received tax benefits (Sutulov, 1975, p. 80).

We can also look further back, when debates about taxation formed part of a wider discussion about how private enterprises should be regulated. In Norway, concerns arose that the Concession Laws of 1906 discouraged investment by imposing strict controls on foreign and private companies. Intended to protect national resources, these laws limited foreign ownership of property, forests, mines, and waterfalls, mandating their return to the state after 40–80 years. Critics argued that this approach hindered industrial growth, creating instability and preventing foreign capital due to fears of resource exploitation and foreign dominance. Compared to other Nordic countries, Norway's stance was seen as a missed opportunity for industrial progress. The 1917 Concession Act further tightened regulations, requiring companies with over 20% foreign capital or non-Norwegian board members to seek concessions and comply with conditions favoring Norwegian control, including local board majorities, domestic capital participation, and restrictions on property transfer (Lange, 1977).

In 19th-century Latin America, including Chile, there were few barriers for foreign firms and minimal oversight of their activities (Jones, 2005). Culver and Reinhart note that Chile's copper taxation, established in 1810, imposed a fixed rate per pound of copper,

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regardless of profitability, leading to higher effective taxes during downturns (Culver and Reinhart, 1989), but Chile nevertheless maintained a laissez-faire approach, granting foreign companies freedom to exploit resources (Pinto Santa Cruz, 1959). In the early 20th century, the government arguably prioritized a taxable industry over strict regulation, often cooperating with foreign mining firms rather than imposing stricter controls (Wilkins, 1970).

Chilean policymakers criticized foreign investors and pushed for reforms to better integrate them into the national economy. The politician Santiago Macchiavello Varas pointed out, in 1920, the disproportionate benefits foreign companies gained from Chilean resources and advocated for fairer taxation, local management, and ensuring invested capital stayed in Chile (Macchiavello Varas, 2010). These ideas paralleled Norway's Concession laws. The 1916 Mining Congress called for increased Chilean participation in foreign enterprises and urged companies to hire Chilean staff (Topicos..., 1915–1920). In line with these ideas, North American Andes Copper Company included a priority for Chilean hires in its statutes, indicating a shift toward local involvement (Baros Mansilla, 2006). However, despite initial skepticism toward foreign investments, Norway and Chile took different paths. In Norway, most of Parliament supported the Concession laws, seeing them as a means to establish control over resources and to ensure local participation in foreign companies (Lange, 1977). The laws emphasized that natural resources were owned by the population and managed by the state.

The resistance to foreign investments in Norway and the lack of similar controls in Chile reflect their distinct political contexts. Norway, having gained independence from Sweden in 1905, embraced economic nationalism, leading to strict regulations to establish state control over natural resources (Thonstad Sandvik, 2012). Chile, with its longer history of independence, did not adopt such measures. Geoffrey Jones argues that weak state capacity in Latin America, lacking bargaining power and technical expertise, often resulted in overly favorable concessions to foreign companies (Jones, 2005). While Blomström and Meller, and Peres-Cajías and colleagues argue that Latin America's tax system was disadvantageous for investors, Jones argues that Chile had "remarkably favorable" conditions for foreign companies, which should have attracted rather than prevented investment.

However, Jones' claim about weak and absent states in Latin America appears less applicable to Chile. The state became involved by establishing regulations, only that these laws focused on other matters, such as taxes, which we have seen changed over time, rather than direct control over the management of natural resources. Thus, perhaps more than being absent or weak, the government prioritized differently. In the 1960s, Chile entered a period of political change, marked by a shift toward center-left governments and renewed debates about the state's role in the economy. This phase built on earlier reformist currents from the 1930s and 1940s and was accompanied by growing political radicalization, especially around questions of foreign ownership and control of strategic resources. The nationalization of Chile's multinational copper companies in the 1970s demonstrates that the state played an active and interventionist role, countering the assumption of a weak state. Motivated by the dominance of foreign corporations, the Chilean government initiated a policy of nationalization in the 1960s, known as the "Chilenization process." In the early 1970s, the parliament unanimously approved the complete nationalization of these companies. The state acquired full ownership, compensating the former owners (Meller, 1991). The Chilean state at that time was not weak; on the contrary, it actively shaped the country's economic structure.

Despite the different regulatory frameworks in Chile and Norway, foreign investment has historically played a crucial role in both countries. In Norway, despite restrictions, foreign investment remained significant in mining, railroads, and hydroelectric power. By the early

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20th century, foreign investors had already controlled a large portion of Norway's industrial sector, and their stake continued to expand after the Concession laws were adopted (Stonehill, 1965). In Chile, foreign capital flowed into the country soon after independence in 1810 and expanded rapidly in the late 19th century (Mamalakis, 1976). By 1890, nearly all major industries were foreign-owned, with substantial investments in mechanical workshops, shipping, banking, and manufacturing (Pinto Santa Cruz, 1959). British, and later North American, capital reshaped key sectors, especially saltpeter and copper, with foreign dominance persisting well into the 20th century (Pinto Santa Cruz, 1959; Macchiavello Varas, 2010). This raises questions about the best conditions for encouraging investment: Did Norway's regulations really offer more favorable conditions than Chile's? What were the actual impacts of the two approaches on investments, production, and industrial development? These contrasts complicate the familiar image of "strong Nordic" and "weak Latin American" states. Chile's state was not simply absent or captured but intervened forcefully, though differently, later and in other sectors than in Norway. This challenges interpretations that treat investment-friendly regulation as a simple regional divide and points to different configurations of control, bargaining power, and timing. In Bloch's terms, there is a need to investigate how specific regulatory frameworks operated in particular historical circumstances and periods if we are to uncover the mechanisms linking state regulation to investment, production, and industrial development.

5.2. Education systems and human capital formation

The comparative literature largely agrees that differences in education investment and human capital development are key factors in explaining the economic divergence (Maloney, 2007; Peres-Cajías and Ranestad, 2021; Rivero-Cantillano and Llorca-Jaña, 2021).

Focusing only on Chile and Norway, there were significant differences in primary and secondary education, as well as in literacy—reflecting broader contrasts between the Nordic and Latin American regions. Norway introduced primary education much earlier, with support from the church and the first school law in 1731 (Bruland, 2006). Compulsory schooling began in 1827, and by 1860, a 7-year system was in place. By 1873, 87% of Norwegians were literate, reaching near-universal literacy by the 1890s (Hodne, 1981). Chile faced major challenges, with limited educational access due to elite resistance (Egaña Baraona, 2000). State-led reforms introduced in 1860 aimed to offer free elementary education. Nonetheless, by 1920, average primary school attendance stood at 17.34%, reflecting regional and gender-based inequalities (Braun *et al.*, 2000; Serrano *et al.*, 2012a). Although enrollment rates rose to 63.3% among children aged 6–14 by 1930 (Serrano *et al.*, 2012b), widespread illiteracy persisted into the 1950s (Blitz, 1965).

What significance did the literacy and education differences between Chile and Norway hold? Norway's earlier focus on primary schooling and higher literacy rates suggests that its workforce was earlier better equipped to acquire and apply knowledge, aiding the spread of information. However, literacy rates alone do not explain how knowledge was used or how innovation impacted economic development. Moreover, Frankema (2009) demonstrates that Latin American countries, including Chile, made substantial educational gains throughout the 20th century: by the 1990s, Chile, Argentina, and Uruguay had equaled or surpassed the educational attainment of certain East Asian and European economies. Thus, although Chile's historical trajectory in primary education differed from Norway's, it was not necessarily the primary barrier to long-term economic growth. A more detailed comparison of the school systems and links between primary school and economic growth is needed to understand how literacy differences contributed to economic disparities between the two countries and the two regions.

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Researchers also emphasize the importance of higher and technical education. Ferranti and colleagues note that Latin America's weak infrastructure for scientific learning led to lagging engineering capacity (De Ferranti *et al.*, 2002). Blomström and Meller stress how Nordic investments in human capital promoted skilled workforces, whereas Latin America developed more slowly (Blomström and Meller, 1991). Maloney stresses Sweden and Norway's early progress in engineering and chemistry (2007), while Chilean scholars point to Chile's delayed technical development, especially in copper mining (Pinto Santa Cruz, (1959)). Similarly, Peres-Cajías and Ranestad argue that earlier engineering schools in the Nordic countries stimulated greater innovation and economic growth compared to the Andean region (Peres-Cajías and Ranestad, 2021).

But how did Chile and Norway compare in terms of technical and higher education? At first glance, the differences between the two countries might not seem significant. Chile established its first university earlier than Norway did (Chile in 1758 and Norway in 1811).[3] By the late 19th century, Norway had slightly more university students than Chile. However, Chile experienced a rapid increase in the number of university students in the early 20th century (Mitchell, 2007a, 2007b). During the 19th century, both Chile and Norway developed technical education programs. In Norway, engineering programs were established at the University of Oslo from 1814, complemented by intermediate technical schools in Bergen, Trondheim, and Oslo starting in the 1870s, offering specialized programs in, e.g., mechanics and chemistry. Other technical and agricultural schools around the country also opened (Hodne, 1981; Bergh *et al.*, 1983). The Norwegian Institute of Technology opened in 1910, focusing on tertiary-level engineering education. Similarly, Chile introduced engineering programs at the University of Chile in 1856 and established various technical schools, such as Industrial Schools in Concepción and Temuco and Mining Schools in Copiapó, La Serena, and Santiago, offering specialized courses like chemistry and industrial analysis. The School of Arts and Crafts was established in 1849 (Muñoz Sierpe, 1909). Evening schools and private company schools offered advanced technical education with courses in mathematics, mechanical drawing, and industrial electricity. In both countries, technical schools offered programs ranging from mining and carpentry to chemistry, mathematics, and civil and electrical engineering (see Table 2):

Ranestad (2018, 2020), in examining the mining sectors of both countries, stresses a disparity in engineering graduates, associating this to contrasting institutional frameworks. However, the side-by-side overview of technical and higher-education institutions shows that both countries built relatively dense networks of intermediate and higher-level schools and engineering programs in the late 19th and early 20th centuries, with Chile in some respects moving earlier than Norway. This does not challenge the broader view that the Nordic countries invested heavily in education, but it suggests that the Norway–Chile "human-capital gap" was smaller, and more sector-specific, than many macro-comparisons assume. To assess whether the two countries built comparable or divergent technical human capital, we need sector-specific studies tracing how these institutions supplied particular industries and influenced industrial development.

5.3. *Natural resources, industrialization, and industrial policy*

Several studies emphasize industrial diversification as crucial (Peres-Cajías *et al.*, 2021a; Álvarez *et al.*, 2022b, 2022c). Álvarez and colleagues note the Nordic shift toward industrial exports and sustained growth, in contrast to the Rio de la Plata's reliance on volatile agricultural exports (Álvarez *et al.*, 2022b). Blomström and Meller (1991) argue that while Scandinavia used its natural resources to build competitive industries, many Latin

[3] Norway belonged to the Oldenburg monarchy, and Copenhagen was its nearest university until 1811.

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Table 2. Important educational institutions with intermediate and higher technical and engineering study programs (late 18th century to early 20th century)

Chile		Norway	
Institution	Year of foundation	Institution	Year of foundation
18th century			
Real Academy of San Luis (Real Academia de San Luis)	1797	Mining seminar in Kongsberg	1757
19th century			
National Institute	1813	The Royal Frederick University	1811
University of Chile (Universidad de Chile)	1842	Horten Technical School	1855
Pontifical Catholic University	1888	Higher School of Agriculture	1859
School of Arts and Crafts of Santiago	1849	Kongsberg Silver Work's Elementary Mining School	1866
Mining School of Copiapó	1857	The Technical Training Institution in Trondheim	1870
Mining School of La Serena	1887	Kristiania Technical School	1873
Mining School of Santiago	1887	Bergen Technical School	1875
School of Naval Engineers	1896	Skienfjorden Technical School	1887
Early 20th century			
Industrial School of Chillán	1905	Norwegian Technical Institute	1910
Industrial School of Concepción	Early 20th century		
Industrial School of Temuco	Early 20th century		
Mining School of Antofagasta	1918		
University of Concepción	1919		
Federico Santa María Technical University	1931		

Sources: Trondhjems Tekniske Mellomskoles virksomhet i de 3 første læseaar 1912–1915 (Trondhjems Tekniske Mellomskoles virksomhet, 1916); S. Villalobos et al., *Historia de la ingenieria en Chile* (Santiago, 1990).

American countries were more wary of exploiting their resources for fear of foreign control. Comparing Chile and Norway, Peres-Cajías and colleagues show that Chile depended on a single resource, whereas Norway diversified its exports into both raw materials and technology (2021a).

However, a closer look at the historiography of Chile and Norway offers deeper insights into the factors shaping their industrial diversification efforts. Latin American countries, including Chile, shifted toward import substitution industrialization (ISI) following the Great Depression to reduce dependency on natural resource exports (Prebisch, 1950). This

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strategy aimed to foster economic growth by promoting domestic manufacturing over imports (De Ferranti *et al.*, 2002). Chile, which had previously embraced free trade until 1928, introduced protective measures, including tariffs and import quotas, to support new industries such as car manufacturing, sanitary ware, and steel production (Villalobos *et al.*, 1990; De Ferranti *et al.*, 2002). Tariff rates of 25% were set on most imports. A customs law set tariffs on all products at 35% (Cabezón, 1971). State intervention increased with initiatives such as the National Development Corporation (CORFO), which invested in industrial development. ISI policies were ultimately criticized for fostering industrial growth without focusing on competitive advantages. Meller emphasizes that the strategy neither raised productivity nor diminished the economy's reliance on resource exports such as copper (Meller, 1991).

Norway also introduced tariffs on imports, initially low but increasing over time. From 1873, tariffs were added on, for example, cotton goods, fishhooks, and machinery. By the 1930s, average rates rose from 10% to 15%, with textiles and clothing reaching 25%. This shift encouraged the local production of previously imported items such as furniture, electrical devices, sports equipment, and clothing. Additionally, Norway implemented the "10% rule" in 1927, which favored domestic suppliers by adding a 10% premium to foreign bids. These were in practice measures of import substitution (Hodne and Grytten, 2002).

Thus, how different were the two countries in their promotion of industrial diversification? At first glance, Chile and Norway had similar approaches to industrial policy and fostering economic linkages. In Norway, economic growth arguably often stemmed from connections between industries and natural resource specializations. For instance, mechanical workshops from the 1840s supplied machinery and equipment to timber processing, shipping, and mining sectors. Shipping, a key non-resource industry, has driven innovations like automated navigation and maintained leadership in marine electronics (Smith, 2007). The fishing industry has been closely linked to shipping and canning since the 1860s (Bergh *et al.*, 1983). Hydroelectric power enhanced electro-metallurgical and chemical industries from the late 19th century. More recently, Norway's shipbuilding sector expanded to support the oil and gas industry, driving growth in engineering, IT, and business services (Fagerberg *et al.*, 2009). In late-19th-century Chile, a strong natural-resource base, especially mining, helped drive manufacturing by creating demand for mining equipment and consumer goods. Industries like cellulose, paper, and wine production also developed into major export sectors, using natural resources (Sutter and Sunkel, 1990; Smith, 2007). Recently, sectors like fresh fruit and salmon production have expanded with government support, reflecting Chile's ongoing efforts to diversify its industrial base (De Ferranti *et al.*, 2002).

From the perspective of industrial policy, both Chile and Norway moved between phases of liberal trade, targeted protection, and state-supported industrialization. The contrast is therefore less a matter of "intervention" versus "laissez-faire" than of how similar policy instruments were used under different political and external constraints. This comparison suggests that their industrial policies were not as fundamentally different as general regional descriptions imply. To assess whether industrial policy helps explain the gap between the two countries, we need more in-depth comparative research into how specific policy decisions were made, implemented, and how they affected particular industries and patterns of economic growth.

6. Revisiting the standard explanations: what the comparisons explain, and what they leave open

The Chile–Norway comparison confirms that institutional frameworks, human capital, and industrial policy matter for long-run development, but it also shows that the way these

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factors are typically applied in the Nordic–Latin American literature is overly simplistic. Several influential claims—about uniformly strong versus weak states, advanced versus backward human capital, and interventionist versus market-oriented policies—look less sharp once we move beyond regional averages and examine concrete country trajectories. This is the first main finding: the standard explanations are not wrong, but they require reformulation.

The comparative literature and the Chile–Norway comparison allow us to state three conclusions. First, the literature on state reforms, human capital, and industrial diversification—reinforced by the Chile–Norway comparison—shows that education, skills, and sectoral structure should not be treated as outcomes alone. Nordic countries invested earlier and more broadly in basic and technical education and, over time, developed more diversified export structures (Maloney, 2007; Peres-Cajías and Ranestad, 2021; Álvarez *et al.*, 2022b, 2022c). Andean economies generally reformed later and remained more dependent on a narrow set of primary exports (Ducoing *et al.*, 2018; Peres-Cajías *et al.*, 2021a). Yet Chile and Norway both developed technical and higher education and combined resource-based growth with efforts at industrialization (Ranestad, 2018, 2020; Peres-Cajías and Ranestad, 2021). The contrast is therefore less between "educated" and "uneducated" societies than between different configurations and uses of human capital, and between different political and regulative settings for diversification. As Bloch would put it, simple claims that "more education" or "more manufacturing" causes success risk becoming pseudo-causes unless we specify when, where, and through which mechanisms they matter (Sewell, 1967; Mahoney, 2004).

Second, no single factor provides a "silver bullet" explanation. Natural resource endowments, institutional quality, state reforms, human capital, and industrial structure all play a role, but their effects are interdependent and path-dependent (Mahoney, 2004; Álvarez *et al.*, 2022a). Some widely cited variables—such as being resource-rich or having some form of industrial policy—are trivial in the sense that they are present in both regions and therefore cannot by themselves explain divergence (Blomström and Meller, 1991). Others, such as egalitarian land distribution (Engerman *et al.*, 2000; Álvarez and Menéndez, 2022) or progressive taxation (Peres-Cajías *et al.*, 2021b), are associated with favorable outcomes but still require careful analysis of the channels through which they operated. Recognizing this does not mean that "everything matters" and nothing can be explained; it calls for moving from broad correlations to analyses of configurations and mechanisms.

Third, these results have implications for how future comparisons should be conducted. The Chile–Norway comparison illustrates both the strength and the limits of the macro-comparative research. On the one hand, it shows that some elements of the standard explanations do not generalize well once we confront them with detailed country evidence—for example, that tax systems and regulatory frameworks were not simply "strong" in Norway and "weak" in Chile, and that both countries used similar tools, such as company regulations, state enterprises, and targeted education policies, although in different ways and at different times (Ranestad, 2018, 2020; Peres-Cajías *et al.*, 2021b). On the other hand, it confirms that some broad patterns identified in the literature—such as the link between more encompassing fiscal contracts and more stable welfare states—remain well supported and difficult to challenge (Bull, 2019; Bengtsson and Morgan, 2022). In Bloch's terms, comparison serves both to downgrade some explanations from general laws to context-bound hypotheses and to upgrade others from vague ideas to more credible causal claims (Sewell, 1967; Mahoney, 2004).

A central remaining gap is the lack of comparative knowledge about micro-level mechanisms. We know a good deal about how land was distributed, how tax systems were structured, and how many engineers and teachers were trained (Engerman *et al.*, 2000;

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Peres-Cajías and Ranestad, 2021). We know much less about how different agrarian regimes actually organized production and labor; how tax burdens and tax exemptions comparatively affected firms, workers, and local governments; or how engineers and other skilled workers were comparatively integrated into specific industries (Bauer, 1975; Robles-Ortiz, 2009; Ranestad, 2018, 2020). Thus, we know quite a lot about structures and outcomes, but much less about the processes that have connected them. Bridging this gap requires a multilevel and holistic framework that links national indicators to sectoral, regional, interconnected, intranational, and organizational analyses (Mahoney, 2004; Bartlett and Vavrus, 2017).

This points to three constructive directions for future research. First, comparative work should pay closer attention to case selection and timing. Pairing countries that share key structural features—such as Chile and Norway or Uruguay and Denmark—and focusing on critical periods of reform or crisis can help isolate which combinations of institutions, policies, and social coalitions produced different outcomes (Senghaas, 1985; Álvarez and Menéndez, 2022). In Latin America, episodes such as Chile's reform period from the 1960s to 1973, the subsequent military regime, and the post-1990 democratic transition illustrate how rapidly configurations can shift and why context-based analysis and careful periodization are essential. GDP per capita is a convenient reference point for mapping long-run divergence, but it is also a heavily criticized indicator, both conceptually and empirically, e.g., the Maddison historical national accounts. Even when used as a common standard, it should be handled with care, especially because it can obscure heterogeneity within both the Nordic and Latin American country groups. Indeed, while regional averages suggest a clear Nordic–Latin American divide, the variation across countries is large: today, the difference in GDP per capita between Bolivia and Chile is about as large as the difference between Chile and Finland. This shows that broad "regional" comparisons can hide big differences within each region that matter for the analysis. Second, there is a need for more mixed-methods that connect macro-level patterns to micro-level mechanisms. Large-N and long-run comparative quantitative studies remain essential for identifying robust correlations, but they should be combined with archival and sector-specific research—on particular industries, state agencies, firms, unions, or professional groups—to trace how policies, regulations, and behavioral norms were implemented and contested in practice. Third, comparative studies would benefit from a broader range of sources, including business, union, and political archives, legal records, and other historical materials that can illuminate how actors perceived and navigated their institutional environments.

If pursued along these lines, future research will use comparison in line with Bloch and others: to test and refine explanations, to filter out pseudo-causes, and to specify when and how specific institutions, human capital, and industrial policy actually contributed to the divergent paths of the Nordic countries and Latin America (Sewell, 1967; Mahoney, 2004). This, I suggest, is the most promising way to move from descriptive contrasts toward a clearer understanding of the processes and causes behind the divergence.

7. Concluding remarks

This article shows that standard Nordic–Latin American comparisons rest on more fragile foundations than is usually acknowledged. A systematic review shows that many comparative studies treat "Nordic" and "Latin American" trajectories as internally homogeneous blocs and stop at the level of macro-correlations between, e.g., institutional quality, human capital, and growth. A Chile–Norway comparison, in turn, shows that some of the factors often used to explain divergence—state regulation of foreign capital, the timing and density of technical education, and the use of tariffs, protection, and industrial policy—are organized in surprisingly similar ways across the two cases. Once we recognize these similarities,

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it becomes clear that several dominant explanations can at best be interpreted as important but necessary rather than sufficient conditions for the macro-divergence. The comparison also shows how much we miss when we treat the two regions as fixed opposites, rather than looking at the differences within each region and among individual countries.

These results have methodological implications. The analysis shows that Nordic–Latin American comparisons depend on both which factors we prioritize and which cases we pair—and on the level of analysis at which we study them. Large-N, long-run studies remain indispensable for identifying robust patterns, but on their own, they encourage stylized regional types and invite pseudo-causal claims. Drawing on Ragin, Skocpol, Bartlett, Vavrus, and Bloch, the paper finds that comparative research would benefit from treating countries as historical configurations, combining broad regional contrasts with process tracing across time and space, and more detailed, case-based analysis. This calls for holistic approaches that link macro-patterns to specific histories, rather than relying on either level in isolation. This means connecting broad indicators of, e.g., land distribution, taxation, education, and exports with detailed studies of specific sectors, regions, and organizations. Such studies can show how policies were designed, how regulations, norms, and property rights actually operated, and how firms, workers, and other actors responded.

The article advances three claims. First, it consolidates evidence that distributive systems, fiscal contracts, human capital formation, and industrial structure matter for long-run outcomes, but it shows that their effects depend on how they were assembled and used in specific contexts. Second, it demonstrates that Chile and Norway shared more features than the regional literature usually allows, so that divergence cannot be reduced to a simple contrast between "strong Nordic" and "weak Latin American" states, "high" versus "low" human capital, or interventionist versus laissez-faire policies. Third, it specifies where the main gaps now lie: not in identifying more correlates of success and failure, but in uncovering the mechanisms that connect institutions, policies, and social coalitions to patterns of growth, inequality, and environmental change. If comparative work builds on these insights—by pairing structurally similar countries, by combining quantitative and archival evidence, and by tracing cross-border as well as national processes—it can move beyond descriptive contrasts toward a more precise explanation of why the Nordic countries and Latin America, despite shared natural resources, ended up on such different development paths.

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