

**Executive Summary**

**Annual Productivity Report**

**2023**

**Introduction**

Established in 2015 through a law decree, the National Productivity Commission forms a core part of the Productivity, Innovation, and Growth Agenda. As an independent, autonomous, and permanent technical body, it has contributed sixteen studies, eight annual reports, and nine exploratory studies. Additionally, it has organized a range of seminars, hearings, workshops, and meetings with specialists, generating recommendations based on technical analysis, evidence, and best practices at both local and international levels. The Commission adheres to executive mandates from either the presidency or the relevant ministries, aiming to enhance the country's productivity and elevate the population’s well-being. Comprehensive access to all studies, annual reports, official documents, minutes, and general information is available at www.cnep.cl.

In August 2021, the Commission underwent a regulatory reform to broaden its scope, transitioning into a public policy evaluation commission. This reform was aimed at optimizing the quality of both existing and forthcoming regulations. Consequently, the National Productivity Commission evolved into the National Evaluation and Productivity Commission (CNEP).

In light of these developments, the CNEP is now committed to produce two significant outputs. The first, known as the "Mid-Term Evaluation Agenda," is primarily focused on compiling an inventory of public policy evaluation instruments in Chile. It also aims to develop a comprehensive diagnosis that lays down institutional, methodological, and regulatory guidelines, thereby strengthening and promoting evaluation practices within the country. This endeavor will establish a five-year roadmap dedicated to enhancing transparency and fostering the sustainable development of public policies in Chile.

The second key output is the Annual Evaluation Report, serving a similar function to the existing "Annual Productivity Report." This report is designed to meticulously examine the evaluation systems and instruments implemented during each fiscal year. Furthermore, akin to the CNEP's Annual Productivity Reports, the Annual Evaluation Report will feature "Exploratory Studies." The exploratory study of the 2024 Evaluation Report will delve into the Evaluation of Planning and Land Management, underscoring its significance in the national context and formulating public policy recommendations to optimize the coordination, systemic approach, and efficiency of these instruments.

This Annual Productivity Report is structured into three chapters. The first chapter offers a detailed analysis of Chile's productivity in 2023, including an examination of its progression since 1990. The second chapter explores the potential positive impact of bolstering STEM education on the country's productivity. The final chapter provides a comprehensive summary of the CNEP's activities and achievements over the current year.

**2023 Productivity Report**

Every year, and by presidential mandate, the National Commission for Evaluation and Productivity (CNEP) presents the figures for the evolution of productivity in Chile by estimating the Total Factor Productivity (TFP). The purpose of publishing these figures is to monitor the evolution of productivity in Chile, both aggregate and sectoral, to identify areas for improvement and opportunities for public policy.

In this edition of the Annual Productivity Report, a variation in the TFP between -1.8% and -2.4% for the aggregate economy and between -1.8% and -2.6% for the non-mining economy is projected for 2023.

This contraction occurs in a year where economic activity would not have grown, even though employment and the capital stock would have expanded moderately, implying a deterioration in the productivity of factor use. Specifically, a 0.0% variation in GDP is expected. Employment, still affected by the pandemic, shows a weak recovery with a 1.9% average annual growth of total hours worked.[[1]](#footnote-1) Investment maintains low growth, projecting an increase of 3.0% in the capital stock.

The contraction of aggregate productivity in 2023 suggests that this variable's trend behavior has remained the same and stagnant for more than a decade. Although the TFP grew in 2020 and 2021, consecutive contractions of 2022 and 2023 absorb the rise, reaching a level practically identical to that before the pandemic. Thus, the last 15 years have been lost in aggregate productivity growth, reaffirming the need to generate measures to boost it. Likewise, recent technological changes, such as the massification of telework, suggest the importance of reviewing the evidence and designing policies that exploit these developments to favor labor efficiency. Despite the above, there has been some progress regarding the diagnosis of reforms and identifying specific gaps to narrow the productivity difference between our country and more advanced economies. For example, the CNEP has analyzed the investment permit system, finding it unstable, inefficient, and legally uncertain. This diagnosis is widely shared across Chile. The agenda forwarded by the authorities to eliminate these flaws in the system is a step in the right direction.

Regarding the country's recent productivity evolution, this report notes that at the sectoral level[[2]](#footnote-2) and in line with the drop in aggregate productivity in 2022,[[3]](#footnote-3) six of the eight productive sectors reduced their TFP. The primary contractions occurred in commerce, hotels, and restaurants (-11.8%), mining (-9.4%), and industry (-8.4%). At the same time, electricity, gas, and water, as well as transport and communications, experienced an expansion in their productivity of 6.7% and 2.5%, respectively.

Moreover, the CNEP addresses Labor Productivity for the first time, where sustained growth since 1990 is evident. Although Chile has converged towards the OECD average, it still sits 42 percentage points below it. Also, there has been a decrease in the growth rate since 2011 onwards, with an average annual growth of around 1%. This contrasts with the yearly growth rates above 2% experienced between 2001 and 2010 and over 4% between 1990 and 2000.

Paradoxically, the pandemic caused an exceptional increase in labor productivity in 2020, with an interannual rise of more than 12%. This increase was mainly due to the deepening of capital caused by the flight of employment experienced during the pandemic, which was more profound in those more intensive in physical contact, tending to be less productive. However, labor productivity returned to its usual behavior as the shock dissipated.

The convergence of TFP to pre-pandemic levels highlights the importance of long-term analysis, considering that the factors that establish them[[4]](#footnote-4) show over several years. Productivity has been stagnant for more than a decade, so it is necessary to constantly work on policies that eliminate the bottlenecks that restrict productivity growth so that it can be a driver of economic growth, contribute to sustainable development, and raise the population's well-being.

**STEM and Productivity**

The 2024 Annual Productivity Report presents a thematic chapter that will comprehensively analyze the incorporation of the integrated learning of the disciplines of Science, Technology, Engineering, and Mathematics (STEM) within the Chilean educational framework, with particular interest in recognizing its effectiveness for training professionals in the field. Globally, the STEM approach is increasingly common in educational frameworks, integrating learning in its constituent subjects: sciences, technologies, engineering, and mathematics. This approach not only has the potential to improve students’ skills and competencies by promoting the development of cognitive and non-cognitive skills valued in the labor market but it is also perceived as a source of productivity and innovation enhancement for nations, contributing to research and development and the efficient adoption of new technologies in companies.

This study shows that approximately 30% of scientific-humanist students (secondary education) opt for advanced elective subjects in STEM, and around 40% of technical-professional students choose specialties related to STEM. While the gender distribution in the scientific-humanist modality is equivalent, with 51% women, in the technical-professional modality, there are significant gender differences, with only 20% of women among students in STEM specialties.

In tertiary education, the proportion of students entering STEM careers has remained relatively constant since 2007 and is in line with the OECD average, representing 27% of the total new entrants in 2022. However, compared to the OECD average, Chile has fewer admissions to careers in sciences, mathematics, and information and communication technology. Most of the entrants to STEM careers in Chile opt to study engineering, industry, and construction (IIC), placing the country among those with higher enrollment in this area compared to OECD countries. There is a persistent low representation of women in STEM careers, where women constitute around 20% of the total admissions, well below the OECD average (35.5%). Additionally, the entry rate into master's programs in STEM areas is low, making Chile the second OECD country with the lowest entry rate.

The supply of STEM careers has experienced a considerable increase in the last decade, with a 54% growth from 2007 to 2022, driven mainly by the rise in programs offered by Professional Training Institutes (IPs), which nearly doubled during that period. However, there is a significant heterogeneity in STEM careers in terms of institution, content, quality, duration, among others.

In Chile, individuals with STEM degrees earn an hourly wage 7% higher than workers similar in sociodemographic terms, education, experience, working in the same industry and occupation, but who studied in other areas. This difference is even more significant among younger cohorts (25-44 years), reaching 9%. However, for adults aged 45 to 64, there is no considerable wage difference between those with STEM degrees and those without them.

In Chile, STEM initiatives are fragmented, have limited reach, and are carried out off the formal educational system, mainly led by the private sector. These initiatives focus on closing gender gaps and face coordination problems due to the unpredictability of available financial resources, limited coverage, duplication of efforts, and a lack of consolidated knowledge about effective practices.

Internationally, there are policies and projects that Chile could adopt to create a more integrated STEM ecosystem. Notable cases point to a comprehensive ecosystem that fosters both the supply and demand for STEM skills. Notable examples include policies in South Korea that encourage investment in R&D&I and generate job opportunities for STEM graduates. The UK's initiatives align STEM training with crucial economic sectors. Regarding supply, countries like Singapore, China, and South Africa have reformed formal education, combining theory and practice, improving curricula, undertaking curricular reforms, modifying teaching methods, and preparing teachers. Also noteworthy are inclusive policies for underrepresented groups.

Other countries have developed strategies that promote STEM skills independently of a unified system. For example, the creation of specialized STEM universities in Uruguay and Finland, agreements between universities and boot camps in the U.S. and Canada, and STEM microcredentials in Australia.

**Studies Completed and In Progress During 2023**

Chapter 3 of this report reviews the studies conducted by the National Evaluation and Productivity Commission (CNEP) during the year 2023.

**Analysis of Priority Sectoral Permits for Investment in Chile**: In response to a presidential mandate, the CNEP undertook an exhaustive analysis of the permits that impact investments in Chile. This study focused on 63 critical permits out of 309 identified. The data collection was meticulous and included information on usage frequency, approval rates, processing times, and other relevant aspects. The study revealed patterns, such as that less complex permits (class 1) had short processing times and low rejection rates, while the more complex permits (class 3) experienced significant delays and higher rejection rates.

In response to these challenges, the CNEP proposed various measures, from external reviews of files to greater inter-institutional coordination. The goal is to improve the investment process without compromising the protection of areas critical to society. This study was completed in October 2023.

**Productivity in Telecommunications:** Commissioned by the Presidency of the Republic in March 2022, this study focused on identifying barriers that hinder productive growth in various sectors and the benefits of the increased supply of telecommunications services. The study highlighted issues in authorization processes, management of the radio spectrum, and the digital divide. The CNEP formulated recommendations to address these challenges, such as implementing auctions for spectrum allocation and greater transparency in bidding processes. It also addressed internet service quality and the importance of having a connectivity map. The CNEP delivered this study in December 2023.

Additionally, the National Evaluation and Productivity Commission (CNEP) has several studies underway for 2023. The first, **"Efficiency in the management of purchases and inventory management of medical supplies in the public hospital network,"** analyzes the importance of ensuring an adequate supply for the health sector. Various relevant stakeholders have been interviewed for this matter, including representatives of hospitals and suppliers, to identify challenges and propose recommendations that improve the management of purchases and inventories in public hospitals.

The CNEP also received the mandate for the study of **"Measurement of the processing times of mining investment permits"** as part of the discussion on the Mining Royalty. To this end, the CNEP is building a baseline to understand the timelines associated with these projects and will monitor variations over time to assess the achievement of the government's established goals for reducing timelines.

In addition to these specific studies, the CNEP launched a "Mid-Term Evaluation Agenda," which aims to analyze public policy evaluation instruments in Chile and develop a diagnosis to strengthen evaluation in the country over the next five years. As part of this agenda, an "**Annual Evaluation Report**" will be published in May 2024, which will examine the systems and instruments implemented during 2023 with a quantitative focus. This report will also include a thematic chapter on the Planning and Land Management Evaluation.

1. Given a 2.3% increase in the number of employed and a reduction in the average weekly working hours of -0.4%, according to figures from the National Employment Survey of the National Institute of Statistics. [↑](#footnote-ref-1)
2. Whose figures are reported with a year's delay. [↑](#footnote-ref-2)
3. For 2022, according to this commission’s calculations, TFP contracted between 3.4% and 4.0%. [↑](#footnote-ref-3)
4. Factors such as technology adoption, organizational changes, efficiency in resource allocation, or the incentives generated by regulation and permit structures are influential. [↑](#footnote-ref-4)