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Authors: Hernán de Solminihac, Luis E. Gonzales, Rodrigo Cerda

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Copper Mining Productivity: Lessons from Chile

Hernán de Solminihac (a,b) Luis E. Gonzales¹ (a) Rodrigo Cerda (a,c)

hsolmini@ing.puc.cl

lwgonzal@uc.cl

rcerdan@uc.cl

a Clapes UC², Pontificia Universidad Católica de Chile,

b School of Engineering, Pontificia Universidad Católica de Chile

c Instituto de Economía, Pontificia Universidad Católica de Chile

¹Please refer correspondence to lwgonzal@uc.cl, Alameda 440 F.13 Santiago de Chile, Postal Code 8331010, Phone +562 23542742.

²ClapesUC: Centro Latinoamericano de Políticas Económicas y Sociales de la Universidad

Católica

Abstract

Chile represents almost one third of the world's copper production. Mining is one of the main industries that contributes to our country's development with resources and is globally recognized. Due to the end of the commodity cycle, improving productivity will be a key variable in mining performance in incoming years. This paper studies mining productivity in Chile by relying on two indicators: measure of the total factor productivity (TFP) using the traditional Solow methodology, and labor productivity. Since 2000, we found a decrease in TFP, explained mainly by the participation of capital as well as diverse factor adjustments to labor and capital inputs. Average labor productivity also decreases 42% from 1999 to 2010, a decrease explained by four determinants: real mining wages, electricity prices, copper prices and mineral grade. Since 2010, average labor productivity has increased 30%, and there is also an opportunity for additional improvement by reducing energy costs as well as by aligning productivity and labor performances.

Key words: Labor Productivity, TFP, Chile, Mining, Labor, Energy, Copper Price

1. Introduction

In commodity exporting countries, governments are highly exposed to commodity based fiscal revenues. During the commodities' boom starting in 2003 that ended recently, those governments expanded fiscal expenditure as large part of the

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