Public policy and future mineral supplies

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ABSTRACT

A widespread and pessimistic view of the availability of mineral commodities calls for strong government initiatives to ensure adequate future supplies. This article provides a more market oriented and optimistic perspective, one that focuses on production costs and prices rather than physical availability. It sees short-run shortages continuing to plague commodity markets in the future as in the past. Though painful while they last, these shortages are temporary and do not pose a serious long-run threat to human welfare. Moreover, even without government intervention, they self-correct. The sharply higher prices that they evoke create strong incentives that foster supply and curb demand.

Potentially more serious are long-run shortages due to mineral depletion. Such shortages are often thought to be inevitable, a conclusion that flows directly from the physical view of depletion. For various reasons, we reject this view of depletion in favor of an economic view. The latter recognizes that depletion may create long-run shortages, but stresses that this need not be the case if new technology can continue to offset the cost-increasing effects of depletion in the future as it has in the past. The economic view also suggests that a list of mineral commodities most threatened by depletion can best be compiled using cumulative availability curves rather than the more common practice of calculating commodity life expectancies based on estimates of available stocks.

1. Introduction

A recent issue of Nature carries an article entitled ‘Mineral supply for sustainable development requires resource governance’ by Ali et al. (2017). It paints a rather troubling picture of the availability of copper in particular and other metals and mineral commodities in general over the next half century. The challenges that it highlights are numerous and fall into three broad categories—(1) rapid demand growth caused by rising global population as well as the increased material needs for climate change policies and UN sustainable development goals; (2) constraints on supply arising from inadequate investment in exploration and new capacity, growing community resistance to mining, governance problems in many host countries, long gestation periods for new mines, growing government regulations to protect the environment and for other reasons, and declining amounts of identified mineral resources; and (3) the inability of recycling and secondary production to contribute greatly to mineral commodity supply until the middle of the 21st century, given that much of the copper and other materials currently in buildings and other products will not be available for recycling for some time.

To mitigate and avoid future supply crises, the article recommends the adoption of various public policies, including international targets for global mineral production, common standards to ensure maximum efficiency and minimum environmental damage, support for new extraction technologies, harmonization of best practices, and greater public-private cooperation. Their article concludes with the sentence:
"Ultimately, international legal mechanisms may be needed to anticipate and respond to future mineral availability constraints".

The authors are scientists and engineers with expertise from across a spectrum of fields. In this respect, their paper reflects an interdisciplinary perspective. It also reflects a widely shared, rather pessimistic outlook on the future availability of mineral commodities and hence the need for strong corrective government measures.1

There is, however, a different perspective, strongly supported by historical experience, which many geoscientists, economists, policy analysts, mineral industry executives, and others (including all of us) believe provides a more useful and appropriate framework for assessing the future availability of mineral commodities.2 It is more market focused and less pessimistic—indeed, it is modestly optimistic about the future. It sees an important role for governments and public policy in ensuring adequate future mineral commodity supplies, a role that overlaps with the policy recommendations of the more pessimistic perspective but one that also diverges in a number of important respects.

2. The market-focused and modestly optimistic perspective

Our modestly optimistic perspective concentrates much more on prices and much less on physical availability. What matters for society, to this view maintains, is how much we have to give up to obtain an adequate future mineral commodity supplies, a role that overlaps with the policy recommendations of the more pessimistic perspective but one that also diverges in a number of important respects.

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