



Survey

Green goals and full employment: Are they compatible?



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ABSTRACT

Two empirical correlations are studied: one between economic growth and environmental impacts, and the other between the lack of economic growth and unemployment. It is demonstrated that, at a global level, economic growth is strongly correlated with environmental impacts, and barriers to fast decoupling are large and numerous. On the other hand, low or negative growth is highly correlated with increasing unemployment in most market economies, and strategies to change this lead to difficult questions and tradeoffs. The coexistence of these two correlations – which have rarely been studied together in the literature on “green growth”, “degrowth” and “a-growth” – justifies ambivalence about growth. To make key environmental goals compatible with full employment, the decoupling of environmental impacts from economic output has to be accompanied by a reduction of dependence on growth. In particular, strategies to tackle unemployment without the need for growth, several of which are studied in this article, need much more attention in research and policy.

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1. Introduction

This article is motivated by the observation of two empirical correlations. One is between economic growth and global environmental impacts; the other is between the lack of economic growth and unemployment. These correlations and our ability to influence them are decisive for environmental sustainability and human well-being.

Due to the importance of both relationships, it is not surprising that they received considerable attention in their respective fields. The relationship between economic growth and environmental impacts has been increasingly investigated in environmental and sustainability science since the 1970s (e.g., Grossman and Krueger, 1991; Meadows et al., 1972; Stern, 2004; UNEP, 2011), while the relationship between (negative) growth and unemployment has been central to economics for even longer (e.g., Ball et al., 2013; Okun, 1962; Prachowny, 1993). What is surprising, though, is that in spite of the importance and relatedness of the two correlations, very few people have studied them together.¹ Mainstream economists have not fully recognized the challenges of decoupling environmental impacts from economic output, whereas scholars of sustainability science have not paid enough attention to the growth–unemployment relationship. This has hindered the emergence of a coherent and realistic vision to reconcile socio-economic and environmental objectives.

The aims of the investigation are threefold: to briefly review the main features of the two correlations at the global/cross-national level, to study prospects of change in both correlations, and to better understand what strategies may help to solve environmental and unemployment issues simultaneously. The analysis has important implications for the feasibility of existing growth strategies such as “green growth” (sustainable economic expansion), “a-growth” (indifference about growth) and “degrowth” (sustainable economic contraction). While acknowledging the good intentions behind and reasonable arguments for all these strategies, weaknesses of each are pointed out. The paper argues for a fourth position which permits ambivalence about economic growth and puts the reduction of dependence on growth in the center of attention. Ultimately, this may result in more coherent policy advice from economic and sustainability science.

The main limitation of the study is due to the global/cross-national level of the analysis. It can be argued that the set of indicators considered is arbitrary and incomplete, that data quality is low and uncertainties are large, and that the observed correlations can be influenced by factors not discussed in the present paper. All of these objections are valid, perhaps even unavoidable at this level of analysis. However, this is not a sufficient reason to restrict investigations to lower levels because global-scale, systemic conclusions cannot be drawn by focusing on individual countries or issues. If, for example, global environmental sustainability conflicts with high (or even positive) growth rates of the world economy, then the unemployment response to low or negative growth has to be studied in many countries to answer the title question. It may turn out that green goals and full employment are incompatible. Without identifying this contradiction, the need for systemic change – e.g., radically new employment strategies that can

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¹ There is no relevant search result in the Web of Knowledge, Scopus and ScienceDirect database for the combination of keywords from the two areas (“Decoupling” and “Okun's law”, or “Kuznets” and “Okun”).

solve unemployment in non-growing economies – can remain hidden, which may lead to dismal environmental or social consequences. Therefore, combining the global analysis of the correlation between growth and environmental impacts with the cross-national study of the growth–unemployment relationship is extremely important.

The article is structured as follows. Section 2 gives a brief literature-based overview of the connection between economic growth and environmental impacts, and examines factors that will influence the future of this relationship. Section 3 studies the connection between (negative) growth and unemployment in a similar manner, but in somewhat more detail. Section 4 assesses implications for macro-level strategies. Section 5 concludes.

2. Correlation Between Economic Growth and Environmental Impacts

2.1. The Importance of the Correlation

On a global level, past economic growth has been accompanied by increasingly serious environmental problems including climate change, various types of pollution, and the loss of biodiversity and ecosystems (McNeill, 2000). Leading scientists and institutions repeatedly called for immediate, forceful and persistent action to mitigate these problems (Ehrlich and Wilson, 1991; Foley, 2009; IEA, 2013; IPCC, 2014; MAHB, 2013; Novacek and Cleland, 2001; Rockström et al., 2009). If economic growth continues, these are calls for fast and sustained absolute decoupling² between GDP and environmental impacts. Whether sufficiently fast decoupling is feasible is central for sustainability: if not, then output growth³ is unsustainable, so welfare-decreasing changes in the global socio-ecological system are unavoidable. Since the 1970s, this has been a major concern of environmental and sustainability science, which, however, has been almost completely ignored by mainstream economics and politics (Daly, 2013).

There are two possible reasons for this ignorance. First, one may believe that the feasibility of fast decoupling is irrelevant because environmental sustainability is less important than economic growth. Although this position has few vocal advocates and no reasonable justification, it is likely that many economists and decision makers formally committed to sustainable development have implicitly subscribed to it. This reflects, among other things, the power realities of contemporary societies: those who suffer the most severe consequences of environmental degradation are usually much less influential than those who reap the largest benefits of growth.

Second, one may believe that environmental problems can be meaningfully mitigated in a growing economy because rapid absolute decoupling is possible. Whether this position is tenable will be studied in more detail below. The analysis focuses on three key drivers of environmental problems, namely energy use (and associated CO₂ emissions), materials use and land use. In Section 2.2, past trajectories are presented together with selected key facts. In Section 2.3, current trends are examined to understand how past trajectories may change in the future. Section 2.4 draws conclusions.

2.2. Past Correlations and Trends

Fig. 1 shows historical trends of the gross world product (GWP), energy use and energy related carbon emissions.

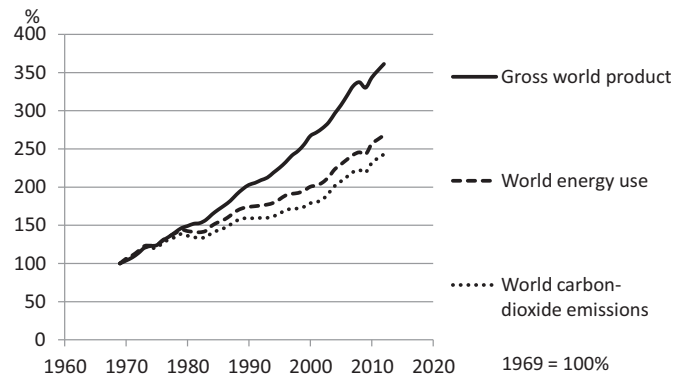


Fig. 1. GWP, world primary energy use and world carbon-dioxide emissions (through the consumption of oil gas and coal) from 1969 to 2012.

Source: BP (2013).

Key facts: 1) The annual growth of GWP is a major determinant of the annual increase of atmospheric CO₂ concentration (Tapia Granados et al., 2012). 2) There is no country-level evidence for fast and sustained absolute decoupling for energy use (Luzzati and Orsini, 2009) or CO₂ emissions (Bassetti et al., 2013; Cavlovic et al., 2000; Huang et al., 2008; Itkonen, 2012). 3) Approximately 3% annual reduction of CO₂ emissions would be necessary according to UNEP (2013a) and 6% according to Hansen et al. (2013).

Fig. 2 shows the historical trends of GWP and global materials consumption.

Key facts: 1) Global materials use – just like energy consumption – reacted sensitively to recessions and economic slowdowns, with concomitant negative changes (Krausmann et al., 2009). 2) Demand increases sharply in emerging economies and stabilized at very high per capita levels in several industrialized countries (UNEP, 2011). 3) Current modes of development, both for emerging and already industrialized economies, are fundamentally unsustainable (Steinberger et al., 2013).

Fig. 3 shows global patterns of agricultural land use.

Key facts: 1) Quantifying global land use change is difficult due to the limited availability of high quality time-series data (Choumert et al., 2013; Gibbs et al., 2010; Phalan et al., 2013). 2) The growing demand for agricultural products had very large negative impacts on ecosystems (Foley et al., 2011, 2005; Ramankutty et al., 2008), especially in tropical countries (Gibbs et al., 2010; Phalan et al., 2013). 3) In a debate organized by *The Economist*, 77% of voters disagreed with the statement that economic growth is good for biodiversity (The Economist, 2013).

Unsurprisingly, aggregate environmental indicators for the world never show absolute decoupling (Aşıcı, 2013; Bradshaw et al., 2010; Caviglia-Harris et al., 2009; Dietz et al., 2007; Spangenberg, 2001). Indeed, studies generally find a monotone relationship between GDP and such indicators already at the country level (Aşıcı, 2013; Caviglia-Harris et al., 2009), especially if the leakage of environmental effects between countries is accounted for (Ghertner and Fripp, 2007; Suri and Chapman, 1998; Wiedmann et al., 2013). Globally, increasing GDP may well be the most important driver of environmental impact (Bradshaw et al., 2010; Dietz et al., 2007).

2.3. Prospects of Change

If quick and sustained absolute decoupling has not happened until now, the question is whether prospects for the future are better. It is clear that environmental efficiency can be improved in every major field and that policies to stimulate such improvements have been very weak until now. However, there are several reasons to be very skeptical about quick absolute improvements.

² Absolute decoupling means that the absolute level of environmental impact is reduced in a growing economy. The reduction of environmental impact per unit of GDP is called (relative) decoupling. Any decoupling can happen due to the reduction of resource use per unit of GDP or the reduction of the environmental impact per unit of resource use (UNEP, 2011).

³ “Output growth”, “GDP growth”, “economic growth” and (in some cases) “growth” are used interchangeably.

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