

**RESOURCE, ENVIRONMENTAL &
ECOLOGICAL ECONOMICS**



Emissions from a coal-fired power plant rise into the atmosphere.
© Sasha Radosavljevic/iStock

Over the last quarter century, we have become increasingly aware of the interactions between human societies and the natural environment in which they thrive and upon which they depend...The idea of including environmental assets and services in the national economic accounts is part of a larger movement to develop broader social and environmental indicators. This movement reflects the reality that economic and social welfare does not stop at the market's border, but extends to many non-market activities.

(Nordhaus, W. D. "The Future of Environmental and Augmented National Accounts," Survey of Current Business, November 1999, p. 45)

Context for Environmental/Ecological Economics:

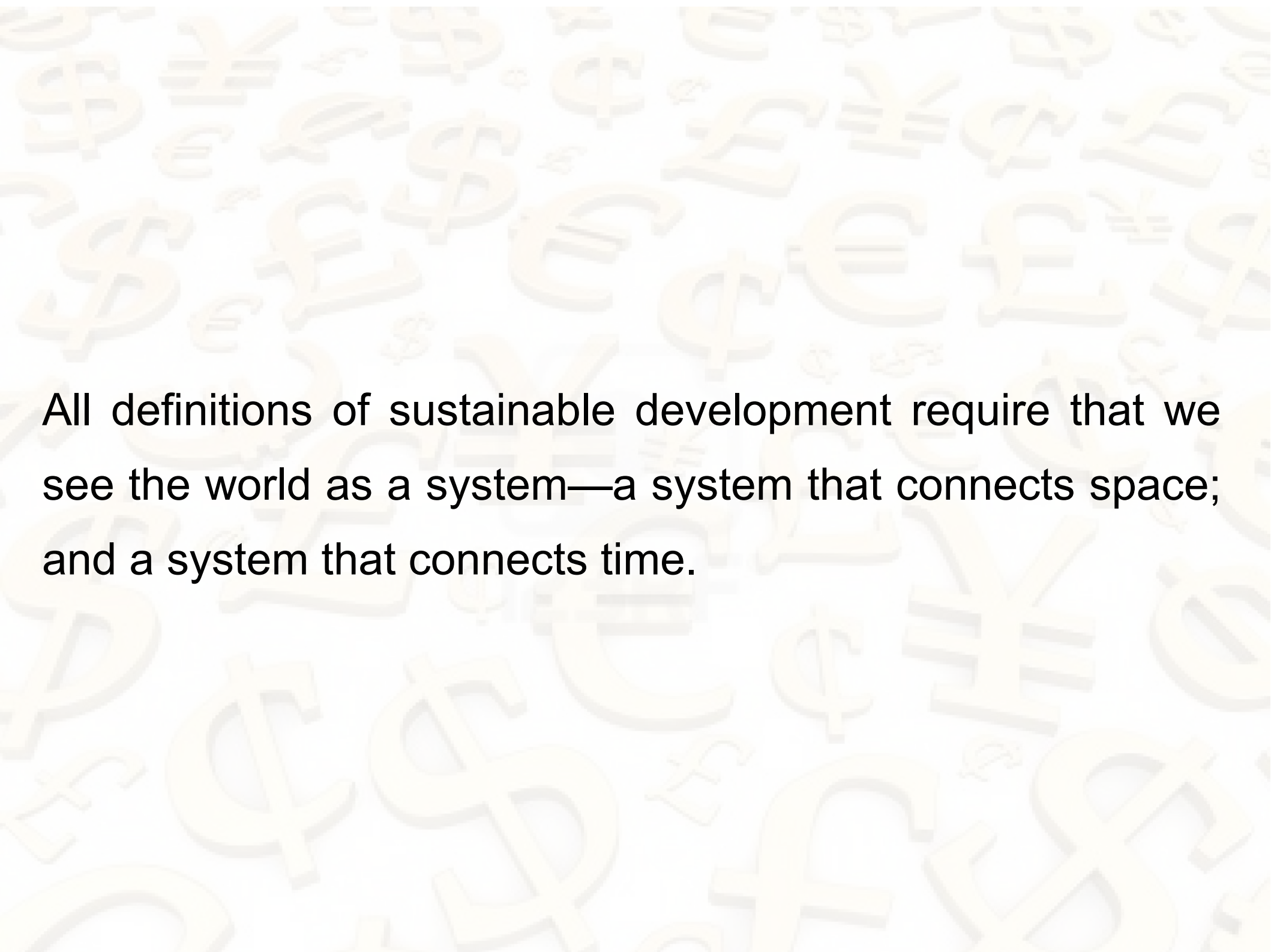
Sustainable development has been defined in many ways, but the most frequently quoted definition is from:

Our Common Future, also known as the Brundtland Report (1987):

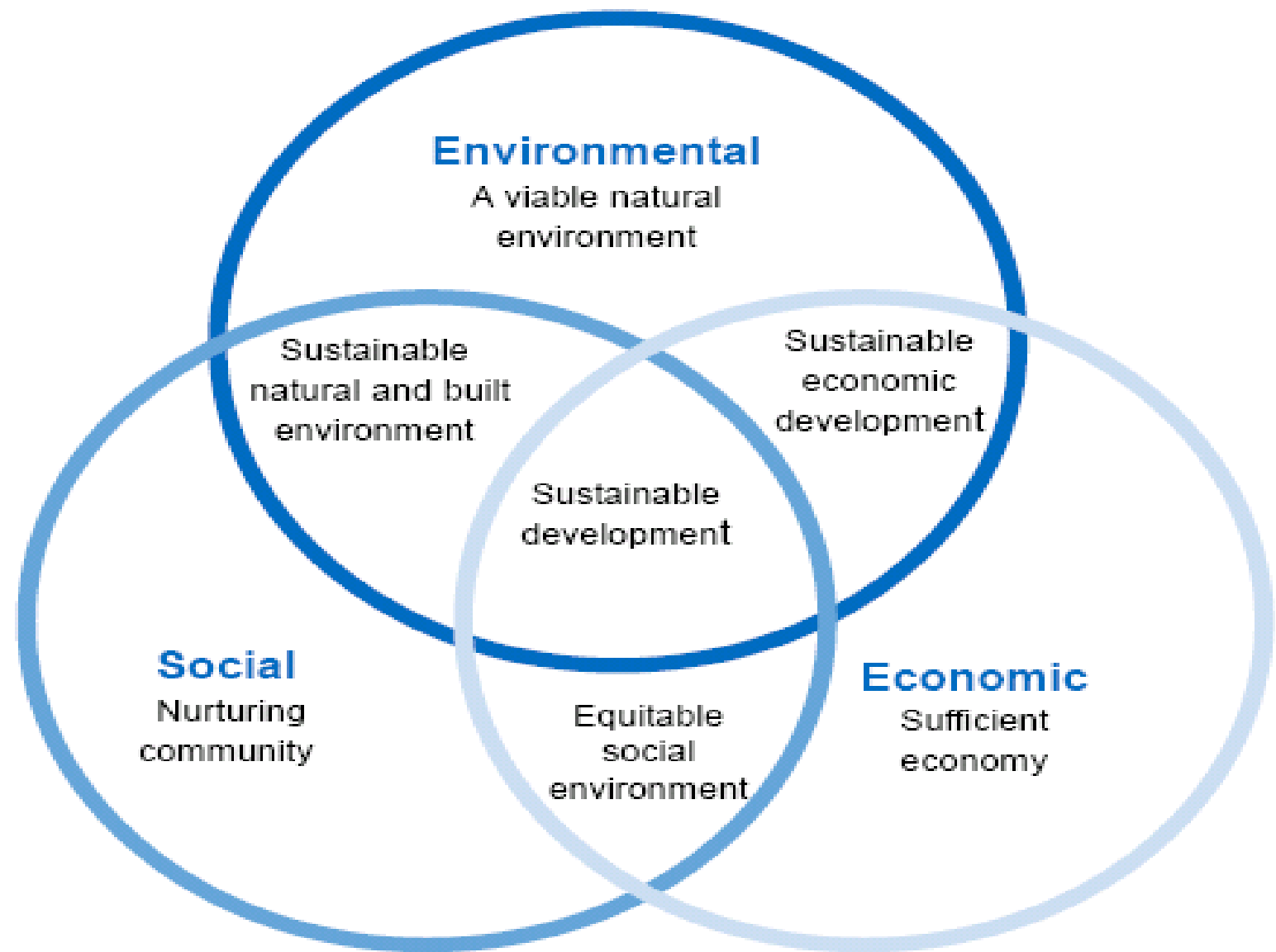
"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

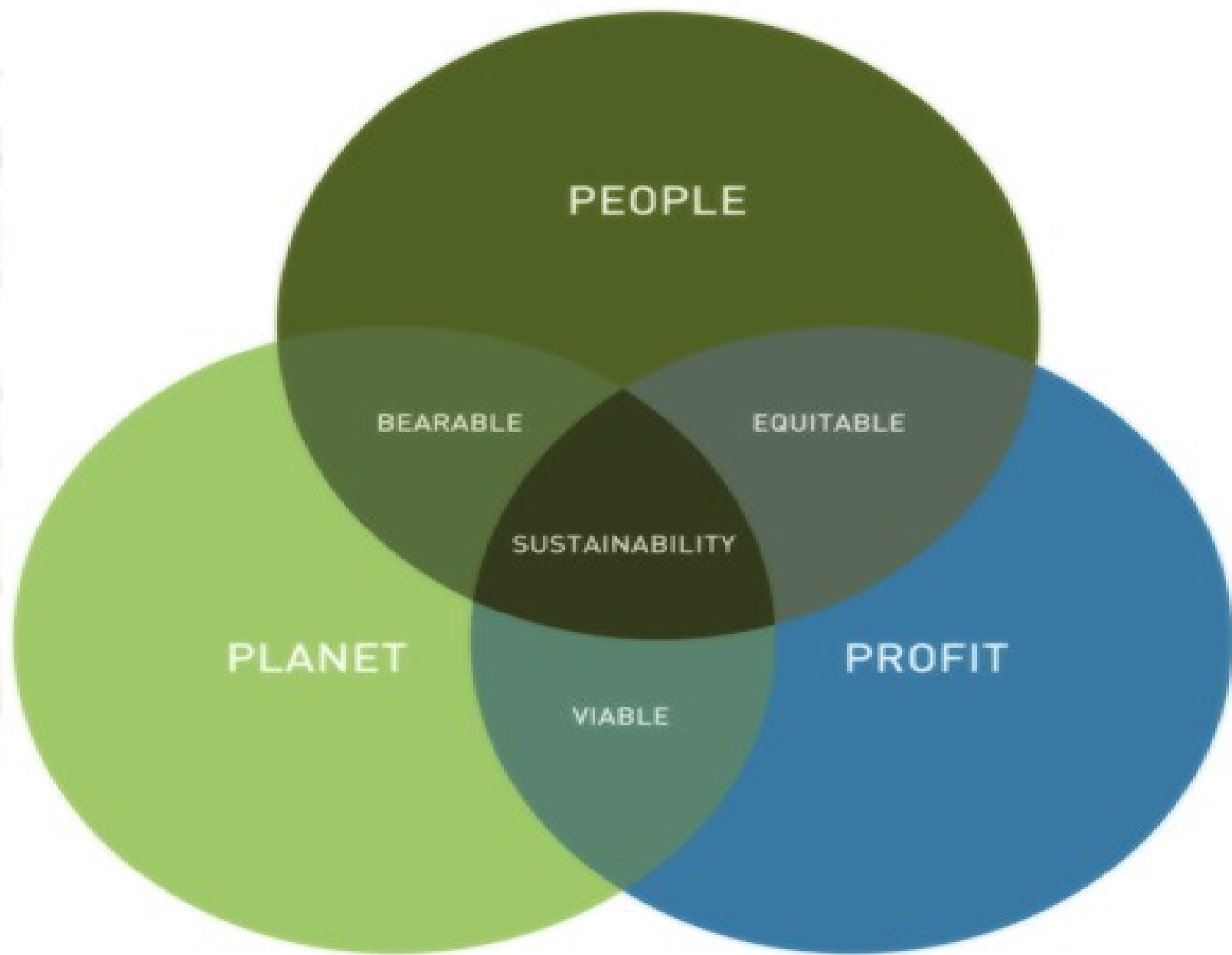
the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and

the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."

The background of the slide is a light cream color with a repeating pattern of various currency symbols. These symbols, including the dollar sign (\$), euro (€), yen (¥), and pound sterling (£), are rendered in a light beige or gold tone. They are scattered across the entire surface, some appearing larger and more prominent than others, creating a subtle, textured effect.

All definitions of sustainable development require that we see the world as a system—a system that connects space; and a system that connects time.







Planet



Profits

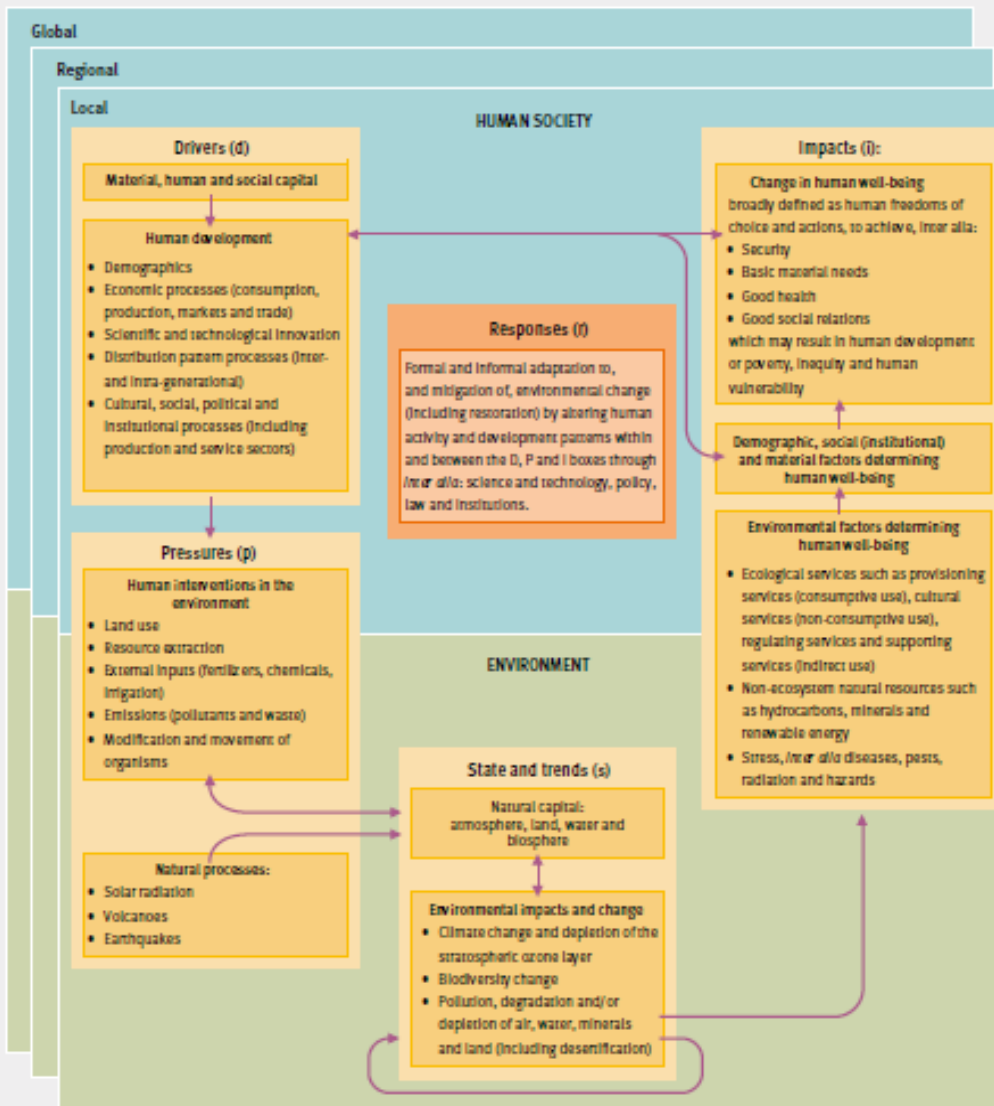
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People



Figure 1 The GEO-5 DPSIR conceptual framework



Source: 2012 United Nations Environment Programme DITWA/ GRID-Geneva

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Source: <http://www.fishbase.org>

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Economic Activity in Context

Economics: the study of the way people organize themselves to sustain life and enhance its quality.

The four essential economic activities are resource maintenance and the production, distribution and consumption of goods and services.

microeconomics: the study of the economic activities and interactions of individuals, households, businesses, and other groups at the sub-national level

macroeconomics: the study of how economic activities at all levels create a national (and global) economic environment. Economic conditions at the aggregate level, such as rates of unemployment and inflation, create the environment in which individual economic actors make their decisions.

macroeconomy: an economic system whose boundaries are normally understood to be the boundaries of a nation

global economy: the system of economic rules, norms and interactions by which economic actors and actions in different parts of the world are connected to one another

economic actor (economic agent): an individual, group, or organization that is involved in economic activities

Exercise 1:

Provide definitions for the following:-

unemployment

recession

inflation

economic boom

economic growth

money

development

fiscal policy

GDP

monetary policy

investment

sustainability

Positive questions are about how things are

Normative questions are about how things should be

Well-being: the broad goal of promoting the sustenance and flourishing of life In the context of macroeconomics, there are three especially important components of well-being: good living standards; stability and security; and sustainability.

living standards growth: improvements in people's diet, housing, medical attention, education, working conditions and access to care, transportation, communication, entertainment and the like, that can allow people to have long and enjoyable lives and have the opportunity to accomplish the things that give their lives meaning.

economic growth: increases in the level of production in a country or region – traditionally represented by GDP (Gross Domestic Product)

The process of moving from a general situation of poverty and deprivation towards one of increased production and plenty is what has traditionally been referred to as **economic development**. Generally, the process of economic development has been thought of as a process of increasing agricultural productivity, investing in machinery and technology, and making changes in the organization of work (from home-based shops to factories, for example), so that **labour productivity** rises. That is, people can produce more in each hour that they work.

economic development: the process of moving from a situation of poverty and deprivation to a situation of increased production and plenty, through investments and changes in the organization of work.

labour productivity: the level of output that can be produced per worker

Even if GDP per capita is rising, other factors are still important in ensuring that economic growth benefits the world's and each country's population as a whole: .

what is produced. An economy may experience “economic growth” by increasing its production of military hardware or large public monuments, for example, but these kinds of production are much less likely to raise living standards than growth in production of nutritious food, widely available health care, or the quality of basic education.

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how it is produced. In some poorer countries today, many workers—including young children—work 14 to 16 hour days in unsafe, badly ventilated mines and factories; many suffered severe illnesses and early death.

for whom economic growth occurs. How are the increases in production, or incomes arising from production, distributed among the population? Do some regions, or some groups of people as defined by income class, race, ethnicity, gender, or other factors, receive more of the gains from growth than others? If the benefits of economic growth only go to a tiny global or national elite, the bulk of the population may remain desperately poor.

The three major macroeconomic goals are:

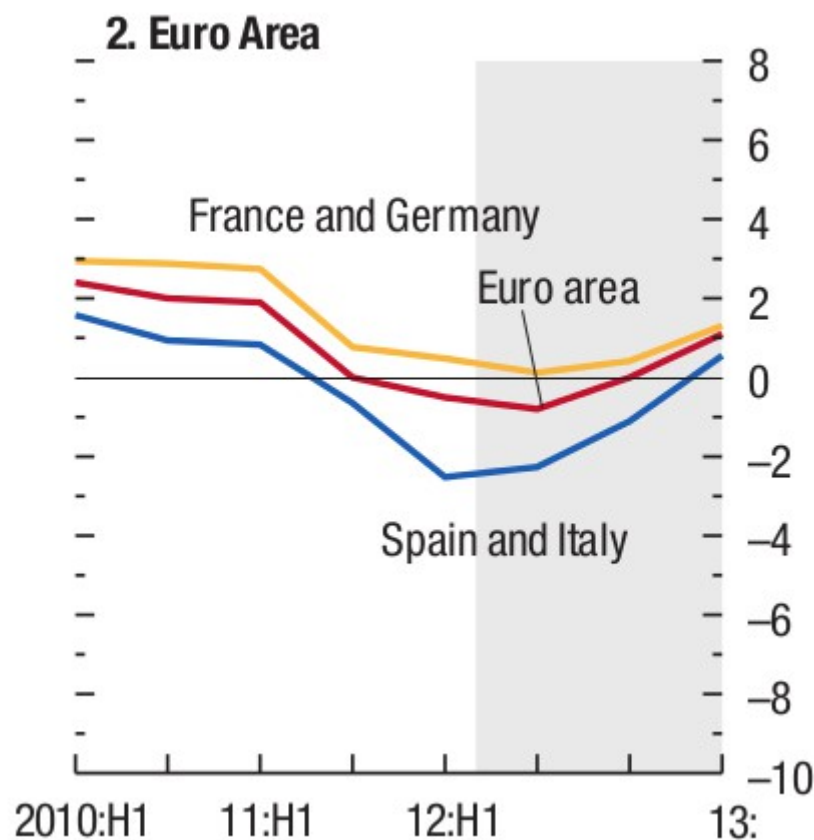
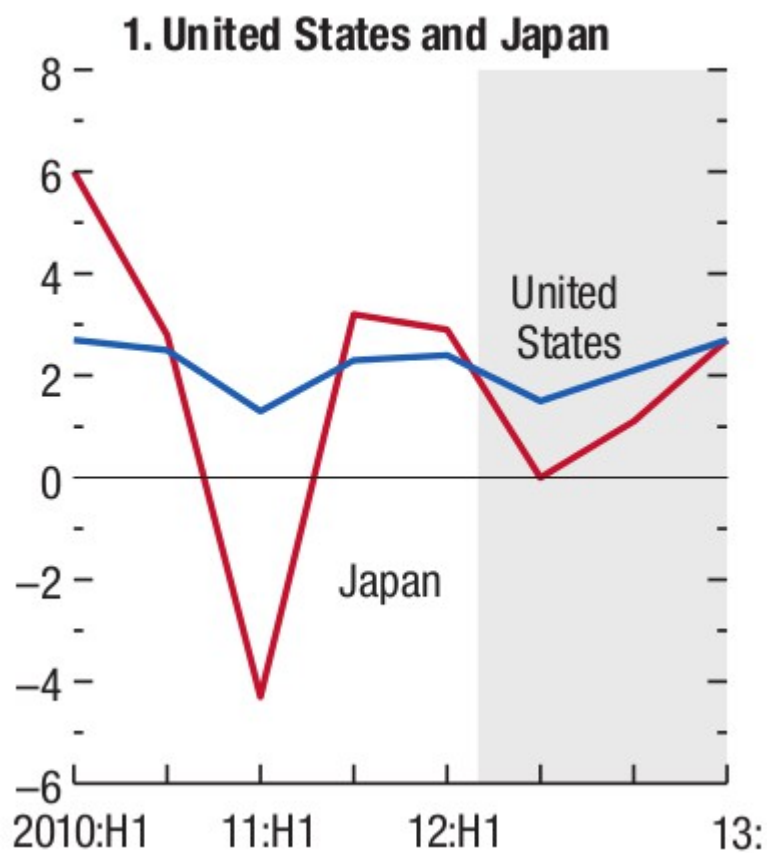
- **the achievement of good living standards**
- **stability and security**
- **sustainability**

The benefits of growth:

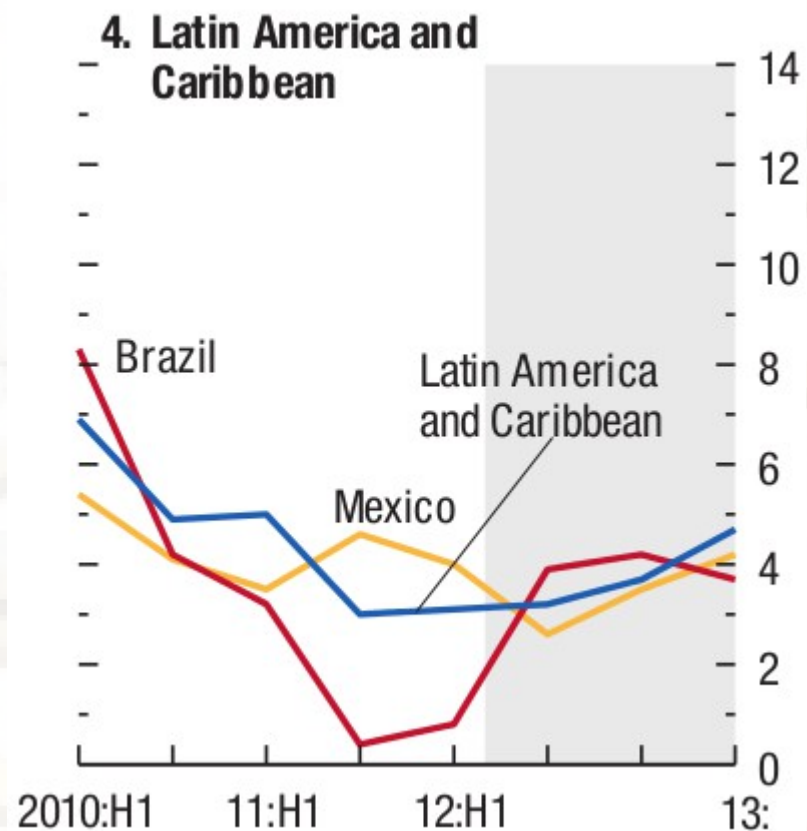
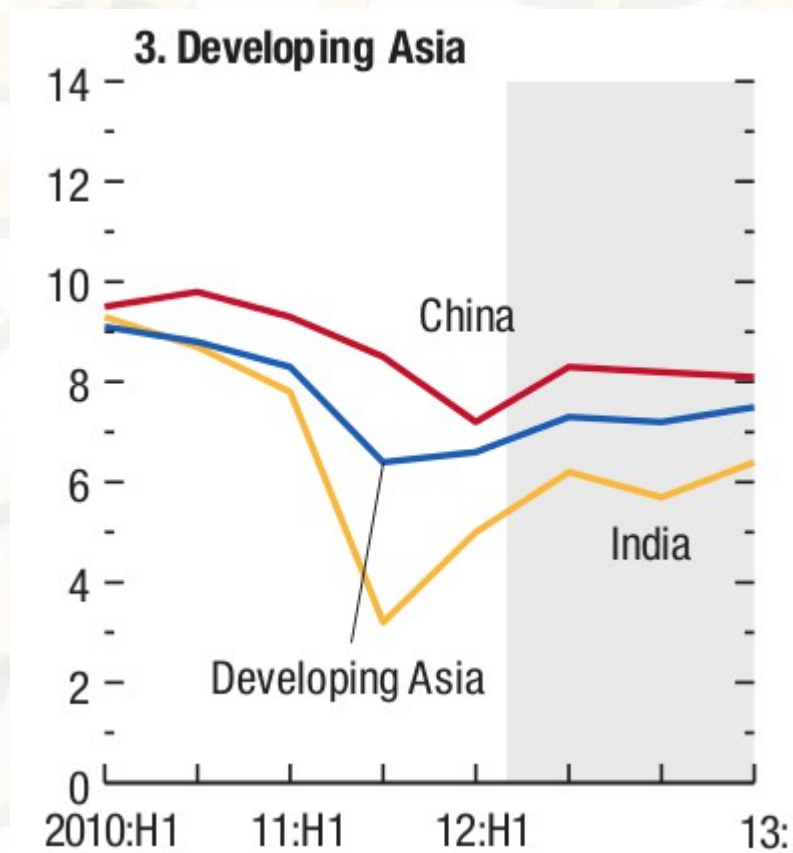
- Creates employment
- Higher incomes
- Decreases poverty
- Improves the standard of living
- Means economic stability
- Means creativity and innovation

Figure 1.8. GDP Growth Charts
(Half-over-half annualized percent change)

Real GDP growth is projected to move sideways or accelerate modestly in 2012. Activity is expected to continue to contract during 2013 in the periphery economies of the euro area. In emerging Asia and Latin America, the projected acceleration is mainly driven by China and Brazil, which have been easing their macroeconomic policies in response to weakening activity.



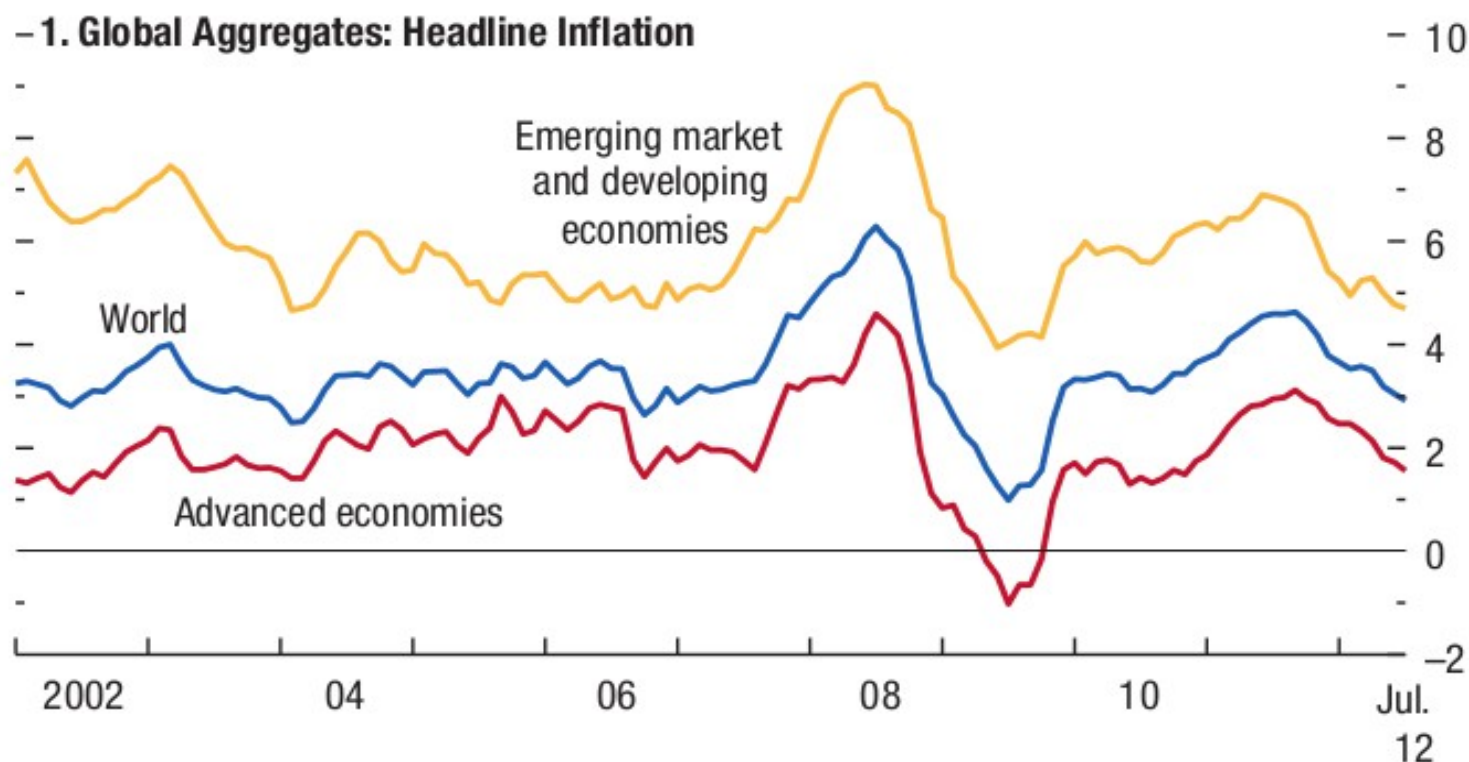
Source: IMF staff estimates.
World Economic Outlook 2012



Source: IMF staff estimates.
World Economic Outlook 2012

Figure 1.10. Global Inflation
(Twelve-month change in the consumer price index unless noted otherwise)

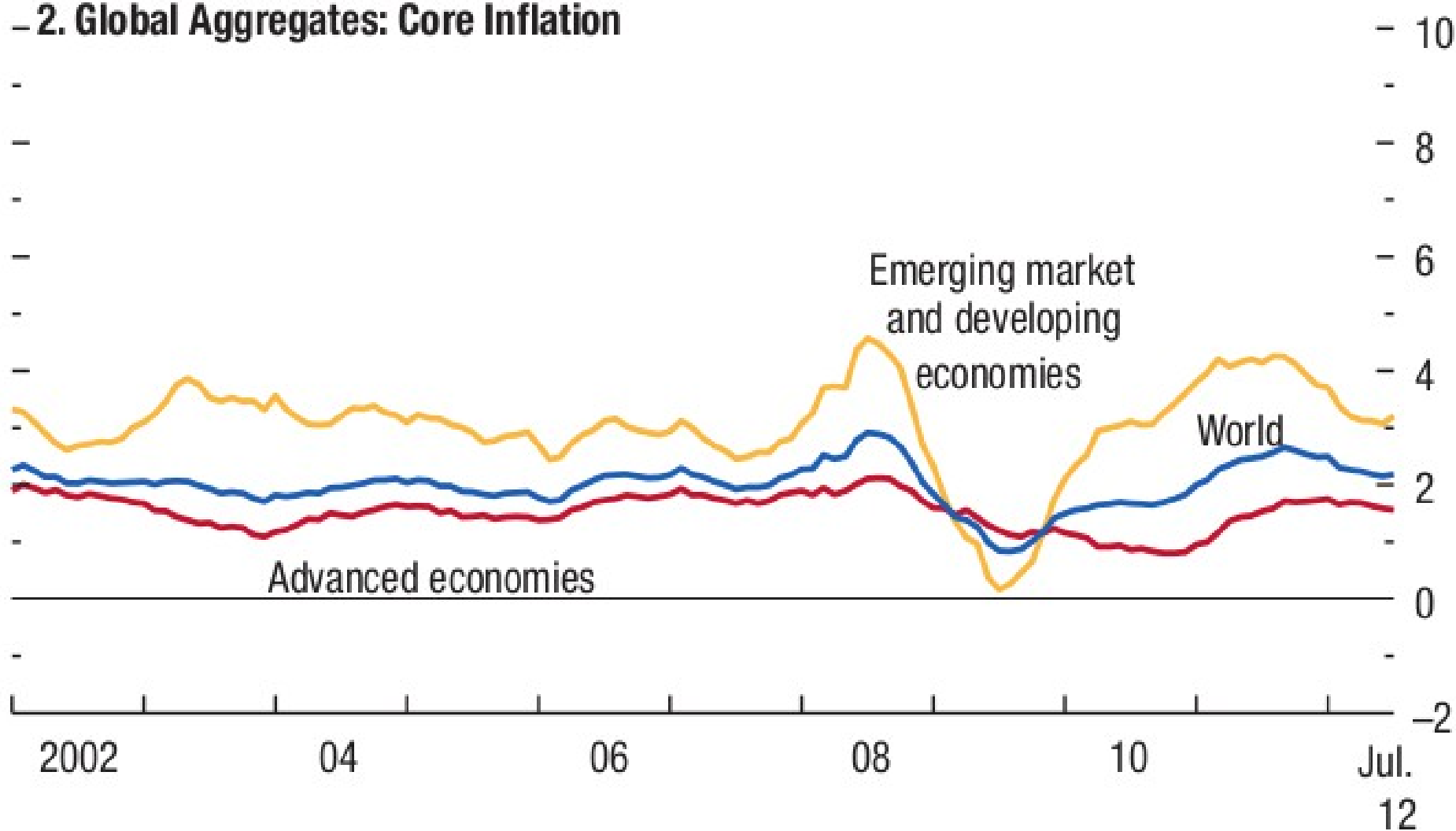
Headline inflation has declined everywhere, helped by lower commodity prices. In the emerging market and developing economies, core inflation has declined too. In advanced economies, it has remained stable around 1½ percent. House price developments increasingly diverge across economies. In various smaller advanced and a number of emerging market and developing economies, upward pressure remains, notwithstanding already high prices.



Sources: Haver Analytics; and IMF staff calculations.

1 Boom-bust countries: Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, New Zealand, Poland, Russia, Slovak Republic, Slovenia, South Africa, Spain, Turkey, Ukraine, United Kingdom, United States.

- 2. Global Aggregates: Core Inflation



Sources: Haver Analytics; and IMF staff calculations.

Upward pressure countries: Australia, Austria, Belgium, Canada, Colombia, China, Hong Kong SAR, Hungary, India, Israel, Malaysia, Norway, Philippines, Switzerland, Singapore, Serbia, Sweden, Uruguay.

3. Real House Prices across Countries (indices; 2008:Q4 = 100)

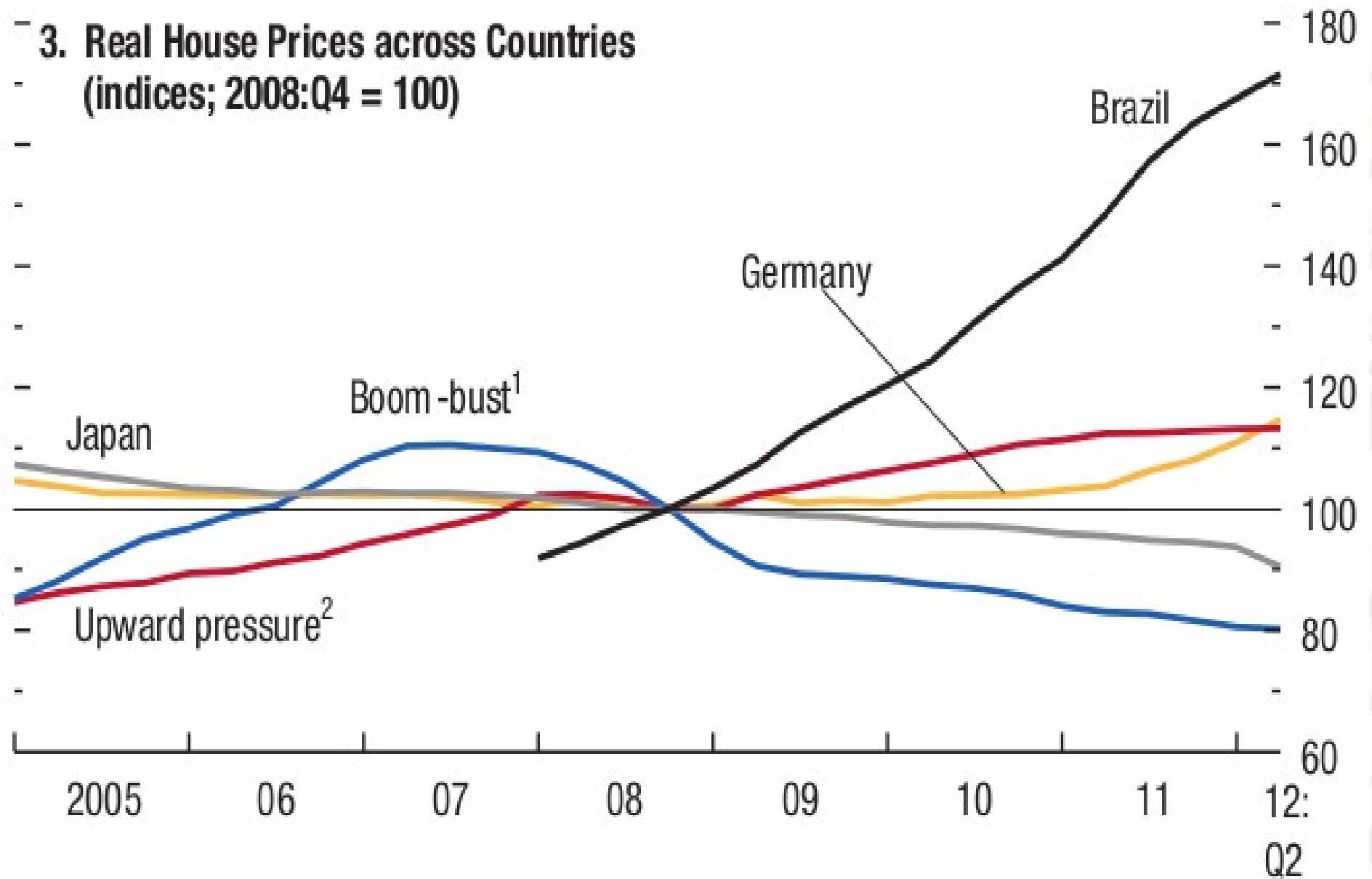
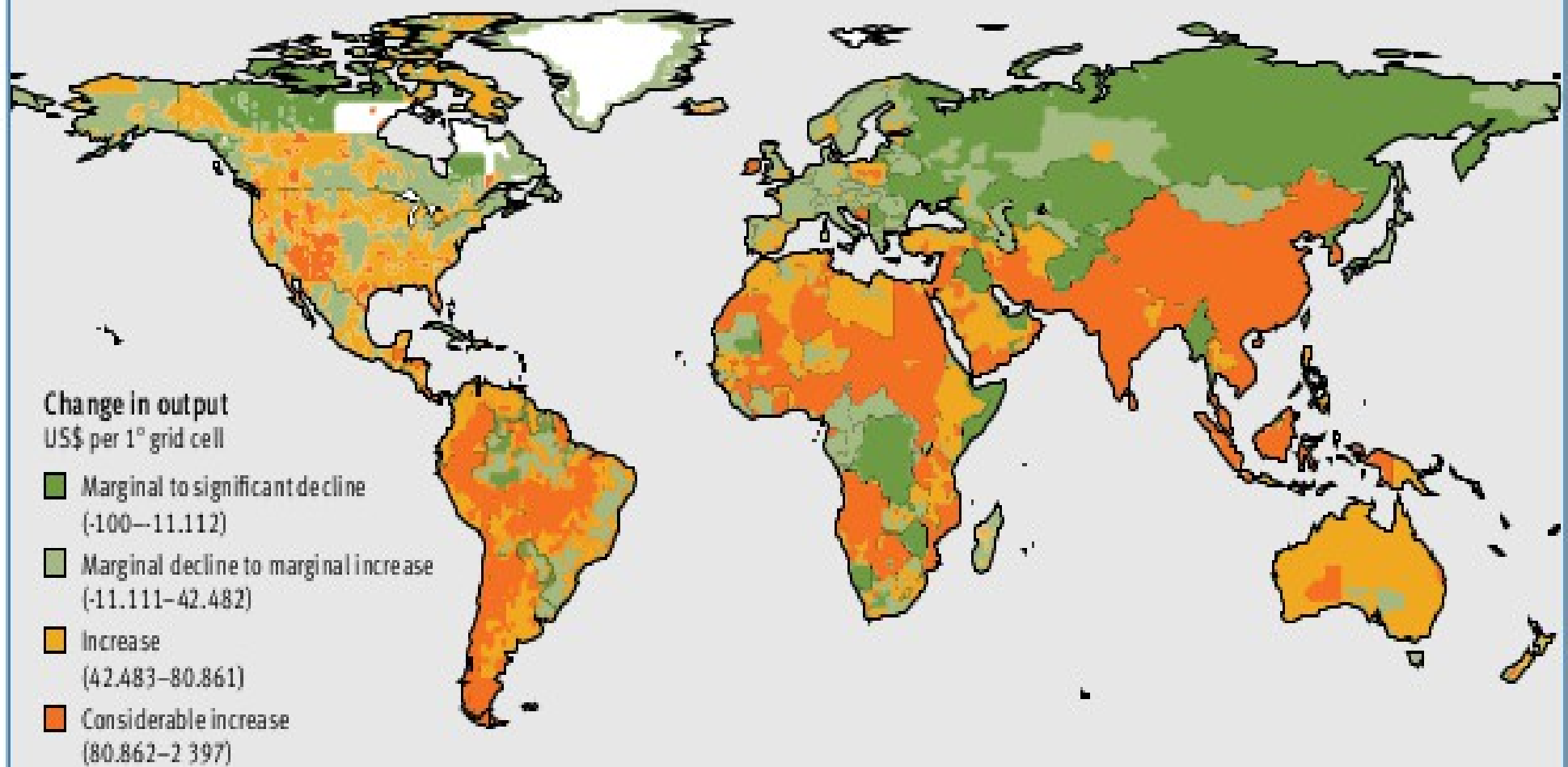


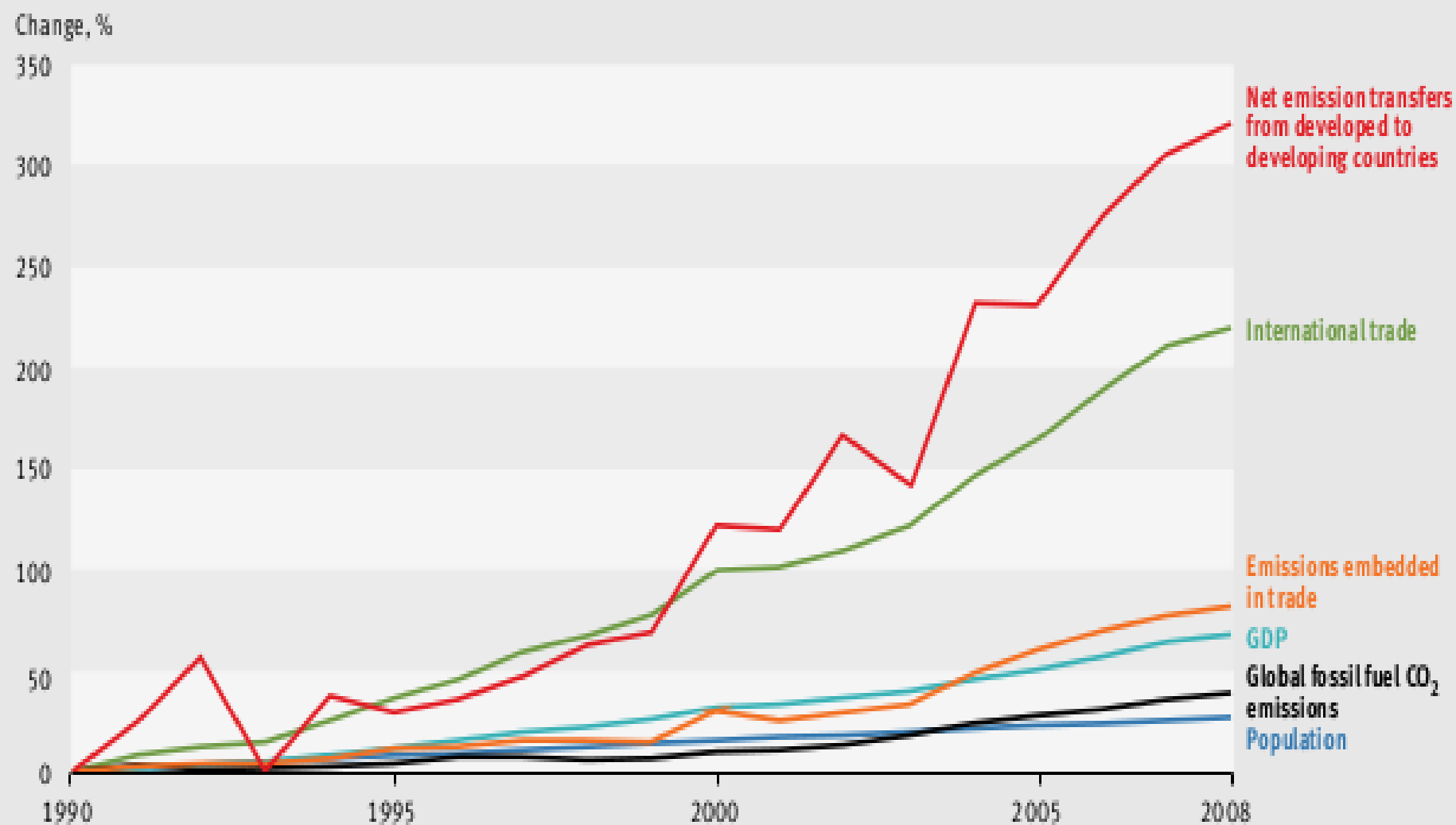
Figure 1.4 Change in economic output, 1990–2005



Note: The change in economic output aggregated across all cells within a country's borders equates to the change in GDP.

Source: Nordhaus et al. 2008

Figure 1.7 Growth in population, GDP, trade and CO₂ emissions, 1990–2008



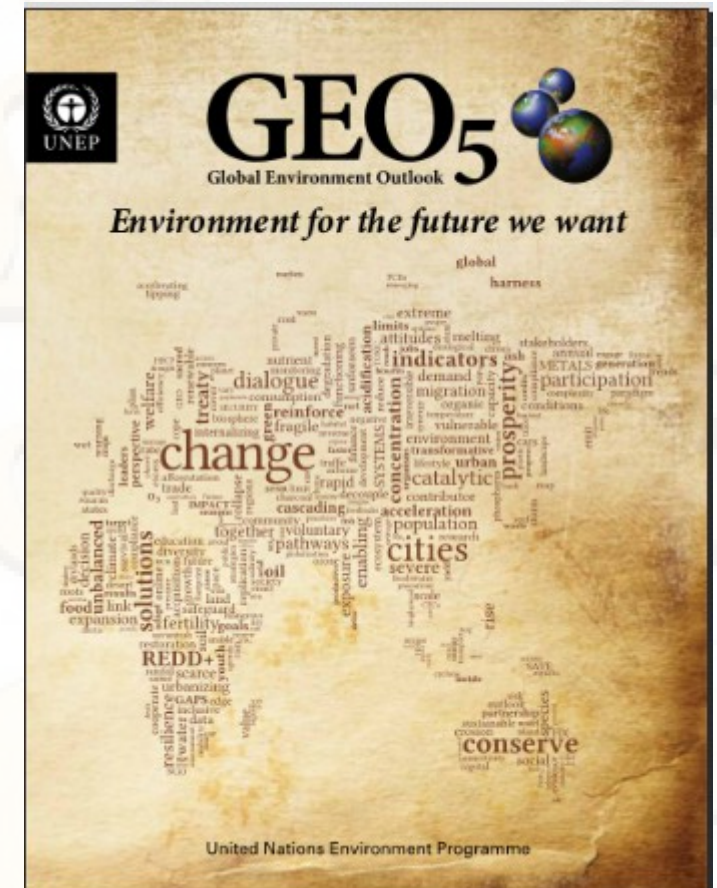
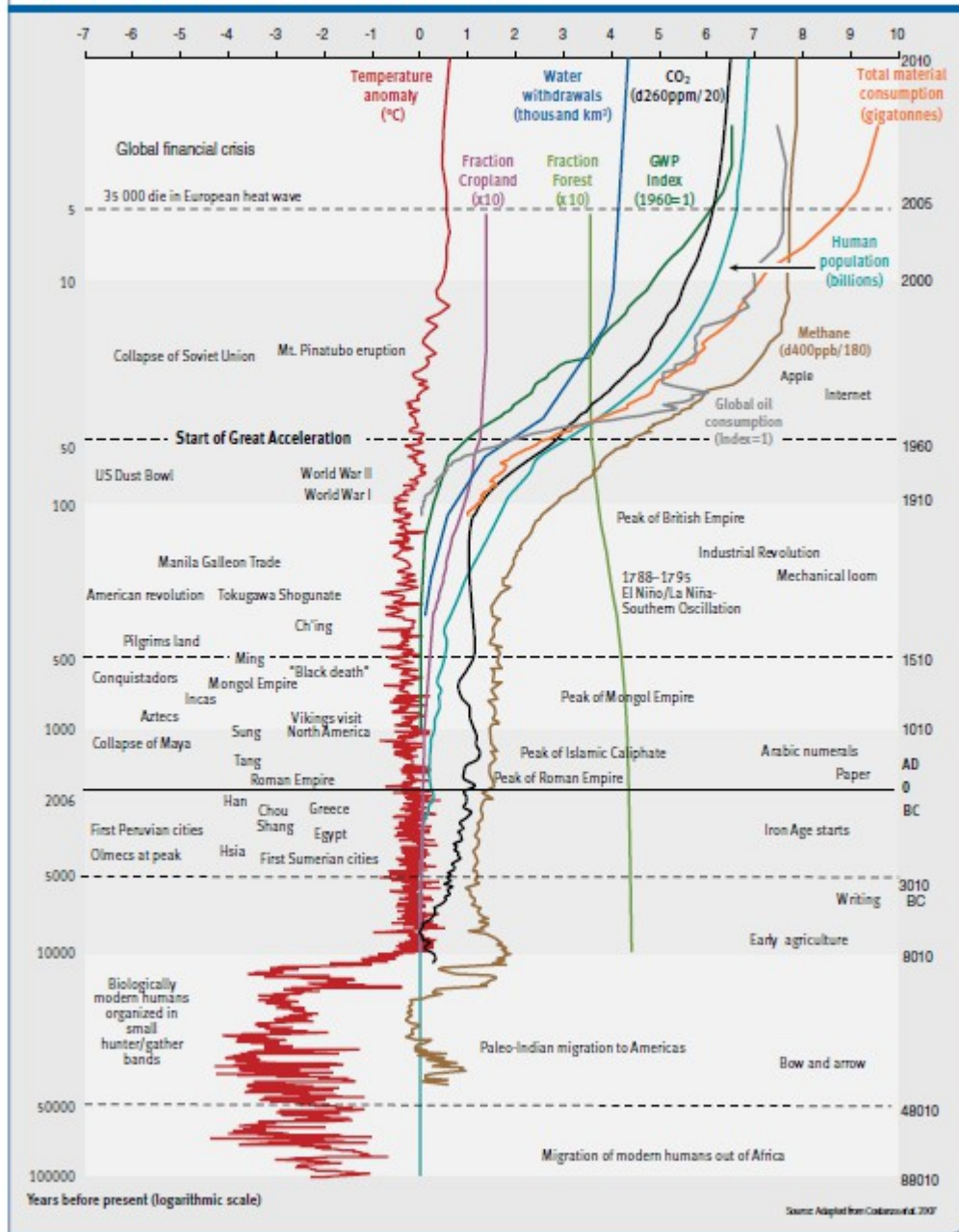
Source: Peters et al. 2011

Greater liberalization of trade can exert pressure on the environment in any of three ways:

- increasing economic activity and by extension natural resource extraction, a scale effect;
- changing the type of economic activity to either more or less polluting industries, affecting intensity; and
- changing the technology or intensity of production that can sometimes encourage more environmentally friendly production techniques (Kirkpatrick and Scrieciu 2008).

Regardless of the nature of the local change, wider trade allows the environmental impacts of production to be completely removed, or decoupled, from the site of consumption.

Figure 1.9 The great acceleration after the Second World War



Focus on causes, rather than effects. It has not conventionally been popular to think about drivers – the causes – as a focus for environmental policy. Rather, policy responses typically concentrate on inducing pressures – the effects. There are, however, two compelling reasons to take a fresh look at drivers as an appropriate focus for policy. Firstly, unprecedented rates of change are being experienced and, even where coping with one set of pressures is successful, others are around the corner. Secondly the global community has embraced a set of international environmental goals that are designed to tackle the drivers of environmental change more directly than previous efforts. The major legal agreements of the 1992 United Nations Conference on Environment and Development – on climate change, biodiversity and land degradation – recognize that long-term progress requires an ability to manage the evolution of underlying drivers. A relevant set of insights is available, providing policy makers with a menu of leverage points from which to choose driver-focused options for managing environmental problems.

The relationship between human well-being and environmental sustainability is synergistic. MDG 1 to end poverty and hunger, MDG 2 to achieve universal education, and MDGs 3–5 on gender equality and child and maternal health are all synergistic with MDG 7 on environmental sustainability. For example, approximately three-quarters of all human and use for meat and dairy production. Red meat is several times more demanding of land and water than poultry or vegetable foods, and it is also linked to cancer and heart disease. Policies encouraging lower consumption of red meat would contribute to the MDGs related to human health and environmental sustainability. Similarly, universal education and enhanced gender equality are mutually synergistic. Improvement in both of these areas increases demand for maternal and child health services, inducing unwanted births which in turn reduces population impacts on the environment.

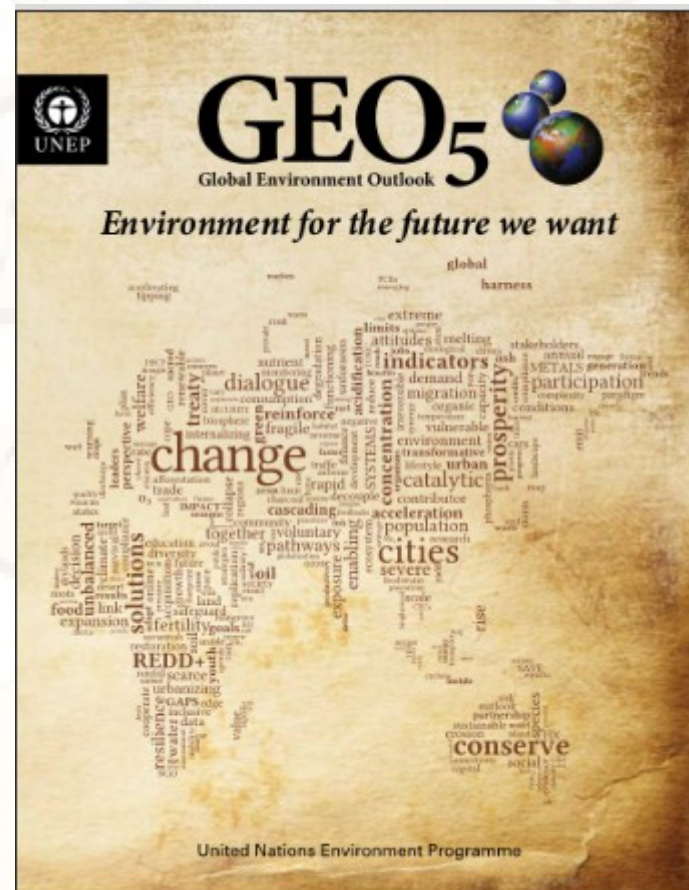
In direct interventions can go a long way. Sometimes policy interventions targeted directly at drivers are not practical. Policies that set up the targets for population growth, for example, are seldom politically viable and have been called into question on moral and humanitarian grounds. However, there are often policy options that can and do affect indirectly in ways that are more acceptable. Fertility rates, for example, have been shown to be very responsive to levels of women's education and to access to family planning programmes, consistent with two key MDGs, as well as imperatives of ethical human justice.

Direct interventions can be targeted at many different entry points. Even where indirect interventions are not practical, the fully disaggregated representation of key drivers opens up opportunities for effective intervention. For example, economic growth is generally considered a positive outcome across the world, so policies aimed at reducing growth, whether directly or indirectly, are not well received. However, that does not mean that driver-oriented policies are impossible. In China, for example, recognition of the problems associated with growth has led to ambitious targets aimed at increasing efficiency.

Unintended consequences matter. Policies intended to bring about improvement in one environmental domain may result in unintended consequences in another. Negative consequences may take the form of cross-systemic links, the effects of food security of biofuel promotion, for example, or of path dependence such as policies that favor one type of infrastructure and make a switch to more favourable infrastructures more difficult. Policy makers, seeking to manage drivers need to find ways of designing policies to minimize such negative consequences.

Even intractable drivers can be reframed. A core tenet of conflict resolution is to break down seemingly intractable elements into separate parts, which can then be subject to effective bargaining. Recent discussions around alternative measures of well-being have elements in common with this. Whereas GDP per person is treated as a proxy for well-being and as a universal policy objective, recent explorations have promoted alternative formulations where GDP is analytically separated from well-being. This opens up investigations into a broader range of proxies for well-being that could be pursued.

Surveillance and monitoring get results. Even where policy responses are not immediately achievable, awareness of the importance of drivers justifies increased surveillance and monitoring. Many of the most important drivers are currently not subject to systematic monitoring; their impacts even less so. The evidence, then, is compelling for the need to enhance the collection and monitoring of anthropogenic drivers and their links with the environment.



Sustainability:

1. Are economic activities ***financially sustainable*** into the future? Or is a nation incurring a high amount of debt that may create a heavy burden on a country's future workers?
2. Are economic activities ***socially sustainable*** into the future? Are disparities between the “haves” and the “have nots” diminishing or based on justifiable causes? Is the next generation receiving the upbringing and education required to enable them to contribute to a healthy economy and society? Or is the current structure of economic activity setting the stage for future social disruption and political strife?

3. Are economic activities ***ecologically sustainable*** into the future? Is the natural environment that supports life being treated in a way that will sustain its quality into the future? Or is it becoming depleted or degraded?

Financial, social and ecological sustainability are important macroeconomic goals.

GDP.

Activities included in GDP:

- Deforestation
- War
- Divorces
- Accidents
- Crime
- Pollution
- Natural disasters
(1989 Exxon Valdez)

Activities **not** included in GDP:

- The loss of forests and other natural resources
- Caring work
- Much of women's work
- Non - monetary trading

Financial, social, and environmental concerns have many people worried that the traditional macroeconomic emphasis on economic growth and development might actually be contributing to the creation of severe problems for the future of human society, rather than helping to solve them.

What's the alternative?

- Stagnation
- Decline



The Great
Depression

The Alternative:

- De-growth or décroissance (Serge Latouche)
- Economic contraction, downscaling
- Reduction of consumption to sustainable levels
- Redefining prosperity where conventional growth is lower or zero
- Prioritising sustainability and well being

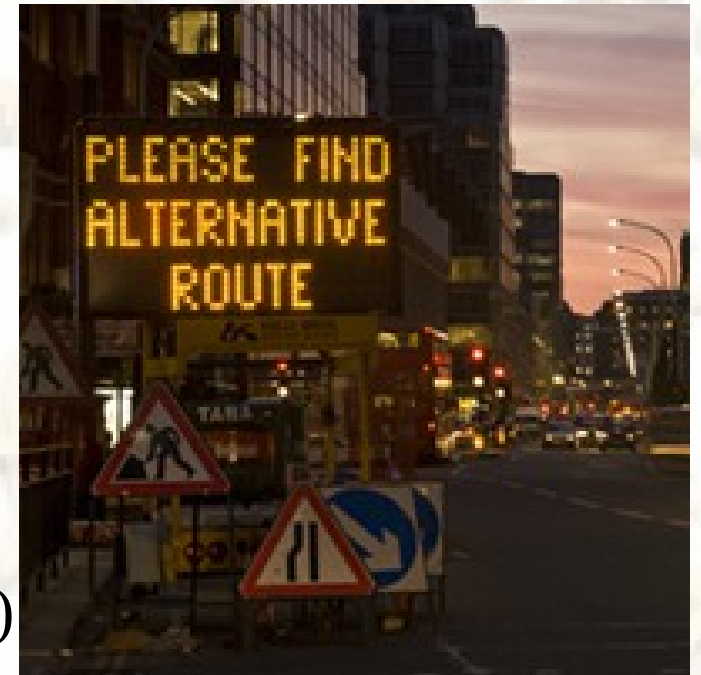
The alternative: A steady state economy

Prosperity without growth

(Sustainable Development Commission)

Development without growth

(Herman Daly, 1977. Steady State Economics.)



“Growth is more of the same stuff.
Development is the same amount of better
stuff.”

Credit crunch opportunities

- Current crisis: general public adjusting their spending habits
- Perfect time to encourage greater change
 - align consumption with resources
 - readjust to a dematerialisation of the economy
 - rebalancing towards services rather than goods
- Need to avoid reckless short-term swings in policy (Jeffrey Sachs)

Reliance on growth:

The population of a growth economy considers no growth a problem

So we need to ensure that prosperity is the main objective (Tim Jackson)

- Employment
- Education
- Health
- Prosperity and wealth (in terms of well-being rather than GDP)

Employment

Sharing working hours

- Higher working hours provide less marginal benefit
- With shorter working hours: more jobs, and more leisure time



Free truly non-rival goods (i.e. knowledge) from their artificial market constraints

- As we see with open source- we can actually appreciate informal contributions to the economy as they help us all
- So wider social security net and a different attitude to employment actually increases wealth for everyone

Labour intensive rather than capital intensive:

A sustainable society needs labour intensive production

E.g. Organic farming



At present labour is taxed and costs of labour are inflated by such costs, therefore replaced by capital



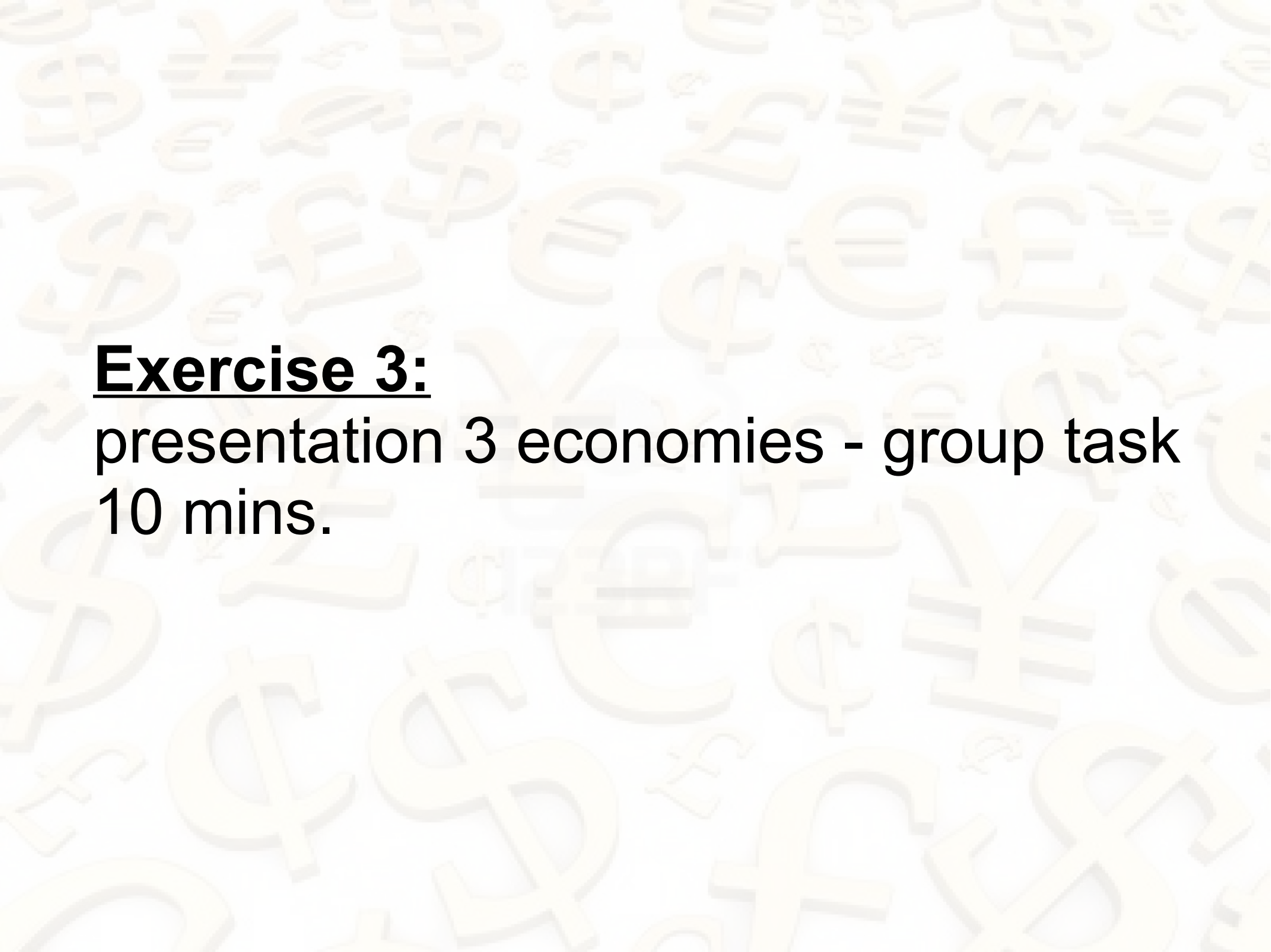
Questions:

- **Why do people want to keep consuming more and more and faster and faster?**
- **Does welfare increase with increased consumption?** (ref: 21 Hours - NEF)
- **What should our economy be prioritising?**
Growth of GDP or the prosperity and well-being of its population?

Political strategy:

- If the public are given the information and the tools to achieve it- they can be part of a transition to a sustainable society
- It is no longer political suicide to try this out
- The global downturn has in part been a result of avoiding the inevitable signs
- A failed high growth economy is much more politically damaging than a successful lower growth economy
- The public are looking for leadership to work towards sustainability



The background of the slide is a light cream color with a repeating pattern of various currency symbols in a slightly darker cream or gold tone. The symbols include the US dollar (\$), the Euro (€), the British Pound (£), and the Japanese Yen (¥). They are scattered across the entire surface, creating a subtle, textured effect.

Exercise 3:

presentation 3 economies - group task
10 mins.