Managing without Growth
Slower by Design, not Disaster

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Summary

1. Post-Keynesian and Ecological Economics
2. Economy: a subsystem of the biosphere
3. Excessive burden of the economy on the biosphere
4. Scale and intensity
5. Green growth and climate change
6. Managing without growth
7. Some new developments
Post-Keynesian Economics

Ecological Economics

Natural

defined by 
energy, materials, life

Real

defined by 
goods, services, labour, capital

Financial

defined by 
money, credit, debt
Firms

Households

Natural Inputs
(flow of materials & energy from SOURCES and Environmental SERVICES)

Waste Outputs (SINKS)

Bio-physical Cycles
Excessive Burden on the Environment: Transgressing Planetary Boundaries
Material intensity is declining, but not fast enough

Key message: Environmental impact depends on intensity and scale
Energy consumption - same story

Key message: Environmental impact depends on *intensity and scale*
Rebound effects - consumers

Indirect

Embodied energy

Lower petrol bills \(\rightarrow\) Holiday in Spain

Less energy

Lower running costs \(\rightarrow\) Driver further or more often

More energy

Direct

UK ERC
World Fossil Fuels

Only 10+ generations have experienced economic growth.
Peak Oil

Production exceeds discoveries

Peak discovery

Discovery - Disc. Trend - Prod +2% - Reality
“Although highly uncertain, the *most probable* forecast for US GDP is one in which growth ceases sometime between 2030 and 2040.”
What is green growth?

Green growth can be seen as a way to pursue economic growth and development, while preventing environmental degradation, biodiversity loss, and unsustainable natural resource use.
Any combination of GDP and GHG/GDP along the red line gives 592 mt of emissions.

Green growth

Brown growth

Black growth

Green degrowth

Canada’s GDP 1990

Canada’s GHG Intensity 1990
Canada’s Economic Growth Scale and Intensity 1990-2008

- GDP ($2002m)
  - $1,318,000
  - $825,318

- GHG/GDP (kt/$)
  - 0.56
  - 0.72

- 734 mt
- 592 mt [Kyoto Target]
- 556 mt
An 87% reduction in Canada’s GHG emissions from 2008 level in 50 years: Scale and Intensity

Intensity after 50 yrs: 3% 5% 13%
Decarbonization rate/yr: 6.5% 5.7% 4.1%
Can we have full employment, no poverty, fiscal balance, reduced GHG emissions without relying on economic growth?
LowGrow - simplified structure

MACRO DEMAND
\[ Y = C + I + G + X - M \]

MACRO SUPPLY
\[ Y = f(K, L, t) \]

Employment, Capacity Utilization

Investment → Fiscal Position

Population

Labour Force

GDP

Forestry

Poverty

GHG Emissions

Y = GDP
C = consumption
I = investment
G = government
X = exports
M = imports
K = capital
L = labour
t = time
What makes an economy grow?

- Macro demand (what we spend money on):
  - Consumption
  - Investment
  - Government
  - Trade

- Macro supply (what we can produce):
  - Labour
  - Capital
  - Productivity
‘Business as usual’

- GDP per Capita
- GHG Emissions
- Poverty
- Debt to GDP Ratio
- Unemployment
What happens if we eliminate increases in all sources of economic growth? (starting in 2010 over 10 years)

- Consumption
- Investment
- Government
  - Trade
- Population/labour
- Productivity
A no growth disaster
The real issue is whether it is possible to challenge the “growth-at-any-cost model” and come up with an alternative that is environmentally benign, economically robust and politically feasible.

Larry Elliot (economics editor)  
The Guardian Weekly 29th August 2008
A better low/no growth scenario

How?
• New meanings and measures of success
• Limits on materials, energy, wastes and land use
• Carbon price - more informative prices
• Stable population and labour force
• More efficient capital stock
• Shorter work year
• More generous anti-poverty programs
• More informative advertising - fewer status goods
• Education for life not just work
Some new developments

- Lower labour productivity in ‘green’ sectors
- Selective growth
- Declining participation rate
- Disaggregate investment and capital stock
- Degrowth scenario for Canada
- Make provision for ‘fair share’ of global limits
- Add exergy/useful work to the production function
- Add other indicators: HDI, ecological footprint
- Add the financial sector
Many questioning growth
Generating a Canadian degrowth scenario
(in US$2000)

1. Maximum sustainable global GDP
   • GDP when ecological footprint = biocapacity: 1980 ($17.6 trillion)
   • With 40% reduction in carbon: 1999 ($30.5 trillion)

2. Maximum sustainable average GDP/capita
   • Divide by 8 billion ($3,815)

3. Canadian sustainable GDP/capita
   • Equal to world average ($3,815)
   • Equal to multiple of world average ($15,260)
     (Canadian GDP/capita in 1976)

4. LowGrow simulation for Canada
A Canadian degrowth scenario

- GDP per Capita
- Unemployment
- Poverty
- GHG Emissions
- Debt to GDP Ratio
The scenarios compared: GDP/Capita
The scenarios compared: GHG emissions
The scenarios compared: growth drivers

Population Scenarios

Government Expenditure Constant Dollars

Working Time

Carbon Tax $97$/tonne
Can we adapt?
Thank you