

18. Autres sujets en énergie

*18.1 – Indicateur de progrès véritable, IPV
(Genuine Progress Indicator, GPI)*

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Plan de la présentation

- Introduction et objectifs de la capsule
- Produit Intérieur Brut, PIB
Gross Domestic Product, GDP
- Indicateur de Progrès Véritable, IPV
Genuine Progress Indicator, GPI
- Conclusion

Question

- Pourquoi ce thème dans un cours sur l'énergie?

Parce que l'énergie est le principal moteur de l'économie et que l'économie est incarnée par le Produit Intérieur Brut!

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Introduction et objectifs

- Introduction
 - L'argent fait-il le bonheur?
 - La croissance induit-elle le bonheur?
 - Qu'est-ce qui a une véritable valeur?
 - Quels sont les bénéfices nets de l'exploitation des ressources?
 - Est-il possible qu'un jour les problèmes engendrés par notre économie coûtent plus cher à régler que la valeur des biens et services qu'elle produit?
- Cette thématique aborde ces questions et tente d'y apporter de premiers éléments de réponse.

Introduction et objectifs

- Objectifs
 - Présenter le produit intérieur brut
 - Discuter de ses forces et faiblesses
 - Présenter l'indicateur de progrès véritable
 - Discuter de ses forces et faiblesses
 - Permettre aux étudiants de stimuler leur réflexion sur la croissance, le bonheur et la pérennité des écosystèmes économique, social et environnemental.

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Question

- Qu'est-ce que le PIB?
- Quelles sont ses forces?
- Quelles sont ses faiblesses?

Gross Domestic Product

- What is the Gross Domestic Product?
 - Since its introduction during World War II as a measure of wartime production capacity, the Gross National Product (since changed to Gross Domestic Product -- GDP) has become the nation's foremost indicator of economic progress.
 - It is now widely used by policy makers, economists, international agencies and the media as the primary scorecard of a nation's economic health and well-being.”

Gross Domestic Product

- What is behind the Gross Domestic Product?
 - Yet the GDP was never intended for this role.
 - It is merely a gross tally of products and services bought and sold, with no distinctions between transactions that add to well-being, and those that diminish it.
 - Instead of separating costs from benefits, and productive activities from destructive ones, the GDP assumes that every monetary transaction adds to well-being, by definition.
 - It is as if a business tried to assess its financial condition by simply adding up all "business activity," thereby lumping together income and expenses, assets and liabilities

Gross Domestic Product

- What is the flaw behind the Gross Domestic Product
 - Worst, the GDP ignores everything that happens **outside** the realm of monetized exchange, regardless of its importance to well-being.
 - The crucial economic functions performed in the **household** and **volunteer** sectors go entirely ignored.
 - The contributions of the **natural habitat** in providing the resources that sustain us go unreckoned as well.
 - As a result, the GDP not only masks the breakdown of the social structure and natural habitat; worse, it actually portrays such breakdown as **economic gain**.

<http://www.sustainwellbeing.net/gpi.html>

Gross Domestic Product

- Crime, divorce and natural disasters are economic gains
 - Since the GDP records every monetary transaction as positive, the costs of social decay and natural disasters are tallied as economic advance.
 - Crime adds billions of dollars to the GDP due to the need for locks and other security measures, increased police protection, property damage, and medical costs.
 - Divorce adds billions of dollars more through lawyer's fees, the need to establish second households and so forth.
 - Hurricane Andrew was a disaster for Southern Florida. But the GDP recorded it as a boon to the economy of well over \$15 billion..

Gross Domestic Product

- Non-market economy of household and community are ignored
 - The crucial functions of childcare, elder care, other home-based tasks, and volunteer work in the community go completely unreckoned in the GDP because **no money** changes hands.
 - As the non-market economy declines, and its functions shift to the monetized service sector, the GDP portrays this process as economic advance.
 - The GDP also adds the cost of prisons, social work, drug abuse and psychological counseling that arise from the neglect of the non-market realm.

Gross Domestic Product

- The depletion of natural capital is an income
 - The GDP violates basic accounting principles and common sense by treating the depletion of natural capital as income, rather than as the depreciation of an asset.
 - The Bush Administration made this point in the 1992 report of the Council on Environmental Quality.
 - "Accounting systems used to estimate GDP" the report said, "do not reflect depletion or degradation of the natural resources used to produce goods and services."
 - As a result, the more a nation depletes its natural resources, the more the GDP goes up.

Gross Domestic Product

- Pollution generates to incomes
 - Superfund clean-up of toxic sites is slated to cost hundreds of billions of dollars over the next thirty years, which gets added to the GDP.
 - Since the GDP first added the economic activity that generated that waste, it creates the illusion that pollution is a double benefit for the economy.
 - This is how the Exxon Valdez oil spill led to an increase in the GDP.

Gross Domestic Product

- No account of income distribution
 - By ignoring the distribution of income, the GDP hides the fact that a rising tide does not lift all boats.
 - From 1973 to 1993, while GDP rose by over 50 percent in the US, wages suffered a decline of almost 14 percent.
 - Meanwhile, during the 1980s alone, the top 5 percent of households increased their real income by almost 20 percent.
 - Yet the GDP presents this enormous gain at the top as a bounty to all.

Gross Domestic Product

- The drawbacks of living on foreign assets
 - In recent years, consumers and government alike have increased their spending by borrowing from abroad.
 - This raises the GDP temporarily, but the need to repay this debt becomes a growing burden on our national economy.
 - To the extent that Americans borrow for consumption rather than for capital investment, they are living beyond their means and incurring a debt that eventually must be repaid.
 - This downside of borrowing from abroad is completely ignored in the GDP.

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Question

- Qu'est-ce que l'IPV?
- Quelles sont ses forces?
- Quelles sont ses faiblesses?

Les auteurs du concept :

Daly, Herman and John B. Cobb Jr..1994.

For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future. 2nd Edition Boston: Beacon Press.

https://books.google.ca/books?hl=fr&lr=&id=9NYCwAAQBAJ&oi=fnd&pg=PR7&ots=91v_RePEOL&sig=IxYIW29OGQ4mwdmXobqMie8m-1A&redir_esc=y#v=onepage&q&f=false

Genuine Progress Indicator

- What Is a Genuine Progress Indicator (GPI)?
 - A genuine progress indicator (GPI) is a metric used to measure the economic growth of a country. It is often considered an alternative metric to the gross domestic product (GDP) economic indicator.
 - The Genuine Progress Indicator (GPI) is a new measure of the economic well-being of the nation from 1950 to present.
 - It broadens the conventional accounting framework to include the economic contributions of the family and community realms, and of the natural habitat, along with conventionally measured economic production.

Genuine Progress Indicator

- What Is a Genuine Progress Indicator (GPI)?
 - The GPI takes into account more than **twenty aspects** of our economic lives that the GDP ignores.
 - It also differentiates between economic transactions that add to well-being and those which diminish it. The GPI then integrates these factors into a composite measure so that the benefits of economic activity can be weighed against the costs. The GPI nets the positive and negative results of economic growth to examine whether or not it has benefited people overall.

Genuine Progress Indicator

- How the Genuine Progress Indicator Works
 - Genuine Progress Indicator is an attempt to measure whether the environmental impact and social costs of economic production and consumption in a country are negative or positive factors in overall health and well-being.
 - The GPI metric was developed out of the theories of [green economics](#) (which sees the economic market as a piece within a ecosystem).

Genuine Progress Indicator

- How the Genuine Progress Indicator Works
 - Proponents of the GPI see it as a better measure of the sustainability of an economy when compared to the GDP measure.
 - Since 1995, the GPI indicator has grown in stature and is used in Canada and the United States.
 - However, both these countries still report their economic information in GDP to remain in line with the more widespread practice.

<https://www.investopedia.com/terms/g/gpi.asp>

Genuine Progress Indicator

- GPI vs. GDP
 - **GDP increases twice when pollution is created** – once upon creation (as a side-effect of some valuable process) and again when the pollution is cleaned up.
 - By contrast, GPI counts the initial pollution as a loss rather than a gain, generally equal to the amount it will cost to clean up later plus the cost of any negative impact the pollution will have in the mean time.
 - Quantifying costs and benefits of these environmental and social externalities is indeed a difficult task.

Genuine Progress Indicator

- GPI vs. GDP
 - By accounting for the costs borne by the society as a whole to repair or control pollution and poverty, GPI balances GDP spending against external costs.
 - GPI advocates claim that it can more reliably measure economic progress, as it distinguishes between the overall “shift in the 'value basis' of a product, adding its ecological impacts into the equation.”

Genuine Progress Indicator

- GPI vs. GDP
 - The relationship between GDP and GPI mimics the relationship between the gross profit and net profit of a company.
 - The net profit is the gross profit **minus** the costs incurred, while the GPI is the GDP (value of all goods and services produced) minus the environmental and social costs.
 - Accordingly, the GPI will be zero if the financial costs of poverty and pollution equal the financial gains in production of goods and services, all other factors being constant.
 - We are not very far from that – Daniel R. Rousse

Question

- Comment varie le PIB depuis les années 1950?
- Comment varie l'IPV depuis les années 1950?

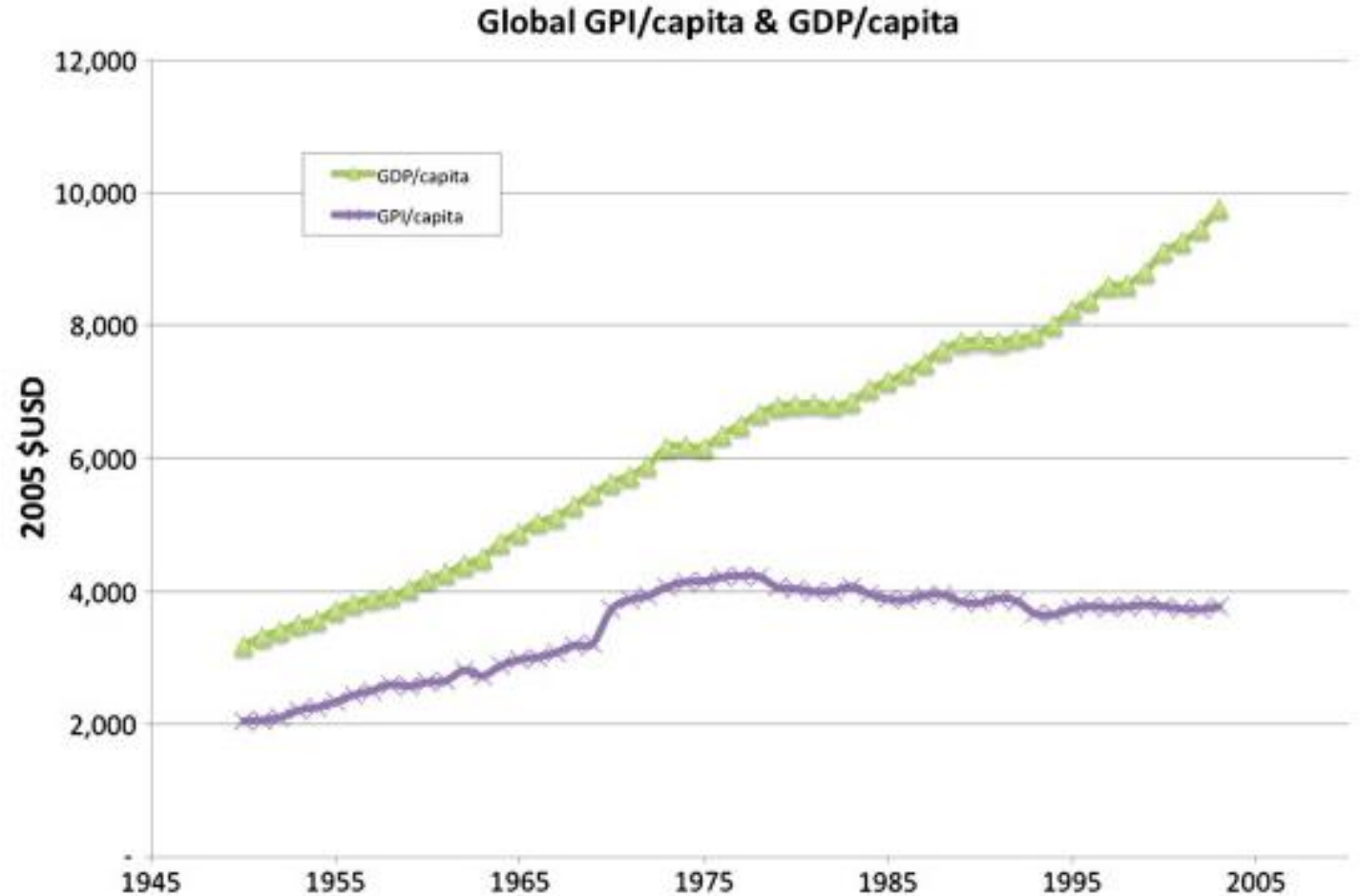
Genuine Progress Indicator

- GPI vs. GDP
 - While per capita GDP has more than doubled from 1950 to present, the GPI shows a very different picture.
 - It increased during the 1950s and 1960s, but has declined by roughly 45% since 1970.
 - Further, the rate of decline in per capita GPI has increased from an average of 1% in the 1970s to 2% in the 1980s to 6% so far in the 1990s.
 - This wide and growing divergence between the GDP and GPI is a warning that the economy is stuck on a path that imposes large -- and as yet unreckoned -- costs onto the present and the future.

Genuine Progress Indicator

- GPI vs. GDP

Adjusted global GPI/capita & GDP/capita. GPI/capita was estimated by aggregating data for the 17 countries for which GPI or ISEW had been estimated, and adjusting for discrepancies caused by incomplete coverage by comparison with global GDP/capita data for all countries. All estimates are in 2005 US\$



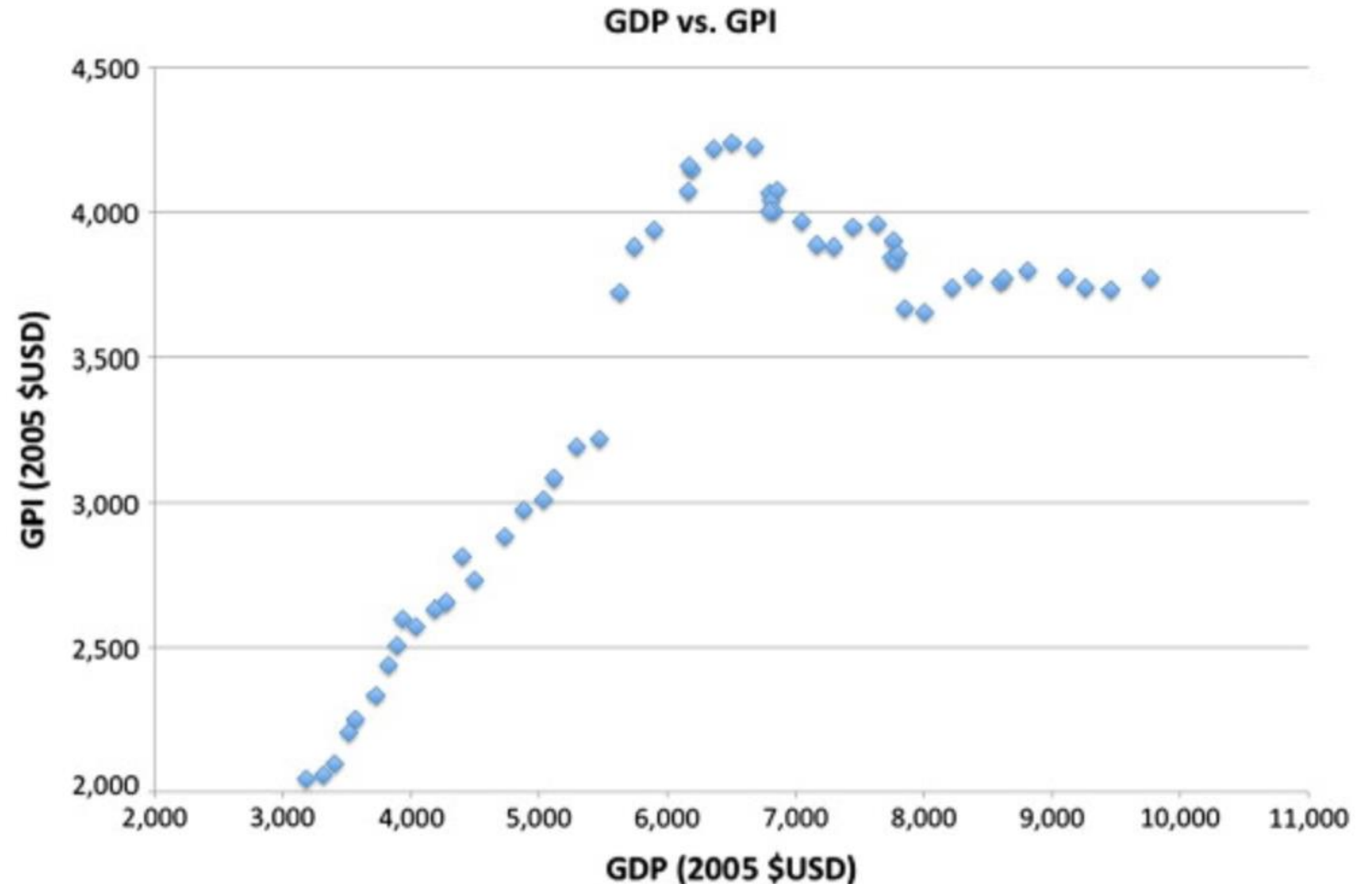
Beyond GDP: Measuring and achieving global genuine progress, Ecological Economics, 93 (2013) 57-68

Genuine Progress Indicator

- GPI vs. GDP

GDP/capita vs. GPI/capita. A plot of global GDP/capita versus estimated global GPI/capita.

The two are positively correlated until about \$7000/capita ($R^2 = 0.98$), after which they diverge with a negative correlation ($R^2 = 0.61$). All data in 2005 US\$.

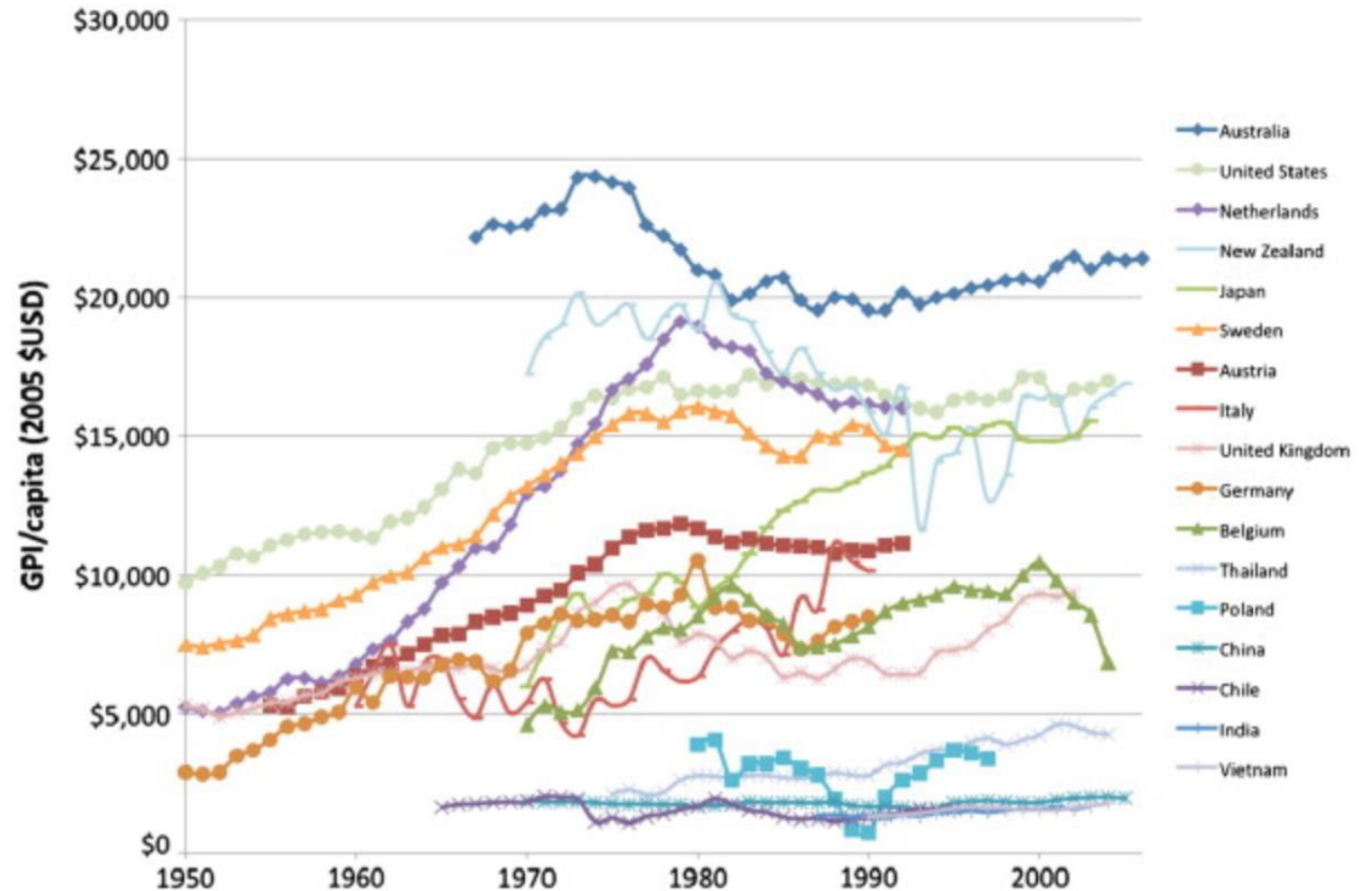


Beyond GDP: Measuring and achieving global genuine progress, Ecological Economics, 93 (2013) 57-68

Genuine Progress Indicator

- GPI in 17 countries

GPI/capita. The GPI/capita for all 17 countries used in this. Estimates are from various sources. All data are in 2005 US\$.

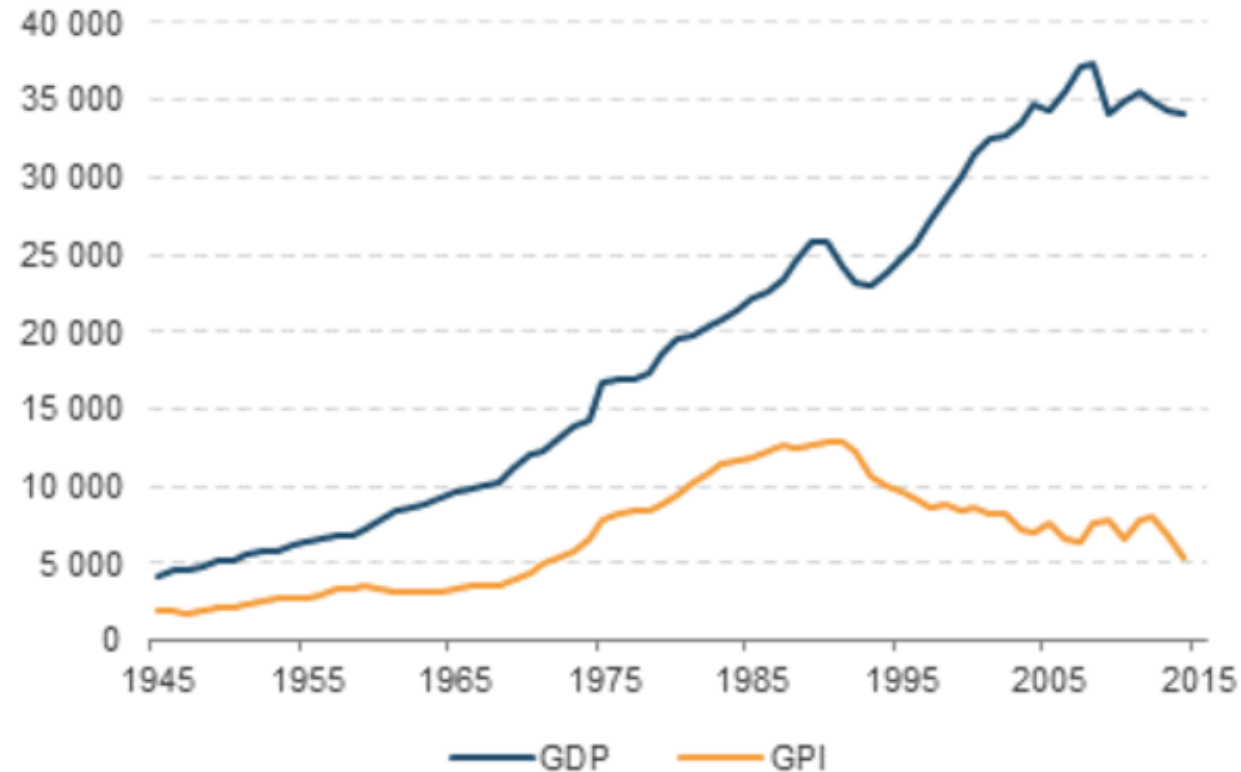


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Genuine Progress Indicator

- GPI
vs.
GDP

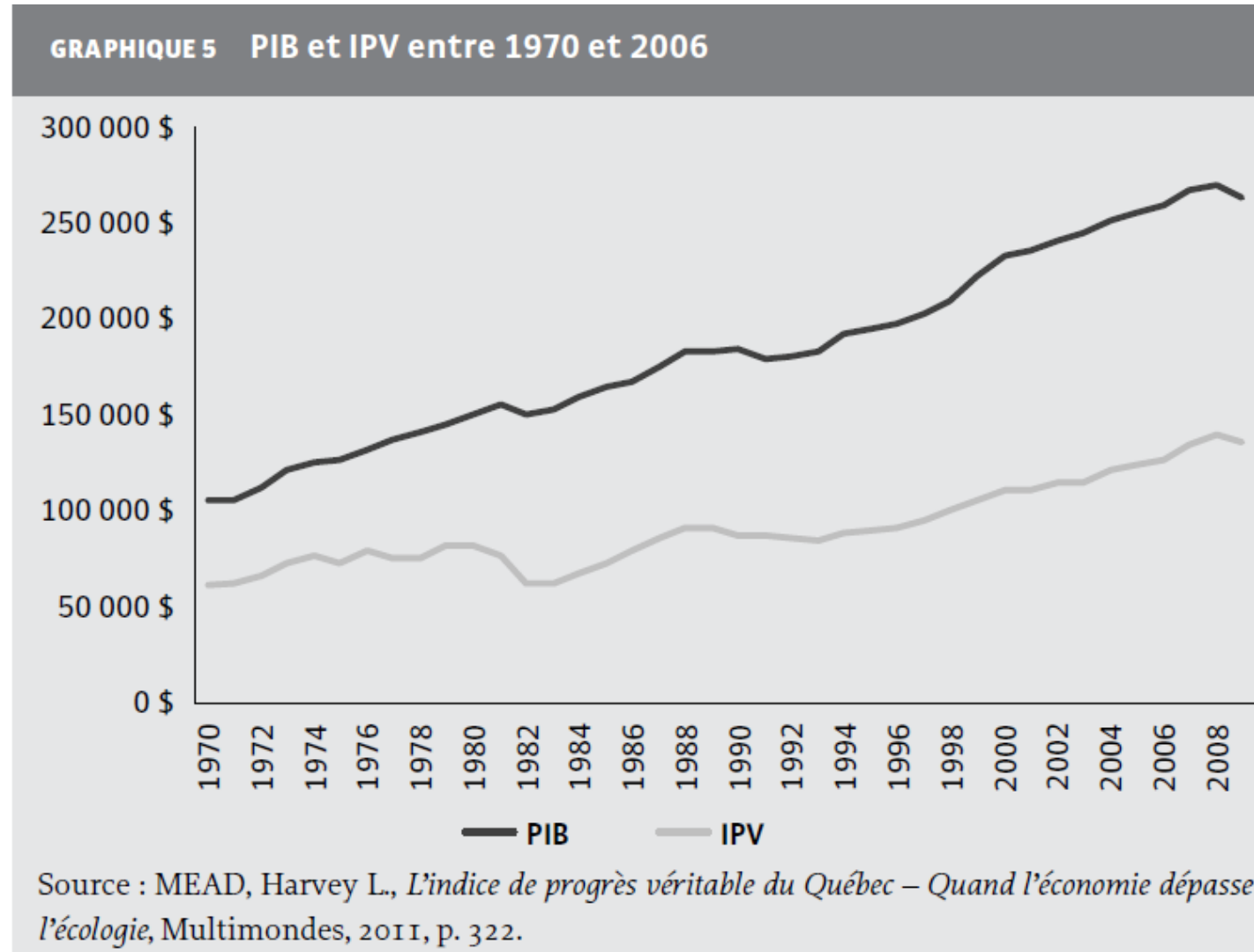
Figure 17.31. Trends of GPI and GDP for Finland, 1945-2014
(€ per capita, real prices (2010 prices))



Source: Hoffrén (2011).

Genuine Progress Indicator

- GPI
vs.
GDP



Genuine Progress Indicator

- GPI vs. GDP
 - Specifically, the GPI reveals that much of what economists now consider economic growth, as measured by GDP, is really one of three things:
 - 1) fixing blunders and social decay from the past;
 - 2) borrowing resources from the future;
 - or 3) shifting functions from the community and household realm to that of the monetized economy.
 - The GPI strongly suggests that the costs of the nation's current economic trajectory have begun to outweigh the benefits, leading to growth that is actually uneconomic.

Genuine Progress Indicator

- Comment déterminer-t-on l'IPV?
 - The GPI's current architecture has been formally expressed in an equation that contains **seven major aggregations** of 26 underlying indicators that can be traced back to each of these core concepts (welfare and sustainability):

$$GPI = Cadj + G + W - D - S - E - N$$

Bagstad, Kenneth J. and Md Rumi Shammin. 2012.

“Can the Genuine Progress Indicator better inform sustainable regional progress?

—A case study for Northeast Ohio.” Ecological Indicators 18: 330- 341.

Genuine Progress Indicator

- Comment détermine-t-on l'IPV?

$$GPI = C_{adj} + G + W - D - S - E - N$$

– Where :

- C_{adj} = personal consumption adjusted to account for income distribution,
 G = **growth** in capital and net change in international position,
 W = non-monetary contributions to **welfare** (e.g. household labor, volunteer work),
 D = **defensive** private expenditures,
 S = depletion of **social** capital (e.g. cost of crime, family breakdown, lost leisure time, health),
 E = costs of **environmental** degradation,
and N = depletion of **natural** capital.

Genuine Progress Indicator

- L'IPV est-il un indice parfait?
 - L'IPV n'est en aucun cas un indicateur parfait de bien-être ou de progrès, mais c'est une meilleure approximation du bien-être économique que le PIB, qui n'a jamais été conçu comme une mesure de bien-être.
 - Les estimations de l'IPV sont souvent limitées par le manque de données sociales et environnementales appropriées compilées par les organismes statistiques nationaux.
 - Jusqu'à présent, les groupes universitaires ou les ONG ont effectué la plupart des estimations de l'IPV.
 - Cependant, récemment, deux gouvernements des États-Unis ont adopté l'IPV comme indicateur officiel, les États du Maryland et du Vermont.

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Conclusion

- Le PIB n'a **jamais été destiné** à être associé au bien-être des nations.
- Cet indice n'est **absolument pas** relié à la valeur **nette** des activités économiques.
- Cet indice ne permet pas d'évaluer la valeur de **plusieurs activités** qui contribuent au bien-être des nations.
- L'IPV vient proposer un indice plus complet.



Merci de votre attention !

Lorsque cette capsule de formation est présentée en asynchrone (PDF récupérable sur le site du cours), si vous avez des questions à formuler, veuillez les poser par écrit et spécifier le nom et le numéro de la présentation. Nous vous répondrons le plus rapidement possible.

Période de questions

