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Evaluating the Grossness of Gross Domestic Product Refugees Per Kiloton (RPK) as a missing indicator?

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[Refugees per Kiloton?](#)

[Nature of grossness](#)

[Mapping grossness: Gordian knot of governance as a Discordian mandala?](#)

[Refugees per Kiloton as one indicator of grossness?](#)

[Data sources on Refugees per Kiloton](#)

[Preliminary evaluation of Refugees per Kiloton](#)

[Investigative and media failure?](#)

[References](#)

A much abridged version of this proposal was previously published under the title:
Refugees Per Kiloton: RPK as a Complement to GDP (Transcend Media Service, 7 March 2016)

Refugees per Kiloton?

As a complement to the widely cited indicator of *Gross Domestic Product* (GDP), *Refugees per Kiloton* (RPK) could usefully focus on the number of refugees from a country in relation to the [kilotons of explosive](#) to which the country was exposed. Alternatively, Refugees Per Kiloton (RPK) might focus on the number of refugees entering a (European) country in relation to the kilotons of explosives manufactured by that country.

Widespread media coverage continues to be given to the refugee/migrant crisis and to the arrival of large numbers in Europe -- if they survive the dangerous voyage. Extensive coverage is of course given to the military action in the Middle East. Separately, appreciative coverage is occasionally given to the employment created within arms manufacturing industries -- most notably in Europe. Arms sales only occasionally engender criticism ([EU criticises British arms sales to Saudi Arabia](#), *The Guardian*, 13 February 2016)

Missing is the link between refugees and the capacity to provide weapons to regions in conflict, or to actively engage in bombarding them. It is seemingly assumed that provision of weapons has little or anything to do with the arrival of numerous refugees in Europe. The production of weaponry is viewed uncritically as a vital and welcome contribution to a national economy -- especially welcome in terms of the jobs it creates ([Egypt, France To Sign Arms Deal Mid-April](#), *Defense News*, 6 April 2016; ; [UK arms sales to Saudi Arabia 'worth £5.6bn under David Cameron'](#) *The Independent*, 6 January 2016; [Syria's War: a showroom for Russian arms sales](#), *Al Jazeera*, 6 April 2016).

Consideration could be given to the distinction between manufacturing weaponry for a country in conflict (an economic strategy) and using weaponry as a participant in that conflict (a military strategy). Media coverage and debate currently seems to ignore this systemic link, but of course the manufacturing countries derive considerable benefit from the sales of explosives and their delivery -- irrespective of the challenge to their societies of incoming refugees.

Through exploration of "gross" and "grossness", the argument is extended here to enable more general recognition of any problematic "domestic product", especially including pollution and degradation of the natural and social environment. *Refugees per Kiloton* could therefore be considered in relation to arguments for a [Genuine Progress Indicator](#) (GPI) proposed as a supplement to Gross Domestic Product (GDP). This would be designed to take fuller account of the health of a nation's economy by incorporating environmental and social factors which are not measured by GDP ([Genuine Progress Indicator](#), *Redefining Progress*; [Definition of 'Genuine Progress Indicator - GPI'](#), *Investopedia*).

Nature of grossness

Preoccupation with *Gross Domestic Product* (GDP) is a primary feature of national economics and its comparative analysis globally. A concern with the limitations of GDP is a feature of a briefing in *The Economist* ([The Trouble with GDP](#), 30 April 2016). There it is

argued that GDP is increasingly a poor measure of prosperity, being not even a reliable gauge of production.

It is therefore of interest to consider how *Refugees per Kiloton* (RPK) might contribute to better analysis in terms of new insight into "grossness". This has been simply defined by *Webster's Third New International Dictionary* as the *quality or state of being gross*.

Quantitative understanding: The commonly preferred understanding within an economic context is that **grossness** is:

- indicative of *lack of detail*, thus *Recorded income can be measured with different degrees of "grossness" thus giving rise to distinctions between GNP and NNP*. (W. Gaertner and A. Wenig, *The Economics of the Shadow Economy: Proceedings of the International Conference on the Economics of the Shadow Economy*, 1983 Springer, 2012, p. 35)
- understood in terms of the *grossness of capital formation* by the US National Bureau of Economic Research (*Critique of the United States Income and Product Accounts*, Princeton University Press, 1958)
- Morris Mendelson (*The Optimum of Grossness in Flow-of-Funds Accounts*, *EconPapers*, 1962) -- being a chapter in *The Flow-of-Funds Approach to Social Accounting: Appraisals, Analysis, and Applications* (US National Bureau of Economic Research, Inc, pp 411-429)
- E. A. Wrigley: *Because of the weight of coal required by industry, and because of its "grossness", any industry in which coal was a major item in factor cost of production was strongly pressed to seek a coalfield location* (*Industrial Growth and Population Change*, Cambridge University Press, 2006, p. 3)

Within an extended economic context, there are examples of other interpretations of **grossness**:

- Amartya Sen: *These views are presented with much frequency in international discussions: why bother about the finesse of political rights given the overpowering grossness of intense economic needs?* (*Political Rights versus Economic Needs?* Miriam Rothschild and John Foster Human Rights Trust)
- As used by *The Wall Street Journal*: *Trump's Mess Has Become His Message: his supporters are getting embarrassed by his sheer dumb grossness*. (Peggy Noonan, 1 April 2016)
- As used by *The Economist*: *If people want to eat their way to grossness and an early grave, let them*. (*The Shape of Things to Come: the world is too fat; too bad*, 11 December 2003)
- Gwen Sharp: *Charity Organization Capitalizes on Grossness of Aid Recipients* (*Sociological Images*, 21 December 2007)

It is potentially significant, given its quantitative preoccupations, that the online *Financial Times Lexicon* indicates no definition of *grossness*. Consistent with this, an entry is included for "quant", but not for "qual" as might otherwise have been expected (*The difference between "quals" and "quants"*, *Statistical Modeling, Causal Inference, and Social Science*, 14 August 2008; Andrew Gelman, *Clarification on quals and quants*, *The Monkey Cage*, 14 January 2012; *Of Quals and Quants*, *Duck of Minerva*, 11 May 2011; Peter H. Rossi, *The war between the quals and the quants: is a lasting peace possible?* *New Directions for Program Evaluation*, 1994).

The *Financial Times*, as with economics more generally, might be considered to suffer from "qual blindness". There is however extensive use by that periodical of "bloat" and "bloated", even though it does not appear in any form in its lexicon (in contrast to the many references in *BusinessDictionary.com*). The term suggests a degree of understanding of the qualitative significance of "gross", as indicated by:

- Luke Johnson: *Sentimentality, laziness and squeamishness bloat company costs* (*Financial Times*, 11 November 2014)
- Andrew Hill: *A Stanford recipe for bloat-free expansion* (*Financial Times*, 12 February 2014)
- Ryan Chittum: *The FT on the Bloat in Banking* (*Columbia Journalism Review*, 1 September 2009)

Similar use is to be found in *The Economist*:

- *Daily Chart: Bankers bloat* (*The Economist*, 14 March 2014)
- *Public-sector Pensions: tackling the bloat* (*The Economist*, 15 September 2005)
- *Fighting the Flab: corporate headquarters have put on weight, and need to slim down again* (*The Economist*, 22 March 2014)
- *The Economist Takes on Development Bloat and the SDGs* (Marc F. Bellemare, 1 April 2015)

It would seem that "bloat" is used to distinguish quantitative excess in terms which could best be understood as qualitative:

- Robert Higgs: *Government Bloat is Not Growth: Real Gross Domestic Private Product, 2000-2011* (*Mises Daily*, 20 December 2012)
- Marc F. Bellemare: *Development Bloat: how mission creep harms the poor* (*Foreign Affairs*, 5 January 2014)
- Damian Paletta: *Billions in Bloat Uncovered in Beltway* (*The Wall Street Journal*, 1 March 2011)

Of relevance to further insight into the qualitative dimension is the argument of Andy Clark and David J. Chalmers (*The Extended Mind, Analysis*, 58, 1998, 1, pp.7-19). In response to the debate on where the mind stops and the rest of the world begins, they advocate an active externalism, based on the active role of the environment in driving cognitive processes. They argue for a socially extended cognition in which some of an individual's mental states could be partly constituted by the states of other thinkers (p. 17). This has evoked the response of Barbara Montero and Mark D. White (*Economics and the Mind*, 2007) with respect to excessively extending the mind in that way, understood as "cognitive bloat" (as might be typical of some leaders).

Qualitative understanding: Clearly there is a sense in which **grossness** is recognized from an economic perspective primarily in **quantitative terms**, where a **qualitative sense** may only be implied to some degree. The **entanglement of quantitative and qualitative understandings** is however evident in the dictionary definitions of *grossness* which follow.

The *Merriam-Webster Online Thesaurus* offers only the following distinctive definitions of **grossness** (with examples of its use):

- the condition of having an excess of body fat "*that level of grossness is more than simply unsightly --it's seriously unhealthy*"

- the quality or state of being obscene "a movie of such indisputable grossness that people who thought that they had seen everything were proven wrong"
- the quality or state of lacking refinement or good taste "the grossness of his table manners disgusted the other wedding guests"

As related primarily to *gross*, [The Free Dictionary](#) offers the following:

1. exclusive of deductions; total: *gross profits*.
2. unmitigated in any way; utter: *gross incompetence*.
3. so obvious or conspicuous as to cause or heighten offense: *gross injustice*.
4. overweight; corpulent
5. on a large scale; not fine or detailed: *gross anatomical similarities*; *gross motor skills*.
6. broad; general: *the gross necessities of life*.

In the case of [Dictionary.com](#), the distinctions are made in relation to the adjective (*gross*), only offering examples in the case of the noun (**grossness**):

1. without deductions; total, as the amount of sales, salary, profit, etc., before taking deductions for expenses, taxes, or the like (opposed to net.): *gross earnings*; *gross sales*.
2. unqualified; complete; rank: *a gross scoundrel*.
3. flagrant and extreme: *gross injustice*.
4. indelicate, indecent, obscene, or vulgar: *gross remarks*.
5. lacking in refinement, good manners, education, etc.; *unrefined*.
6. large, big, or bulky.
7. extremely or excessively fat.

The examples cited there for **grossness** are from [The Daily Beast](#):

- *Robert Kennedy hated Johnson's grossness, his lies, his bullying of staff, his self-indulgence with whisky and food.* (David Frum, *David's Bookclub: Mutual Contempt*, 27 April 2013)
- *While the rioting was obviously the low point of the week, it was more a continuation on a theme of grossness than a wild outlier.* (Mark Lukach, *U.S. Open of Surfing Turns Into Riot*, 30 July 2013)

Concept mapping (with languages other than English): That the qualitative connotations are not simply an artefact of the English language can be explored through translation of GDP into other languages and examination of the significance of the equivalent to "gross" and "grossness" in those languages, as indicated by the following examples based on use of selected features of *Google Translate*. Noteworthy are the equivalents with roots of the form *brut-*, offering synonyms and associations to *brutishness*, *brutality* and *brute force* in English. As a "domestic product", these are potentially of significance to democratic elections at the time of writing (David Smith, et al., *Trump attacks Clinton as victories set stage for brutal election*, *The Guardian*, 27 April 2016; Peter Walker, *Close, brutal and closely watched, battle begins for London mayor*, *The Guardian*, 21 March 2016; Jess Staufenberg, *The brutal election that led to men, women and children being raped*, *The Independent*, 18 February 2016; Jack Balkwill, *A Brutal Assessment of US Elections from Abroad*, *Dissident Voice*, 10 February 2016).

Comparison of translations of "gross"				
Languages	Translations from English of "gross domestic product"	Equivalent to "gross" in translation	Reverse translations of "gross" equivalent (tentative)	Translations of "grossness" (with some synonyms of significance)
French	<i>produit intérieur brut</i>	<i>brut</i>	gross, crude, unrefined	<i>grossièreté</i> (rudeness, coarseness, vulgarity, filth, foulness)
Dutch	<i>bruto nationaal product</i>	<i>bruto</i>	gross	<i>grofheid</i> (coarseness, crudity, vulgarity)
German	<i>Bruttoinlandsprodukt</i>	<i>Brutto</i>	gross, unrefined, indecent	<i>Rohheit</i> (brutality, barbarity, crudity)
Swedish	<i>bruttonationalprodukt</i>	<i>brutto</i>	gross	<i>grovhet</i> (heaviness, rawness, crudity)
Italian	<i>prodotto interno lordo</i>	<i>lordo</i>	brute, filthy, dirty	<i>grossolanità</i> (coarseness, grossness, roughness)
Spanish	<i>producto interno bruto</i>	<i>bruto</i>	gross, coarse, raw, brutal, brutish	<i>grosería</i> (rudeness, coarseness, vulgarity, nastiness)

Suggested synonyms for *grossness* include: commonness, vulgarism, vulgarity, raunch, coarseness. Synonyms for *brutishness* include: grossness, barbarity, inhumanity, ruthlessness, ferocity. Clearly the above is but a preliminary indication of the need to construct a semantic map relating the various terms with their associations in various languages.

From gross simplification to gross negligence: Controversially it might therefore be asserted that the **Gross Domestic Product is simply that -- namely "gross" --** unless it can be appropriately distinguished from its problematic outputs, which does not seem to be the case. In effect it is **a measure of the grossness of the impact of the human population on the planet** in terms of unconstrained consumption of resources and the corresponding unconstrained production of (unrecycled) waste products. In the light of the above-noted associations with brutality, could an insightful alternative reading be **Brutal Domestic Product (BDP)** or even **Domestic Production of Brutality (DPB)**? It could be argued that the only activities exempt from exacerbating of such grossness would be those that enhanced the environment -- understood as including human well-being.

Less controversially, the argument has long been made that increasing GDP, typically treated as synonymous with economic "growth", is based on measures of "production". In the case of the European Union this understanding is related to fiscal discipline through the [Stability and Growth Pact](#) (SGP). This requires that each Member State implement a fiscal policy to ensure that it stays within the limits on government deficit (3% of GDP) and debt (60% of GDP). More problematic is the controversial outcome of the highly secretive negotiations on the [Transatlantic Trade and Investment Partnership](#) (TTIP), upheld as increasing the size of the EU economy by 0.5% of GDP and that of the US by 0.4% of GDP (Lee Williams, *What is TTIP? And six reasons why the answer should scare you*, *The Independent*, 6 October 2015; Arthur Neslen, *Leaked TTIP documents cast doubt on EU-US trade deal*, *The Guardian*, 1 May 2016; John Hillary, *After the leaks showed what it stands for, could really be the end for TTIP?* *The Independent*, 5 May 2016).

Measures of GDP arbitrarily include and exclude a range of processes (Alex Zorach, *Why GDP (Gross Domestic Product) is a Poor Measure of Wealth and Prosperity*, 27 August 2010). As with processes of productive work, these have long excluded work unremunerated in monetary terms -- most strikingly the work of women in the home, or any form of forced labour, to say nothing of the contribution of plants and animals ([work in thermodynamic terms](#)) on which humanity is dependent. Accidents are thus recognized as contributing significantly to GDP -- most obviously through the required investment in remedial measures. As noted by the 2008 *State of the World* report produced by the [Worldwatch Institute](#), GDP is *oblivious to the extinction of local economic systems and knowledge; to disappearing forests, wetlands or farmland; to the depletion of oil, minerals, or groundwater, etc.* Ironically roads in forested areas of some countries have signs indicating that the forest is a "working forest" (*So What Is a Working Forest?; What is a Working Forest?*).

In a global civilization using increasing GDP as offering the primary indicator of growth in its most valuable form, it could therefore be argued that gross domestic product is a gross simplification. As such it enables gross negligence in a variety of forms, obscuring their significance for global sustainability of life. The point is well made by James C. Scott (*Seeing Like a State: how certain schemes to improve the human condition have failed*, Yale University Press, 1998) citing Herbert Simon:

Administrative man recognizes that the world he perceives is a drastically simplified model of the buzzing, blooming confusion that constitutes the real world. He is content with the gross simplification because he believes that the real world is mostly empty -- that most of the facts of the real world have no great relevance to any particular situation he is facing and that most significant chains of causes and consequences are short and simple.

Gross simplification is recognized as being a consequence of [environmental stress](#), notably resulting in nature in a reduction in the number of species (John S. Gray, *Effects of environmental stress on species rich assemblages*, *Biological Journal of the Linnean Society*, 1989). As noted by William H. Smith (*Air Pollution and Forests: interactions between air contaminants and forest ecosystems*, Springer, 2012):

Associated with gross simplification would also be altered ecosystem functions, including reduced rate of energy fixation, reduced biomass, increased nutrient loss, and reduced animal populations.... gross simplification would also cause appreciable change in local erosion and sedimentation, hydrology, and meteorology. (p. 334)

Through obscuring the complexity of the reality of a psychosocial system embedded in the natural environment, [gross negligence](#) is enabled and reinforced. This is understood in legal terms as serious carelessness, contrasting with careful [diligence](#).

Dimensions of grossness? As a simple exercise of preliminary clarification, a set of key terms by which "gross" could be qualified was used to detect synonyms. The terms and the synonyms were then used as a phrase search in Google to determine the number of hits in each case (at the time of writing). The table highlights some overlap suggesting that the key terms need to be selected and distinguished otherwise following further reflection. It is also the case that many of the terms identified have other synonyms with which "gross" might be associated. The Google results shown take no account of their relevance to governance or the possible existence of variants in each case. Many may be of greater significance to individual behaviour rather than collective behaviour, whether or not they are of significance to the governors as much as to the governed.

Frequency of hits in Google for phrases starting "gross"		
Key term	Primary synonyms	Secondary synonyms
negligence (2,230,000)	<i>neglect</i> (258,000), failure (59,300), <i>disregard</i> (27,900), <i>oversight</i> (26,900)	laxity (2,210), forgetfulness (308), inattention (8,900) inattentiveness (358), laxness (140), thoughtlessness (323)
indecency (262,000)	misconduct (446,000), impropriety (15,700)	immodesty (1,010), incivility (3,660), indecorum (1,160),
misunderstanding (69,300)	error (342,000), <i>mistake</i> (88,100), misinterpretation (27,800), misconception (21,400)	delusion (10,500), misapprehension (7,880), misjudgment (6,410), confusion (5,860),
simplification (61,500)		
insult (51,000)	abuse (174,000), disrespect (50,600)	contempt (9,740), affront (7,550), indignity (6,390), blasphemy (2,330), disgrace (969)
oversight (26,900)	<i>neglect</i> (258,000), <i>mistake</i> (88,100), carelessness (40,200), dereliction (33,500), <i>disregard</i> (27,900)	blunder (14,100), default (6,180), lapse (6,410),
ineptitude (13,200)	incompetence (204,000), misuse (74,900)	inability (4,950), ineptness (2,500),
inequity (15,800)	injustice (260,000)	unfairness (19,100), wrong (13,100)
betrayal (17,200)	deception (19,400), dishonesty (13,400), duplicity (11,400)	infidelity (5,090), treachery (3,790), treason (1,910), unfaithfulness (1,400), trickery (323),
	culpability (24,100), liability (18,800), instability	deficiency (12,900), weakness (4,150), failing (3,760),

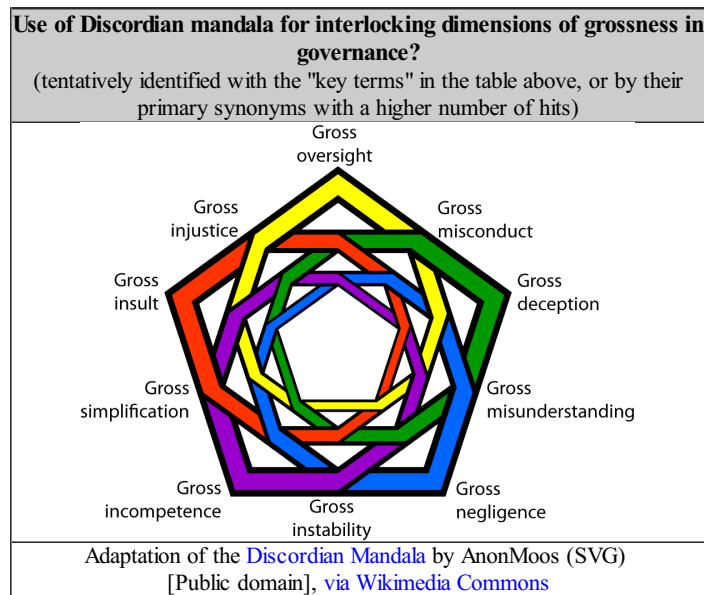
vulnerability (564)

(16,200), insecurity (13,400)

flaw (2,070), shortcoming (1,930), fragility (39), frailty (33),

Mapping grossness: Gordian knot of governance as a Discordian mandala?

More generally, an appropriately provocative depiction of the dimensions of grossness in governance might be usefully based on the so-called Discordian Mandala described in the *Principia Discordia*. This is made of five interlaced irregular nonagons, fitted within an overall pentagon. No two nonagons are directly interlinked, but any three adjacent nonagons (for example, yellow, green and blue) are in a Borromean rings configuration.



Use of the Borromean rings is of particular interest, their having been selected as the key 3D symbol of the International Mathematical Union. As with the connectivity of the above diagram, this suggests a degree of relevance to the cybernetics of governance as a system of control, dependent on feedback loops, variously subject to failure, as discussed separately (*Variety of System Failures Engendered by Negligent Distinctions*, 2016). The point is emphasized by the argument of Kevin Kelly (*Out of Control: the new biology of machines, social systems and the economic world*, Basic Books, 1995):

[Norbert] Wiener had in mind a more explicit definition, which he stated boldly in the full title of his book, *Cybernetics: or control and communication in the animal and the machine* [1948]... The result of Wiener's book was that the notion of feedback penetrated almost every aspect of technical culture....The avalanche effects of employing automatic control in the production of goods were not all obvious... But those were relatively minor compared to a completely unexpected miracle of self-control circuits: their ability to extract precision from grossness. (p. 120)

The Discordian Mandala might be considered relatively irrelevant, however as an indication of the knot with which management is faced globally it is reminiscent of the significance attached to the legend of the [Gordian knot](#) with which Alexander the Great was confronted. In the absence of depictions of such a knot in cognitive terms, the implication that the dilemmas of global management might be explored topologically as a knot merits consideration in the light of the mathematical interest in the [endless knot](#), the [trefoil knot](#), the [cinquefoil knot](#), and the [septfoil knot](#). This would be consistent with the psychological significance associated with knot topology by Jacques Lacan and R. D. Laing in respect of individual self-governance. Commenting on a session of the World Economic Forum, John Julens argues that: *It's as if the global economy is being strangled by a gigantic Gordian knot from which it cannot untangle itself* (*The Gordian Knot of Global Economic Growth*, *Strategy-Business*, 15 October 2013).

The legend has been used by other authors:

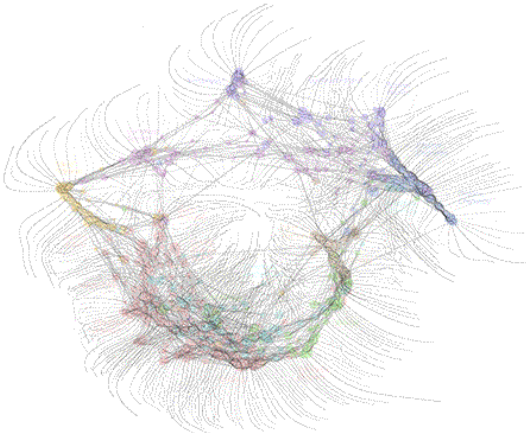
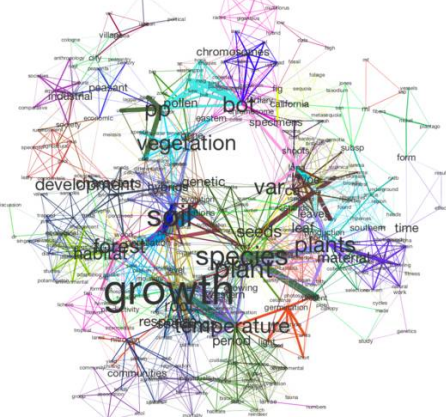
- Ryan M. Irwin: *Gordian Knot: apartheid and the unmaking of the liberal world order* (Oxford University Press, 2013)
- Reinhard Wagner: *The Gordian Knot of Global Collaboration* (International Project Management Organization)
- Bernard Harborne: *Cutting through the Gordian Knot: analysis of conflict and violence* (World Bank)
- Andreas Bieler and Adam David Morton: *The Gordian Knot of Agency--Structure in International Relations: a Neo-Gramscian perspective*, *European Journal of International Relations*, 7, 2001, pp. 5-35).
- Gabriela Lemus: *Severing the 'Gordian Knot': defying conventional wisdom and reversing current trade policy* (*The Huffington Post*, 2 June 2015)
- Pawel Opala and Krzysztof Rybinski: *Gordian Knots of the 21st Century* (Paper presented on the occasion of the 20th anniversary of the Polish Association of the Club of Rome, 2007)
- Leonardo Baccini and Johannes Urpelainen: *Cutting the Gordian Knot of Economic Reform: when and how international institutions help* (Oxford University Press, 2015)

Several authors have related the associated dilemma to energy and climate change. For example, Ted Nordhaus (et al.) focus on the insight originally required by Alexander:

Alexander's new perspective -- what is sometimes called a "gestalt shift" -- was a prerequisite to cutting the Gordian Knot... We believe that both a gestalt shift and a bold stroke are required to cut the Gordian Knot at the heart of today's energy challenge.... In the end, it was impossible -- and unnecessary -- to untie the Gordian Knot. (*Fast, Clean, & Cheap: cutting global warming's Gordian Knot*, Harvard Law and Policy Review, January 2008)

The cycles of the Discordian depiction, as a challenge to comprehension, suggest that Refugees per Kilon is thus but an instance of the problematic interlocking of cycles embodying so-called **wicked problems** -- calling for comprehension in cyclic terms, as discussed separately (*Encycling Problematic Wickedness for Potential Humanity*, 2014; *Encycling wickidity in the light of polyhedral viruses and their mutation*, 2015).

Concept mapping: What appears to be required is some form of **concept map**, **semantic map**, or **topic map**. indicative of the quantitative and qualitative associations of *gross* -- in order to clarify what it might be held to imply, whether in English or in other languages. Images suggestive of this possibility include the following.

Examples of concept map	
<p>Overview of relationships among scientific paradigms (reproduced from <i>Map of science in the journal Nature, SEED and Discover Magazines</i> by W. Bradford Paley) [enlarged version with legible text and commentary]</p>	<p>Topic map relating to growth (reproduced from <i>Generating and Visualizing Topic Models with Tethne and MALLET</i>)</p>
	

Of particular relevance is the capacity of software such as **Leximancer**, as an automated text-mining tool, to generate annotated concept maps from sets of documents of any size (*Leximancer Manual*, 2007; *Leximancer Demonstration Video*; *Leximancer, Intellogist; How to make sense of the Leximancer analysis*, Academic Enhancement Unit, 2012). However the question is whether analysis of multiple economic texts on "gross domestic product" would make more evident the systemic limitations of that dominant worldview.

Also of potential relevance is the open source application **Cytoscope**, given the possibility of adapting its primary biological focus to the psychosocial preoccupations highlighted here (see [gallery of screenshots](#))

Refugees per Kilon as one indicator of grossness?

As a complementary indicator, **Refugees per Kilon could therefore focus attention on the "grossness" implied in a broader sense by Gross Domestic Product** -- more especially in a qualitative sense. Understood as "gross" in its challenging qualitative sense, this would then include the socioeconomic consequence of exacerbating conflict elsewhere -- given the problematic socioeconomic consequences of incoming refugees engendered by use the manufacture and use of arms. As a "domestic product" of the national arms industry, weaponry could then be more fruitfully recognized in terms of both its:

- **grossness** in the damage and fatalities enabled elsewhere, and in terms of the
- **grossness** with respect to the severe disruption domestically.

Why is it that there is so little coverage of the enthusiasm with which weapons are produced (and used), given the disruption to any society to which refugees come as a consequence of such action? It would seem to be a case of the right hand choosing to be unaware of the consequences for the left -- and vice versa

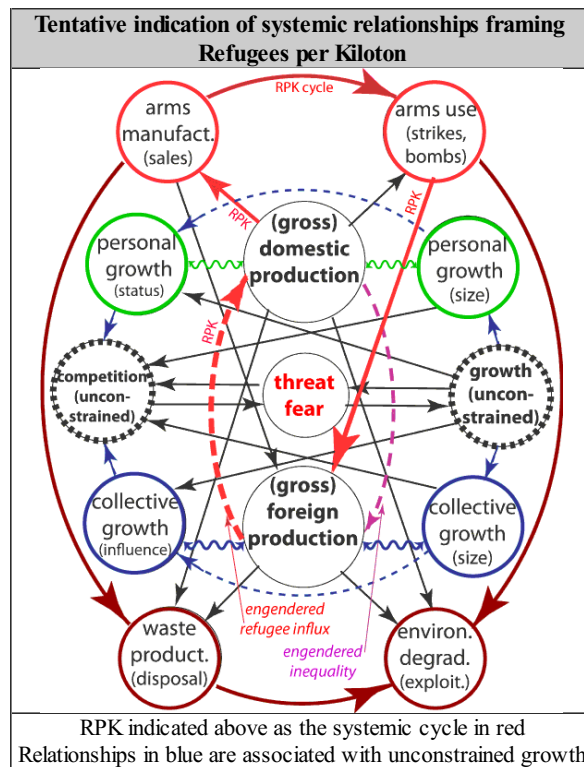
The RPK indicator might have the additional advantage of focusing debate on an equivalent to the **Polluter Pays Principle**, namely on a Provider Pays Principle (PPP), as adapted to bombing -- a "Bomber Pays Principle" (or alternatively as a "Pounder Pays Principle"). This could reframe financial responsibility for the integration of refugees, notably into the countries benefitting economically from the manufacture and delivery of weaponry.

More generally an RPK indicator could enhance the objectivity of debate within the United Nations Security Council (whose Permanent Members are the major arms producers) and within NATO as the agency enabling coalitions to employ those arms -- in both cases publicly justified as being for the purpose of promoting and sustaining peace. As interpreted in that context, **Gross Domestic Product could then be seen to be intimately related to the domestic production of grossness** in the qualitative sense of the term.

Consideration of RPK could therefore also contribute to debates on the **responsibility for grossness** engendered by problematic

domestic production of any kind -- in addition to arms (*From Patent Rights to Patent Responsibilities: obligations incumbent on owners and licensors of intellectual property*, 2007). This could notably include degradation of the environment and production of industrial and domestic waste.

The systemic features of this argument can be clarified to some degree by the use of a "mind-map", of which the following is one example.



The "mind-map" above is necessarily tentative (as a "proof of concept" exercise), especially given the effort to offer some memorable symmetry through the design elements used. However, of potential interest are the:

- **growth impetus:** links in blue (mid-circle), indicative of the driving force of **population growth** -- unconstrained, unquestionable -- as variously promoted by religious authorities, business concerns, and marketing, with the complicity of aid agencies (*Institutionalized Shunning of Overpopulation Challenge: incommunicability of fundamentally inconvenient truth*, 2008). This contrasts with understandings of the possibility of a zero-growth or **steady-state economy**, or of any understanding of "beyond growth"
- **predominating personal growth** (green circles):
 - **physical growth** (small circle, upper right): ironically, but potentially of great significance (if only as a metaphor), evident at the personal and family level, whether the focus is on physical size, (re)productive attributes (as attractors), or family size (especially evident in the number of refugee children per family). Current worldwide concern with personal **obesity** could itself be interpreted metaphorically as a form of gross "domestic" production. Ironically those could be considered to follow from the above-cited reference by *The Economist* to grossness: *If people want to eat their way to grossness and an early grave, let them* (*The Shape of Things to Come: the world is too fat; too bad*, 11 December 2003)
 - **status growth** (small circle, upper left): as especially significant in the current concern with accumulation of excessive wealth by the very few (Oxfam, *The Cost of Inequality: how wealth and income extremes hurt us all*, 2013). This could be understood as another form of gross "domestic" production, contributing to the perception of **inequality** (Forbes, *The World's Billionaires*, 2016; Oxfam, *Richest 62 people as wealthy as half of world's population*, 2016; Stephen H. Unger, *The Rich and the Rest of Us: gross inequality versus democracy*, 13 January 2009).

As a highly questionable topical example, although only ranked at #324 in the *Forbes List* (2016), **Donald Trump** is notably associated with "gross" in Google search results at the time of writing for various queries (25,900,000 for *trump gross*; 1,420,000 for *Donald Trump gross*; 75,400 for: *trump grossness*; 42,200 for *Donald Trump grossness*). Related arguments are developed by **Paul Slansky** (*The Ugliest American*, *The Huffington Post*, 4 May 2016). As a "domestic product", this is significant given the real possibility that Trump may be elected president of the country with the largest "gross domestic product" in the world. As a journal distinguished for its attentive focus on GDP around the word, there is some irony to a leader editorial of *The Economist*: *Trump's triumph: Donald Trumps' victory is a disaster for Republicans and for America* (7 May 2016).

- **predominating collective growth** (blue circles):
 - **physical growth** (small circle, lower right): as evident in preoccupation with growth in **tangibles** (larger/higher corporate

building complexes, acquisition of land and physical property, building bigger rockets, etc)

- **status growth** (small circle, lower left): as evident in preoccupation with growth in **intangibles**, most notably influence. This is strikingly evident in US aspirations to **full-spectrum dominance** (full-spectrum superiority), namely achievement of control over all dimensions of the "battlespace", effectively possession of an overwhelming diversity of resources in such areas as terrestrial, aerial, maritime, subterranean, extraterrestrial, psychological, and bio- or cyber-technological warfare (now framed to include information and memetic warfare)

Such issues could be used to extend the above map in more symbolic terms, as with **phallic architecture**, especially given the range of references comparing production of bigger rockets and skyscrapers with concerns about penis size and sustainable performance (*The Coalition of the Willy: musings on the global challenge of penile servitude*, 2004). Ironically any such comparison would itself be considered by many to be "gross". The dynamics implied by the map suggest that "domestic" and "foreign" could be more fruitfully understood from a perspective of "us" and "them" (*Us and Them: relating to challenging others*, 2009; *Indifference to the Suffering of Others*, 2013)

Lines linking circles in the mind -map evoke further commentary. Of relevance to this argument, the bombing of other countries can in itself be considered a gross domestic product -- primarily in terms of the qualitative impact on lives and environments, but with massively negative quantitative implications (as is the strategic intent).

The argument can however be taken further in that the **global war on terror** is effectively a preoccupation with a domestic product considered especially "gross", namely the effect of **suicide bombers** (whether or not of foreign origin). The argument becomes more complex in that those acting in that way claim to do so in response to a form of domestic product which they perceive as "gross" -- as instigated by cultures foreign to them. (See an earlier exercise: *Mapping the Network of Terror*, 2002).

Any mapping could however include the subtle forces described with respect to *The Modern Gothic* by **David Punter** (*The Literature of Terror*, Routledge, vol. 2, 2014):

What is frequently inside is the rage of despair; what is patrolling the outside is the massive array of forces which the ego erects to protect us from hypotheses of inner emptiness. Death of affect is only part of the story: we may indeed continue, after two centuries, to want "gross and violent stimulations"... but this is because we detect the stirrings of grossness within ourselves which cannot nevertheless be admitted. It is pointless to argue about whether "video nasties" should be "allowed; they are with us because they speak a language which something inside us can understand... (p. 213)

This is significant as a response to why grossness is so increasingly evident (*Global Incomprehension of Increasing Violence: matching incapacity to question the reason why*, 2016; *Thinking in Terror*, 2005).

Data sources on Refugees per Kiloton

The standard source for **armaments production and sale** is the **Stockholm International Peace Research Institute** (SIPRI). This is dedicated to research into conflict, armaments, arms control and disarmament. Its most relevant publication is the *SIPRI Yearbook: Armaments, Disarmament and International Security*. The contents derives from databases maintained by SIPRI, as with its *Trends in World Military Expenditure 2015* (April 2016). It is noteworthy that SIPRI already provides an analysis of *Military versus Social Expenditure: the opportunity cost of world military spending*.

Useful indications are provided in summary by *Wikipedia*:

- *World's largest arms exporters*
- *World's largest arms importers*
- *List of major weapon manufacturers*
 - *Major arms industry corporations by nation*
 - *Largest defense industry companies*

The primary sources for data on **refugees and migration** are:

- **International Organization for Migration** (IOM), dedicated to promoting humane and orderly migration for the benefit of all. It does so by providing services and advice to governments and migrants. It produced the annual *World Migration Report*
- **United Nations High Commissioner for Refugees** (UNHCR). This maintains the *UNHCR Statistical Online Population Database*

A version of the RPK indicator could be quickly produced by a relatively simple statistical interrelationship of data from these distinctive sources.

With respect to the relationship of RPK to any elaboration of a **Genuine Progress Indicator** (GPI), as a supplement to GDP, it is appropriate to note:

- John Talberth: *Sustainable Development and the Genuine Progress Indicator* (Center for Sustainable Economy, 2012)
- Lew Daly and Sean McElwee: *Forget the GDP: some States have found a better way to measure our progress* (*New Republic*, 4 February 2014)
- Mark Anielski: *Measuring the Sustainability of Nations: the Genuine Progress Indicator system of sustainable well-being accounts* (Fourth Biennial Conference of the Canadian Society for Ecological Economics: Ecological Sustainability of the Global Market Place, 2001)
- Marta Ceroni: *Beyond GDP: 20 US states have adopted genuine progress indicators* (*The Guardian*, 23 September 2014)

- Bob Willard: *5 Reasons Why a GPI Should Replace the GDP (Sustainability Advantage*, 8 March 2011)
- *The Genuine Progress Index: a better set of tools (GPI Atlantic*, 14 September 2007).
- Chris Milton: *GDP vs GPI : which measures the economy best? (Inspired Economist*, 16 October 2008)
- Jason Venetoulis and Cliff Cobb: *The Genuine Progress Indicator 1950-2002 (Sustainability Indicators Program*, 2004 update)

A review of 69 composite indicators has been made by UNDP, including the GPI (Lin Yang, *An Inventory of Composite Measures of Human Progress* (UNDP Human Development Report Office, 2014). However, with respect to proposals for GPI, it is especially regrettable that environmental issues like pollution, waste disposal, and degradation of quality of life are obscured in such composites -- as with the damage consequent on military action, whether of those defined as terrorists, or of those endeavouring to curtail them.

As previously discussed, it is in this sense that there is a case for distinguishing *Remedial Capacity Indicators Versus Performance Indicators* (1981). As with concern for domestic production of grossness more generally, the momentum and motivation with respect to arms production and use may well render any conventional indicator relatively meaningless, if no account is taken of the incapacity to modify the situation highlighted thereby (*Recognizing the Psychosocial Boundaries of Remedial Action: constraints on ensuring a safe operating space for humanity*, 2009).

Preliminary evaluation of Refugees per Kiloton

Clearly the clarification of a measure of Refugees per Kiloton calls for much more careful thought, although the relevant data is readily available, or could be credibly estimated. An assumption meriting careful consideration is the domestic production of a **kiloton of explosive** (as a TNT equivalent). Such data is liable to be lacking or considered confidential, especially on a comparable basis between countries. The argument can however be taken further by assuming a direct link between data on domestic armament production and the destructive power it is designed to deliver.

This argument naturally calls for an exploratory exercise in evaluation of RPK from the available data sets, as suggested above. The approach is necessarily provisional and tentative -- a "proof of concept exercise" to detect possible difficulties which call for more careful study

In clarifying a useful RPK indicator, the exercise suggested the merit of exploring indicators related to it in terms of:

- **employment**, namely the jobs in the arms industry through which weaponry is manufactured. Here the focus is on the proportion of such jobs to the number of refugees engendered by the use of such weaponry. The indicator could be termed **Refugees per Armaments-Job** (perhaps RPJ). This would be relevant to debate on unemployment and the shortage of manpower alleviated by the influx of refugees. In that respect, it could be argued (cynically) that bombardment of other countries engenders a useful influx of manpower vital to growth in domestic production in a competitive global environment.
- **profits** from arms manufacture. Here the focus is on the proportion of profits made (by the corporations involved) to the number of refugees engendered by use of those arms. The indicator could be termed **Refugees per Armaments-Profit** (perhaps RPP). This could be relevant to debate on the financial responsibility of those corporations for integrating refugees into a society -- in the spirit of **corporate social responsibility**.
- **supply** of arms, given that a distinction is necessary in many cases between manufacture of arms and supply of arms by intermediaries. The indicator could be termed **Refugees per Armaments-Supply** (perhaps RPS).

Given the context, an indication is provided of GDP and domestic waste (kg per-capita per-year)

Data sets indicative of how a measure of Refugees per Kiloton might be derived												
Suppliers	Arms sales \$m	Profit o arms producing companies \$rr	Employment in arms-producing companies	Total population	Refugee population	Natives per refugee	Waste per capita (kgs/year)	GDP Gross domestic product, 100 \$m	RPJ Refugees per arms job	RPP Refugees per \$m profit from arms producing	RPS Refugees per \$m profit from arms supplying	RPK Refugees per \$m arms sales
	2014	2014	2014	2015	2015	2015	2000/2014	2015			2006-2015	
United States	237210	52362	2011430	323285000	267222	1210	760	17947	0.1	5.1	3.2	1.13
United Kingdom	42730	2305	354560	61634599	117234	526	482	2849	0.3	50.9	10.1	2.74
Russia	50620	5599	566100	141461000	315313	449	?	1325	0.6	56.3	4.9	6.23
France	22580	1044	174630	65073482	264972	246	511	2422	1.5	253.8	15.6	11.73
Canada	800	185	8000	35985751	149163	224	640	1552	18.6	806.3	54.7	186.45
Sweden	2710	170	14720	9292359	142207	65	438	493	9.7	836.5	32.7	52.47
Norway	920	140	7730	4834000	47043	103	620	389	6.1	336	38.6	51.13
India	4840	447	?	1270580000	200383	6341	?	2091	?	448.3	1001.9	41.40
Germany	6220	?	183680	82046000	250299	328	618	3358	1.4	?	12.3	40.24
Switzerland	1800	329	9990	7739100	69390	112	650	665	6.9	210.9	23.5	38.55
Australia	2170	68	2600	24395000	35582	686	690	1224	13.7	523.3	51.6	16.40
Finland	800	64	2450	5343608	11798	453	482	230	4.8	184.3	16.1	14.75
Italy	19540	623	119010	60088880	93715	641	488	1816	0.8	150.4	14.5	4.80
Ukraine	840	13	122000	46029281	3232	14242	?	91	0	248.6	0.5	3.85
Brazil	1470	340	19170	203545000	7762	26223	?	1773	0.4	22.8	13.6	5.28
Israel	7690	?	11850	7434000	38500	193	?	297	3.2	?	7.2	5.01
Turkey	1960	160	11370	75930000	2715789	28	?	734	238.9	16973.7	2213.4	1385.61
South Korea	6670	746	6590	48333000	401	120531	?	1377	0.1	0.5	0.2	0.06

This preliminary exercise would not have been possible without the persistence of Nadia McLaren. It should be stressed that, although presented in good faith, these figures are merely indicative of the possibility of a more accurate and detailed procedure

The data could of course be clustered in a variety of ways. In this provisional exercise, prominence is given to the permanent members of the UN Security Council (without China), then followed by a set of countries for which complete data was available (ranked by RPK in reverse order). Turkey and South Korea were treated separately given their unusual situations, as reflected in the data.

Countries of relevance, omitted because of incomplete or problematic data, included:

- China: both a major arms manufacturer and supplier
- Spain: a major arms supplier, but not a manufacturer
- Netherlands: not a manufacturer of arms, but many manufacturing companies are registered there
- Jordan: the number of refugees there is not recorded
- South Africa: a major arms supplier, but not a manufacturer
- Iran: major arms supplier, but not manufacturer
- Czech Republic: major arms supplier and manufacturer

Any statistical analysis regarding provenance is necessarily complicated by:

- the role of intermediaries in arms supply:
 - manufacture by multinational corporations established in several countries, possibly assembling weaponry from different countries
 - sale via multinational corporations and other intermediaries, possibly with deliberate confusion as to their original country of manufacture
 - questionable distinctions between budgets for weaponry ("arms") engendering migration and other elements of defence budgets
 - the relevance to engendering refugee movement of explosives manufactured in contexts not reflected in the data, most typically the [Improvised Explosive Device](#) (IED)
- confusion regarding data on refugees:
 - refugees arriving from countries via other countries, possibly with deliberate confusion as to their original country of origin
 - distinction between asylum seekers and economic migrants, and the difficulty of making that distinction (given the difficulty in validating claims)
 - consequence of the numbers of successful refugees being augmented through controversial processes of "family reunion"
 - refugee fatalities during the migration process
- time period, given that data on arms manufacture and supply is more readily available (although potentially secret), whereas data on refugees entering a country may be much more confused. For the purpose of the above exercise, the totals in a country were used rather than the total entering a country in a given year.
- contrasting procedures for the consolidation of available data by country, especially with regard to matching data on arms, employment, and refugees. The presentation of data on domestic waste is indicative of a further consideration in that data may only be available in terms of the statistical mandates of regional organizations (OECD, EU, etc) for different years

Investigative and media failure?

Given that such a systemically evident indicator has not been generated, despite the acknowledged level of the crisis, there is further interest in exploring the institutional motivations neglecting or opposing the elaboration of such an indicator.

Why is it convenient to separate the focus on arms production (and military action) from the human consequences -- most especially for the refugees and the societies to which they endeavour to migrate? This could be explored in terms of the media bias to which reference is widely made (*Vital Collective Learning from Biased Media Coverage: acquiring vigilance to deceptive strategies used in mugging the world*, 2014). This typically engenders and reinforces tendencies to "derivative thinking", as separately described (*Vigorous Application of Derivative Thinking to Derivative Problems*, 2013). The focus on the challenging influx of refugees exemplifies a derivative problem for which examination of root causes is assiduously avoided -- of which violence is itself but a "derivative problem" (*Global Incomprehension of Increasing Violence: matching incapacity to question the reason why*, 2016).

It is understandable that those focusing on arms production and their use would find it convenient in public relations terms :

- to emphasize the economic benefits, especially in terms of employment in those industries and their ancillary services
- to minimize information on the provenance of weapons, given the destruction and fatalities caused, especially in the event of regrettable collateral damage (*Identification of Bullets: human right and human responsibility?* 2009)
- to minimize information on the direct consequences in engendering refugees -- just as the collateral damage is minimized in the countries where the weapons are used.

It is less evident why those preoccupied with refugees should focus so narrowly on their tragic circumstances -- thereby failing to give any attention to the systemic forces engendering those circumstances. Are there degrees of complicity which merit examination?

In endeavouring to respond to the numbers of refugees, an effort is currently made to distinguish asylum seekers from economic refugees. Little attention is however given to the more general question of the increasing number of people seeking to migrate -- and to the factors contributing to this. This too merits investigation, as suggest by the schematic above.

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