

Keeping Your Butter Safe Groundwork for a New Measure of Global Development

Kaushik Basu

Department of Economics and SC Johnson College of Business
Cornell University
Uris Hall 422, 109 Tower Road
Ithaca, New York 14853

Abstract

The development of a nation is traditionally measured by GDP per capita, with countries classified as low, lower-middle, upper-middle and high income economies. What is overlooked is that some of the goods consumed by people and part of the GDP, such as barbed wires and private police, are not valued in themselves but are protective measures against crime and corruption, to ensure that goods that *are* valued are safe. This suggests the need to redefine GDP to measure the true value of what a nation consumes and saves. This paper proposes a new measure and spells out its microeconomic foundation.

Acknowledgements. For a remarkable conversation that triggered this paper, I am grateful to Larry Blume and Seth Sanders. I am also grateful to Alaka Basu, Arpit Chaturvedi and Subbu Subramanian for reading through an early draft and for their critique and suggestions. Finally, I would like to thank Pedro Conceicao and Asha Sundaram, associate editor of the journal, for some valuable comments.

Keeping Your Butter Safe

Groundwork for a New Measure of Global Development

1. Bread, Wine and Barbed Wire

Imagine two island-nations with identical populations, Ithaka and Aegina, where citizens consume goods to maximize their utility, as textbook economics tells us. Because of short-sightedness, or to make life easier for the author of this paper, they save nothing. Further, there is no international trade. All this makes it is easy to calculate the gross domestic product (GDP) or any of its standard variants for the two nations.

A statistical survey of the nations reveals that in Ithaka every year people spend 20 units of money on bread, 40 units on wine and 40 on clothing. So, the GDP of Ithaka is 100. In Aegina, people spend 10 units on bread, 20 on wine, 20 on clothing and 50 on barbed wire. Hence, all reports of international organizations list the two nations as being on par in terms of GDP.

Let us now consider the nature of value associated with the different goods consumed by the citizens. Looking at the data may not make this evident, but conversation with the citizens in the spirit of eliciting ‘thick descriptions’ of society would reveal that butter, wine and clothing give satisfaction in exactly the way described in standard textbooks. Each of them gives utility to consumers. However, barbed wire does not give any direct utility. Its job is to ensure that no one can steal a person’s butter, wine and clothing. It is valueless in itself, but it protects the goods that give value. Because of high crime and conflict in Aegina, people buy barbed wire to keep criminals and gangs out, but their ultimate aim is the consumption of bread, wine and clothing.

I shall refer to goods and services like bread, wine and clothes, and also jewelry, haircuts, and visit to the opera as ‘valued goods’ and goods and services like barbed wire, locks, and private police, as ‘protective goods’ or, simply ‘protectives’. In societies facing war and crime, they enable citizens to protect their valued goods. This makes it clear that GDP is a flawed measure of a nation’s total *real income*. The people of Ithaka are better off than those of Aegina, despite the same GDP.

If our consumption of valued goods and protectives were strongly correlated, it would not matter much whether or not we excluded protective goods when measuring real income. It would just cause an origin shift. Looking around the world, it is evident that a part of our consumption consists of protectives, and this varies greatly across nations. There are countries with crime and corruption, where people spend a lot of money on private police protection. Conflict and war can also imply high military spending in some countries. According to the Stockholm International Peace Research Institute, the percentage of GDP spent on military expenditures is highest in Ukraine (44%) and high in Saudi Arabia (7.4%), Israel (4.5%) and USA (3.5%). At the other end, we have Indonesia (0.7%), Switzerland (0.8%), Japan (1.1%), and Canada (1.2%).

Clearly, to measure a nation’s aggregate welfare we should not count protective goods, just as we do not count the inputs used to produce the goods that we value and consume. This short paper

makes the case for a new measure of development that does not include the purchase of protective goods.

It is difficult to find a new term for this modified “GDP”. In the age of Google, you quickly discover that for most words inserted after ‘Gross Domestic’, such as ‘welfare’ or ‘well-being’, there is someone who has done so already. This leaves me with no choice but ‘ustawi’, Swahili for welfare. What makes it good is that *ustawi* has a hint of thriving or flourishing. This paper proposes that we measure each nation’s Gross Domestic Ustawi (GDU) and use that as the index of development.

2. Gross Domestic Ustawi as an Index of Development

The use of national income, or specific forms of it, such as GDP or Net National Income, is such a part and parcel of modern life that it is easy to forget that this is a relatively recent phenomenon. Though the concept of a nation’s income emerged in the 17th and 18th centuries from the works of William Petty, Francois Quesnay and others, it was only in 1939 that we saw the appearance of cross-country data, when the League of Nations published a survey of national incomes of 26 nations. Inspired by the work of Simon Kuznets, the publication of annual cross-country data began only after the second World War. It is an interesting historical footnote that Kuznets had reservations about military expenditure being part of GDP, for reasons similar to the one used here to distinguish between valued and protective goods. Kuznets felt that military expenditure is an “intermediate” and not a “final good like wheat and haircuts” (Rockoff, 2020, p. 20).

In today’s world, GDP or some variant of it, is the primary measure of development. Nations celebrate moving up the GDP chart and overtaking others. Given that what we measure and publish triggers behavior, there is a large literature on how we should measure well-being (see Sen, 1983, 1985; Stiglitz, 2000; Pogge, 2002; Robeyns, 2006). Many international organizations have created new indicators of development, from the UNDP’s Human Development Index to the World Bank’s Shared Prosperity measure, which compares nations based on the well-being of each nation’s bottom 40% of the population (UNDP, 1990; Basu, 2006).

While standard economics tells us that our preferences and utility functions are exogenously given, that is not so. As we know from sports like soccer or cricket, life is full of ‘created targets’, and they can influence how we behave (Basu, 2018). Just as the medals tally triggers behavior among sports people, measuring, ranking and rating nations in different ways can trigger or thwart global development. This is summed up well in the title of a section of Stiglitz’s (2010, p. 283) book: “What You Measure Is What You Value”. The case for measuring and publishing GDU should be viewed in this spirit. It can change what nations and the citizenry aspire to, and that, in turn, can change, for the better, the game of global development that nations play. It is fascinating to note that on the first day of his presidential quest in 1968, Robert Kennedy had talked about the limitations of the GDP as a measure of welfare, and how it can misdirect a nation’s effort (Allin, Coyle and Jackson, 2022).

In the microeconomic theory of consumer behavior, we recognize that some goods, such as labor, give negative utility. We recognize that many goods give positive utility, such as bread, wine, and

clothing. What we do not recognize is the existence of protectives, such as locks, barbed wires, and fencing, which give no utility in themselves but enable us to keep and consume the goods we value. To count the expenditure on these protectives as part of national income is not correct. Nations that do not have respect for property or are conflict-ridden may prompt individuals to invest in protective goods, but if the GDP of such a nation is the same as the GDP of a nation where people spend a negligible amount on protective goods, clearly, we cannot treat the two societies as having the same level of consumption.

GDU is the measure meant to rectify this shortcoming in conventional national income measurement. The ranking of nations using per capita GDU will likely be quite different from one based on per capita GDP. Ukraine and Saudi Arabia will probably move down in rank, and Indonesia and Switzerland will move up.

3. Micro foundations of GDU

Conceptually, GDU is simple, but collating cross-country data and rating nations based on this can be demanding as we know from the history of GDP, even one affectionately told (Coyle, 2015). One problem arises from identifying protective goods. There are the obvious ones, like barbed wires, locks, and fencing. There are, however, goods that fall into an ambiguous category, including ones that may be partly valued and partly protective. A good example is guns. They can be used for hunting, and also for the protection of life and property.

Further, this may vary depending on the culture of a society. An otherwise peaceful society, that does animal hunting as sport, will treat guns as a purely valued good. Whereas during my childhood in India, in our zero-hunting household, the double-barrel gun that our parents kept was a purely protective good. In fact, there were questions about that as well. The gun was kept so well wrapped in layers of cellophane and then in a box with a lock, that I wondered if it would be a deterrent in the event of a sudden appearance of robbers, considering the time it would take my parents to get the gun ready.

The microeconomics of partially-valuable goods, including goods and services, the values of which depend on culture, and evolving notions of respect, has been modeled in the context of poverty measurement (see Subramanian, 2005). There are also other kinds of variations in valued goods, such as valuing a good or a service not for oneself but out of empathy or reasons of ethics, such as caring for a sick person or educating the poor. Moreover, thanks to the fact that all economies are culturally embedded, what constitutes valued goods can also differ across different groups with different cultural moorings¹.

Since the aim of this paper is to outline the first steps for this project, leaving the actual computation for the future, let me spell out the microeconomic theory of protective goods, keeping the categories sharp, and ignoring the case of partially protective goods and ignoring the fact that goods may be valued for different reasons.

¹ An interesting study of the Tibetan community in India by Mohan et al (2020) alerts us to the importance of cultural embeddedness.

In standard microeconomics, a consumer maximizes utility, u , which is a function of a vector of goods, $x = (x_1, x_2, \dots, x_n)$. Hence,

$$u = u(x_1, x_2, \dots, x_n). \quad (1)$$

Of these goods, one may be labor, in which case the marginal utility of that good is negative. For all other goods, i , it is assumed that:

$$\frac{\partial u(x)}{\partial x_i} > 0, \text{ for all } x_i. \quad (2)$$

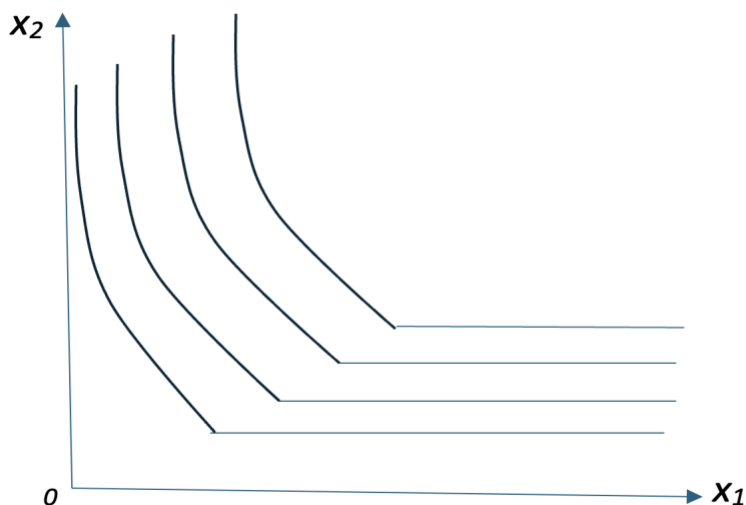
Implicit in (2) is the assumption that all goods are valued goods. Protective goods are different. Once you have enough barbed wire to keep your wines safe, barbed wire gives no additional value. In other words, we have to allow for goods like good j , which have the property:

$$\frac{\partial u(x)}{\partial x_j} \geq 0, \quad (3)$$

and, for all x , there exists a number β such that $\frac{\partial u(x)}{\partial x_j} = 0$, for all $x_j \geq \beta$. This means that the satiation point of a protective good j depends on how much of valued-goods a person consumes.

Assume, for simplicity, that there are two goods, where 1 is valued and 2 is protective. Keeping in mind that the greater the amount of valued-good a person has, the greater the need for protective, the indifference curves will look as in Figure 1.

Figure 1



It is easy to see what the figure says. Good 1, beyond a certain amount, gives no additional utility. There on the indifference curves becomes horizontal.

With more than two goods other interesting possibilities arise. Some protectives, like barbed wire and fencing, may be substitutes, while some like locks and keys, are complements. Moreover, different protective goods may be better suited to guard different kinds of valued goods.

The generalized microeconomic theory of protective goods can be interesting to explore but that is not germane to this paper, which is simply to recognize the existence of protectives for the sake of computing national income better.

4. The Task Ahead

This paper is groundwork with a larger mission—the computation of national income that captures human welfare more accurately than the standard GDP or Net National Income and other standard statistics. Two nations, one with effective law and order, and another without, or one with cultural norms that lead people to respect the human rights and property of others and another society that does not have these norms, will likely have very different levels of expenditure on protective goods. Even if these two societies have similar GDP, they will have very different levels of welfare, and their GDP will need a lot of correction to accurately capture the total worth of valued goods and services consumed in these two societies. The concept of GDU, in contrast to GDP, captures this.

The task ahead is large. Not only do we have to decide which goods are valued and which ones protective, there will be, as we have already seen, goods that are a bit of both. We must classify and deal with them appropriately. GDP is a well-defined concept. We know what it means and how to estimate it. One may question if it is worth rocking the boat. To answer this, it is important to realize that the concept of GDP was not created in a day. It has a long history, and has been modified on several occasions to reach where it is today (Coyle, 2015). The reason why it seems so rock solid now is that we have got used to it. As Mitchell (2005) argues so effectively, many of the features of the world that we economists take as innate are actually our own creation. That being so, we should be prepared to stock take and revise should that seem important.

The concept of Gross Domestic Ustawi is presented in this spirit. It is not a final, definite concept I am presenting. I am aware that if we were to go this route, as we ought to, there will be the need for discussions, critiques and corrections before we settle on a ‘final’ definition that we the use to collect data and estimate and compare nations².

In the above sections, I focused mainly on protective *goods*. If we include, as we must, protective *services*, the terrain of analysis becomes larger. There is increasing use of personal security

² In many of his writings, Swedberg (see 2016) distinguished between ‘theorizing’ and ‘theory’. The latter represents a final product, the former the process that takes us there. This paper is best viewed as an exercise in theorizing.

worldwide. South Africa, that leads in this, has 2.5 million registered private security guards³. The rich and the powerful need them for protection. In computing GDP, the services of a private music orchestra and a private security service are treated the same way. However, one is a valued service and the other a protective service. This can make a big difference to the calculation of valued consumption. In rich and poor countries crime is often intertwined with politics. Vaishnav (2017) provides detailed estimates of the enormity of this in India. Much of this crime takes the form of corrupt services, prompting the need for protective services.

Crime control should ideally be treated as a public good and provided by the state. That is more efficient than individuals buying it privately. This also draws attention to how the government expenditure needs to be treated in computing GDU. We must not treat expenditure on policing the same way that we treat expenditures undertaken by government on healthcare and meals for school children. The latter are valued goods, while the former is a protective.

It is important to recognize what mainstream economics overlooks, namely, the importance of voluntary restraint from criminal behavior. There are many crimes we do not commit simply because our moral compass or sense of guilt do not permit this (Basu, 1983; Battigali and Dufwenberg, 2007; DeAngelo and McCannon, 2020)⁴. Nations that have these norms endogenously woven into their society can save enormous expenditures on protective goods.

Finally, there is international trade, which was ignored in my analysis. This implies that there may be countries that produce a lot of protective goods—guns, fighter jets and bombs, but use little of this for themselves. They sell these to other countries. Hence, we must distinguish between the effects of protective goods on the producing and consuming nations.

The above discussion shows that, from the conceptual work to data collection, the task ahead can be large. Just as the World Bank began its work on shared prosperity measure across countries with a small number of nations for which data were available and the hope that over time this exercise would in itself incentivize nations to collect more data, I would urge that we begin by computing the GDU for a few nations and then work on broadening the scope of this exercise and, hope that this will, eventually, influence the game of global development that nations play.

³ **BusinessTech**, 13 May 2012: <https://businesstech.co.za/news/business/489295/security-guards-vs-police-officers-in-south-africa/>

⁴ It is possible to have trust emerge not from morals or norms but from certain population game dynamics (Arigapudi and Lahkar, 2024).

References

- Allin, P., Coyle, D. and Jackson, T. (2022), 'Beyond GDP: Changing How We Measure Progress is Key to Tackling a World in Crisis,' **The Conversation**.
<https://theconversation.com/beyond-gdp-changing-how-we-measure-progress-is-key-to-tackling-a-world-in-crisis-three-leading-experts-186488>
- Arigapudi, S. and Lahkar, R. (2024), 'Emergence of Trust in the Trust Game under Best-experienced Payoff Dynamics,' **Economics Letters**, vol. 236.
- Basu, K. (1983), 'On Why We do not try to Walk Off without Paying, after a Taxi-Ride,' **Economic and Political Weekly**, vol. 18(48).
- Basu, K. (2006), 'Globalization, Poverty and Inequality: What is the Relationship? What Can be Done?' **World Development**, vol. 34.
- Basu, K. (2018), **Republic of Beliefs: A New Approach to Law and Economics**, Princeton University Press, Princeton.
- Battigalli, P. and Dufwenberg, M. (2007), 'Guilt in Games,' **American Economic Review**, vol. 97(2).
- Coyle, D. (2015), **GDP: A Brief but Affectionate History**, Princeton University Press, Princeton.
- DeAngelo, G. and McCannon, B. (2020), 'Psychological Game Theory in Public Choice,' **Public Choice**, vol. 182.
- Mitchell, T. (2005), 'The Work of Economics: How a Discipline Makes its World', **European Journal of Sociology**, vol. 46(2): 297-320.
- Mohan, D., Sekhani, R., Agarwal, S., Tokas, S., Singh, M. and Dixit, P. (2022), 'Viewing Embeddedness and Ethnic-Solidarity in Economics of Exchange: Reflections from Economic and Cultural Practices of Tibetan Community in India,' **Asian Ethnicity**, vol. 23(2): 335-351.
- Pogge, T. (2002), 'Can the Capability Approach be Justified?' **Philosophical Topics**, vol. 30.
- Robeyns, I. (2006), "The Capability Approach in Practice", **Journal of Political Philosophy**, Vol. 14.
- Rockoff, (2020), 'Off to a Good Start: National Income and Economic Measurement at the NBER,' NBER Working Paper, No. 26895.
- Sen, A. (1983), 'Development: Which Way Now?' **Economic Journal**, vol. 93.
- Sen, A. (1985), **Commodities and Capabilities**, North-Holland, Amsterdam.
- Stiglitz, J. (2000), 'GDP is the Wrong Tool for Measuring What Matters', **Scientific American**.
- Stiglitz, J. (2010), **Free Fall: America, Free Markets, and the Sinking of the World Economy**, Norton & Co., New York.
- Subramanian, S. (2005): 'Unravelling a Conceptual Muddle: India's Poverty Statistics in the Light of Basic Demand Theory', **Economic and Political Weekly**, vol. XL(1): 57-66.
- Swedberg, R. (2016), 'Before Theory comes Theorizing or How to make Social Science more Interesting,' **British Journal of Sociology**, vol. 67(1): 5-22.
- UNDP (1990), **Human Development Report 1990: Concept and Measurement of Human Development**, UNDP, New York.
- Vaishnav, M. (2017), **When Crime Pays: Money and Muscle in Indian Politics**, Yale University Press, New Haven.