

Measuring Development
– **How Economists and Economic Historians Measure
Income, Utility and Happiness**

by

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Summary: The social sciences need methods to measure the level of economic development for a society. In theory, the scientists try to measure the happiness, or as economists will formulate it, the utility, but neither happiness nor utility is easy to measure. Normally, economists apply national account figures to measure utility and happiness. Even though there are a lot of arguments against national income as indicator for utility and happiness, it seems to work reasonably for highly developed market economies. For less developed economies there are, however, even further arguments against the national account series. If a considerable part of the production is used without being distributed via the market, the economic evaluation of the production by using prices becomes highly questionable. This is a common problem for the less developed societies in economic history and in development economics. Both in economic history and in development economics other indicators than national account figures are necessary.

1. Introduction

In many situations is it important to measure the well-being or welfare of a population. Is the development positive or negative? Has a specific policy intervention contributed to the welfare of the country? Is it possible to calculate the welfare effect of a possible investment? Can we compare the welfare in different economic systems?

There are a lot of relevant questions, but it is difficult to give reasonable answers. The traditional economic answer is to use change in market value or national income, but this solution is based on a number of restrictive assumptions. If these assumptions are not fulfilled, the results can be very misleading. Furthermore calculation of a relevant national account is a data demanding process.

For these reasons a number of other indicators than national account figures have been used for measuring development. In section 2 the use of national account figures and market values will be discussed. Section 3 discusses different other types of indicators for development. The following sections discuss different experiment for combining indicators to a common general index; section 4 discusses the statistical methods of principal components and section 5 Delphi-methods. Section 6 introduces the new research on happiness, and section 7 is a short conclusion.

When measurement of development shall be discussed, many types of development can be used as cases. Less developed countries are found today, but if we go back in history our own country was less developed compared with today's standard. This means that the problems in development theory and economic history are very equal, and many of the cases in this paper are taken from Danish economic history. But the figures are only used for illustration and the cases could as will be taken from developing economies.

2. National accounts

When gross national product is calculated, it is an estimation of the market values of the total production in a country. Given a number of specific assumptions, this is an important and well-defined figure.

If the economy is a perfect market economy, where the consumers maximize their utility and the producers maximize their profit both marginal utility and marginal costs will be reflected in the market prices:

$$MC_{it} = MU_{it} = P_{it} \quad (1)$$

where MC_{it} is the marginal cost, MU_{it} the marginal utility and P_{it} the market price of commodity i at time t . Even given the perfect market this is a simplification because utility is difficult to measure independent of the spatial and chronological situation. The mainstream marginal theory of utility exactly stresses that utility depends on the scarcity of a commodity in the given situation; this is the reason for the problems treated in the index theory.

If (1) is correct the observable prices are an instrument to measure both costs and utilities. The market values calculated by

$$V_{it} = q_{it} p_{it} \quad (2)$$

where V is the market value, q the transacted quantity and p the price, is then a measurement for both the utility for the consumers and the production cost in the firms.

If all these assumptions are fulfilled, and V_{it} is the value net for inputs we have the national product

$$Y_t = \sum_i V_{it} \quad (3)$$

Y_t is both the total production and the total income in the society. The production can be used for consumption C , investment I , public demand G and net-export $X-M$. The income can be used for

consumption, saving S or taxes T. This means that we have

$$Y_t = C_t + J_t + G_t + X_t - M_t = C_t + S_t + T_t \quad (4)$$

This is a very nice system, which also can be used partially; if we calculate the changes in market value ΔV_{it} caused by a specific investment

$$\Delta Y_t = \sum_i \Delta V_{it} \quad (5)$$

this can be used for a cost-benefit evaluation of an investment, if the investment is so small that the prices are unchanged.

This system is, however, related to a very idealized world. The real world involves a lot of complications. The observed prices are not perfect, and some commodities have no prices at all.

There are many reasons for the fact that the observed prices are not perfect. If the market is characterized by *imperfect competition*, the prices will be too high. The prices will not reflect the cost, but the cost plus a monopolistic profit.

Another problem is what economists call *externalities*. The prices includes only private paid costs, not unpaid social cost like pollution – we will get too high a national income if we do not include negative effects on the environment and use of irreproducible natural resources.

Some commodities have no prices at all; this can be caused by *loss of sufficient statistics* for some of the markets. To calculate the market value both figures for prices and quantities are needed. In many low developed societies, less developed countries or societies in pre-modern time, it is difficult to find sufficient statistics for the existing markets to calculate a complete national account statistics.

Another problem is production, which is *not distributed via a market*. In less developed societies a lot of the production is used without passing any markets: Production used in the family or the village and production for a barter economy without money. These circumstances will often make it impossible to calculate a reasonable national account for such societies.

For most societies such calculations will bias the figures towards higher growth. A characteristic trend in the developing process is a change from the non-market sectors to the market sectors, and if only the market sectors are registered, this means that the registered growth not only reflects real growth, but also changes from the unregistered to the registered sectors. In Denmark we can think of the change from children and pensioners' care in older time done by housewives at home, not included in the national account, to public institutions (sometimes with the same women at work), which is registered in the account. In the traditional agricultural sector were unregistered use of own products of a considerable importance, but the specialization has reduced the modern farm's use of own products.

A lot of activities are principally excluded from the national accounts; homemade meals, house cleaning done by the family etc. Leisure-time activities can be very important for people's welfare but they are only included in the national account, if they are related to something paid e.g. to a

fitness centre.

The registered production depends on many things, e.g. the demand for the products. This is important for the interpretation of the figures. A nature disaster will normally raise the national product because the rebuilding stimulates the activity, but from a welfare point of view it is of course contra intuitive, that the income is stimulated by a disaster.

There are consequently many reasons why the advantages of the national account in market prices found in theoretical economic models are questionable in practical situations. And there are many situations where it is impossible to calculate a credible national account. For these reasons indicators at different levels and various types have been developed over time. Lately the changes in development policies have altered the demand for indicators, as the next section will explore.

3. Indicators on development

Specific non-economic indicators on development have in many instances been chosen with the aim of monitoring the impact of interventions on specific issues or driven by the desire of particular analysis, e.g. market access measured by ad valorem tariff levels, health care measured by the infant mortality rate, infrastructure measured by kilometres of newly constructed roads, water availability measured by number of boreholes etc. Often these specific measurements have been donor driven. Documenting and justifying interventions to politicians and taxpayers of the DAC¹ countries have been – and remain – a major factor in the demand for indicators.

Other non-economic considerations, which are often used in evaluations of development from actors outside the developing countries themselves, are issues like human rights record, level of democracy and corruption. Indicators to measure these elements range from the number of independent newspapers to number of armed forces.

However, the last 10 years have seen a shift in aid policies and hence the demands for relevant indicators, insofar as domestic developing country ministries have taken a greater role in identification as well as collection of data. It is not unreasonable to assume that this shift has been motivated by the united focus on the Millennium Development Goals, Sector Wide Approaches (SWAp), the stronger focus on donor coordination, as well as the process surrounding the (ideally) nationally lead formulation of the Poverty Reduction Strategy Papers (PRSP).

The shift in international aid modalities provides first and foremost for a much greater focus on national ownership. The new modalities, which include facilitation of donor harmonisation, directing budget and/or sector support and push for to improve aid effectiveness², requires a stronger engagement on behalf of the developing country wanting to attract aid, loans and foreign investments. This in turn creates a demand for domestic institutions able to produce the indicators agreed³ between a donor(s)/International Finance Institutions and the receiving country.

While economic indicators like sector expenditure relative to total expenditure, proportion of population below 1\$ (PPP) a day and growth statistics remains important indicators of development trends, various social indicators have over the last decades been included when evaluating countries

¹ Development Assistance Committee of the OECD.

² Reference is made to the Paris Declaration on Aid Effectiveness from March 2005.

³ And in the case of foreign investments the demand from the market.

performance. Maybe most notably in the Human Development Index comprised of three main components: Life expectancy, literacy and GDP per capita (UNDP, 1994), where two of the components in this composite index are non-economic measures by nature.

Indicators are designed to address various levels of activity, i.e. at project-, sector-, and/or policy level. Geographically indicators can be designed to capture trends either at local, regional, national or global level taking into account national specificities, cultural differences etc. Furthermore indicators are increasingly linked up to the project management cycle, creating four distinct categories of indicators: input, output, outcome and impact. The choice of indicator depends on the type and objective of the intervention – and in the case of economic as well as non-economic indicators more often also on the availability of data.

Focussing on integrated programmes following governmental priorities have created the demand for more macro-oriented indicators. For example, agreeing on a limited number of indicators is essential to measure outcome and/or impact of a sector programme⁴, as too many indicators will be a) impossible to implement, and b) going against the philosophy of stopping micro-management by donors. The trade-off between a host of micro-indicators and a few macro-indicators is scarifying the detail for the overview. This not to say that macro-indicators are not useful, however one might fear that the strong focus on these indicators might hamper the collection of less broad indicators.

While the quest for macro-indicators has intensified a coherent framework for classifying and evaluation indicators is still under debate. Booysen (2002) notes, that the debate over such a framework has been on-going since the early 1970'ties. General dimensions for classifying and evaluating development indicators are identified in Table 1.

Tabel 1: General dimensions for development indicators

Dimension	Description
1. Content	What aspects or facets of development does the indicator measure?
2. Technique and method	Does the indicator measure development in a quantitative (qualitative), objective (subjective), cardinal (ordinal), or one-dimensional (multidimensional) manner?
3. Comparative application	Does the indicator compare the level of development a) across space (cross-section) or time (time-series), and b) in an absolute or relative manner?
4. Focus	Does the indicator measure development in terms of input (means), output, outcome or impact (ends)?
5. Clarity and simplicity	How clear and simple is the indicator in its content, purpose, method, comparative application and focus?
6. Availability	How readily available are data on the particular indicator across space and time?
7. Flexibility	How relatively flexible is the indicator in allowing for changes in content, purpose, method, comparative application and focus?

Source: Booysen, 2002 p.117 with own modifications.

⁴ A sector programme is here understood to be the situation where a donor provides funds as support to the ministries fiscal budget. While the latter is the ideal scenario with SWAp, more often the money are allocated to specific sections, agencies and programs within the sector being supported.

The dimensions in table 1 is not necessary independent of each other, mutually exclusive or free of overlapping. However using these dimensions provides for a systematic discussion of the applicability of the indicators chosen/under consideration.

3. Composite Indices

As macro-indicators have been moved up the agenda so has the debate on aggregated indicators or even broader composite indices. Globalisation is pushing the demand for cross-national comparison of complex issues like development even further. The already mentioned HDI is one of these composite indices, which attract much attention incl. criticism for mixing apples and pears.

Booyson (2002) points out that while aggregated indicators and composite indices are invaluable in their ability to simplify complex issues, to focus attention and catch the eye, they remain problematic when scrutinising the construct of the indices. He examines how the scaling, the weighting when aggregating, the selection of elements to include in the indices alongside the mix of means and ends, opens for a range of criticisms.

A composite index has the form

$$CI = W_1 I_1 + W_2 I_2 + \dots + W_n I_n \quad (6)$$

where CI is the composite index, I_i the indicators and W_i some selected weights. The main problem is to select the weights, but they are normally chosen to be unit, but this need a special scaling of the I_i . They can all be measured in a scale 1, 2, 3, ---, 5 or 1-100. This is however rather arbitrary.

Criticism includes, that cross-national comparison by constructing an index that can handle convincingly different development stages is hard. Applying different weights to same elements in the index can adjust for different development stages, but this in turn complicated the comparison between countries and over time (moving of goal posts). Thus analysts often employ a uniform weighting system in compiling index values, as is the case with 14 out of the 20 composite indices recorded in table 2.

Aggregating various dimensions of development to an index is not a new invention. The indices in table 2 are dating as far back as the beginning of the 1950'ties. However most of the recorded indexes are confined to a specific time frame. Only the HDI, the Economic Freedom Indices and Global Competitiveness Indices continue to be published on a yearly basis.

Another draw-back on the composite indices is the difficulty in comparing the indices given the differences in content and methodology. Regardless of the latter, comparison of different ranking methods illustrates why a multitude of indicators can inform about a country' performance. Elkan (1995) compares the HDI and GDP per capita. The most extreme examples of changing of position in these two ranking is the United Arab Emirates moving 43 places down on the HDI ranking compared to its GDP/capita ranking. Moving in the other direction is Sri Lanka which in comparison ranks 30 places higher in its HDI ranking than the GDP/capita.

But what does this tells us? Even though composite indices are often criticised for not yielding any improved information on well-being, the above example indicates that indexes – along side an array

of individual micro- and macro-indicators – can complement the traditional measure of development using national income.

Table 2: Used indicators in different composite indices

<i>Composite Indices</i>	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Dimensions of development																				
1: Demographic dynamics	x			x	x	x	x	x	x	x				x		x			X	x
2: Education, training and knowledge	x	x		x	x	x	x		x	x	x			x	x	x			X	x
3: Health, food and nutrition	x			x	x	x	x		x	x	x				x				X	
4: Human settlement, infrastructure and communication	x		x	x		x	x	x	x	x	x							x	X	
5: Political and social stability							x			x	x									
6: Culture, social fabric and family values	x						x				x									
7: Environ-mental resources and pressure	x										x									
8: Political and civil institutions							x		x	x	x		x				x	x		
9: Income and economic growth				x		x	x	x	x	x	x		x	x		x	x	x		
10: Unemployment and labour utilisation				x					x	x							x			x
11: Poverty and inequality	x		x	x			x				x					x				x
12: Economic freedom												x	x							

Note. The various dimensions of development are captured partly in the following composite indices: A: Combined Consumption Level Index, B: Human Resources Development Index, C: Real Index of Consumption, D: General Index of Development, E: Physical Quality of Life index, F: Composite Basic Needs Indices, G: Index of Social Progress, H: World Standard Distance Scales, I: Human Suffering Index, J: Quality of Life Rankings, K: Combined Quality of Life Indices, L: Index of Economic Freedom, M: Economic Freedom Indices, N: Human Development Index, O: Capability Poverty Measure, P: Gender-related Development Index, Q: Gender Empowerment Measure, R: Global Competitiveness Indices, S: Human Poverty Index (developing), T: Human Poverty Index (developed)

Source: Booysen, 2002 p. 138, with own modifications.

While the current push for macro-indicators encourages the application of sound implementation of collecting and analysing statistics in developing countries, the uniformity of indicators implemented – following donor harmonisation and aid effectiveness, expressed most notably in the MDG's (IBRD, 2004) – might lead to less challenges to these “commonly agreed” indicators. The latter seem to be a worrisome aspect of the current development policies, as literature, while disagreeing

on numerous points, agree on the point that indicators need to be continuously challenged to be refined and improved.

Composite indices as discussed include a variety of elements. In the next two sessions a couple of experiments taken from economic history shall be described. They are characterized by an endogenous determination of the weights in (6).

4. Mathematical statistical methods

The idea in the following is to use the factor analysis and the theory of principal components taken from mathematical statistics to find some common movements in the indicators. The method is explained by among others Theil (1971) and Koutsoyiannis (1977). The main principle is to construct an index from the series that accounts for a maximal part of the variation in all the series. This index is found as an eigenvector corresponding to the largest eigenvalue in the $(X'X)$ -matrix, where X is the data matrix, or in a more intuitive formulation, the first principal component is the weighted average of the different series where the weights are selected so that the weighted average includes a maximal part of the variation in all the basic series. The second principal component is then an index that counts for a maximal part of the remaining variation, and is uncorrelated with the first component. This is the eigenvector corresponding to the second largest eigenvalue. This process can be continued until there are as many principal components as series in X and that all the variation in X is included in the principal components; normally only a few principal components are necessary for determining the main part of the variation in X . Theil analysed 17 series for the American economy for the period 1922–38 (Theil 1971, pp. 50–55) and he found that only 3 components are necessary for a proper explanation of the series. Furthermore each of his three components has a straight-forward interpretation. The first is an expression for general income level, the second for growth in income, and the third is a linear trend.

In Kærgård (1990 and 2004) such a method is used for construction of an indicator for the *economic growth* in Denmark for the period 1846–1876. The quality of Danish national accounts series for this period is debatable, and some data, that are better defined, but perhaps less relevant, are taken into consideration. The series used as indicators of economic growth are mechanical power, MHP, two series for the amount of fire insurance, FIRE 1 and FIRE 2, (they differ in area included), a series of the gross national product in real terms, GNP, and a series for the capital stock, KT, the population in the working age groups, NP, and the real value of banknote circulation, NOTE.

The principal components are calculated and the correlation between them and the series in X is shown in Table 3. The table shows that all the series – except banknote circulation – are strongly correlated with the first component. The second component is correlated with banknote circulation but with no other variables. There is no remaining variation for the last five components, so the last five components are weakly correlated with all the variables.

Only the first component is a possible estimate of a general development index. This component is shown in Figure 1 (the variable is normalized to mean = 0 and deviation = 1). The index is characterized by a rather stable trend. There is a change in the level for 1858/1859 but no change in the growth rate in the first part of the curve as compared to the latter part. If this index is a good indicator of the economic growth rate, it shows a stable growth in Denmark from 1846 to 1876.

Table 3 Correlation between the principal components and the variables (Factor Loadings)

Principal component no. Variable, logarithmic transformed	1	2	3	4	5	6	7
Capital stock, KT	0.98	0.05	0.18	0.01	0.02	0.03	0.02
Mechanical power, MHP	0.98	0.06	0.15	-0.08	0.06	-0.04	0.00
Fire insurance amount, Copenhagen centre, FIRE1	0.82	-0.43	-0.36	-0.08	-0.05	0.01	0.00
Fire insurance amount, Copenhagen, FIRE2	0.93	-0.22	-0.26	0.10	-0.06	-0.01	-0.00
Gross National Product, GNP	0.97	0.14	0.14	0.05	-0.11	-0.02	0.00
Real note circulation, NOTE	0.33	0.90	-0.28	-0.01	0.00	0.00	-0.00
Population 15-65 year, NP	0.98	0.03	0.17	-0.01	0.01	0.03	-0.02

Source: Kærgård (2004)

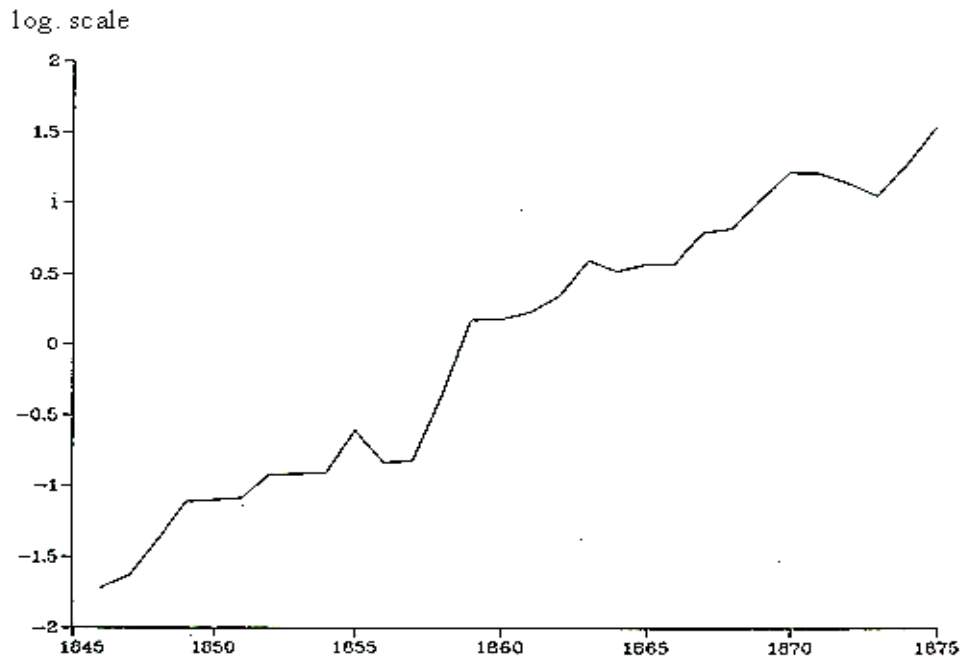
5. Delphi-methods

The methods described in session 4 extracts the information from a number of quantitative indicators, but in other situations there is a considerable amount of qualitative information. All these pieces of information can be used to build up a consensus view about economic trends. The Delphi method – developed in the science of futurology for forecasting situations where exact modelling and measuring is impossible because of lack of data and incomplete knowledge about causal relationships – is a method which can be used for constructing such a consensus.

The Delphi method was developed by the mathematician Olaf Helmer at the RAND corporation in the early 1960s; see Helmer (1966 and 1968) and Jantsch (1967). Helmer developed his method for practical forecasting in situations where it is impossible to use statistical models. The idea is to use

the less precise knowledge provided by experts in the relevant fields to formulate a sort of "consensus-estimate".

Fig. 1 Development index for the Danish Economy 1846-1876



Note: The index is the first principal component of the series mentioned in the text

In Helmer's own words:

In view of the absence of a proper theoretical foundation and the consequent inevitability of having, to some extent, to rely on intuitive expertise - a situation still further compounded by its multidisciplinary characteristics - two options are available: hands can be thrown up in despair and policy decisions can be postponed until adequate theories are available to deal with socioeconomic and political problems as confidently as problems in physics and chemistry are handled, or the most can be made of an admittedly unsatisfactory situation and attempts can be made to obtain the relevant intuitive insights of experts and then use their judgments as systematically as possible. (Helmer, 1968, p. 188)

Helmer is convinced that the experts have untapped knowledge which although it is often informal, is nevertheless useful:

Fortunately, in the social sciences we are able to call on a vast reservoir of expertise of many kinds, both among substantive specialists and among generalists. While in some cases the expert judgment that is available may be derived from explicit application of existing theories, more often it may be highly intuitive in character and based on insights that, although no less reliable, may have thus far defied articulation within a theoretical framework. Much of this potential expertise now remains untapped in practical policy considerations. (Helmer, 1966, p. 12)

The aim is to increase the degree of consensus within the expert group through a succession of iterative question rounds. The results are reported back to the experts after each round, and as a result a higher degree of consensus is normally reached; hopefully, the most doubtful members of the expert panel are convinced by the good arguments of the best qualified of the experts during the process of successive reports back. There is of course also the chance that a single specialist can convince the majority during the process.

Normally the results are reported as median and quartiles:

A convenient consensus formula, applicable whenever the solicited judgments can be cast in numerical form (or even if they can merely be linearly ordered), is to use the median. Aside from being independent of a particular metric, it has the intuitively appealing quality that it can be viewed as the outcome of a democratic voting procedure, in the sense that half the panel considers the correct answer to be less than or equal to the median, while the other half considers it to be greater than or equal to the median. . . . If, in addition to a consensus, it is desirable to have an indication of the spread of opinions among the experts, that is, of the amount of their "dissensus," it may be expedient to state the interquartile range of their responses (which is the interval containing the middle 50 per cent of them). (Helmer, 1966, p. 17)

In Kærgård (2001 and 2003) is the Delphi-method used for constructing an indicator for the development in national income and population in Denmark for the period since year 1000 A.C. There are a number of indications of economic development in Denmark dating back as far as the Viking Age. A number of researchers have used a variety of sources to obtain more or less well-founded impressions of economic trends. Economic historians have series of prices for specific products, numbers of workers in individual firms, accounts for a number of estates, etc. as well as a considerable number of qualitative descriptions. Ecclesiastical historians know when churches were built, when monasteries were at their grandest, and so on. Researchers in architecture are well aware that the more elaborate and more modest buildings in Denmark date from different periods. Other information is in the hands of agricultural and forestry historians; they know about the different uses of various areas of land, for example.

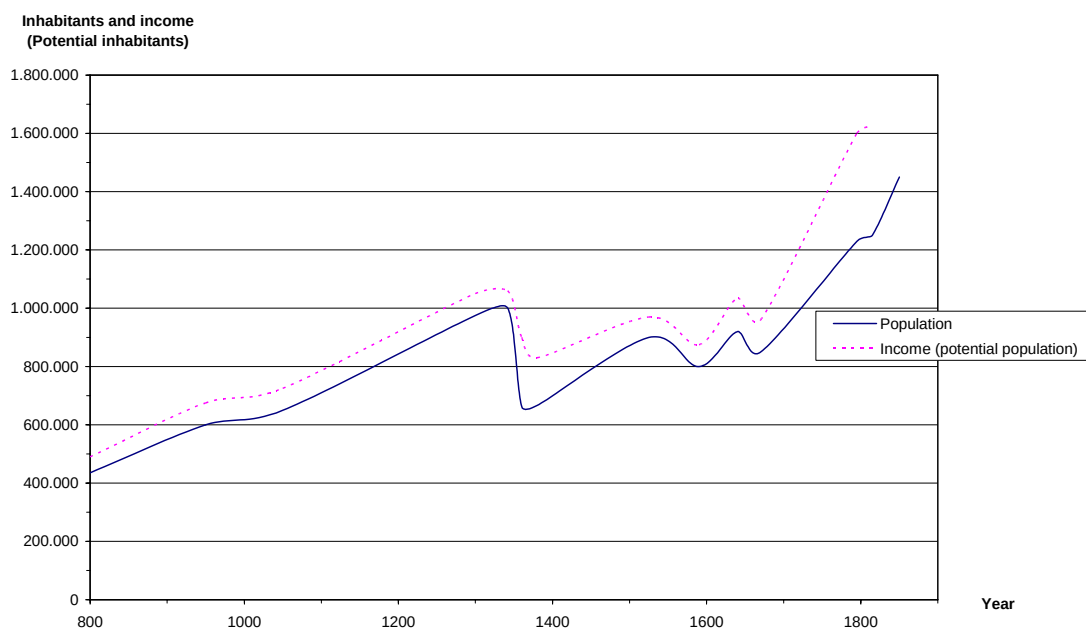
If one is trying to use a research strategy like the Delphi method on the economic trends in Denmark before 1800, the two main problems are the formulation of the question and the selection of the panel of experts. Neither of these problems is simple to solve. Anybody can understand a question like "When do you expect man to land on Venus?", but few would have any chance of answering a question like "Could you give your best estimate of the Gross National Product in Denmark for the year 1500 in 1929-prices?". The problem must be formulated in a manner which is understandable for experts in a variety of relevant fields, and the answer must be in some intuitively comprehensible units.

It was decided to measure the national product as the number of people it would be possible to support. In some senses the idea is a Malthusian one. The size of the population is an indication of production if most of the inhabitants are living close to the subsistence level. If Malthus was approximately right for the period before 1800, no confusion is possible - the actual population is a relevant measure for determining the national product. If not, then it becomes relevant to make estimates for both the actual population and for the potential population it would be possible for the country to support.

To explain what was wanted, an initial curve was presented. No particular authority was attributed to this initial curve; it was presented mainly to explain what was required, and the experts were asked to sketch their own curve.

12 different experts were asked to give their opinions of the pattern of development in national income expressed in terms of the potential population it could support. The result is shown in fig. 2. It indicates that the per capita income started growing around 1650, and that the considerable decline in the population and GNP after the Black Death around 1350 resulted in a higher per capita income because of more capital and land per surviving inhabitants.

Fig.2 National product measured as potentially supportable population



Source: Kærgård (2001, p. 10)

6. Economics of happiness

A rather new method for measuring the well-being of a population is to use self-reported subjective well-being or happiness. These measures are based on simple questions like “Taken all together, how would you say things are these days – would you say that you are very happy, pretty happy, or not too happy” (*General Social Surveys*, see Davis et al., 2001), “All things considered, how satisfied are you with your life as a whole these days?” (*World Values Surveys*, see Inglehart et al., 2000) or “On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life you lead?” (*Eurobarometer Surveys*).

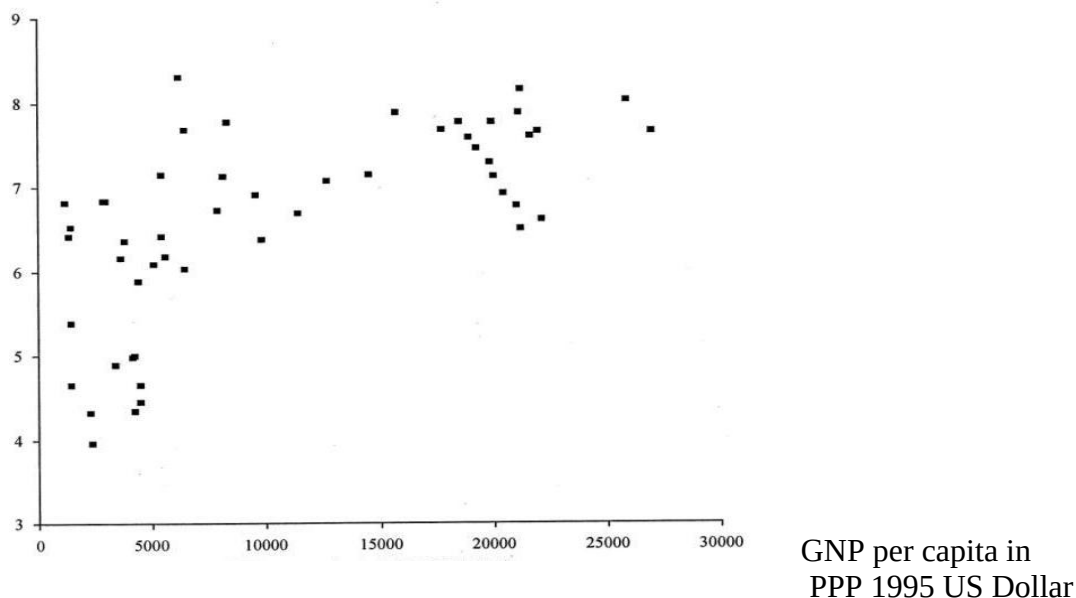
With a few pioneers in the 1970s (e.g. Easterlin, 1974), a considerable economic literature based on such observations has been published since the middle of the 1990s. For a survey, see among others Frey and Stutzer (2002 and 2002a) and Lailder (2005). This type of investigations is not at all only developed by economists. Sociologists, psychologists and political scientists have contributed to

this literature since the pioneering work by Bradburns (1969). Among the political scientists can be mentioned Lane (2000) and among the sociologists Gundelach and Kreiner (2003).

The relation between subjective well-being and the traditional economic measurements of income and market power is not at all simple. It seems as if there is a positive correlation between income measured in purchasing power parity and subjective experienced happiness, if a broad sample of the worlds rich as well as poor countries are compared, but among rich countries alone there is no correlation; see Frey and Stutzer (2002) and fig.3. This is true for a cross section sample of

Fig. 3: Life Satisfaction and Income Level across Countries in the 1990s

Satisfaction
With life



Source: Frey & Stutzer (2002)

countries, but if a time series of income and happiness for a country is considered there seems to be less correlation; Frey and Stutzer (2002) reported a time series for Japan 1958-1991, where the real GDP per capita has risen by a factor of six, while the level of subjective well-being is almost completely constant. Oswald (1997) finds a slightly rise in satisfaction with life in Europe since the early 1970s.

There seems to be two reasons for the weak correlation between happiness and income. The first is that happiness is not determined by actual income, but by the relation between actual income and expected income or aspiration level of income. And in a growth process actual and expected income are growing almost parallel. The second reason is that there are many other factors than real average income which determines the level of happiness: The income distribution, the unemployment, the rate of inflation and institutional conditions like democracy seems very important.

The most positive of the researchers find that the concepts of happiness will be very important for economic policy and economic theory. As Frey and Stutzer (2002) write:

Happiness is not identical to the traditional concept of utility in economics. However, it is closely related. On the one hand, the concept of subjective happiness is a valuable complementary approach, which, however, covers many more aspects of human well-being than the standard concept of utility. On the other hand, subjective well-being can be considered a useful approximation to utility which economists have avoided to measure explicitly. (Frey and Stutzer, 2002, p. 30)

and

An important part of anti-poverty policy deals with the question of what “poverty” is. Traditionally, the definition relies on disposable income. Happiness research allows the problem to be approached more fundamentally by considering reported levels of subjective well-being. - - - Happiness functions have sometimes been looked at as the best existing approximation to a social welfare function to be maximized (explicitly e.g. Di Tella, MacCulloch, and Oswald 2001, p. 340). The optimal values of the determinants thus derived are – according to this view – the goals which economic policy should achieve. It seems that, at long last, the so far empirically empty social welfare maximization of the quantitative theory of economic policy (Jan Tinbergen 1956 and Henry Theil 1964) is given a new lease of life. (Frey and Stutzer, 2002, p. 31)

Frey and Stutzer (2005) argued furthermore for using happiness in cost-benefit analysis. Some normally overlooked effects can be included if happiness are used instead of more traditional methods. If e.g. effects of noise are measured by changes in house-prices only the conscious effects for the consumers are included, while measurement of happiness will include fall in happiness caused for instance by bad health even if the causality from noise to health is unconscious for the consumer. Strategic behavior seems furthermore less obvious if happiness is measured instead of willingness-to-pay.

7. Conclusion

Income, development, utility, happiness, well-being are concepts which can have many and inexact meanings, and as long as they are airy and immeasurable concepts, they are not very useful. One has to try to make them precise, well-defined and measurable, and that is what economists have struggled with for more than hundred years.

None of the concepts are, however, so well-established and well-defined that they can stand alone. A reliable economist has to try to get an overview of the whole spectrum of possible measures and open-minded accept the advantage and disadvantage of the different concepts and measurements. The picture can be complicated, but the real world is complicated, and a very hard nose use of one measure can be fundamentally misleading.

These methods and concepts seem, however, so promising, that it seems reasonable to support further research in this more untraditional measurements.

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