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Title: Attracting attention for the cause. The reporting of three indices in the UK national press

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Abstract

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Introduction

Indices (a collection of indicators into a single value) have been growing in importance as a means of translating complex information to those who are meant to use it for bringing about change (Bell and Morse, 2003, 2008). Gallopín (1996, p 108) defines indicators (and by extension indices) as:

“variables that summarize or otherwise simplify relevant information, make visible or perceptible phenomena of interest, and quantify, measure, and communicate relevant information.”

Note the inclusion of the term ‘communicate’ in this definition. Indicators and indices (I&I) have certainly entered the modern vocabulary and often appear within the mass media

(Frønes, 2007). Indeed various authors have attempted to set out a causal chain between I&I and an influence on policy, and the first steps in this change are for them to cross the cognitive screen of the user and change their worldview (Hezri, 2005; Hezri and Hasan, 2004; Hezri and Dovers, 2006) and this may be achieved in various ways. For example, the creators of I&I may seek to bring about such influence by generating publicity materials which include news releases for journalists. I&I may be employed as a means of crystallising an issue in ways which make it attractive for non-specialists to appreciate, and a favoured device is the use of performance league tables. Thus an issue as complex as, for example, corruption with all of its subtle concerns over interpretation and impact let alone measurement may be condensed into a single index which is then employed to rank countries. A non-specialists does not necessarily have to engage with the technical complexities and assumptions behind the index and instead is only presented with the headline; a rank of countries in terms of their corruption. The proponents of such an index would hope that the press would promote such information and thus enhance awareness amongst their readership and, in turn, politicians, policy makers and so on who have to some extent reflect the concerns of the public.

The cause-effect model outline in the previous paragraph between an enhanced cognisance, facilitated in part by a suitable index, and influence to bring about change is an appealing one for those seeking to promote a particular issue. The media is also an obvious mediator in such a process of influence. However, the extent of influence which newspapers can have in terms of its readership or indeed policy is open to question and the dynamics are complex. Mutz and Soss (1997) explored the influence of news coverage in the USA and the results show a mixed picture where individuals might not alter their own personal view but may change their perception of what they think the community as a whole believes. Others have found that

newspapers may be influential with regard to environmental issues such as global warming (Boykoff and Boykoff, 2007), although much may depend upon the extent as well as momentum of coverage. For example Sampei and Aoyagi-Usui (2009) have shown that while newspaper coverage helped influence public awareness of global warming issues this does depend upon the maintenance of coverage over time rather than being a 'once off'. Indeed coverage of this issue can be cyclical (increase and decrease over time) rather than constant (McComas and Shanahan, 1999). Even so, writers such as Holliman (2004) have highlighted the role that newspapers can play in so-called 'scientific citizenship', so the role of the press is important. There are various issues at play with regard to how journalists 'pick up' on technical subjects, and Boykoff and Mansfield (2008) point out that one important aspect is the availability of journalists having expertise to be able to dissect scientific discourses. Hence there can be divergence between a scientific consensus and what journalists choose to focus upon in their articles. The availability of indices which condense technical complexity into single values and league tables would no doubt be attractive in such situations. Newspaper ownership can also be an important aspect with issues such as immigration (Branton and Dunaway, 2009).

However, there are many unanswered questions and this is perhaps not that surprising. To date most of the published material on indices has been focussed far more on technical issues surrounding derivation and methodology. Issues surrounding communication (how and to whom?), despite being a central concern of I&I as set out above by Gallopin (1996) and indeed others, has surprisingly not been subject to much research in the Geographical or indeed any literature. Even a relatively straightforward question such as the extent of coverage of indices in the press has not been addressed or indeed whether there is any evidence of some indices receiving more coverage than others? The latter is quite plausible

for a variety of reasons, and research would allow the creators of indices to learn lessons from such comparisons as to what they can do to enhance coverage in the media. For example, does scale make a difference? Some indices are created for the scale of the nation-state and don't translate that readily to more local scales. Other indices are more flexible and can be calculated at many scales, even at the level of the household and individual. Does that make a difference in terms of their reporting within the press?

The aim of the research described here was to explore the reporting of some quite different indices in the national newspapers of the UK. The paper begins by describing the three indices selected for the research and how they have been promoted by their creators. This is followed by a description of methodology and a quantitative and comparative analysis of the reporting of the indices in national newspapers spanning 20 years (January 1990 to December 2009). The paper ends with a discussion as to observed similarities and differences in the patterns of reporting and why they may have occurred. Lessons for those creating such indices are drawn. The research upon which this paper is based was funded by the European Union as part of its Framework 7 programme ('Policy Influence of Indicators' project; POINT).

The three indices

There are many indices that could be employed for this research, and the three selected were:

1. Corruption Perception Index (CPI)
2. Human Development Index (HDI)

3. Ecological Footprint (EF)

These indices have points of similarity but also points of difference both in terms of their calculation and also the issues that they seek to address. The technical methodology and detailed assumptions behind the calculation of the indices is somewhat complex and need not be described here in detail. Instead the paper will provide a brief summary of each, point out a few of the main assumptions that rest behind them and the means by which they are promoted by their creators.

The CPI was created by the Berlin-based non-governmental organisation Transparency International (TI; www.transparency.org). It is released each year on their website with the first one being in 1995. The release is often associated with a ‘press pack’ for journalists, and indeed the website has a ‘Media Centre’ which provides digests of the material, stories, contacts and so on. The CPI is a single value which summarises the perception of corruption for a range of countries and these are provided in the form of a league table (least corrupt at top and most corrupt at bottom) and global map with the CPI represented using shading. It is based on the perceptions that givers of bribes have towards various countries in which they work, and is in effect an ‘index of indices’ found by combining data from a variety of surveys not conducted by TI (Lambsdorff, 2002), and as an example the surveys included in the 2009 version of the CPI are shown as Table 1. The rankings of a country in the various component surveys are combined via a complex methodology to generate the CPI. Please note that as the component surveys are all operating at the level of the nation-state their amalgamation into the CPI also results in an index which applies at the scale of the nation-state. The surveys which have been included in the CPI have varied since its first release in 1995, and this makes it difficult to make year on year comparisons. Thus it is not strictly possible to claim

that an individual country has moved up or down the CPI league table over time based upon a better/worse perception that people have of corruption in that place. Any such movement could simply be a methodological artefact rather than any deeper and more meaningful change in corruption. Also, of course, given that the surveys in Table 1 attempt to assess corruption from the perspective of the ‘giver’ then there is potential for some bias as the surveys only include the voices of one of those involved in the exchange. This potential is added to by the choice of surveys to include in the CPI (a decision made by TI) and indeed how they are amalgamated.

<Table 1 near here>

The HDI was created by the United Nations Development Programme (UNDP) and updates are released each year within its Human Development Reports (www.hdr.undp.org/en). The HDI was developed by the UNDP to encapsulate its vision of human development which is in part meant to provide a counter-weight to what was perceived by UNDP as the dominance of economic visions of development (i.e. the dominance of Gross Domestic Product and other monetary indicators). The first Human Development Report was published in 1990, and as with the CPI the HDI was originally published on a nation-state basis with a league-table style of ranking. Countries with lower values of the HDI (less developed or having most deprivation) are at the bottom of the league table while those which are most developed (higher HDI, less deprivation) are at the top. The HDI has three components encompassing what UNDP saw as the critical aspects of human development; health, education and income. These are assessed as:

1. life expectancy (a proxy indicator for health care and living conditions).

2. adult literacy combined with years of schooling or enrolment in primary, secondary and tertiary education.
3. real GDP/capita (\$, adjusted for Purchasing Power Parity; a proxy indicator for disposable income).

The advantage of having only three components is clear in that it helps with interpretation and minimizes the need for good quality datasets. In the HDI they are given an equal weighting (Stapleton and Garrod, 2007). Indeed the choice of these components for the HDI is not surprising given that they often appear in lists of development indicators (Bunge, 1981). However, since 1990 the mode of calculation of the HDI has changed and as with the CPI this does make it difficult to compare ‘headline’ values of the HDI across years. For example, the GDP/capita component of the HDI is problematic given its large inter-country variation (much larger than for the other two components) and the UNDP has assumed a diminishing return from GDP/capita so as to avoid domination of this component within the HDI (Sagar and Najam, 1998). In 1990 this diminution was achieved by simply taking the logarithm (base 10) of the GDP/capita. This transformation dramatically reduces the range of the GDP/capita component, although it doesn’t ‘flatten out’ completely. However, between 1991 and 1998 this method was changed and the UNDP adopted more complex Atkinson formula which does ‘flatten out’ higher values of the GDP/capita (UNDP HDR, 1991). Between 1999 and the present there was a return to the logarithm method as it was felt that the Atkinson formula was too severe on middle-income countries (UNDP HDR, 1999). UNDP have provided tables in some of their HDRs which calculate an adjusted HDI across years using the same methodology. Therefore unlike the CPI there has been some attempt to allow for a comparison of HDI across time as well as space. A further complication rests with the interpretation of the HDI. It was initially designed as a measure of human development

but others often interpret it as an index of an assumed 'quality of life' (Veenhoven, 2005). Thus unlike the CPI which is solely associated with corruption the HDI attracts a wider range of interpretation.

The UNDP produces a 'global' version of the Human Development Report (and HDI) each year and these are released by its regional offices across the globe as well as on its website, which like that of TI also has a 'Media Centre'. In addition to the global version there has been something of a surge in regional and national Human Development Reports with corresponding 'local' versions of the HDI (an early example is provided by Thapa, 1995 for Nepal). For example Agostini and Richardson (1997) produced HDI's for a number of American cities and there is an American Human Development Project (www.measureofamerica.org) with a report published in 2008/2009 which includes a 'HDI style' ranking by state. The UK does not have a national Human Development Report or local versions of the HDI but instead has employed a range of measures such as the Index of Deprivation 2007 (ID 2007) which itself is a revision and update of the Index of Deprivation 2004 (ID 2004). In contrast to the HDI with its 3 components the ID2007 is far more complex and uses a total of 38 indicators grouped into seven domains.

Like the CPI the HDI is built upon a number of key assumptions and these are open to disagreement (Kelley, 1991; McGillivray, 1991; Lind, 1992, 2004). To begin with there is the assumption that human development (or quality of life) can be seen so starkly as a composite of just three components. This has been questioned along with the absence of an environmental component.

The third index employed for this research is the Ecological Footprint (EF). The EF is an index of consumption and attempts to present that dimension of human behaviour in terms of the land area required to support it (Wackernagel and Rees, 1996; Holmberg et al., 1999; Ferguson, 2002; Wackernagel et al., 2002; Haberl et al., 2004; Kitzes and Wackernagel, 2009). Thus it is possible to speak of the EF of a nation state in terms of the global land area (typically adjusted to a per capita basis) needed to support the population of that country given its current pattern of consumption. The EF deconstructs consumption into the following six components:

1. crop land
2. forest land
3. fishing grounds
4. grazing land
5. carbon uptake land
6. built-up land (urban areas and dams)

The first four of these are straightforward in the sense that they are all related to food production. Carbon uptake land is the area required to absorb the carbon produced by a country. However while the six components of the EF have a clear logic the process for estimating such nation-state EFs is complex and as with the CPI and HDI it is based upon a number of key assumptions that are readily contestable (van den Bergh and Verbruggen, 1999; Ayres, 2000; van Kooten and Bulte, 2000; van den Bergh and Verbruggen, 2000). Underlying it all is the same need as for the CPI and HDI to have good quality data, although this is arguably more complex with the EF given the range of its components (Monfreda et al., 2004; Hammond, 2006; Kitzes et al., 2009).

Once adjusted to per capita then EF can be used as a comparison of nation-states in much the same way as can be achieved with CPI and HI, only this time larger EFs can be interpreted as implying greater waste and inefficiency in use of resources (Vanderheiden, 2008). The notion of envisioning consumption in terms of land area has been promoted by various groups who calculate their own version of the EF. The 'Footprint for Nations' version of the EF is published by Global Footprint Network (www.footprintnetwork.org/en/index.php/GFN) and appears as one of two key indices in the World Wildlife Funds 'Living Planet Reports' (WWF; www.wwf.org.uk). The 'Living Plant Reports' which contain values of the EF for nation-states have been published every two years since 2000; the two reports published before 2000 did not have the EF.

Table 2 provides a comparative summary of the three indices. They are similar in the sense of being widely applied by their creators at the geographic scale of the nation-state allied with a league-table style of ranking which is meant to catch the eye and promote discussion as to why countries are ranked the way that they are. All three are based upon a set of assumptions which can be questioned, and they are reliant on good quality data being available. However as shown in Table 2 there are also differences between them, most notably in terms of flexibility in scale. All three indices appear in refereed journal papers and at the foot of Table 2 are the results of a check using the ISI Web of Knowledge database, where the search term was the name of the index and the results are the number of articles held in the database which mention the search term at least once in the abstract. EF had the largest number of 'hits' (559) followed by the HDI (353). The CPI had relatively few 'hits' (13). However, these results relate to academic journal papers for the most part and such papers will not necessarily be available, nor indeed be of any interest, to the general public. It should also be

noted that many of these papers will be of a technical nature, perhaps criticising assumptions and methods and making suggestions for improvement.

<Table 2 near here>

Methodology

Given the very large number of national and local newspapers available globally it was decided to focus on national newspapers in the UK as electronic copies of articles are available via the NEWS UK database. The definition of ‘national’ newspapers is somewhat vague and equates to a newspaper that is sold throughout a nation although even here coverage may be patchy and definitions are blurred. The UK has devolved governments in Wales, Scotland and Northern Ireland, so a newspaper published and mostly sold in any of these countries would still be regarded as ‘national’. In this study it is taken to be those classified as ‘national’ in the NEWS UK database and a list of titles along with some notes on each is provided as Table 3. Also note the inclusion of the Irish Times, a non-UK publication but widely available through the UK.

<Table 3 near here>

The NEWS UK database was used to search the electronic editions of the newspapers from January 1st 1990 to December 31st 2009. Keywords for the search were the same as those employed in the ISI Web of Knowledge search, namely ‘Corruption Perception Index’, ‘Human Development Index’ and ‘Ecological Footprint’. Each article was extracted and placed as a record in an Access database. Duplicates records were removed prior to analysis.

Once completed, the three databases (one for each index) were analysed so as to create the variables shown in Table 4. The number of articles published each month (or year) which mentioned the index at least once was summed. Following from this were calculations of the number of words in each of these articles (WORDS) and the number of times the index was mentioned in each article (MENTIONS). The two latter variables were combined to generate a measure of density:

$$\text{DENSITY} = \frac{\text{MENTIONS}}{\text{WORDS}} \times 1000$$

The final variable employed in the analysis was the number of key reports:

- Transparency International for the CPI
- Human Development Reports for the HDI
- Living Planet Report for the EF

The years and months of publication of these key reports are shown in Table 5. Also shown for the CPI and HDI is the distribution of publication dates over the months of the year, and this comprises the variable called REPORTS.

<Tables 4 and 5 near here>

Analyses of the data were by regression and by analysis of variance (general linear model). In the case of the latter the data were first transformed by taking the natural logarithm. Main effects were taken to be indices, year, month and an interaction term (indices X month).

Results

Counts of newspaper stories between 1990 and 2009 mentioning the indices are shown as Figure 1. For both CPI and HDI there is a statistically significant linear increase in the number of published articles mentioning the index between January 1990 and December 2009. In most years the number of articles mentioning the HDI is higher than for CPI. Overall all the years the total number of articles is 356 for the HDI and 171 for the CPI. However, the pattern over time for the EF was different to that of the CPI and HDI. To begin with the EF was mentioned in more articles than for the other two indices (414 in total over the 20 years). Also, unlike the CPI and HDI the pattern of articles mentioning the EF has a distinctive ‘skew’ over time rather than a simple linear trend. The peak of the distribution is in 2006 (83 articles in total for that year) but drops in subsequent years. The surge in articles mentioning the EF from 2000 onwards is quite different to the pattern seen for CPI and HDI. The regression fit in Figure 1(c) is polynomial (quartic) and is statistically significant at $P < 0.001$.

The same data in Figure 1 can be presented on a monthly basis and the results are shown in Figure 2. There are peaks and troughs in the monthly distribution of articles for each index. For the CPI the peaks are in September to November, while for the HDI the most noticeable

peak is in July. These patterns broadly correlate with the publication months of the two key reports that promote these two indices. Transparency International's corruption reports have mostly been published between September and November (10 out of the 15 reports have been published in those months), while the most popular months for publication of the UNDP's Human Development Reports is May, with 7 out of the 19 reports published in that month, followed by July (5 out of the 19). There does appear to have been a surge of articles mentioning the HDI in July, but with a less pronounced peak for May. One reason may be that May was popular for the earlier reports (up to 1998) and July more popular between 1998 and 2004. As shown in Figure 1 reporting of the HDI increased with time, hence over the 20 years concentration of articles in July would be expected to be greater than in May and that is indeed the case.

Correlation coefficients which relate the number of articles on a monthly basis to the distribution of report publication are shown in Table 6. The correlation coefficient for the number of 'CPI' articles published on a monthly basis and the monthly distribution of the publication of the 'key' TI report is 0.719 ($P < 0.01$). This suggests that the timing of newspaper articles mentioning the CPI is related to the timing of the release of the TI report. Similarly, the correlation coefficient linking the timing of articles and publication of the Human Development Reports is 0.58 ($P < 0.05$). In both cases, but most noticeably with the HDI, there is some 'scatter' around the publication months of the key reports. In part this will be related to the increased reporting over the years of both indices, with concomitant changes in the favoured month of publication, but there are other factors as well and these will be discussed later.

<Figures 1 and 2 near here>

<Table 6 near here>

For the EF there is indeed a concentration of articles mentioning the index in October, the month when the ‘Living Planet Report’ is published by WWF, but it is interesting to note that there are peaks in other months as well. Given that there are only five ‘Living Planet’ reports which have been published since 2000 and which report the EF then it is not meaningful to generate a correlation coefficient for the articles and reports as it was with the CPI and HDI. However, the more scattered distribution of articles over the months probably reflects the fact that EF appears in many reports produced at local, regional and national scales and hence publicity is by no means restricted to the release of the ‘Living Planet Report’.

The number of articles mentioning each index is one measure of coverage but does not take into account the length of the articles (WORDS), how many times the index is mentioned (MENTIONS) or indeed the density (DENSITY; number of mentions/1000 words of the article). The results of an analysis of variances applied to these data (after logarithmic transformation) are shown as Table 7. There is a statistically significant effect ($P < 0.001$) for indices but interestingly not for years. In addition there is some suggestion of a significant month effect, certainly for the DENSITY variable but perhaps also for WORDS and MENTIONS. The interaction between index and month was significant for all three variables suggesting that patterns of distribution across months were different for the indices.

<Table 7 near here>

The back-transformed averages (plus 95% confidence intervals) of the variables for each index are presented as Figure 3. The HDI is mentioned in articles of greater length relative to

the CPI and EF (Figure 3a), although the EF is mentioned more times within articles than are the CPI and HDI (Figure 3b). The longer article length for articles that mention the HDI allied to the relatively low number of mentions of that index per article combine together to create a very low density (Figure 3b) relative to CPI and the EF. The EF has the highest density of the three.

<Figure 3 near here>

Correlation coefficients relating the back-transformed means of the three variables (WORDS, MENTIONS and DENSITY) estimated on a monthly basis and the release of the key reports of the CPI and HDI are shown in Table 6. There is no significant correlation between any of the three variable and the months of publication of the Human Development Reports. However, for the CPI all three correlation coefficients are statistically significant. Interestingly the correlation coefficient for the WORDS variable is negative; suggesting that the average number of words/article declines during the months when the Transparency International report is published. However, the correlation coefficients for the MENTIONS and DENSITY variables are positive implying that these increase for the months of report publication.

How can these differing patterns between the three indices and sets of variables be reconciled? The results suggest that reporting of the CPI is largely related to the release of the Transparency International report each year. It should be noted that the CPI only appears in the Transparency International reports; no one else produces a version of the CPI. When the reports are released there is a surge in articles mentioning the index. Outside of that time the index receives relatively little attention. Hence the statistically significant correlation

coefficients found between the CPI variables and release of the TI report. However, the articles released at the time of the report are shorter than at other times although they do have a higher density (index is mentioned more times for every 1000 words). These articles are more like announcements, perhaps allied with a brief description of the ranking of countries (brief tabulation as to which is the worst/best and so on). The CPI does appear in other articles published through the year but these tend to be longer although the mentioning of the CPI within each article is less. These might, for example, be more general articles on corruption where the CPI is mentioned to highlight a point of a country being relatively corrupt.

Articles mentioning the HDI also seem to be related to the publication of the Human Development Report (global version) but not as much as for the CPI and the TI reports. While there are more local versions of the HDI, often covering administrative units within a single country, this is not the case for the UK and hence the newspaper articles are for the most part resonating with the global Human Development Reports rather than anything else. However, while there is a statistically significant relationship between the number of articles and the month of publication of the reports there were no significant correlations between the other three variables and the month of publication. The article length and mentions of the HDI in each article did vary across months but there was no especial relationship with when the Human Development Reports were published. The reason for this is that the HDI is more widely employed than the CPI to illustrate a wide range of issues surrounding under-development. Hence there are articles which focus on a particular country or issue, perhaps civil war, insurgency or aid programmes, and the HDI is often employed as a device to show where that country or group of countries ranks on the world 'league table' of development (or quality of life). In effect the HDI provides a convenient and authoritative descriptor which a

journalist can employ to highlight a point. This reporting of the HDI in articles spanning a wide range of topics contrasts with the CPI which is much more of a niche index.

The EF is quite different from the CPI and HDI in the sense that while a ‘global’ form of it is reported in the WWF reports many others also report their own versions for varying scales. Thus the term ‘ecological footprint’ is flexible; it can describe the broad notion of human beings having an impact on the Earth as well as a specific index having various forms. Regions and cities of the UK have their own calculation of an EF which might differ from that employed by the WWF but which nonetheless attracts attention from the media when they are released. Therefore the WWF reports are only one form in which a version of the EF is publicised, and while in Figure 2c there is an increase in the number of articles mentioning the EF at the time when the report is released there are peaks in other months such as April, July and November. This flexibility explains the rapid surge in popularity of the EF from the year 2000 which is allied with a general increase in the popularity of ‘green’ issues in the media. In theory it would be possible to do the same for the HDI within the UK; different regions, counties etc. could estimate their own ‘local’ HDI. This happens in other countries, including the USA, but is not the case for the UK. While the HDI has some resonance in the media as a measure of ‘quality of life’ it is likely that local variation in the HDI between different parts of the UK would largely reflect variation in the income component. Hence while EF has been locally adopted and adapted the same has not been true for the HDI. The CPI is far less adaptable than is the HDI and EF. The CPI is designed to provide a comparison at national scales and its method of calculation would simply not work at intra-UK scales. Corruption, or at least its perception, can be measured in other ways, of course, but the CPI and the theoretical basis of its calculation as well as required datasets are not

transferrable to the local. This explains the close association between the reporting of the CPI in the national press and the release of the TI reports.

Discussion

Indices such as the three analysed in this paper are meant to be vehicles for the highlighting of an issue to a wide and non-specialist audience. Hence the CPI is designed to promote awareness of corruption, the HDI promotes human development as envisaged by UNDP and the EF is designed to show how consumption impacts in terms of the surface area of the planet. Each is designed by humans and thus has inherent elements of subjectivity which are encapsulated via the various assumptions upon which they are built. They are meant to capture attention – not by accident but by design – and the results presented here show that they have had different degrees of success in achieving this (at least when measured in terms of reporting in UK national newspapers). Much depends, of course, upon how success is judged; it is after all a subjective and relative term. Reporting in newspapers is certainly one aspect of success in the sense that the index has captured the attention of some journalists and through them should reach a wider public audience.

If relative success of the three indices was gauged in terms of their ability to capture press attention as assessed in terms of the number of articles, mentions etc. then of the three the EF would appear to have had the most success. The EF has appeared in more articles and is

mentioned more times in the articles in which it appears compared with the CPI and HDI. The reason for this is the flexibility of the EF, it can be estimated for both local and national contexts, and the idea of humans having a ‘footprint’ on the Earth is easily appreciated and resonates with a basic sense of greed. With the rise of ‘green’ issues in the media and various local authorities picking up the EF as a key measure of environmental performance and sustainability it is perhaps understandable that the EF has received increasing mention in national newspapers. What is less readily understood is the recent decline in reporting of the EF from 2006 (Figure 1c). Does this imply a diminishing interest, perhaps as economic concerns have dominated the UK and global agenda?

The HDI should also have an appeal in that it is often equated to ‘quality of life’ but in the newspaper reporting that provided the bedrock for this analysis the HDI is applied to distant others rather than to the UK or indeed parts of the UK. Although it would be possible to achieve in practice, there are no local forms of the HDI within the UK. Instead the reporting of the HDI in the articles is linked to discussion of poverty and under-development, perhaps also related to natural and man-made disasters. The breadth of these issues certainly gives the HDI an appeal for journalists as it allows them to readily illustrate a point with an authoritative measure. However, the HDI is part of a discourse of places beyond the borders of the UK, while the EF is part of a discourse both within and outside the UK. Given that the HDI can be viewed, albeit simplistically, as a measure of ‘quality of life’ then it may at first glance be surprising as to why local versions of the HDI don’t exist within the UK. After all, there are local versions of the HDI in the USA (Agostini and Richardson, 1997) and other countries (Thapa, 1995). It is not so much that data (income, life expectancy, education) to calculate a local HDI would not be available but that other measures are preferred, such as the Townsend Index and the Index of Multiple Deprivation, which have components that are

more suited to the UK. The lack of a local HDI limits the extent of its reporting in the UK even if concepts such as social deprivation and quality of life are widely discussed and reported. The result is that while the HDI is far less flexible than the EF it does have a broad utility for journalists.

Of the three indices the CPI is least adaptable at local scales within the UK. It is designed to provide a comparison of corruption at the level of the nation state, and as such utilises data from a number of nation state-based surveys. In effect the methodology captures the findings of those separate surveys and pools the results into a single value – the CPI. One could conceivably estimate corruption at local scales in the UK, perhaps by gauging people's perception of corruption, but probably not via the same approach as that taken for the CPI. There may be local differences in perception but these could be quite subtle when compared to the differences seen with the CPI at the scale of the nation-state. Thus while corruption is certainly an issue which receives a great deal of attention in the national press, the CPI is not often reported as an illustration of this unless the article is exploring corruption at the scale of the nation state, and articles of that type will be far fewer in number. In that sense, the CPI is the most specialised of the three indices analysed here.

Unfortunately those creating such indices often tend to focus far more on issues such as technical excellence and the need for good quality data. These aspects are inevitably founded upon a series of key assumptions and given the almost inevitable subjectivity inherent within them it is all too easy to criticise which in turn spawns a literature of critique and counter-critique. Interestingly the rank order of the number of journal articles for the three indices mirrors that of the newspaper reporting as shown in Table 8, although the absolute numbers of articles are different. The two literatures will be different in the sense that much of the

scientific reporting in journals will comprise critiques and use of the indices as explanatory variables, but the parallels are remarkable nonetheless.

<Table 8 near here>

These are important aspects, of course, but it has to be remembered that indices are a type of marketing tool and greater cognisance needs to be taken of these ‘softer’ facets of design and communication. Admittedly there is some circularity here as the assumptions and methodology do have to be on a firm footing before an index should be promoted to a non-technical audience. However, at some point a line has to be drawn and the emphasis shifted in favour of communication. Thus compromises have to be made.

Ultimately, of course, the hope of those creating the indices is that they will influence those who make decisions, be they the individual, household, manager or policy maker. The media is certainly one vehicle which those creating such indices can employ but there has to be greater cognisance as to why some indices are picked up more than others. However, just because an index is reported in the media this does not necessarily mean that it will have a direct influence on behaviour and/or policy given that many influences will be at play besides what happens to be on the front page (Lavis et al., 2009). But attracting attention is arguably a good start.

Conclusion

The three indices discussed in this paper differ in various ways, and these characteristics have helped influence their presence in the UK national press. Given that such a presence in the press raises awareness with the readership, and given that the readership are voters, then indices are helping to fulfil their intended function of promoting the particular concern they have been designed for. The EF is the most successful in terms of attracting attention, and this has been greatly aided by its ready appeal and adaptability at local scales. Perhaps the lesson for those creating new indices is to try and emulate the EF in terms of:

- a) capturing an issue having appeal at many levels in society; EF feeds into the ‘green’ agenda, HDI has been interpreted as a measure of ‘quality of life’ and CPI measures corruption.
- b) allowing for the issue to be captured (assessed) at many scales and thus enhancing a local resonance. EF allows for this with some ease, while the HDI and CPI are less easily adapted (for different reasons)

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Table 1. Components of the 2009 Corruption Perception Index

Report	Creator	Number of countries
Country Performance Assessment Exercise 2008	Asian Development Bank	27 (Asian)
Country Policy and Institutional Assessments 2008	Asian Development Bank	53
Bertelsmann Transformation Index 2010	Bertelsmann Foundation	128 less developed and transition countries
Country Risk Service and Country Forecast 2009	Economist Intelligence Unit	158
Nations in Transit 2009	Freedom House	29 countries/territories
Country Risk Ratings 2009	Global Insight	203
IMD World Competitiveness Yearbook 2008 and 2009	IMD International, Switzerland, World Competitiveness Center	55 (2008) and 57 (2009)
Asian Intelligence Newsletter 2008 and 2009	Political & Economic Risk Consultancy	15 (2008) and 16 (2009)
World Bank (IDA and IBRD) Country Policy and Institutional Assessment 2008	World Bank	75
Global Competitiveness Report 2008-2009 and 2009-2010	World Economic Forum	134 (2008-2009) and 133 (2009-2010)

Table 2. Comparison of three indices

Facet	CPI	HDI	EF
Issue being captured	Corruption	Human development, but also interpreted as a measure of quality of life and deprivation	Consumption (expressed as global productive area)
Nation-State and league table presentation	Yes	Yes	Yes
Other scales besides the nation-state	No	Yes (regions spanning a number of countries, states within a single country)	Yes – all scales even to the level of the household and individuals
Units	No	No	Yes – global hectares (gha)
Per capita	No	No (although one of the components, GDP, is expressed in terms of per capita)	Yes. Global hectares for a population (e.g. country) can be expressed on a per capita basis
Data source	Various corruption surveys (all based upon perception of corruption)	3 components employing data which are readily available (life expectancy, enrolment in education, GDP, population)	Requires many datasets.
Comparison over time	No. Mix of surveys included in the CPI varies each year.	No although comparable versions of the HDI have been published.	No. Components included in the global EF have changed with time but it should be possible to produce comparable figures over time.
Reporting Organisation	Annual report (1990 on) Transparency International (an NGO)	Annual Report (1995 on) United Nations Development Programme (UNDP) for the global reports	Biannual report (2000 on) Global Footprint Network (GFN) and World Wildlife Fund (WWF) for the global reports
ISI Web of Knowledge search (March 2010; search field = abstract)	13	353	559

Table 3. Newspapers included in the survey

Newspaper	Notes
Belfast Telegraph	Daily evening newspaper published in Belfast. Conservative in outlook.
The Daily Express/The Express on Sunday	Conservative tabloid.
Daily Mail/The Mail on Sunday	First daily newspaper aimed at the so-called 'middle-market' although regarded as a more conservative paper. Originally a broadsheet but now published in compact form.
The Daily Mirror/The Sunday Mirror	Labour-leaning Tabloid.
Daily Record/Sunday Mail (Glasgow)	Scottish tabloid based in Glasgow. Best-selling daily newspaper in Scotland. Labour-leaning.
The Daily Telegraph/The Sunday Telegraph	Daily morning broadsheet. Conservative in outlook.
Edinburgh Evening News	Daily newspaper published in Edinburgh.
Evening Times (Glasgow)	Evening tabloid.
Financial Times	International business newspaper. Morning daily.
The Guardian	Daily newspaper owned by a Foundation. Left of centre/Middle-class in outlook.
The Herald/Sunday Herald (Glasgow)	Published in Glasgow.
The Independent/The Independent on Sunday	Left-leaning daily.
Irish Times (Dublin)	Ireland's 'newspaper of record'. Socially liberal and economically left-wing.
News Letter (Belfast)	Oldest English-language daily newspaper still in existence (first published in 1737). Unionist outlook.
News of the World	Tabloid published on Sunday.
The Observer	Left-liberal /social-democratic stance.
Scotland on Sunday (Edinburgh)	Right-leaning broadsheet but perhaps more centrist.
Scotsman (Edinburgh)	Published in Edinburgh. Liberal.
South Wales Echo (Cardiff)	Daily tabloid.
The Sun	Daily tabloid. Alternates between Labour and Conservative but by and large is right of centre.
Sunday Business	Ran from 1996 to 2006.
The Sunday People	Tabloid now known as The People
The Times/The Sunday Times	Britain's 'newspaper of record'. Right of centre in outlook.
Wales on Sunday (Cardiff)	
Western Mail (Cardiff)	Wales-based national newspaper.

Table 4. Variables employed in the research.

Code	Description
ARTICLES	Number of articles mentioning the index at least once summed on a monthly basis.
WORDS	Number of words of each article which mentions the index at least once. This variable does not include the title, date or the name of the author(s).
MENTIONS	Number of mentions of the index within each article which mentions the index at least once. Included here is a mention by name, acronym or simply as 'the index'.
DENSITY	Number of mentions of the index for every 1000 words of the article. This variable is found by $(\text{MENTIONS}/\text{WORDS}) \times 1000$
REPORTS	Number of key reports published for each month between 1990 and 2009. The data for this variable are shown in Table 5.

Table 5. Years and months of key report publication for the three indices employed in the research.

Index	Year/month of publication*	Month	Number of reports (REPORTS)
CPI	1995 (15 th July)	January	0
	1996 (1 st June)	February	0
	1997 (31 st July)	March	0
	1998 (22 nd September)	April	0
	1999 (October)	May	0
	2000 (13 th September)	June	2
	2001 (27 th June)	July	2
	2002 (28 th August)	August	1
	2003 (7 th October)	September	4
	2004 (20 th October)	October	4
	2005 (18 th October)	November	2
	2006 (6 th November)	December	0
	2007 (26 th September)		
	2008 (22 nd September)	Total	15
	2009 (17 th November)		
HDI	1990 (May)	January	0
	1991 (May)	February	0
	1992 (2 nd March)	March	2
	1993 (25 th May)	April	0
	1994 (May)	May	7
	1995 (22 nd May)	June	0
	1996 (March)	July	5
	1997 (May)	August	0
	1998 (May)	September	2
	1999 (12 th July)	October	1
	2000 (21 st September)	November	2
	2001 (10 th July)	December	0
	2002 (24 th July)		
	2003 (8 th July)	Total	19
	2004 (15 th July)		
	2005 (7 th September)		
	2006 (9 th November)		
	2007/2008 (27 th November 2007)		
	2009 (5 th October)		
EF (global)	2000 (October)		
	2002 (June)		
	2004 (October)		
	2006 (October)		
	2008 (October)		

* For the CPI and HDI (2000 on) this is usually the year/month of the press release in Europe. For HDR 1990 to 1999 the date is that of the signed foreword in the report. The years/months taken for the global EF are those of the 'Living Planet Report'. The previous two 'Living Planet' reports (1998 and 1999) did not include the EF. Please note that versions of the EF for various spatial units appear in many publications.

Table 6. Correlation coefficients between the distribution of report publication per month (1990 to 2009) and a number of variables related to newspaper reporting of the CPI and HDI.

The variables are explained in Table 4.

	REPORTS	
	CPI	HDI
ARTICLES	0.719 **	0.58 *
WORDS	-0.657 *	-0.022 ns
MENTIONS	0.716 **	0.272 ns
DENSITY	0.864 ***	0.207 ns

ns P > 0.05
 * P < 0.05
 ** P < 0.01
 *** P < 0.001

Table 7. Results of an analysis of variance (general linear model) applied to three of the variables (WORDS, MENTIONS and DENSITY).

Note: data were transformed by employing natural logarithms (x or $x+1$) before analysis

	df	LN WORDS ($z = \ln x$)	LN MENTIONS ($z = \ln (x + 1)$)	LN DENSITY ($z = \ln (x + 1)$)
Indices	2	8.67 ***	20.73 ***	22.09 ***
Year	17	0.58 ns	0.95 ns	1.04 ns
Month	11	1.67 ns ($P < 0.1$)	1.68 ns ($P < 0.1$)	2.56 **
Indices X Month	22	1.72 *	1.62 *	2.04 **
Error	888			
S		0.849	0.3665	0.6854

ns $P > 0.05$
 * $P < 0.05$
 ** $P < 0.01$
 *** $P < 0.001$

Table 8. Summary of the number of articles (newspaper and journals) mentioning the three indices at least once between January 1990 and December 2009.

Number of articles mentioning the index at least once (1990 to 2009)		
	ISI Web of Knowledge	UK National Newspapers
CPI	13	171
HDI	353	356
EF	559	414

Figure captions

Figure 1. Number of articles mentioning each index at least once between January 1990 and December 2009.

Figure 2. Number of articles mentioning the index at least once distributed in terms of the month of article publication.

Figure 3. Three measures of index reporting in the UK national newspapers (bars are 95% confidence intervals)

Figure 1
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Figure 2
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Figure 3
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