

Skaraborgsdagen 25 januari, Vara

Framtidens organisation och ledarskap

Ari Riabacke

Fil.Dr Civ.ek & Ekon. Mag

@aririabacke

Risk Elicitation in Precise and Imprecise Domains – A Comparative Study, Sweden and Brazil

Ari Riabacke¹, Mona Pählman², and Tara Baidya³
*Dept. of Information Technology and Media/RDALAB, Mid Sweden University,
SE-851 70 Sundsvall, Sweden*

*Dept. of Computer and Systems Sciences, Stockholm University/KTH,
Forum 100, SE-164 40 Kista, Sweden*

*Dept. of Industrial Engineering, Pontifícia Universidade Católica do Rio de Janeiro, Rua
Marquês de São Vicente, 225 Gavea, 22453-900, Rio De Janeiro, Brazil*
E-mail: ari.riabacke@miun.se, mona@dsv.su.se, baidya@ind.puc-rio.br

Abstract

This paper presents a comparative study between two groups from different cultural contexts, Sweden and Brazil, when choosing among risky prospects. The study explores whether there are differences in choice behaviours when the uncertainty in the prospects is expressed as interval estimates instead of the traditional use of point estimates, as well as when prospects are displayed with and without expected monetary values. Both groups display similar choice behaviours when they choose among prospects where uncertainty is expressed as point vs. interval estimates, whereas the Brazilian respondents are more affected by EMV information. The results indicate that the employment of intervals to represent uncertainty can be beneficial and could facilitate the elicitation part in the use and development of decision analytical tools. Furthermore, there is a need for more flexible tools, more adapted to a prescriptive approach, since people from different cultural contexts seem to differ in their choice behaviours.

1. Introduction

Decision analysis tools offer promising solutions to complex decision making, yet they are rarely utilized within organizations for this purpose (see for example, [1]). Such tools are heavily influenced by the normative theories and the rational model on risk behaviour within decision making. This approach assumes that people judge information and make decisions according to statistical principles, which is quite contrary to the descriptive approach. The latter

approach assumes that people's ability to process given information highly influences their behaviour [2]. Thus, the perceived context affects the outcome, which is not accounted for in traditional decision analysis tools. For example, [3] and [4] have shown that people act differently depending on the sizes of the probabilities, and also that the framing of alternatives highly influences their choice behaviour.

Traditionally, the probabilities required by decision analytical tools have been sharp numerical probabilities. However, available information is often vague or conflicting, or preferences are inconsistent or incomplete. In such cases probability estimations have to be based on insufficient information, which has its drawbacks. For instance, using a single number to represent an uncertain quantity can confuse a person's judgment about uncertainties with the desirability of various outcomes [5]. In an elicitation process, most people would probably find it easier to estimate the probability for the occurrence of an event to be, e.g. in the range of 20-30% instead of stating that the uncertainty is exactly 24%. Closely related to, or entwined with, these problems are problems with judgment of exact probabilities, e.g. [6] claims that people have problems distinguishing between probabilities in the range 0.3 and 0.7. Consequently, it can be cognitively difficult for a person to distinguish between 0.3 and 0.4, which would in many cases affect the results notably regarding, for instance, calculations of Expected Monetary Values.

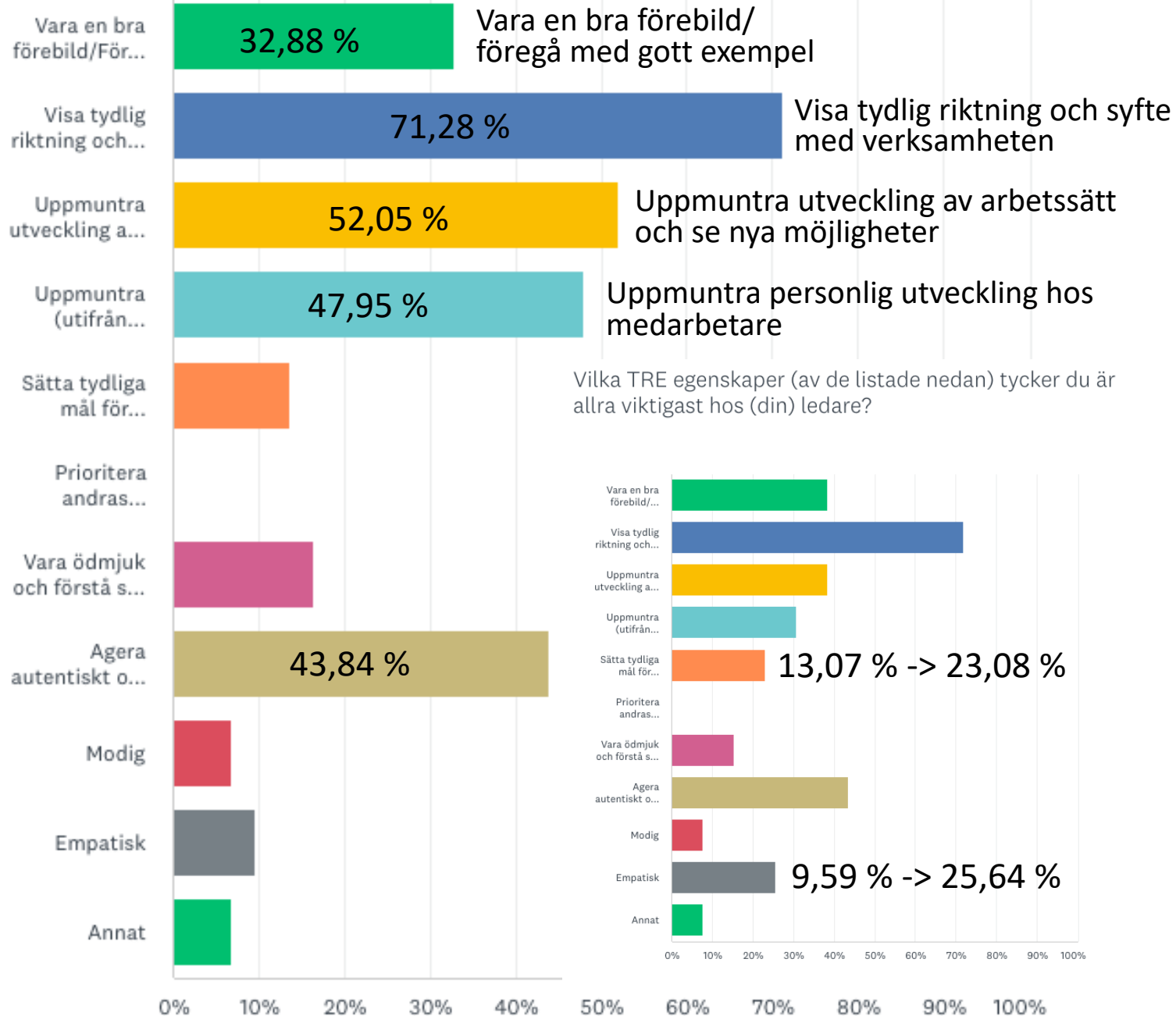
An alternative approach to the traditional use of point estimates within decision analysis applications, aims to solve this problem by using intervals to represent uncertainty instead (see e.g. [7]). The use of interval estimations relaxes the need for precise data,

LEDARSKAP

BESLUTS-
FATTANDE

KOMMUNI-
KATION

Kursiv





***”I ETT HUVUD FULLT AV
RÄDSLOR
FINNS INGEN PLATS
FÖR DRÖMMAR!”***

- Dr Mona & Dr Ari Riabacke

**Please take
responsibility for the
energy you bring into
this space.**

Your words matter. Your behaviors
matter. Our patients and our teams
matter.

Take a slow, deep breath and make sure
your energy is in check before entering.

Thank you.



Indiana University Health

A glass of iced beverage with a straw and citrus slices against a bokeh background.

**BESLUT SKA INTE FATTAS PÅ
RÄDSLOR OCH FARHÅGOR
UTAN PÅ DRÖMMAR
OCH FÖRHOPNINGAR!**

Thus, for each pair of criteria G_i and G_{i+1} , the movement factor is used to obtain two comparative constraints between pairs of weight variables. However, the two constraint functions f_1 and f_2 have some important conditions to fulfill. The first one being to provide a consistent constraint set, the second being to provide conditions corresponding with the clouds on the slider such that the values of two weight variables w_i and w_{i+1} may only overlap when the clouds for G_i and G_{i+1} overlap on the slider and that f_1 is greater than zero only when there is a gap between the clouds.

The constraint functions must also account for that the constraint constants are bounded relative to the modified competition ranking order $\rho(G_i)$ of the criterion G_i (such that $\rho(G_i) = \rho(G_j)$ if G_i and G_j share the same position on the slider). For instance, $\rho(G_1) = 1, \rho(G_2) = 2, w_1 = 1$ distance between w_2 and w_3 weight variables are zero. This is the first and second constraint.

Definition 2 (First and second constraint)
Let $d_i \in [0, N-1]$ be the movement factor of G_i and let $\rho(G_i)$ be the competition ranking order of G_i . The constraint functions are defined as

- 1) $f_1(d_i) = \begin{cases} h(d_i) & \text{if } d_i \geq \rho(G_i) \\ 0 & \text{else} \end{cases}$
- 2) $f_2(d_i) = \min\{1, h(d_i - \rho(G_i))\}$

Lemma 1
Given N criteria, the first and second constraint functions are satisfied whenever

- 1) $0 \leq f_1(d_i) < 1$
- 2) $0 \leq f_2(d_i) < 1$
- 3) $f_1(d_i) + f_2(d_i) > 0$

BESLUTS PYRAMIDEN

-STEGEN TILL KLOKARE BESLUT



ARI & MONA
RIABACKE

BESLUTSPODDEN

Om livet, affärerna och resten



Mona & Ari Riabacke

1. The probability levels

$I_{org} = \langle p_{org} \cdot x_{org} \rangle$

$\{I_1, I_2, \dots, I_n\}$ be a set of prospects

In the Trade for format, the subject chooses between I_{org} and the prospects in the set L, where each I_i is a prospect such that $I_i = \langle p \cdot x_i, (1-p) \cdot 0 \rangle$, $x_i > x_2 > \dots > x_n$, $p = p_{org} + 0.1$ and $n = 7$.

In the Trade for format, the subject chooses between I_{org} and the prospects in the set L, where each I_i is a prospect such that $I_i = \langle p \cdot x_i, (1-p) \cdot 0 \rangle$, $x_i > x_2 > \dots > x_n$, $p = p_{org} - 0.1$ and $n = 7$.

In the Choose between format, the subject chooses between I_{org} and the prospects in the set L, where each I_i is a prospect such that $I_i = \langle p \cdot x_i, (1-p) \cdot 0 \rangle$, $x_i > x_2 > \dots > x_n$, $p = p_{org} + 0.1$ and $n = 7$.

In the Choose between format, the subject chooses between I_{org} and the prospects in the set L, where each I_i is a prospect such that $I_i = \langle p \cdot x_i, (1-p) \cdot 0 \rangle$, $x_i > x_2 > \dots > x_n$, $p = p_{org} - 0.1$ and $n = 7$.

rights, although precise Domains can and Brazil

... not be violated. All inn...

... focal point, which may b...

... value for that variable. Hence...

... components for each dimen...

ll. Given this, we calculate the streng...

... alternatives. The strength...

... expression $E(A_i) - E(A_j)$

... is aggregated into a...

... problem. By denoting the...

... criterion with $^k E(A_i)$, this...

... $^k E(A_i) - ^k E(A_j)$. In its r...

... to $\sum_{i,j} v_{ik} \cdot v_{jk} - \sum_{i,j} p_{ji} \cdot v_{jk}$

... vely, such that...

... g when choosi...

... the evaluation...

... Hence, in the to...

... utive decision p...

... odel in the cri...

... on trees map...

... uction

... n analysis tools offer...

... ecision making, yet t...

... nizations for this pu...

... tools are heavil...

... theories and the ration...

... within decision making. This approach...

... at people judge information and make...

... ccording to statistical principles, which is...

... ry to the descriptive approach. The latter

... aims to solve...

... represent uncertainty instead...

... interval estimations relaxes...

... methods are...

... criteria must be determined...

... used (March and Smith, 1995). An important...

... among other things, to try to reduce or eliminate descriptive...

... normative rules in order to increase the usefulness of the CROC method was...

... settings. Thus, the validation of the pragmatic value of the design study, where subjects...

... initially tested in the second phase of the design study, where the...

... participated individually on two occasions with one week in between. On the...

... occasion, an hour long semi-structured interview was conducted, where the...

... three different weighting methods (CROC as well as two...

... practice), in order to test whether CROC could...

... more than the existing method...

... each of their choice...

BESLUTSPODDEN
livet, affärerna och resten

BESLUTSPODDEN

Om livet, affärerna och resten

#33



#60 Tarik Saleh



#10 Louie...

#7 Micael Dahlén



#4 Dominika



Karl

SLÄPP HANDBROMSEN – VAD ÄR DET *BÄSTA* SOM KAN HÄNDA?

**SKAPA ETT "OKEJ ATT GÖRA FEL"-KLIMAT OCH FÅ
MÄNNISKOR ATT KÄNNA SIG TRYGGA**

GÖR DET DU KAN, MED DET DU HAR, DÄR DU ÄR!

**SÄTT SAKER I PERSPEKTIV, HA ROLIGT OCH
FÖLJ DINA DRÖMMAR!**

VAR DIG SJÄLV OCH VÅGA VARA MINDRE RÄDD!



@aririabacke

KUNSKAP OCH INSPIRATION SOM GÖR SKILLNAD

I extraordinära tider krävs ett extraordinärt ledarskap, förmågan att fatta modiga beslut och team som presterar på topp. Vi hjälper er med detta. Vi hjälper er att finna nya vägar, att se möjligheter där andra ser problem, att gå från tanke till handling. Att få saker gjort.

[OM OSS](#)

