Relationships and University:
The economic argument

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Abstract:

This paper evaluates the question 'Should a student, starting at university, choose to separate themselves from their current partner based on completely rational thinking?' We consider the case of 'Student A' who is beginning his first term at university and must consider the future implications that his current relationship may have on university life. Student A is a rational, utility maximising agent and through the use of indifference mapping and further economic analysis the paper concludes that although some fundamental assumptions must be made to build the model, Student A would achieve the most utility by ending his relationship and focusing on socialisation in his new environment.

For use with Mochrie, *Intermediate Microeconomics,* Palgrave 2016

Introduction:

This essay provides an insight into the use of economic analysis as a rational basis for making life decisions that have multiple external influential factors involved. Relationships are the second largest cause of mental distress to students, with 49% feeling that their relationship has caused them mental distress (NUS, 2013). We build evidence for our conclusion through the introduction of a simple model used to provide direction for our rational consumer 'Student A'. Student A is beginning university and must choose between maintaining his relationship (denoted as good 'Companionship') and building his network of new friends within university (denoted as good 'Socialising'). Our analysis will follow the thinking process of the student as he evaluates his utility under multiple constraints representing the external factors that would influence a person in this situation. The paper also looks to consider the ethical implications of using an entirely rational approach to make normally irrational decisions. Finally we will reach a conclusion which will answer the question 'Should a student, starting at university, choose to separate themselves from their current partner based on completely rational thinking?'

Contextualisation:

In order to properly analyse the effects of student relationships on utility levels, we must make some theoretical assumptions of the situation. Firstly, that the prospect of having a partner at university gives Student A some amount of utility; we will name this utility producing good 'Companionship'. Secondly, we must accept that in order to achieve a level of companionship the student must give up a certain amount of 'purchasing power' used to make new friends, and thus we will term this ‘Socialising’. Student A aims to find his most preferred consumption bundle between Companionship and Socialising throughout the entirety of this paper.

We make some assumptions about the situation of Student A: the distance between partner and student is negligible and has been taken into account in both constraint models; the student has an outgoing personality and therefore gains utility from socialising; and that all external factors in the relationship are static. The paper also makes one fundamental distinction from reality. In our model Student A can purchase incremental amounts of companionship from a relationship; this in reality may not be possible as relationships cannot be tailored to specific levels of intensity.

Constraints: Budget and Time

A constraint is a limit denoting the maximum amount of cost the consumer has to exercise on a consumption bundle (Mochrie, 2014). We will consider two separate constraints in our analysis: that of budget and that of a time constraint. Firstly we must establish the formula for a line of constraint. In general form we can state that the constraint, *m,* is given by the sum of the amount of each good, *x* and *y,* multiplied by their respective prices, p_x and p_y.

$$m = p_x x + p_y y$$

Following this form, to establish a budget constraint we must give each of our variables a relative cost. It could be argued that the cost of companionship, *c,* is going to be a multiple of the cost of socialising, *s;* therefore as a simplification we will accept that companionship will be twice as expensive as socialising. Given a budget of £100, Student A will have a budget constraint of

$$m = p_c c + p_s s$$
$$100 = 2c + s$$

Similarly, to establish a time constraint we will argue that a relationship will have an even higher multiplicative cost of four times socialising. We will again use an arbitrary figure of 100 to represent time available.

$$t = p_c c + p_s s$$
$$100 = 4c + s$$

Economic Analysis:

Consumption bundles are a combination of two goods that produce a set level of utility; these can be plotted on indifference curves to compare bundles which will amount in an equal output of utility (Mochrie, 2014). According to Rational Choice Theory a consumer will aim to maximise their utility by obtaining the highest possible amount of utility producing goods (Green, 2006) and thus we can define the optimal point of consumption, p^*, as the point where the consumer is obtaining the most utility whilst not exceeding their constraint. This can be further described as the point where the Marginal Rate of Substitution of two goods is equal to the ratio of prices between these goods; where an indifference curve is tangent to the line of constraint (Mochrie, 2014).

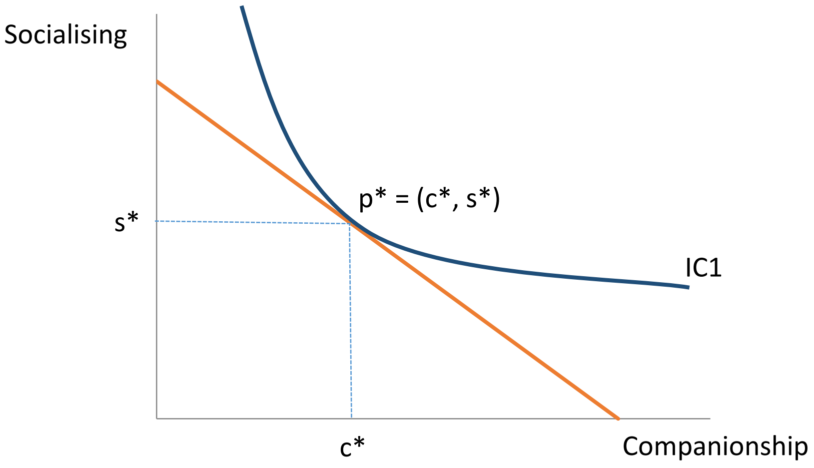

Figure 1 An arbitrary point of optimum consumption

In the above figure, p* lies on the point which touches both the line of constraint and the indifference curve. To the left of the line of constraint lies the affordable set and to the right lies the unattainable set of consumption bundles. p* represents the highest level of utility that lies within the affordable set.

The Marginal Rate of Substitution (MRS) represents the rate at which a consumer may exchange one good for another whilst the Price Ratio is the amount that one good relative to another is valued at (Mochrie, 2014). As previously mentioned *p** is found when *MRS = Price Ratio*.

$$\boldsymbol{MRS[c, s] = \frac{MUc}{MUs} = \frac{Pc}{Ps}}$$

Student A has a utility function U(c, s) = cs which is a Cobb-Douglas utility function and thus in our theory the two goods being exchanged can be considered neither complimentary nor substitute goods (Mochrie, 2014). The relationship between *c* and *s* shifts exponentially as the price ratio increases; with *c* becoming substantially less valuable when considering cost in terms of time. (See technical appendices 1 and 2). Figures 2 and 3 show how the amount of each good demanded moves as the cost of one unit of companionship increases. The model therefore describes the increased demand for socialising as Student A considers his decision from a time-based perspective rather than cost.

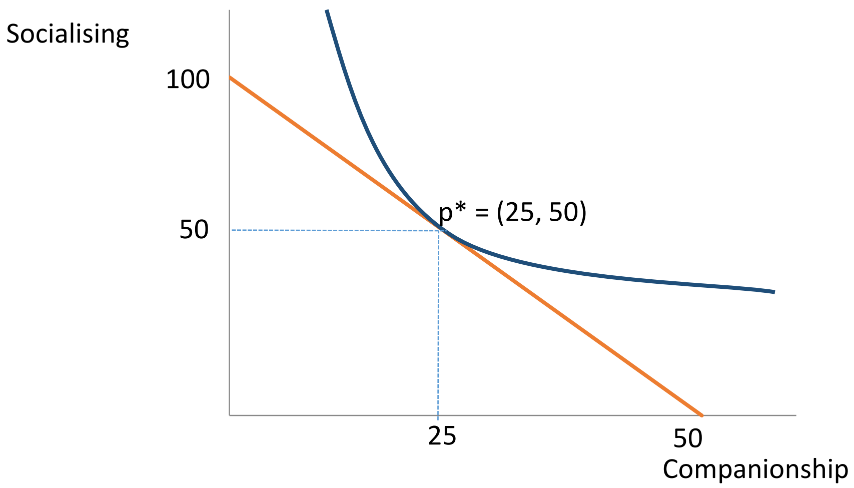

Figure 2 The optimum consumption bundle for constraint *m*

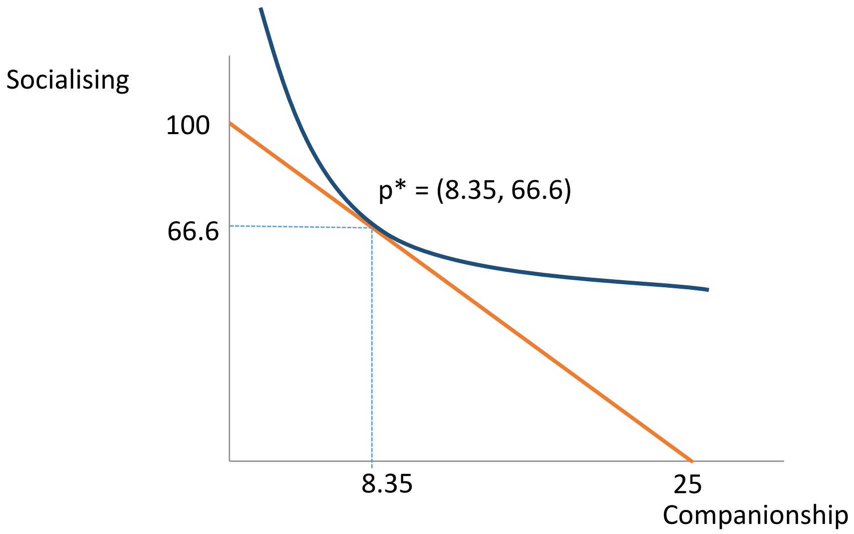

Figure 3 The optimum consumption bundle for constraint t

This analysis concludes that when considering constraint from a purely monetary viewpoint, we find that the most preferred consumption bundle is situated at (25, 50) and from a time constrained viewpoint (8.35, 66.6). Therefore, when we apply our analysis to a real life situation, we can argue that as the choice is not between incremental levels of companionship and socialising the consumer would focus their efforts on socialising and end the relationship.

Limitations:

The paper is limited by the need to use an arbitrary figure to establish price ratios; there is an inherent issue with ranking costs of abstract concepts such as companionship and socialisation (Kahneman & Thaler, 2006). However, as utility maximisation is an ordinal concept and cannot be compared cardinally, one could argue that this is an acceptable practice if we assume that the order is preserved despite costs being estimates. We also lack the inclusion of a system for ranking irrational actions, as Student A is a perfectly rational agent which is a purely theoretical concept (Russell, Date unknown).

Ethical implications:

Modern economics has evolved into a wider model than merely the rational, self-serving model portrayed by classicalists (Kay, 2004). Taking a Millsian approach, it could be argued that utility analysis should be expanded to consider the domino effect of utility maximisation of one agent on the aggregate of agents in an economy (Mill, 1861). However, Utilitarianism is not widely regarded as a feasible basis for decision making; one could instead take the approach of Adam Smith who argues that in maximising his own utility Student A is furthering the goals of the economy (Smith, 1776).

Conclusion:

To conclude, the art of defining absolute answers to questions utilising abstract concepts which have no set cost cannot be fully perfected in a simplistic utility maximisation model. However, we can propose an ordinal answer to the question 'Should a student, starting at university, choose to separate themselves from their current partner based on completely rational thinking?' when our fundamental assumptions are assumed to be true. In such a case, we can argue that a rational agent would not be influenced by external factors such as empathy and therefore Student A would choose to end his pre-university relationship in order to pursue greater levels of socialisation, as it is not possible to incrementally increase his 'purchase' of companionship from a relationship. The only opportunity where the student would choose a relationship according to our model would be if there was no utility to be gained from socialisation and thus the agent would be free to put their entire budget – be it cost or time – into the relationship.

Technical Appendix:

Appendix 1 – Calculating optimal point of consumption for constraint *m* (Budget)

U(c, s) = cs
MUc = s
MUs = c
m = $P_c c + P_s s$ = 100 = 2c + s
Slope of IC = $-\frac{s}{c}$
Slope of CL = $-\frac{Pc}{Ps} = -\frac{2}{1}$
IC = CL = $-\frac{s}{c} = -\frac{2}{1}$ = c = 0.5s
100 = 2(0.5s) + s = 2s
s* = 50
c* = 0.5(50) = 25
(c*, s*) = (25, 50)

Appendix 2 – Calculating optimal point of consumption for constraint *t* (Time)

U(c, s) = cs
MUc = s
MUs = c
t = $P_c c + P_s s$ = 100 = 4c + s
Slope of IC = $-\frac{s}{c}$
Slope of CL = $-\frac{Pc}{Ps} = -\frac{4}{1}$
IC = CL = $-\frac{s}{c} = -\frac{4}{1}$ = c = 0.25s
100 = 2(0.25s) + s = 1.5s
s* = 66.6
c* = 0.25(33.4) = 8.35
(c*, s*) = (8.35, 66.6)

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