

One Apple Today Rather Than Two Apples Tomorrow: How Can Behavioural Economics Explain Overeducation in Labour Markets?

Halah Essam Alattas*

Lecturer of Economics, Department of Economics, Faculty of Economics and administration; King Abdulaziz University KAU, Jeddah, Saudi Arabia

***Corresponding Author:** Halah Essam Alattas, Lecturer of Economics, Department of Economics, Faculty of Economics and administration; King Abdulaziz University KAU, Jeddah, Saudi Arabia.

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Abstract

Overeducation is a frequently discussed term in the neoclassical conventional view of the labour market. According to this perspective, overeducation resulted from a temporary disequilibrium in labour markets. People are rational participants in the labour market; they opt to overeducate themselves in order to signal their ability, obtain experience and subsequently advance to better jobs. However, behavioural economics rose to prominence due to its distinctive contributions to the study of human behaviour and its challenges to the rationality assumption. In light of concepts such as fairness, loss aversion and hyperbolic discounting models, many long-held neoclassical assumptions are challenged or perhaps need to be reconsidered. This study intends to contribute to the overeducation literature by explaining the phenomena as a kind of labour market stratification that disadvantages overeducated employees relative to others with the same educational level engaged in a well-matched job.

Keywords: Overeducation; behavioural economics; reference point; prospect theory

Introduction

Over-education describes a situation in which a worker's level of education exceeds the requirements of employers (Battu, Belfield, & Sloane, 1999; Duncan & Hoffman, 1981; Freeman, 1976; Groot & Van Den Brink, 2000; McGuinness, 2006). The theoretical perceptions used to explain the overeducation phenomenon have been framed within existing views of the labor market (McGuinness, 2006). Most notably, overeducation has been mostly framed within the neo-classical framework of labour market. The human capital hypothesis, for instance, asserts that individuals utilize their education to maximize their utility, productivity, and ability to obtain high-paying jobs and positions (Becker, 1964). Career Mobility theory argues that people would accept overqualified jobs in order to gain experience and subsequently move on to better-matched jobs (Sicherman & Galor, 1990). Signalling theory claims that people should educate themselves to signal their ability to potential employers (Spence, 1978). From an employer's perspective, the higher the level of education the lower the training cost for employers. Therefore, highly educated people will be placed at the top of the job queue due to their low cost (Thurow, 1975).

The above-mentioned theories represent the neoclassical approach to the labour market. Under this approach, two hypotheses are adopted: full rationality and maximization of an expected utility function, which indicates a mechanism of optimisation under a specific constraint (scarcity). The concept of rationality is crucial within neoclassical economics. The general assumption is that people

understand their own preferences and are able to fully assess their choices to maximize their utility, even in situations they have never before experienced.

In this regard, behavioural economics emerged as a departure from traditional economics models and questions the idea of rationality on the grounds that humans have limited rationality and their way of thinking generates a variety of cognitive biases. Behavioural labour economics argue that workers have non-standard preferences; workers do care about benefits and payoffs, but rather respond to and are influenced by reciprocity and fairness. Furthermore, behavioural economics supplies strong evidence that people are loss averse as losses are more painful than gains are joyous.

A cornerstone hypothesis in behavioural economics is that workers are heterogeneous; they differ in ways of thinking, ways of evaluating gains and losses, and personality traits. All these assumptions have succeeded in making behavioural economics more realistic and practical and have contributed to finding answers to questions that traditional economics have abandoned.

Therefore, this study attempts to contribute to the literature on overeducation by revisiting this topic from the behavioural economics viewpoint. This study aims to address aspects that remained ambiguous under the neo-classical approach such as *why would people accept overqualified job positions and incur wage penalties? Why would they pursue an education when labour markets cannot accommodate the growing number of educated individuals?*

The study starts with an overview of behavioural economics and its unique assumptions and then focuses more on the behavioural economics of education and the labour market to fully understand the overeducation phenomenon as it is a combination of both side effects.

Behavioural Economic; An Overview

In recent decades, behavioural economics has earned a reputation as influential and significant within the field of economics. Notable are the number of researchers in the field who have achieved Nobel prizes recently. For instance, in 2002, Daniel Kahneman was awarded a Nobel Prize for integrating insights from psychological research into economics; in 2013, Robert Shiller was granted a Nobel Prize for his contributions to the field of behavioural finance; and, more recently in 2017, Richard Thaler received a Nobel prize for his contributions on human behaviour that challenge the traditional theory that people are irrational in their decisions. Researchers normally attribute the founding of behavioural economics to (Tversky & Kahneman, 1974), and it was they who also first introduced the idea of biases in decisions that are made under uncertainty, as well as prospect theory (1979). However, behavioural economics has existed since long before this. Its history goes back to Adam Smith, who gave a comprehensive definition of human nature in his theory of moral sentiment (Smith, 1976). He denies the concept of selfishness, stating that people enjoy seeing other people happy and prosperous, even though they gain nothing from it but that joy (Ashraf, Camerer, & Loewenstein, 2005).

The term *behavioural economics* denotes the research area that investigates the link between psychology and economics (Della Vigna, 2009). It is a deviation from traditional economics models, which hypothesise that individuals are rational, self-interested, and forward-looking *homo economicus* (Dohmen, 2014; Winter-Ebmer, 2014). Behavioural economics recognises that the neoclassical approach is ineffective because of individuals' cognitive illusions that contribute to erroneous predictions that are routinely made. Therefore, behavioural economics incorporates realistic assumptions about bias and errors without modifying the structure of the neoclassical model. However, this is not to imply that behavioural economics intends to replace neoclassical economics; it is just modifying some aspects.

The concept of rationality is crucial within neoclassical economics. The general assumption is that people understand their own preferences and are able to fully assess their choices to maximize their utility, even in situations they have never before experienced. Under the neoclassical rational choice theory, two hypotheses are adopted: full rationality and maximization of an expected utility function, which indicates a mechanism of optimisation under a specific constraint (scarcity). For instance, according to neoclassical economics, an individual is able to perform complex mental calculations engaging probabilities, time preferences, and the expected

utility. However, behavioural economics developed in response to the mainstream model, and it disputes rationality and utility maximisation behaviour, arguing that individuals' preferences are not necessarily always consistent or well identified (C. F. Camerer & Loewenstein, 2003). Preferences usually vary according to context or how they are framed. Thus, it is no wonder that individuals turn to intuitive reasoning, i.e. 'rules of thumb,' in order to save time and energy when making decisions (Jabbar, 2011).

The Nobel Prize winning book *Thinking Fast and Slow* (Kahneman, 2011) explains the cognitive process of human decision-making. Two coexisting modes of thinking are considered, fast and slow, or, respectively System 1 and System 2 (Stanovich & West, 2000). System 1 is intuitive and automatic, operating within a context without consciously engaging the conscious mind or trying to make sense of the constant onslaught of information that is a part of life. Surprisingly, System 1 performs well; however, its efficacy is often undermined by numerous shortcuts. System 2, on the other hand, requires active analysis, critical thinking, and effective participation. According to Kahneman (2011), both systems operate well all the time, but unless System 2 applies constraints on System 1 or System 1 willingly defers to System 2 (such as in situations where System 1 perceives the problem as complex), a decision maker will eventually end up with the decision of System 1. The problem with this is that the decisions of System 1 do not necessarily stand up to reason and logic and are often out of line with probability laws.

Behavioural economists came to realize that the rationality of decision makers can be constrained by the vast volume of information they deal with, their limited abilities and cognitive skills, and their restricted time. This limitation of rationality was initially introduced by (Simon, 1955), who referred to it as "bounded/limited rationality" (p. 123). According to Simon, instead of making optimal decisions, decision makers make "satisfactory decisions" (p. 12) within their knowledge and cognitive limitations. Furthermore, one of the tools that decision makers use to make their decisions more satisfactory is *heuristics*, which can be defined as "the use of informal, shorter, and faster approaches to making decisions as opposed to a formal logical process that conforms to the norms of statistical inference" (Otuteye & Siddiquee, 2015) p.148).

Behavioural economists have pointed out that heuristics, though often beneficial, can lead to cognitive bias or cognitive illusions. (Kahneman & Tversky, 1973) illustrated their assessment of heuristics and biases:

- In making predictions and judgments under uncertainty, people do not appear to follow the calculus of chance or the statistical theory of prediction. Instead, they rely on a limited number of heuristics which sometimes yield reasonable judgments and sometimes lead to severe and systematic errors. (p.1124).

In a later study, three original cognitive heuristics for reasoning errors were stated:

Representativeness

A mental shortcut that helps decision makers to make judgments on the basis of the degree of similarities in essential properties to its parent population and representing the salient characteristics of the mechanism by which it is generated. In other words, evaluating the similarity of things and organizing them based around the classification of a prototype that already exists in the mind. For example, a farmer might be described as hard-working, outdoorsy, and tough, while a librarian could be seen as calm, coordinated, and reserved. The problem is that this guides people to overestimate the effect of similarities in predicting the probability of an event.

Availability

A mental shortcut that helps decision makers to make decisions based on the frequency of incidents and the ease with which they come to mind. This means when people are forced to make decisions, they depend on what comes to their mind. However, this compromises the ability to judge frequency correctly. For instance, (Simonsohn, Karlsson, Loewenstein, & Ariely, 2008) have revealed that people are more willing to purchase insurance to cover themselves after a recent natural disaster than they are to purchase the same kind of insurance before this happens. Another example is that after watching number of TV shows about shark attacks, people think the likelihood of a shark attack is more common and may refuse to swim in oceans.

Anchoring

A mental shortcut that helps decision makers to make decisions based too deeply on the initial piece of information (starting point) provided. The first piece of information is the anchor, and this sets the probability for everything that follows. The problem is that people tend to misinterpret future information when using an anchor. A realistic example is when the initial price offered for a used car sets an arbitrary focal point for all subsequent discussions, either before or at the start of negotiations. Prices negotiated in deals that are lower than the anchor may sound fair, perhaps even inexpensive, to the consumer, even if these prices are higher than the real market value of the car.

As demonstrated above, while heuristics can make people's lives easier, they can also introduce errors. In addition, relying on a current heuristic will make it difficult to find potential solution or come up with new concepts, and just because something has succeeded in the past does not mean it will work again. Heuristics can contribute to erroneous judgements based on how certain events happen and how representative those events are. In addition, heuristics may often lead to issues like prejudices and stereotype. This happens because when people use mental shortcuts to identify and categorize other people, they may ignore important details and establish categorizations (stereotypes) that are not factual.

In their subsequent investigations of intuitive thinking biases, (Tversky & Kahneman, 1974) reinforced the psychological implications of heuristics and bias analysis in their highly cited article titled "Judgment Under Uncertainty: Heuristics and Biases." In this article, about 20 cognitive biases are described as embodiments of heuristics and proof of the role heuristics play in judgments. Of these cognitive biases, four of the most commonly known include the framing effect, the sunk cost fallacy, the endowment effect, and cognitive ease, which is also called the substitution effect. The framing effect is a cognitive bias that occurs when people determine their choices in a situation depending on the positive or negative connotations the outcomes are presented with, for example, as a loss or a gain (Emami, Welsh, Ramadani, & Davari, 2019). According to (Tversky & Kahneman, 1981), framing a situation would objectively illustrate part of the evidence, thereby directing an individual to a choice that may not be logical but is valued subjectively. The second bias, the sunk cost fallacy, is a cognitive bias that refers to a cost that is already incurred and cannot be recovered. This cost should have no effect on the future decisions, and therefore it should also have no effect on rational decisions, according to the neoclassical approach (Friedman, Pommerenke, Lukose, Milam, & Huberman, 2007). However, in behavioural economics, sunk cost fallacy has been shown to affect people's decisions. For example, many people explain their decision to increase their investments based on accumulated previous investments, even when given new proof that the decision was obviously incorrect. The third, the endowment effect, is what happens when people overvalue something simply because they own it, regardless of its objective value in the market (Kahneman, Knetsch, & Thaler, 1991). Finally, cognitive ease, or the substitution effect, occurs when people are forced to make a judgment that requires complex analysis and tend to use a more easily calculated heuristic that already exists in their mind. This substitution is thought of as taking place in the system of automatic, intuitive judgment (System 1), rather than in the more self-conscious system of thinking (System 2). (Kahneman, 2011) explains this by stating that the human brain does not find cognitive strain particularly enjoyable, and by using the shortcuts, people are choosing to be in a state of cognitive ease. This general human preference Kahneman frankly describes by saying "remember that System 2 is lazy, and that mental effort is aversive" (p.64).

Prospect Theory

One of the major achievements of behavioural economics is the violation of utility theory assumptions in neoclassical mainstream. In the classical utility theory, people are risk averse when comes to make decisions that are likely to result in a loss. They assess the utility of a gain by comparing two states of wealth. For instance, the utility of gaining \$100 when one's existing wealth is \$1 million is the difference between the utility of \$1,000,100 million and the utility of \$1 million, and vice versa. In a situation of loss, the disutility will be the difference between the two states of wealth. Hence, the utility of gains and losses can differ only in their indications (+, -).

The utility theory is also based on an assumption of rationality, in which people make rational choices by considering the usefulness of each choice. However, the prospect theory introduced by (Tversky & Kahneman, 1979) relies on the core concept of loss aversion,

which is a different form of risk aversity. Based on their experimental observations, they have found that people evaluate gains and losses differently. More weight is allocated to expected gains as opposed to expected losses. Therefore, people think in terms of expected utility relative to a reference point – what is called *reference dependence* – rather than in absolute terms. For example, if two choices are given to an individual and both are equivalent, but one choice is presented in terms of potential gain and the other potential losses, the first choice would almost always be selected.

The reference point is psychological, and it is subject to manipulation, meaning it can be changed depending on the way it is presented (what is known as the *framing effect*). However, it plays an important role in the prospect theory, as people interpret results and preferences relative to an existing point of reference, or status quo, then ‘outcomes that are better than the reference points are gains. Below the reference point they are losses’ (Kahneman, 2011, p. 282).

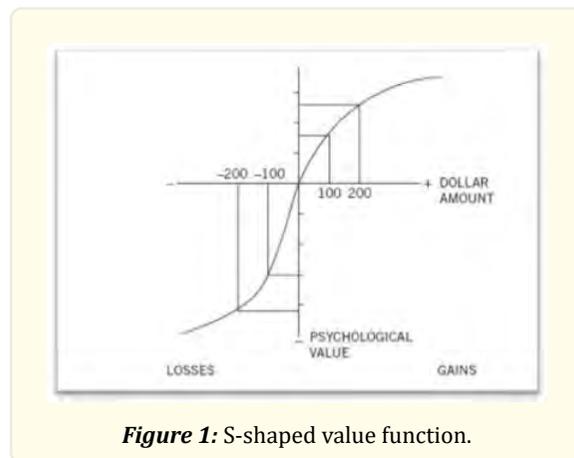


Figure 1: S-shaped value function.

An essential feature of the prospect theory is framing risky choices. In this theory, people’s preferences are illustrated by an S-shaped value function, illustrated in Figure 1, where the X-axis represents the outcomes (gains on the right hand side and losses on the left hand side), and the Y-axis represents the reference point or value. As shown in the figure, people emotionally exaggerated losses more than gains. The feeling of losing something is more extreme than gaining the same amount of it, which can be justified by the endowment effect. For example, as can be seen in the figure, the feeling of gaining \$100 is good; however, losing \$100 would create stronger negative emotions, then “losing something makes you twice as miserable as gaining the same thing makes you happy” (R. H. Thaler & Sunstein, 2009) p. 22). Consequently, according to the prospect theory, when people are faced with risky choices, two scenarios are presented:

- a) People are risk averse when choices will result in probable gains, favouring certain gains over probable ones (concave value function) even though the expected utility of taking the gamble is high.
- b) People are risk seeking when choices will result a loss, preferring probable losses to certain losses (convex value function).

Nudge Theory

Nudge theory emerged in 2008 in the book titled *Nudge: Improving Decisions About Health, Wealth, and Happiness* (R. H. Thaler & Sunstein, 2009). As stated earlier, Richard Thaler, who is commonly known as the father of nudge theory, achieved a Nobel Prize for his contribution to behavioural economics. He promoted the notion of “nudging” individuals into making decisions that are in their long-term self-interest, such as saving for pension.

The nudge theory is “any aspect of the choice architecture that alters people’s behavior [sic] in a predictable way without forbidding any options or significantly changing their economic incentives” (R. H. Thaler & Sunstein, 2009), p.6). The “choice architecture” is the

golden rule in this theory, which is aware that people are irrational and making mistakes by using judgmental heuristics with System 1 of thinking. Thus, the use of nudges is, in fact, a way of adjusting the environment, so that, whether heuristics or System 1 is used, the corresponding choice becomes the most favourable one (Sunstein, 2015). A common example of such a nudge is to relocate the placement of unhealthy food in a supermarket so that fruits and nutritious choices are next to the cashier.

According to the nudge theory, influencing behaviour without enforcing or forbidding anything is called *libertarian paternalism* which (R. H. Thaler & Sunstein, 2009) have defined as “a relatively weak, soft, and nonintrusive type of paternalism because choices are not blocked, fenced off, or significantly burdened” (p. 5). If children want to eat candy, teenagers want to eat junk food, or adults want to smoke cigarettes, libertarian paternalism does not compel them to do otherwise, or even make it complicated for them to do these things. The reason for this is that the architects of private and public choices should not actually seek to control or impose upon an individual’s expected choice, rather they are trying to move people in ways that will improve their lives. They merely nudge.

Main Concepts	Neoclassical Economics	Behavioural Economics
Assumptions	Rely on strict assumptions	Realistic
Rationality	People are rational	People have bounded rationality
Cognitive bias	People are not influenced by cognitive bias	People are influenced by cognitive bias
Problem-solving	People can define a problem, identify alternatives, allocate weight to each one, and select the best option	People prefer to use heuristics, i.e. rules of thumb
Utility	Utility theory: People assess gains and losses by comparing the utilities of two states of wealth. People are risk averse. Regret is not considered in decision making.	Prospect theory: People emotionally value losses more than gains; losing is more painful than gaining is joyous. People are loss averse. Regret is not considered in decision making.
Preferences	Homogeneous preferences	Heterogeneous preferences

Table 1: Comparison between neoclassical economics and behavioural economics (main assumptions).

Behavioural Labour Economics

As shown in the previous section, behavioural economics assumptions are at odds with neoclassical ones. Therefore, it is likely that labour economists were initially reluctant to integrate insights from behavioural economics. Labour economists also often have critical attitudes toward reliance on experimental approaches, which are widely used in behavioural economics and mitigated the impact of behavioural economics on labour economics until at least the mid-1990s (Dohmen, 2014). However, it is obvious that current behavioural economics has found its way into the economics of labour analysis. This is apparent from the prevalence of studies that depart from mainstream assumptions to describe the actions of the labour market and explain them under the behavioural economics insights (C. Camerer, Babcock, Loewenstein, & Thaler, 1997; DellaVigna, 2009; French & Oreopoulos, 2017; Rabin, 2002) (examples of these studies will be discussed in the coming sections).

It is undeniable that behavioural economics has intensely affected labour economics. That is obvious from three facts (Dohmen, 2014). First, various labour economics publications that incorporate insights from behavioural economics are widely cited. Second, a growing focus has been placed on micro-labour issues, which reflect the notion that behavioural economics is mainly about human decision-making and interactions between people. Key aspects of human nature, which deviate from the standard models, such as non-standard preferences, non-standard decision making, and non-standard beliefs, have been incorporated into behavioural economic theory (DellaVigna, 2009). However, that does not imply that behavioural economics assumptions are not significant with regards to macro-labour issues. Indeed, researchers such as (Fehr & Tyran, 2001) have proven that modest changes in the behaviour

of individuals have consequences on the aggregate level. Third, the development of behavioural economics has made the use of experimental techniques in labour economy more widespread. Although this notion was not initially acceptable due to the long tradition of labour economics that made new empirical perceptions unamendable, once accepted, labour economics witnessed a prevalence of experimental methods.

One of the biggest contributions of behavioural labour economics is the implication of non-standard preferences. This is considered a strong deviation from mainstream model assumptions. There are many types of non-standard preferences; however, researchers commonly focus on three (Berg, 2006; Kremer, Rao, & Schilbach, 2019):

- **Social preferences:** Under the traditional utility theory, people rationally consider their own preferences (they are self-interested), i.e. they care only about material resources that are allocated to them. However, social preferences models conversely assume that people do care about material resources that are assigned to others. (Fehr & Schmidt, 2006) stated that “a player’s utility function not only depends on his own material payoff, but may also be a function of the allocation of resources within his reference group” (p. 636). Several models of social preferences are generated, such as altruism, fairness, and reciprocity.
- Altruism reflects an agent’s responsibility for the well-being of others. An individual shows altruistic motivation if the utility of that individual is increased by the reward of another (Fehr & Schmidt, 2006). A common game for evoking altruistic preferences is the dictator game (Andreoni & Miller, 1999).
- Fairness models illustrate workers’ concerns about the fair distribution of compensation and, in particular, an aversion to differences in compensation (Fehr & Schmidt, 1999). The role of fairness in wage determination is one of the most significant contributions of behavioural economics to labour. (Akerlof & Yellen, 1990) proposed a fair-wage hypothesis that implies that workers withdraw efforts when their actual earnings fall short of fair wage. They have further claimed that their hypothesis can explain the existence of unemployment, which occurs when the fair wage exceeds the market wage, and also explains the negative correlation between skill and unemployment. To be specific, their model can explain the situation in United States between 1965 and 1985, when unemployment rates fell while the level of education increased (the same period when the level of overeducation rates increased). In general, as the level of education increases, the productivity of skilled labourers also increases, and the equilibrium wage of those skilled labourers rises while the wages of unskilled labourers remain the same. Consequently, unemployment among unskilled workers, who resist any further broadening of the wage gap, increases.

Fairness models have also been used in explaining wage rigidity in the labour market. Studies such as those from (Agell & Lundborg, 1995; Fehr & Falk, 1999) have demonstrated that firms do not take advantage of labourer’s underbidding. Although unemployed people seem to be willing to work for low wages, employers normally refuse to hire an underbidder. The major reason for this is employers’ fears that wage cuts may affect workers’ morale. It is believed that a wage cut may be interpreted by workers as hostility or an insult. Therefore, it is suggested that, contrary to traditional competitive models, wages are not affected only by supply and demand but also by the effect of labourer’s efforts and behaviour.

(Fehr & Falk, 1999) concluded from their laboratory labour market, which was characterized by an oversupply of workers whose wages firms were reluctant to cut even if they were facing an excess of labour, that fairness and reciprocity play a significant role in workers’ tendency to cooperate. In fact, this study has analysed a labour market in a situation that is typical to that of overeducation, where the supply of workers exceeded the demand for them. Consequently, the workers were forced to accept jobs below their level of education and hence accept lower wages. The fairness concept implies that when the wage difference among workers is significant, it may exacerbate feelings of unfairness among employees, which could lead to (overeducated) workers withdrawing effort, thus lower productivity. This is the same conclusion that studies of overeducation have reached. Models of fairness might be able to answer some questions as to *why overeducated workers would remain in jobs when their wages do not reflect their level of education or productivity, as well as why a firm would hire skilled labourers for unskilled positions.*

In this regards, Kahneman (2011) makes a relevant statement in his book, *Thinking Fast and Slow*: “If you changed jobs or locations, or even considered such a change, you surely remember that the features of the new place were coded as pluses or minuses relative to

where you were. You may also have noticed that disadvantages loomed larger than advantages in this evaluation-loss aversion was at work" (p.291).

Therefore, introducing the concept of loss aversion, which is completely overlooked in the neoclassical approach, may help to understand behaviours of overeducated people. Perhaps these kinds of justifications are useful for understanding the mismatched problems from a behavioural perspective.

- Reciprocity means that "in response to friendly actions, people are frequently much nicer and much more cooperative than predicted by the self-interest model; conversely, in response to hostile actions they are frequently much more nasty and even brutal" (Fehr & Gächter, 2000) p.159). Reciprocity varies from altruism, in which reciprocal actions mostly follow initial actions. Altruism is the unconditional act of social gift-giving, but with no any hope of any future positive reactions (Batson, Duncan, Ackerman, Buckley, & Birch, 1981; Dohmen, 2014; Fehr & Gächter, 2000) argues that reciprocity plays a key role in workers' motivation.

There are two types of reciprocity, positive and negative. Each one can be observed through an experimental game. For example, negative reciprocity has been observed by using an ultimatum game in many countries, such as Germany (Kaltwasser, Hildebrandt, Wilhelm, & Sommer, 2016), Israel, Japan, the United States, and Yugoslavia (Roth, Prasnikar, Okuno-Fujiwara, & Zamir, 1991). These studies support the hypothesis that people will sacrifice their own resources in order to punish unfair behaviour. Positive reciprocity, on the other hand, is commonly observed in gift-exchange games, such as in a study by (Kube, Maréchal, & Puppe, 2012) that revealed that non-monetary gifts have much greater effect than comparable monetary gifts among German employees. Many studies that adapted the gift-exchange game framework have supported the belief that employees reciprocate fair treatment of other employers with greater effort (Fehr, Kirchsteiger, & Riedl, 1993). In fact, negative reciprocity has potentially superior consequences on the outcomes of a labour market than positive reciprocity (Krueger & Mas, 2004).

The notion that provision of effort relies on standards of fairness and is influenced by reciprocity has been ingrained in labour economists' minds. It is commonly recognized that fairness and reciprocity influence behaviour and aggregate outcomes, such as involuntary unemployment and wage rigidity (Dohmen, 2014).

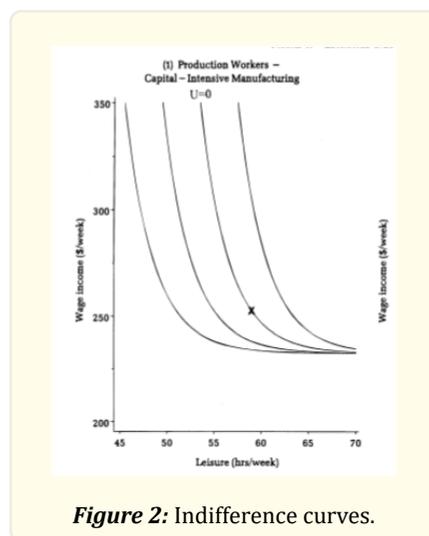


Figure 2: Indifference curves.

Reference dependence utility and *loss aversion* are key elements of prospect theory. People evaluate risks relative to a reference point and without considering their final wealth (Tversky & Kahneman, 1979). Loss aversion occurs as people tend to avoid outcomes below the reference point to acquire the same size of outcome beyond the reference point (Kahneman et al., 1991). The notion that reference points have a strong impact on the evaluation of income is fundamental in behavioural economics and has influenced various sub-field of labour economics, especially the labour supply. (Dunn, 1996) empirically examined the income-leisure indifference functions that demonstrate the loss aversion concept and the utility reference point as explained by (Tversky & Kahneman, 1979). The data of this study were gathered via surveys capable of capturing basic income-leisure preferences. The sample was drawn from a range of different labour markets, with wide ranges of skills and work environments. The derived indifference curves and labour supply functions were found to be consistent with the loss aversion concept. Interestingly, they found that the indifference curves of all the samples bent steeply in the vicinity of the current income-leisure point, indicating the influence of loss aversion and utility reference point (see Figure 2). This means that “workers are pre-pared to give up substantially more leisure to prevent a loss of income than to gain the equivalent amount of income” (p. 449). This is why, in a labour market, a worker might want to put in extra hours, often at a low-wage level, rather than suffer a reduction in take-home pay. This is consistent with Kahneman’s (2011) argument that traditional utility theory ignores the current reference point and the role of status quo. (Kahneman, 2011) further stated:

The representation of indifference curves implicitly assumes that your utility at any given moment is determined entirely by your present situation, that the past is irrelevant, and that your evaluation of a possible job does not depend on the terms of your current job. These assumptions are completely unrealistic in this case and in many others. (p.318).

These features of indifference curves help to explain the stability observed in the labour market when an overtime premium is presented.

- *Hyperbolic discounting models* represent a cornerstone of behavioural economics. While the standard economic theory of a discounting model assumes a constant discount rate over time, an alternative hypothesis, a hyperbolic discounting model, has been advanced in behavioural economics. The main finding is that inter-temporal preferences lead to large amounts of discounting short-term and less discounting in long-term (DellaVigna & Paserman, 2005). In other words, this standard economic theory predicts that an individual will rationally prefer the choice with the highest rewards, even if these are delayed; however, experiments in behavioural economics have proven that people show preferences for rewards to arrive sooner rather than later. (R. Thaler, 1981) describes this as people favouring one apple today rather than two apples tomorrow. (DellaVigna & Paserman, 2005) examined a model of a job search with the assumption of hyperbolic discounting using two longitudinal data sets, the National Longitudinal Survey of Youth (NLSY) and the Panel Study of Income Dynamics (PSID). Specifically, they investigated the impact of impatience and hyperbolic discounting on the job search, i.e. the exit rate from unemployment. Technically, they built an endogenous search model and determined the likelihood of a wage offer being received (reservation wage). Thus, workers selected the level of search effort and wage to maximize their utility. These two variables were found to specify the exit rate from unemployment. They observed a negative correlation between impatience and exit rate when individuals had hyperbolic time preferences (the opposite was found to be true with exponential discounting). In addition, they found that impatience measures strongly affected job search outcomes in the direction assumed by hyperbolic model. Impatient hyperbolic individuals put little effort into their search activities, perhaps even less than they wished; however, they also did not accept low wage offers and consequently remained unemployed longer. This result suggests that impatient agents have hyperbolic time preferences.

Connecting these assumptions and results with the situation of mismatched workers, it could be hypothesized that impatient job seekers whose time preferences are hyperbolic may accept job offers that do not match their education level or type if the reservation wage is reasonable.

Having explained non-standard preferences, which represent how behavioural economics assumptions fundamentally deviate from those of the traditional mainstream, the next section will clarify other essential differences that contribute to making behavioural economics more realistic than traditional economics.

Worker Heterogeneity

Beyond common demographic groups such as gender, race, age, and geographic location, the literature on behavioural labour also provides comparative descriptions of other groups, some of which are based on distinct preferences. Under this concept, it is argued that rational self-interest models (traditional mainstream) should be generalized to provide a reasonable degree of reciprocity, and that preferences are systematically influenced by the economic environment instead of exogenously determined.

Recently, economists have become more aware of the role of personality traits in determining labour market outcomes (Almlund, Duckworth, Heckman, & Kautz, 2011). Psychologists have a long tradition of assessing personality traits, and several models have been developed to introduce a taxonomy of traits. The Big Five personality traits, proposed in the 1980s, is one of the most common classifications. It is also known as the OCEAN or five-factor model (Goldberg, 1992). This model incorporates five broad attributes of personality traits that are frequently used to describe human personalities: openness to experience, conscientiousness, agreeableness, extroversion, and neuroticism. Many behavioural studies have shown that personality traits affect both job performance and wage determination (Heineck & Anger, 2010). Among the Big Five, conscientiousness is the trait most correlated with job performance, but it is only half as accurate as IQ. Nevertheless, conscientiousness may play a more pervasive role than IQ does. The significance of IQ, especially cognitive skills and information-processing, increases with job complexity, predominantly in jobs that require high-skill levels. Conscientiousness, however, is not associated with job complexity, which makes it an appropriate assessment for a wider spectrum of jobs (Almlund et al., 2011; Schmidt & Hunter, 2004).

A line of research exists in behavioural economics that challenges the traditional determination of earning function, which holds that, in a competitive labour market, skills must be rewarded. This assumption has reduced the interest to examine other potential possibilities for wage determination. Researchers claim that the lack of psychological variables results in bias, then “any analysis of the effect of human capital variables on wages will, therefore, be biased if the psychological capital is not addressed” (Nyhus & Pons, 2005) p.379). In one of the extensive reviews of literature on wage determination, (Bowles, Gintis, & Osborne, 2001) concluded that human capital and standard demographic variables demonstrate only a small part of earning variance.

An interesting study by (Nyhus & Pons, 2005) used the Dutch Household Survey data, a European datasets that scrutinises both economic and personality variables. In their study, they derived the typical Mincerian earning function based on a model of human capital that was extended to include the five personality variables. In addition, they assessed wage equations for males and females separately to address any gender gaps in the standard wage setting. They found a common pattern of reward across all occupations for certain personality traits, though this was higher in some occupations and lower in others. Also, personality traits were found to have different labour market rewards for males and females. For example, emotional stability was strongly related to and positively affected earnings for both males and females, but this relation was stronger for females, which means that this trait leads to higher returns in the wage determination process for females than males. On the other hand, agreeableness was strongly related to lower wages for women. That could mean that, in the labour market, supporting others and behaving in line with others’ preferences are punished, or it could be that agreeable workers were poor wage negotiators or enter jobs that provide low wages, such as the service industry.

Furthermore, conscientiousness was found to be less rewarded for men than women as tenure increases, indicating that variables such as personal appearance and/or level of education function as a sign of this trait only at the beginning of employment. These results confirm that the personality-wage relationship is not uniform and varies by gender. A possible justification for this could be that males and females tend to dominate dissimilar professions, each of which favour particular personality traits.

Most research pertaining to education-job imbalance confirms the negative impact of the mismatch on wages, productivity, and satisfaction. However, there are very few studies that consider personality traits when measuring the consequences of such a discrepancy. For example, studies of (Capsada-Munsech, 2015, 2019) capture the role of the social origins of the overeducation phenomenon, for example, the impact of parental education and parental occupation on the behaviour and preferences of children. These studies affirm the importance of parental education and occupation in relation to the overeducation phenomenon in the labour market. Therefore,

considering social and personal variables when assessing the education-job imbalance will help provide more accurate and realistic results.

It is worth noting that, under the economic traditional model, homogeneous preferences in economics are supported as “tastes neither change capriciously nor differ importantly between people” and “are the unchallengeable axioms of a man’s behaviour” (Stigler & Becker, 1977, p. 76). In their utility model, Stigler and Becker (1977) hypothesize that any consumption bundle leads the same utility for all people. In addition, one of the most common drawbacks of human capital theory, which was introduced by (Becker, 1964), is the assumed homogenous preferences among workers. Individuals who receive that same level of education will have the same level of productivity and thus should receive comparable wages. Other theories that look at mismatch in jobs in the educational sector also assume job competition theory and job matching theory. Their assumption of workers’ homogeneity has led to a misinterpretation of the problem of mismatch.

The Behavioural Economics of Education Investment in Human Capital Under Uncertainty

Students’ decisions on how much they should invest in education involve risk due to the uncertainty of a return on the investment. Education enhances the range of a person’s outcomes that extend beyond labour market productivity, such as life-time earnings, health, and good citizenship (Lance, 2011). Yet, when viewed through the lens of a standard economic model, many education investment decisions and outcomes seem puzzling. For instance, a large proportion of students drop out of school just when the returns seem to be at their highest (Oreopoulos, 2007). Traditional economists have relied on the assumption of rational choice, believing that students compare the costs and benefits of attending universities, then select the most feasible option. It is also assumed that expectations are homogeneous among students, meaning that all students condition their expectations based on the same variables and construct their information in the same way (Manski, 1993). However, several sociological critiques have revealed how race, gender, class, and other social factors influence students’ decision making and yield different expectations related to the cost and benefits of higher education (Grodsky & Jones, 2007).

The concepts observed in behavioural economics are strongly related to what is often referred to in the literature on the economics of education as *non-cognitive skills* or *soft-skills*. Such skills reflect personality traits, motivations, preferences, and goals that are valued in schools, the labour market, and many other areas (Koch, Nafziger, & Nielsen, 2015). A growing body of research offers clear examples of the effect soft skills have on educational attainment. (Duckworth & Seligman, 2005), for example, have shown that self-discipline is a better measure than IQ when looking at an adolescent’s academic performance. Furthermore, (Golsteyn, Grönqvist, & Lindahl, 2014) observed a negative correlation between impatience and students’ performances in schools. In addition, (Almlund et al., 2011) approved the superior predictive power of the Big Five personality traits for academic achievement over other performance tests, including IQ.

In the context of overeducation, (Capsada-Munsech, 2015, 2020) emphasises the importance of soft skills (i.e. self-presentation ability, critical thinking, social conventions) especially in the service sectors where employers give more significance to the personality characteristics. That may become much more important in the sense of educational expansion, as educational success becomes a ‘universalistic’ indicator of quality, and employers will have more incentive to rely on particular characteristics to choose their employees, even though these characteristics are acquired by family socialisation. Therefore, soft skills gained from family socialisation may be relevant to avoid overeducation, precisely among occupations where these kinds of skills are more valued.

According to behavioural economics’ viewpoint, prospect theory and the framing effect have shown how peoples’ decisions are influenced by context. Thus, they are useful for analysing students’ decisions to enrol in higher education (Jabbar, 2011). (Page, Garboua, & Montmarquette, 2007) examined the effects of aspiration levels, defined as the reference point, on students’ decisions of educational choices among 129 participants in France. The experiment included 15 stages that were divided into three levels. They found that a high or low reference point influenced the participants’ choice about whether to continue through the task’s levels. The aim of

this experiment was to connect the findings to choices related to education, arguing that students whose parents had a secondary education could see this as their reference point, with the consequence that university enrolment would be in their gain domain. In contrast, university enrolment would be in the loss domain for those students whose parents were university graduates. This result supports the assumption of prospect theory, in which framing the outcomes as gains or losses significantly affects the choices of the participants. Therefore, aspiration levels may play a significant role in educational choices, and differences in aspiration levels may be a major source of social inequalities in educational outcomes.

Social and psychological factors do not play significant roles only in choosing whether or not to go to pursue higher education, but also is the decision of where to go and what to study (French & Oreopoulos, 2017). Studies have shown large differences in the returns from various fields of study and the selectivity of universities attended (Kirkeboen, Leuven, & Mogstad, 2016). Due to the differences observed in the returns of higher education combined with high enrolment rates, researchers are concerned with the balance between students and fields of study, knowing that matching students with appropriate fields of study will have significant consequences. (Dillon & Smith, 2017) have illustrated how students and their families make decisions in human capital investment due to financial limitations and institutional constraints, with little knowledge about universities, admission, or financial aid provided. (Hoxby & Avery, 2012) found that high-achieving, low-income students do not apply to selective universities, even though those universities may cost them less, while (Goodman, 2016) offers observational evidence to demonstrate how institutional variations in university application processes can influence the types of program a student applies for and enrolls in.

Discussion

Behavioural economics uses psychological experiments to build on theories about human decision-making and how human thinking produces a range of biases concluding that people have bounded rationality. In terms of the study's first question of why would people accept overqualified job positions and incur wage penalties. From a behavioural perspective and taking into consideration the role of the reference point, where people make their judgement in terms of loss and gain, compared to being unemployed in the labour market, being overeducated would be a gain decision, especially poor income people and/or male/female breadwinners. Moreover, if this reference point is a family member i.e. having a father working in the same occupation, or guarantees a social status such as working in government jobs, then being overeducated in these jobs would also seem a gain, even though this employment may encounter wage loss.

Moreover, behavioural economics has proven that human behaviour shows preferences for rewards to arrive sooner rather than later, as people favouring one apple today rather than two apples tomorrow. This indicates that having an overeducated job position in the meantime is preferable to waiting for a well-matched position in the future.

What motivates people to remain in jobs for which they are overeducated? The explanation may be found in Kahneman's book, which describes the behaviour of people who are reluctant to shift employment. Human behaviour is commonly resistant to change. In this way, people evaluate the features of their new workplace in terms of pluses or minuses, compared to where they were. Loss aversion is likely at effect in this judgment since the negatives were given more weight than the positives.

Regarding the wage cut that overeducated people would suffer, behavioural economists have an insightful explanation for this. The fairness concept implies that when the wage difference among workers is significant, it may exacerbate feelings of unfairness among employees, which could lead to (overeducated) workers withdrawing effort, thus lower productivity. To this end, behavioural economics is similar to the neo-classical conclusions that overeducated people encounter job loss and therefore, low job satisfaction and productivity. However, while neo-classical theories, such as the job competition theory, assume that employers hire overeducated people due to their low training cost, studies under the behavioural economics approach have demonstrated that firms do not take advantage of labourer's underbidding. Although unemployed people seem to be willing to work for low wages, employers normally refuse to hire an underbidder. The major reason for this is employers' fears that wage cuts may affect workers' morale. It is believed that a wage cut may be interpreted by workers as hostility or an insult. Therefore, it is suggested that, contrary to traditional competitive models, wages are not affected only by supply and demand but also by the effect of labourer's efforts and behaviour.

In terms of wage determination, a line of research exists in behavioural economics that challenges the traditional determination of earning function, which holds that workers are homogenous, one of the most common drawbacks of human capital theory. In this sense, individuals who receive that same level of education will have the same level of productivity and thus should receive comparable wages. The assumption of workers' homogeneity has led to a misinterpretation of the problem of mismatch in a competitive labour market. This assumption has reduced the interest to examine other potential possibilities for wage determination. Personality traits have recently played an essential role in determining labour market outcomes. People are different in their personalities which explains why two individuals with the same level of education occupy different occupational positions in labour markets, i.e., one is overeducated while the other is in a well-matched position.

Why would they pursue an education when labour markets cannot accommodate the growing number of educated individuals? Traditional economists have relied on the assumption of rational choice, believing that students compare the costs and benefits of attending universities, then select the most feasible option. It is also assumed that expectations are homogeneous among students, meaning that all students condition their expectations based on the same variables and construct their information in the same way.

However, according to behavioural economics' viewpoint, prospect theory and the framing effect have shown how peoples' decisions are influenced by context. Thus, they are useful for analysing students' decisions to enrol in higher education. A high or low reference point influenced the participants' choice about whether to continue through the task's levels. In this sense, students whose parents had a secondary education could see this as their reference point, with the consequence that university enrolment would be in their gain domain. In contrast, university enrolment would be in the loss domain for those students whose parents were university graduates. This result supports the assumption of prospect theory, in which framing the outcomes as gains or losses significantly affects the choices of the participants.

Conclusion

In this study, behavioural economics insights and assumptions have been explored and surveyed. General concepts, definitions, and theories were explained, concluding with a table (Table 1) representing the biggest differences between behavioural and traditional economics. Then, considering the aim of this study to investigate the education-job mismatch among university graduates, behavioural economics view into both labour economics and education were explored. Where applicable, different behavioural assumptions were connected to interpret the mismatch phenomenon and find a justification that differs from that of the traditional view. Behavioural economics uses psychological experiments to build on theories about human decision making and how human thinking produces a range of biases concluded that people have bounded rationality. In the labour market, behavioural economics illustrates that workers have non-standard preferences; workers do care about benefits and payoffs, but rather respond to and are influenced by reciprocity and fairness. Furthermore, behavioural economics supplies strong evidence that people are loss averse as losses are more painful than gains are joyous. One important aspect that behavioural economics normally considers is the reference point, which is a psychological point by which people tend to evaluate losses and gains, for example when making decisions regarding employment or education. A cornerstone hypothesis in behavioural economics is that workers are heterogeneous; they differ in ways of thinking, ways of evaluating gains and losses, and personality traits. All these assumptions have succeeded in making behavioural economics more realistic and practical and have contributed to finding answers to questions that traditional economics have abandoned. Finally, a growing body of research has developed under the behavioural economics viewpoint. However, its reliance on experimental methods and laboratory observations makes it difficult to apply and to generalize the results.

Consequently, this study paves the way for future research to analyze the phenomena of overeducation from a behavioural viewpoint by employing qualitative methods such as observations and interviews. This will substantially aid in understanding the human behaviour origins of this occurrence.

References

1. Agell J and Lundborg P. "Theories of pay and unemployment: survey evidence from Swedish manufacturing firms". *The Scandinavian Journal of Economics* (1995): 295-307.
2. Akerlof GA and Yellen JL. "The fair wage-effort hypothesis and unemployment". *The quarterly journal of economics* 105.2 (1990): 255-283.
3. Almlund M., et al. "Personality psychology and economics". In *Handbook of the Economics of Education*, Elsevier 4 (2011): 1-181.
4. Andreoni J and Miller JH. Giving according to GARP: an experimental test of the rationality of altruism (1999).
5. Ashraf N, Camerer CF and Loewenstein G. "Adam Smith, behavioral economist". *Journal of Economic perspectives* 19.3 (2005): 131-145.
6. Batson CD., et al. "Is empathic emotion a source of altruistic motivation?". *Journal of personality and Social Psychology* 40.2 (1981): 290.
7. Battu H, Belfield CR and Sloane PJ. "Overeducation among graduates: a cohort view". *Education Economics* 7.1 (1999): 21-38.
8. Becker. *Human Capital*. New York: Nat. Bur. Econ. Res (1964).
9. Berg N. *Behavioral Labor Economics* (2006).
10. Bowles S, Gintis H and Osborne M. "Incentive-enhancing preferences: Personality, behavior, and earnings". *American Economic Review* 91.2 (2001): 155-158.
11. Camerer C., et al. "Labor supply of New York City cabdrivers: One day at a time". *The quarterly journal of economics* 112.2 (1997): 407-441.
12. Camerer CF and Loewenstein G. *Behavioral economics: Past, present, future* (2003).
13. Capsada-Munsech Q. "The role of social origin and field of study on graduates' overeducation: the case of Italy". *Higher Education* 69.5 (2015): 779-807.
14. Capsada-Munsech Q. "Overeducation, skills and social background: the influence of parental education on overeducation in Spain". *Compare: A Journal of Comparative and International Education* (2019): 1-21.
15. Capsada-Munsech Q. "Overeducation, skills and social background: the influence of parental education on overeducation in Spain". *Compare: A Journal of Comparative and International Education* 50.2 (2020): 216-236.
16. Della Vigna S. "Psychology and economics: Evidence from the field". *Journal of economic literature* 47.2 (2009): 315-372.
17. Della Vigna S and Paserman MD. "Job search and impatience". *Journal of Labor Economics* 23.3 (2005): 527-588.
18. Dillon EW and Smith JA. "Determinants of the match between student ability and college quality". *Journal of Labor Economics* 35.1 (2017): 45-66.
19. Dohmen T. "Behavioral labor economics: Advances and future directions". *Labour Economics* 30 (2014): 71-85.
20. Duckworth AL and Seligman ME. "Self-discipline outdoes IQ in predicting academic performance of adolescents". *Psychological science* 16.12 (2005): 939-944.
21. Duncan GJ and Hoffman SD. "The incidence and wage effects of overeducation". *Economics of Education Review* 1.1 (1981): 75-86.
22. Dunn LF. "Loss aversion and adaptation in the labor market: Empirical indifference functions and labor supply". *The review of economics and statistics* (1996): 441-450.
23. Emami A., et al. "The impact of judgment and framing on entrepreneurs' decision-making". *Journal of Small Business & Entrepreneurship* (2019): 1-22.
24. Fehr E and Falk A. "Wage rigidity in a competitive incomplete contract market". *Journal of political economy* 107.1 (1999): 106-134.
25. Fehr E and Gächter S. "Fairness and retaliation: The economics of reciprocity". *Journal of Economic perspectives* 14.3 (2000): 159-181.
26. Fehr E, Kirchsteiger G and Riedl A. Does fairness prevent market clearing? An experimental investigation. *The quarterly journal*

- of economics 108.2 (1993): 437-459.
27. Fehr E and Schmidt KM. "A theory of fairness, competition, and cooperation". *The quarterly journal of economics* 114.3 (1999): 817-868.
 28. Fehr E and Schmidt KM. "The economics of fairness, reciprocity and altruism—experimental evidence and new theories". *Handbook of the economics of giving, altruism and reciprocity* 1 (2006): 615-691.
 29. Fehr E and Tyran J-R. "Does money illusion matter?" *American Economic Review* 91.5 (2001): 1239-1262.
 30. Freeman R. *The overeducated American* (1976).
 31. French R and Oreopoulos P. "Behavioral barriers transitioning to college". *Labour Economics* 47 (2017): 48-63.
 32. Friedman D., et al. "Searching for the sunk cost fallacy". *Experimental Economics* 10.1 (2007): 79-104.
 33. Goldberg LR. "The development of markers for the Big-Five factor structure". *Psychological assessment* 4.1 (1992): 26.
 34. Golsteyn BH, Grönqvist H and Lindahl L. "Adolescent time preferences predict lifetime outcomes". *The Economic Journal* 124.580 (2014): F739-F761.
 35. Goodman S. "Learning from the test: Raising selective college enrollment by providing information". *Review of Economics and Statistics* 98.4 (2016): 671-684.
 36. Grodsky E and Jones MT. "Real and imagined barriers to college entry: Perceptions of cost". *Social science research* 36.2 (2007): 745-766.
 37. Groot W and Van Den Brink HM. "Overeducation in the labor market: a meta-analysis". *Economics of Education Review* 19.2 (2000): 149-158.
 38. Heineck G and Anger S. "The returns to cognitive abilities and personality traits in Germany". *Labour Economics* 17.3 (2010): 535-546.
 39. Hoxby CM and Avery C. *The missing "one-offs": The hidden supply of high-achieving, low income students* (2012).
 40. Jabbar H. "The behavioral economics of education: New directions for research". *Educational Researcher* 40.9 (2011): 446-453.
 41. Kahneman D. *Thinking, fast and slow*: Macmillan (2011).
 42. Kahneman D, Knetsch JL and Thaler RH. "Anomalies: The endowment effect, loss aversion, and status quo bias". *Journal of Economic perspectives* 5.1 (1991): 193-206.
 43. Kahneman D and Tversky A. "On the psychology of prediction". *Psychological review* 80.4 (1973): 237.
 44. Kaltwasser L., et al. "Behavioral and neuronal determinants of negative reciprocity in the ultimatum game". *Social cognitive and affective neuroscience* 11.10 (2016): 1608-1617.
 45. Kirkeboen LJ, Leuven E and Mogstad M. "Field of study, earnings, and self-selection". *The quarterly journal of economics* 131.3 (2016): 1057-1111.
 46. Koch A, Nafziger J and Nielsen HS. "Behavioral economics of education". *Journal of Economic Behavior & Organization* 115 (2015): 3-17.
 47. Kremer M, Rao G and Schilbach F. "Behavioral development economics". In *Handbook of Behavioral Economics: Applications and Foundations*, Elsevier 1.2 (2019): 345-458.
 48. Krueger AB and Mas A. "Strikes, scabs, and tread separations: labor strife and the production of defective Bridgestone/Firestone tires". *Journal of political economy* 112.2 (2004): 253-289.
 49. Kube S, Maréchal MA and Puppe C. "The currency of reciprocity: Gift exchange in the workplace". *American Economic Review* 102.4 (2012): 1644-1662.
 50. Lance L. "Nonproduction benefits of education: Crime, health, and good citizenship". In *Handbook of the Economics of Education*, Elsevier 4 (2011): 183-282.
 51. Manski CF. "Adolescent econometricians: How do youth infer the returns to schooling?". In *Studies of supply and demand in higher education*, University of Chicago Press (1993): 43-60.
 52. McGuinness S. "Overeducation in the labour market". *Journal of Economic Surveys* 20.3 (2006): 387-418.
 53. Nyhus EK and Pons E. "The effects of personality on earnings". *Journal of Economic Psychology* 26.3 (2005): 363-384.

54. Oreopoulos P. "Do dropouts drop out too soon? Wealth, health and happiness from compulsory schooling". *Journal of public economics* 91.11-12 (2007): 2213-2229.
55. Otuteye E and Siddiquee M. "Overcoming cognitive biases: A heuristic for making value investing decisions". *Journal of Behavioral Finance* 16.2 (2015): 140-149.
56. Page L, Garboua LL and Montmarquette C. "Aspiration levels and educational choices: An experimental study". *Economics of Education Review* 26.6 (2007): 747-757.
57. Rabin M. "A perspective on psychology and economics". *European economic review* 46.4-5 (2002): 657-685.
58. Roth AE, et al. "Bargaining and market behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An experimental study". *The American Economic Review* (1991): 1068-1095.
59. Schmidt FL and Hunter J. "General mental ability in the world of work: occupational attainment and job performance". *Journal of personality and Social Psychology* 86.1 (2004): 162.
60. Sicherman N and Galor O. "A theory of career mobility". *Journal of political economy* 98.1 (1990): 169-192.
61. Simon HA. "A behavioral model of rational choice". *The quarterly journal of economics* 69.1 (1955): 99-118.
62. Simonsohn U, et al. "The tree of experience in the forest of information: Overweighing experienced relative to observed information". *Games and Economic Behavior* 62.1 (2008): 263-286.
63. Smith A. *The theory of moral sentiments*, ed. DD Raphael and AL Macfie. Oxford University Press, Oxford (1976): 110.
64. Spence M. Job market signaling. In *Uncertainty in economics* (1978): 281-306.
65. Stanovich KE and West RF. "Individual differences in reasoning: Implications for the rationality debate?" *Behavioral and brain sciences* 23.5 (2000): 645-665.
66. Stigler GJ and Becker GS. "De gustibus non est disputandum". *The American Economic Review* 67.2 (1977): 76-90.
67. Sunstein CR. "Nudging and choice architecture: Ethical considerations". *Yale Journal on Regulation*, Forthcoming (2015).
68. Thaler R. Some Empirical Evidence on Dynamic Inconsistency, *8 Econ. Letters* 201 (1981): 204.
69. Thaler RH and Sunstein CR. *Nudge: Improving decisions about health, wealth, and happiness*: Penguin (2009).
70. Thurow LC. *Generating inequality: Basic books* (1975).
71. Tversky A and Kahneman D. "Judgment under uncertainty: Heuristics and biases". *science* 185.4157 (1974): 1124-1131.
72. Tversky A and Kahneman D. "Prospect theory: An analysis of decision under risk". *Econometrica* 47.2 (1979): 263-291.
73. Tversky A and Kahneman D. "The framing of decisions and the psychology of choice". *science* 211.4481 (1981): 453-458.
74. Winter-Ebmer R. "What is (not) behavioural in labour economics?". *Labour Economics* (2014).

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