

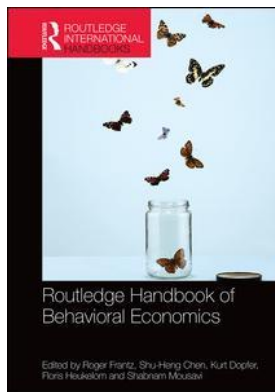
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BEHAVIORAL LABOR
ECONOMICS*Xianghong Wang***Introduction**

The emergence of behavioral economics has advanced the field of labor economics just as it has done many fields of economics. Labor economics is probably where the assumptions and methods of behavioral economics were most welcome (Winter-Ebmer, 2014). This might be true for the following reasons. First, labor economists are mostly concerned with decisions of workers and firms based on their repeated human interactions. Second, the relationship between worker and employer is characterized by incomplete contracts because many dimensions of their interactions, especially worker's effort, cannot be fully specified (Fehr et al., 2009; Leibenstein, 1966). Therefore, the approach of behavioral economics that deviates from standard neoclassical economics regarding the assumptions about the nature of human interactions and motivation helps explain observed behavior of workers and employers. Third, labor economists are much engaged in empirical studies that try to understand causal relationships between individual decisions and labor market conditions. This has benefited from the methods of laboratory and field experiments that have become more influential due to the advancement of behavioral economics. Finally, the combination of behavioral theories and experimental methods has provided promising tools for design and evaluation of labor economic policies.

A few authors have written survey articles about the development of behavioral labor economics. The earliest may be Kaufman's essay on the behavioral foundations of labor economics (Kaufman, 1999), in which he reports that over a six-year period between 1992 and 1997, only two papers are found in the *Journal of Labor Economics* that substantively modified the rational choice model. Less than a decade later, Berg's (2006) survey article suggests that the gap between traditional and behavioral labor economics seems less dramatic than in other subfields of economics since traditional labor economics also has to deal with the feature of repeated human interactions in labor markets. This is probably why scholars are not all in consensus about what is or is not behavioral in labor economics (Dohmen, 2014; Winter-Ebmer, 2014).

In the most recent review, Dohmen (2014) argues that behavioral economics has impacted labor economics mainly in three aspects: theoretical insights; micro studies of decision-making and human interactions; and experimental methods. He discusses the theoretical impact by focusing on the themes outlined by DellaVigna (2009): nonstandard preferences, nonstandard beliefs, and nonstandard decision-making. Social preference is one of the main nonstandard

preferences of employees and employers. Fehr et al. (2009) provide a focused discussion on the impact of social preferences and fairness concerns on labor market issues. Nonstandard decision-making is shown in a strand of studies that analyze how biases affect workers' job search and training decisions. Nonstandard beliefs in labor markets may refer to workers' overconfidence in principal-agent relations, and their over-pessimism or over-optimism in job markets.

The methods of experimentation including laboratory experiments and field experiments have been widely used for testing behavioral theories and studying decisions in labor markets. Charness and Kuhn (2011) review laboratory experiments that study various topics of labor economics and provide design strategies to avoid pitfalls. List and Rasul (2011) provide a thorough review of the method of field experiments and its applications in labor economics. In addition to the advantages of all experimental methods, field experiment allows for engaging in primary data collection and working closely with practitioners, which makes it important for study of mechanism design and policy evaluation. The authors argue that insights are most enhanced when field experiments are combined with other approaches in economics.

As shown by the existing literature, behavioral labor economics has become a very important part of labor economics. This chapter will focus on reviewing behavioral insights that appear to be most influential in studies of labor market issues. Compared with previous reviews, this chapter will pay more attention to the exploration of labor policy designs based on behavioral insights. The second section briefly describes relevant behavioral insights, focusing on social preferences, reference-dependence, and self-serving biases. The third section reviews the role of social preferences in understanding workers' motivation issues. The fourth section reviews studies about reference-dependence and relative position, and their impacts on wage and wage distribution. The fifth section reviews the role of self-serving biases in wage settings and wage negotiations. The final section discusses labor economic policies that can benefit from behavioral nudge methods.

Behavioral insights for labor economics

Labor economics covers a wide range of topics mostly related to supply, demand, and the organization of labor markets. We focus our attention on topics that have benefited most from the insights and methods of behavioral economics: workers' motivation or effort provision, firms' incentive schemes, wage determinants and bargaining, and policy interventions for labor participation, training and employment. The main behavioral theories covered include social preferences, fairness concern, reciprocity; reference-dependence of utility; and biased beliefs. These concepts are in contrast to the following main assumptions of standard neoclassical economic theories: economic agents care about their self-interest only, and only in absolute terms of payoff; they have consistent preferences and make labor supply decisions based on rational tradeoff between leisure and consumption in a life-cycle; and they have the cognitive capacity and strong-will to follow through their plans.

Social preferences

Social preference refers to people's tendency of paying attention to others' gains or welfare when interacting with each other in economic activities, which deviates from the neoclassical assumption of people's pure selfishness. The concept was first put forward by Camerer (1997) and it has been researched by many other scholars. Social preferences may include altruism, reciprocity, fairness and other types of interdependent preferences.

Fehr et al. (2009) review how different aspects of social preferences are modeled and tested using various games in laboratories and in the field. Evidence confirms that fairness concerns exert

some weak effects in one-shot interactions, and plays more important roles in repeated interactions. Evidence of altruism, reciprocity, or fairness concern comes from ultimatum games (Güth et al., 1982; Roth, 1995; Camerer et al., 2003), dictator games (Kahneman et al., 1986), public goods games (Ledyard, 1995; Fehr and Gächter, 2000b), and trust games (Berg et al., 1995). Studies also show considerable individual heterogeneity in the strength of social preferences, that is, a significant share of individuals also exhibit fairly selfish behaviors, which has implications for studying effects of personal traits and institutions (Fehr et al., 2009).

Individuals with social preferences are willing to pay to punish unfair behaviors (Bolton and Ockenfels, 2000; Charness and Rabin, 2002; Dufwenberg and Kirchsteiger, 2004; Falk and Fischbacher, 2006; Fehr and Schmidt, 1999; Rabin, 1993). Positive reciprocity is an in-kind favorable response to friendly actions while negative reciprocity entails punishment of hostile acts (Fehr and Gächter, 2000a). Various experiments have studied positive and negative reciprocity (Charness, 2004; Cox, 2004; Cox and Deck, 2005; Cox et al., 2008). The general result of experimental evidence is that negative reciprocity is stronger than positive reciprocity.

Reference-dependence and loss aversion

Whereas the standard economic model assumes that only the absolute level of payoffs matters for people's utility, evidence suggests that these levels are valued relative to a reference level. The reference level can come from comparing one's own payoff with other people's payoff (see Veblen, 1899; Duesenberry, 1949; Pollak, 1976; Frank, 1985a, b, 2005; Festinger, 1954; Olson et al., 1986). Various empirical studies have argued that income comparisons affect life satisfaction and decision-making (e.g., Luttmer, 2005; see also Clark et al., 2008, and Clark et al., 2010, for surveys). The chosen comparison targets are likely to be people sharing some common characteristics. Such comparisons have implications for fairness judgments and other preferences in the labor market.

Reference level can also come from comparing with one's own past history, which is consistent with the concept of reference-dependence and loss aversion proposed by Kahneman and Tversky (1979) in Prospect Theory. This will affect preferences of wage profiles for individual workers.

Self-serving biases

Self-serving bias refers to the fact that when people make judgments, they unconsciously tend to favor themselves or the party that is more associated with them. Biases can lead to non-standard beliefs as noted in DellaVigna (2009). Self-serving bias can make people overestimate their own achievements and abilities; obtain and interpret information in their own interests; define fairness based on a standard of self-interest instead of impartial standards.

While people care about fairness in their economic interactions, people do switch between different fairness rules as their decision-making context changes (Frohlich et al., 2004). Experimental study has provided evidence that inconsistency of fairness rules is mainly driven by a self-serving bias (Ubeda, 2010).

Self-serving bias is affected by availability of information. Therefore, improvement in information completeness might lead to a deadlock of the negotiation (Babcock et al., 1995). In a cross-culture negotiation experiment involving subjects from the United States and China, Kriss et al. (2011) show that when people do not know the identity of the object they are judging about, the two sides' judgments of fairness are not different from each other. However, their opinions diverge when revealed identity of object leads to self-serving judgment of fairness.

To save space, we are not going to review all behavioral insights that are used in labor market studies. The next section focuses on how the above behavioral insights have helped advance the studies of labor markets often with combined forces.

Motivation and effort: the role of social preferences

Gift-exchange game, fairness, and reciprocity

To model the behavior of employer and worker under incomplete contracts, most of the research has focused on gift-exchange and the role of fairness norms and reciprocity (see Fehr et al., 2009, for a review). Akerlof (1982), Akerlof and Yellen (1990) first proposed a fair-wage hypothesis about this relation: the employer pays the employee higher wages than the equilibrium wages, and the staff reward the employer through exerting more effort. The resulting positive wage–effort relation helps solve principal–agent problems in settings of contractual incompleteness.

This gift-exchange theory is consistent with the X-efficiency theory proposed by Leibenstein (1966; 1978), in which productive-inefficiency can persist from imperfect competition or psychological factors. Because of incomplete contracts in labor markets, effort discretion plays an important role in determining employees' performance. There exists an inert area of effort within which the individual is mobile. The inert area is determined by factors both internal and external of the individual. Leaving the inert area is caused by a change in internal or external pressure sufficient enough to make the cost of remaining in the inert area exceed the benefit, and thus changes in effort are determined by an interaction of psychological factors and economic considerations. Therefore, the employer can pay employees higher wages than the equilibrium wages so that the cost of remaining in the inert area exceeds the benefit, and employees make more effort.

The gift-exchange theory and various versions of the game have been extensively used to study the effect of labor market institutions in experimental labor market outcomes (see Fehr and Falk, 2002), including hiring decisions (Fehr and Falk, 1999), wage setting behavior of firms (e.g., Abeler et al., 2010), wage rigidity and involuntary unemployment (Altmann et al., 2014), and effects of minimum wage laws (Falk et al., 2006). The main findings of these studies are as follows: first, effort is increased with wage increase; second, effort is more responsive to wage cuts than to wage increase; and third, firms may pay wages higher than the equilibrium.

Fairness concern can result in negative reciprocity in labor relationships, which has been shown by evidence in the field. Krueger and Mas (2004) find that a labor strike at a US tire production site coincided with the production of substantially lower-quality tires, likely due to workers' negative reciprocity in response to what they perceive as unfair treatment. Harmful reciprocations in labor relationships are also documented by Mas (2006, 2008), Kube et al. (2013) and Montizaan et al. (2012).

Altruism, selfishness, heterogeneity, and market conditions

People's willingness to give in to dictator games and public good games can be referred to as altruism or other-regarding behavior. Such preferences can be observed between employer and employee, or among workers. Employers pay wages above the equilibrium due to both altruism and concern for reciprocity.

Altruistic concern among workers can lead them to reduced effort in collusion when high effort creates externality to others. Bandiera et al. (2005) conducted a field experiment which shows that when workers are paid by relative performance instead of piece rate, productivity is lowered because workers internalized negative externality of relative performance to some extent.

Personnel data from a fruit farm during a picking season show changes in the productivity as a function of changes in the compensation scheme. The average productivity of each worker increased by 51.5 percent when the scheme was switched from relative performance to flat piece rate. Workers internalize the externality of relative incentives more when the share of their personal friends in the group is larger and this effect is stronger in smaller groups. However, productivity under relative incentives was significantly lower only when workers were able to monitor each other. This indicates that workers' social preferences do not make them unconditionally altruistic towards others.

While other-regarding preferences play an important role in the labor market, there is pervasive evidence of pronounced heterogeneity in types of agents (see, e.g., Fischbacher et al., 2001) ranging from completely selfish types to altruistic types. The prevailing labor market outcome is not merely determined by the fractions of the various types, but also by the institutional setting in which heterogeneous types interact. For example, when information about minimum wage policy is complete for both sides of workers and firms, many firms pay wages higher than the minimum level (Falk et al., 2006). However, Wang (2012) finds that, when the minimum wage policy is not known to workers, firms' pay to workers is lower than what's found in Falk et al. (2006) and many more firms now offer wages just at the minimum level. This provides evidence that social preference does not make all firms unconditionally generous. The key to predicting outcomes in labor markets is thus an understanding of the factors, conditions and institutional arrangements under which other-regarding preferences or selfishness govern behavior. As a result, there is a need to assess when and how social preferences govern behavior in long-term labor relationships.

Wage distribution and profiles: reference-dependence and relative income

Reference-dependence means that utility is dependent on relative level in addition to absolute level (Kahneman and Tversky, 1979), which can refer to relative position in social comparisons or relative level compared to oneself. Relative comparison has far-reaching implications for labor markets, as it affects labor supply (Neumark and Postlewaite, 1998), wage profiles (Frank and Hutchens, 1993), effort provision (see e.g., Hamermesh, 1975; Cohn et al., 2014a) and the design of optimal incentive systems (Bartling and von Siemens, 2010).

Relative comparison affects employees' satisfaction about their salary pay. As part of the incentive scheme in the firm, relative position provides a status or positional good, which is viewed as one kind of non-monetary incentive by List and Rasul (2011). The study by Card et al. (2012) among employees of the University of California provides evidence that the disclosure of information on peers' salaries causes a reduction of job satisfaction and an increase in turnover intentions among those earning below median salaries, while employees above the median are unaffected. Liu and Wang (2015) provide evidence in an experimental study, which shows that relative income affects income satisfaction given absolute income.

Relative comparison among workers may have an impact on firms' internal pay structure, employee morale, and wage changes over time. Because of possible externality caused by relative income, firms may need to compress pay scales and reduce inequality within firms (Stark and Hyll, 2011; Frank, 1984) or maintain pay secrecy (Charness and Kuhn, 2011).

How people choose reference groups has a strong impact on labor market outcomes. In general, people tend to compare with others who are similar to themselves. This helps explain the sharp difference between wage dynamics in internal and external labor markets (Fehr et al., 2009). Workers who are looking for a job in a new firm seem to evaluate the fairness of a firm's wage offer relative to the going wage in the labor market. Incumbent workers, in contrast, seem to

assess the fairness of proposed wage changes in their ongoing employment relative to the status quo. Accordingly, the firm may adjust the new entrants' wages to labor market conditions, while holding those of the incumbents unchanged. In China, as the country is experiencing reforms and introducing new management practices into organizations, for example, there is a saying: "New people new policy, and old people old policy."

Through comparisons with oneself, reference-dependence and loss aversion cause downward nominal wage rigidity. Evidence of such rigidity has been found for managers (Ockenfels et al., 2015) and for workers (Bewley, 1999; Agell and Lundborg, 2003). In contrast, providing an unexpected bonus that is unrelated to past productivity has a significant and positive effect on productivity (Bellemare and Shearer, 2009; Gneezy and List, 2006). Reference-dependence can also affect supply of labor hours when workers set income-targets and do not optimize their payoff as predicted by traditional models. This has been documented by data from taxi drivers (Camerer et al., 1997; Farber, 2005; 2008) and bike messengers (Fehr and Goette, 2007).

Labor relations: role of self-serving biases

Self-serving bias may have implications for many labor market outcomes. First is on the judgment of what constitutes a fair wage. Messick and Sentis (1979) find in an experiment that, when a participant works for a longer time than others, he will tend to ask for a higher fair wage for his work time; however, when he works for a shorter time than others, he will tend to recommend a lower fair wage for others' work time. This tendency suggests that people's judgment on fair wages is mainly based on self-interest.

Biased judgment of fairness may increase conflicts and negotiation impasses between employers and employees. One example is its role in collective wage bargaining (Babcock et al., 1996). Negotiators in wage bargaining consider economic factors as well as fairness and reciprocity. However, there exist systematic differences between "fair wages" in the views of trade unions and management. The negotiator would regard the other party's bargaining as an unfair request. This psychological drive caused negotiators to oppose the conditions below the fairness level that they held, resulting in impasse of the negotiation (Babcock and Loewenstein, 1997). Evidence shows that the degree of difference between negotiators' fairness judgments is correlated to labor strikes (Babcock et al., 1996).

Policy implications

Policymakers in various western economies recognize the potential of a behavioral economic approach in policy analysis because it provides more realistic predictions about behavior than traditional choice models. Some countries have established special groups in the government to apply behavioral insights and methods to policy designs and evaluations. For example, the UK government installed the "Behavioral Insights Team" (BIT) in 2010 and produced some success stories.¹ In the United States, the White House set up the Social and Behavioral Sciences Team (SBST) in 2014, which just released their first annual report. On September 15, 2015, President Obama signed an Executive Order that directs federal agencies to use behavioral science insights in designing and evaluating government programs. In the international domain, behavioral insights are also being applied to world development policies, as documented in World Development Report 2015 issued by the World Bank. Some of these successful policy applications are related to labor market issues. We next review some general policy principles suggested by behavioral economists, and then discuss implications and applications in labor market policies.

Libertarian paternalism and nudging

To make behavioral insights useful for public policy, behavioral economists have proposed some policy guidance and principles. Since individuals' decisions are affected by information and choices, it is desirable to set policies to maximize people's welfare based on predictions about people's behavioral responses. Camerer et al. (2003) call for "asymmetric paternalism" which they define as taking steps to help the least sophisticated people while imposing minimal harm on everyone else. This concept is also called "soft paternalism", "libertarian paternalism", or "nudge" policies. Based on various behavioral biases people may have, libertarian paternalists have suggested some "nudge" methods that help design better policies (Thaler and Sunstein, 2008; Thaler and Sunstein, 2003). For example, the first is called the default rule. Public policies can set default option as the choice that benefits most people. Many organizations in both the public and private sector have discovered the immense power of default options. For example, making a retirement saving plan as a default option significantly increased employees' contributions to their retirement plan (Thaler and Benartzi, 2004; Choi et al., 2004).

Nudge methods advise policy makers to present choices and information to people in ways that help them make better decisions, mitigating their biased expectations, biased judgments, procrastination or other non-optimal behavior. To summarize, the nudging methods may include the following: default option, simplification of complex choices, reminders to prevent expected errors, pre-commitment, feedback or informing of past choices, use of social norms, framing and information disclosure (Camerer et al., 2003; Thaler and Sunstein, 2008; Sunstein, 2014). We next discuss how some of these nudge methods can help improve labor policies.

Applications in the labor market

Labor market policies and programs need to consider behavioral factors in order to help workers get employed, provide education and training opportunities, ensure fairness, safety, and accessibility of workplace, motivate employees, and improve the effectiveness of labor markets. Babcock et al. (2012) review how behavioral insights related to procrastination, difficulties in dealing with complexity, and biased labor market expectations can help design labor market policies including unemployment compensation, employment services, job search assistance, and job training. Following the methods of "libertarian paternalism," we review some behavioral policy approaches for selected labor market issues, including some findings from recent government practices.

Default options and employment assistance

One important type of labor market policies is to facilitate unemployed people to return to work. Some behavioral biases of workers may prolong their unemployed period, including the effects of biased wage expectations, reference dependence or loss aversion, procrastination, and pessimistic views about being hired.

Defaulted training and education can help people become employed. Government policies can be designed to increase workers' tendency to enroll in training programs and their tendency to search for a job. When unemployed people apply for unemployment insurance, for example, they can be defaulted to participate in training programs and job search activities (Director and Englander, 1998; Black et al., 2003; Borghans and Golsteyn, 2014). Johnson and Goldstein (2003) and McKenzie et al. (2006) show that default effects exist even when no effort is required, and many people interpret policy makers' choice of default as the recommended action.

Simplification, reminders, and increased enrollment

Individuals are limited in the attention and the computational capacity they can bring to multifaceted and complex problems (Tversky and Shafir, 1992). To steer people to decisions and behavior that can improve their welfare, government programs often need to present desirable information easily accessible to overcome people's procrastination, or status quo bias. One nudge approach for employment assistance is to simplify and streamline the experience of workers seeking employment services or job search assistance (Babcock et al., 2012). Employment and job search assistance tools should be widely available and easy to use, both online and in public employment service offices. People usually care to compare pay levels with others who are similar to themselves. Job assistance tools could gather information on an individual's background and interests, and provide feedback on the education and employment opportunities pursued by others like them and their projected growth in occupations.

Another direction that appears promising will be to offer small, immediate, and high frequency reminders and incentives to search for jobs. Experimentation can be used to test the possibility of overcoming imperfect self-control by sending various versions of messages and reminders. A recent project in the United States provides such an example. Having a college degree increases earnings and reduces the risk of unemployment. Every year, however, roughly 20 to 30 percent of college-accepted high school graduates in US urban districts fail to matriculate in college in the fall, because they do not complete required pre-matriculation tasks such as filling out course-enrollment forms and financial aid forms, or taking placement tests. Reminders have shown to be effective in increasing low-income students' enrollment in college (SBST report, 2015). SBST collaborated with the Department of Education to unlock access to college for some students. They find that sending personalized text messages to low-income students resulted in increased college enrollment by nearly 9 percent. Improved reminder message is also used to increase veterans' enrollment in Education and Career Counseling Benefits.

Reference effect, framing, and debiasing

Public policies can affect decisions and behavior through economic incentives or through changing perceptions of people about expectations, fairness judgment, and entitlement or status quo. Ariely et al. (2003) show that even arbitrary anchors have strong effects on subjects' reservation prices. Thus, public policies are likely to affect behavior not only through changing incentives but also by shaping perceptions and reservation values.

Labor policies or regulations that provide a standard ceiling or flooring control need to be aware of possible reference effects. For example, evidence shows that the introduction of a minimum wage provides reference points for workers' reservation wages (Falk et al., 2006; Wang, 2012).

Labor programs can make use of the reference effect to debias people's expectation errors. Evidence from other contexts suggests that debiasing of beliefs is possible through carefully designed interventions (Babcock, Loewenstein, and Issacharoff, 1997). This research suggests that having people question their own judgment by explicitly considering counterarguments to their own thinking can be effective. Job search assistance could potentially incorporate such an exercise with respect to wage expectations. Decker et al. (2000) show examples of testing the relative success of differently structured job search assistance programs. Framing consequences as losses instead of gains is known to affect behavior in other contexts (Rothman et al., 2006). This framing can affect the willingness of participants to take risks, such as the risk of interviewing for or starting a new job.

Since information affects how social comparisons are made and how fairness judgment is formed, policy makers can design regulations that make certain information publicly available and some not to reduce biased judgment. For example, Goldin and Rouse (2000) find that “blind” auditions for orchestras increase female musicians’ chances of being hired. This is similar to the debiasing tool of “behind the veil of ignorance” used in Kriss et al. (2011).

The World Development Report 2015 provides examples of how productivity can be increased for low-income groups when taking into account behavioral insights. When designing incentive systems, public organizations need to be aware that employees’ productivity is affected by how their pay is compared to the outside private system. According to an analysis of nine years of data from the public hospital system, in regions where the nurses earned much less than the wage that prevailed in the external labor market, a 10 percent increase in the outside wage was associated with a 15 percent increase in the fatality rate for patients admitted for heart attacks (Propper and Van Reenen, 2010). Since social comparisons can produce negative externalities, public policies can also use taxation incentives to change labor behavior and reduce such externalities, as suggested by Frank (1985a).

Experiment beyond nudging

Since nudge policies are often aimed at benefiting some targeted group of individuals, a full evaluation of impacts of such policies on other groups should be implemented (Crépon et al., 2013). For example, the default option to help some groups get employed can potentially have displacement (or spillover) effects on the outcomes of other job seekers. While the minimum wage is set to protect the low-income workers, it can potentially affect wages and employment of higher-income groups.

Some nudge type policies seem promising in the abstract, but turn out to fail in practice. Empirical tests, including randomized controlled trials, are indispensable. Experimentation, with careful controls, is a primary goal of the nudge enterprise.

Finally, some scholars argue that stronger paternalism is needed nowadays, especially when information is asymmetric (Bhargava and Loewenstein, 2015). Poor choices cannot easily be remedied through information disclosure (Loewenstein, Golman and Sunstein, 2014). The difficulty in improving choice through information disclosure or education has been demonstrated in the context of savings decisions (Duflo and Saez, 2003). Mandates can be considered for labor related issues, such as safety issues in the workplace, anti-discrimination, and employment development.

Conclusion

Behavioral economics has helped enrich the studies of labor markets in many topics. This chapter first focuses on discussing contributions of the most influential behavioral insights in labor economics: social preferences, relative income, and self-serving biases. A large part is then devoted to applications of behavioral insights in labor market policies. Two main consensuses seem to stand out from surveying the development and current status of behavioral labor economics. First, at this point, research focus may no longer be needed to argue and prove how labor market outcomes deviate from predictions of neoclassical theories. Rather, it is helpful to study how different labor market conditions affect the psychology of heterogeneous types of people and outcomes of the labor market. Second, following the argument of Chetty (2015) for general policy application of behavioral economics, it may be more productive for behavioral

labor economists to take a pragmatic approach and distill the list of behavioral anomalies into those that are most relevant in common labor market and policy applications.

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Note

1 See www.behaviouralinsights.co.uk/publications/

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