

# **How Economic Theory Can Inform Qualitative Analysis in Evaluation**

A Thesis  
SUBMITTED TO THE FACULTY OF  
UNIVERSITY OF MINNESOTA  
BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF ARTS

Jean A. King, Advisor

December 2014

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## **Acknowledgments**

Thank you to my advisor Jean King for her constant support and encouragement. I'm also thankful to Robert delMas and Nicola Alexander for agreeing to review and provide feedback on this thesis. Finally, I am very grateful to both ClearWay Minnesota and Professional Data Analysts, Inc. for allowing me to use their data for the purposes of this paper.

## **Dedication**

This thesis is dedicated to my husband Pete for his love and support.

## **Abstract**

This paper examines how economic theory can inform qualitative analysis and what an evaluator should consider when incorporating an economic theory. The study applies a specific economic theory, the theory of rational addiction, to a series of interviews with tobacco users before and after a cigarette tax increase. This study tests the extent to which the economic theory added value to the analysis of qualitative data and the implications this has for an evaluation. The researcher first analyzed the interviews using codes created from the content of the transcripts; she then analyzed the interviews again using predetermined codes from the theory of rational addiction. The study found that using this economic theory provided another lens through which the evaluator could interpret the data. In addition to revealing extra themes, the theory also helped the researcher better understand her positionality and assumptions about the participants.

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## **Chapter 1**

### **Introduction**

#### **Problem Statement**

The Centers for Disease Control outline four forms of economic evaluation: cost analysis, cost-effectiveness analysis, cost-utility analysis, and cost-benefit analysis (CDC, n.d.). These economic approaches are usually meant to compare alternative interventions in order to make decisions about how best to maximize welfare given the allocation of finite resources (CDC, n.d.). These evaluations rely primarily on quantitative methods to place a form of value on the evaluand's potential outcomes (Russ-Eft & Preskill, 2009). But economics can also provide valuable concepts and theories for evaluations that use qualitative methods.

Economic research and qualitative research have an aligned interest – both aim to understand and explain human behavior – yet they investigate this topic differently (Gordon, 2001, p. 4). Economists create complicated regression models to explain behavior, and qualitative researchers make meaning through interpreting people's perceptions. The two approaches are not commonly executed in tandem. Bertrand and Mullainathan (2001, p. 67) mention that economists even hesitate to ask how satisfied people are on a survey; this is not due to disinterest, but rather concern over meaningful responses.

According to Starr (2012), qualitative research in economics is rare; qualitative methods are not typically “part of the economists' toolkit” (p. 1). Economic theories are usually explained through models that provide simplified descriptions of reality (Ouliaris,

2012, n.p.). These models are deliberately developed with assumptions. For example, economic models often assume perfect competition or perfect information, which typically does not exist outside of experimental designs. Testing those assumptions using qualitative research, as some have proposed (Bewley, 2002, p. 351), is pointless according to Friedman (1953, p. 9) since assumptions are never realistic. Ouliaris (2012, n.p.) says, “No economic model can be a perfect description of reality.”

Furthermore, economists believe they should study what people do, rather than what they say (Starr, 2012, p. 2; Bewley, 2002, p. 50). Gordon (2001, p. 9) explains that economists view individuals as “unreliable witnesses” to their own behavior. Economic researchers see interviews as “impressionistic and anecdotal” because they usually are not randomly collected and sufficient in number (Piore, 1979, p. 563). In addition, the qualitative researcher draws inductive subjective conclusions, which has the potential to bias the results and therefore does not equate to “good science” (Starr, 2012, p. 19).

However, some economists (Starr, 2012; Bewley, 2002; Clark, Burgess, & Harrison, 2000) believe that qualitative research and economics have a bright future. While acknowledging that quantitative methods are still valuable, qualitative research is seen as explaining the ‘black box’ of how a program or a policy had an impact on individuals (London, Schwartz, & Scott, 2006, p. 344). Piore (1979, p. 566) believes that open-ended interviews are tools to understand the ways economic participants think about the world; they do not necessarily provide specific answers to specific questions, but reveal patterns of how individuals make economic decisions.

Despite a few champions, economists are typically dubious about qualitative research, but what do qualitative researchers and evaluators think of economics? This is harder to discern as there is little published from the field of evaluation that is not about cost-benefit or cost-effectiveness approaches. Some qualitative texts (Merriam, 2009; Anfara & Mertz, 2006) mention the use of theoretical frameworks and that one can draw theories from the social sciences. Anfara and Mertz (2006) offer one of the only texts dedicated to theoretical frameworks, and they say:

Thus, the well-read qualitative researcher is alert to theoretical frameworks in economics, sociology, political science, psychology... to name but a few. That same researcher is open to considering the applicability of these frameworks to the research problem chosen to study. It is, indeed, this diversity and richness of theoretical frameworks that allow us to see in new and different ways what seems to be ordinary and familiar. (p. xxvii)

Evaluators may also merge economics and qualitative methods if a program incorporates economic concepts in its program theory. Funnell and Rogers (2011) write that program theory explains how a program's activities contribute to desired outcomes by identifying causal links. Economics looks at how individuals or entities react to changes in income, price, and other limited resources, which could be an important consideration in the design of a program theory as it may affect a program's outcomes. Understanding how to work with economic theory in qualitative research could be useful for evaluations that develop program theories.

The World Health Organization outlines concerns regarding the lack of use of economic evaluations, particularly cost-effectiveness studies (McDaid, Mossialos, & Mrazek, 2003). The authors claim the results from these economic evaluations can be too technical and difficult to understand for policy makers (McDaid, Mossialos, & Mrazek, 2003). This could also be a reason why evaluators do not usually approach the field of economics when undertaking qualitative research.

Qualitative researchers are encouraged to consult other disciplines for theoretical frameworks; however, not much is known as to how economics informs these qualitative endeavors. Evaluators utilize economics for quantitative evaluations, but the usefulness of economics for qualitative work has not been reviewed.

### **Purpose of the Study**

The literature surrounding evaluation and economic principles usually involves either cost-effectiveness and cost-benefit designs or a brief vague mention of economics and theoretical frameworks. Yet economics and qualitative research have a similar interest: human behavior. Gordon (2001) believes that economics can instill energy in qualitative research by providing “a very different frame of reference for certain kinds of research problems” (p. 13). Therefore, the purpose of this study is to understand how economic theory can inform qualitative analysis and what effect that could have on an evaluation. The following research questions guided the study:

1. What are the implications of using economic theory in qualitative analysis?

2. How could the incorporation of economic theory in qualitative analysis affect a program's evaluation?

This study applies a specific economic theory to a series of interviews to test the extent to which economic theory added value to the analysis of qualitative data and the impact this could have on an evaluation and the evaluation's audience. This study is meant to provide an example of how economic theory can affect evaluation results and what factors an evaluator should consider when using economic theory to analyze qualitative information. An evaluator using qualitative methods to evaluate a program theory or new policy should understand how using economic theory may affect the results.

To illustrate how economic theory affects qualitative data, the author reviewed interviews from 35 Minnesotan smokers before and after a 2013 cigarette tax increase to understand what effects the tax had on tobacco users. After coding these interviews using two separate approaches – one outside of the theory of rational addiction and one based upon it – she compared the results of these approaches. The analyst's original codes were derived from the content of the transcripts. They focused on participants' attitudes toward the tax as well as what actions they took after the increase. After this first round of coding, the author went back to the transcripts and recoded them using predetermined codes that reflect key principles of the economic theory of rational addiction. The results from the two coding approaches were then compared in order to understand the value of using an economic theoretical framework. While this is a

specific case, the study is intended to explore how economic theory can affect an evaluation using qualitative research methods.

### **Overview of the Paper**

The paper discusses relevant literature, the methodology used to analyze the interviews, and the findings from incorporating economic theory to the analysis of a specific data set. Chapter 2 begins with a review of the literature in qualitative analysis, and then provides a brief overview of the economic theory of rational addiction. Chapter 3 discusses the study's methodology. Chapter 4 explains the findings from the comparative analysis, and Chapter 5 explores the implications of these results and their possible effects on future evaluations that use qualitative methods.

## **Chapter 2**

### **Literature Review**

#### **Qualitative Research and Theoretical Frameworks**

The goal of qualitative research is to understand how individuals interpret a certain experience; the research typically utilizes observations, interviews, or focus groups. This is in contrast to quantitative research. Quantitative data tends to be numeric – often collected from surveys, tests, or experimental designs – and usually seeks to produce generalizable results that uncover correlational or causal relationships (Merriam, 2009). Causality and generalizability are not the main goals of qualitative work; qualitative research focuses on meaning, often through rich description, and relies on the researcher as the instrument for collecting data (Merriam, 2009, p. 214). Newman and Benz (1998) describe the dichotomy as “differences in assumptions about what reality is and whether or not it is measurable” (p. 2). Patton (2012) summarizes:

Qualitative data capture personal meaning and portray the diversity of ways people express themselves; quantitative data facilitate comparisons because all participants respond to the same questions on standardized scales within predetermined response categories (p. 289).

Evaluators use qualitative research to develop a theory about a phenomenon or build upon an existing theory (Merriam, 2009), but there are multiple ways to accomplish this. “There is no agreed doctrine underlying all qualitative social research,” according to Silverman (2011, p. 22). There are numerous books providing guidance in various

aspects of qualitative research, but as Creswell (2007) notes, evaluators “have a baffling number of choices of approaches” (p. 6). Commonly mentioned approaches include grounded theory, ethnography, phenomenology, narrative studies, and case studies. The numerous approaches can be attributed to multiple fields adapting qualitative research to fit their particular discipline’s needs (Merriam, 2009, p. 21). In addition, this has led to a spectrum of formalization in terms of how one uses these approaches in his or her research, encouraging some approaches to be “more relaxed and open-ended voyages” as Miles, Huberman, and Saldaña (2014, p.7) explain.

Despite the numerous approaches and a lack of standardization, researchers have somewhat similar definitions for qualitative work. For instance, many (Merriam, 2009, p.13; Silverman, 2011, p. 17; Patton, 2012, p. 289) find that the goal of qualitative research is to understand how people make sense of certain phenomena – in other words, how they interpret their lived experience. Kvale and Brinkman (2009) specify further that this be done “prior to scientific explanations” (p. 1). Miles, Huberman, and Saldaña (2014, p. 11) believe qualitative research should focus on a recent bounded situation and use rich holistic description to explain the complexity of people’s perceptions of the world around them.

The interesting question with qualitative research is how to make meaning from the collected data. How does one understand and appropriately interpret what participants say about their lived experiences? One answer is to incorporate a theoretical framework.

As mentioned previously, there are numerous approaches to collecting qualitative data, and how one incorporates theory to try and make meaning is debated just as often. Anfara and Mertz (2006, p. xix) describe three main ways that qualitative research writers discuss theory: (1) they do not mention the use of theory, (2) they restrict theory to methodology and epistemology, or (3) they see theory as a more pervasive influence in conducting research. The first group requires little explanation: they conduct qualitative research without a discussion of theory. The second group is concerned with how certain methodologies relate to theory and epistemologies, such as constructivism, and other philosophical perspectives, such as feminism, affect qualitative research (Merriam, 2009, p. 66). For example, this group may discuss approaches such as grounded theory, where a theory is created and is the product of research.

The third group acknowledges certain epistemologies, but they also see theory as something “that gives you new insights and broadens your understanding of the phenomenon” (Anfara & Mertz, 2006, p. xvii). In their opinion, theory provides a structure that informs the study’s purpose, design, data collection, and analysis efforts (Merriam, 2009, p. 67; Maxwell, 2013, p. 39). The literature refers to this as a theoretical framework. This framework typically originates from concepts, models, and theories relevant to one’s research topic and is pulled from a review of the literature (Merriam 2009, p. 67). Merriam (2009, p. 68) sees the theoretical framework as the foundation of one’s study. Reviewing the literature “wherein the theoretical framework is lodged you identify what is known about the topic” (Merriam, 2009, p. 68). Merriam (2009, pp. 68-69) advises researchers to develop a problem statement from within the framework and

then identify the study's purpose. Harris (2006) views theoretical frameworks as "examples of specific constructions of reality with definite form and substance" (p. 141).

Using a theoretical framework can help focus a qualitative study. Henstrand (2006) believes that having a theoretical framework helped filter her ethnographic study and "develop a defensible interpretation" (p. 12). Fowler uses the analogy of a sieve; the theoretical framework in her study helped her catch all the rocks during data collection, which allowed her to further refine her research questions (Fowler, 2006, p. 51).

Fowler (2006) also says having a theoretical framework "situates the author within a scholarly conversation" (p. 51). Harris (2006, p. 131) writes that theory provides a common language to describe and analyze the phenomenon. Not only does a theoretical framework provide a narrowed focus, the theory's concepts and constructs can also assist the evaluator in understanding his or her contribution to a field of research.

Another reason these authors find theoretical frameworks useful is because, as Anfara and Mertz (2006) explain, theories drawn from the social sciences "provide a plethora of lenses for examining phenomena" (p. xviii). This can assist the researcher when trying to make meaning from the data. Kvale and Brinkman (2009, p. 238) similarly note a "theoretical reading of interview texts can draw in new contexts...and bring forth new dimensions of familiar phenomena." Different social science disciplines may have their own perspective on a phenomenon; therefore, some of the theories may contradict or compete with one another (Anfara & Mertz, 2006, p. xviii). Qualitative researchers should be aware of these varying points of view when interpreting their results.

Silverman (2012, p. 38) also stresses the importance of theory, but cautions qualitative researchers not to be “over-influenced.” Others share his concern that focusing on theory too much can blind or bias the researcher (Fowler, 2006; Kvale & Brinkman, 2009; Merriam, 2009). Harris (2006) notes he was sensitive to the use of a theoretical framework “because any construction of reality can blind me to certain aspects of phenomena under study.... A theoretical framework, while potentially clarifying, is also imperfect and can be distorting” (pp. 141-142). Utilizing theoretical frameworks focuses but also delimits the study, according to Anfara and Mertz (2006, p. 193). So as to be transparent, they encourage all researchers to reveal this limitation to their readers (Anfara & Mertz 2006, p. 193).

There are a few suggestions to overcome an over-reliance on theory. Kvale and Brinkman (2009, p. 238) suggest playing devil’s advocate with one’s reading of the data to ensure there are no other alternative explanations. Fowler (2006, p. 52) suggests incorporating multiple theoretical frameworks because they will help illuminate new interpretations.

Researchers may also look at a theoretical framework as an opportunity to refine or improve a theory. Fowler (2006, p. 56) discusses that she originally thought her data needed to fit a particular theoretical model or her work would be incorrect; later, she realized her work was meant to enhance and refine the original model. This was how her work contributed to the academic discussion. Anfara and Mertz (2006) ask researchers to acknowledge:

Part of participating in this scholarly conversation and documenting your

contribution involves looking carefully at the relationship between your study and the theory you have used. Does your research support the existing theory, does it advance the theory in some meaningful and important way, or does it refute the theory? (p. 194)

Theoretical frameworks provide a foundation, common language, and understanding of phenomena that can assist qualitative researchers in making meaning. This study seeks to understand the utility of applying an underused framework – an economic theoretical framework – to qualitative research. While economic theory may not be useful in all evaluation settings, the economic concepts may be a helpful resource for evaluators in certain contexts. To explore if the two can work together, this study will see if the economic theory of rational addiction helps explain additional information when analyzing the smokers' comments. Despite having detailed regression models and estimations, the theory is accessible to non-economists. Below is a brief literature review to demonstrate both the accessibility and the utility of this theory.

### **The Theory of Rational Addiction**

Prior to the theory of rational addiction, many economists did not think addictive consumption, such as smoking, followed the traditional rules of economics (Chaloupka, 1991, p. 722). Addicts were thought to behave irrationally because increases in price did not always drive down demand. However, Becker and several other economists have theorized and demonstrated that addicts do behave rationally. Gruber and Köszegi (2001) summarize, "...Individuals recognize the addictive nature of choices that they

make, but may still make them because the gains from the activity exceed any costs through future addiction” (p. 1).

Stigler and Becker (1977) first explored the underlying concepts of rational addiction. The economists proposed that addicts have stable tastes and are interested in maximizing their utility (Stigler & Becker, 1977). An individual’s preferences or tastes do not change; however, the amount of ‘consumption capital’ (an addict’s past experience or exposure with the addictive good) he or she accumulates over time can grow or diminish, and this will alter future consumption. This means addicts generally have constant preferences for the addictive goods; however, when they increase their rate of consumption, they add to their stock of ‘consumption capital,’ which in turn will raise the marginal utility (or the utility they get from each additional cigarette) of future consumption. In simpler terms: smoking additional cigarettes per day in the present will make increased smoking more appealing in the future.

Later, Becker worked with Murphy (1988) to create the theory of rational addiction. They believe that rational addicts are interested in maximizing their utility over time, but they also assert rational addicts are forward-looking (Becker & Murphy, 1988). Becker and Murphy (1988) use “adjacent complementarity” to explain addiction – an increase in “past consumption of the good raises the marginal utility of present consumption” (Becker & Murphy, 1988, p. 681). One has a stronger addiction if the complementarity in consumption is larger. Another factor that strongly affects consumption is reinforcement – a smoker learns that smoking cigarettes can reduce his or her stress (Chaloupka, 1991, p. 723). An individual has a stronger addiction when

reinforcement from past consumption is greater (Becker, Grossman & Murphy, 1994).

The more people rely on cigarettes to calm them during stressful situations, the more they will use cigarettes in the future to experience the same relief; reinforcement as well as tolerance encourages higher levels of consumption.

A rational addict knows that future consumption and current consumption are related; therefore, if he anticipates an increase in future prices, such as a cigarette tax increase, he will lower his current consumption because of this complementarity. The decrease in current consumption decreases the future stock of consumption capital and therefore leads to a reduction in future consumption.

This model creates several important predictions of addiction and explains that changes in price can alter individuals' consumption. First, the full price of a harmful addictive good includes the market price and the costs associated with consumption. This can include negative future health consequences. Myopic individuals are less concerned with the future consequences of smoking and are likely to be more addicted. A change in future price is not going to affect current consumption for a myopic addict as much as it will for a forward-looking individual who accounts for future consequences.

Rational addicts adjust their current consumption to changes in future prices. They adjust more when they know the change in price is permanent versus a temporary increase or decrease (Becker & Murphy, 1988, p. 689). A permanent increase in price may appear to have a small effect on consumption; however, over time the effect grows. The theory of rational addiction suggests that individuals will reduce their current consumption in anticipation of a permanent price increase and continue to reduce their

consumption until they reach a desired “balance,” given their specific situation. This suggests that the long-term impact of a tax increase is larger than the short-term impact on consumption (Becker & Murphy, 1988, p. 690). This can have important policy implications when analyzing the effect of the tax.

In addition to price, the theory predicts that stressful events can also affect consumption because they affect the utility an individual gains from smoking. Complementarity explains that anticipated future stress, such as the loss of unemployment benefits or divorce, has the potential to increase future consumption and therefore increase current consumption (Becker & Murphy, 1988, p. 690).

Becker and Murphy (1988, p. 692) also believe their theory explains why those with strong addictions are able to quit cold turkey. Having a stronger addiction means the degree of complementarity is larger (increases in past consumption have increased the likelihood of current consumption). If those individuals lower their consumption capital due to a price increase or health concern, consumption will decline more rapidly over time because the effect of the current level of consumption (low, in this case) on future consumption is greater when there is a larger degree of complementarity. Becker and Murphy (1988) state, “Therefore, rational persons can end stronger addictions more rapidly than weaker ones” (p. 692).

A rational addict will quit when long-term benefits outweigh short-term costs (Becker & Murphy, 1988, p. 693). When ending an addiction, there can be a sizable short run pain. Individuals are still following the rational addiction model though because they value the future gains in reducing and quitting. Rational addicts will likely

try to minimize the impact of this short-term loss of utility; “[n]othing about rationality rules out such experiments and failures,” writes Becker and Murphy (1988, p. 693). This means smokers may try various nicotine replacement therapies, medications, or other substitutions such as exercise.

Numerous studies have confirmed as well as critiqued the Becker-Murphy model. Becker, Murphy, and Grossman (1994, p. 396) tested the model and found that a 10% increase in the price of cigarettes reduced the consumption of cigarettes by 4% in the short term and 7.5% in the long term. Similarly, Chaloupka (1991, p. 736) found that an increase of 15% in the federal cigarette tax would reduce consumption in the long term by 4% to 6%. He also found that younger individuals as well as those with less education were likely to be more myopic and therefore more addicted than older, better-educated individuals (Chaloupka, 1991, p. 737). He confirmed Becker and Murphy’s prediction that those who are more addicted are going to respond more in the long term to changes in price. Bardsley and Olekalns (1998), Keeler (1993) and Fenn, Antonovitz, and Schroeter (2001) all found evidence in support of the theory of rational addiction. Baltagi and Griffin (2001) redid Becker, Murphy, and Grossman’s original work using a different econometric estimation and found even stronger support for the rational addiction model. Grossman (1995) agrees that the long-term effect of a tax increase is going to be greater than the short-term impact.

Becker, Murphy, and Grossman (1994, p. 413) extend the rational addiction model to explain why cigarette producers may increase the price of cigarettes before a tax. If the theory of rational addiction is true and the cigarette industry is oligopolistic, an

increase in future price will reduce future consumption as well as current consumption; this decrease in demand creates a decrease in revenue for cigarette manufacturers. For a profit-maximizing firm, it may be in their best interest to increase the price today when consumption is larger so they earn as much money as they can before future consumption falls when the tax increase goes into effect. Harris (1987, p. 87) found that cigarette manufacturers increased the wholesale price of cigarettes as early as three months before an expected tax increase. In the time it takes customers to adjust their consumption to this un-anticipated change in price, the manufacturers have attempted to gain maximum value before the anticipated change (the tax increase) is effective.

Other studies have criticized the theory of rational addiction. Winston (1980) provides a critique of Stigler and Becker's original addiction work. He believes their proposed model does not accurately capture addiction because it fails to account for the addict's internal conflict (Winston, 1980). Winston (1980) believes that people are of two minds – one wants to consume the addictive commodity and the other wants to avoid it; the prevailing mindset is what determines consumption. In other words, individual tastes or preferences for the addictive good are not constant.

Other studies also find Becker and Murphy's consistent preferences problematic. Gruber and Köszegi (2001) found support that current consumption falls when future price increases; however, they noted that not all future price increases are announced, which makes adjusting current consumption difficult, and individuals' preferences are not the same over time. They claim individuals are not always able to predict how much they will smoke in the future (Gruber and Köszegi, 2001, p. 17). They also suggest that using

a self-control device such as a self-inflicted punishment for smoking reflects time-inconsistent preferences because such a device would not be needed if one's past, present, and future preferences were aligned (Gruber & Köszegi, 2001, p. 16). Gruber and Mullainathan (2002) propose that cigarette taxes actually make individuals happier (give consumers greater utility) because the tax helps control their consumption. Kan (2006) similarly found that individuals who want to quit smoking have a demand for self-control devices, such as a cigarette tax increase, and therefore, addicts do not have time consistent preferences as Becker and Murphy assume.

The model of rational addiction is not a perfect explanation for how smokers will respond to a tax increase. "All economic models, no matter how complicated, are subjective approximations of reality designed to explain observed phenomena," writes Ouliaris (2012, n.p.). However, the theory provides a useful context for understanding addicted consumer behavior and makes the case that consumers are aware of their addiction. An evaluator can use the theory of rational addiction to assist in making meaning as it provides an additional lens through which to interpret interviews and develop thematic codes. The purpose of this study is to describe and examine the utility of this additional "lens."

## **Chapter 3**

### **Methodology**

#### **Study Design and Background**

This exploratory research seeks to understand the extent to which the incorporation of economic theory affects the analysis of qualitative data in an evaluation. The researcher used a set of previously collected interviews to see how a specific economic theory added value and altered her analysis. While this paper looks at a specific case, the results are meant to encourage discussion about the usefulness of economic theory in qualitative evaluations.

To explore the effects of economic theory, the author conducted a secondary analysis of longitudinal interviews with 35 Minnesota tobacco users. She chose these interviews because the topic had a connection to economics and consumer behavior. Furthermore, the 70 semi-structured interviews in total contained an abundance of data that had to be carefully compared on an individual and group level; performing additional analyses was beneficial to ensure all valuable insights were caught. In addition, having multiple interviews with each participant provided multiple data points and helped triangulate the data collected (Merriam, 2009, p. 216).

The analyst used the following research question to conduct content analysis of the interviews: What effects did the 2013 cigarette tax increase have on individuals living in the state of Minnesota? The goal of this research was to understand how smokers handled a change in price both in terms of their actions and attitudes.

On July 1, 2013, the state of Minnesota implemented a planned cigarette tax increase of \$1.60 per pack (Zdechlik, 2013). Minnesota Public Radio (Zdechlik, 2013) claimed, “Minnesota officials predicted that increasing the cigarette tax by roughly 30 percent would lead to a roughly 30 percent reduction in cigarette consumption.”

To capture the effect of the tax increase, all the participants included in this study were interviewed in June and October of 2013. Originally 38 people participated in the June interviews, and only three people did not complete the October interviews. These semi-structured interviews were administered by Professional Data Analysts, Inc. in order to understand Minnesotans’ reactions to the tax increase and what actions they took if any to offset the increase in price. The two interviews allowed the researcher to understand perceptions and behavior before the July increase and see what had changed over three months later.

The Centers for Disease Control (2012) estimate 18.8% of the population in Minnesota, or just over one million people, smokes. Due to budget constraints and the likelihood of attrition, 40 smokers were recruited, and 20 were expected to participate in both interviews. Incentives for the participants grew; the first interview was \$35 and the last interview was \$60. Attrition was limited – 38 completed the first interview, and 35 completed both. Since the study wanted to see the effect of the tax, having the October interview was crucial; therefore, those who did not complete that interview were removed.

The sample was obtained through a recruitment firm. The firm used a stratified sample by region (50% in the seven counties around the Twin Cities and 50% outside the

metro area), gender (50% female and 50% male), and educational status (50% with a high school diploma/GED or less and 50% with some college or more).

Limited demographic information was collected, but of the 35 individuals, 17 were male and 18 were female. The ages ranged from 21 to 66 with a median age of 43. Almost 43% had earned only a high school degree or GED, and only a quarter had a college or advanced degree. Household income levels ranged from less than \$10,000 a year to over \$150,000 a year. The median income was around \$35,000. Four individuals reported incomes under \$10,000 a year. All participants used tobacco at the time of the June interviews.

### **Analysis**

In addition to precursory work, analysis of the interviews took place in three stages. The first and second phases relied on the content of the interviews to drive analysis, whereas the third phase strictly investigated the applicability of the theory of rational addiction. The preliminary review involved reading all 70 transcripts and taking notes. The first formal analysis applied Saldaña's (2012, p. 234) longitudinal framework to each individual's set of interviews, and the second analysis compared groups and finalized thematic coding; this approach utilized aspects from the grounded theory method of analysis. In the third phase, the researcher studied the theory of rational addiction in detail and developed new codes based on the salient principles of that theory. She then applied those codes as part of the final analysis.

The preliminary phase was an opportunity to read through each transcript and note important quotations or ideas. According to Layder (1998), this is known as pre-

coding. Using paper copies, the researcher highlighted words and sentences and recorded memos to be considered in future analysis. As the researcher read through the interviews, more potential codes emerged.

The first stage of analysis used Saldaña's (2012, p. 234) longitudinal qualitative data summary matrix to categorize participants' comments. The analyst used a modified version to capture changes between interviews for each respondent. Saldaña (2012, pp. 235-237) created several descriptive categories to organize the data including: increase and emerge, cumulative, epiphanies and turning points, decrease and cease, constant and consistent, idiosyncratic, and missing. The researcher placed quotations, words, and themes in these varying categories for each interview. To analyze the data for a participant, one can then "chronologically compare cells" and summarize differences, cycles, and other interrelationships (Saldaña, 2012, pp. 235-237). In the few cases where data did not seem to fit these categories, the information was added to a preliminary summary field. One helpful part of the matrix was what Saldaña (2012, p. 241) called the "through-line," which captured "the totality of change processes in the participant." These brief summaries were useful references throughout the analysis process to quickly orient the researcher with the participant.

The researcher reviewed numerous texts on qualitative research to understand an appropriate approach to analyzing the interviews. Merriam (2009) explains that analysis begins by identifying data that are "responsive to your research questions" (p. 176). This data can vary in size from a word to several pages (Merriam, 2009, p. 176-177). Once you have identified relevant data, Saldaña (2012) explains that you assign "a word or

short phrase that symbolically assigns a summative, salient, essence-capturing, and/ or evocative attribute” (p. 3). These codes can come from the researcher, the participants, or the literature (Merriam, 2009, p. 184).

There are many types of codes. Saldaña’s (2012) coding manual offers thirty different types. The codes relevant to this analysis included descriptive, emotion, holistic, and process coding. Subcoding was also useful as it helped describe nuanced differences between participants. For example, participants discussed wanting to quit, but some had an increased desire to stop using tobacco because of the tax, whereas others had a similar desire but were skeptical about their own ability to do so.

To finalize the codes, this study used Glaser and Strauss’s approach of constant comparative analysis to code and build categories. This approach is typically used in grounded theory to assist the qualitative researcher in developing a substantive theory from the content of the interviews. “...While coding, the analyst constantly compares the already coded incidents (which usually means the text segments which relate to the incidents) with each other and with incidents not yet coded,” explain Bryant and Charmaz (2007, p. 194). Constant comparative analysis occurred at the individual level as well as a group level in this study.

To summarize change in individuals, the next phase of analysis grouped individuals based on whether they decreased, increased, or were smoking the same quantity of cigarettes after the tax hike. Attribute codes captured the change (or lack of change) in the number of cigarettes smoked as well as any variance in brand or type. For example, ‘decrease with a cheaper brand’ or ‘same quantity with the same brand’ was

assigned to individuals who made those changes to their consumption. These categories provided a way to do a comparative analysis within and between groups to determine what effect the tax had on these Minnesotan smokers.

The process employed for the original coding used established qualitative analysis techniques. The analyst began by pre-coding the interviews, then categorized interviewee change using Saldaña’s (2012, p. 234) longitudinal summary matrix. Using multiple coding schemes, she established themes to thoroughly capture the content of the interviews.

After completing the content analysis, the researcher studied the theory of rational addiction in depth. The final analysis incorporated elements of the theory using Saldaña’s method of creating hypothesis codes. These are predetermined lists of codes that assess a certain theory or hypothesis (Saldaña, 2012, p. 147). Table 1 shows the list of predetermined codes from Becker and Murphy’s theory with a brief description of their meanings. The finalized codes from the first analysis were then compared to predetermined codes from the theory of rational addiction to see what differences arose between the two analyses.

Table 1

*Predetermined Codes from the Theory of Rational Addiction*

Codes	Definitions	Examples
Forward-looking	Considers the future	“My goal is stop smoking within the next 8-9 months.”

Price alters behavior	Reacts in some way to price	“I don’t know that we would have cut back if it weren’t for money issues....”
Total cost	Mentions health and financial costs associated with smoking	“I just started cutting down. Both price and health, for both reasons.”
Maximizing utility	Concerned with pleasure given constraints	“When I do have one, I really enjoy it.”
Minimizing short run pain	Aware of pain from trying to cut back and quit, so taking action to reduce pain	“I would like to [quit] but I know it’s not going to work that fast and it’s not going to be that easy.”
Reinforcement	Stress or certain situations stimulate smoking	“...I've been stressed at work, so I should be smoking more.”
Acknowledged addiction	Mentions they are addicted	“I know that I truly am addicted.”
Consistent preferences	Have preferences for their smoking that they try to maintain	“It's the brand I've always smoked since I started smoking.”
Price increase before tax	Notice a price increase before July	“...it just went up a nickel in the last few days.”

The researcher never expected the language used between the coding schemes to align perfectly. She tried to maintain Becker and Murphy’s original language when developing predetermined codes. The themes derived from the interviews used language that appropriately summarized participant sentiments. While the language differences are important to consider, especially when reporting, the meaning behind the codes is what was used in the comparisons.

Internal validity and reliability were considered with the qualitative analysis. Using two interviews from each participant helped the researcher “cross-check” participant comments and completing Saldaña’s framework revealed inconsistencies in reported behavior and attitudes. In addition, throughout the conversations, the interviewers validated their interpretations and understandings of respondent comments with the respondents. Merriam (2009, pp. 222-223) states that reliability is impossible to achieve in qualitative work, but that an audit trail can help capture how the researcher produced his or her results. The numerous interviews made documentation and note-taking necessary. Another option is using inter-rater reliability, where two or more analysts independently code or rate interviews. The codes are then compared and a score is given to the level of agreement. Given time and budget constraints, this method was not feasible for this study.

The stratified sample was a way to address external validity by making sure certain groups were represented; however, the sample size was small and the results should not be generalized to the population. Furthermore, these interviews were conducted around a specific phenomenon, the Minnesotan tax increase, and the timing of the interviews provided a snapshot of participants’ attitudes at a certain point in time.

### **Ethical Approval**

The Institutional Review Board for the Minnesota Department of Health originally approved the collection of interviews. For this study, the author obtained permission from Professional Data Analysts, Inc. and ClearWay Minnesota to use de-

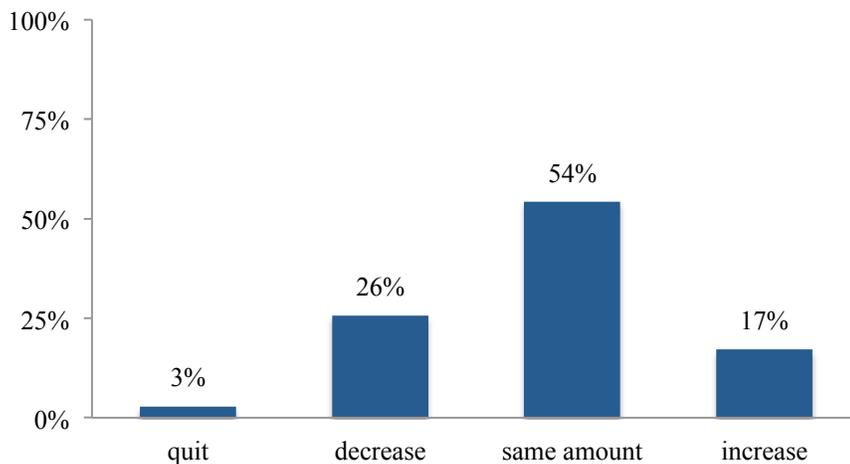
identified transcripts. The Institutional Review Board at the University of Minnesota reviewed the study and approved an exemption.

## Chapter 4

### Findings

#### Overview

The results below compare the content-derived codes of the first analyses to the pre-specified codes from the theory of rational addiction. The participants are categorized by how they changed or did not change their behavior. Figure 1 captures how many participants quit, decreased, increased, or did not alter the number of cigarettes they smoked. Just over half, 19 individuals, did not change the amount they smoked. Ten people reduced their use or quit, and six actually increased the amount they were smoking between June and October.



*Figure 1.* Percent of respondents, grouped by the change in their consumption of cigarettes between June and October of 2013

Within each group, the participants were further divided as to whether they changed their brand of cigarettes or if they used alternate forms of cigarettes, such as

electronic cigarettes or rolling their own. Figure 2 illustrates the number of participants who made other changes to their smoking routine.

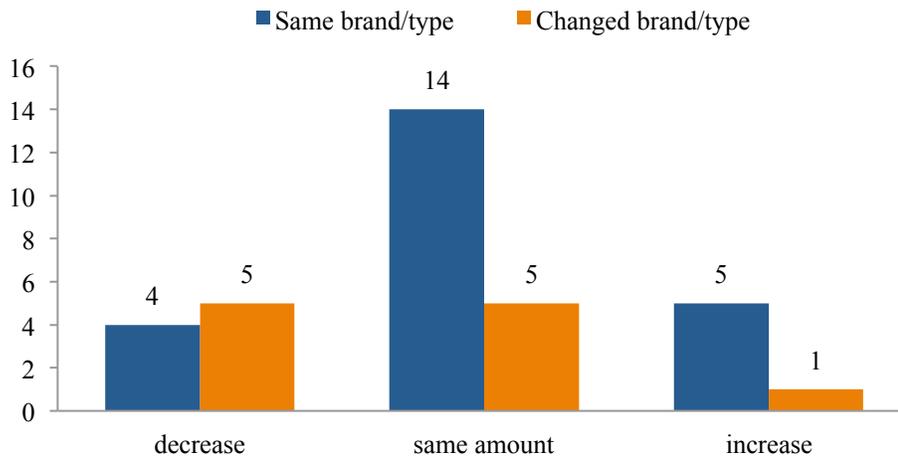


Figure 2. Percent of respondents, grouped by the change in their consumption of cigarettes and their choice of brand or tobacco type between June and October of 2013

As discussed in Chapter 3, these attribute codes provided an accessible way to understand how participants experienced the tax. The findings section is organized by category, then subcategory. Within those divisions, the codes discovered from the first and second analyses are discussed. This is followed by a comparison to the predetermined codes derived from the theory of rational addiction. Each subcategory begins with a table explaining the themes that emerged from the interviews. After each table is a thorough explanation of the codes with examples from the transcripts.

**Quit**

Table 2

*Codes for Those Who Quit by October 2013 (n=1)*

Themes
Original

Angry over tax  
Difficult to afford  
“Happy”  
Highly addicted  
Multiple factors  
Price matters  
Proactively changing  
Taking initiative  
Theory  
Acknowledged addiction  
Forward-looking  
Maximizing utility  
Minimizing short run pain  
Price alters behavior  
Total cost

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Of the 35 individuals in the study, only one 50 year-old woman quit by October. She was a pack-a-day smoker in June and eliminated cigarettes at the end of September. She was angry about the increase and did not understand why the funds were supporting a stadium where she was not allowed to smoke. In addition to feeling “mad,” in June she acknowledged that cigarettes were difficult to afford. "I get frustrated with them now that it raised the price. That worries me because I can hardly afford the cigarettes I do buy now." She also confessed, “I don’t have a lot of money. Sometimes I have to scrape up enough to buy a pack.” After the increase she reiterated, “I can’t afford to pay [\$7-\$8] every day.”

Multiple factors seemed to be involved in her success with quitting tobacco. She believed the tax increase, a new granddaughter, and an upcoming surgery all contributed to her desire to quit. Initially, she saw the tax increase as her main motivation, but then the tax became less important compared to her other reasons.

She took initiative in quitting. She participated in cessation counseling at her clinic, received a prescription for Chantix, and decided to use an e-cigarette as a cessation device. She started using a nicotine e-cigarette, then switched to non-nicotine.

The woman said, “I’m just happy I quit now. I don’t have the crap and the baby being around it. I’m pretty happy.” She stressed that she was so addicted, she once used patches while on a school field trip as a way to get nicotine when she was not allowed to smoke – “That’s how much I liked cigarettes.” In October she said, “I’m shocked that I haven’t had a cigarette. I never thought I’d see the day.”

Table 2 shows how closely this woman followed the theory of rational addiction, but it also captures subtle differences between the two coding schemes. Themes from her interview closely aligned with aspects of the theory. For instance, the original analysis interpreted her decision to quit as the product of multiple factors, such as health and her new grandchild. The analyst preferred the theory’s language of total cost when describing these influences because it provided a broader understanding of this woman’s decision. The original codes categorized her actions whereas the theory helped the analyst think about her motivation behind the actions. However, were an analysis to focus simply on the theory, the analyst would miss the key factor of her anger surrounding where the tax funds were allocated.

**Decrease With Cheaper Brand, Roll Your Own (RYO), or E-Cigarette**

Table 3

*Codes for Those Who Decreased Their Smoking and Changed Their Brand/Type by October 2013 (n=5)*

Themes	
Original	

- Conflict ( $n=2$ )
- Multiple factors ( $n=2$ )
- Price matters ( $n=5$ )
- Proactively changing ( $n=5$ )
- Quitting: Increased desire ( $n=1$ )
- Quitting: Interested but skeptical ( $n=3$ )
- Quitting: Not interested ( $n=1$ )
- Theory
  - Acknowledged addiction ( $n=1$ )
  - Forward-looking ( $n=5$ )
  - Maximizing utility ( $n=5$ )
  - Minimizing short run pain ( $n=1$ )
  - Price alters behavior ( $n=5$ )
  - Reinforcement ( $n=3$ )
  - Total cost ( $n=2$ )

---

Five individuals “cut back” and altered their smoking routine after the tax increase. Two incorporated rolling their own cigarettes (RYO), two switched to cheaper brands, and one started using an e-cigarette once or twice a day. They all made a conscious choice to change their behavior. Two admitted similar views on altering their smoking; one of them summarized, “I don’t know that we would have cut back if it weren’t for money issues. Although it probably is much better that we’re trying to cut back.”

The increase in price was a main reason driving their change. Two explicitly said cigarettes are not easy to afford. Another mentioned losing his apartment after the increase and not being able to afford cigarettes for a period. “[I]f it’s going to hurt my wallet, it’s something that I really need to stop doing,” said another man. One woman switched to a brand that was \$2 cheaper and was even able to quit for 5 days. She mentioned the price of cigarettes has become more important to her; “I don’t like

spending my money.” Even though one person was forced to change due to his brand being discontinued, he chose to roll his own versus paying for regular cigarettes.

Two younger men, 27 and 34, used the tax increase in conjunction with health concerns as motivation for decreasing their tobacco. The 34-year-old’s behavior changed after the loss of his mother: “With my mom dying and being here by myself, I don’t want to end up with cancer.” For the 27-year-old, he mentioned that hearing neighbors “hack away” helps him remember what he is doing to his body. In addition, he had support from his fiancée and was trying to exercise more.

This same man also conveyed a strong desire to quit. He decreased his smoking from about five cigarettes a day to an average of one a day. He stopped smoking his preferred brand to discourage himself from smoking, and he eliminated cigars to “cut one extra source out of the equation.” He developed an interesting strategy: “What I do is if I feel the need to want to buy a pack of cigarettes, I just take that money and put it away somewhere.” He then uses the money saved as a reward and plans to take a trip, go to a nice dinner, or purchase a video game. This becomes a visual reminder for him; “I can actually see it happening,” he said. He seemed positive about the changes.

Others did not share his optimism. Three people had a desire to quit, but they were dubious about their ability to follow through. A 50-year-old woman stated, “I intend to [quit], but it doesn’t mean it’s going to happen.” Another lamented, “For me, every time I’ve tried to quit something bad always happens after I try to quit, which makes me start smoking all over again.” Prior to the increase the third person stated, “I

really wish I could [quit] because the state is about to raise the price immensely, but I don't think I can. I'm addicted."

Of these more pessimistic individuals, two switched to rolling their own cigarettes. Both of these were conflicted over their smoking. For instance, one said his goal is to "ultimately stop smoking, but I like smoking." Later he discussed switching to rolling his own, "I don't know that I'm happy with it, but I can live with it." The other man described that he really enjoys smoking outside in the fresh air. Both derived pleasure from smoking, but also expressed a desire to quit.

The 50 year-old-woman in the group had no intention of quitting. She did start using an e-cigarette to help her cut back due to the price increase, but she does not want to quit. She does wish she could cut back more though.

Overall these individuals followed the theory of rational addiction. They demonstrated that they were forward-looking individuals who actively changed their behavior at least in part due to the tax increase. For some, they discussed health concerns as another factor in their decision to cut back.

Even so, one big difference between the codes was the analyst's addition of reinforcement when conducting the second analysis. Three individuals made comments about smoking and stress. The man who was close to quitting said there are days where his smoking is "a little bit higher when it comes to the high stress situations and stuff." Another said, "Smoking calms me down...." And the other was experiencing more stress at work "[s]o I should be smoking more." These individuals changed their behavior in a positive way, so the original analysis did not see stress as an active component in their

actions to cut back. The theory helped the analyst question this notion. After thinking about the theory and reinforcement, she realized some of these individuals could be susceptible to increasing their smoking given certain circumstances that could override the progress made after the tax increase. In cases where individuals were under high stress, the effects of the tax increase may have been masked since stress had a large impact on their consumption of cigarettes. Even though the interviewees minimally discussed stress, reinforced behavior could still have a large impact on their ability to reduce their tobacco use.

Another difference was uncovered when thinking about utility maximization. The man, who saved his money instead of smoking, found an alternative way to maximize his utility. The original analysis interpreted his action as proactively changing because price and health mattered greatly to him; however, using the economic concept of utility, the analyst could offer an explanation as to why this change made sense. The man derived pleasure from not smoking by watching his money accumulate and having the opportunity to spend it on other items or experiences. This insight could have implications for cessation strategies; in addition to the negative consequences of smoking, tobacco users may be more likely to quit given an alternative that offers greater utility.

**Decrease with Same Brand**

Table 4

*Codes for Those Who Decreased Their Smoking and Used the Same Brand by October 2013 (n=4)*

Themes
Original

Acceptance of price ( $n=4$ )  
Brand loyalty ( $n=4$ )  
Conflict ( $n=1$ )  
Forcing into budget ( $n=2$ )  
Incrementally changing ( $n=4$ )  
Multiple factors ( $n=2$ )  
Quitting: Increased desire ( $n=2$ )  
Quitting: Not interested ( $n=2$ )  
Taking initiative ( $n=1$ )

Theory

Consistent preferences ( $n=4$ )  
Forward-looking ( $n=4$ )  
Maximizing utility ( $n=4$ )  
Minimizing short run pain ( $n=1$ )  
Reinforcement ( $n=2$ )  
Total cost ( $n=2$ )

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Four people decreased the amount they were smoking, but they did not change their brand. Three people had household incomes under \$25,000 a year, and one had a household income of \$100,000.

People in this group were not as proactive about changing their behavior. In general, they were less focused on cutting back compared to the others who decreased their consumption. For example, one woman vowed to quit during the first interview: “if [the price] goes up to \$7, I will not be purchasing any more cigarettes....” In October she was trying to cut back and taking some initiative in using sunflower seeds and other distractions to help her, but she mentioned, “[If the price] was really bothering me, then I wouldn’t buy them.” Another woman, who was focused on cutting back but was not ready to quit, commented that cutting back is “quite a bit of work.... It sounds silly, but you have to talk yourself through it.” Both these women mentioned health and cost as factors in their decision to reduce. The other two also cut down, but did not emphasize

this effort. One was simply not interested in quitting, and the other had increased her interest since the first interview, but was delaying her quit attempt until 2014.

The woman working on cutting back but not ready to quit also experienced conflict over smoking. She admitted that she really enjoys smoking. “I really like to sit outside in the morning and have a cigarette.” She also likes smoking and chatting with a friend at work when taking her break.

These individuals were split as to whether cigarettes were easy to afford, but they all accepted the price of cigarettes. “Regardless of what the price is, you’re going to buy it anyway because you do it, you need it,” said one man. He equated buying cigarettes to buying gas as a necessity. A woman stated, “[Regardless] I’m going to come up out of my pocket \$8.” Price made one woman more attuned to the cost of her cigarettes, but she was “going to buy them anyways.”

Two of the three low-income individuals force cigarettes into their budgets. For example, the person who vowed to quit before paying \$7 claimed her cigarettes are easy to afford, yet she cannot purchase them once a month. She said, “I mean I account for it in my budget....[T]he price, it fits in.” The other person said, “It’s just kind of a mixed budget that you make every week. You just implement it into your budget is all you do.”

They seemed to have varying degrees of brand loyalty. For instance, one woman said she would quit before switching brands. Two people tried another brand, but did not like switching, so they went back to their original brand. The last man had thought about switching, but had yet to do so. A common concern was: “I didn’t want to buy a pack of cigarettes and not like them.”

There were a few differences between the analyst's original codes and theory-driven codes. Similar to those who reduced their use and changed their brand, comments about reinforcement were not coded separately in the original analysis. Another difference was that the original analysis specified brand loyalty as a reason these individuals did not switch to cheaper alternatives. When using the theory, the analyst interpreted this as an example of individuals maintaining consistent preferences. Throughout these interviews brand loyalty was one of the most important attributes of smoking. People often commented and sometimes prided themselves on the fact that they had used the same brand since they began smoking. The code "consistent preferences" provides a general description for the lack of change, but "brand loyalty" captures the devotion some smokers feel toward their brand.

Differences also arose when the individuals did not follow the predictions of the theory. The subjects' resigned attitude about price and the practice of forcing cigarettes into a budget seems to run counter to behavior the theory would predict. Other than claiming individuals may be myopic, the theory does not look at these specific attitudes, so the analyst could not properly capture this practice. In addition, one woman described her inner conflict around smoking. She admitted enjoying smoking with co-workers and having a cigarette in the morning, but also wanting to quit. This internal conflict is one of the main criticisms of the theory and would not be addressed if the analyst only used codes from the theory.

### **Same Quantity With Cheaper Brand, Roll Your Own (RYO), or E-Cigarette**

Table 5

*Codes for Those Who Smoked the Same Quantity and Changed Their Brand/Type by October 2013 (n=4)*

Themes
Original
Contradictory views on price (n=4)
Financial difficulties (n=2)
Incrementally changing (n=4)
“Like any junkie”
Multiple factors (n=2)
Price matters (n=4)
Quitting: Increased desire (n=2)
Quitting: Interested but skeptical (n=1)
Quitting: Not interested (n=1)
Theory
Acknowledged addiction (n=2)
Forward-looking (n=3)
Maximizing utility (n=4)
Minimizing short run pain (n=2)
Price alters behavior (n=4)
Reinforcement (n=2)
Total cost (n=2)

While people in this group made different choices and had varying attitudes, one man summarized, “A cigarette smoker is like any other junkie – they’ll find a way to get [cigarettes].” They each changed their behavior to deal with the price increase, but were split in terms of their future goals.

Subjects in this group smoked the same amount, but changed their brand of cigarettes or the type of tobacco they were using. The group ranged in age between 29 and 38, and their household incomes were between \$10,000 and \$50,000. Two people switched to a cheaper brand, one person started rolling his own exclusively, and one person incorporated an e-cigarette 30% of the time.

The tax increase affected this group differently. Two people focused on maintaining smoking their previous quantity of cigarettes. One woman was a pack-a-day smoker, and she switched to rolling her own because they are “a lot cheaper.” She acknowledged that making cigarettes takes time, and just before the October interview she bought two packs of Camels because she “got lazy.” She was not interested in quitting. A 35-year-old man switched to a cheaper brand and occasionally rolled his own when he “really can’t afford” regular cigarettes. He was interested in quitting for price and health reasons, but admitted he was only in the “ideation stage.”

The other two were more interested in quitting in October. One woman switched to Pall Malls to encourage herself to quit. She was very loyal to Marlboro and loved their online rewards program, but ultimately she did not “have the expendable income” needed to purchase them. A 37-year-old man’s desire to quit increased after the tax. “Every day I want to quit,” he said in October. This was not the case in June, when he had no intention of quitting. Multiple factors influenced his drive to quit including the price, worries about future health complications, his wife urging him to quit, and his own self-realization that he was “smoking like a chimney.”

Respondents’ views on price and their actions were complicated and often contradictory. One woman was rolling her own because they were cheaper, but recently bought regular cigarettes “[b]ecause when you’re a smoker and you need it, you’ll pay whatever to get it.” In the past she would borrow money from her mother-in-law to buy cigarettes. Another person knew cigarettes were too expensive for him and his partner; “it’s hard to justify allocating funds to something we both recognize is not providing us

with any actual benefit.” Despite only having \$10,000 for a household income and buying a pack a day, he said affording cigarettes is not difficult. In the past, he has sold plasma to buy cigarettes. Another acknowledges she does not have the money to buy cigarettes and “price is a huge factor” yet she will just swipe her charge card so she does not have to think about the cost. She has been smoking a cheaper brand, but thinks she might “break down” and go back to Marlboro.

Two individuals were in difficult financial situations, and they were the ones who chose cheaper brands. One woman was behind on her rent and bills. She knew she did not have money to buy cigarettes, but stated, “I always borrowed or found a way.” Another man seemed to have periods of financial distress. In June he had not earned a paycheck in a while, and in October he was laid off and his food stamp assistance was terminated. However, he defended his habit as manageable: “...it hasn’t been a situation where it’s like, ‘Are we going to smoke or eat this week?’”

Table 5 captures how complicated this group is, especially in relation to the theory of rational addiction. The themes developed from the theory gloss over the complexity of this group. The in vivo code “like any junkie” summarizes that this group is going to do whatever they can to maintain their current level of smoking. Some people were experiencing extreme financial difficulties, yet they still found a way to purchase cigarettes implying that their behavior may not always have been rational. The second analysis failed to identify this contradictory behavior.

The original analysis identified the different perspectives individuals had on quitting. For some, the tax was motivation to work toward quitting. The tax prompted

others to think about quitting, but they were concerned about being able to commit. Then there were individuals who were not interested in quitting even after the tax increase. The original analysis captured this spectrum, but the theory themes were too broad to do so. The theory themes were sensitive to comments like: “I wish it was as simple as just being able to flip a switch” and not smoke anymore because quitting is “going to require some effort...as addicted to nicotine as I am.” However, they tended to be dichotomous – either a person exhibited a characteristic or not – whereas the original analysis captured extra detail.

### Same Quantity With Same Brand

Table 6

*Codes for Those Who Smoked the Same Quantity and Same Brand by October 2013 (n=14)*

Themes
Original
Angry over tax (n=3)
Brand loyal (n=14)
Conflict (n=2)
Contradictory views on price (n=7)
Forcing into budget (n=1)
Incrementally changing (n=3)
Mad at self for smoking (n=2)
Price matters (n=4)
Price not a concern/ ignoring (n=10)
Quitting: Increased desire (n=3)
Quitting: Interested but skeptical (n=7)
Quitting: Not interested (n=4)
Reacting to environment/ events (n=8)
Smoker identity (n=3)
Taking initiative (n=1)
Theory
Acknowledged addiction (n=3)
Consistent preferences (n=14)
Forward-looking (n=10)

Maximizing utility ( $n=14$ )  
Minimizing short run pain ( $n=1$ )  
Price alters behavior ( $n=4$ )  
Reinforcement ( $n=8$ )  
Total cost ( $n=3$ )

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Forty percent of the participants fell into this group. They were primarily every-day smokers; twelve smoked half a pack or more. The group did not always have consistent views, but one unanimous theme was brand loyalty. “I just smoke one brand and one brand only,” said one woman. Another woman commented, “I know what I like and what I don't like.” People would mention this was because it was the brand they were “used to” or “familiar with.”

Ten people either ignored the price or found that price did not matter to them. One woman summarized, “It's just not important to me...I'm going to buy cigarettes that I like. The price doesn't really matter...if it's something I want, I'll spend the money for it.” Some described paying for cigarettes as automatic. “It's in my blood that I've always spent it,” said a 57-year-old. For a few individuals the price mattered, but they were either in denial, as one woman admitted, or just chose not to look at the cost. With the exception of one person who said cigarettes were tougher to afford now, everyone felt their cigarettes were affordable despite having incomes as low as \$10,000.

Price mattered, at least occasionally, to four people, and some altered their behavior slightly as a result. One man felt price only mattered when he was broke and could not afford his brand. Another man felt price was important and started driving to cheaper stores and calling ahead to check prices. A third person stopped sharing and began to save part of his cigarette for later because “I cannot afford everybody else's

habit.” One woman started rolling her own before the increase and did so for a month before the process became too “annoying.” This group was split on affordability. Two felt cigarettes were “harder and harder” to afford. The other two felt they were affordable, but one said, “I can afford them, but I don't like to spend money on them.”

Half of the individuals had contradictory feelings on price. A 21-year-old woman said cigarettes are “moderately easy” to afford, but in the past month she could not afford them three times. She forced them into her budget and said, “I make it work.” This was the case for others as well, who felt they could afford cigarettes in general, but occasionally did not have enough money to purchase them. In October, one man was not sure how he afforded his cigarettes, but said, “I choose taste I guess over price. Until price becomes just utterly ridiculous then it's like, ‘OK. It's time to change.’” Another person said just swiping her card to buy cigarettes was fine, but using cash hurt.

Thoughts about quitting tobacco also differed, with only three people increasing their desire to quit and seven people interested in eventually quitting but concerned about their ability to do so. One man claimed the only difference between June and October was that now “I'm thinking about possibly quitting” for health and cost reasons. “It's ridiculous! I got to quit smoking. I still find myself buying that pack of cigarettes,” expressed a different man. Another person stated, “[I'm] going to work on quitting again and continue that forever.” Some acknowledged the struggle to quit. One said quitting was “virtually impossible” unless she was diagnosed with something, and another felt he did not have the will power to quit.

Two people experienced conflict about their smoking. One person felt others, particularly young people, made her feel bad for being a smoker. Another woman was actually a closet smoker and hid the fact that she smoked from others. She mentioned that she would rather eat her cigarette before letting a fellow church member see her smoke. She said, "I'm actually like frowning and disappointed in myself when I'm smoking." She and another person seemed frustrated that they were still smoking.

Other important themes included reacting to one's environment. Eight people discussed either stress, their mood, having cigarettes with alcohol, or being outside in nice weather as triggers for smoking. "It's easy to use anything as an excuse to light a cigarette," said a man.

Three people justified their choices because they did not see themselves as heavy smokers. For example, "I don't feel I smoke as much as some people...[I'm] not buying as many cigarettes as some," said a woman. Another felt she was not a chain smoker and therefore "not an extravagant spender." The third woman said, "I don't see [my smoking] as an addictive behavior."

Table 6 shows that only some of the theory themes applied; overall this group made little to no change despite the price increase. Some of these individuals demonstrated forward-looking thoughts and either started to think about quitting or began to shop for cheaper prices. A few mentioned their environments or moods could reinforce their habit at times. Brand loyalty was a priority for this group as that gave them pleasure (or did not give them displeasure from switching to an inferior product).

However, these individuals did not adjust their habit in the way the theory predicts. First, ten of the fourteen ignored the price or felt that the price did not matter even though some really could not afford it. For example, one person made \$10,000 a year and had no interest in changing her behavior even though she admitted not being able to afford cigarettes a few times a month. The theory was contradicted when people identified themselves as light smokers or non-addicted smokers. The theory also did not discuss emotional reactions. If a program wants to improve smokers' confidence in quitting or wants to build on positive emotions as a way to help them reduce or quit tobacco, capturing these reactions is valuable.

Two themes the theory captured that the original analysis interpreted differently were the practice of minimizing the pain of quitting and a smoker's acknowledgment of her addiction. In the initial analysis, describing one's self as addicted seemed evident given the population, so a separate code was not created. However, the fact that smokers are aware of their addiction is a foundational tenet of the theory of rational addiction. If the theory is to be believed understanding that smokers are aware of their own addiction is critical to understanding their struggle to change their behavior. Similarly, the first analysis did not interpret actions, such as using e-cigarettes, as a way to reduce the pain of withdrawing from cigarettes.

### **Same Quantity With More Expensive Brand**

Table 7

*Codes for Those Who Smoked the Same Quantity and Switched to a More Expensive Brand (n=1)*

Themes
Original

Cigarettes are a reward  
Contradictory views on price  
Price not a concern/ ignoring  
Quitting: Interested but skeptical  
Reacting to environment/ events  
Smoker identity  
Understanding of the tax  
Theory  
Acknowledged addiction  
Maximizing utility  
Reinforcement  
Total cost

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Despite the tax increase, one 39-year-old man continued to smoke the same quantity and started buying a more expensive brand. In June he was smoking Marlboros, and by October he had switched to Parliaments because they are his favorite. He identified himself as a “social smoker” who tends to smoke based on his environment. He smoked five out of seven days a week, but would smoke more when “sitting around with friends. If they’re all smoking, I like to smoke. I like to enjoy it a little bit.” He felt, “Peer pressure probably gets to me.” He also mentioned stress might cause him to smoke or having a cocktail. He felt quitting “should be a long-term goal...but I don’t see it happening.” However, he is interested in trying to cut back.

Buying a more expensive brand was a reward for him. He said, “I feel like I deserve the better stuff.” He would purposefully go buy cigarettes on payday. “I’m like, ‘Bam! We’re going with these.’” Later he acknowledged, “If I bought cigarettes when I didn’t freshly get paid, I’d probably be buying something a little cheaper.”

His comments and behavior toward price at times were contradictory. He bought several cartons of cigarillos in advance of the tax increase. He still had some in his

freezer in October. He also liked to use coupons and would typically buy cigarettes on sale – “I like to consider myself a penny pincher.” However, in October, he started buying a more expensive brand and justified, “It’s only money.”

He was one of only a few individuals who positively viewed the tax. “I completely understand the tax going up.... [T]he state of Minnesota are the ones going to be taking care of my health after I fall into part of the state ward.”

This man differed from the theory of rational addiction. Instead of maintaining his pre-tax preferences, he chose to buy an even more expensive brand after the increase with no mention of a change in income. This man views expensive cigarettes as a reward and justifies his smoking as a social activity. The original analysis captured these facts. The second analysis identified utility maximizing behavior and reinforcement, but those themes cannot explain why he chose to smoke more expensive cigarettes.

**Increase With Roll Your Own (RYO)**

Table 8

*Codes for Those Who Increased Their Smoking and Switched Types (n=1)*

Themes
Original
Decisions based on impulse
Incrementally changing (although smoking more)
Mad at self for smoking
Price matters
Quitting: Interested but skeptical
Reacting to environment/events
Theory
Acknowledged addiction
Price alters behavior
Reinforcement
Total cost

One 28-year-old man increased his smoking, but compensated for the increase in quantity by choosing to roll his own. He recognized smoking regular cigarettes would be too expensive. Despite being young, he said, “I’ve smoked long enough that it’s not flavor anymore. It’s more of a habit, so I can smoke something cheaper.”

He was a more impulsive person and reacted to his environment. In October, he was stressed at work, which put him in a “bad mood.” He admitted, “If I get really tired because I’m working a lot, I’ll smoke more.” He also blamed being tired on his decision to buy snus, a powdered form of tobacco. “I was spacey and very tired, and it was an impulse buy.”

In October he said, “I plan on cutting back.” He was frustrated that in June he was close to quitting and then started smoking more. Another reason he is rolling his own is because if he bought a pack of cigarettes, he thinks he would smoke more.

The second analysis misses this man’s frustration with almost being able to quit. The theory themes show that he is not very forward-looking and that stress influences his smoking, but they fail to capture his struggle with smoking and his anger toward himself.

**Increase With Same Brand**

Table 9

*Codes for Those Who Increased Their Smoking and Used the Same Brand by October 2013 (n=5)*

Themes
Original
Angry over tax (n=1)
Brand loyal (n=5)
Conflict (n=1)
Contradictory views on price (n=2)

Mad at self for smoking (*n*=2)  
 Price not a concern/ ignoring (*n*=5)  
 Quitting: Increased desire (*n*=1)  
 Quitting: Interested but skeptical (*n*=2)  
 Quitting: Not interested (*n*=2)  
 Reacting to environment/ events (*n*=5)  
 Taking initiative (*n*=2)  
 Understanding of the tax (*n*=1)  
 Theory  
 Acknowledged addiction (*n*=1)  
 Consistent preferences (*n*=5)  
 Forward-looking (*n*=1)  
 Maximizing utility (*n*=5)  
 Reinforcement (*n*=5)  
 Total cost (*n*=5)

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Five people increased the amount they were smoking while smoking their usual brand. Three of the five increased their cigarette consumption by ten or more cigarettes a day, and the others increased by less than ten. They tended to be an older group between the ages of 44 and 63 with household incomes under \$35,000 a year except for one individual at \$100,000 a year.

This group had a strong reaction to their environment and events in their lives. In particular three individuals had an increase in family-related stress since the June interview. One woman mentioned her aunt's husband passing away, one man lost his daughter in July, and another man's uncle was in a coma and he was caring for his handicapped child. One man was dealing with stress at work, and the other woman was chain-smoking outside because her landlord would no longer let her smoke in her place.

Price was either temporarily ignored or not a concern for these individuals. Three people had an attitude that the price didn't really matter. "... [I]f [cigarette prices] go up, they go up...until I'm ready to quit, it doesn't matter what they cost," said one 60-year-

old man. They all found cigarettes easy to afford. The other two had contradictory comments because they admitted cigarettes are difficult to afford, but they buy them anyway. “You know you just kind of close your eyes, pay for it, and go on,” said one man, and the other woman said, “I really don’t [think about price] because I’m going to buy them.... It’s not easy, but I do it.”

Two people were frustrated that they were still smoking. “I’m mad at myself for continuing to smoke,” said one person. He was actually able to quit previously and had nicotine gum at the time of the second interview. He also appreciated the tax because he viewed it as a reason to quit. Since June he had had a desire to quit. The other person said, “I’ve really kind of had enough of this thing in the first place.” He wants to “stop prolonging” and quit because “[i]t’s a responsibility to my own personal health.”

One man’s desire to quit increased after the tax. In October, he was thinking about using a cessation program through his church, and he started using Chantix. He did not want second hand smoke around his children and grandchildren. The remaining two women in this group were not interested in quitting yet. They were also the most loyal to their brand. They are “used to” their brand.

One person had several conflicts over his smoking. “I get some pleasure from [smoking].” He says, “I’m spending almost \$20 a day or more ...[but] I work hard to get what I want.” However, he also wants to quit and recently got Chantix. Furthermore, he discussed his focus on personal health – eating well and jogging. "It's kind of contradictory for what I do, which is funny...I smoke cigarettes and jog."

Table 9 shows that some of the original analysis and theory themes were redundant. Both approaches captured that smoking in this group was primarily driven by stressful circumstances. For the original analysis this was coded as “reacting to environment/events” and for the theory-driven analysis this was coded as “reinforcement.”

### **Additional Codes**

There were four additional themes from the original analysis that were not specific to any of the categories, but are worth noting. One of these themes was loyalty to the local tobacco shop. An important factor for three individuals was patronizing certain businesses. Even if the place was more expensive, they liked supporting the owner. “They’re focused on the customer,” commented one man. Another liked that the shop was in his community and not part of a corporate chain. This illustrates that factors other than price can play a role in people’s purchases.

Another theme was the comparison some individuals would make between their smoking and gas or buying cigarettes and buying food. Gas was used as a metaphor to express a “necessity.” A 51-year-old male said, “I smoke so it's just like gas. In order for you to drive your car, you have to buy the gas. In order for you to smoke, you got to buy the cigarettes, regardless of what the price is. You're going to buy it anyway because you do it, you need it." When discussing affordability three participants made the comparison of eating versus buying cigarettes. “... [I]t hasn’t been a situation where it’s like, are we going to smoke or eat this week. I guess I wouldn’t say difficult, it’s more or less been a concern about the cost,” said the man whose food stamp assistance was terminated in

October. Another person reflected, "...I can afford it. It's not something I have to make a choice – if I'm going to buy cigarettes or I'm going to buy milk."

Over a dozen participants also had the attitude that the price was the same everywhere. This tended to be the sentiment among the groups who were still smoking the same brand. This made them less likely to look for cheaper stores because they felt that everyone charged roughly the same prices. "[I]t's pretty much the same [price] everywhere," reflected one 66-year-old man. One man mentioned he buys his cigarettes based on convenience because they are the same price everywhere. Others also purchased their cigarettes in this manner because the difference in price was usually only a few cents and not worth the cost of gas to drive to a cheaper store. "They're all around the same price, within forty cents," responded one man.

Finally, participants had an interesting word choice when talking about their smoking. Almost half of them used the word 'habit' to describe what they were doing, and this was across all the categories except for the woman who quit. One older woman described smoking as "my little nicotine habit." A different woman articulated, "I just have it stuck in my head that this is the cost and the expense of the habit that I have." Another lady advised, "Don't smoke...don't pick up a bad habit like that because it costs. It's costly."

Applying the theory of rational addiction to the analysis, two other themes or assumptions surfaced. One was that six individuals noticed the price of their cigarettes had increased in June before the tax increase. The theory of rational addiction predicts that tobacco companies may increase their prices before a planned tax increase.

The other theme was that multiple people reported avoiding purchasing more packs because that would encourage them to smoke more. This aligns perfectly with the forward-looking rational addict. A quarter of the participants mentioned this, and they were within groups that increased, decreased, and smoked the same amount. “I’m not going to buy two packs of cigarettes... That’s just going to encourage me to smoke more,” said the man smoking the same amount, but a more expensive brand. A man, who decreased his consumption and switched to rolling his own, said he rolls his cigarettes throughout the day because he is worried he would “have the urge to smoke more” if he had a bunch already rolled. Another man working toward quitting said, “I want to be accountable for my purchase of something like [cigarettes]. So first of all, I don’t need to have any extra cigarettes, second of all I want to feel that purchase, in my pocket kind of thing.”

Individuals whose actions followed the theory of rational addiction usually had several predetermined codes that applied to their interviews. The predetermined codes, while broader in definition, aligned with some codes from the original analysis. For instance the woman who quit reflected multiple aspects of the theory contained in her transcripts. However, the theory did not explain certain phenomena such as anger over the increase or internal frustration and conflict.

The theory did not explain why someone had contradictory thoughts on price or why someone did not acknowledge the impact of price on their financial situation. For example, there was the man who described himself as a “penny pincher,” yet he chose to

buy more expensive cigarettes. Relying on the theory to explain this individual and others who had contradictory statements and actions on price yielded limited results.

### **Researcher Positionality**

The analyst does not smoke and views smoking as unhealthy. While she is aware of this potential bias, the theory of rational addiction provided a new perspective that she had not considered and made her question her own assumptions about smokers.

Economics has certain principles that help explain human behavior, and one is utility maximization. The theory of rational addiction suggests a smoker is someone who acts rationally and wants to maximize his or her happiness. The theory highlights that smokers engage in smoking because it is pleasurable to a certain extent. This reminded the researcher that these individuals enjoy smoking, but that they are also conscientious of balancing their happiness against the total cost.

The next chapter reviews how the economic theory assisted the researcher when developing codes, but also examines the possible weaknesses of coding using only the theory. Finally, the chapter discusses the implications of using economic theory in qualitative research.

## Chapter 5

### Discussion

#### **Question 1: What are the implications of using economic theory in qualitative analysis?**

For this study, the results suggest that the utility of the theory of rational addiction was limited; however, the theory did aid in the analysis of the interviews. The theory helped illuminate additional content from the interviews as well as alternative interpretations. The theory provided a foundation to help organize the numerous data from the longitudinal study. It was also useful in helping the researcher acknowledge her positionality toward smoking and addiction.

Since the researcher is the instrument for data collection in qualitative evaluations, having alternative explanations from the field of economics may be important. First, other perspectives help clarify responses or uncover other interpretations. Second, referring to a theory is a useful check on an evaluator's work. The evaluator can make sure he or she did not overlook important details that change the meaning of the data.

At times, the theory of rational addiction offered a better explanation than the evaluator had originally surmised, or the theory offers language and concepts that make sense to the evaluation's stakeholders and primary intended users. For example, "total cost" provided a broader understanding of individuals' motivations for changing their behavior. The original analysis only identified "multiple factors." Even though the

coding methods differed, reviewing the interviews from different perspectives forced the researcher to think about which approach better captured the effects of the tax change.

One theme that was interpreted differently in the original analysis was people's thoughts on minimizing the short-term pain of withdrawing and quitting cigarettes. One woman said, "I also would like [quitting] to be, you know, a pain-free process. But I know there's going to be, it's going to require some effort." These statements were sometimes captured in the original analysis. For example, when someone mentioned using Chantix or other methods to help quit and cut back, the original analysis viewed this as taking initiative. The theory helped present another interpretation – minimizing the immediate suffering of withdrawal.

The theory of rational addiction also made the analyst rethink how she applied her original codes. The original analysis captured themes related to rational addiction's concept of reinforcement, particularly for members of the group that increased their smoking since the increase was largely due to stress; this helped explain why individuals did not reduce their smoking after the tax increase. However, seven individuals who changed their behavior through reduction or switching to cheaper options also made brief comments about reinforcement. They did not say stress was currently influencing their smoking as did the individuals who were smoking more, but they commented that increased stress could change their smoking. Reinforcement did not have the same impact on their tobacco use since they were still able to change their behavior in a positive way. The theory helped emphasize that even though they were successful in

reducing their tobacco use, these individuals were aware that stress was a risk to their progress.

The economic theory of rational addiction helped the analyst uncover additional content that was not addressed in the original analysis. When people described themselves as being addicted, those comments initially seemed obvious; the remarks did not seem any different than when they described themselves as smokers. Ten people mentioned being addicted. Voluntarily acknowledging one's addiction happened slightly more often among the participants who either increased their smoking or were smoking the same amount. One participant stated, "If I wasn't hooked on them...if they were just something that was completely voluntary, I would probably just be like, 'The hell with it.'" A comment like this helps provide context for a participant's understanding of his or her smoking. After researching the economic theory, these comments may help explain why people did not change their behavior. One older woman who did not change used her addiction as an explanation: "I know I'm truly addicted and I will get them no matter what...I'll just do it."

Another detail the theory predicted was that cigarette manufacturers would increase their wholesale price before the tax increase. Since this increase is usually unanticipated, smokers have little time to adjust their consumption in advance. Rational addiction claims smokers will lower their consumption if they are aware of a future increase, but if they are not aware, they do not have time to taper their consumption. This information could be important from a public policy standpoint since there is a vast literature about the regressivity of cigarette taxes and their potentially harmful effect on

disadvantaged populations (Remler, 2004; Farrelly, Nonnemaker, & Watson, 2012). For instance, cigarette manufacturers change the price before individuals have time to investigate cessation options or prepare for the price increase, and this can harm lower-income individuals who are not expecting the change. The theory made the researcher more cognizant of comments related to price increases prior to the tax increase.

One unexpected finding was that the theory in general proved useful for analyzing longitudinal interviews. Having 35 participants who were interviewed twice with semi-structured protocols generated an abundance of varying data. On the individual level the researcher had to analyze both interviews for each participant and look for patterns and contradictions between them. Then, once the individuals could be categorized according to the change they experienced, the researcher looked for commonalities and differences within each category. A final analysis compared groups to one another. The economic theory did not thoroughly capture the richness of all the interviews; however, the theory provided an accessible foundation for building themes. Codes such as forward-looking, total cost, acknowledging addiction, and reinforcement had clear definitions in the literature and were a quick way to start identifying meaningful data.

The rational addiction themes were interpreted broadly and became an easy way to organize the large amount of information. When looking at Tables 2 through 9, the theory themes tend to match multiple themes from the original analysis. General themes from the theory of rational addiction were helpful for seeing change over time in an individual. For instance, the influence of reinforced behavior such as a death in the family notably altered a smoker's consumption. Identifying participants as either

forward-looking or myopic was useful both when conducting an individual-level analysis and comparing people within groups. The broad categories assisted in drawing initial connections and identifying larger overarching patterns.

Economic theory was also helpful in making the researcher look at her personal positionality toward smokers. Economics gives due credit to smokers, asserting that they consider multiple factors when deciding to buy cigarettes and smoke because the utility they achieve outweighs the costs; if they are rational addicts, they are not simply making an ignorant choice.

Although the theory of rational addiction did not address all the content of the interviews, it did provide useful insights. It added some new information to the analysis and helped the researcher check her original interpretation of the themes. Having an economic perspective made the evaluator sensitive to details like watching for a price increase before the tax increase. The theory also provided a way to organize the interviews to broadly start looking for common patterns. This allowed for simple comparisons on the individual, within-group, and between-group levels. This economic perspective also helped the researcher question her bias and provided alternative explanations for smokers' choices.

**Question 2: How could the incorporation of economic theory in qualitative analysis affect a program's evaluation?**

The second research question asked in what ways using an economic theory in qualitative analysis affects an evaluation. A theoretical framework adds an additional lens through which to interpret people's comments and actions. This is particularly

useful when analyzing the effect of an economic topic like a tax increase. The theory made the evaluator mindful of economic components such as utility maximization, total cost, and the short term versus the long term. She paid attention to the role of other economic actors' decisions such as the cigarette manufacturers possibly increasing the price before the tax went into effect. Economic ideas, such as opportunity costs, productivity, or the scarcity of resources, could be useful concepts in other qualitative studies. The economic lens provided another viewpoint in how to interpret the consumption choices smokers made before and after the tax increase.

The utility of economic theory depends on the purpose of the evaluation. If economic theory or economic concepts play an integral role in a program's theory, then evaluators need to incorporate these economic elements. This study showed that using economic theory in qualitative research helped the evaluator interpret interviews through an economic lens. If economic outcomes are relevant to the program or policy being evaluated, then using economic theory may be necessary for the evaluator to properly judge the evaluand. In this case to fully understand the effect of the tax increase, the economic theory provided a perspective on expected behavior change, which illuminated additional themes.

Another related consideration is use of findings and understanding that the audience matters. Economic theory and concepts could help or hinder evaluation use depending on the report's readers. When considering an audience in public policy, evaluators may find it useful to integrate economic concepts. Using economic theory provides a common language for those aware of economic concepts. Describing

interview comments in terms of supply and demand or opportunity costs, for example, could make the qualitative data seem more legitimate to those who are wary of qualitative results. However, for those unfamiliar with economic concepts or those who question a theory's assumptions, the themes could seem esoteric or inaccessible depending on the particular theory and concepts.

Patton (2012) explains that evaluators should focus on "intended use by intended users" (p. 4). He stresses that the evaluator should work with those using an evaluation to understand what information and study design is seen as credible (Patton, 2012, p. 265). If the audience is the state legislature, the use of the theory of rational addiction in qualitative analysis may be appropriate whereas an audience of tobacco cessation counselors may find the theory impractical. To understand if economic theory is an appropriate addition to a qualitative study, an evaluator should consider the report's audience and primary intended users.

Economic theory illuminates information that could affect public policy. For example, with the cigarette tax, evaluating the short-term outcomes is predicted to show less of an impact compared to the long-term outcomes (Becker & Murphy, 1988). Evaluators may want to take this into consideration when presenting their findings to policymakers. Public health initiatives may find the concept of total cost important and focus their messaging on both the financial impact and the health consequences. They may also want to think about alternative ideas to help maximize individuals' utility. For example, one man was able to obtain more utility from watching his money accumulate as a result of not purchasing cigarettes; instead, he could spend that money on other

valuable experiences. If public health organizations have concerns about instituting a regressive tax, knowing that some smokers saw an increase in price before the tax could be valuable; their program theory could target disadvantaged populations and a concern like this may mean their outreach efforts have to take into account this unplanned increase. An evaluator can use this economic perspective to help policymakers interpret qualitative findings.

When using economic theory in conjunction with qualitative methods, evaluators should carefully consider the cases that are contradictory or do not fit the theory. Individuals who do not fit the theory are not problematic; rather, they provide an opportunity to understand what a theory might be missing. This could be an important opportunity to advance the discussion of a theory or provide insightful considerations for organizations or policymakers. For example, myopic individuals do not follow the forward-looking premise of the theory in part because they have contradictory thoughts on price. A few individuals expressed that they could not always afford cigarettes after the tax increase, but they forced cigarettes into their budgets and made that work for them. One man who was smoking the same brand and same amount admitted, “I don’t know how I’m able to [afford cigarettes] to tell you the truth.” He does not think they are easy to afford and sometimes borrows money to buy a pack, yet he did not change his smoking routine. This was also the case for a woman who could not afford cigarettes multiple times in a month, but did not think about price and found cigarettes “moderately easy” to afford. Having individuals contradict the theory is not a problem, but the analyst has to determine how to handle coding and interpreting these contradictory cases.

When using economic theory, the evaluator should consider the theory's assumptions. When building models, economists "attempt to simplify reality—for example, by assuming an infinite number of competitors and market participants with perfect foresight" (Ouliaris, 2012, n.p.). For instance, the theory of rational addiction assumes that individuals have consistent preferences, which may explain why the theory does not discuss when people change tobacco types. It could be possible that these assumptions make an economic theory difficult to use when confronting real-world data.

Another important consideration is when in the course of a study to adopt a theory as it could change how data are gathered. This study incorporated theory after the interviews were completed. Certain information that may have been helpful, such as if anyone experienced changes in income, was not captured unless a person voluntarily discussed it.

On the other hand, incorporating theory early has its drawbacks as well – the evaluator may focus solely on the theory and miss valuable insights. Harris (2006, p. 141) mentions one should be sensitive to a theory's particular "construction of reality" and not let it blind his or her data collection and analysis. Glaser and Strauss (1967, p. 37) caution that relying on predetermined codes from a theory can prevent the emergence of new categories that properly fit the data. In their opinion, the researcher only focuses on data selection and not data generation (Glaser and Strauss 1967, p. 37). The theory of rational addiction alone was insufficient to gather all the meaningful responses from these interviews. However, using the theory in addition to emergent coding from the transcripts helped prevent the analyst from overlooking or misinterpreting certain themes.

Depending on the audience, the incorporation of economic theory in studies using qualitative methods could affect the evaluation. For this study, the theory of rational addiction provided another lens through which to interpret smokers' remarks. An evaluator should be purposeful when he or she chooses to incorporate theory and explain that the choice affects the reported data. If comments do not align with the theory, he or she should try to understand what factors contribute to the misalignment and be sure that important economic assumptions are not overlooked. Being able to connect comments to economic concepts could help certain audiences, like those in public policy, better understand the information and use the evaluation's results.

### **Limitations**

While the economic theory aided analysis of the interviews in some ways, there were also limitations to its utility. First, an evaluator who relies strictly on the theory may overlook important information in the transcripts. Details would be lost if the analyst only thought about themes connected to the construction of rational addiction. For instance, the themes derived from the theory tended to be dichotomous and did not always capture the full spectrum of interviewees' experiences.

Using the theory of rational addiction, the analyst's codes also did not emphasize the relevance of individuals' emotions. Understanding individuals' behaviors as well as feelings could be of concern to the evaluation's audience; for example, cessation programs may want to understand the influence of a smokers' emotional state when purchasing cigarettes, so they can properly tailor their service. If respondents felt angry about the increase or if they were mad at themselves for continuing to smoke, that

information is irrelevant within the context of the theory. As discussed in the introduction, economists are typically interested in what people do, rather than what people say (Starr, 2012, p.2; Bewley, 2002, p. 50). As a result, it may be possible, when focusing on economic theory, to undervalue individuals' opinions and attitudes. The idea of conflict, which multiple interviewees expressed, also did not always pertain directly to the theory of rational addiction. This was one of the critiques other economists made against rational addiction (Winston, 1980). The theory of rational addiction is not particularly concerned with understanding or explaining the emotions and inner struggles people tackle when dealing with an addiction.

Reviewing this data through the lens of the theory alone, an analyst would not capture how people understood their lived experience. One man compared his smoking to buying gas to convey how much of a necessity smoking was, and another person said buying cigarettes was not difficult because he or she did not have to choose between smoking and buying milk. These comments convey how these interviewees view their smoking.

When using the theory of rational addiction as a guide for analysis, the evaluator did not identify price-minimizing behaviors. The theory did not mention when individuals switch to inferior goods such as rolling their own cigarettes or buying cheaper brands. Members of three of the eight categories switched to a cheaper alternative, and more individuals were thinking about switching. Perhaps these alternatives were not addressed because rational addiction assumes that individuals have consistent preferences over time; in addition, the theory is focused on changes in the amount of consumption.

Furthermore, certain alternatives such as electronic cigarettes were not available when the theory was conceived. Nevertheless, this was a way people dealt with the tax increase that the theory did not mention, and this could have implications on the evaluation.

Depending on the evaluation's purpose, audience, and the program's theory, understanding what alternatives smokers use and why they use them could affect how results are understood and what actions a program takes in the future.

The analyst's themes derived from the theory did not capture all the details that seemed to be necessary for interpreting the interviews. One theme derived from the theory was total cost. While this theme accounts for the personal health consequences of smoking in addition to the price, the theory did not mention additional factors. For the woman who quit smoking, personal health and the price mattered, but so did her new granddaughter. She stressed that she did not want cigarettes around the baby. Another interviewee also mentioned that keeping second hand smoke away from his children and grandchildren was important. Just price and personal health were not always enough to motivate change. This is why the theory can be useful in applying broad themes to start the analysis, but evaluators have to be careful in their interpretation to make sure they do not miss crucial details that might alter or dismiss themes that arise from using grounded theory methodology.

This study found some limitations in using the economic theory of rational addiction. Relying on just the theory of rational addiction, the analyst does not address the breadth of the smokers' statements; valuable details would be lost if an evaluator relied only on the theory. The theory is not intended to address emotional remarks or

inner struggles. Nor does it focus on people's interpretations of their smoking. Due to an assumption, rational addiction does not discuss switching to inferior goods as a way of compensating for the increase in price. When using economic theory, an evaluator must be aware of these limitations.

A limitation of this study is that one analyst reviewed one specific theory and one set of interviews. The study was meant to explore what effect economic theory had on analyzing qualitative data. The economic theory was not used to prove causality. Given budget and time constraints, one analyst coded these interviews. Other evaluation contexts and economic theories could find that some of these results do not hold. More research needs to be done to understand how other types of economic theories affect evaluations that use qualitative data. The decision to incorporate economic theory should depend on the purpose of the evaluation and the primary intended users. Evaluators should carefully consider if having an economic lens makes sense.

## **Conclusion**

Overall, the integration of this particular economic theory in this analysis of qualitative smoker interviews proved useful. The analyst used the theory to highlight additional themes and offer alternative interpretations. The theory also helped the analyst check her work and challenged her assumptions about smokers. Incorporating the theory of rational addiction helped the analyst recognize important details such as individuals purposefully avoiding buying more packs than necessary or noticing a price increase before the tax took effect. One unexpected finding was that the theory provided a foundation for an initial organization of the longitudinal data. The economic lens was an

alternative perspective that could be useful when interpreting qualitative results for a public policy audience. Economic theory assisted the analyst in making meaning, but the analyst could not strictly rely on the theory to clarify what participants said. When only using the theory, the analyst did not focus on individuals' emotional responses nor did she recognize all the factors these individuals considered in their decision-making.

Before incorporating economic theory, an evaluator should consider the evaluation's purpose and the usefulness of exploring a relevant economic theory. Harris (2006) asserts, "[N]o single theoretical framework will ever offer a flawlessly clear view of any studied phenomena" (p. 149). Keeping this in mind, the evaluator should think about how theory could be incorporated in a qualitative study's design and analysis. Understanding the evaluation's audience and its intended uses is essential to the utility of economic theory for evaluative purposes. Using economic theory in qualitative analysis can provide an alternative lens for viewing study participants and their choices. As evidenced in this exploratory study, economics and evaluation can have a relationship beyond cost-effectiveness and cost-benefit studies.

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