

---

Theses and Dissertations

---

Fall 2014

# Why Medicare Part D beneficiaries do not switch plans: testing a model of Part D plan information processing

Jayoung Han  
*University of Iowa*

Copyright 2014 Jayoung Han

This dissertation is available at Iowa Research Online: <http://ir.uiowa.edu/etd/1464>

---

## Recommended Citation

Han, Jayoung. "Why Medicare Part D beneficiaries do not switch plans: testing a model of Part D plan information processing." PhD (Doctor of Philosophy) thesis, University of Iowa, 2014.  
<http://ir.uiowa.edu/etd/1464>.

---

Follow this and additional works at: <http://ir.uiowa.edu/etd>



Part of the [Pharmacy and Pharmaceutical Sciences Commons](#)

WHY MEDICARE PART D BENEFICIARIES DO NOT SWITCH PLANS:  
TESTING A MODEL OF PART D PLAN INFORMATION PROCESSING

by

Jayoung Han

A thesis submitted in partial fulfillment of the  
requirements for the Doctor of  
Philosophy degree in Pharmacy in  
the Graduate College of  
The University of Iowa

December 2014

Thesis Supervisor: Associate Professor Julie M. Urmie

Copyright by  
JAYOUNG HAN  
2014  
All Rights Reserved

Graduate College  
The University of Iowa  
Iowa City, Iowa

CERTIFICATE OF APPROVAL

---

PH.D. THESIS

---

This is to certify that the Ph.D. thesis of

Jayoung Han

has been approved by the Examining Committee  
for the thesis requirement for the Doctor of Philosophy  
degree in Pharmacy at the December 2014 graduation.

Thesis Committee:

\_\_\_\_\_  
Julie M. Urmie, Thesis Supervisor

\_\_\_\_\_  
Betty Chewning

\_\_\_\_\_  
William R. Doucette

\_\_\_\_\_  
Linnea A. Polgreen

\_\_\_\_\_  
Bernard A. Sorofman

To Yuna

## ACKNOWLEDGEMENTS

I have been truly blessed to have Dr. Julie Urmie as my advisor. She was always there for me, guiding me through this journey, she has been a great mentor and my role model. Her guidance and encouragement helped me growing up to a mature person and an independent scholar. Thank you for your patience, support, and faith.

Many thanks to the other members of my dissertation committee, Drs. Linnea Polgreen, Betty Chewning, William Doucette, and Bernard Sorofman, for your guidance and feedback on this project. I am also grateful to all the faculty members in the Division of Health Services Research at the University of Iowa College of Pharmacy for their support and guidance throughout my graduate years.

I would like to extend my sincere appreciation to all my fellow graduate colleagues for their support and friendship – Putt, Oscar, Brandon, Matt Witry, Yuexin, Liz, Yu-Yu, Cole, Matt Nattinger, Rick, Yiran, Yan, Ziqian, Aaron, Jacob, and Ali. I will miss our office fun a lot and look forward to our reunion in the future. Special thanks to Yiran for helping data collection and qualitative analysis of this project.

Much recognition goes to my family, Hyungseop Han, Myongok Lee, and Seongwoong Han, for their support and care to pursue my academic interests. Most of all, thank you to my husband Dongwoo. I never would have made it through this without you. Thank you for your love and support.

Lastly, thank you to my little princess, Yuna. You came to us in the beginning of this journey and have given me tremendous strength to get through my graduate years.

## ABSTRACT

Previous studies have shown that Medicare Part D beneficiaries tend not to switch plans even though they are encouraged to reevaluate their current plans and switch plans if needed every year. Little is known about why this “plan stickiness” occurs, so there is a critical need to better understand this non-switching behavior.

This dissertation project aimed to describe how Part D beneficiaries processed information and how they perceived the plan switching process. It also aimed to describe how switchers and non-switchers were different and to test a model of Part D plan information processing that adapted from Motivation, Opportunity, and Ability (MOA) model.

To achieve these objectives, this study had a cross-sectional descriptive design and used a mixed- methods approach consisting of focus groups, interviews, and mailed survey. The qualitative study sample was recruited from two cities in Iowa and transcripts of audio-recorded discussions were analyzed. The population studied in the quantitative phase was voter registered Iowa Part D beneficiaries who were older than 65 and did not receive Low Income Subsidies (LIS). Stratified random sampling was used to identify survey subjects. An eight page survey assessing factors related to Part D plan decisions was developed and mailed to 2,250 subjects, with reminder postcards as well as phone calls used to increase response rate. Finally, confirmatory factor analysis and structural equation modeling (SEM) were used to test a model of Part D plan information processing.

A total of 16 participants from three focus groups and three interviews were included in the qualitative analysis. The results indicated that Part D beneficiaries processed different amounts of information even though they made the same decision (i.e. non-switching); whether

to receive help from others in reviewing coverage options emerged as an important theme in the plan switching decision.

A usable response rate of 22.5 percent was obtained. Of this sample, 264 respondents were non-LIS Part D beneficiaries and were used for further analysis. About one fifth of the sample switched plans between 2012 and 2013, supporting existing literature that has reported a low plan switching rate. Switchers and non-switchers had few demographic differences, but twice as many switchers as non-switchers received help from others in reviewing coverage options. The results from the SEM analysis indicated that those who had lower risk perceptions about plan switching, higher motivation, and higher self-efficacy were likely to process larger amounts of plan information. They also indicated that higher perceived risk, involvement, and self-efficacy were positively associated with motivation to process plan information.

The findings of this dissertation suggest that plan stickiness has two types – active (i.e. informed choice) and passive (i.e. inertia) – depending on the amount of information processed, which was determined by beneficiaries' levels of perceived risk, motivation, self-efficacy, and needs. Furthermore, findings suggest that whether to receive help in understanding plan information may play a large role in leading informed beneficiaries to act on their knowledge and switch plans.

The present study is the first to integrate the concept of information processing to understand Part D beneficiaries' plan switching decisions and the first to examine psychological factors affecting beneficiaries' information processing as well as their plan switching decisions. Study findings will help policy makers developing efficient communication strategies with beneficiaries to help them to make informed choices.



TABLE OF CONTENTS

LIST OF TABLES ..... IX

LIST OF FIGURES ..... XI

CHAPTER 1 INTRODUCTION ..... 1

    1.1. Research Objectives ..... 9

CHAPTER 2 LITERATURE REVIEW ..... 10

    2.1. Introduction to Medicare Part D and Plan Stickiness ..... 10

    2.2. Consumer Inertia ..... 14

    2.3. Literature Review of Previous Research on Plan Choice ..... 17

        2.3.1. Health Insurance and Retirement Plan Choices ..... 18

        2.3.2. Part D Choices – Plan Switching ..... 21

        2.3.3. Part D Choices – Whether Beneficiaries Make “Informed” Decisions ..... 26

    2.4. Conceptual Framework ..... 34

        2.4.1. Motivation, Ability, and Opportunity (MOA) Model ..... 34

        2.4.2. Conceptual Framework of Part D Plan Information Processing ..... 36

    2.5. Knowledge Gap and Significance ..... 43

    2.6. Research Objectives ..... 44

CHAPTER 3 METHODS ..... 49

    3.1. Study Design and Rationale of Design Choice ..... 49

    3.2. Qualitative Phase - Focus Groups and Interviews ..... 50

        3.2.1. Discussion Questions ..... 50

        3.2.2. Recruiting Participants ..... 50

        3.2.3. Conducting the Focus Group and Interviews ..... 51

        3.2.4. Analyzing Qualitative Data ..... 52

    3.3. Quantitative Phase – Beneficiary Survey ..... 52

        3.3.1. Operationalizing Constructs – Survey Item Generation ..... 53

        3.3.2. Survey Development ..... 61

CHAPTER 4 RESULTS ..... 78

    4.1. Qualitative Phase - Focus Groups and Interviews ..... 78

        4.1.1. Recruiting Participants ..... 78

4.1.2. Participant Characteristics .....	78
4.1.3. Qualitative Data Analysis .....	79
4.2. Quantitative Phase – Beneficiary Survey .....	82
4.2.1. Usable Survey Response Rate .....	82
4.2.2. Part D Beneficiaries .....	82
4.2.3. Description of Part D Sample .....	84
4.2.4. Develop a Measurement Model Using Confirmatory Factor Analysis (CFA) .....	86
4.2.5. Comparison Between Switchers and Non-switchers – Objective 2.....	88
4.2.6. Test the Model Using Structural Equation Modeling (SEM) – Objective 3 .....	90
 CHAPTER 5 DISCUSSION AND CONCLUSION .....	 119
5.1. Summary of Qualitative Findings and Discussion.....	119
5.2. Summary of Quantitative Findings and Discussion.....	121
5.2.1. Sample Characteristics.....	121
5.2.2. Was There Plan Stickiness? .....	122
5.2.3. Was There Active Versus Passive Plan Stickiness? .....	122
5.2.4. Why Not Switch Plans? .....	123
5.2.5. Why Not Process Plan Information? – The Model of Plan Information Processing .....	126
5.3. Methodological Considerations .....	127
5.4. Limitations .....	128
5.5. Policy Implications .....	130
5.6. Future Research .....	130
5.7. Conclusion .....	132
 APPENDIX A. DISCUSSION QUESTIONS FOR FOCUS GROUPS AND INTERVIEW ....	 135
 APPENDIX B. QUALITATIVE STUDY APPROVAL FORM .....	 136
 APPENDIX C. RECRUITMENT FLYER.....	 137
 APPENDIX D. CONFIRMATION LETTER .....	 138
 APPENDIX E. CONSENT FORM FOR FOCUS GROUPS AND INTERVIEWS .....	 139

APPENDIX F. TESTING TWO PROPOSED MEASURES OF INFORMATION PROCESSING .....	140
APPENDIX G. SURVEY ITEM GENERATION .....	141
APPENDIX H. DESCRIPTION AND EXAMPLES OF LEVEL OF INFORMATION PROCESSING .....	145
APPENDIX I. FINAL MAILED SURVEY .....	147
APPENDIX J. COVER LETTER FOR FINAL MAILED SURVEY .....	155
APPENDIX K. POSTCARD REMINDER FOR MAIN SURVEY.....	157
APPENDIX L. FREQUENCY DISTRIBUTIONS FOR VARIABLES .....	158
APPENDIX M. FREQUENCY DISTRIBUTIONS FOR COMPOSITE MEASURES .....	162
APPENDIX N. COMPARISON BETWEEN SWITCHERS AND NON-SWITCHERS UNDER ALTERNATIVE DEFINITION OF SWITCHING <sup>A)</sup> – CATEGORICAL VARIABLES .....	163
APPENDIX O. COMPARISON BETWEEN SWITCHERS AND NON-SWITCHERS UNDER ALTERNATIVE DEFINITION OF SWITCHING <sup>1)</sup> – CONTINUOUS VARIABLES .....	164
APPENDIX P. CHARACTERISTICS OF SURVEY RESPONDENTS (N=477).....	166
REFERENCES .....	168

## LIST OF TABLES

Table 3.1. Summary of Items.....	74
Table 3.2. Description and Examples of Proposed Level of Information Processing .....	76
Table 4.1. Focus Group and Individual Interview Participant Characteristics .....	96
Table 4.2. Summary of Themes and Representative Quotations.....	97
Table 4.3. Characteristics of Part D Beneficiaries - Continuous Variables (n=264).....	100
Table 4.4. Characteristics of Part D Beneficiaries - Categorical Variables (n=264).....	101
Table 4.5. Reasons for Plan Switching (n=41) .....	104
Table 4.6. Sources of Help in Plan Selection (n=106).....	105
Table 4.7. Gender Differences in Sources of Help (n=102) .....	105
Table 4.8. Beneficiaries' Knowledge About Part D (n=264) .....	106
Table 4.9. Description of Variables .....	107
Table 4.10. Comparison of Model Fit Indices Between Proposed and Final CFA Models (n=264) .....	108
Table 4.11. Covariance Matrix Used for the Analysis of Final CFA Model and SEM Models (DF=220) .....	109
Table 4.12. Comparison of Factor Loadings Between Proposed and Final CFA Models (n=264) .....	110
Table 4.13. Standardized Covariances Among Factors in Final CFA Model (n=264) ...	111
Table 4.14. Descriptive Statistics of Final Measures of Constructs (n=264) .....	111
Table 4.15. Comparison Between Previous Year Switchers and Non-switchers – Categorical Variables (n=255).....	112
Table 4.16. Comparison Between Previous Year Switchers and Non-switchers – Continuous Variables (n=255).....	114
Table 4.17. Switchers and Non-switchers by the Level of Information Processing (n=255) .....	116
Table 4.18. Model Specification and Fit Indices of Proposed and Modified SEM Models .....	116
Table 4.19. Standardized Parameter Estimates of Proposed SEM Model and Modified SEM Models .....	117

Table 4.20. Standardized Covariances Among Factors in Final SEM Model .....	118
Table G1. Purchase Involvement Scale Developed by Mittal (1989) and Generated Items.....	141
Table G2. Perceived Risk Items Developed by Dholakia (2001) and Generated Items.	142
Table G3. 17-item Self-efficacy Scale for Information Literacy (Kurbanoglu et al. 2006) and Generated Items.....	143
Table G4. Motivation Items Developed by Moorman (1990) and Generated Items .....	144

## LIST OF FIGURES

Figure 2.1. Terminology Map.....	46
Figure 2.2. Motivation, Ability, Opportunity (MOA) Model by MacInnis and Jaworski (1989).....	47
Figure 2.3. Conceptual Framework of Part D Plan Switching .....	48
Figure 3.1. Proposed Model of Part D plan Information Processing.....	77
Figure 4.1. Main Survey Data Collection and Response Rate.....	92
Figure 4.2. Final Measurement Model (CFA results).....	93
Figure 4.3. Final Structural and Measurement Model .....	94

## CHAPTER 1 INTRODUCTION

The new Medicare Part D prescription drug insurance market illustrates that leaving a large block of uninformed consumers to sink or swim, and relying on their self-interest to achieve satisfactory outcomes can be unrealistic.

— Nobel Laureate Daniel McFadden  
(Ketcham et al., 2012)

Medicare Part D was introduced in 2006 to improve access to prescription drug coverage for Medicare beneficiaries. Since that time, Part D has served as the primary source of prescription drug coverage for unemployed elderly and disabled individuals. In 2012, approximately 63 percent of Medicare beneficiaries were enrolled in Part D plans and many of the remainder were covered by other types of coverage such as retiree plans or Veterans Affairs (Henry J. Kaiser Family Foundation, 2012a). Although there are still about 10 percent of Medicare beneficiaries who lack prescription drug coverage, Part D generally has achieved its enrollment goal. In addition, Part D has improved problems related to the lack of prescription drug insurance such as non-adherence and high drug costs. Past studies have shown that beneficiaries who were uninsured before 2006 used more prescription drugs and paid less out-of-pocket costs after Part D was implemented (Henry J. Kaiser Family Foundation, 2006; Ketcham & Simon, 2008; Lichtenberg & Sun, 2007; Schneeweiss et al., 2009; Yin et al., 2008). Part D also has reduced cost-related non-adherence, but not among the sickest patients (Madden et al., 2008).

Although Part D has had many positive effects, several problems have occurred. The most frequently mentioned issue is the complexity of Part D choice. About 70 percent of Part D beneficiaries felt they had too many options (Heiss, McFadden, & Winter, 2006) and three-fourth

of the elderly wanted Part D to be simplified (Cummings, Rice, & Hanoch, 2009). The large number of Part D plans and complex Part D structure contribute to beneficiary confusion.

In 2007, a total of 1,875 Prescription Drug Plans (PDPs) were available and beneficiaries in each state had an average of 50 PDPs (Hoadley, Hargrave, & Merrell, 2006). It is good for beneficiaries to have a variety of options but it requires tremendous effort to evaluate and compare 50 different options, especially for the elderly who may have limited cognitive ability (John & Cole, 1986). In 2010, the Centers for Medicare & Medicaid Services (CMS) issued regulations to eliminate duplicate plans and plans with low enrollment in order to reduce choice overload. As a result, the number of plans decreased to 1,031 and beneficiaries in each state have between 23 and 38 PDPs in 2013 (Henry J. Kaiser Family Foundation, 2012a); however, these are still large numbers.

Another factor contributing to the complexity of Part D choice is variation among Part D plans due to Part D providers' flexibility in designing the benefit structure. Part D providers are allowed to offer plans with various combinations of plan attributes as long as they are actuarially equivalent to the standard benefit designed by CMS. The problem is that very few Part D plan providers offer the defined standard plan benefit; rather, they prefer to offer actuarially equivalent plans by changing some components of the benefit structure (Hoadley, Summer, Hargrave, Cubanski, & Neuman, 2012). It is very difficult for Medicare beneficiaries to compare 30 different plans with different formularies, cost-sharing amounts, pharmacy networks, and gap coverage to determine which plan is the least costly for them. The end result is an overwhelmingly complex Part D choice process.

Overwhelmed Part D beneficiaries have dealt with this complexity by not making changes. It is not a surprise that overwhelmed individuals take the default option (in the case of



Part D, staying in the same plan) or make a decision based on heuristic cue such as plan name to save their cognitive efforts (O'Donoghue & Rabin, 2001). In the first year of Part D, Medicare beneficiaries eligible for Part D had to enroll in any Part D plan to avoid late enrollment penalty. Therefore, those who were not automatically assigned to Part D plan had to examine their choices and make decisions. However, in subsequent years, they do not have that incentive. Once they enrolled in a plan in the first year, they can keep the plan as long as they want, assuming that the plan continues to participate in Part D. Do they want to start that enrollment process over and switch plans every year? It appears not. Beneficiaries were unwilling to pay attention to Part D materials in 2007 whereas they did in 2006 (Dulio, Perry, & Cubanski, 2007) and studies have reported about 10 percent switching rates (Heiss, McFadden, & Winter, 2007; Kling, Mullainathan, Shafir, Vermeulen, & Wrobel, 2011).

Such tendency not to switch plan has been called “plan stickiness”. This is not an entirely new phenomenon because we have seen the same behavior with 401(k) retirement plans and general health insurance plans (Goldman, Leibowitz, & Robalino, 2004; Madrian & Shea, 2000). Being locked into an initial choice also has been observed in other consumer goods and services such as banking or TV channel choice (Esteves-Sorenson & Perretti, 2012; White & Yanamandram, 2004). One might wonder why plan stickiness in Part D choice matters if it is a commonly observed consumer behavior. One reason is numerous studies have shown that patients tend to forgo taking necessary medications when they feel financial burden (Kurlander, Kerr, Krein, Heisler, & Piette, 2009; Soumerai et al., 2006). Part D beneficiaries who chose suboptimal plans pay higher costs and may develop financial difficulties which potentially lead to medication non-adherence. Hence, several researchers have focused on evaluating whether the first year’s decision was optimal.

Abaluck and Gruber (2009) suggested that Part D beneficiaries did not make an optimal initial choice because only a few beneficiaries chose the lowest cost plan, resulting in spending 30.9 percent more in total drug costs than they would have paid under the lowest cost plan in 2006. Furthermore, the failure to choose the lowest cost plan appears to have not improved over time; Zhou and Zhang (2012) reported that only 5 percent of beneficiaries chose their lowest cost plan based on their drugs in 2009. If beneficiaries switched to the lowest cost plan in the subsequent year, the initial overspending might not be of much concern. However, as mentioned above, beneficiaries show limited interest in evaluating options and switching plans in following years, suggesting they are highly likely to keep overspending. Moreover, plan stickiness may make overspending even worse because plan providers change plan attributes every year, most likely increasing premium and reducing plan generosity.

For example, in 2006 Humana set the lowest premium in the market for both standard (\$9.51) and enhanced plans (\$14.73), resulting in the second and third highest enrollment among all Part D plans (Hoadley et al., 2006). Many eligible beneficiaries who did not use many medications enrolled in this plan to avoid the late enrollment penalty. Humana then dramatically increased their premium by up to four times in the following 3 years but was able to maintain the same market share during that period (Hoadley, Cubanski, Hargrave, Summer, & Huang, 2012). Enrollees might initially choose an optimal plan with the lowest premium in the first year but due to premium increases or other changes in the plan, they may overspend in subsequent years by remaining in the same plan.

As such, the complexity of Part D choice gives rise to Part D beneficiaries' tendency to stay with their initially chosen plans, most of which are not their lowest-cost plan. This phenomenon is problematic because it allows plan providers to increase premiums without fear

of losing market share. An important question to answer is why Part D beneficiaries tend not to switch plans despite changes in plan attributes as well as their health and financial situation. One reason might be satisfaction. About three quarters of Part D beneficiaries have expressed satisfaction with their drug plan (Henry J. Kaiser Family Foundation, 2006; Kling et al., 2011). They did not switch plans because they were satisfied with their current plan. It sounds logical. However, we do not know if they are truly satisfied with their drug plan or if they choose to be satisfied. According to cognitive dissonance theory, individuals tend to defend their prior choices (Festinger, 1957). Moreover, if beneficiaries did not switch plans because of satisfaction, conversely, dissatisfied beneficiaries should switch plans. However, in one study the percentage of dissatisfied Part D beneficiaries who did not switch plans (88.7%) was almost as large as the percentage of satisfied beneficiaries who did not switch plans (92.9%) (Han, Ko, & Urmie, 2014), implying that there are other factors involved in preventing beneficiaries from switching plans in order to resolve their Part D related issues.

Some beneficiaries may not switch plans because the process is burdensome. Making an informed plan switching decision requires considerable effort to evaluate and compare plan options. Beneficiaries need to process a lot of plan information before and after making a decision. Since some elderly have limited capability for information processing (John & Cole, 1986), Part D beneficiaries may have a high psychological barrier for plan switching accompanied by processing plan information. In addition, making a decision under uncertainty may lead beneficiaries to fear choosing a wrong plan if they switched; therefore, they may feel staying with their current plan is safer. Beneficiaries also will need to visit the website or call a Part D plan and do paperwork for switching plans that they would not need to do if they stayed with their current plan.

Other beneficiaries may not switch plans because they do not understand the switching process or where to get information. Part D beneficiaries have multiple information sources where they can get help with plan decisions. They could call the Medicare help-line (1-800-Medicare) or SHIPs (State Health Insurance Programs), visit the Medicare Prescription Drug Plan Finder website, and read materials from plan providers and Medicare. However, although some sources offer personalized plan recommendations, beneficiaries appear not to utilize these information sources (Dulio et al., 2007; Kling et al., 2011).

Combined with the lack of information seeking, beneficiaries' somewhat limited knowledge about Part D may contribute to failure to switch plans. For example, in one previous study, about half of Medicare beneficiaries did not know generic drugs and brand-name drugs have different copayments and only 37 percent knew some plans do not have a deductible (Kling et al., 2011). In another study, only 44 percent of beneficiaries knew they have to wait for the open enrollment period to switch plans and 30 percent of them did not know if their plan had gap coverage (Henry J. Kaiser Family Foundation, 2006). Without knowing this information, it will be difficult to accurately project their drug spending and make an informed switching decision. Beneficiaries who are not well-informed may not even notice changes in their plans and believe they are satisfied with their plans, but they might have felt differently if they knew about the changes. .

Ideally, beneficiaries initially choose an optimal Part D plan and review their plan options every year to see if there is a better plan. Past studies have examined if the initially chosen plan was an optimal plan in terms of out-of-pocket costs and if beneficiaries switched plans in subsequent years. However, all Part D studies except for Heiss, Leive, McFadden, and Winter (Heiss, Leive, McFadden, & Winter, 2012) assumed that beneficiaries were fully informed and

did not examine whether the switching or non-switching decision was made after reviewing details about plan options. The underlying assumption in those studies was that switchers evaluated plan information whereas non-switchers did not. This assumption should be taken cautiously because there will be non-switchers who found their current plan to be the best after scrutinizing all the options and switchers who simply shifted to the plan that their friends or family members recommended without carefully evaluating their options. Although Heiss and colleagues (Heiss et al., 2012) first incorporated the amount of information that beneficiaries have in plan choices, they could examine decision rules addressing only observed factors such as medication list or premium. This study expanded this finding to address other unobserved factors.

In addition to the assumption of fully informed consumers, all Part D studies evaluating whether plan choices were adequate have used cost minimization as the criteria to judge the adequacy of choice. That is, choosing the lowest-cost plan is the only adequate choice so beneficiaries who do not choose their lowest cost plan are not making the best choice. Although Heiss et al. (2012) examined the issue that each beneficiary might process information differently; their judgment of whether beneficiaries' plan choice was informed was made based on whether they paid the least under their chosen plan. Such a cost-centered approach to judge the adequacy of choices fails to capture preference heterogeneity among beneficiaries. Hence, this study used the extent of beneficiary plan information processing as a key factor to judge if the initial choice was optimal and if the non-switching or switching decision was adequate. Not choosing the lowest cost plan can be an optimal choice in cases where beneficiaries carefully evaluated and understood their plan options and concluded their current plan best fits their needs.

The Motivation, Ability, and Opportunity (MOA) model offers a theoretical explanation of plan stickiness that is lacking in the existing literature because it provides an integrative framework of information processing that accompanies decision-making. The model suggests that motivation (goal-directed arousal) influences the level of information processing, which is moderated by ability (knowledge) and opportunity (environmental facilitator or barrier) (Maclnnis & Jaworski, 1989). For example, beneficiaries who are motivated to process plan information will actually be able to process information if they have knowledge and skills to do so but will not be able to do so if they do not have sufficient knowledge to understand the information. Also, although some beneficiaries may lack the ability to understand the information, they can process information if somebody helps them. This study developed measures of constructs in the MOA model in the context of Part D choice and tested the model using mixed methods. In the qualitative phase, focus groups and interviews were used to better understand what issues Part D beneficiaries have with the plan choice process and test different approaches to measure the amount of information processing. In the quantitative phase, survey data were collected and the MOA model was tested using structural equation modeling.

This study is the first study to integrate the concept of information processing with the adequacy of Part D plan choice. This study defines the adequacy of plan choice beyond the cost factors to which previous studies were limited; for example, depending on how much beneficiaries processed plan information, non-switching behavior (i.e. plan stickiness) can be either simple inertia (low level of information processing) or an informed decision (high level of information processing) regardless of if they chose the lowest cost plan. Furthermore, this study provides a theoretical framework for non-switching behavior that is lacking in the existing literature. This novel approach to evaluate the adequacy of plan choice brings new

understanding of Part D beneficiaries' choices. Also, having a theoretical explanation of non-switching behavior helps us understand why plan stickiness happens and aids in developing strategies to improve beneficiaries' non-switching behavior. Promoting switching behavior will benefit Part D enrollees by saving them money and making the market more competitive.

### **1.1. Research Objectives**

#### Qualitative phase

1. Describe general perceptions about the process for switching part D plans and test proposed measures.

#### Quantitative phase

2. Describe how switchers and non-switchers differ in psychological factors relating to the level of information processing and evaluate whether consumer inertia exists.
3. Test a model of Part D plan information processing using an adapted MOA model.

## CHAPTER 2 LITERATURE REVIEW

This chapter is organized as follows. First, background information on Medicare Part D and plan stickiness is provided. Second, the concept of consumer inertia, a relatively new construct in the context of health care, is introduced. Third, existing studies on consumer choices in health insurance plans, retirement plans, and Medicare Part D plans are summarized. Fourth, a general description of the Motivation, Ability, and Opportunity (MOA) Model and a framework of Part D plan switching behavior is presented. Lastly, the significance of the research is stated.

### **2.1. Introduction to Medicare Part D and Plan Stickiness**

Medicare Part D is a program offering outpatient prescription drug coverage to Medicare beneficiaries that was newly established in 2006 by the Medicare Modernization Act (MMA) of 2003. The Part D drug coverage is offered through private plan providers and overseen by the federal government. Substantial subsidies were given to private insurers in order to encourage their participation in the Part D market. Part D coverage can be obtained through either prescription drug plans (PDPs) or Medicare Advantage Prescription Drugs plans (MA-PDs). The MMA gave Medicare beneficiaries the choice to remain in traditional Medicare and obtain drug coverage through PDPs or to enroll in MA-PDs. The PDPs are stand- alone prescription drug coverage whereas MA-PDs are integrated with Parts A and B. Therefore, studies related to prescription drug coverage often limit their scope to PDPs to examine the pure effect of drug coverage. There were 1,429 Prescription Drug Plans (PDPs) and 1,333 Medicare Advantage Prescription Drug (MA-PD) plans available in 2006 (Hoadley, Summer, et al., 2012). More beneficiaries have been enrolled in PDPs than MA-PDs with a relatively stable ratio; a total of 63



percent of Part D beneficiaries were enrolled in PDPs and 37 percent were enrolled in MA plans in 2012 (Hoadley, Summer, et al., 2012).

Low-income Part D beneficiaries are eligible for low income subsidies (LIS). Nearly 35 percent of Part D enrollees received extra subsidies for their premiums and cost-sharing in 2013 (Hoadley, Summer, et al., 2012). The federal government fully pays premiums and deductibles for LIS beneficiaries as long as they are enrolled in benchmark plans. The benchmark plans are PDPs with premiums lower than the average bid for basic benefits of PDPs (benchmark amount) and the qualification for benchmark plans is evaluated for renewal every year. Plans annually submit their bids to CMS based on projected payments to their enrollees. CMS decides the amount of direct subsidy to plans after several risk-adjustments and calculates the benchmark amount. Regardless of being enrolled in a benchmark plan, LIS beneficiaries pay less than general Part D beneficiaries because they are responsible for only the payment above the benchmark amount. Also, CMS randomly assigns new LIS beneficiaries who did not choose a plan to any benchmark plan and LIS beneficiaries can switch plans anytime throughout the year. Given LIS beneficiaries' different choice environment from general Part D beneficiaries, they are also often excluded from the scope of Part D choice studies.

In addition to the complex marketplace, Part D itself has a complex benefit structure. Part D plan attributes consist of premium, formulary, deductible, cost-sharing, coverage gap, and catastrophic coverage. CMS defines a standard benefit structure that has an initial coverage limit, a catastrophic coverage limit, deductible, and cost-sharing and updates them every year. Except for the 25 percent coinsurance, the amounts of all components have increased since 2006 reflecting increasing total drug costs. In 2013, beneficiaries paid \$325 of the deductible and 25 percent of drug costs until they reach \$2,970. During the coverage gap, they paid 79 percent of

generic drug costs and 47.5 percent of brand name drug costs. They paid 5 percent of drug costs after their total drug costs reached \$6,955 catastrophic coverage level (Henry J. Kaiser Family Foundation, 2012a). Plan providers have flexibility to design plan benefits as long as they are actuarially equivalent to the standard benefit design. Most plans replaced coinsurance with a tiered copayment system and a half of PDPs and 11 percent of MA-PDs did not charge any deductible in 2012 (Hoadley, Summer, et al., 2012). As far as formularies, PDPs on average cover 84 percent of drugs in the CMS drug reference file whereas MA-PDs cover 90 percent. However, the cost-sharing and coverage for drugs, especially brand-name drugs, varies across plans; for example, all PDPs placed Namenda® in preferred brand tier while only 62 percent of PDPs placed Celebrex® in the same tier and 27 percent did not even list it in the formulary (Hoadley, Summer, et al., 2012).

The most popular change is using a tiered cost-sharing system instead of coinsurance because tiered copayments are used by most employer plans and work well to encourage use of less expensive medications (Hoadley, Summer, et al., 2012). The tiered cost-sharing structure charges different amount of copayments for different types of drugs, for example, lower copayments for drugs in the generic drug tier than drugs in the brand name drug tier. It started with mostly 2-tiered structures in the first year of Part D plans, then expanded to up to 5-tiered structures; in 2012, about 49 percent of Prescription Drug Plans (PDPs) used 5-tiered structure (Hoadley, Summer, et al., 2012). This means beneficiaries need to determine which tier out of five their drugs are in and how much they would pay for each tier in order to calculate their out-of-pocket (OOP) cost. The CMS Prescription Drug Plan Finder can be used to help find this information, but not all beneficiaries are able to access and navigate this web based aid.

Furthermore, Part D beneficiaries are a unique population that consists of the elderly and the disabled. The elderly who make up the majority of Part D beneficiaries have been known to experience declines in short-term memory as well as slower information processing speeds and have difficulty processing a large amount of information (John & Cole, 1986). Also, the elderly sometimes have diseases that limit their cognitive ability, such as dementia or Alzheimer's disease. Such diminished cognitive abilities may result in Part D beneficiaries being passive in their Part D related decision-making process and this may lead them to do nothing or to rely on others. In addition to limited capacity for information processing, the elderly and the disabled who have higher medical needs are not likely to switch health insurers because they like to avoid uncertain changes in prescription drug insurance (Hendriks, De Jong, Van Den Brink-Muinen, & Groenewegen, 2010).

The complex marketplace and Part D structure as well as unique characteristics of Part D population have led beneficiaries to be overwhelmed with the program. Many beneficiaries have had difficulty understanding formulary, gap coverage, and deductible at the point of choosing a plan and were confused about the many options (Heiss et al., 2006). They could call Medicare help-line (1-800-Medicare) and state health insurance assistance programs (SHIPS) that provide personalized plan information, and they could use the web based Prescription Drug Plan Finder provided by CMS. However, beneficiaries do not actively search for and utilize information sources that are publically available and easily accessible (Henry J. Kaiser Family Foundation, 2006; Kling et al., 2011). Overwhelmed and not-well-informed beneficiaries tend to take a passive action of staying at where they are, i.e. their initially chosen plans, which has been called plan stickiness. Although past Part D studies have referred to plan stickiness as general non-switching behavior regardless of its active or passive nature (Cummings et al., 2009; Neuman &

Cubanski, 2009), this study explicitly differentiated *active* non-switching from *passive* non-switching. The former represents non-switching behavior with a high level of information processing (e.g. scrutinizing all options) whereas the latter represents non-switching behavior with a low level of information processing (e.g. not even looking at any information). The following section will elaborate passive non-switching which has been studied as the concept of consumer inertia in marketing literature.

## **2.2. Consumer Inertia**

Consumer inertia is an interesting behavioral bias found in the real world setting. This behavior is viewed as bias because it is not explained by traditional rational decision theory where consumers make a decision based on what maximizes their utility. For example, assume Jane has had her account in bank A for the past ten years. She is aware that bank A offers the lowest interest rate on savings accounts in town and she has become uncomfortable with their service. Bank A does not update her financial information and the bank tellers are not friendly. She heard that bank B offers a higher interest rate on savings accounts and has gained a good reputation from people in town. Her seemingly rational response would be to switch to bank B because the higher interest rate and better service at bank B will give her better utility than bank A. However, Jane decides to stay with bank A because she thinks switching to bank B would be burdensome. In other words, Jane decided to do nothing despite her dissatisfaction with Bank A, which illustrates inertial behavior.

By dictionary definition, being inertial refers to the tendency of staying at where we have been in spite of intending to go forward. It contains a nuance of passiveness. Economists have called inertial behavior status quo bias (Samuelson & Zeckhauser, 1988). Prospect theory suggests that individuals are inclined to value the risk of leaving a reference point (i.e. status

quo) more than the gain from leaving, which leads them to keep regressing back to the reference point (i.e. status quo bias) even though they have an intention to move on (Kahneman & Tversky, 1979). Therefore, if individuals do nothing, they will stay at where they have been by nature because of this behavioral bias, unless they find the gain from a change outweighs the risk from the change.

Researchers in marketing generally agree with economists' definition of being inertial. However, while economists focus on the outcome of inertia, which is "the same decision", marketing researchers put more effort into speculating how consumers get to that point, which is "why the same decision." For consumers to be inertial in decision-making, they need to be in an environment with a series of decisions. Marketing researchers label this environment as a continuous purchasing setting, which is distinct from a discrete purchasing setting (Ranaweera & Prabhu, 2003). Examples of continuous purchasing settings include internet and cable service, mobile phone plans, and bank service. This is in contrast to product purchases in retail stores which is an example of a discrete purchasing setting. In a continuous purchasing setting, consumers use the product or service for a long time and are affected by not only explicit factors such as product price but also implicit factors such as satisfaction and relationship with the provider.

From this property of a continuous purchasing setting, researchers in marketing generally have observed two different underlying mechanisms for non-switching behavior. One is loyalty. Consumers may develop a good relationship with their provider or their attachment to the product may progress over time. These attachments result in re-purchasing of products and services even though they may benefit from switching providers. Consumers might analyze the gains and risks of a purchase during the initial purchase decision but they may fail to process

product information during subsequent purchase decisions once they become loyal to the brand. This behavior is called brand loyalty. Loyal Apple consumers just buy MacBook<sup>®</sup> and do not mind the fact that they would have paid much less if they had bought a laptop from Dell<sup>®</sup> or that MacBook's low compatibility may cause them inconvenience.

Another mechanism for the failure to switch is being inertial. Consumers may become habitual in their purchasing decisions because they have done them for a long time. They are not necessarily loyal to the brand, but they simply repeat past purchasing behavior without much thought in order to avoid the switching process. This is particularly likely to occur when consumers face complicated tasks, where they tend to procrastinate or follow heuristics to simplify the task (O'Donoghue & Rabin, 2001). Jane in the example above is such case. There are many factors to consider when switching banks and there are many banks in town. She knows she would have to process a lot of information if she tries to switch banks. She is not satisfied with her current bank but she decides to stay at the bank because she does not want to exert the effort to switch. Despite the very different behavioral mechanism from brand loyalty, inertia produces the same behavioral outcome, re-purchasing. This is why researchers in marketing have called consumer inertia spurious loyalty (Jacoby & Chestnut, 1978) or a non-conscious form of retention (Huang & Yu, 1999). From the viewpoint of information processing, inertial consumers barely process brand information whereas consumers who are loyal to a certain brand perform heuristic information processing by simply responding to the source (i.e. brand).

Medicare Part D can be considered a continuous purchasing setting because beneficiaries need to make annual decisions about whether to switch plans, provided they do not opt out of Part D. Beneficiaries may become loyal to Part D providers such as Wellmark or Humana but

they also may become inertial in their annual decision-making process. For example, the high enrollment in the AARP-Medicare Rx plan has been viewed as the result of the brand loyalty to AARP (Cubanski & Neuman, 2007). In fact, Part D beneficiaries may be more susceptible toward being inertial because of the automatic re-enrollment system that most PDPs offer and the potentially lower cognitive ability of some older adults.

In summary, the concept of consumer inertia has been used in explaining non-switching behavior but its use is somewhat inconsistent across disciplines. Status quo bias well represents the non-switching behavior observed in Part D choice but it does not disentangle decision quality (i.e. passive or active) from non-switching behavior; therefore, it should not be interchangeably used with consumer inertia which contains only passive non-switching behavior. Since information processing is an important component of the switching process, this study used the level of information processing as a proxy for decision quality with consumer inertia being a subcategory of status quo bias. In other words, there are two subcategories under non-switching behavior: 1) consumer inertia, defined as non-switching with a low level of information processing; and 2) informed non-switching, defined as non-switching with a high level of information processing. Terminology related to consumer inertia is mapped in Figure 2.1.

### **2.3. Literature Review of Previous Research on Plan Choice**

This section reviews the existing literature on plan choice, including health insurance plan choice, 401(K) retirement plan choice, and Part D plan choice. These choices all are in a continuous purchasing setting where consumer inertia potentially exists. Although health insurance and retirement plans have different scope and eligibility from Part D plans, they provide good insights on the relatively new area of Part D choice since similar behavior has been

observed in these three settings. The following review will concentrate on plan switching decisions that closely relate to context of consumer inertia.

### 2.3.1. Health Insurance and Retirement Plan Choices

Plan switching decisions in response to price change have been extensively studied in the context of health insurance plans. In general, premium increases have induced beneficiaries' plan switching. Employees of the University of California who had to pay an additional premium resulting from a benefit policy change were more likely to switch plans than those who paid the same premium (Buchmueller & Feldstein, 1997). Another study found that about 39 percent of employees of Harvard University who were enrolled in the Preferred Provider Organization (PPO) plan switched to the HMO plan after a substantial premium increase for the PPO; this switching rate was much higher than the 15 percent plan switching rate before the policy change (Cutler & Reber, 1998). The HMO switching rate was similar to another study where 34.1 percent of Stanford University health plan enrollees switched to a newly introduced low-cost plan in the year when plan addition was made, although the switching rate dramatically dropped to 5.8 percent one year after the policy change (Royalty & Solomon, 1999). Also, employees of a US firm with cafeteria-style benefits where employees were fully responsible for the additional cost of more generous coverage switched to another plan (13% of single and 12% of family plan) in response to a 10 percent premium increase (Goldman et al., 2004).

Two interesting factors affecting the plan switching decision other than price are plan tenure and job tenure. Beneficiaries who were in the plan longer were less likely to switch plans (Beaulieu, 2002; Buchmueller & Feldstein, 1997; Goldman et al., 2004) and those who were employed longer by their current employer were less likely to switch plans (Royalty & Solomon, 1999) even though the premium increased. These studies commonly interpreted the results as



beneficiaries' having higher switching costs with increasing tenure. The longer beneficiaries are with the plan, the more opportunity they have to establish doctor-patient relationships, which in turn makes them value provider choice more than lower cost and results in non-switching despite premium increases. Also, Buchmueller and Feldstein (Buchmueller & Feldstein, 1997) explained the relatively higher switching rate that they found (15% versus 1-6% in other studies) using switching costs. Their study sample, employees of the University of California, might have lower switching costs than the general population because the insurance market in California is very mature; therefore, beneficiaries were well informed and knowledgeable which led them to be less afraid of learning and evaluating plans.

Additionally, age, health status, satisfaction, and plan quality have been found to have significant effects on plan switching. Older beneficiaries are less likely to switch despite a premium increase (Beaulieu, 2002; Buchmueller & Feldstein, 1997; Cutler & Reber, 1998; Goldman et al., 2004; Royalty & Solomon, 1999). Also, beneficiaries who had chronic diseases (Royalty & Solomon, 1999) and self-rated their health as poor (Hendriks et al., 2010) were less likely to switch plans in spite of premium increases, perhaps because they developed relationships with their providers over time. Also, beneficiaries who were satisfied with their plans were less likely to switch plans despite premium increases (Buchmueller & Feldstein, 1997) and those who enrolled in plans with lower reported quality (Beaulieu, 2002) and did not live alone (Lako, Rosenau, & Daw, 2011) were more likely to switch plans. Education was not a statistically significant factor in switching decisions (Hendriks et al., 2010; Lako et al., 2011).

In sum, studies on health insurance plan switching decisions have reported limited switching in response to year-to-year small changes in premium but more extensive switching in response to large premium increases. The main explanation for these findings that studies on

health insurance plan choice have provided was switching costs. Madrian and Shea (Madrian & Shea, 2000) have expanded on these findings and provided a richer explanation of low switching rates by incorporating several concepts of behavioral economics such as inertia into their discussion.

Madrian and Shea (2000) studied employees' 401(K) retirement plan enrollment with data from a firm that introduced a new policy to automatically enroll new employees in a 401(k) plan. The 401(K) enrollment rate dramatically increased from 57 percent to 86 percent after the auto-enrollment system was implemented. The auto-enrollment system simply changed the default status from not-enroll to enroll; the resulting large increase in enrollment demonstrated employees' tendency to stay where they were placed, illustrating status quo bias. Madrian and Shea (Madrian & Shea, 2000) provided several explanations for why status quo bias might happen in 401(K) enrollment.

One explanation is that status quo bias results from procrastination. Enrollees might procrastinate because of direct and indirect transaction costs involved in switching such as gathering and evaluating the often complex 401(K) plan information. Another explanation is status quo bias results from an endowment effect. An endowment effect means that individuals place more value on what they already own, leading them to value losses much more than gains from leaving their current status. According to the authors, the former explanation can be considered an informed result of the cost-benefit calculation of making a decision today versus postponing until tomorrow whereas the latter explanation is considered non-informed. Although the authors provided profound discussion of concepts of behavioral economics to explain non-switching behavior, they could not disentangle the decision quality of non-switching behavior because data were unavailable.

Madrian and Shea (2000)'s study is the closest to this study in the aspect of viewing status quo bias (i.e. non-switching) as a multi-dimensional concept: status quo bias resulting from an informed cost-benefit calculation or as a behavioral bias. Inspired by Madrian and Shea (2000)'s study, the present study will disentangle the decision quality (i.e. adequacy of the decision) from the outcome of plan choice. The following section will summarize studies of Part D choices concentrating on whether Part D beneficiaries show a tendency to not switch in response to year-to-year changes, as shown in health insurance plan choice and 401(K) retirement plan choice, and whether the switching decision was informed or not.

### 2.3.2. Part D Choices – Plan Switching

The lessons from health insurance and retirement plan choice studies are that beneficiaries show status quo bias but there has not been evidence of consumer inertia because few studies have examined reasons for remaining at status quo, i.e. non-switching. In fact, status quo bias and consumer inertia have been used interchangeably. Interestingly and as expected, the same phenomenon is being observed in Part D choices. There have been multiple studies showing that Part D beneficiaries display status quo bias, so called plan stickiness. The plan switching rate is very low just as observed in health insurance and retirement plan choices and once again, there have been few studies that examine why this happens.

The Part D choice environment is extremely complex. It provides Medicare beneficiaries with an overwhelming number of plan options with large variations in plan attributes. Moreover, Part D itself has a complicated structure with many attributes such as formularies, tiered-copayment, and gap coverage. Part D beneficiaries might not have difficulty understanding monthly premium because they have knowledge of it through health insurance, but they might be confused by gap coverage because it is a unique feature of Part D. In fact, most Part D

beneficiaries had difficulty understanding deductible as well as gap provisions and had a hard time evaluating formularies that each plan offered in the first year of Part D (Heiss et al., 2010). Furthermore, the number of available Part D plans depends on the market and decisions made by CMS. With employer-based insurance, most employers limit choice sets to several plans, but CMS has taken only modest steps to restrict the number of available plans. As a result, beneficiaries in each state had an average of 50 plan choices in 2007, each of which had a different benefit design (Hoadley et al., 2006). Hence, due to the complexity of Part D choices in conjunction with beneficiaries' being older adults who may have more limited capability for information processing (John & Cole, 1986), Part D beneficiaries may be more vulnerable to consumer inertia. In that sense, the reported low switching rate of about 10 percent for Part D plans is not a surprise.

Heiss, McFadden, and Winter (Heiss et al., 2007) constructed a survey called the Retirement Perspectives Survey (RPS) to capture how Medicare beneficiaries perceived Part D features and made initial enrollment decisions as well as subsequent switching decisions. The survey was conducted from 2005 to 2007 with the study sample drawn from a panel of individuals maintained by a commercial survey firm. The authors identified a "core sample" of Medicare beneficiaries who were eligible for Part D and interviewed them in 2005 and 2006. They used the 2006 core sample to identify "active deciders" who were not automatically enrolled in Part D and then used this sample for analysis. They examined whether eligible consumers enrolled in Part D, when they enrolled, what factors affected those decisions, and whether those decisions were informed in the first year of Part D. They also investigated their switching decisions between 2006 and 2007.

The authors reported approximately 10 percent of beneficiaries who had purchased Medicare PDPs in 2006 switched to another plan in 2007. The authors interpreted this result as a “lock-in” effect because they thought switching plans would be beneficial to more than 10 percent beneficiaries. They also expressed concerns about firms’ taking advantage of this “lock-in” effect by increasing premiums or reducing plan quality. Subsequently, they estimated a logit model for switching decisions (n=190) and found 2006 plan premiums and dissatisfaction with plan to be the largest determinants.

Kling and colleagues also reported a 10 percent switching rate between 2006 and 2007 in their national phone survey sample of PDP enrollees (n=348) (Kling et al., 2011). An interesting part of their study is that they examined how to improve plan switching rate using a randomized experimental design. The field experiment was conducted with 451 patients of the University of Wisconsin Hospital. The intervention was designed to reduce “comparison friction” by providing personalized Part D information. Comparison friction here was defined as the discrepancy between information availability and actual use of information. The intervention letter contained the individual’s 2006 plan and projected cost in 2007 as well as the lowest-cost plan in 2007 and the amount of possible savings due to switching, whereas comparison letter contained only the Plan Finder website link.

The authors found the switching rate in the intervention group to be higher than the comparison group (28% versus 17%). If studied individuals switched to the lowest cost plan in 2007, they could have saved \$527; therefore, the higher switching rate in the intervention group suggests that beneficiaries make better choices if assistance to understand information is available. Interestingly, more than 70 percent of those in the comparison group underestimated their cost savings from plan switching. This might lead them to think researching plan options

would not be worth their time and effort. Another descriptive finding from their phone survey supports the notion that non-switchers might not sufficiently value information seeking; only 18 percent of individuals who were surveyed accessed personalized cost information, even though it was publically available and easily accessible by calling the free Medicare help line. These findings suggest that beneficiaries are passive in their decision-making process i.e. show consumer inertia. In addition to the effect of the intervention on plan switching, some background variables were found to significantly affect plan switching decisions; individuals who were married, rated their 2006 plans as poor or fair, or took more than 7 medications were more likely to switch plans between 2006 and 2007.

Ketcham and colleagues (Ketcham, Lucarelli, Miravete, & Roebuck, 2012) also examined what factors influenced plan switching decisions of Medicare PDP enrollees during 2006-2007 using a large data set from CVS Caremark, a pharmacy benefits manager. They modeled the plan switching decision using a probit model with switched or not as a dependent variable. The results showed that older and female beneficiaries and those who overspent in 2006 were more likely to switch whereas those who had poor health (higher risk scores and more medications) were less likely to switch plans (n=71,391). Overspending was defined as difference between what beneficiaries paid under current plan and what they would have paid under the lowest-cost plan.

Ericson (2012) took an interesting approach to show that beneficiaries might not switch plans over years (Ericson, 2012). While all previous studies analyzed individual level data, he aggregated plan enrollment data from CMS during 2006-2010 and analyzed it at the plan-level. He stratified 2,464 PDP plans based on the year that they were introduced and examined the trend of total enrollment of each cohort over time. He found that plans introduced in 2006

maintained the most PDP enrollment from 2006 to 2010 even though plans introduced in 2006 had the largest increase in premiums during that period. Then he narrowed the scope to plans introduced in 2006 and examined what predicted market share change between 2006 and 2007. He ran an ordinary linear regression with the log of plan market share in 2007 as a dependent variable (n=560) and found that the 2006 premium was associated with the enrollment in 2007 after controlling for the 2007 premium and plan characteristics. Even in 2009, 2006 premium had an effect on plan choice that was similar to the 2009 premium in magnitude. He also found that the magnitude of decrease in market share resulting from a higher premium in 2006 was larger than that in 2007 (14 percent vs. 9.7 percent per one dollar increase in premium), suggesting that beneficiaries did not respond to premium in 2007 as much as in 2006.

In summary, similar to health insurance and retirement plan beneficiaries, the majority of Part D beneficiaries (90%) tend to stay with their current plan despite a large potential cost savings from plan switching. Kling and colleagues' finding that only a few Part D beneficiaries utilized information sources suggests that beneficiaries might make decisions without much thought regardless of whether it is non-switching or switching (Kling et al., 2011). For the determinants of plan switching decisions, premium increase, plan dissatisfaction, being married, female and in good health were positively associated with plan switching, which is generally consistent with predictors of health insurance plan switching. Interestingly, while age was found to be negatively related to employer-based insurance plan switching, it was found to be positively related to Part D plan switching, meaning that older elderly are more likely to switch. A possible explanation for this inconsistency is that unlike the young working population, the older elderly may be more open to getting assistance with their plan decisions which might lead them to switch plans.

### 2.3.3. Part D Choices – Whether Beneficiaries Make “Informed” Decisions

According to Ketcham and colleagues, plan switching plays a major role in reducing overspending on prescription drugs; yet, the plan switching rate is only about 10 percent (Ketcham et al., 2012). One might think that being locked in an initially chosen plan may not be that bad if beneficiaries chose an optimal plan in their first year. This may be true in the rare case of no changes in either the plan or the beneficiary. However, if they chose a suboptimal plan in the first place and the plan increased its premium, being locked in that plan will exacerbate overspending. This raises the questions of whether the plans which beneficiaries initially chose and stayed in were optimal for them and if not, how much worse off were they due to not switching. Unfortunately, there have been no studies examining whether the Part D plan switching decision was informed or not; for example, part of the 90 percent non-switchers may have been better off switching but they did not switch (not informed) but the rest of them may have been better off not switching therefore their decision was appropriate. There have been several studies that tried to evaluate the quality of initial plan choice but the judgment on whether enrollment decision was optimal relied only on cost savings.

Heiss, McFadden, and Winter evaluated whether the initial enrollment choice was optimal based on whether or not beneficiaries had a positive net benefit from enrollment (Heiss et al., 2007). The net benefit includes both immediate benefit from reduced drug costs due to acquiring drug coverage and future benefit from avoiding the late enrollment penalty. The authors developed a simulated model using 2000-2003 MCBS Cost and Use files to measure the probability of informed enrollment. With this rationality rule, 97.5 percent of the RPS active decider sample should have enrolled if they were fully informed and 98.2 percent actually enrolled, implying that beneficiaries may be informed. However, when they tested the logit



model with Part D enrollment (either PDPs or MA-PDs) as a dependent variable and probability of informed enrollment as an independent variable of interest, conditional on demographics, health, and the beneficiary's annual pharmacy bill for drugs in the plan formulary (n=653), beneficiaries did not appear to be informed. The results showed that probability of informed enrollment and immediate benefit had an effect on plan choice but future benefit did not. However, these effects all disappeared when they added myopic enrollment to the model, which represents making a decision based on only current medication cost. They concluded that Part D choices appeared to be myopic rather than informed without fully accounting for both immediate and future benefits.

While Heiss, McFadden, and Winter approached the adequacy of plan choice from whether beneficiaries consider both future drug costs predicted from current drug list and the impact of the open enrollment penalty on their welfare (Heiss et al., 2007), Abaluck and Gruber focused on whether future drug costs inferred from only current drug costs explained plan choice as a whole (Abaluck & Gruber, 2009). Abaluck and Gruber analyzed 477,393 pharmacy claims during 2005 – 2006, which included individuals' medication utilization and plan choice information (Abaluck & Gruber, 2009). They constructed a "cost calculator" to mimic the Medicare Plan Finder and calculated out-of-pocket costs based on individual's formulary. That way, the authors could identify the lowest cost plan in their state. They found that only 12.2 percent chose their lowest cost plan and beneficiaries could have saved an average 30.9 percent of total Part D spending by choosing the lowest cost plan. Then they ran a conditional logit model of plan choice and found some "consumer errors" (authors' term) in plan choices. Beneficiaries valued premium five times more than out-of-pocket costs and cared about plan characteristics beyond what they needed to. By overweighting premiums, beneficiaries may end

up with a low premium plan that does not cover all of their medications, resulting in high out-of-pocket costs. Moreover, by caring about plan characteristics too much, beneficiaries may choose an expensive plan with full gap coverage even though they are very unlikely to need gap coverage.

The authors discussed why such consumer errors happened. They assumed fully informed consumers in their earlier plan choice model and thought that assumption might have led them to find consumer errors. Their earlier model measured realized out-of-pocket (OOP) cost that was calculated using 2006 claims as a proxy of expected OOP costs at the time of plan choice (open enrollment period in 2005). This means that the model assumed consumers perfectly forecasted 2006 drug costs in 2005, which is unrealistic. Realized OOP in 2006 contains both expected cost that can be inferred from 2005 drug costs and expected cost that can be inferred from individuals' own information (e.g. a diagnosis of cancer right before the plan choice). The authors developed an "informed expectations" measure to determine if beneficiaries had more information beyond what can be inferred from 2005 drug costs at the time of plan choice.

The authors stratified beneficiaries into 1,000 cells based on 2005 drug costs and considered those in the same cell to be "identical" people. If there was little effect of individuals' own information on plan choice, the distribution of 2006 OOP costs within the cell would be small because the expected cost from 2005 drug costs would almost fully explain variation in 2006 OOP costs. Interestingly, their results showed that the role of individuals' own information in plan choice is substantial (individual choices accounted for 60% of variation in 2006 OOP) and findings from their earlier model persist. That is, with or without considering individuals' own information factor, beneficiaries valued premium more than OOP cost and valued plan characteristics more than needed.

Heiss, Leive, McFadden, and Winter took note of the role of individuals' own information that Abaluck and Gruber (2009) found and expanded their discussion using a large data set from CMS (Heiss et al., 2012). The significant contribution of their study is that they first incorporated variations in the amount of processed information related to Part D decision-making in judging the adequacy of Part D choice. They differentiated "*ex ante* assessments" from "*ex post* assessments" (author's terms) and introduced 6 different decision rules. The *ex post* assessments were to evaluate whether plan choice was optimal in retrospect, which allowed the authors to describe consumer regret from not choosing an optimal plan. The *ex post* assessments were measured as the difference in "consumer inclusive cost (CIC)" (premiums plus co-payments) between the chosen plan and the lowest cost plan given the list of medications. On the other hand, the *ex ante* assessments were to evaluate which plan would be optimal before making a decision, which is more realistic tool to judge decision quality than *ex post* assessments. The *ex ante* assessments required processing information available at the time of plan choice to find plans that maximized their utility.

The authors incorporated both *ex ante* and *ex post* assessments in six different decision rules that varied in the amount of processed information and beneficiaries' expectations. The perfect foresight decision rule is choosing a plan based on the exact prediction of which drugs beneficiaries would use in following year (does not assume that future medication list is the same as current one). This was measured by choosing the plan that minimizes *ex post* CIC. The static decision rule represented choosing a plan that minimized CIC based on the current medication list, which is essentially the same rule the CMS Plan Finder applies. The minimum premium rule was choosing the plan with the lowest premium and the diffuse expectations rule was randomly choosing any plan with assumption that all plans were essentially the same. Another random

choice rule is the herding rule where beneficiaries selected the plan based on familiarity or salience such as brand name (e.g. AARP). Lastly, the informed expectations rule was choosing the plan that minimized expected CIC with reasonable prediction of future drug use based on various variables such as age, gender and chronic conditions. These six rules can be roughly related to the level of information processing that this study proposes: low level (diffuse expectations), medium level (herding rule, minimum premium, static), and high level (informed expectations, perfect foresight). The proposed level of information processing will be described in the following conceptual framework section.

The authors used 2006-2008 Part D claims data from CMS combined with Part A and Part B claims from 2002-2008. They first simulated the model of plan choice to find a proportion of plan choices that are optimal from the perspective of *ex post* assessment (hereafter, “*ex post* optimal”. authors’ term.). Then they examined how much more or less *ex post* optimal actual plan choices were than the plan that the simulated model chose based on six different decision rules. Simulation results showed that only a few plan choices (5.8% in 2007 and 7.4% in 2008) were *ex post* optimal and static decision rules did the best job (41.7% in 2007 and 46% in 2008 were optimal). Interestingly enough, none of the informed expectations rule models did better with plan selection than the static decision rule model, suggesting that prediction based on demographic information was less credible than prediction based on the current medication list.

As far as the comparison between actual choices and simulated choices, interestingly, whatever decision rule is applied, the majority of beneficiaries could have done better in plan choices. For example, under the static rule, approximately 80 percent of plan choices (80% in 2007 and 84.3% in 2008) were not *ex post* optimal. Even with a simple rule of minimum premium, about 70 percent of plan choices (68.3% in 2007 and 71.1% in 2008) were not *ex post*

optimal. If beneficiaries chose the plan that the simulated model chose based on the static decision rule, they could have saved \$261 in 2007 and \$330 in 2008 compared to what they paid under their actually chosen plans. With the minimum premium rule, they could have saved \$130 in 2007 and \$154 in 2008. Then the authors ran multinomial logit model with actual chosen plan as a dependent variable and found that the higher premium, CIC, and Plan Finder predicted CIC (=static decision rule) were, the less likely beneficiaries chose the plan.

Heiss and colleagues nicely elaborated decision rules that vary in the amount of processed information and found that a static decision rule using current medication list was the best way to determine the optimal plan among six rules (Heiss et al., 2012). Also, most importantly, they found that beneficiaries do not choose the optimal plan regardless of which decision rule they apply. Although they took into account variations in information processing, they still judged optimality of choice based on cost – how much beneficiaries could have saved. Also, they did not answer the question of who tends to use each of the decision rules. This proposed study will answer that question by modeling Part D plan information processing and will not judge the adequacy of choice only from cost saving.

There have some other studies showing that Part D choices are not *ex post* optimal. Zhou and Zhang examined how much beneficiaries have overspent using 2009 CMS enrollment data and Part D claims (Zhou & Zhang, 2012). As Abaluck and Gruber (2009) did, the authors calculated drug spending and identified the lowest cost plan. Then they estimated the amount of overspending, which is defined as difference in total beneficiary spending (both premium and out-of-pocket costs) between their lowest cost plan and plans chosen by beneficiaries. They found only 5.2 percent of beneficiaries chose the lowest cost plan in their region and average

amount of overspending was 368 dollars. For 22 percent of the sample, the amount was over 500 dollars.

Then they ran a multivariate linear regression with overspending as a dependent variable (n=412,558) to examine what drives overspending. The most significant factor was plan characteristics such as deductible or generic drug gap coverage. The mean overspending for plans with generic gap coverage was 683 dollars as opposed to 325 dollars for plans without gap coverage and this overspending amount was mainly driven by premiums (\$561 out of \$683). This result occurred even after controlling for other factors. Interestingly, comorbidities as well as having a cognitive disorder did not increase the amount of overspending. For example, those with diabetes overspent 2 dollars less than those without diabetes and those with Alzheimer's disease paid about 10 dollars less than those without Alzheimer. However, the number of plans available in the state increased overspending by 3.2 dollars, indicating that a large choice sets may interfere with beneficiaries' finding the lowest cost plan.

While the four studies described above examined whether plan choice in each year is optimal, Ketcham and colleagues focused on whether plan choice improves over time using 2006-2007 PDP data from CVS Caremark, a pharmacy benefits manager (Ketcham et al., 2012). They calculated overspending by comparing annual out-of-pocket costs for insurance and prescription drugs of chosen plan versus the lowest-cost plan in the region, which is consistent with definition of Zhou and Zhang (2012). They found that 81 percent of their sample was able to reduce overspending in 2007 by about half (55 percent of 2006 spending) and the average reduction was 298 dollars. After controlling for changes in health status, the reduction was larger for those who spent the most in 2006, who were older than 85, and who started medications for Alzheimer's disease in 2007. Ketcham et al. (2012) agreed with Zhou and Zhang (2012) that this

improvement may come from getting the assistance of others to find the lowest-cost plan. As for factors leading to overspending reduction, the authors suggested switching plans was the main factor. The study showed that switchers saved \$299 more than non-switchers.

Based on these study results, it appears that beneficiaries have learned from past performance and improved their subsequent choices but it is important to be cautious because of several study limitations. The data came from one pharmacy benefit manager. PBMs typically are involved in formulary management to increase rebates from pharmaceutical manufacturers and care mostly about short-term drug costs. Therefore, the overspending reduction may be outcome of PBM's cost management efforts rather than individuals' improved choice. The result showing that non-switchers also reduced overspending supports this concern. Also, as authors acknowledged, data were not available to compare switching plans in this PBM to switching plans in other PBMs, which limits generalizability. Moreover, the authors assumed fully-informed decisions, which is unrealistic in practice. Lastly, one of authors is a former employee of Caremark, which raises concern about a potential conflict of interest.

In sum, studies examining the adequacy of Part D plan choices showed that individuals do not choose the lowest-cost plan and as a result tend to overspend. They prefer to have a generous plan and value premium over out-of-pocket costs. These studies suggest that Part D beneficiaries are not informed but they have the limitation of assuming perfectly informed beneficiaries and judging adequacy of choice only based on cost saving. Heiss and colleagues (Heiss et al., 2012) incorporated varying degree of information processing in plan choice model but could not explain why beneficiaries differently process information. In addition, studies examining plan switching (health insurance, 401(k) plan, and Part D plan) showed that beneficiaries tend not to switch plans despite year-to-year premium change but the switching rate

can be increased by providing personalized plan information. Next, the conceptual framework section will describe a model of Part D plan information processing that aims to explain why beneficiaries process varying amount of information which determines the quality of their switching decisions. This framework largely relies on the MOA model and integrates perceived risk as well as self-efficacy with the MOA model.

## **2.4. Conceptual Framework**

### 2.4.1. Motivation, Ability, and Opportunity (MOA) Model

The MOA model is an integrative attitude formation model proposed by MacInnis and Jaworski in 1989. The MOA model presents motivation, ability, and opportunity (MOA variables) as main determinants of information processing and also specifies how different consumers form attitudes depending on the level of information processing. The model has been used in advertising, marketing, and communication to examine brand attitude and effects of advertisements (MacInnis, Moorman, & Jaworski, 1991), loyalty intention and consumer-to-consumer knowledge exchange (Gruen, Osmonbekov, & Czaplewski, 2005), and knowledge sharing (Siemsen, Roth, & Balasubramanian, 2008). In the context of health plan choices, to author's best knowledge, Walsh's study of the Medicaid enrollment decision (Walsh, Fitzgerald, Gurley-Calvez, & Pellillo, 2011) is the only study that applied the MOA model.

The model proposes motivation as a main factor affecting the level of information processing with ability and opportunity as moderators of this relationship. The model also contains needs as an antecedent of motivation and specifies six level of information processing matching to six attitude formation processes (Figure 2.2). This section will describe each of these main constructs and their relationships.



First, needs, as a predictor of motivation, has two domains of utilitarian needs and value-expressive needs. Utilitarian needs are defined as a desire for products to remove a consumer's problem (Park & McClung, 1986). For example, patients may need a non-sedative antihistamine because they felt too dizzy taking a regular antihistamine. On the other hand, value-expressive needs are defined as desire for products to show consumers' ideal self-image or self-esteem (Park & McClung, 1986). For instance, consumers may need an expensive designer bag because they want to look like they are rich. In sum, consumers view products either as an instrument to fix their problem (utilitarian) or as a symbol of themselves (value-expressive). In order to fulfill the needs, individuals will need to purchase products. In order to buy one, they need to process some information about products to judge which one fits their needs more. Such desire to process information represents motivation. The motivation here is goal-directed arousal as Park and Mittal (Park & Mittal, 1985) defined, with the goal being brand information processing. Motivation has been shown to impact both direction and intensity of information processing (Petty & Cacioppo, 1988).

The MOA model posits that ability and opportunity moderate this linkage. Ability is defined as "skill or proficiency in interpreting brand information in an ad" (MacInnis & Jaworski, 1989) and opportunity as "the extent to which circumstances evidenced during ad exposure are favorable for brand processing" (MacInnis & Jaworski, 1989). Factors leading to low information processing ability that have been examined in previous research are: limited intelligence or education, limited product knowledge or experience (Anderson & Jolson, 1980), and message difficulty (Yalch & Elmore-Yalch, 1984). Factors shown to be related to low information processing opportunity are: distraction (MacKenzie, Lutz, & Belch, 1986), limited

time to process information (LaBarbera & MacLachlan, 1979), decreased message repetition (Batra & Ray, 1986), and the amount and type of information (MacInnis & Jaworski, 1989).

The level of information processing represents “the depth of understanding about the brand” (MacInnis & Jaworski, 1989) ranging from one through six based on the extent of motivation (very low, low, low-moderate, moderate, high, highest). The higher the level of information processing, the more consumers think about the decision. The magnitude of understanding determines whether individuals use a simple way to form an attitude or the integrative and constructive way to form an attitude. For example, a person who has a very low level of motivation is at level one of information processing where he does not process central information but picks one “feature” of information (e.g. the text looks complicated or brief). Since he never understands the contents (i.e. never performed any cognitive activity), his response to information includes only emotional arousal. That is, his mood determines attitude toward brand. On the other hand, a person who has the highest level of motivation is at level six of information processing where he not only fully understands the central information but also can apply them to his personal situation. His path to process information is very constructive and brings both cognitive and emotional responses, which in turn, lead him to form an attitude toward brand. The attitude formed through this more complicated path persists longer and is more resistant to change.

#### 2.4.2. Conceptual Framework of Part D Plan Information Processing

##### 2.4.2.1. Needs - antecedent of motivation

Needs, perceived risk, and self-efficacy are included in the model as antecedents of motivation. In this framework, the need for processing plan information represents the utilitarian

dimension of needs because processing plan information is more likely to be an action for problem solving. Thus, this study will not address expressive needs.

Needs was conceptualized as how much beneficiaries feel they need to deal with changes either in the plan or in themselves and how much they perceive those changes as problems that need to be solved. This conceptualization is aligned with involvement defined as “the degree of interest of a person in an object” (Mittal, 1989). In the context of this study, an object of interest will be processing plan information and plan choice. A beneficiary may feel she needs to look into Part D plan details because her plan informed her of a premium increase or formulary change. Also, a beneficiary may consider evaluating her current plan when her doctor changes her medication or she is newly diagnosed with a disease. Also, a beneficiary may consider switching plans because his experience with the plan was not satisfactory. Although beneficiaries face the same changes, they may react differently; some would perceive them as problems and become interested in solving them but others may not. Therefore, this construct will capture beneficiaries’ degree of interest in solving problems that come from the plan side or the beneficiary side.

#### 2.4.2.2. Perceived risk - antecedent of motivation

Perceived risk is defined as consumers’ perception of uncertain and negative consequences resulting from buying products or services (Bauer, 1960). Simply speaking, perceived risk represents “perceived importance of the negative consequences of a mispurchase” (Dholakia, 2001). It has been known to be associated with information acquisition behavior as a strategy of reducing a risk (Dholakia, 2001) and motivation (Chaffee & Roser, 1986; V.-W. Mitchell, 1999; Rimal, Flora, & Schooler, 1999).

For example, suppose Amber is deciding what to eat for lunch. She wants to have healthy and low-calorie foods because she is on a diet. She worries that her chosen foods may turn out to be high-calorie and she will gain weight as a result. Thus, she searches for calorie information for each menu item before her final lunch decision. In this example, Amber tries to reduce perceived risk associated with her lunch choice (i.e. weight gain) by searching calorie information.

What if Amber were not on diet? Would she still calculate the calories for each menu item to decide her lunch? Interestingly, according to Gemünden's meta-analysis, the direction of the impact of perceived risk on information search has been mixed (Gemünden, 1985). That is, some consumers did not search for information even though they thought their choices might have adverse consequences. His explanation for this inconsistency was that the level of risk that these consumers perceived might be within the range they could tolerate. If Amber were not on diet, she may have not perceived a risk of weight gain to be as important as she would if she was on a diet. Thus, "on a diet" may be a necessary condition for Amber to search for information. Dholakia (2001) describes this condition as situational involvement.

Situational involvement represents a "temporary perception of product importance based on the consumer's desire to obtain particular extrinsic goals that may derive from the purchase" (Bloch & Richins, 1983). Its temporary nature makes situational involvement distinct from enduring involvement that features persistent interest in a product class. With situational involvement, even though consumers are not generally interested in the product purchase, they may become interested under some circumstances. Dholakia found that situational involvement as well as functional risk had positive relationships with the tendency to seek product

information prior to a purchase (Dholakia, 2001). In this framework, the construct of utilitarian needs represents situational involvement.

Again, in the example of Amber's lunch choice, there were two different types of perceived risk – anxiety about picking the wrong menu item and weight gain. The anxiety or regret about making a wrong choice is an emotional response to making a decision, which has been labeled as psychological risk (Dholakia, 2001; Jacoby & Kaplan, 1972). On the other hand, weight gain is the risk associated with function of product (i.e. calories in foods) and cognitive activity is involved in identifying this type of risk. This has been labeled as performance risk (Jacoby & Kaplan, 1972) or functional risk (Dholakia, 2001). In addition, there may be other kinds of risk; for example, this food is not worth my money (financial risk), buying a lunch is just wasting my time (time risk), my friends will think I'm weird if I eat this food (social risk), and this food will harm me (physical risk) (Jacoby & Kaplan, 1972). Which risk is more salient to consumers varies across product class.

In the context of Part D studies, psychological, performance, and time risk are salient. Beneficiaries may think they would regret switching if the new plan is found to be the wrong one (psychological risk); worry that the chosen plan will cover all their medications (performance risk); and think they have to invest a lot of effort and time into this task (time risk). Dholakia (Dholakia, 2001) collectively labeled financial, performance, physical, and time risk as cognitively-evaluated functional risk and made a distinction from affectively-experienced psychological risk because those four risks result from thinking about what will happen after making a choice while psychological risk stems from emotional response. This framework will adapt Dholakia's collective classification.

#### 2.4.2.3. Self-efficacy - antecedent of motivation

Another antecedent of motivation in this framework is self-efficacy. Self-efficacy represents “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986). Self-efficacy is one of the most widely used constructs as a predictor of behavior in academic learning and health behavior change such as smoking cessation and weight control (Bandura, 1986; Schunk, 1989; Zimmerman, 2000). Individuals with high self-efficacy have been shown to become more interested in learning a task and adapting preventive health behavior.

Self-efficacy is not a personal psychological trait but a judgment of one’s task-specific capabilities (Bandura, 1986); in other words, self-efficacy represents task-specific confidence rather than inherent individual characteristics such as personality. In this study, self-efficacy is conceptualized as self-efficacy about processing plan information, which is how confident they are with understanding plan information. It predicts motivation to process information.

#### 2.4.2.4. Motivation to process information

Motivation to process information was conceptualized as desire to process Part D plan information in order to find an optimal plan. Plan information includes information about their current and alternative plans such as copayment, premium, and formulary. For example, a beneficiary whose doctor recently changed her medication (i.e. high needs) will first review her current plan benefit package to see if her plan covers a new medication and the amount of copayment and then compare other plans to see if there is a better deal (i.e. motivation to process information ). As MOA model suggests, motivation to process information will predict the level of processing plan information (Maclnnis & Jaworski, 1989).

#### 2.4.2.5. Ability to process information

Ability to process information was conceptualized as beneficiaries' level of knowledge and skills about part D plan to understand plan information. While self-efficacy about processing information captures beneficiaries' beliefs about their capabilities to process plan information (subjective), ability reflects beneficiaries' actual knowledge about Part D plan (objective). As MOA model suggests, ability moderates the effect of motivation on information processing (Maclnnis & Jaworski, 1989). For example, a beneficiary who is very confident about understanding plan information (i.e. high self-efficacy) and is willing to search for information (i.e. high motivation) may not process information well if he does not understand plan terminology (e.g. coverage gap).

#### 2.4.2.6. Opportunity to process information

Opportunity to process information was conceptualized as environmental factors that either encourage or discourage processing plan information. Opportunity also moderates the effect of motivation on information processing (Maclnnis & Jaworski, 1989). No matter how much beneficiaries are motivated to process plan information or are able to comprehend plan features, beneficiaries will not be able to process plan information if they do not have an access to information sources, for example, they lack internet or phone access (i.e. low opportunity = barrier). On the other hand, even though beneficiaries are not motivated to process information or are not knowledgeable enough to process information, they can process information if a knowledgeable person assists them (i.e. high opportunity = facilitator).

#### 2.4.2.7. Level of information processing

Level of information processing was conceptualized as the depth of understanding of Part D plan information. Maclnnis and Jaworski (1989) suggested in their MOA model that the level

of information processing determines how individuals form their attitude toward the brand, which will in turn determine how they make purchasing decisions. In that sense, this construct served as a criterion to judge decision quality of Part D plan switching decisions. Although previous Part D studies have neglected the extent to which beneficiaries processed plan information in judging the adequacy of their choices, this study incorporated varying level of information processing in plan switching decisions.

For example, suppose PDP beneficiaries Bill, John, and Mike are deciding which plan they will enroll in next year. They received a booklet from their insurer describing plan options during coming open enrollment period. Bill opened the booklet but closed it immediately and filed it away. The numbers and graphs in the booklet reminded him of the hassle related to plan choice he experienced last year and irritated him. He thought “whatever, it will not make a big difference anyway”. Because of auto re-enrollment system of the plan, he continues to enroll in plan A. On the other hand, John did read the booklet. However, he found some terminology to be hard to understand and became frustrated. Then he found the premium information, which he understands. He compared premiums across plans that the insurer listed and found his current plan A to charge the lowest premium. Therefore, he decided to stay with plan A. Mike recently found out he had cancer and knew he would pay a lot more for medications next year. He closely read the booklet and thought he needed more information. He went to Medicare Plan Finder and entered all the possible combinations of medications he would take next year. He found his current plan A offered the best deal. Therefore, he decided to stay with plan A.

All three individuals ended up with the same plan but their decision quality varied. All three of them processed the same information differently; Bill barely processed the provided information, John processed information but processed only information that he could



understand well, and Mike fully processed the information. In this study, the level of information processing measured how much beneficiaries processed the information, which demonstrated the adequacy of their choices.

## **2.5. Knowledge Gap and Significance**

There were three main knowledge gaps identified in previous Part D studies. First, Part D studies discussing the adequacy of plan choice were heavily focused on cost (e.g. choosing the lowest-cost plan) and assumed that Part D beneficiaries were fully informed. Only Heiss et al. incorporated the extent to which beneficiaries processed information into plan choice by establishing six decision rules varying in degree of processing information (Heiss et al., 2012); however, they also judged the adequacy of plan choice from a cost perspective and did not explain why each beneficiary used different decision rules. This study evaluated the adequacy of plan choice based on how fully consumers processed information, regardless of paying more or less. In other words, if consumers have their own reasoning behind their decision, choosing an expensive plan or a cheap plan, whatever decision is, their choices are informed. Simply speaking, whether to process information determines the decision quality instead of outcome of the choice.

Second, although previous Part D studies examined factors affecting plan switching decisions, those findings were limited to observed factors such as health status or spending and none of them provided a theoretical explanation. This study provided a theoretical framework for plan switching behavior by adapting the MOA model to incorporate unobserved psychological factors in the model.

Lastly, although the concept of consumer inertia was mentioned in plan choice studies (e.g. health insurance, 401(K) plan, Part D plan); it was not defined clearly. Consumer inertia

had been conceptualized as non-switching behavior and had been interchangeably used with plan stickiness or status quo bias. This study provided a theoretically driven definition of consumer inertia by incorporating information processing and suggested consumer inertia is different from plan stickiness or status quo bias. In this study, consumer inertia was defined as non-switching without sufficient information processing.

A novel approach to evaluate the adequacy of plan choice brought in a new viewpoint in understanding Part D beneficiaries' choices. Also, theoretical explanations of non-switching behavior helped us understand why plan stickiness happened and develop strategies to improve beneficiaries' passive non-switching behavior. For example, policy makers might focus on expanding more accessible and professional assistance in plan choice (i.e. improving opportunity) or providing personalized plan recommendations with cost assessment that may bolster beneficiaries' interest in plan switching (i.e. improving needs, perceived risk, and opportunity).

## **2.6. Research Objectives**

### Qualitative phase

1. Describe general perceptions of the process for switching part D plans and test proposed measures.

### Quantitative phase

2. Describe how switchers and non-switchers differ in psychological factors relating to the level of information processing and evaluate whether consumer inertia exists.
3. Test a model of Part D plan information processing using an adapted MOA model.
  - a. Hypothesis 1a: Needs are positively associated with motivation to process information.

- b. Hypothesis 1b: Perceived risk is positively associated with motivation to process information.
- c. Hypothesis 1c: Self-efficacy is positively associated with motivation to process information.
- d. Hypothesis 2 : Motivation is positively associated with level of information processing.
- e. Hypothesis 3 : Ability moderates the effect of motivation on level of information processing.
- f. Hypothesis 4 : Opportunity moderates the effect of motivation on level of information processing.

Figure 2.1. Terminology Map

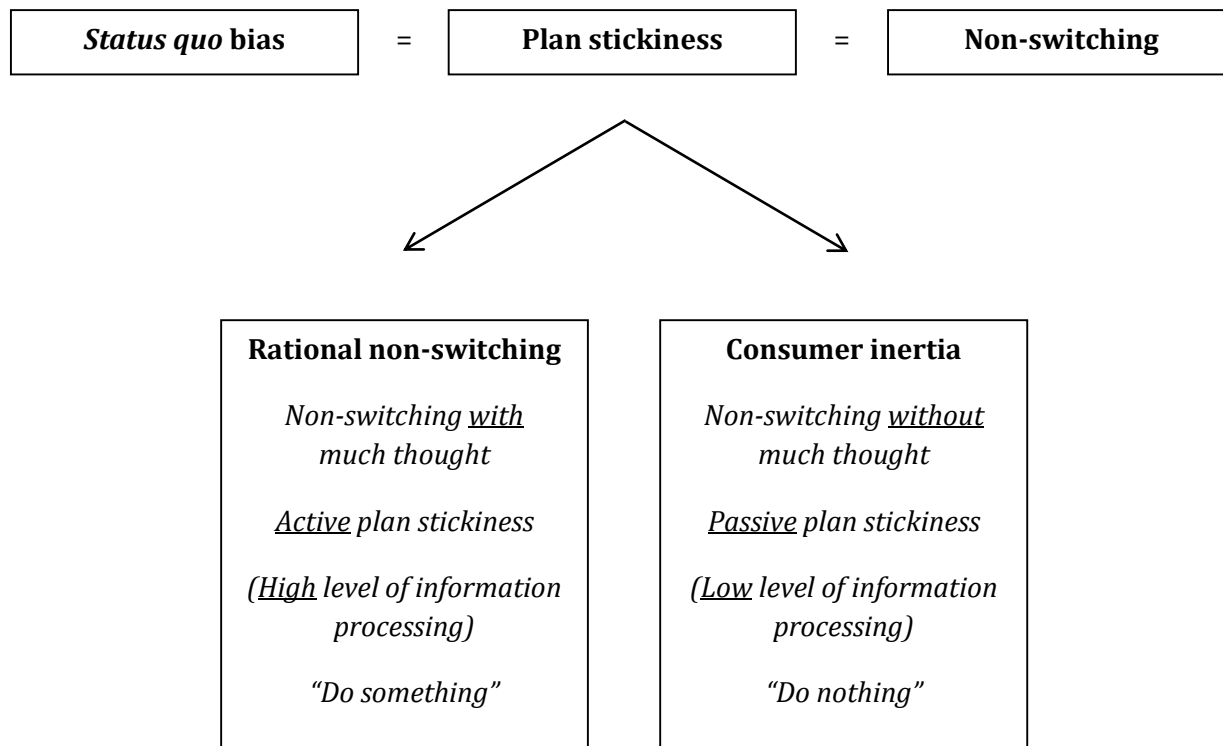


Figure 2.2. Motivation, Ability, Opportunity (MOA) Model by MacInnis and Jaworski (1989)

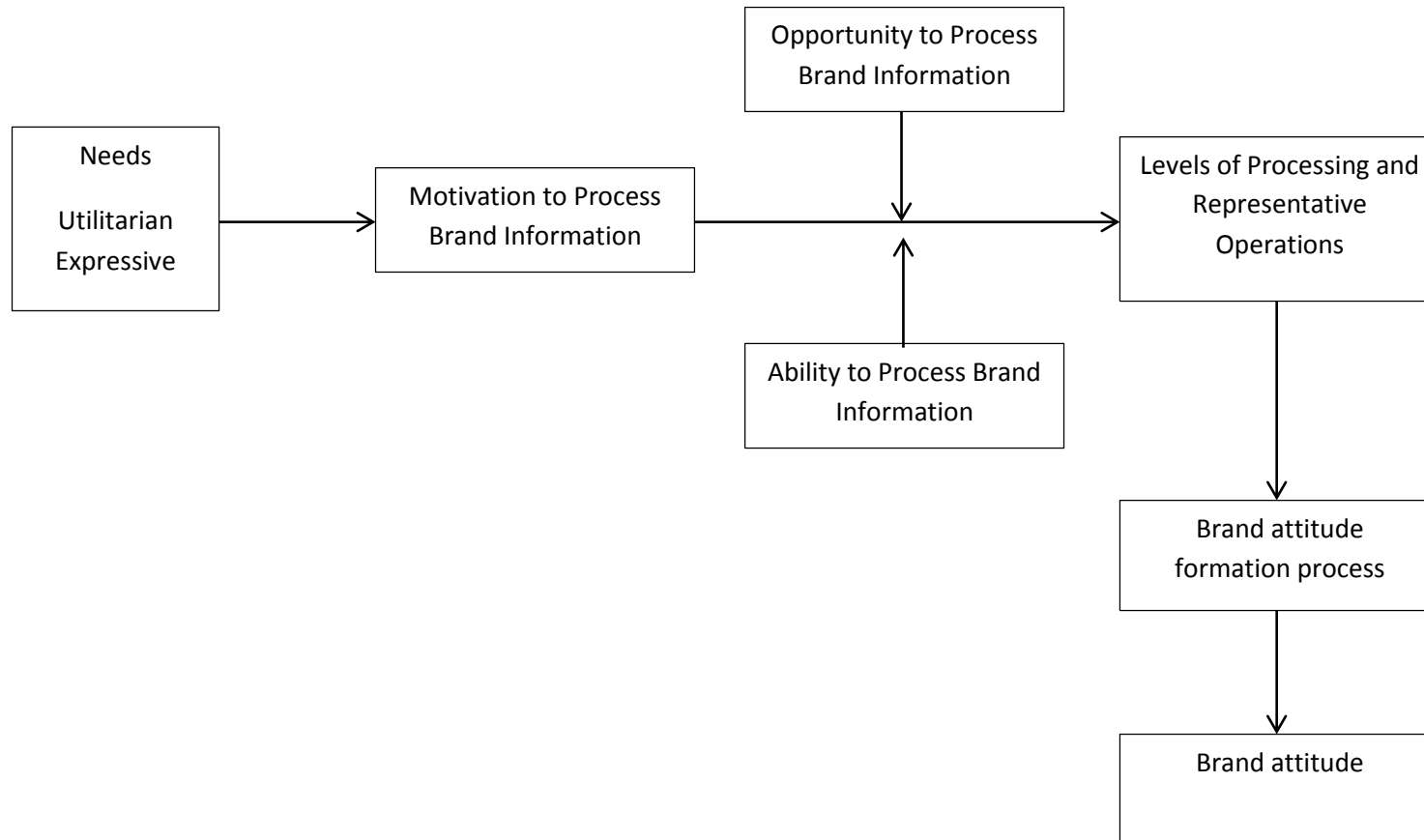
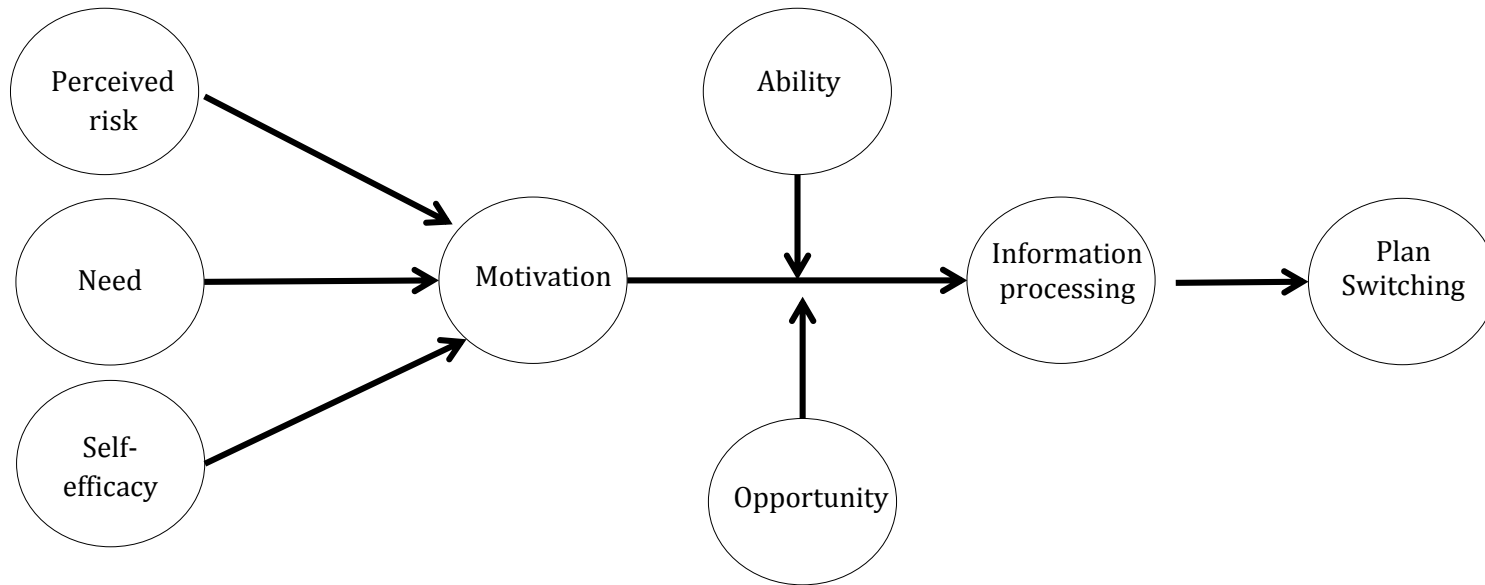


Figure 2.3. Conceptual Framework of Part D Plan Switching



## CHAPTER 3 METHODS

This chapter first provides a brief summary of the study design and rationale for the design choice and then describes the methods for the both the qualitative and quantitative phases. Approval from the University of Iowa Institutional Review Board (IRB) was obtained before initiating the study.

### **3.1. Study Design and Rationale of Design Choice**

The study had a cross-sectional descriptive design and used a mixed methods approach to achieve the study objectives. In the qualitative phase, focus groups and interviews were used to develop measures that were used in the following quantitative phase.

The qualitative analysis was a necessary step for this study because most constructs in the model of Part D plan information processing had not been measured in the context of Part D choices. Although they have been extensively studied in other areas such as communication and marketing, they were fairly new to plan choice. Since the influence of each dimension of the constructs varies across contexts, the development of measures that reflect the Part D context was critical in testing the model.

Moreover, consumer inertia, as a main concept of this study, was conceptually inconsistent in past studies and accordingly, has been measured in various ways. Although most Part D studies measured inertia by examining whether consumers switch or not (Heiss et al., 2010; Ketcham et al., 2012; Kling et al., 2011), this measure does not capture the way this study defines inertia, which is non-switching with a low level of information processing. The qualitative analysis helped clarify the concept of consumer inertia in the context of Part D and subsequently enabled the creation of an accurate measure. The questionnaires used in the

quantitative phase were created based on information obtained from both qualitative results and existing literature.

### **3.2. Qualitative Phase - Focus Groups and Interviews**

Focus groups and semi-structured interviews were conducted to achieve the first objective: to describe general perceptions about the process for switching part D plans and test proposed measures. The research questions that were expected to be answered by the qualitative analysis were: 1) how beneficiaries perceive the plan switching process; and 2) how beneficiaries process plan information.

#### 3.2.1. Discussion Questions

A total of twelve open-ended questions were prepared for the discussion: three engagement questions, four exploration questions along with four probing questions, and one exit question. The engagement question was to create a comfortable discussion environment and to bring up the discussion topic. The exploration questions included questions focusing on how they feel about the Part D switching process and Part D plan information. The exit question was for wrapping up the discussion and asking final thoughts. The discussion questions were reviewed by the University of Iowa IRB and are listed in Appendix A.

#### 3.2.2. Recruiting Participants

Participants were recruited for three focus groups (4-6 participants per group, n=14) and three interviews. The participant inclusion criteria were being enrolled in Medicare Part D in both 2012 and 2013, age greater than 65, and English speaking. A convenience sample was used for the focus groups; the participants for the first two focus groups were recruited from a church (n=4) and an assisted living facility (n=4) located in Johnson County, Iowa and participants for the other focus group were recruited from a senior center in Cedar County, Iowa (n=6). Three



interviewees were recruited from an independent living facility in Johnson County, Iowa. Considering that beneficiaries may feel differently about the Part D program depending on their capability to understand information, education level was used to form the focus groups. The two selected areas (Johnson County and Cedar County) represented populations with high and low educational attainment; the percent of the population with a bachelor's degree or higher was 50.6 percent in Johnson County and 19.1 percent in Cedar County (United States Census, 2012). As a comparison, the state wide average was 24.9 percent. Upon approval from administrators at each site (Appendix B), a recruiting flyer (Appendix C) was attached to the board and an announcement was made by the PI. Staff from each site were actively involved in the recruiting process.

Once a group of viable recruits was established, the PI called each of them to confirm their participation and to inform them of the time and location. The focus groups and interviews were held at the sites where the recruitment took place. A written confirmation letter was sent later (Appendix D) and a reminder call was made two days prior to the discussion. A twenty five-dollar gift card was used as an incentive to participate.

### 3.2.3. Conducting the Focus Group and Interviews

The two focus groups in Johnson County were led by the PI and one focus group in Cedar County was led by a researcher familiar with the local culture assisted by the PI. Focus groups lasted one hour and interviews lasted approximately 30 minutes. All focus groups and interviews were performed in May of 2013. Written consent forms approved by the University of Iowa IRB (Appendix E) and a brief demographic information questionnaire were completed by participants before beginning the discussion. In addition, a paper containing one open-ended question that asked participants to describe their plan decision-making process and an alternative

question with three scenarios (Appendix F) were given to test the feasibility of two potential measures of the level of information processing. Details of the measures are described in “*the level of information processing*” section. The discussion was audio-recorded.

#### 3.2.4. Analyzing Qualitative Data

The PI transcribed the audio-recorded discussions and coded written transcripts. Focus group data and interview data were combined for analysis because they were collected using the same discussion questions and their content was similar. First, broad descriptive codes were created based on the constructs from the proposed model (needs, perceived risk, self-efficacy, motivation, ability, opportunity, and level of information processing). The sub-codes were created based on the content of the quotes if needed. For example, under the code of opportunity, sub-codes of opportunity-facilitator and opportunity-barrier were created. Next, the data were sorted by the codes and the PI looked for the themes emerged from the codes and corresponding quotes. Lastly, two other researchers helped validate codes. One researcher who had knowledge of the model and the contexts reviewed the codes and a doctoral student who had qualitative analysis skills but limited knowledge of the model independently coded the transcripts. The second-coder who did not know the proposed model was selected to provide a different perspective in interpreting codes and quotes.

### **3.3. Quantitative Phase – Beneficiary Survey**

Next, the quantitative phase was conducted to achieve the second and third objectives: 2) describe how switchers and non-switchers differ in the level of information processing; and 3) test a model of Part D plan information processing using an adapted MOA model.

### 3.3.1. Operationalizing Constructs – Survey Item Generation

Items were generated from two sources, qualitative results and review of related literature. Since measures of involvement, perceived risk, self-efficacy, and motivation were well-established, items were generated by modifying existing scales and amended based on qualitative results. On the other hand, items measuring ability, opportunity, and the level of information processing were generated based on qualitative results and literature review because of the lack of established scales. Table 3.1 presents items, corresponding constructs, and item sources.

#### 3.3.1.1. Needs/Involvement

Utilitarian needs were operationalized as how much beneficiaries were involved in plan choice. As stated in chapter 2, utilitarian needs are analogous to involvement; thus, it is reasonable to measure needs using involvement scales. There have been several involvement scales that were designed to capture general product importance; however, scales for involvement in decision-making process were not available until Mittal (Mittal, 1989) developed a four item 7-point Likert purchase-decision involvement scale. The purchase-decision involvement is defined as “the extent of interest and concern that a consumer brings to bear upon a purchase-decision task” (Mittal, 1989) and is analogous to situational involvement.

By adapting Mittal’s scales, three 7- point scale items were created. The first item (A13) was “In selecting from the many drug plans available in the market, would you say that:” with response categories scaled from 1 (I don’t care at all which one I enroll) to 7 (I care a great deal which one I enroll). The second item (A14) was “Do you think that the many drug plans available in the market are all very alike or are all very different?” with response categories scaled from 1 (They are alike) to 7 (They are all very different). The last item (A15) was “How

important is it for you to choose the right drug plan?” with response categories scaled from 1 (Not at all important) to 7 (Extremely important). These items along with Mittal’s original items are listed in Appendix G, Table G1.

#### 3.3.1.2. Perceived risk

Perceived risk was operationalized as negative consequences Medicare beneficiaries would expect from choosing a Part D plan. It was measured by adapting the 7-point Likert perceived risk scale established by Dholakia (2001) that contained 4-item psychological ( $\alpha = 0.90$ ) and 3-item functional risk ( $\alpha = 0.79$ ) scales. Dholakia (2001) collapsed 5 types of perceived risk (finance, social, time, performance, and physical) to functional risk from Stone and Gronhaug (Stone & Grønhaug, 1993)’s scales.

The adapted scale had seven items: “When I think about choosing a Part D plan, I experience tension” (C4), “The thought of choosing a drug plan makes me feel uncomfortable” (A20), “I don’t worry a lot when choosing a drug plan” (A22), “The thought of choosing a drug plan fills me with anxiety” (A27), “When choosing a drug plan, I worry about how reliable the plan will be” (A19), “I am concerned that I might not get my money’s worth from a drug plan when choosing it” (A28), and “I am afraid that a drug plan will not provide me with the level of benefits that I expect” (A30). These seven items had response categories scaled from 1 (strongly disagree) to 7 (strongly agree) and the variable A22 was reversed-coded. The adapted items along with the Dholakia’s original items are listed in Appendix G, Table G2.

#### 3.3.1.3. Self-efficacy

Self-efficacy about processing plan information was measured using a shortened version of the information literacy self-efficacy scale developed by Kurbanoglu et al. (Kurbanoglu, Akkoyunlu, & Umay, 2006). Although a general self-efficacy scale is available, self-efficacy

scales have been developed in various contexts since self-efficacy is a task-specific construct; for example, self-efficacy for coping with cancer (Merluzzi, Nairn, Hegde, Martinez Sanchez, & Dunn, 2001), self-efficacy to regulate exercise and eating habits (Bandura, 2006), and teacher self-efficacy scale (Henson, Kogan, & Vacha-Haase, 2001). In terms of self-efficacy related to processing information, to our best knowledge, the information literacy self-efficacy scale developed by Kurbanoglu et al. (Kurbanoglu et al., 2006) was the only one available. The authors originally developed a 40-item scale that contained 6 subscales including defining the need for information, initiating the search strategy, locating and accessing the resources, assessing and comprehending information, interpreting, synthesizing, and using information, communicating information, and lastly, evaluating the product and process. It was reliable ( $\alpha = 0.84$ ) but the authors further refined the scale and ended up with a shortened form, a 17-item scale ( $\alpha = 0.82$ ). Six items were generated by adapting Kurbanoglu et al. (Kurbanoglu et al., 2006)'s items that were applicable to the Part D plan choice context.

The adapted six items were used to measure self-efficacy about processing plan information: "I feel confident to identify what drug plan information I should look at" (A23), "I feel confident to use print sources of information" (A24), "I feel confident to use internet sources of information" (A25), "I feel confident in my ability to identify a variety of potential sources of drug plan information" (C14), "I feel confident in my ability to interpret the visual information" (C15), and "I feel confident in my ability to seek outside help for choosing a drug plan." (C18). These six variables had response categories scaled from 1 (strongly disagree) to 7 (strongly agree). The adapted items along with Kurbanoglu's original items are listed in Appendix G, Table G3.

#### 3.3.1.4. Motivation

Motivation has been operationalized largely in three ways: measuring antecedents of motivation, consequences of motivation, and motivation itself. Personal relevance, representing the extent to which product matters to respondents (Batra & Michael, 1985) and involvement (Celsi & Olson, 1988; Celsi & Olson, 1988; Lutz, MacKenzie, & Belch, 1983; Petty & Cacioppo, 1986; Petty & Cacioppo, 1986) have been measured as factors affecting motivation. Attitudes (Petty & Cacioppo, 1986) as well as attention and comprehension (Celsi & Olson, 1988) have been measured as outcomes of motivation.

However, these measures have an obvious drawback of not measuring the motivation construct itself. Moorman (Moorman, 1990) developed five 7-point Likert scale items that directly measure motivation to process nutrition information ( $\alpha = 0.94$ ) and three 7-point Likert scale items that measure enduring motivation ( $\alpha = 0.94$ ). The first five items measure consumers' motivation level after the stimulus (i.e. information) is introduced while the following three items measure inherent motivation level that consumers have had before the stimulus is applied. The subjects of the present study were considered to be exposed to at least some information when they first enrolled in Part D; therefore, it would not be possible to observe beneficiaries' motivation level prior to the information was given (i.e. enduring motivation) in the present study.

Five items were adapted from Moorman (1990) to measure motivation: "I am interested in looking at information on my current drug plan" (A16), "I am interested in looking at information on alternative drug plan" (A17), "I intend to look at plan information while choosing a drug plan" (A21), "I would like to get more information on alternative Medicare drug plans" (D4), and "I would like to get more information on my current Medicare drug plan" (D5). These

five variables had response categories scaled from 1 (strongly disagree) to 7 (strongly agree). The adapted items along with Moorman's original items were listed in Appendix G, Table G4.

#### 3.3.1.5. Ability

Ability has been measured either as objective knowledge or subjective knowledge. Subjective knowledge is measured by asking people how much they feel they know relative to other people (Brucks, 1985; Johnson & Russo, 1984; Moorman, 1990). Objective knowledge represents actual knowledge and is measured by having participants take a knowledge test; for example, multiple-choice questions (Kanwar, Grund, & Olson, 1990), or matching questions (Moorman, 1990). Subjective knowledge may not reflect actual knowledge level; rather, it may demonstrate self-confidence (Park & Lessig, 1981), which can be captured by self-efficacy about processing information in this study. Therefore, this study measured only objective knowledge using true/false questions about Part D plan attributes and plan switching process. A total test score represents beneficiaries' level of knowledge and skills to process plan information.

Five true/false items to measure ability were generated: "Some plans charge different copayments for generic drugs and brand name drugs (A35)", "Some plans do not charge deductibles" (D13), "I don't have to pay anything for medication costs occurred during coverage gap if my plan has gap coverage" (D14), "I can switch plans anytime I want" (D15), and "Some drug plans automatically renew my enrollment" (D16). "Don't know" responses were treated as incorrect responses. Each correct answer was counted as two points so that ability scores ranged from 0 to 10 in order to make the scale range close to the 7-point scale items.

#### 3.3.1.6. Opportunity

Opportunity related to processing information has been measured through environmental distractions such as imposing time pressure (Roberts & Maccoby, 1973) and playing a humorous

video while simultaneously playing a serious abolition video (Festinger & Maccoby, 1964) .

While these measures tend to focus on the barrier aspect of opportunity, this proposed study will address both barriers and facilitators of opportunity. For example, the complexity of the Part D program may prevent beneficiaries from processing plan information even though they are willing and able to do so. On the other hand, beneficiaries may be able to process plan information with assistance from family members, friends, and health care professionals even though they do not have enough knowledge to do their own information processing.

Ten 7-point Likert scale items were generated for the opportunity: “It is hard to access information on drug plans” (A18), “The drug plan switching process is complex” (A26), “Having a lot of drug plans is confusing” (A29), and “I got help to understand Medicare drug plan information from: Family members, friends, pharmacists, doctors, SHIP, Medicare, Drug plans” (D9a-D9g). All items had response categories scaled from 1 (strongly disagree) to 7 (strongly agree) and items A18, A26, and A29 were reverse-coded.

#### 3.3.1.7. Level of information processing

Level of information processing was the dependent variable that was tested in the model. This study proposed 3 levels of information processing: low, medium, and high, which were collapsed from the original 6 levels proposed by MacInnis and Jaworski (MacInnis & Jaworski, 1989). Their 6 levels of information processing are summarized in Appendix H. Since it likely would be challenging for survey respondents to compare 6 different scenarios, 3 levels were created using the following criteria: whether information was processed and if so, whether both current and alternative plan information were compared. At the low level, individuals barely process information, which is aligned with the definition of consumer inertia in this study. At the medium level, individuals process information but process only parts of the information (e.g.



premium, brand name of plan, current plan information), which can be labeled as a partially informed decision. At the high level, individuals compare information between current and alternative plans for most plan aspects; this was labeled as a fully informed decision in this study. A description of the three levels of information processing is summarized in Table 3.2.

The ideal measure for information processing would be simple for respondents to answer but still capture variation in their level of information processing. However, since this construct has never been measured in the Part D context and previous studies have measured it in a laboratory setting, there were challenges to operationalizing this construct. Thus, this study proposed two different measures of level of information processing. Both proposed measures were tested in the focus groups and individual interviews to determine which was more feasible.

The first possible measure was a self-reported decision-making process. Moorman (1990) measured the level of information processing by counting how many times participants mentioned keywords during their decision-making process. He could physically observe participants' decision-making process because the study was conducted in a laboratory setting where the researcher could control and manipulate the environment. Since this study was not performed in a laboratory, it was proposed to measure the level of information processing by asking the open-ended question "Describe as thoroughly as you can how you chose your plan during the open enrollment period last year". This helped us to observe participants' self-reported decision-making process.

The second possible measure was a single 7- point scale item asking participants to choose the response category closest to what they did for plan choice last year. It was similar to the measure of information seeking and information dissemination used by Dholakia (Dholakia, 2001). Three scenarios, each of which represents low, medium, and high information processing,

were used as anchors in an item with 7 possible response categories where 1, 4 and 7 represented low, medium and high levels of involvement respectively. The proposed item with the three scenarios is pictured in Appendix F.

However, it was found from focus groups and individual interviews that neither of these two items captured the construct well. Participants were not able to provide sufficient descriptions for the first item and were confused with how to answer to the second item. Thus, instead of these two proposed items, two new sets of items were created to measure the level of information processing based on the qualitative results.

The first set had two scale items: “When you chose your 2013 drug plan last year, how much did you understand information about your current plan?” (A33) and “When you chose your 2013 drug plan last year, how much did you understand information about other alternative plans?” (A34). These two items had response categories scaled from 1 (Not at all) to 7 (Very well). These items reflected the qualitative results showing the different pattern in processing information between their currently enrolled plan and alternative plans.

The second set had three items: “with or without help, how thoroughly did you read information from drug plans (A32a), from Medicare (A32b), and from SHIP (A32c)”. These three items had response categories scaled from 1 (did not read) to 7 (thoroughly).

#### 3.3.1.8. Miscellaneous Items

In addition to items to measure the constructs in the model, items to investigate beneficiaries’ characteristics and their plan information were included in the survey. Age, gender, income, education, and living status were asked to obtain background demographic information. The number of medications regularly taken along with item asking to check all of chronic health conditions that applied to respondents were used to check their health status. The

type of Part D plan (MAPD or PDP), premium, drug cost for one-month supply of drugs, enrollment year, and number of past plan switching were asked to provide plan information. Six items to measure satisfaction were included (“Circle the number between 1 and 7 that best represents your level of satisfaction – overall, insurance company, coverage of plan, premium of plan, copayment of plan, customer services (B1a-B1f). Assistance with plan choice emerged as an important theme from the qualitative phase, so seven items on sources of assistance were included. “I got help to understand Medicare drug plan information from: Family members, friends, pharmacists, doctors, SHIP, Medicare, Drug plans” (D9a-D9g). This item was also used to measure the facilitator aspect of opportunity. Lastly, three screening questions were included: “Are you currently on Medicare?”, “Do you currently have insurance for your prescription drugs?”, and “Who provides your prescription drug insurance?” Those who answered “No” to the first two questions were directed to skip the rest of the survey. Those who did not check “A Medicare drug plan (Medicare Part D)” to the last screening question were directed to skip the survey as well in pilot survey.

### 3.3.2. Survey Development

#### 3.3.2.1. Study Population

For the quantitative phase of the study, the study population was voter registered Iowa residents who were enrolled in Medicare Part D in both 2012 and 2013, older than 65, and English speaking. Those who received a low income subsidy (LIS) were excluded.

#### 3.3.2.2. Sampling Strategy – Stratified Random Sampling

The sampling frame was the publically available 2012 voter registration database (n=2,133,467). Since the database did not contain health insurance information, we first identified those who were older than 65 and therefore likely eligible for Medicare using the date

of birth variable (born before 1948) ( $n=442,157$ ). Stratified random sampling was performed in order to maximize the variation in education since it may be related to the level of information processing. The elderly sample was grouped by quantiles of the percent of county residents with a bachelor's degree or higher education level (Q1: 11.9-15.4%; Q2: 15.5-17.3%; Q3: 17.4-20.2%; Q4: 20.3-50.6%). 2011 Census data were used to determine the county's education level. Next, the same number of subjects were randomly selected from each stratum using a PROC SURVEYSELECT command in SAS 9.3.

This study calculated targeted sample size using  $N:q$  rule,  $N$  being sample size and  $q$  being number of parameters, which has been known to be the rule of thumb of determining sample size that gives a high statistical power to SEM analysis. An ideal ratio is 20:1 (Kline, 2010, p12), making needed sample size for SEM analysis to be at least 340. Since we could identify only those who were older than 65 from voter registration data, we needed to take into account some Medicare related statistics to determine the number of subjects mailed questionnaires. The number of persons age 65 and over was 452,888 (Werner, 2011) and aged Part D enrollees were calculated to be 296,110 based on the information that aged Medicare beneficiaries were 86.5 percent of total Medicare beneficiaries (Henry J. Kaiser Family Foundation, 2009). Therefore, Part D enrollees among persons age 65 and over was 65.4 percent of the elderly ( $296,110/452,888$ ). With this statistics, a total of 520 elderly was needed to obtain 340 Part D beneficiaries. From past experiences with surveying Iowa residents, the response rate of survey was expected to be about 40 percent; thus, it was estimated that the survey would be mailed to at least 1,300 subjects. For pilot testing, 50 subjects were randomly selected from each education stratum, yielding 200 subjects.

### 3.3.2.3. Pretest of the Questionnaire

A draft of the questionnaire was shown to 20 older adults from a church and an independent living facility in order to check if the items were understandable and answerable. All subjects of the pretest were asked to complete the survey and the PI timed how long it took them to finish. All subjects completed the survey within 10 minutes. The PI also interviewed the subjects to determine whether any items were problematic and refined wording of the questionnaire based on subjects' comments.

### 3.3.2.4. Pilot test of the Questionnaire

The survey items were further refined through pilot testing with 200 subjects, which was about 15 percent of the number of subjects for main survey. The 12-page, 66-item questionnaire was mailed to them along with a cover letter and postage paid return envelope in June of 2013. Reminder post-cards were mailed to the subjects one week after the survey mailing in order to increase response rate. The pilot test responses were collected for three weeks.

The stratified sampling successfully yielded the responses that were varied in the highest education level (7 less than high school, 9 high school graduates, 7 college graduates, 6 graduate/professional school graduates). However, several problems emerged from the pilot survey. At first, it was difficult to obtain accurate information about the source of prescription drug insurance. Respondents appeared to lack a clear sense of what a Medicare drug plan (Part D) was and whether they were enrolled in Part D. For example, one subject responded "Medicare Blue Rx Standard (PDP)" to the question "what is the name of your drug plan?" but checked "others" instead of "Medicare drug plan" to the question "who provides your prescription drug insurance?" and then skipped the rest of the survey as directed. The pilot survey was designed to screen non-Part D beneficiaries out using the above questions. Inaccurate responses to screening

questions could result in significant loss of valid responses. To account for this problem, the main survey was broadened to have everybody with prescription drug insurance complete the survey.

Secondly, it was difficult to obtain a Part D plan name. The Part D plan name was needed to cross-check if the respondents provided correct information regarding their plans such as whether their plans were Part D plans or whether their plans were PDPs. The item “What is the name of your drug plan? Please provide FULL NAME of listed on your insurance card” was designed to guide respondents to plan name through the image of insurance card but only a few respondents could provide an exact plan name. Also, this item brought privacy concern due to the image of insurance card. To resolve this problem, this item was replaced with the multiple-choice item “which prescription drug plan do you have?” with a list of 18 plan names. Plans that were mentioned in focus groups and interviews as well as plans with a high enrollment rate in Iowa were included in this list.

Lastly, response rate was much lower than the estimated rate. A total of 29 surveys were returned, yielding a 14.5 percent response rate and of which, only 15 responses were Part D beneficiaries (7.5%). In order to increase the response rate, the survey was reduced from 12 pages and 66 items to 8 pages and 46 items, and items that might look personal were replaced or removed.

For the items to measure constructs in the model, one item for perceived risk (C4), three items for self-efficacy (C14, C15, C18), two items for motivation (D4, D5), and seven items for opportunity (D9a-D9g) were removed. These items were selected for removal because they were considered to be repetitious of other items (C4, D4, D5) or many pilot respondents skipped these questions (C14, C15, C18, D9a-D9g). In addition, four items to measure ability (D13, D14, D15,

D16) were replaced with two new items (“The coverage gap is being phased out” (A36) and “All plans cover the same list of drugs” (A37)) because most pilot survey respondents answered the four original items correctly, resulting in limited variation. Additionally, the seven satisfaction items were replaced with one 7-point scale overall satisfaction item and seven items for helper information was replaced with one open-ended question “who helped you?” Also, item asking to check all chronic health conditions was replaced with a 5-point self-reported health status item.

The number of subjects for main survey was adjusted as the pilot survey response rate (14.5%) was much lower than the expected rate (40%). The number of surveys mailed were adjusted accordingly based on re-estimated 25 percent expected response rate (at least 2,080 subjects needed), expecting that shorter survey could relieve the subjects’ response burden leading to higher participation (Dillman, 1991). For the main survey, 562 or 563 subjects were randomly selected from each education stratum using a PROC SURVEYSELECT command. This yielded 2,250 subjects. If response rate was lower than re-estimated 25 percent, reminder phone calls were planned to increase response rate.

#### 3.3.2.5. Administration of Survey

The refined 8-page, 46-item questionnaire (Appendix I) was mailed to 2,250 subjects from 99 counties in Iowa with a cover letter (Appendix J) and postage paid return envelope in early August of 2013. Reminder post-cards (Appendix K) were mailed to the subjects two days after mailing surveys. Pilot testing revealed that the one week delay between the initial subjects was too long as some respondents reported they already had discarded the survey or forgotten about it by the time the reminder postcard arrived, so the post-card reminder for main survey were mailed shortly after initial mailing. One month after mailing the reminder post-cards, the response rate was assessed. Due to the low response rate (9.3% at that time), reminder phone

calls were started in early September of 2013. If the phone was not answered, the PI attempted to contact up to four times. The phone call reminders were completed by mid-October, prior to the beginning of the open enrollment period for 2014. The subjects for phone call reminders were selected from the two lowest education strata of the survey pool (48 counties, the percent of county residents with a bachelor's degree or higher: 11.9-17.3%) because at that time there were higher response rates from subjects in counties with higher education levels (17.4-50.6%).

Among the 1,157 subjects in the two lowest education strata, 473 subjects who lived in counties with a response rate less than 10 percent and whose phone numbers were available in the voter registration data were contacted. A total of 43 subjects asked to have surveys mailed to them again, 56 subjects did not want to participate in the study, 13 subjects already returned surveys, 11 subjects still had surveys and were asked to return them, and 16 subjects were either deceased or in serious health conditions and therefore unable fill the survey according to their caregivers. The rest were either disconnected phone numbers or unanswered. The survey data were collected for approximately three months, between August 14, 2013 and November 5, 2013.

#### 3.3.2.6. Statistical Analysis

##### *3.3.2.6.1. Data Cleaning and Coding*

Returned surveys were dated upon return, entered into Microsoft Excel spreadsheet, and coded. Raw data were edited if respondent errors such as contradictory responses were found. For example, if a respondent checked "No" to the question "Do you currently have insurance for your prescription drugs? (A1)" but checked one of Part D plan names in following question "Which prescription drug plan do you have? (A11)", the response to A1 was edited to "Yes" according to the answer to the question A11. General missing value, skipped, and "don't know"



responses were coded 999, 888, 777, respectively and all were treated as missing values in the analysis.

#### *3.3.2.6.2. Descriptive Analysis*

Only Medicare Part D beneficiaries who did not receive Low Income Subsidies (LIS) were included in the analysis. They were identified using the questions “what kind of drug plan do you have? (A2)” and “Do you get help from Medicare or your state to pay your Medicare prescription drug costs (i.e. Low Income Subsidy)? (B6)” Descriptive statistics (e.g. frequency, mean, median, minimum, maximum) were used to describe the sample characteristics and constructs in the model. Some continuous variables (age, number of medications, premium, cost for one-month supply of drugs, enrollment year) were categorized for better comparison—both statistics of continuous and categorized variables are reported in the results chapter.

Responses for two open-ended items were coded based on its contents: “who helped you?” (A31a) and “Why did you switch plans?” (A5a).

#### *3.3.2.6.3. Confirmatory Factor Analysis (CFA)*

Confirmatory Factor Analysis (CFA) was used to assess whether the items generated above explained the specified factors well. The CFA was also used to establish a measurement model prior to the structural equation modeling (SEM). A total of 17 variables for the baseline factor structure among needs, perceived risk, self-efficacy, motivation, and the level of information processing were included in this analysis. Due to a high proportion of missing values for the second set of information processing measures, the present study used the first set of two 7-point scale items (A33 and A34) to measure the level of information processing.

The CFA was conducted using the PROC CALIS procedure and the modeling language LINEQS in SAS 9.3. Although Maximum Likelihood (ML) estimator was a default parameter

estimator in the PROC CALIS procedure, the present study used Full Information Maximum Likelihood (FIML) estimator to deal with the missing data.

The FIML has been known to be a more robust and efficient technique to deal with the missing data compared to other missing data methods including listwise deletion, pairwise deletion, and multiple imputation (Arbuckle, 1996; Enders & Bandalos, 2001; Larsen, 2011; Yung & Zhang, 2011). The ML and the FIML are theoretically identical; therefore, the two methods produce the same results from the data without missing values. However, the two methods handle the missing data differently; the ML deletes any observations with missing values on variables in the model (i.e. incomplete observations) whereas the FIML utilizes the information from them.

Conceptually, the FIML borrows information from observed part of the data (i.e. variables without missing values) to estimate parameters of unobserved part of the data (i.e. variables with missing values), which is similar to the idea of data imputation. The FIML computes the likelihood functions at the level of individual observation. For the complete observations, the FIML computes the likelihood functions using all variables in the model as the ML does. For the incomplete observations, the FIML uses only variables that have values to compute the likelihood functions. The information from the incomplete observations is used to estimate parameters of variables without missing values and also used for variables with missing values through their correlations with variables without missing values. This method has been known to increase the efficiency of ML parameter estimates (SAS Institute Inc., 2011).

Model fit statistics were used to determine whether the proposed model explained the data well. For Chi-square test, the null hypothesis is an exact fit of the model; therefore, we want the null hypothesis to fail to reject ( $p > 0.05$ ). However, caution should be taken in making a

decision on model fit solely relying on chi-square statistics because these are highly sensitive to sample size. Thus, the present study evaluated four more fit statistics.

Goodness of Fit Index (GFI) and Standardized Root Mean Square Residual (SRMSR) were used to assess how well the proposed model reproduced the data (i.e. absolute fit indexes). The GFI estimates the proportion of variation in the data explained by the model, showing if model explains the data better than no model at all. Good model fit for the GFI is greater than 0.90 and that for the SRMSR is less than 0.08 (Kline, 2010). The Comparative Fix Index (CFI) was used to compare the proposed model with an alternative model (i.e. incremental fix index). The CFI shows if the proposed model better explains data than a baseline model and is independent of sample size. Acceptable model fit for the CFI is greater than 0.90 (Kline, 2010). Lastly, Root Mean Square Error of Approximation (RMSEA) was used to evaluate the model taking into account of parsimony, that is, the RMSEA penalizes the complexity of the model. The model whose RMSEA statistics greater than 0.1 should not be used and the RMSEA value less than 0.5 indicates close fit. The RMASEA value between 0.05 and 0.08 indicates fair fit and the value between 0.08 and 0.10 indicates mediocre fit (Hu & Bentler, 1995).

Once the model is found to fit well to the data, the parameters can be interpreted. The proposed model was found to have an adequate fit to the data but four variables were poorly loaded on their specified factors, and the proposed model was modified accordingly. The present study included variables whose factor loading were greater than 0.65 in the final measurement model as Kline (2011) suggested. The parameter estimates of the proposed model and the modified final model will be discussed in chapter 4. The descriptive information for these final measures together with the reliability statistics were calculated.

#### *3.3.2.6.4. Comparison Between Switchers and Non-switchers - Objective 2*

Next, past year switchers and non-switchers were categorized using the question “Did you switch your drug plan last year?” (A5) and were compared in terms of the factors in the model and background information. Basic descriptive analysis including mean, median, and frequency were performed, and the t-test and chi-square tests were conducted to determine whether any differences between switchers and non-switchers were statistically significant. A comparison was also made between those who had switched plans any time since their initial enrollment and those who had never switched plans. The two were identified using the question “How many times have you switched drug plans since you first enrolled” (A4). Those who answered “none” were categorized as switchers and those who answered “once” or “twice” or “three times or more” were categorized as never-switchers.

In addition, the distribution of past year switchers and non-switchers across quality of plan choice decision was explored by creating a 2 x 3 cross table (switchers: non-switchers x low: medium: high level of information processing). Consumer inertia was operationalized as non-switchers with a low level of information processing.

#### *3.3.2.6.5. Structural Equation Modeling (SEM) – Objective 3*

As a next step, the hypothesized paths among factors in the model of Part D plan information processing were tested using SEM. The structural model consisted of the baseline factor structure among needs, perceived risk, self-efficacy, motivation, and the level of information processing (hypotheses 1a, 1b, 1c, 2), and the moderating effects of ability and opportunity on the baseline structure (hypotheses 3 and 4). As the baseline structure needs to have a good model fit in order to proceed with examining the moderating effects, the model fit

statistics of the baseline model were evaluated and the first four hypotheses (1a, 1b, 1c, and 2) were tested first.

The hypotheses that were tested by the SEM are as follows:

- a. Hypothesis 1a: Needs are positively associated with motivation to process information.
- b. Hypothesis 1b: Perceived risk is positively associated with motivation to process information.
- c. Hypothesis 1c: Self-efficacy is positively associated with motivation to process information.
- d. Hypothesis 2 : Motivation is positively associated with level of information processing.
- e. Hypothesis 3 : Ability moderates the effect of motivation on level of information processing.
- f. Hypothesis 4 : Opportunity moderates the effect of motivation on level of information processing.

SEM was chosen to test the relationships among factors in the model of Part D plan information processing because of its efficiency and accurate estimation. It allows testing of multiple relationships among multiple latent variables at the same time; running multiple regressions would be required if an ordinary linear regression technique was used. SEM also provides factor loadings of observed variables on latent variables that would require running a separate factor analysis if the SEM technique is not used. In addition, SEM controls for measurement error that can contaminate the main effect, making estimation more accurate.

Although SEM still has several drawbacks: requiring a large sample size, difficulty in handling

categorical data, and omitted variables, its advantages outweigh disadvantages in testing the model of Part D information processing that contains multiple latent variables and mostly continuous observed variables.

The SEM was performed with the same modeling setting as the CFA had (PROC CALIS procedure of SAS 9.3, modeling language LINEQS, FIML estimator) and the same model statistics (chi-square, SRMSR, CFI, GFI, RMSEA) were evaluated. The proposed SEM model was found to be poorly fitted to the data, suggesting that model modification should be considered.

When the correlations among factors were examined using the CFA, perceived risk was found to be more strongly correlated with the level of information processing than motivation, and so was self-efficacy, while needs were similarly correlated with level of information processing and motivation. Such factor correlation structure suggested that there might be direct relationships among perceived risk, self-efficacy and level of information processing present. Thus, after the unsatisfactory results of the evaluation of the proposed factor structure, the proposed model was re-estimated by adding direct paths from the independent variables (perceived risk and self-efficacy) to the outcome variable (level of information processing).

By adding two direct paths from the perceived risk and self-efficacy to the level of information processing, the model adequately fitted to the data and subsequently, the parameters were interpreted. The model fit statistics and the parameters of both the proposed SEM model and the modified final SEM model are discussed in chapter 4.

Next, multiple group SEM analysis was planned to examine the moderating effects of ability and opportunity on the baseline factor structure. Multiple group SEM analysis simultaneously estimates a model across all groups. The sample is divided into multiple groups

using the moderating variable and a chi-square difference test is performed to compare the constrained model in which all hypothesized paths are constrained to be equal across the groups (i.e. assuming no interaction effect) with the unconstrained model in which the hypothesized path to be moderated is permitted to vary freely across the groups (i.e. assuming interaction effect). If the unconstrained model demonstrates a significantly lower chi-square value than the constrained model and if the effect is in the expected direction, the moderating effect is evident (Gu & Wu, 2011).

Unfortunately, this analysis could not be performed due to the limited sample size in this study. The analysis plan was to conduct two separate multiple group SEM analyses. One analysis was for two groups of low-ability (ability score 0 and 2) and high-ability (ability score 4 and 6), and the other for two groups of low-opportunity and high-opportunity divided using a median-split on composite opportunity scale. All subgroups had sample sizes of about 100, which yielded insufficient statistical power for the analyses. Thus, this multiple group analysis was left for future study.

Table 3.1. Summary of Items

Factor		Items	Scales	Source of items
Needs	A13	In selecting from the many drug plans available in the market, would you say that:	I don't care at all which one I enroll (1) – I care a great deal which one I enroll (7)	Mittal (1989)
	A14	Do you think that the many drug plans available in the market are all very alike or are all very different?	They are alike (1) – They are all very different (7)	
	A15	How important is it for you to choose the right drug plan?	Not at all important (1) – extremely important (7)	
Perceived risk	A20	The thought of choosing a drug plan makes me feel uncomfortable.	Strongly disagree (1) – strongly agree (7)	Dholakia (2001)
	A22	I don't worry a lot when choosing a drug plan.	Strongly disagree (1) – strongly agree (7) ( <i>Reversed</i> )	
	A27	The thought of choosing a drug plan fills me with anxiety.	Strongly disagree (1) – strongly agree (7)	
	A19	When choosing a drug plan, I worry about how reliable the plan will be.	Strongly disagree (1) – strongly agree (7)	
	A28	I am concerned that I might not get my money's worth from a drug plan when choosing it.	Strongly disagree (1) – strongly agree (7)	
	A30	I am afraid that a drug plan will not provide me with the level of benefits that I expect.	Strongly disagree (1) – strongly agree (7)	
Self-efficacy	A23	I feel confident to identify what drug plan information I should look at.	Strongly disagree (1) – strongly agree (7)	Kurbanoglu et al. (2006)
	A24	I feel confident to use print sources of information.	Strongly disagree (1) – strongly agree (7)	
	A25	I feel confident to use internet sources of information.	Strongly disagree (1) – strongly agree (7)	



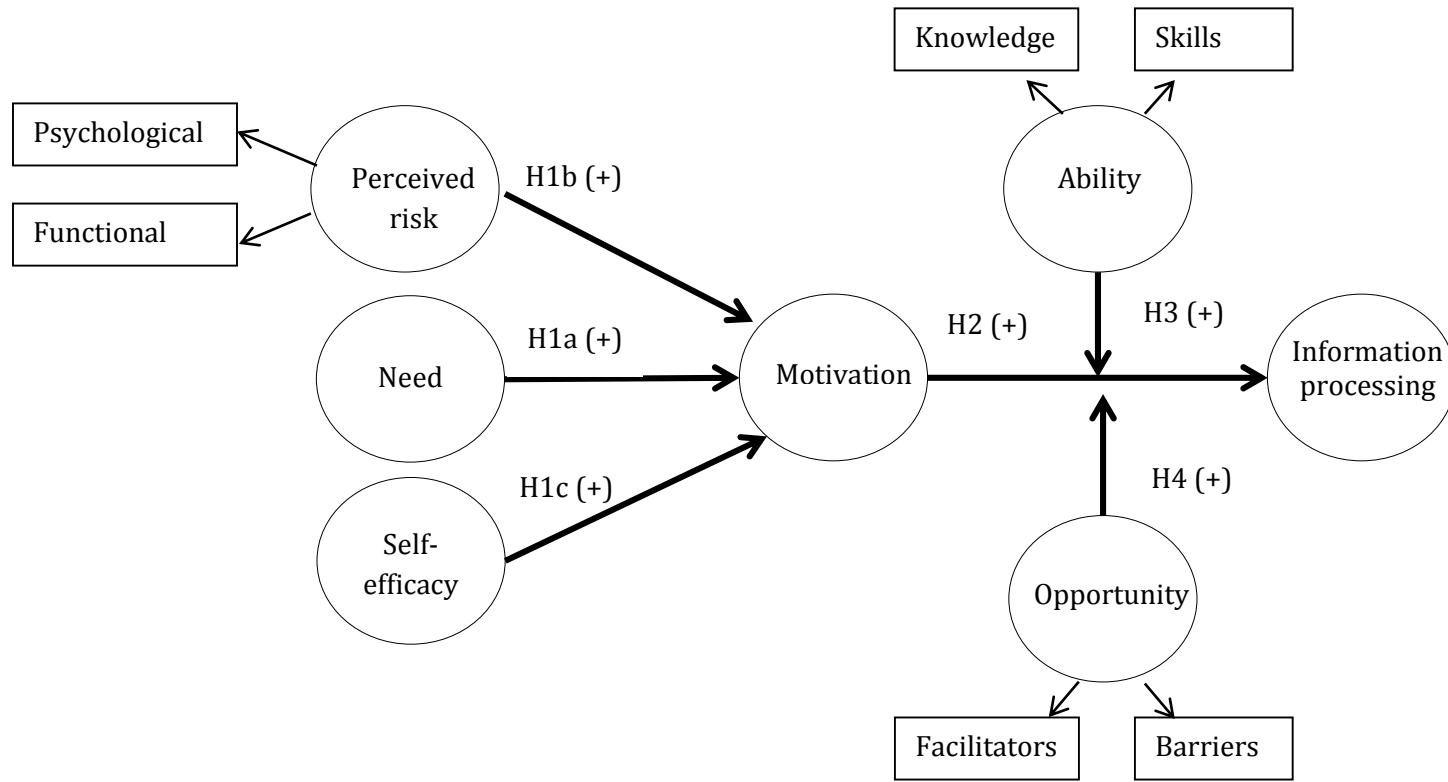
Table 3.1. Continued

Motivation	A16	I am interested in looking at information on my current drug plan.	Strongly disagree (1) – strongly agree (7)	Moorman (1990)
	A17	I am interested in looking at information on alternative drug plan.	Strongly disagree (1) – strongly agree	
	A21	I intend to look at plan information while choosing a drug plan.	Strongly disagree (1) – strongly agree (7)	
Opportunity	A18	It is hard to access information on drug plans.	Strongly disagree (1) – strongly agree (7) <i>(Reversed)</i>	Qualitative results
	A26	The drug plan switching process is complex.	Strongly disagree (1) – strongly agree (7) <i>(Reversed)</i>	
	A29	Having a lot of drug plans is confusing.	Strongly disagree (1) – strongly agree (7) <i>(Reversed)</i>	
Ability	A35	Some plans charge different copayments for generic drugs and brand name drugs.	True (1), false (2), don't know (9)	Qualitative results
	A36	The coverage gap (donut hole) is being phased out.	True (1), false (2), don't know (9)	
	A37	All plans cover the same list of drugs.	True (1), false (2), don't know (9)	
Level of information processing	A32a	With or without help, how thoroughly did you read information from drug plans?	Did not read (1) – read thoroughly (7)	Qualitative results
	A32b	With or without help, how thoroughly did you read information from Medicare?	Did not read (1) – read thoroughly (7)	
	A32c	With or without help, how thoroughly did you read information from SHIP?	Did not read (1) – read thoroughly (7)	
	A33	When you chose your 2013 drug plan last year, how much did you understand information about your current plan?	Not at all (1) – very well (7)	
	A34	When you chose your 2013 drug plan last year, how much did you understand information about other alternative plan?	Not at all (1) – very well (7)	

Table 3.2. Description and Examples of Proposed Level of Information Processing

Level of information processing	Informed choice	Information processed	Examples in Part D plan switching
Low	Consumer inertia	No	<ul style="list-style-type: none"> <li>Stayed with the plan because I do not care.</li> <li>Stayed with the plan because the switching process bothers me.</li> </ul>
Medium	Partially informed choice	Yes, only part	<ul style="list-style-type: none"> <li>Stayed with the plan because it has well-recognized brand name (e.g. AARP).</li> <li>Stayed with the plan because it has the lowest premium.</li> </ul>
High	Fully informed choice	Yes	<ul style="list-style-type: none"> <li>Stayed with the plan because it charges the lowest out-of-pocket costs among plans I researched using Part D Plan Finder.</li> <li>Stayed with the plan because it gives the best protection. I may pay more but I think it is worth it.</li> </ul>

Figure 3.1. Proposed Model of Part D plan Information Processing



## CHAPTER 4 RESULTS

This chapter presents the findings from a qualitative analysis of three face-to-face interviews and three focus groups with Part D beneficiaries conducted in May of 2013 along with a quantitative analysis using mailed survey data collected for three months in 2013.

### **4.1. Qualitative Phase - Focus Groups and Interviews**

#### 4.1.1. Recruiting Participants

Participants were recruited for three focus groups (3-6 participants per group, n=14) and three interviews. The participants for the two focus groups were recruited from a church (n=4) and an assisted living facility (n=4) located in Johnson County, Iowa and participants for the other focus group were recruited from a senior center in Cedar County, Iowa (n=6). Three interviewees were recruited from an independent living facility in Johnson County, Iowa (n=3).

#### 4.1.2. Participant Characteristics

Table 4.1 presents the characteristics of focus group and individual interview participants. Of 17 participants, the majority were between age 75 and 85 (n=11), were female (n=10), and received education higher than college (6 college graduates; 4 graduate/ professional school graduates). One participant believed he had a Part D plan and signed up for the study, but during the focus group it became apparent that his plan was not a Part D plan. He was excluded from the analysis. A total of 12 participants provided the specific name for their Part D plans. As none of participants knew if their plans were PDPs or MAPDs, the PI looked up that information using plan names (8 PDPs; 4 MAPDs). Two participants had additional prescription drug plans through retirement programs. None of participants switched plans in 2012.

### 4.1.3. Qualitative Data Analysis

Information from 16 participants was included in the analysis. Themes extracted from the data were organized based on seven components of the adapted MOA model (needs, perceived risk, self-efficacy, motivation, ability, opportunity, and information processing). Table 4.2 presents the summary of themes and corresponding representative quotations.

#### 4.1.3.1. Needs

Two themes were identified for the component of needs. One was the lack of product differentiation. Participants stated that plans were not very different and there was no reason to bother switching plans (“If you do compare them, they are so much alike. I can’t see where the advantage of changing is.”). The other theme was the lack of product importance. Participants stated that although they read plan information, the plan changes they noticed were not significant enough to make them consider switching plans (“Premium went up a little bit. But that was expected because everything is going up too.”).

#### 4.1.3.2. Perceived risk

Two themes were identified for the component of perceived risk. One theme was a general fear of making changes. Participants expressed the anxiety about making changes in general. This anxiety did not necessarily relate to Part D plan switching, rather it was the feeling they generally had for any changes (“I have always felt that if you constantly switching and changing, you’ll never really sure of where you are at and what you’re doing.”). The other theme was a fear of losing coverage. Participants were concerned about losing some coverage if they switched (“You’re fearful that if you didn’t read it closely enough, you’re fearful to lose some coverage or something you basically need.”).

#### 4.1.3.3. Self-efficacy

Participants were varied in their degree of confidence with Part D plan choices. Some were very confident with understanding plan information (“I don’t need all this help, you’re sitting with the wrong person, I make my own decision.”) whereas others were not.

#### 4.1.3.4. Motivation

Participants were also varied in their willingness to process plan information. Some were very positive about looking into plan options during the upcoming open enrollment period whereas others were not.

#### 4.1.3.5. Ability

Participants had different levels of knowledge and skills related to Part D plan choices. Some participants understood terms such as drug tiers while some participants did not know even what Part D was.

#### 4.1.3.6. Opportunity

Opportunity had two sub-codes of facilitator-opportunity and barrier-opportunity. For the facilitator-opportunity, three themes were extracted. One was the social support or social interaction. Participants varied in their degree of involvement in socializing with others (“I think we do check a lot to see it what different plans cover and what type of plans that person has [when socializing at senior center]”). The second theme was the access to helpers. Participants were varied in how easily they could access helpers such as a SHIP consultant or family members. The third theme was the quality of the helpers. Some participants received help from those with professional knowledge (e.g. son who was a pharmacist, friend who was a SHIP consultant) whereas other participants received help from those without professional knowledge.

For the barrier-opportunity, two themes were extracted. The one was confusing information and the other was too many choices. Participants expressed confusion about information given to them (“Many of those brochures they send out are very confusing.”) and were overwhelmed by a lot of choices (“We don’t need 10 choices put in front of us. We need help interpreting those choices.”).

#### 4.1.3.7. Information Processing

Three themes were extracted for the component of information processing. One was the amount of information processed. There were participants who did not process information (“I just stick with it. I didn’t do anything.”), those who processed part of the information including brand name (“I have a faith in, I like Blue Cross Blue Shield. And I do not like United Health.”), and those processed information about both current and alternative plans (“We determined what I had currently was better than those two [other] plans.”). Another theme that emerged was different information processing in terms of current plan and alternative plans. Most of participants who looked for and processed plan information focused on their current plan and it was less common to find those who processed information about alternative plans.

Lastly, there was a different pattern found in the way and the purpose of receiving help in processing plan information. Some participants did nothing before their helpers initiated processing plan information (“Before [my] daughter was involved in this process, I did nothing”) while other participants initiated processing plan information and asked for help only to confirm their understanding was right (“[I asked for help] just to, for the reassurance, that we’re making the right decision”).

In addition to these themes, some valuable information was also worth noting. Participants had different attitudes toward pharmacists being the source of helping their plan

choices between Cedar County and Johnson County. Participants from Cedar County, which represented a lower income rural area, mentioned counting on their pharmacists (“We do live in a small town, we rely on our pharmacist”) whereas those from Johnson County did not think a pharmacist could help them.

## **4.2. Quantitative Phase – Beneficiary Survey**

### 4.2.1. Usable Survey Response Rate

Surveys were mailed to 2,250 voter registered Iowa residents who were older than 65. After two mailings consisting of one survey and one reminder postcard followed by one reminder phone call to low education level counties with a low response rate, a total of 546 surveys were returned. Of the 546 returned surveys, 69 respondents expressed their wishes not to participate in the study and the remaining 477 responses were usable. Of the 2,250 mailed surveys, a total of 105 were returned to sender as undeliverable as addressed. Of the 2,145 delivered surveys, caregivers or family members of 27 survey recipients informed us of recipients’ deaths or serious health conditions. These 27 surveys were considered ineligible. The usable response rate was calculated by dividing the 477 usable responses by the 2,118 eligible surveys, yielding a 22.5 percent usable response rate. The process of calculating response rate is diagramed in Figure 4.1.

### 4.2.2. Part D Beneficiaries

Next, survey data were cleaned by editing contradictory responses. The contradictory responses were changed based on their answers to the question “which prescription drug plan do you have? If your plan is not listed, please provide your plan name below” (A11) or the question “what kind of drug plan do you have?”(A2). Chances to specify their plans were given to the respondents who checked “others” to the question A2. A total of 22 responses that skipped or



answered “No” to the question “Do you currently have insurance for your prescription drugs?” were changed to “Yes” because they provided their drug plan names. A total of 37 responses that skipped or checked “others” for the question A2 were changed to having a Medicare drug plan because they had Part D plans based on their plan names. Conversely, three responses were changed from Medicare drug plan to former employer because the two specified they had Tricare for life in the question A11 and the one specified their drugs were covered through spouse’ former employer in the question “we welcome your comments about prescription drug plans” (B9). Two responses were changed from MAPD to PDP and one response was changed from PDP to MAPD based on their provided plan names.

Those who had only Medicare Part D as their prescription drug coverage, did not receive LIS, and were enrolled in Part D in both 2012 and 2013 were included in further analysis. Medicare Part D beneficiaries were identified using a question “what kind of drug plan do you have?” Out of 477 usable responses, 312 marked “Medicare drug plan that I bought.” Of the 312 Part D beneficiaries, 8 responses were excluded because respondents also marked “plan provided by current employer” or “plan provided by former employer” or “Veterans Administration”. Of the remaining 304 responses, 6 responses were excluded because respondents also had TRICARE or other supplemental insurance that covered prescription drugs. These exclusions yielded 298 people with Part D as a single source of prescription drug coverage.

Next, LIS recipients were identified using the question “do you get help from Medicare or your state to pay your Medicare prescription drug costs (i.e. Low Income Subsidy)?” There were 277 non-LIS Part D beneficiaries. Then, Part D beneficiaries who newly enrolled in 2013 were identified using the question “what year did you first enroll in a drug plan?” Eleven responses were excluded because respondents were not enrolled in 2012 and 2 respondents who

were younger than 65 were excluded. As a result, the final sample size for analysis was 264 (12.5 percent of the valid delivered surveys).

#### 4.2.3. Description of Part D Sample

Tables 4.3 and 4.4 present the characteristics of the Part D sample. Nearly a half of the sample (49.62%) had an age between 65 and 74, and about one quarter (13.64%) were the older elderly age greater than 85. The mean and median ages were 75.88 and 74 years old respectively. The oldest respondent was 97 years old. There were almost twice as many female respondents (62.12%) as male respondents (35.98%), and the majority lived with their spouse (68.56%). Respondents had a relatively high level of education with 90.53% having at least a high school education. Nearly a half of the sample (47.34%) had an income higher than \$35,000. Respondents tended to be healthy as only about one fifth (18.18%) of the sample reported their health status was fair or poor. The mean and median for the number of regularly taken medications were 4.18 and 4 respectively. The maximum number of medications used regularly was 14 medications, but most respondents regularly took 1-5 medications (61.36%).

The majority of the sample (72.35%) had Prescription Drug Plans (PDPs). The respondents mostly paid less than \$50 monthly premium for their Part D plans (73.87%); the mean and median amount of the monthly premium were \$46.53 and \$37.6 respectively, and the highest premium was \$539.1. Only one fourth of the sample (25.38%) paid more than \$50 for a one-month supply of medications; the mean and median out of pocket drug cost were \$53.50 and \$25 respectively, and the highest out of pocket drug cost was \$465. Only 17.8 percent of the sample switched plans in 2012 and about 60 percent had not switched plans since their initial enrollment. Nearly a half of the sample (49.62%) received help in choosing a 2013 Part D plan.

Slightly more female respondents (n=77, 58.78%) received help than male respondents (n=54, 41.22%).

Table 4.5 presents the descriptive results for the question “why did you switch plans?” (A5a); 87 percent of those who answered that they switched plans provided reasons for their switch. The most frequent reason for switching was to seek a cheaper plan to save money (65.85%) followed by better coverage (12.20%). Table 4.6 presents the descriptive results for the question “who helped you?” (A31a); 106 respondents out of 131 who answered that they received help in plan selection provided who helped them. The most popular source of the help was insurance agents (36.79%) followed by SHIP consultants (27.39%) and family members (19.81%). A few respondents received help from pharmacists (9.43%). Most of both gender groups received help either from SHIP or insurance agent (67% of female and 62% of male) but male respondents appeared to prefer receiving help from insurance agents (n=17, 43.59%) rather than SHIP (n=7, 17.95%) whereas female respondents received help at similar levels from SHIP (n=20, 31.75%) and insurance agent (n=22, 34.92%) (Table 4.7).

Table 4.8 shows how much beneficiaries were aware of changes in their plans and how much they knew about how Part D works. About a half of the respondents reported that their plans increased their premiums in 2013 (47.73%), one third did not know whether their plans changed any details (31.82%), and more than one quarter of the respondents (17.42%) said their plans increased the copayments. As far as beneficiaries’ knowledge goes, beneficiaries had some knowledge about different copayments charged for generic and brand name drugs (64.77%), and the formulary (63.26%), but they appeared not to be well-informed about policy change. Only about 30 percent of the respondents knew the coverage gap was going to be phased out.

#### 4.2.4. Develop a Measurement Model Using Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) assessed whether the items explained the specified factors well. The following structural equation modeling analysis used the items confirmed through this analysis. The adapted MOA model of the present study hypothesized that motivation predicted the level of information processing, and ability as well as opportunity moderated this association. The model also proposed three antecedents of motivation (needs, perceived risk, self-efficacy). The multi-group SEM analysis examines if the model parameters and fit indexes are different across groups that are divided by the value of moderating factors; therefore, the evaluation of the model fit prior to introducing moderating variables is recommended. This section reports the confirmed items for the baseline structure among three motivation antecedents, motivation, and the level of information processing. This section also reports the descriptive statistics of two moderating factors. Table 4.9 presents the descriptive information of 17 variables for the five factors (needs, perceived risk, self-efficacy, motivation, level of information) and 3 variables for the opportunity. The description of three variables for the ability is presented in Table 4.8 and the frequency distribution for each of the item is presented in Appendix L.

The number of observations included in the analysis was 264, of which 200 observations contained full information and 64 observations contained incomplete information. The overall goodness-of-fit with the data was acceptable ( $\chi^2=303.07$ , d.f.=109,  $p<0.001$ , SRMSR=0.07, RMSEA=0.08, GFI = 0.97, CFI=0.86) (Table 4.10). The model fit chi-square was 303.07 (d.f.=109,  $p<0.001$ ), showing that statistically the proposed CFA model was rejected. The RMSEA estimate was 0.08 and the SRMSR value was 0.07, both indicating an adequate fit. The GFI was 0.97, which also indicated a good model fit but Bentler's CFI was less than 0.9

indicating an inadequate fit. Overall, the model seemed to be reasonable for the data, allowing interpretation of parameter estimates. Although all items were significantly loaded on their specified factors ( $p < 0.05$ ), there were four items (A14, A22, A19, A25) whose factor loadings were below 0.65, suggesting that model re-specification should be considered. Consequently, the proposed CFA model was modified by dropping those four items and a 5-factor, 13-item model was tested again.

For the modified model, the number of observations included in the analysis was 264 consisting of 220 complete observations and 44 incomplete observations. The overall goodness-of-fit with the data was slightly improved ( $\chi^2 = 158.76$ , d.f. = 55,  $p < 0.001$ , SRMSR = 0.06, RMSEA = 0.08, GFI = 0.98, CFI = 0.91) and all fit indexes indicated a good model fit except for chi-square value (Table 4.10). Table 4.11 presents the covariance matrix of 13 variables used for this analysis.

Table 4.12 presents the standardized factor loading estimates, together with the standardized standard error estimates and the t-values for both proposed and modified models. All factor loadings were significant ( $p < 0.05$ ) and ranged from 0.671 to 0.895 in the modified model. This result confirmed that five factors were well defined by their corresponding items.

Table 4.13 presents the standardized factor covariance estimates of the modified model. CFA assumes that factors are correlated with each other by default. Thus, all associations among factors are expected to be statistically significant but should not be too high because that raises concerns about multicollinearity. It is recommended that insignificant relationships and very high correlations be removed and the model re-estimated (Kline, 2011). All factors were statistically significantly correlated each other except for the relationship between perceived risk and needs ( $t = 1.28$ ). Interestingly, the associations between the antecedents of motivation and the level of

information processing were generally higher than those with motivation. Figure 4.2 presents the final measurement model of Part D plan information processing. Only significant paths are shown in the figure.

#### 4.2.5. Comparison Between Switchers and Non-switchers – Objective 2

Table 4.14 presents the descriptive statistics of the final measures along with the reliability statistics. Cronbach's alpha ranged from 0.711 to 0.817, indicating all established measures met the 0.70 standard for reliability (Nunnally, 1978). The frequency distribution for each of the composite measures is presented in Appendix M.

Table 4.15 and Table 4.16 present a comparison of constructs in the model, background information, health information, and plan information for switchers and non-switchers. A total of 255 responses were included in this analysis; this total excluded nine respondents who did not answer the question "Did you switch your drug plan last year". A total of 47 beneficiaries (18.43%) switched plans for 2013 whereas 208 beneficiaries (81.57%) did not switch. Switchers and non-switchers were not statistically significantly different from each other for any background variables (e.g. gender, living status, education, income, age), any health-related variables (e.g. self-rated health, number of regularly taken medications), and any cost variables (e.g. premium, drug cost) at 0.05 significance level. The most striking difference between switchers and non-switchers was whether they received help with plan choices ( $p < 0.0001$ ). A total of 90 percent of switchers received help when they chose a plan for 2013 whereas only 45 percent of non-switchers received help, suggesting a significant role of assistance in plan switching.

Switchers rated their overall satisfaction with their plans significantly lower than non-switchers ( $p = 0.0397$ ). Switchers and non-switchers read materials from Medicare and drug plans

similarly but switchers read materials from SHIP more than non-switchers ( $p=0.0030$ ). Furthermore, switchers processed information about both current ( $p=0.0176$ ) and alternative plans ( $p=0.0019$ ) more than non-switchers. For the constructs of the model, switchers had higher needs ( $p=0.0406$ ), motivation ( $p=0.0388$ ), and level of information processing ( $p=0.0020$ ) compared to non-switchers but there were no significant difference between them for ability, perceived risk, opportunity, and self-efficacy.

This analysis reflected only recent plan changes for 2012 and might not capture differences between beneficiaries who had switched during previous years but stayed with their plans in 2012 and beneficiaries who had never switched. To address this concern, the same analysis was performed between those who had ever switched ( $n=101$ , 39.3%) and those who had never switched plans ( $n=156$ , 60.70%). The results under this alternative definition of plan switching were generally consistent with recent plan changes with few differences in background variables, and higher needs, motivation, and the level of information processing among switchers (Appendix N and O). However, satisfaction no longer was significant, while premium, drug plan, and ability became significant at the  $p < 0.05$  level. These last three variables had approached significance in the original analysis and the direction of the relationships did not change.

Table 4.17 presents the distribution of decision quality between past year switchers and non-switchers. Among non-switchers, about one third (30.29%) of those who did not switch in the last year had a low level of information processing, which was defined as inertia in the present study.

#### 4.2.6. Test the Model Using Structural Equation Modeling (SEM) – Objective 3

Table 4.18 presents the modeling information as well as model fit indexes of proposed model. The fit indices indicated that the hypothesized model was not a close fit to the data ( $\chi^2=225.56$ , d.f.=58,  $p<0.001$ , SRMSR=0.10, RMSEA=0.11, GFI = 0.97, CFI=0.85), suggesting that model modification should be considered.

The standardized covariances among factors in CFA model (Table 4.13) showed that perceived risk was more strongly correlated with the level of information processing ( $b_1=-0.35$ ) than motivation ( $b_2=0.27$ ), and so was self-efficacy ( $b_1= 0.50$ ;  $b_2= 0.22$ ), while needs were similarly correlated with level of information processing ( $b_1=0.48$ ) and motivation ( $b_2=0.46$ ). This factor correlation structure suggested that there might be direct relationships present among perceived risk, self-efficacy and level of information processing. Thus, the proposed model was re-estimated by adding direct paths from the independent variables (perceived risk and self-efficacy) to the outcome variable (level of information processing). Table 4.18 presents the model fit indexes of this modified SEM model. The fit indices indicated that the revised model was a good fit for the data ( $\chi^2=158.76$ , d.f.=55,  $p<0.001$ , SRMSR=0.06, RMSEA=0.08, GFI = 0.98, CFI=0.91).

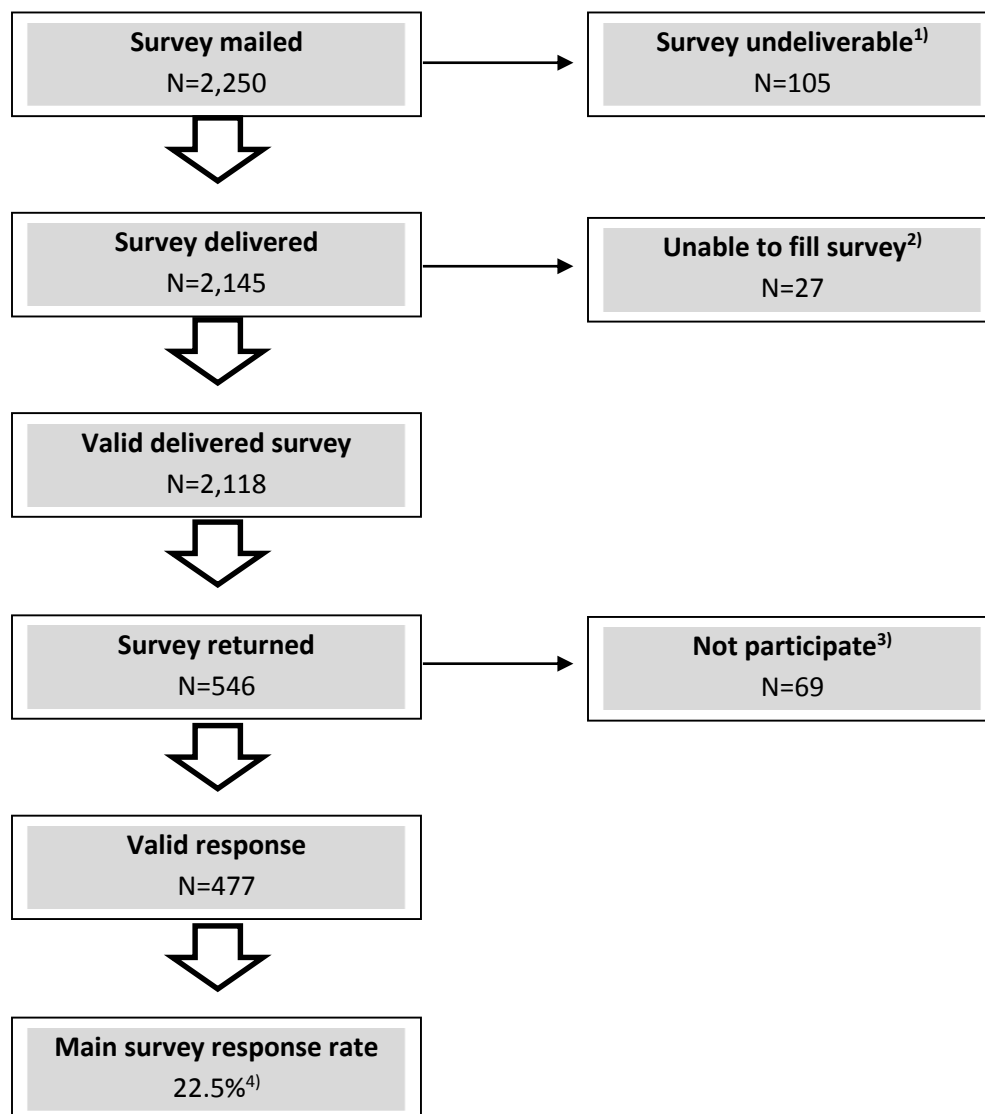
Table 4.19 presents the standardized path coefficients, factor loadings, error variances, together with the standardized standard error estimates and the t-values for both proposed and modified models. The proposed hypotheses H1a, H1b, H1c, and H2 were all statistically supported, and H3 and H4 were not tested due to insufficient sample size for the analysis. Needs (H1a:  $b=0.41$ ,  $t\text{-value}=5.34$ ), perceived risk (H2b:  $b=0.27$ ,  $t\text{-value}=3.69$ ), and self-efficacy (H2c:  $b=0.16$ ,  $t\text{-value}=1.98$ ) were positively associated with motivation to process information. Also, motivation was positively associated with the level of information processing (H2:  $b=0.40$ ,  $t$ -



value=4.95). Interestingly, perceived risk and self-efficacy impacted on the level of information processing not only via motivation but also directly. Added direct paths from perceived risk ( $b=-0.38$ ,  $t\text{-value}=-4.83$ ) and self-efficacy ( $b=0.32$ ,  $t\text{-value}=4.13$ ) to the level of information processing were statistically significant and higher than the association mediated by motivation. All factor loadings were significant ( $p<0.05$ ) and ranged from 0.648 to 0.918.

Table 4.20 presents the standardized factor covariance estimates of the modified SEM model. Similar to the CFA results, the relationship between perceived risk and needs was insignificant ( $t=1.28$ ). Figure 4.3 presents the final measurement and structural model of Part D plan information processing. Only significant paths are shown in the figure.

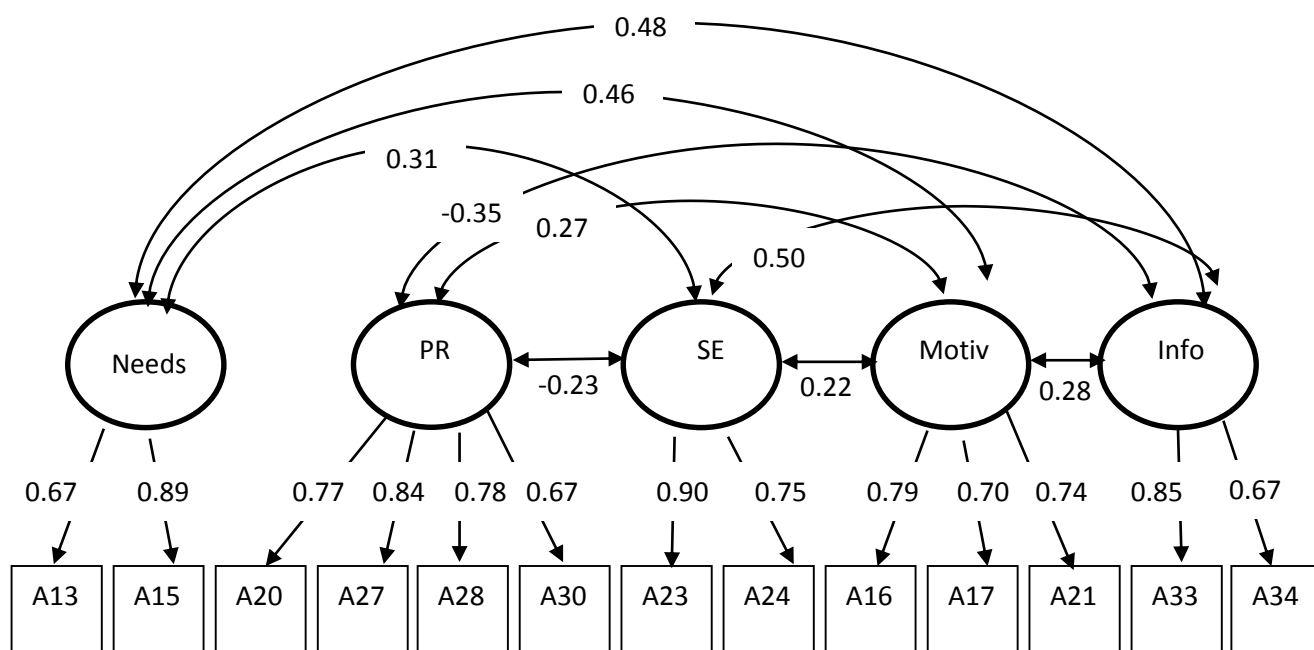
Figure 4.1. Main Survey Data Collection and Response Rate



## Notes.

- 1) Includes surveys returned to sender as undeliverable as addressed and surveys forwarded to new address in non-Iowa State
- 2) Includes those who deceased (n=10) and those who are unable to fill survey given their health conditions according to their caregivers (n=17)
- 3) Includes those who sent back the survey and expressed their wishes not to participate
- 4) Calculated by valid response (n=477) / valid delivered survey (n=2,118)

Figure 4.2. Final Measurement Model (CFA results)



Notes.

A13: In selecting from the many drug plans available in the market, would you say that:

A15: How important is it for you to choose the right drug plan?

A16: I am interested in looking at information on my current drug plan.

A17: I am interested in looking at information on alternative drug plan.

A20: The thought of choosing a drug plan makes me feel uncomfortable.

A21: I intend to look at plan information while choosing a drug plan.

A27: The thought of choosing a drug plan fills me with anxiety.

A28: I am concerned that I might not get my money's worth from a drug plan when choosing it.

A30: I am afraid that a drug plan will not provide me with the level of benefits that I expect.

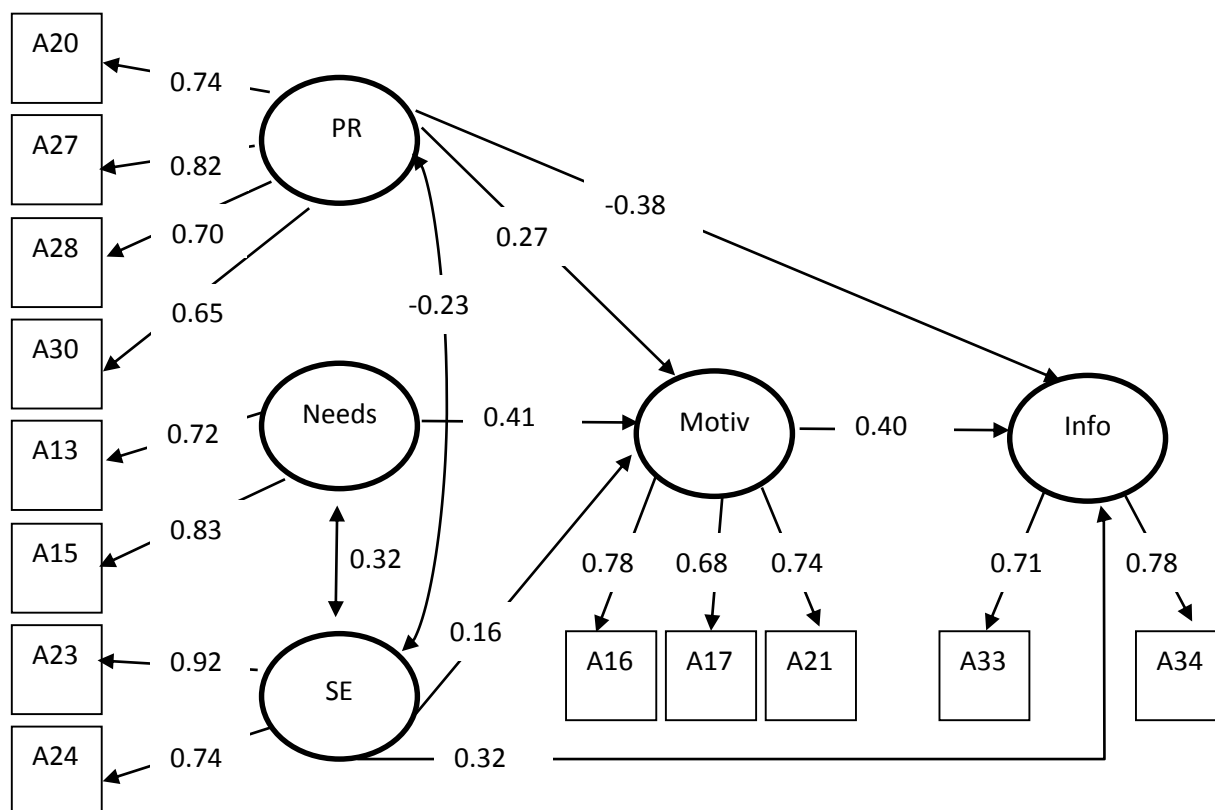
A23: I feel confident to identify what drug plan information I should look at.

A24: I feel confident to use print sources of information.

A33: When you chose your 2013 drug plan last year, how much did you understand information about your current plan?

A34: When you chose your 2013 drug plan last year, how much did you understand information about other alternative plan?

Figure 4.3. Final Structural and Measurement Model



$$\chi^2=171.95, d.f.=56, p<0.001, SRMSR=0.06, RMSEA=0.09, GFI = 0.98, CFI=0.90$$

Notes.

A13: In selecting from the many drug plans available in the market, would you say that:

A15: How important is it for you to choose the right drug plan?

A16: I am interested in looking at information on my current drug plan.

A17: I am interested in looking at information on alternative drug plan.

A20: The thought of choosing a drug plan makes me feel uncomfortable.

A21: I intend to look at plan information while choosing a drug plan.

A27: The thought of choosing a drug plan fills me with anxiety.

A28: I am concerned that I might not get my money's worth from a drug plan when choosing it.

A30: I am afraid that a drug plan will not provide me with the level of benefits that I expect.

A23: I feel confident to identify what drug plan information I should look at.

Figure 4.3. Continued

A24: I feel confident to use print sources of information.

A33: When you chose your 2013 drug plan last year, how much did you understand information about your current plan?

A34: When you chose your 2013 drug plan last year, how much did you understand information about other alternative plan?

Table 4.1. Focus Group and Individual Interview Participant Characteristics

Characteristics	Participants (n=17)
Gender	
Female	10
Male	7
Age	
65-75	3
75-85	11
85-95	3
	0
Education	
High school	7
College	6
Graduate school	4
Involved in social activity	
Yes	14
No	3
Have Part D plan	
Yes	16
No	1
Number of prescription drug insurances	
1	15
2	2 <sup>a)</sup>
Type of Part D plans	
PDP (Prescription Drug Plans)	8
MA (Medicare Advantage)	4
Did not provide accurate plan name <sup>b)</sup>	5

a) In addition to individually obtained Part D plan, both participants had a retiree program through former employer and state of Iowa, respectively.

b) It includes the cases that participants provided only brand name (e.g. Humana or Blue Cross Blue Shield); therefore, it is impossible to identify whether their plans are MA or PDP.

Table 4.2. Summary of Themes and Representative Quotations

Theme	Description	Representative Quote
<b>1. Needs</b>		
Product differentiation among plans	Plans are alike so no need to compare.	“If you do compare them, they are so much alike. I can’t see where the advantage of changing is.”
Importance of plan switching	Plan changes do not matter to me.	“Premium went up a little bit. But that was expected because everything is going up too.”
<b>2. Perceived Risk</b>		
Fear of making changes	Feel anxiety about making changes in general.	“I have always felt that if you constantly switching and changing, you’ll never really sure of where you are at and what you’re doing.”
Fear of losing coverage	Worry about the chosen plan not providing adequate coverage if switch plans.	“You’re fearful that if you didn’t read it closely enough, you’re fearful to lose some coverage or something you basically need, they don’t tell you about what you gonna lose, they just tell you about what you gonna get”
<b>3. Self-efficacy</b>	Have confidence in understanding plan information	“I don’t need all this help, you’re sitting with a wrong person, listen, I make my own decision”
<b>4. Motivation</b>	Be willing to process plan information	“I’m going to go back, I’m going to find out what’s available when the... when the opening time comes, have nice long hour discussion, then and... and we’ll see.” “Before I took the plan, I would do a lot of research prior to that, I would check the different government, consumer report, by that I change”
<b>5. Ability</b>	Knowledge and skills	“She couldn’t even get through her computer for anything. So. [I helped her because I can do]”

Table 4.2. Continued

<b>6. Opportunity</b>		
<b>6-1. Facilitator</b>		
Social support	Actively involved in socializing and sharing information with others	“I think we do check a lot to see it what different plans cover and what type of plans that person has [when socializing at senior center]”
Access to helpers	Live with family members, live in town that provides easy access to SHIP consultant	“I didn’t go to meet him [SHIP consultant], it happens to be a good friend. I know periodically he gives a little spill, I know he’s helped a lot of people.”
Quality of help	Helpers have professional knowledge. (e.g. has a son who is a pharmacist, has a friend who is a SHIP consultant)	“I have a son who is a pharmacist, and he told me about plan or two, not to sign up for, because they’re having problems with payment of drug insurer are prescribed by the doctor and they wanted to go generic, and doctor doesn’t always wanna do that”
<b>6-2. Barrier</b>		
Confusing info	Confusing information, too much information	“Many of those brochures they send out are VERY confusing”
Too many choices	Too many choices	“We don’t need 10 choices put in front of us. We need help, interpreting those choices”



Table 4.2. Continued

7. Information Processing		
Amount of processed information	How much they processed information	<p>“I just stick with it. I didn’t do anything” (<i>Low</i>)</p> <p>“I also think that you do visiting your friends or so and you just sway that way, they say you better check this because it’s a good deal.” (<i>Low</i>)</p> <p>“I have a faith in, I like Blue Cross Blue Shield. And I do not like United Health. [so I stayed with my current BCBS plan]” (<i>Medium</i>)</p> <p>“I chose, I compared lots of plans to begin with, and I chose mine, because it covers my eye drops, and when I called to be sure if my eye drops were covered, the gentleman who was selling a particular plan, ask him how much would be it, he said, she doesn’t want to buy the company, she just wants to know if her eye drops will be covered.” (<i>Medium</i>)</p> <p>“We ... determine what I had currently was better than those two [other] plans.” (<i>High</i>)</p>
Current vs. alternative plans	Different amount of attention given to current and alternative plans	<p>“I keep tracking of how much my plans, how much I pay for the plan, how much the plan pays”</p> <p>“I don’t even look around [other plans]”</p>
Helper’s role in information processing	Alternative roles for helpers. Beneficiaries either fully delegate information processing or just ask helpers to check their understanding	<p>“Before [my] daughter was involved in this process, I did nothing.”</p> <p>“She did, she looked at Humana and she looked at several others then she came back and she said, Dad I think you probably ought to consider Humana from what I have seen”</p> <p>“[I asked for help] just to, for the reassurance, that we’re making the right decision.”</p>

Table 4.3. Characteristics of Part D Beneficiaries - Continuous Variables (n=264)

Variable	Label	N	N Miss	Std Dev	Mean	Median	Mode	Min	Max
A7	Premium	227	37	53.57	46.53	37.6	39.6	0	539.1
A8	Out of pocket drug cost	225	39	82.117	53.50	25	0	0	465
A9	# meds	256	8	3.01	4.18	4	3	0	14
B1	Age	256	8	7.32	75.88	74	69	66	97
B8	Health status	263	1	0.89	2.71	3	3	1	5
A12	Satisfaction	254	10	1.48	5.34	6	6	1	7

Note. N Miss indicates the number of missing values.

Table 4.4. Characteristics of Part D Beneficiaries - Categorical Variables (n=264)

Variable	All	
	N	%
Age		
65-74	131	49.62%
75-84	88	33.33%
85-94	36	13.64%
95<	1	0.38%
Missing	8	3.03%
Gender		
Female	164	62.12%
Male	95	35.98%
Missing	5	1.89%
Living status		
Live alone	68	25.76%
Live with spouse	181	68.56%
Others	10	3.79%
Missing	5	1.89%
Highest education		
<High school	18	6.82%
High school graduate	140	53.03%
College graduate	53	20.08%
Graduate/professional school	46	17.42%
Missing	7	2.65%
Income		
<\$15,000	23	8.71%
\$15,000 - \$34,999	89	33.71%
\$35,000 - \$54,999	46	17.42%
\$55,000<	79	29.92%
Missing	27	10.23%

Table 4.4. Continued

Health status		
Excellent	18	6.82%
Very good	94	35.61%
Good	103	39.02%
Fair	43	16.29%
Poor	5	1.89%
Missing	1	0.38%
Number of medications regularly taken		
0	25	9.47%
1-5	162	61.36%
6-10	61	23.11%
11<	8	3.03%
Missing	8	3.03%
Type of drug plan		
MAPD	53	20.08%
PDP	191	72.35%
Do not know	14	5.30%
Missing	6	2.27%
Premium		
0	10	3.79%
0.1-50	185	70.08%
50.1-100	14	5.30%
100.1-150	8	3.03%
150<	10	3.79%
Missing	37	14.02%

Table 4.4. Continued

Cost for one-month supply of drugs		
0	46	17.42%
0.1-25	74	28.03%
25.1-50	38	14.39%
50<	67	25.38%
Missing	39	14.77%
# past switching		
None	156	59.09%
Once	47	17.80%
Twice	29	10.98%
Three times<	25	9.47%
Missing	7	2.65%
Switched last year		
Switcher	47	17.80%
Non-switcher	208	78.79%
Missing	9	3.41%
Got help in plan selection		
Did not receive help	115	43.56%
Received help	131	49.62%
Missing	18	6.82%

Table 4.5. Reasons for Plan Switching (n=41)

Variable	All	
	N	%
Switching reasons		
Total N	41	
Cost	27	65.85%
Better coverage	5	12.20%
Plan discontinued	4	9.76%
Plan provider switched	2	4.88%
Liked AARP involved plan better	2	4.88%
Other's advice	1	2.44%

**Note.** This table presents the results of content analysis of variable A5a. "Why did you switch plans?" which was answered by respondents who said that they switched plans last year (n=47)

Table 4.6. Sources of Help in Plan Selection (n=106)

Variable	All	
	N	%
Source of help		
Total N	106	
Insurance agent	39	36.79%
SHIP	29	27.39%
Family	21	19.81%
Pharmacist	10	9.43%
Senior center	3	2.83%
Friend	2	1.89%
Doctor	2	1.89%

**Note.** This table presents the results of content analysis of variable A31a. “Who helped you?” was answered by respondents who said they received help from others (n=131).

Table 4.7. Gender Differences in Sources of Help (n=102)

Gender		Source of help						
		SHIP	Family	Friend	Insurance agent	Pharmacist	Doctor	Senior center
Female (n=63)	N	20	13	1	22	6	0	1
	row%	31.75	20.63	1.59	34.92	9.52	0.00	1.59
Male (n=39)	N	7	8	1	17	2	2	2
	row%	17.95	20.51	2.56	43.59	5.13	5.13	5.13

Table 4.8. Beneficiaries' Knowledge About Part D (n=264)

Variable	All	
	N	%
Changes in plans that Beneficiaries were aware (Asked to check all that applied)		
Increased premium	126	47.73%
Increased copay	46	17.42%
Stopped coverage	19	7.20%
Others <sup>a)</sup>	11	4.17%
Took out pharmacy I use	3	1.14%
Do not know	84	31.82%
Some plans charge different copayments for generic and brand name drugs		
True	171	64.77%
False	0	0%
Do not know	85	32.20%
Missing	8	3.03%
The coverage gap is being phased out		
True	79	29.92%
False	27	10.23%
Do not know	149	56.44%
Missing	9	3.41%
All plans cover the same list of drugs		
True	10	3.79%
False	167	63.26%
Do not know	78	29.55%
Missing	9	3.41%

Note. a) Among those who checked "others", some specified changes in their plans as no change (n=4), decreased premium (5), and changed deductible (3).



Table 4.9. Description of Variables

Variable	Label	N	N Miss	Std Dev	Mean	Median	Mode	Min	Max
A13	Needs item	253	11	1.17	5.94	6	7	1	7
A14	Needs item	250	14	1.44	4.80	5	4	1	7
A15	Needs item	257	7	1.11	6.12	6	7	1	7
A16	Motivation item	250	14	1.78	4.91	5	4	1	7
A17	Motivation item	253	11	2.11	4.23	4	4	1	7
A18_r	Opportunity item	250	14	1.85	3.79	4	4	1	7
A19	Perceived risk item	253	11	1.77	5.04	5	7	1	7
A20	Perceived risk item	255	9	1.95	4.71	5	7	1	7
A21	Motivation item	252	12	1.71	5.35	6	7	1	7
A22_r	Perceived risk item	248	16	1.93	4.52	4	4	1	7
A23	Self-efficacy item	253	11	1.69	4.61	5	4	1	7
A24	Self-efficacy item	250	14	1.70	4.41	4	4	1	7
A25	Self-efficacy item	236	28	2.03	3.28	3	1	1	7
A26_r	Opportunity item	247	17	1.88	3.27	3	1	1	7
A27	Perceived risk item	249	15	1.94	4.21	4	4	1	7
A28	Perceived risk item	254	10	1.85	4.93	5	7	1	7
A29_r	Opportunity item	255	9	1.83	2.79	2	1	1	7
A30	Perceived risk item	248	16	1.68	4.79	5	4	1	7
A33	Info item	254	10	1.56	5.14	6	6	1	7
A34	Info item	250	14	1.81	4.00	4	4	1	7

Note. “\_r” in variable names indicates “reversed”.

Table 4.10. Comparison of Model Fit Indices Between Proposed and Final CFA Models (n=264)

	Proposed model	Final model <sup>a)</sup>	Level of acceptance <sup>b)</sup>
Chi-square	303.07	158.76	
Chi-square DF	109	55	
Pr > Chi-square	<.0001	<.0001	> 0.05
GFI	0.97	0.98	> 0.90
Bentler CFI	0.86	0.91	> 0.90
SRMSR	0.07	0.06	< 0.08
RMSEA	0.08	0.08	< 0.08

- a) Final model was established by removing four items whose factor loadings were lower than 0.65 from proposed model.
- b) The present study used the level of acceptance summarized by Awang and colleagues (Awang, Ahmad, & Zin, 2010)

Table 4.11. Covariance Matrix Used for the Analysis of Final CFA Model and SEM Models (DF=220)

	A13	A15	A16	A17	A20	A21	A23	A24	A27	A28	A30	A33	A34
A13	1.43626												
A15	0.82045	1.32636											
A16	0.52469	0.74227	3.31180										
A17	0.15857	0.34227	2.30436	4.48287									
A20	0.14442	-0.00364	0.52508	0.75483	3.82967								
A21	0.61808	0.69409	1.72105	1.92767	0.51169	3.06717							
A23	0.54762	0.45500	0.42060	0.17267	-0.79467	0.78581	2.80535						
A24	0.38430	0.27455	0.59107	0.38240	-0.52702	1.09157	1.88793	2.81868					
A27	0.06942	-0.09000	0.34554	0.25711	2.44785	0.22306	-0.80603	-0.76793	3.77058				
A28	0.27273	0.20909	0.51364	0.62727	1.67727	0.58182	0.05000	-0.08182	1.97273	3.25455			
A30	0.26126	0.14409	0.45060	0.51176	1.48897	0.33308	-0.37556	-0.15843	1.57306	1.55000	2.69444		
A33	0.51663	0.76864	0.37762	-0.14138	-0.79550	0.72754	1.07436	0.76355	-0.66595	-0.39545	-0.27473	2.35494	
A34	0.43306	0.45273	0.67917	0.85438	-0.79033	1.17124	1.02942	0.86934	-0.88579	-0.46818	-0.37421	1.59678	3.28149

Table 4.12. Comparison of Factor Loadings Between Proposed and Final CFA Models (n=264)

Paths		Proposed CFA Model			Final CFA Model		
Variable	Factor	$\beta$ (SD)	t-value	Error	$\beta$ (SD)	t-value	Error
A13	Needs	0.746 (0.05)	15.94	0.45	0.671 (0.06)	11.87	0.50
A14	Needs	0.497 (0.06)	8.04	0.76	-	-	-
A15	Needs	0.848 (0.04)	19.61	0.39	0.886 (0.06)	15.25	0.30
A20	Perceived risk	0.809 (0.03)	23.55	0.37	0.768 (0.04)	20.15	0.46
A22	Perceived risk	0.315 (0.07)	4.51	0.92	-	-	-
A27	Perceived risk	0.749 (0.04)	18.99	0.45	0.839 (0.03)	24.05	0.34
A19	Perceived risk	0.618 (0.05)	12.21	0.60	-	-	-
A28	Perceived risk	0.667 (0.05)	14.30	0.55	0.778 (0.04)	17.33	0.51
A30	Perceived risk	0.660 (0.05)	13.98	0.56	0.673 (0.05)	13.90	0.58
A23	Self-efficacy	0.869 (0.04)	21.02	0.23	0.895 (0.05)	18.05	0.16
A24	Self-efficacy	0.765 (0.04)	17.13	0.42	0.750 (0.05)	15.08	0.45
A25	Self-efficacy	0.451 (0.06)	7.07	0.82	-	-	-
A16	Motivation	0.792 (0.04)	18.83	0.39	0.789 (0.04)	18.87	0.36
A17	Motivation	0.689 (0.05)	14.32	0.52	0.702 (0.05)	15.23	0.52
A21	Motivation	0.765 (0.04)	17.58	0.46	0.736 (0.04)	16.61	0.49
A33	Level of info	0.843 (0.05)	17.58	0.37	0.853 (0.05)	17.29	0.36
A34	Level of info	0.699 (0.05)	13.68	0.52	0.673 (0.05)	13.03	0.52

Note. All parameters are statistically significant (<0.05) except for the error variance of variable A23 under final CFA model.  $\beta$  indicates factor loadings.

Table 4.13. Standardized Covariances Among Factors in Final CFA Model (n=264)

Factor 1	Factor 2	Parameter	SD	t -Value
Level of info	Motivation	0.28	0.08	3.60
Level of info	Needs	0.48	0.07	6.66
Level of info	Perceived risk	-0.35	0.07	-4.65
Level of info	Self-efficacy	0.50	0.07	7.23
Motivation	Needs	0.46	0.07	6.60
Motivation	Perceived risk	0.27	0.07	3.68
Motivation	Self-efficacy	0.22	0.07	3.00
Perceived risk	Needs	0.10	0.08	1.28
Perceived risk	Self-efficacy	-0.23	0.07	-3.22
Needs	Self-efficacy	0.31	0.07	4.20

Note. All parameters except for the correlation between perceived risk and needs are significant (<0.05).

Table 4.14. Descriptive Statistics of Final Measures of Constructs (n=264)

Factors	Mean	SD	Median	Mode	Min	Max	Reliability	# items
Needs	12.06	2.04	12	14	5	14	0.745	2
Self-efficacy	9.00	3.09	9	8	2	14	0.806	2
Perceived risk	18.71	6.01	19	16	4	28	0.817	4
Motivation	14.50	4.67	15	21	3	21	0.782	3
Opportunity	6.06	3.27	6	2	2	14	0.711	2
Ability	3.16	2.06	4	4	0	6	N/A	3
Level of information	9.16	2.98	9	8	2	14	0.715	2

Table 4.15. Comparison Between Previous Year Switchers and Non-switchers – Categorical Variables (n=255)

Variable	All		Switched last year				P-value <sup>a)</sup>
			Switcher		Non-switcher		
	N	%	N	%	N	%	
Gender							0.9390
Female	126	60.00%	25	62.50%	101	59.41%	
Male	84	40.00%	15	37.50%	69	40.59%	
Living status							0.9393
Live alone	54	25.71%	10	25.00%	44	25.88%	
Live with spouse	148	70.48%	29	72.50%	119	70.00%	
Others	8	3.81%	1	2.50%	7	4.12%	
Highest education							0.7986
<High school	12	5.71%	2	5.00%	10	5.88%	
High school graduate	113	53.81%	25	62.50%	88	51.76%	
College graduate	46	21.90%	8	20.00%	38	22.35%	
Graduate/professional school	39	18.57%	5	12.50%	34	20.00%	
Income							0.1548
<\$15,000	16	7.62%	1	2.50%	15	8.82%	
\$15,000 - \$34,999	80	38.10%	19	47.50%	61	35.88%	
\$35,000 - \$54,999	41	19.52%	10	25.00%	31	18.24%	
\$55,000<	73	34.76%	10	25.00%	63	37.06%	
# past switching							<.0001
None	127	60.48%	0	0%	127	74.71%	
Once	39	18.57%	21	52.50%	18	10.59%	
Twice	24	11.43%	9	22.50%	15	8.82%	
Three times<	20	9.52%	10	25.00%	10	5.88%	
Type of drug plan							0.1000
MAPD	41	19.52%	4	10.00%	37	21.76%	
PDP	162	77.14%	35	87.50%	127	74.71%	
Do not know	7	3.33%	1	2.50%	6	3.53%	

Table 4.15. Continued

Got help							<.0001
Did not receive help	97	46.19%	4	10.00%	93	54.71%	
Received help	113	53.81%	36	90.00%	77	45.29%	

a) P-value was calculated from t-test statistics.

Table 4.16. Comparison Between Previous Year Switchers and Non-switchers – Continuous Variables (n=255)

Variable	Label	Switched last year		
		Switcher <sup>o)</sup>	Non-switcher	P-value <sup>p)</sup>
		Mean	Mean	
A7	Premium	33.4176	46.9698	0.0603
A8	Drug cost	46.2367	55.6859	0.4619
A9	# meds	4.0652	4.1951	0.7726
B1	Age	73.9778	76.0443	0.0718
B8	Health status <sup>a)</sup>	2.7447	2.6860	0.7025
A12	Satisfaction <sup>b)</sup>	4.8667	5.4314	0.0397
A32a	Drug plan <sup>c)</sup>	4.5116	3.9643	0.1403
A32b	Medicare <sup>d)</sup>	4.1579	3.9676	0.6285
A32c	SHIP <sup>e)</sup>	3.4872	2.3230	0.0030
A33	Current plan <sup>f)</sup>	5.5652	5.0547	0.0176
A34	Alternative plan <sup>g)</sup>	4.7391	3.8131	0.0019
needs	Needs <sup>h)</sup>	12.6000	11.9751	0.0406
ability	Ability <sup>i)</sup>	3.6596	3.1154	0.0775
risk	Perceived risk <sup>j)</sup>	18.5000	18.6979	0.8481
level_info	Level of information <sup>k)</sup>	10.3043	8.8776	0.0020
motiv	Motivation <sup>l)</sup>	15.7727	14.1813	0.0388
opp	Opportunity <sup>m)</sup>	5.4651	6.1531	0.1805
self_eff	Self-efficacy <sup>n)</sup>	8.9348	9.0051	0.8978

Note.

- a) Higher number in self-rated health indicates poor health condition. Scale ranges from 1 to 5.
- b) Higher number in satisfaction indicates higher satisfaction. Scale ranges from 1 to 7.
- c) Higher number in Drug plan indicates reading larger amount of information received from insurer. Scale ranges from 1 to 7.
- d) Higher number in Medicare indicates reading larger amount of information received from Medicare. Scale ranges from 1 to 7.
- e) Higher number in SHIP indicates reading larger amount of information received from Medicare. Scale ranges from 1 to 7.



Table 4.16. Continued

- f) Higher number in Current plan indicates higher understanding of information about current plan. Scale ranges from 1 to 7.
- g) Higher number in Alternative plan indicates higher understanding of information about alternative plans. Scale ranges from 1 to 7.
- h) Higher number in needs indicates higher perception of importance of plan choice. Scale ranges from 2 to 14.
- i) Higher number in ability indicates higher ability scores, which ranges from 0 to 6.
- j) Higher number in perceived risk indicates higher concern about how plan works. Scale ranges from 4 to 28.
- k) Higher number in level of info indicates higher understanding of plan information. Scale ranges from 2 to 14.
- l) Higher number in motivation indicates higher interest in plan information processing. Scale ranges from 3 to 21.
- m) Higher number in opportunity indicates higher complexity/difficulty. Scale ranges from 2 to 14.
- n) Higher number in self-efficacy indicates higher confidence. Scale ranges from 2 to 14.
- o) Switchers represent Part D beneficiaries who switched their plans for 2013 whereas non-switchers represent those who did not switch plans.
- p) P-value was calculated from chi-square test statistics.

Table 4.17. Switchers and Non-switchers by the Level of Information Processing (n=255)

	Switchers n=47(18.43%)	Non-switchers n=208 (81.57%)	Chi-square
Low	12.77%	30.29%	0.0012
Medium	44.68%	50.48%	
High	42.55%	19.23%	

Table 4.18. Model Specification and Fit Indices of Proposed and Modified SEM Models

	Proposed model	Final model	Level of acceptance <sup>a)</sup>
Chi-square	225.56	171.95	
Chi-square DF	58	56	
Pr > Chi-square	<.0001	<.0001	> 0.05
GFI	0.97	0.98	> 0.90
Bentler CFI	0.85	0.90	> 0.90
SRMSR	0.10	0.06	< 0.08
RMSEA	0.11	0.09	< 0.08

a) The present study used the level of acceptance summarized by Awang and colleagues (Awang et al., 2010)

Table 4.19. Standardized Parameter Estimates of Proposed SEM Model and Modified SEM Models

	Factor	Proposed			Modified		
		B(SD)	T	Error	B(SD)	T	Error
Path coefficients							
Needs	Motivation	0.380 (0.08)	4.88		0.411 (0.08)	5.34	
Self-efficacy	Motivation	0.228 (0.08)	2.83		0.156 (0.08)	1.98	
Perceived risk	Motivation	0.242 (0.07)	3.26		0.271 (0.07)	3.69	
Motivation	Level of info	0.359 (0.08)	4.52		0.398 (0.08)	4.95	
Perceived risk	Level of info				-0.382 (0.08)	-4.83	
Self-efficacy	Level of info				0.320 (0.08)	4.13	
Factor loadings							
A13	Needs	0.724 (0.06)	11.76	0.48	0.718 (0.06)	12.14	0.48
A15	Needs	0.820 (0.06)	12.76	0.33	0.826 (0.06)	13.41	0.32
A20	Perceived risk	0.727 (0.04)	18.76	0.47	0.735 (0.04)	19.44	0.46
A27	Perceived risk	0.820 (0.03)	24.55	0.33	0.817 (0.03)	24.92	0.33
A28	Perceived risk	0.697 (0.04)	17.08	0.51	0.697 (0.04)	17.27	0.51
A30	Perceived risk	0.653 (0.04)	14.75	0.57	0.648 (0.04)	14.61	0.58
A23	Self-efficacy	0.866 (0.06)	13.79	0.25	0.918 (0.06)	16.59	0.16
A24	Self-efficacy	0.781 (0.06)	13.00	0.39	0.735 (0.05)	14.03	0.46
A16	Motivation	0.770 (0.04)	19.17	0.41	0.780 (0.04)	19.72	0.39
A17	Motivation	0.683 (0.04)	15.38	0.53	0.682 (0.04)	15.35	0.54
A21	Motivation	0.747 (0.04)	18.14	0.44	0.735 (0.04)	17.64	0.46
A33	Level of info	0.578 (0.08)	6.50	0.67	0.712 (0.05)	13.68	0.49
A34	Level of info	0.961 (0.13)	7.37	0.08	0.779 (0.05)	14.95	0.39

Note. All parameters are significant ( $<0.05$ ) except for the error variance of variable A34 under proposed model and variable A23 under final model.

Table 4.20. Standardized Covariances Among Factors in Final SEM Model

Var1	Var2	Parameter	SD	t Value
Perceived risk	Needs	0.09	0.08	1.10
Perceived risk	Self-efficacy	-0.23	0.07	-3.21
Needs	Self-efficacy	0.32	0.07	4.42

Note. All parameters except for the correlation between perceived risk and needs are significant ( $<0.05$ ).

## CHAPTER 5 DISCUSSION AND CONCLUSION

This chapter first summarizes the main findings of the dissertation and then discusses methodological considerations followed by the limitations of the study. Finally, the future studies are suggested and an overall conclusion is stated.

### **5.1. Summary of Qualitative Findings and Discussion**

The qualitative findings from focus groups and interviews not only confirmed what previous studies have found but also advanced our understanding of participants' perceptions about the process for switching Part D plans.

The qualitative findings generally support existing literature that participants were confused by too many options and too much information (Heiss et al., 2006; McWilliams, Afendulis, McGuire, & Landon, 2011). Although participants were aware of information sources that could help their plan switching decision (e.g. Medicare help-line, Part D Plan Finder, SHIP), they rarely utilized them, which was also consistent with previous studies (Kling et al., 2011; Suzuki, 2013). There were some participants who discussed plan options with SHIP consultants, but according to their descriptions, they happened to meet the consultant while socializing in a senior center or church. Considering that participants normally need to schedule an appointment to meet the consultant, it is more reasonable to view this as a peer influence than utilization of community resources.

Overall, participants appeared to want to exert the least possible effort on any task related to Part D plan switching decision. They worked with the helper who they could approach easily (e.g. family members, friends), delegated information processing to their helper (e.g. did nothing until the helper provides them summarized information), and if they processed information on their own, tended to read materials primarily regarding their current plans (e.g. Annual Notice of

Changes) that usually was mailed to their home. Consequently, it appeared that their concern was inconvenience of the access to the information sources rather than unawareness of those sources. Beneficiaries appeared to do nothing not because they did not know what to do, but because they did not want to be bothered by the plan switching process.

One possible explanation of such passiveness in plan switching decision emerged from the qualitative results. It appeared that not only cognitive activities but also affective reaction or emotion were involved in their risk perceptions about plan switching, supporting a recent trend in decision research. Our participants stated that they were afraid of losing coverage as a result of plan switching (i.e. cognitive process) and also expressed their fear of making changes in general (i.e. emotion). Their fear of switching was not a task-specific feeling but an imminent and general feeling. The role of affect in Part D plan switching decisions is a noteworthy finding.

Traditionally, a decision making process has been viewed as a cognitive process (i.e. analyzing consequence, weighing pros and cons, and retrieving relating information from memory) but recent studies have begun to recognize the role of emotion in decision making (Finucane, Alhakami, Slovic, & Johnson, 2000; Loewenstein & Lerner, 2003; Slovic, Peters, Finucane, & MacGregor, 2005). It is known that individuals tend to use various heuristics to simplify the decision-making process when they face complex decisions, and Finucane and colleagues (2000) noted that “affect heuristic” might be one of those heuristics. According to this theory, beneficiaries might simply walk away from the switching process because they inherently had negative feelings about “switching” even before the complex Part D structure or confusing Part D plan information bothered them.

## 5.2. Summary of Quantitative Findings and Discussion

### 5.2.1. Sample Characteristics

The characteristics of 477 total respondents, who were the voter registered elderly in Iowa, were roughly aligned with the demographic characteristics of the Iowa population age 65 and older in the 2012 American Community Survey (ACS) conducted by U.S. Census Bureau (n=469,618) (U.S. Census Bureau, 2012). The percentages who were female (55.35% vs 56.7%), had education of at least high school (89.1% vs 86.1%), and were married (62.68% vs 58.9%), were similar each other, as was median age (75 vs 74.7) (Appendix P).

Total Part D beneficiaries (n=298, both LIS and non-LIS) accounted for 69.1 percent of survey respondents who had drug coverage (n=431) (Appendix P), which was slightly higher than the 67.4 percent of the 2011 Iowa population as reported by CMS (Centers for Medicare & Medicaid Services, 2012). Demographics of the non-LIS Part D sample (n=264) were also compared with the 2011 CMS statistics; our Part D sample had more females (62.12% vs 57.42%) and fewer respondents age 65-74 (49.62% vs 54.07%) (Table 4.4).

More females in the Part D sample might have influenced several measures in the model. Survey responses are self-reported information. It is known that women use a broader range of information when they make a perceptual judgment compared to men. For example, women tend to include non-health related events and their resulting feelings when assessing their health status, resulting in inaccurate assessment (Benyamini, Leventhal, & Leventhal, 2000).

Furthermore, only one quarter of our Part D sample lived alone. Living with a spouse or children means fairly good access to potential helpers, which may explain the higher percentage of people receiving help (49.62%) compared to Kaiser's survey results (24%) (Henry J. Kaiser Family Foundation, 2012b). Also, nine in ten of our Part D sample received at least a high school

education, which might influence rating some measures related to understanding information. They might have been well-educated about Part D plans which resulted in the relatively high percentages of correct answers to ability measures. This in turn might have made them more comfortable with the plan switching process, resulting in relatively modest level of confusion.

#### 5.2.2. Was There Plan Stickiness?

A small share of respondents switched plans between 2012 and 2013, which paralleled prior studies. The rate of plan switching (17.8%, Table 4.4) was slightly higher than that in the Kaiser study (16.3%, 2006-2010 average switching rate in Upper Midwest region) (Hoadley, Hargrave, Summer, Cubanski, & Neuman, 2013). This difference probably stems from different definitions of plan switching and study population between the two studies. While the present study focused on only elderly Part D beneficiaries, Kaiser's study analyzed both elderly and disabled PDP beneficiaries. Furthermore, while the present study defined plan switching as whether to switch or not, Kaiser study excluded plan switching due to plan discontinuation, labeled as "involuntary plan switching" (Hoadley et al., 2013). The MedPAC study used the same definition as the Kaiser study (Suzuki, 2013). The present study asked survey subjects to describe the reasons for plan switching but given the open-ended nature of this question, it was thought to be inadequate to use it for screening out "involuntary plan switching".

#### 5.2.3. Was There Active Versus Passive Plan Stickiness?

Non-switchers were varied in their understanding of information, supporting the main idea of the study that plan stickiness is not a one-dimensional construct. Non-switchers who did not understand much information, labeled as "consumer inertia" by definition of the present study, accounted for about 30 percent of non-switchers (Table 4.17). These people most likely did nothing and stayed with their current plan without reasonable rationale.



On the other hand, non-switchers who had a relatively thorough understanding of plan information, accounted for 19 percent of non-switchers and were labeled as “informed plan switching”. These people most likely compared their current plan with alternative plans and found their current plan to be best for them.

“Informed plan switching” is assumed to be accompanied by a cost-benefit calculation of plan switching using beneficiaries’ knowledge. The costs and benefits are not necessarily monetary. Despite cost being the most frequently raised reason for plan switching, our qualitative results provided some insights into non-monetary factors that beneficiaries valued, such as brand name of the plans. There were participants who chose their plans because they liked a particular insurer or plans connected to the AARP.

Despite fewer observed cases, uninformed choices were made by switchers as well. About 12 percent of switchers did not read much information, suggesting their plan switching decision might not be well-justified. Beneficiaries who were simply swayed by friends’ choices and switched to the same plan could be an example of this case.

#### 5.2.4. Why Not Switch Plans?

The reasons for non-switching have been discussed from various perspectives. One view is that beneficiaries do not switch because they are happy with their plans. In this study, non-switchers rated their overall satisfaction with their previous year plans higher than switchers. Kling et al. (2007) also found a positive relationship between satisfaction rating for the 2006 plan and the switching decision for the 2007 plan. However, the impact of satisfaction on plan switching decision should be interpreted with caution. It could be the case that beneficiaries were happy with their plans because they did not know about plan changes that might significantly influence their satisfaction level. In a separate question asking respondents to check changes in

their plan that they were aware of, nearly one third (31.82%, Table 4.8) answered they did not know about any changes, suggesting that their later satisfaction level might be different from their initial satisfaction prior to learning about the plan changes. Furthermore, there are possibilities that respondents rated overall satisfaction with their current plan instead of last year's plan.

Another view is that beneficiaries do not switch because they perceive the switching process to be bothersome and complicated. This study results suggest that while nearly a half of 2013 switchers (47.5%) had switched plans twice or more in the past, only about one quarter of 2013 non-switchers (14.7%) had switched twice or more (Table 4.15). This difference could be explained by switching costs. The more consumers switch, the more familiar with the switching process they become, which reduces switching costs (Burnham, Frels, & Mahajan, 2003). In addition to increased familiarity, beneficiaries could have learned more about benefits of plan switching through past switching experience. Beneficiaries who became comfortable with plan switching process and benefited from plan switching may feel less burden from plan switching.

Another view is that beneficiaries do not switch because they lack knowledge about how the Part D system works and how they can switch plans. In this study, more than six in ten respondents had correct knowledge about formularies (63.26%) and different copayments for generic and brand-name drugs (64.77%, Table 4.8). This knowledge level was an improvement compared to previous studies (Kling et al., 2011; "Voices of beneficiaries," 2006), but still is well below 100 percent, suggesting that beneficiaries' limited knowledge might influence plan switching decisions.

This study adds another discussion point to the reasons for non-switching – whether beneficiaries have help reviewing coverage options. Nearly half of respondents (49.62%, Table

4.4) answered they received help with their plan selection for 2013. The present study found that the rate of receiving help from other people in reviewing coverage options among switchers (90%) was twice as high as that of non-switchers (45.29%, Table 4.15). The helper's role in the plan switching decision emerged as important from the qualitative results as well. Beneficiaries received help in various ways from delegating all information processing (i.e. helper got beneficiaries committed to choosing a plan and helped their understanding with information) to delegating only part of information processing (i.e. beneficiaries committed to information processing by themselves and received some help in understanding information).

The helper factor could explain the small differences in ability scores and opportunity between switchers and non-switchers. Regardless of whether beneficiaries worked with helpers or had helpers do all the work, helper's knowledge and familiarity with system should have complemented beneficiaries' own knowledge and familiarity levels. Thus, with a helper, beneficiaries' ability or Part D system's complexity might not be of much concern, rather, the quality of helper becomes of interest as not all helpers are good agents who understand beneficiaries' circumstances and the plan switching process. Non-professional helpers such as friends or family members may not have sufficient knowledge about the plans to help the beneficiary make an informed decision. Moreover, insurance agents being the most popular helpers raise some concern as they have incentives to steer beneficiaries toward particular plans. Beneficiaries' reliance on helpers in plan choice and the need to develop good quality helpers were reported in studies examining health insurance choices in insurance exchange (Sinaiko, Ross-Degnan, Soumerai, Lieu, & Galbraith, 2013), supporting the results of the present study.

Lastly, the present study found few differences in demographics between switchers and non-switchers, which was consistent with Kaiser's study using 4-year CMS data (Hoadley et al.,

2013). Patel et.al. (2009) also found that switching decision was independent of demographic and clinical characteristics (Patel et al., 2009).

#### 5.2.5. Why Not Process Plan Information? – The Model of Plan Information Processing

The present study modeled the amount of plan information processed using the adapted MOA model. The baseline structure in the model of plan information processing (excluding moderating effects) consisted of the associations from the original MOA model (i.e. needs – motivation – level information processing) and the associations added to the original model based on literature (i.e. perceived risk – motivation and self-efficacy – motivation). The results confirmed the associations from the original model and supported the added associations with modifications.

As the proposed model was found to fit the data poorly, the direct paths from perceived risk and self-efficacy to the level of information processing were added and this modified model was found to fit the data well. Model modification or re-specification is a very common practice when the model does not have an adequate fit to the data, which occurs frequently (Joreskog, 1993). One might criticize that post hoc model modification generates a data-driven model. To mitigate such concern, it is advised to carefully note how the model was modified and to cross-validate the model using different sample. Furthermore, it is advised that the model modification should not rely solely on statistics, it should be theoretically justified.

The results of structural equation modeling analysis suggested three factors (motivation, perceived risk, self-efficacy) influenced the level of information processing and three factors (needs, perceived risk, self-efficacy) influenced motivation to process information. Respondents who had higher risk perceptions about plan choice, were less confident with understanding information, and were less motivated to read information were unlikely to process much plan

information. Also, those who had high risk perceptions, were confident, and perceived the importance of plan choice were more likely to be motivated to process information.

The most notable result from these findings was a role of needs in the relationship between perceived risk and information processing. Perceived risk was negatively associated with the amount of information processing but was positively associated with it via motivation under the presence of needs. Although the original Mittal's purchase involvement scales included items to capture both product importance and product differentiation, in the present study, only items for product importance were tested in structural equation modeling analysis after post-hoc model modification; therefore, the interpretation of needs should narrow in scope - whether beneficiaries felt that plan choice was an important task. For example, a beneficiary who was concerned about losing coverage by switching to the wrong plan was unlikely to read plan information, but if he thought being enrolled in a good plan was very important, his high perception of importance of plan choice could motivate him to read information in order to reduce risk. This finding is aligned with Gemunden (1985)'s argument that situational involvement was a necessary condition for individuals to cope with their risk by processing more information.

### **5.3. Methodological Considerations**

One approach used to strengthen the validity of the study was the use of methodological triangulation. Methodological triangulation involves combining multiple data collection methods (Jick, 1979; E. S. Mitchell, 1986) - focus groups, interviews, and survey in this study.

Triangulation was used for completeness because the Part D plan switching decision was a largely uncovered research area and therefore, generation of rich descriptive data through qualitative methods could help with designing the quantitative methods. Another approach taken

to enhance credibility of the study was the use of a model throughout the study. The adapted MOA (Motivation, ability, opportunity) model successfully guided us to understand beneficiaries' plan information processing behaviors and helped lend coherence to data collected using different methods.

#### **5.4. Limitations**

The representatives of the study sample maybe somewhat limited due to the low survey response rate. The biggest challenge in completing this project was to yield sufficient number of survey responses.

One possible reason for this low response rate is that two subject contacts (one mailed survey and one postcard reminder) plus one partial phone contact were insufficient. Using at least four subject contacts (pre-notification, survey initial mailing, second-mailing, postcard reminder) in any further studies should yield more responses.

Another potential reason for the low response rate that unexpectedly emerged during the study was that study subjects appeared to perceive this project had a political purpose. There were quite a number of phone calls from study subjects asking if this survey was related with government or health care reform or President Obama and indicating wishes not to participate. Some major pieces of the health care reform law were implemented and widely discussed during study period. For this reason, the study topic seemed to somehow remind the subjects of the political controversies and this likely resulted in a lower participation rate.

The generalizability of the study findings also is limited. The quantitative study sample was relatively well-educated, healthy, and socially inclusive (e.g. lived with someone), and had almost twice as many females as males. As noted above, these sample characteristics might have influenced some measures in the study, so our findings may have been different if there were

socially exclusive, unhealthy, and less-educated people. Moreover, the study was conducted in Iowa, a state that belongs to the Upper Midwest region that is known to have the highest Part D enrollment rate. Therefore, our study findings may not apply to other states that have different demographics and Part D plan penetration.

Moreover, the model underwent post-hoc modification; therefore, the results may not apply to other samples and the model needs to be cross-validated with other independent sample in the future. In addition, items that were removed through confirmatory factor analysis or were removed to shorten the survey might limit the scope of our construct measures. For example, originally three items were developed to measure the construct of needs, two of which intended to capture product importance and one of which was for product differentiation. The item for the product differentiation ended up being removed as it loaded poorly on the construct of needs, resulting in only capturing the aspect of product importance of needs. Also, a change in health status could influence needs, but by removing an item asking beneficiaries to list any newly diagnosed health condition in the last year, the study could not address that aspect of need.

Furthermore, the sample includes both MAPD and PDP enrollees. The study findings might be influenced by perceptions about other medical services that MAPD enrollees might have considered when selecting plans. In addition, the present study included involuntary plan switching that might have a different decision making process; for example, beneficiaries could not help but switch as their plans were discontinued.

Lastly, respondents might answer the questions using the wrong time frame because some items asked about their 2012 plan and others asked about their 2013 plan.

### **5.5. Policy Implications**

Our study findings suggest several policy implications. To help Part D beneficiaries make informed switching decision, maybe it is time to switch our focus from beneficiaries to helpers. A lot of attention has been given to beneficiaries thus far – whether they felt the Part D system was too complex, whether a lot of choices and information overwhelmed them, or whether they understood information. But with having helpers involved as persons who go through the decision-making process on behalf of beneficiaries, we are facing different issues – whether the access to a helper is convenient and who could be a qualified helper.

Nearly a half of respondents (49.62%) received help in reviewing and comparing Part D plan coverage options and whether to receive help was found to be a major difference between switchers and non-switchers. Although beneficiaries still expressed their confusion with lots of choices and information, beneficiaries appeared to know that a helper could resolve these problems. Thus, under the presence of a helper, limited knowledge or a complex switching process would not be of much concern if beneficiaries could easily access a good quality helper. To account for this need for easy access to qualified helpers, policy makers could consider supporting health care professionals' involvement in helping beneficiaries' plan choices and making access to SHIP consultants easier (e.g. give them an office and allow walk-in consulting during open enrollment period).

### **5.6. Future Research**

The study findings and their policy implications suggest several future studies on plan switching decisions. The results suggested factors affecting how much plan information beneficiaries understood but left the question of what makes informed beneficiaries translate their knowledge into plan switching. The results from the comparison between switchers and



non-switchers suggested several factors (e.g. helper, needs) that might contribute to motivating informed beneficiaries to act on their knowledge, but this information needs to be tested further.

To answer this research question, an intervention study using student pharmacists can be done in the future. Several pharmacy schools have examined if student pharmacists could be good candidates for qualified helpers and have reported good outcomes – more plan switching, more cost savings (Hayes & Hutchison, 2013; Patel et al., 2009). However, in these studies, beneficiaries had to visit the place where student pharmacists offered counseling. This study setting may cause self-selection bias in that only those who are involved in plan switching participate in the study. Thus, it will be hard to examine behavioral changes of inertial beneficiaries, who are of particular interest. On that note, providing on-site counseling instead of having beneficiaries visit the counselor would be a good setting to get inertial beneficiaries engaged in the study. Community-dwelling Part D beneficiaries could be a plausible target population for several on-site counseling sessions during the open enrollment period. The study outcomes from this future study should be able to suggest how to engage health care professionals as helpers in Part D system and the role of helper in motivating beneficiaries to take action based on their understanding of information.

Furthermore, the present study findings suggested beneficiaries wanted to exert the least effort on any task relating to plan switching. This tendency not only demonstrates beneficiaries' passiveness in plan selection but also may be evidence that communication concerning plan switching is not sufficient to motivate beneficiaries to review their coverage options and consider plan switching if needed. When the open enrollment period comes around, a lot of information is sent to beneficiaries to educate them about what they have to do. But the communication may

need to contain persuasive messages in order to motivate beneficiaries to change their attitudes toward plan switching.

The persuasive messages can contain benefits of plan switching, costs of plan switching, or both. The question is whether it matters if an appeal to promote plan switching emphasizes the gains of switching (e.g. saving costs) or the losses of non-switching (e.g. paying high, losing coverage). Prospect theory suggests that individuals respond differently to loss-focused information than to gain-focused information (Kahneman & Tversky, 1979). If the communication is deliberately framed to efficiently promote plan switching, more informed beneficiaries may switch plans. A field experiment can be performed to examine whether gain-focused or loss-focused communications are more likely to increase plan switching. Two communication methods can be tested – verbal communication and printed materials.

Lastly, our qualitative results suggested that beneficiaries had different ways to utilize helpers in their plan selection. A recent survey conducted by Kaiser found that whether beneficiaries reviewed options by themselves, did it with someone else, or someone else did it for them was affected by age and education level (Henry J. Kaiser Family Foundation, 2012b). It would be useful to examine what other factors influenced beneficiaries' decisions on delegating information. This information will help target populations to provide assistance with plan selection.

## **5.7. Conclusion**

The present study is the first to integrate the concept of information processing to understand Part D beneficiaries' plan switching decisions. The study proposed the use of the amount of information processed in evaluating the adequacy of the plan switching decision. Most existing studies used whether the chosen plan was the lowest cost plan as the criteria for

judgment. For example, if beneficiaries did not switch plans when there were cheaper alternatives, this non-switching decision was inadequate. The assumption of fully informed beneficiaries makes this logic possible because “fully informed” presumes that beneficiaries are aware of benefits of switching to a cheaper plan (e.g. cost saving) and therefore not switching despite knowing those benefits logically cannot be an adequate choice. However, the present study findings suggest that this assumption should be made with caution. The study found large variations in beneficiaries’ understanding of information among those who made the same switching decision.

Only one study evaluated the adequacy of plan switching decisions, taking variations in information processing into account (Heiss et al., 2012), but that study could not explain what makes beneficiaries use different pieces of information. The present study is the first to examine psychological factors affecting beneficiaries’ information processing. Perceived importance of plan choice, confidence with understanding information, and risk perception about plan choice were associated with willingness to process information, which was found to predict the amount of information processing. It is interesting that how much beneficiaries are informed is likely to be influenced by psychological factors.

The ultimate goal is that beneficiaries make informed choices, regardless of whether they choose to switch plans or stay with the same plan. To achieve this goal, policymakers have focused on educating beneficiaries - providing information and assessing their awareness. As a result, beneficiaries are receiving large amounts of information and their awareness has improved. Our findings suggest that what matters now may be how to motivate beneficiaries to accept the information and to act on interpreted information. That is, we have to shift our paradigm from delivering information to making information understood. On that note,

understanding what factors encourage beneficiaries to digest information is valuable knowledge to shape a communication with beneficiaries under a new paradigm.

The present study is also the first study to incorporate psychological factors when examining plan switching decisions. The levels of these psychological factors (e.g. needs, motivation, the level of information processing) were also found to be significantly different between switchers and non-switchers while the demographics and plan characteristics (premium and copayment) were not significantly different between the two. Switchers and non-switchers were also found to be different in whether they received help in reviewing coverage options. It is notable that the role of helpers is prominent in plan switching decisions. Higher needs and motivation together with the higher rate of receiving help found in switchers suggest that helpers might explain to beneficiaries how important plan switching is (i.e. increase the perception of importance of plan choice) thereby motivating them to accept the information, and make a more informed switching decision. This finding also posits the importance of good quality communication.

Taken together, the present study suggests policy makers should focus on developing efficient communication strategies with beneficiaries to help them to make informed choices. More studies exploring who and how to offer assistance in plan switching need to be done in the future.

## APPENDIX A. DISCUSSION QUESTIONS FOR FOCUS GROUPS AND INTERVIEW

Focus group questions	Construct
<p>Engagement question (do vote):</p> <ol style="list-style-type: none"> <li>1. How long have you been in Part D?</li> <li>2. How many of you are in the same plan last year and this year?</li> <li>3. How many of you have switched in the past?</li> </ol>	
<p>Exploration questions:</p> <ol style="list-style-type: none"> <li>1. How do you feel about your Medicare Part D plan last year?</li> </ol>	Antecedents of motivation
<ol style="list-style-type: none"> <li>2. So please tell me what did you do during the open enrollment period for Part D last year?               <ol style="list-style-type: none"> <li>2.1. What did you do with flyers and booklets from the Part D plans?</li> <li>2.2. Where did you get information sources?</li> <li>2.3. What kind of help did you get to decide your plan?</li> </ol> </li> </ol>	<p>Level of information processing</p> <p>Opportunity</p>
<ol style="list-style-type: none"> <li>3. For those who received help from others, how much did you understand what was given by helper?               <ol style="list-style-type: none"> <li>3.1. Would you give me an example?</li> </ol> </li> </ol>	Level of information processing (delegate)
<ol style="list-style-type: none"> <li>4. With or without help, when you think switching plans, what concerns do you have?</li> </ol>	Opportunity
<p>Exit question:</p> <ol style="list-style-type: none"> <li>1. Is there anything else you would like to say about why you do or do not switch Part D plans?</li> </ol>	

## APPENDIX B. QUALITATIVE STUDY APPROVAL FORM

**Response Form**

Please fax the completed form to (319) 353-5646 or email [jayoung-han@uiowa.edu](mailto:jayoung-han@uiowa.edu).

**Dissertation Study:** Why Medicare Part D beneficiaries do not switch plans: testing a model of Part D plan information processing

**Principle Investigator:** Jayoung Han (phone: 319-471-3619)

Please check one of the responses:

I APPROVE the study to be conducted at the site listed below.

I DO NOT APPROVE the study to be conducted at the site listed below.

**Site Name:** Melorse Meadows

**Site Address:** 350 Dublin Drive Iowa City, IA 52246

**Name:**

**Title/Role:** Administrator

**Signature:** \_\_\_\_\_

**Date:** May 6, 2013

## APPENDIX C. RECRUITMENT FLYER

FOR IRB USE ONLY  
APPROVED BY: IRB-01  
IRB ID #: 201304734  
APPROVAL DATE: 04/15/13  
EXPIRATION DATE: 04/15/14

**Medicare Part D Beneficiaries Invited to  
participate in a research study about  
“Medicare Part D Plan Switching”**

**Compensation is available**

Researchers in the college of pharmacy at the University of Iowa are conducting a series of focus groups to learn how Medicare Part D beneficiaries choose their Part D plans. The feedback from the groups will be used to develop tools to improve Part D beneficiaries' choices.

- Time 11:30 am – 12:30 pm
- When May 5<sup>th</sup>, 2013, Sunday
- Where Saint Patrick Church - Parlor

If you would like to learn more or if you are interesting in participating, please call Jay at 319-471-3619 or email her at [jayoung-han@uiowa.edu](mailto:jayoung-han@uiowa.edu)

## APPENDIX D. CONFIRMATION LETTER

FOR IRB USE ONLY  
APPROVED BY: IRB-01  
IRB ID #: 201304734  
APPROVAL DATE: 04/15/13  
EXPIRATION DATE: 04/15/14

**Focus Group Confirmation Letter**

April 29, 2013

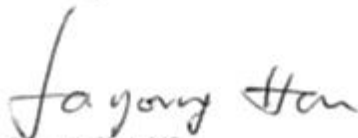
Dear \_\_\_\_\_,

Thank you for your willingness to participate in our focus group. As discussed in church, we would like to hear your ideas and opinions about Medicare Part D. You will be in a group with 6 to 9 other participants. Your responses to the questions will be kept anonymous. You will receive \$25 in compensation at the end of the focus group discussion. The date, time, and place are listed below. Please look for signs once you arrive directing you to the room where the focus group will be held.

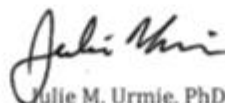
- Date May 5<sup>th</sup>, 2013
- Time 11:30 am - 12:30 pm
- Place Saint Patrick Church - Parlor room

If you need directions to the focus group or will not be able to attend for any reason, please call Jayoung Han at 319-471-3619. Otherwise, we look forward seeing you.

Sincerely,



Jayoung Han, MS  
Principal Investigator  
PhD Candidate  
Health Services Research



Julie M. Urmie, PhD  
Faculty Advisor  
Associate Professor  
Health Services Research



## APPENDIX E. CONSENT FORM FOR FOCUS GROUPS AND INTERVIEWS

*Focus Group Consent - original*

FOR IRB USE ONLY
APPROVED BY: IRB-01
IRB ID #: 201304734
APPROVAL DATE: 04/30/13
EXPIRATION DATE: 04/15/14

We invite you to participate in a research study. The purpose of the study is to understand Medicare Part D beneficiaries' perceptions about the Part D switching process.

We are inviting you to be in this study because you are enrolled in Medicare Part D. We obtained your name and address from phone conversation with you to confirm your participation. Approximately 50 people will take part in this study at the University of Iowa.

If you agree to participate, we would like you to participate in a focus group and answer questions about your decision-making process regarding the Part D plan last year and your perceptions about the Part D plan switching process; for example, what you did during the open enrollment period last year? The discussion will take one hour. In the beginning of the discussion, brief background information will be collected.

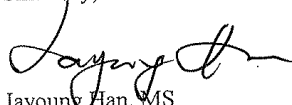
We will keep the information you provide confidential, however federal regulatory agencies and the University of Iowa Institutional Review Board (a committee that reviews and approves research studies) may inspect and copy records pertaining to this research. We will audio-record the discussion but the record will remain strictly confidential. If we write a report about this study we will do so in such a way that you cannot be identified.

There are no known risks from being in this study, and you will not benefit personally. However we hope that others may benefit in the future from what we learn as a result of this study. You will not have any costs for being in this research study. You will be paid for being in this research study. You will be provided 25-dollar gift card as compensation of the study participation.

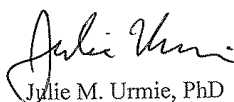
Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you stop participating at any time, you won't be penalized or lose any benefits for which you otherwise qualify.

If you have any questions about the research study itself, please contact Jayoung Han/ 319-471-3619. If you experience a research-related injury, please contact: Jayoung Han/ 319-471-3619. If you have questions about the rights of research subjects, please contact the Human Subjects Office, 105 Hardin Library for the Health Sciences, 600 Newton Rd, The University of Iowa, Iowa City, IA 52242-1098, (319) 335-6564, or e-mail [irb@uiowa.edu](mailto:irb@uiowa.edu). To offer input about your experiences as a research subject or to speak to someone other than the research staff, call the Human Subjects Office at the number above.

Thank you very much for your consideration  
Sincerely,



Jayoung Han, MS  
Principal Investigator  
PhD Candidate  
Health Services Research



Julie M. Urmie, PhD  
Faculty Advisor  
Associate Professor  
Health Services Research



## APPENDIX G. SURVEY ITEM GENERATION

Table G1. Purchase Involvement Scale Developed by Mittal (1989) and Generated Items

Original Items	Generated items
<p>1 In selecting from the many types and brands of this product available in the market, would you say that:</p> <p><i>I would not care at all as to which one I buy – I would care a great deal as to which one I buy (7-point)</i></p>	<p>In selecting from the many Part D plans available in the market, would you say that: (A13)</p> <p><i>I don't care at all to which one I enroll – I care a great deal as to which one I enroll (7-point)</i></p>
<p>2 Do you think that the various types and brands of this product available in the market are all very alike or are all very different?</p> <p><i>They are alike --- They are all very different</i></p>	<p>Do you think that the many Part D plans available in the market are all very alike or are all very different (A14)?</p> <p><i>They are alike --- They are all very different (7-point)</i></p>
<p>3 How important would it be to you to make a right choice of this product?</p> <p><i>Not at all important --- Extremely important</i></p>	<p>How important would it be to you to make a right choice of Part D plan (A15)?</p> <p><i>Not at all important --- Extremely important (7-point)</i></p>
<p>4 In making your selection of this product, how concerned would you be about the outcome of your choice?</p> <p><i>Not at all concerned --- Very much concerned</i></p>	

Table G2. Perceived Risk Items Developed by Dholakia (2001) and Generated Items

	Original Items	Generated items
<i>Psychological risk</i>		
1	When I thought about buying the robe, I would experience tension.	When I thought about choosing a Part D plan, I experience tension (C4)
2	The thought of buying the robe would make me feel uncomfortable.	The thought of choosing Part D plan makes me feel uncomfortable (A20).
3	The thought of buying the robe would fill me with anxiety.	The thought of choosing a drug plan fills me with anxiety (A27).
4	I would worry a lot when buying the car.	I don't worry a lot when choosing a drug plan (A22).
<i>Functional risk</i>		
1	When buying the robe, I would worry about how reliable the robe will be.	When choosing a drug plan, I worry about how reliable the Part D plan will be (A19).
2	I would be afraid that the robe would not provide me with the level of benefits that I expected it to.	I am afraid that a drug plan will not provide me with the level of benefits that I expected it to (A30).
3	I would be concerned that I may not get my money's worth from the robe when buying it.	I am concerned that I may not get my money's worth from a drug plan when choosing it (A28).

Note. 7-point Likert scales ranging from strongly disagree to strongly agree were developed.

Table G3. 17-item Self-efficacy Scale for Information Literacy (Kurbanoglu et al. 2006) and Generated Items

Original Items	Generated Items
I feel confident and competent to:	
<i>Intermediate information literacy skills</i>	
Define the information I need	I feel confident to identify what drug plan information I should look at (A23)
Select information most appropriate to the information need	I feel confident in ability to identify what drug plan information I should look at (C14)
Interpret the visual information (i.e. Graphs, tables, diagrams)	I feel confident in ability to interpret the visual information (C15)
Write a research paper	I feel confident to use print sources of information (A24)
Prepare a bibliography	I feel confident to use internet sources of information (A25)
Create bibliographic records for different kinds of materials (i.e. books, articles, thesis, web pages)	I feel confident in ability to seek outside help for choosing a drug plan (C18)
Make citations and use quotations within the text	
Learn from my information problem solving experience and improve my information literacy skill	
<i>Basic information literacy skills</i>	
Use different kinds of print sources (i.e. books, periodicals, encyclopedias, chronologies, etc.)	
Locate information sources in the library	
Use library catalogue	
Locate resources in the library using the library catalogue	
<i>Advanced information literacy skills</i>	
Synthesize newly gathered information with previous information	
Determine the content and form the parts (i.e. introduction, conclusion) of a presentation (written, oral)	
Create bibliographic records and organize the bibliography	
Criticize the quality of my information seeking process and its products	

Note. 7-point Likert scales ranging from strongly disagree to strongly agree were developed.

Table G4. Motivation Items Developed by Moorman (1990) and Generated Items

	Original Items	Generated items
	<i>Enduring motivation to process</i>	
1	How often do you read nutritional labels?	
2	How interested are you in reading nutrition and health-related information at the grocery store?	
3	How often do you read nutrition labels at the grocery store?	
	<i>Motivation to process</i>	<i>Motivation to process</i>
1	I am interested in looking for (target nutrient) information on hot dog labels.	I am interested in looking at information on my current drug plan (A16).
2	I am interested in looking for (target nutrient) information on margarine labels.	I am interested in looking at information on alternative drug plans (A17).
3	I would like to receive additional (target nutrient) information on hot dog labels	I would like to get more information on alternative Medicare drug plans (D4)
4	I would like to receive additional (target nutrient) information on margarine labels	I would like to get more information on current Medicare drug plans (D5)
5	I intend to pay attention to (target nutrient) information while shopping	I intend to look at plan information while choosing a drug plan (A21).

Note. 7-point Likert scales ranging from strongly disagree to strongly agree were developed.

APPENDIX H. DESCRIPTION AND EXAMPLES OF LEVEL OF INFORMATION  
PROCESSING

Level of information processing	Information processing/ attitude formation process	
	Description	Example
1	Do not process brand information. Simply react to salient feature of the information.	Watched commercial that had upbeat background music. It made me feel good. Whatever brand this commercial advertises I have a feeling that it will be a good brand.
2	Do not process brand information. Categorize salient feature of the information.	Watched commercial that had upbeat background music. <i>It sounded like Beatles' Revolution, which always make me feel excited.</i> Whatever brand this commercial advertises I have a feeling that it will be a good brand.
3	Start processing brand information. But it is limited to peripheral cue (e.g. source of information). Pick one piece of information that can be easily processed and make overall evaluation based on that.	Watched commercial that had upbeat background music. It sounded like Beatles' revolution, which always make me feel excited. <i>Recognized Michael Jordan wearing a Nike T-shirt in that commercial.</i> Nike should be a good brand because Michael Jordan wears it.
4	Start processing central idea of brand information.	Watched commercial that had upbeat background music. It sounded like Beatles' revolution, which always make me feel excited. Recognized Michael Jordan wearing a Nike T-shirt in that commercial. <i>He played hard and looked very comfortable in that shirt. This Nike shirt must stretch well.</i> I like this Nike shirt.
5	Process central idea of brand information and start linking the message with myself. Integrative evaluation occurs based on my past knowledge or experience.	Watched commercial that had upbeat background music. It sounded like Beatles' revolution, which always make me feel excited. Recognized Michael Jordan wearing a Nike T-shirt in that commercial. He played hard and looked very comfortable in that shirt. This Nike shirt must stretch well. <i>I did not play well in a basketball game with friends last week because my shirt was not stretched well.</i> I think I should buy this shirt.

6	<p>Process central idea of brand information and start linking the message with myself.</p> <p>Integrative evaluation occurs based on not only my past knowledge or experience but also imaginary, hypothetical situation.</p>	<p>Watched commercial that had upbeat background music. It sounded like Beatles' revolution, which always make me feel excited. Recognized Michael Jordan wearing a Nike T-shirt in that commercial. He played hard and looked very comfortable in that shirt. This Nike shirt must stretch well. I did not play well in basketball game with friends last week because my shirt was not stretched well. <i>Imagine how awesome I would look if I wear this Nike shirt in my basketball game next week. I would play the best and my friends will envy me.</i> I should buy this shirt.</p>
---	--	---

Note. *Italic* indicates language corresponding to higher level of information processing



## APPENDIX I. FINAL MAILED SURVEY

Page 1 of 8



## SURVEY ON PRESCRIPTION DRUG PLANS

Answering these questions should take about 10 minutes.

All responses are **anonymous**.

## Section A. Insurance Coverage for Prescription Drugs

First, we would like to get some information about your prescription drug coverage and how you feel about drug plans.

A1. Do you currently have insurance for your prescription drugs?

- Yes  
 No → Go to Section B on page 7

A2. What kind of drug plan do you have? Please check **ALL** that apply.

- Medicare drug plan that I bought.  
 Plan provided by my current employer or a family member's employer  
 Plan provided by former employer or union  
 Plan provided by Veterans Administration  
 Other (please specify: \_\_\_\_\_)

A3. What year did you first enroll in a drug plan? \_\_\_\_\_

(For those who have a Medicare drug plan, please provide *the year when you first enrolled in a Medicare drug plan*. Medicare drug plans were introduced in 2006).

A4. How many times have you switched drug plans since you first enrolled?

(For those who have a Medicare drug plan, please count only Medicare drug plan switching.)

- None     Once     Twice     Three times or more

A5. Did you switch your drug plan **last year**?

- Yes, I switched plans last year.

(→A5a. Why did you switch plans? \_\_\_\_\_ )

- No, I did not switch. I have the same plan as last year's.

A6. Did your drug plan make any changes in 2013? Please check ALL that apply from below)

- Increased premium  
 Increased copayment  
 Stopped covering drugs that I take  
 Took out the pharmacy that I have used  
 Other (please specify: \_\_\_\_\_ )  
 Don't know

A7. How much is your monthly premium? \$ \_\_\_\_\_

A8. How much did you typically spend of your own money for a one-month supply of your regular drugs **last year**? \$ \_\_\_\_\_

A9. How many different prescription drugs did you regularly take **last year** (e.g. every day or every week)? Please put "0" if you don't take any.

\_\_\_\_\_ number of prescription drugs

A10. What type of drug plan do you have?

- Covers both drugs and other medical services  
 Covers only drugs  
 Don't know

A11. Which prescription drug plan do you have?

- |   |  |
|---|--|
| <input type="checkbox"/> Humana WalMart-Preferred Rx plan | <input type="checkbox"/> AARP MedicareRx Preferred |
| <input type="checkbox"/> Humana Enhanced                  | <input type="checkbox"/> AARP MedicareRx Enhanced  |
| <input type="checkbox"/> Humana Complete                  | <input type="checkbox"/> AARP MedicareRx Saver     |

- Blue Cross Blue Shield MedicareBlue Rx Standard  
 Blue Cross Blue Shield MedicareBlue Rx Premier

- |  |   |
|--|---|
| <input type="checkbox"/> SilverScript Basic  | <input type="checkbox"/> First Health Part D-Premier      |
| <input type="checkbox"/> SilverScript Choice | <input type="checkbox"/> First Health Part D-Value Plus   |
| <input type="checkbox"/> SilverScript Plus   | <input type="checkbox"/> First Health Part D-Premier Plus |

- |  |   |
|--|---|
| <input type="checkbox"/> Express Scripts Medicare        | <input type="checkbox"/> CIGNA Medicare Rx Plan One |
| <input type="checkbox"/> Express Scripts Medicare Choice | <input type="checkbox"/> CIGNA Medicare Rx Plan Two |

► If your plan is not listed, please provide your plan name below.

---

**For A12 to A15, please circle the number between 1 and 7 that best represents your feeling.**

A12. Overall, how much were you satisfied with your drug plan last year?

Not satisfied		Neutral		Very satisfied		
1	2	3	4	5	6	7

A13. In selecting from the many drug plans available in the market, would you say that:

I don't care at all which one I enroll		Neutral		I care a great deal which one I enroll		
1	2	3	4	5	6	7

A14. Do you think that the many drug plans available in the market are all very alike or are all very different?

They are alike			Neutral		They are all very different	
1	2	3	4	5	6	7

A15. How important is it for you to choose the right drug plan?

Not at all important			Neutral		Extremely important	
1	2	3	4	5	6	7

**For A16 to A20, please circle the number between 1 and 7 that best represents your level of agreement.**

	Strongly disagree		Neutral			Strongly agree	
A16. I am interested in looking at information on my <i>current</i> drug plan.	1	2	3	4	5	6	7
A17. I am interested in looking at information on <i>alternative</i> drug plans.	1	2	3	4	5	6	7
A18. It is hard to access information on drug plans.	1	2	3	4	5	6	7
A19. When choosing a drug plan, I worry about how reliable the plan will be.	1	2	3	4	5	6	7
A20. The thought of choosing a drug plan makes me feel uncomfortable.	1	2	3	4	5	6	7

**For A21 to A30, please circle the number between 1 and 7 that best represents your level of agreement.**

	Strongly disagree		Neutral			Strongly agree	
	1	2	3	4	5	6	7
A21. I intend to look at plan information while choosing a drug plan.	1	2	3	4	5	6	7
A22. I don't worry a lot when choosing a drug plan.	1	2	3	4	5	6	7
A23. I feel confident to identify what drug plan information I should look at.	1	2	3	4	5	6	7
A24. I feel confident to use print sources of information	1	2	3	4	5	6	7
A25. I feel confident to use internet sources of information.	1	2	3	4	5	6	7
A26. The drug plan switching process is complex.	1	2	3	4	5	6	7
A27. The thought of choosing a drug plan fills me with anxiety.	1	2	3	4	5	6	7
A28. I am concerned that I might not get my money's worth from a drug plan when choosing it.	1	2	3	4	5	6	7
A29. Having a lot of drug plans available is confusing.	1	2	3	4	5	6	7

	Strongly disagree		Neutral			Strongly agree	
	1	2	3	4	5	6	7
A30. I am afraid that a drug plan will not provide me with the level of benefits that I expect.							

A31. When choosing your 2013 drug plan, did you understand drug plan information all by yourself without getting any help?

- Yes, I did it all by myself.
- No, I got help from others.  
(→A31a. Who helped you? \_\_\_\_\_)

A32. With or without help, how thoroughly did you read information (e.g. brochures, pamphlets, booklet, and website) from the following sources? If you did not read at all, please check “1”.

	Did not read		Neutral			Read thoroughly	
	1	2	3	4	5	6	7
A32a. Drug plans							
A32b. Medicare							
A32c. SHIP							

- SHIP (Senior Health Insurance Counseling Program)

A33. When you chose your 2013 drug plan last year, how much did you understand information about your *current* plan?

Not at all	Neutral				Very well	
1	2	3	4	5	6	7

A34. When you chose your 2013 drug plan last year, how much did you understand information about *other alternative* plans?

Not at all		Neutral			Very well	
1	2	3	4	5	6	7

**For A35 to A37, please check if the given statement is true or false. If you are not sure, please check “don’t know”.**

A35. Some plans charge different copayments for generic drugs and brand name drugs.  True  False  Don't know

A36. The coverage gap (donut hole) is being phased out.  True  False  Don't know

A37. All plans cover the same list of drugs  True  False  Don't know

### Section B: General Information

Finally, we would like to ask you some general information about yourself to help us categorize the results.

B1. What is your age? \_\_\_\_\_

B2. What is your gender?  Female  Male

B3. What is your current living arrangement?

Live alone

Live with spouse

Other (please specify: \_\_\_\_\_)

Please continue to the back page →

B4. What is the highest education that you have attained? Please check one.

- Less than high school graduate
- High school graduate
- College graduate
- Graduate or Professional school

B5. What is your zip code? \_\_\_\_\_

B6. Do you get help from Medicare or your state to pay your Medicare prescription drug costs (i.e. Low income subsidy)?

- Yes
- No

B7. What is your best estimate of the total income before taxes and deductions of ALL household members from all sources **last year**?

- Less than \$15,000
- \$15,000 to \$34,999
- \$35,000 to \$54,999
- \$55,000 or more

B8. In general, would you say your health is:

- Excellent
- Very good
- Good
- Fair
- Poor

B9. We welcome your comments about Prescription drug plans.

---

---

---

- End of Survey. Thank you -



## APPENDIX J. COVER LETTER FOR FINAL MAILED SURVEY

FOR IRB USE ONLY  
APPROVED BY: IRB-01  
IRB ID #: 201304734  
APPROVAL DATE: 07/30/13  
EXPIRATION DATE: 04/15/14



COLLEGE OF PHARMACY  
Pharmacy Practice and Science  
115 S. Grand Avenue, 5557 Phar  
Iowa City, Iowa 52242-1112  
319-335-8878 Fax 319-353-5646  
<http://www.pharmacy.uiowa.edu/pps>

Dear Participant:

Doctoral student Jayoung Han and Dr. Julie Urmie invite you to participate in a research study that is a part of Jayoung's dissertation. **We greatly value your responses regardless of whether you take medication or the type of drug plan you have.** Please take some time to fill out the survey and return it.

The purpose of the study is to understand how older adults feel about their prescription drug plans and learn about their experiences with choosing and switching plans. We plan to use results from this study to develop tools to help older adults choose the best prescription drug plan for their needs.

We are inviting you to be in this study because you are older than 65 years old. We obtained your address from Iowa voter registration data. Approximately 2,500 people from Iowa are being invited to take part in this University of Iowa study.

If you agree to participate, we would like you to complete a survey about your choices regarding your prescription drug plan last year and your perceptions about prescription drug plan switching process. The survey will take about 10 minutes. Your survey responses will be **completely anonymous**. After completing the survey, you can return the survey using the enclosed envelope. Return postage is pre-paid.

We will keep the information you provide confidential, however federal regulatory agencies and the University of Iowa Institutional Review Board (a committee that reviews and approves research studies) may inspect and copy records pertaining to this research. The survey respondents will be completely anonymous.

FOR IRB USE ONLY  
APPROVED BY: IRB-01  
IRB ID #: 201304734  
APPROVAL DATE: 07/30/13  
EXPIRATION DATE: 04/15/14

There are no known risks from being in this study, and you will not benefit personally. However we hope that others may benefit in the future from what we learn as a result of this study. You will not have any costs for being in this research study. You will not be paid for being in this research study.

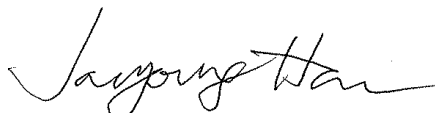
Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you stop participating at any time, it is completely fine.

We will send a reminder post card about one week after the survey is initially sent. We also may make one reminder phone call. There will be no further contact attempts after that. You can return the envelope with your name written on it if you do not wish to participate or be contacted again.

If you have any questions about the research study itself, please contact Jayoung Han/ 319-471-3619. If you experience a research-related injury, please contact: Jayoung Han, 319-471-3619. If you have questions about the rights of research subjects, please contact the Human Subjects Office, 105 Hardin Library for the Health Sciences, 600 Newton Rd, The University of Iowa, Iowa City, IA 52242-1098, (319) 335-6564, or e-mail [irb@uiowa.edu](mailto:irb@uiowa.edu). To offer input about your experiences as a research subject or to speak to someone other than the research staff, call the Human Subjects Office at the number above.

Thank you very much for your consideration

Sincerely,



Jayoung Han, M.S.  
Principal Investigator  
PhD Candidate  
Health Services Research



Julie M. Urmie, Ph.D.  
Faculty Advisor  
Associate Professor  
Health Services Research

## APPENDIX K. POSTCARD REMINDER FOR MAIN SURVEY

About a week ago, we sent you a questionnaire about Prescription Drug Plan.

If you have already filled it out and returned it, please accept our thanks.

If you have not gotten to it yet, please take some time to fill out the questionnaire and return it.

**We greatly value your responses regardless of whether you take medication or the type of drug plan you have.** The information you can provide will help us develop a tool to assist drug plan choice.

If for some reason you did not receive a questionnaire, please call me at 319-471-3619 and I will send one out right away.

Thanks again.

Sincerely,

*Jayoung Han*

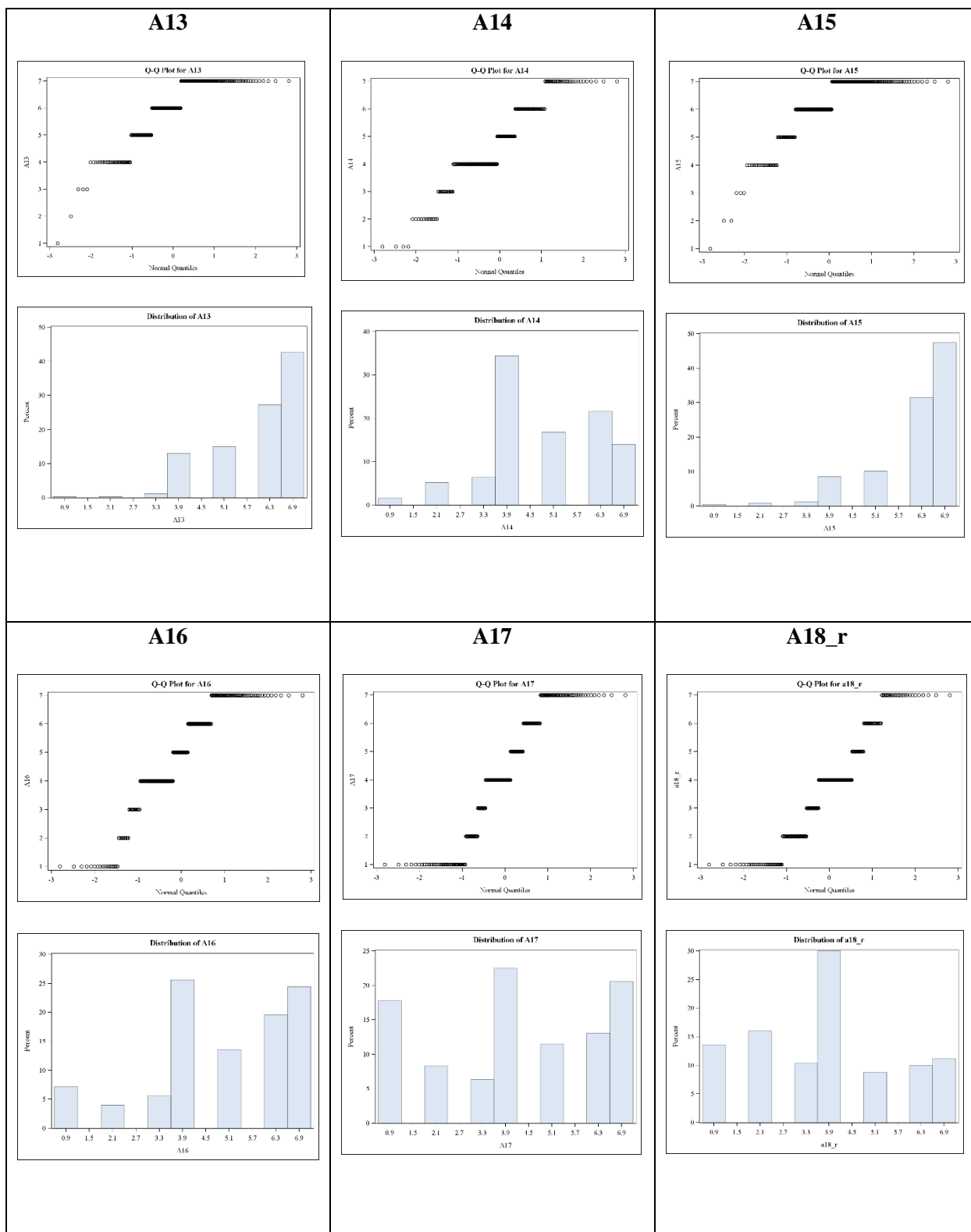
Jayoung Han, M.S.  
PhD Candidate  
College of Pharmacy  
University of Iowa

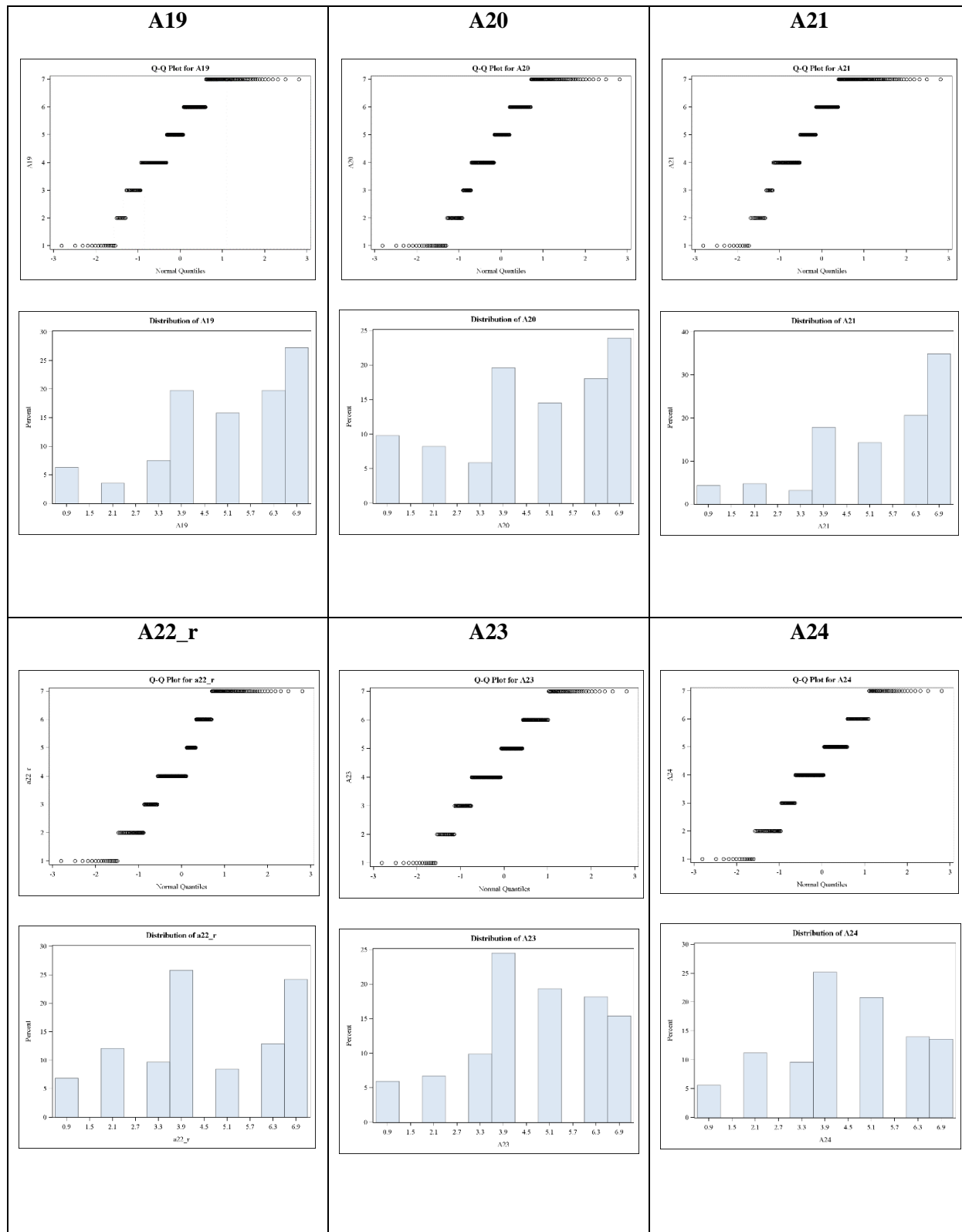


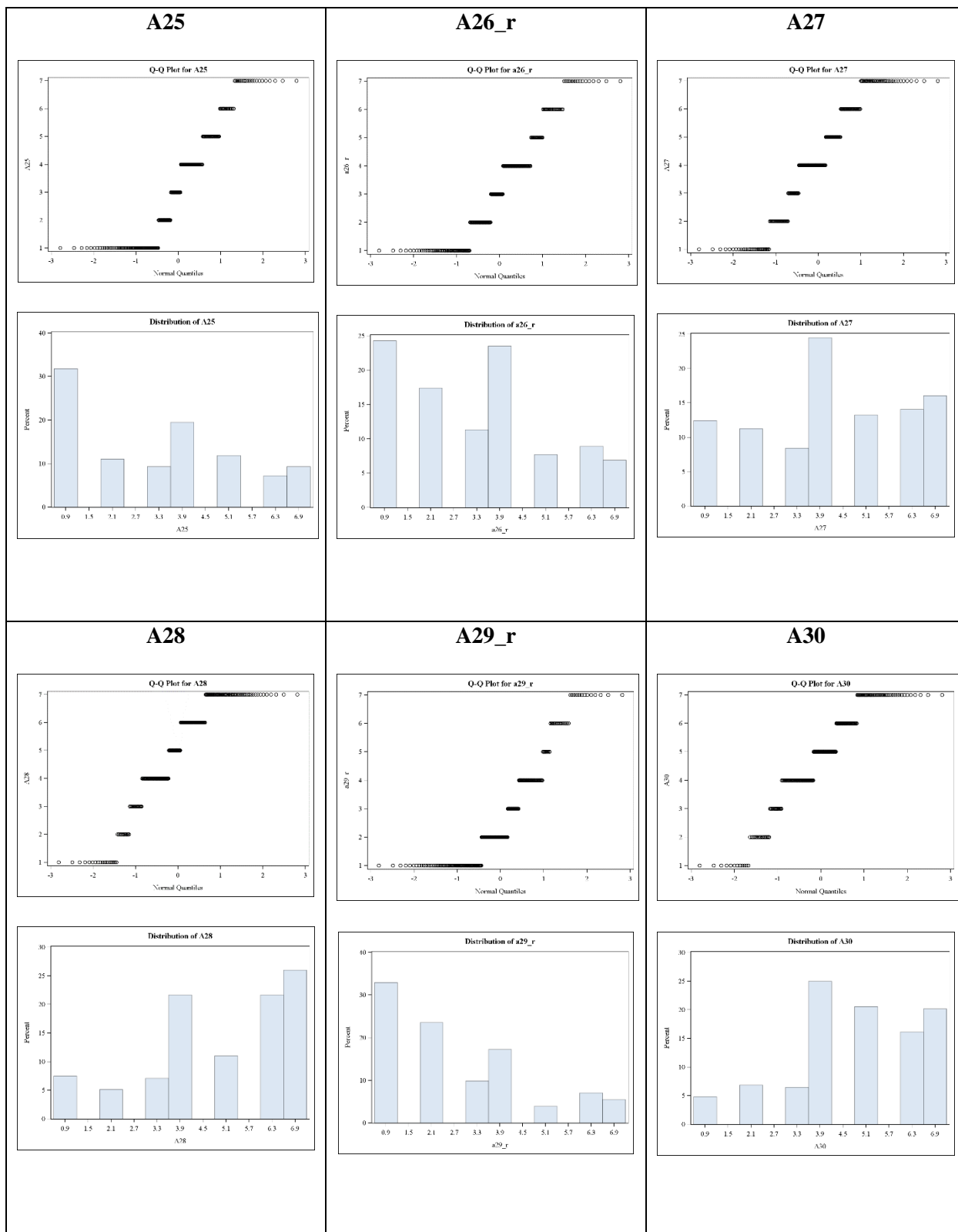
*Julie Urmie*

Julie Urmie, PhD  
Associate professor  
College of Pharmacy  
University of Iowa

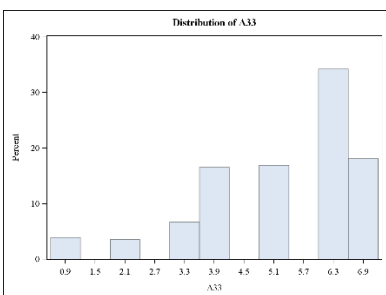
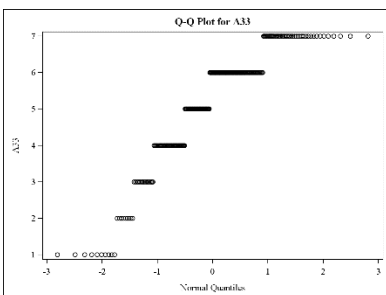
APPENDIX L. FREQUENCY DISTRIBUTIONS FOR VARIABLES



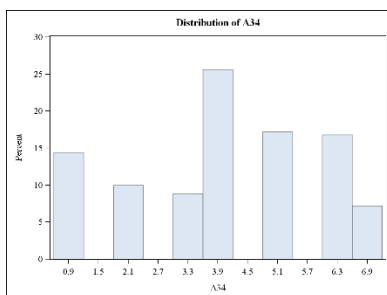
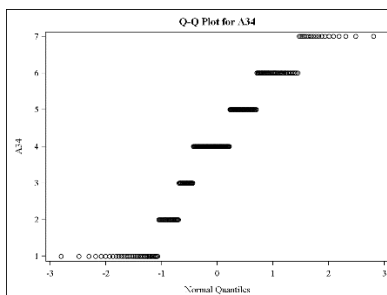




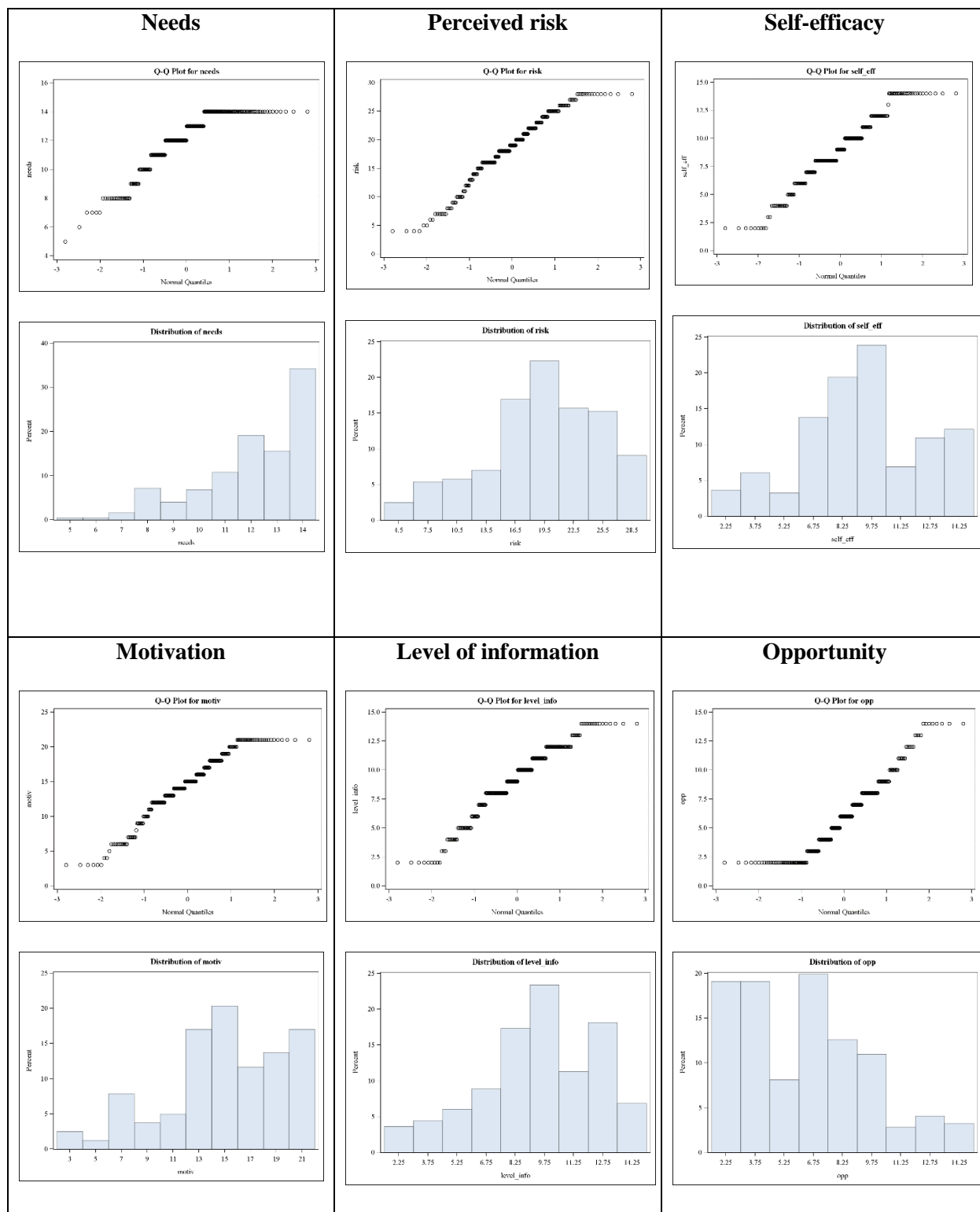
### A33



### A34



APPENDIX M. FREQUENCY DISTRIBUTIONS FOR COMPOSITE MEASURES





APPENDIX N. COMPARISON BETWEEN SWITCHERS AND NON-SWITCHERS UNDER  
ALTERNATIVE DEFINITION OF SWITCHING <sup>a)</sup> – CATEGORICAL VARIABLES

Variable	All		Switching				p-value
		%	Switcher	%	Non-switcher	%	
Gender							0.3910
Female	126	60.00%	78	61.42%	48	57.83%	
Male	84	40.00%	49	38.58%	35	42.17%	
Living status							0.3820
Live alone	54	25.71%	37	29.13%	17	20.48%	
Live with spouse	148	70.48%	85	66.93%	63	75.90%	
Others	8	3.81%	5	3.94%	3	3.61%	
Highest education							0.1539
<High school	12	5.71%	10	7.87%	2	2.41%	
High school graduate	113	53.81%	63	49.61%	50	60.24%	
College graduate	46	21.90%	30	23.62%	16	19.28%	
Graduate/professional school	39	18.57%	24	18.90%	15	18.07%	
Income							0.5131
<\$15,000	16	7.62%	10	7.87%	6	7.23%	
\$15,000 - \$34,999	80	38.10%	47	37.01%	33	39.76%	
\$35,000 - \$54,999	41	19.52%	21	16.54%	20	24.10%	
\$55,000<	73	34.76%	49	38.58%	24	28.92%	
Type of drug plan							0.1691
MAPD	41	19.52%	27	21.26%	14	16.87%	
PDP	162	77.14%	94	74.02%	68	81.93%	
Do not know	7	3.33%	6	4.72%	1	1.20%	
Got help							0.0002
Did not receive help	97	46.19%	72	56.69%	25	30.12%	
Received help	113	53.81%	55	43.31%	58	69.88%	
Switched last year							<.0001
Switcher	40	19.05%	0	0	40	48.19%	
Non-switcher	170	80.95%	127	100.00%	43	51.81%	

Note. a) Alternative definition of plan switching is whether beneficiaries have ever switched, which was identified using the item “how many times have you switched drug plans since you first enrolled?”.

APPENDIX O. COMPARISON BETWEEN SWITCHERS AND NON-SWITCHERS UNDER ALTERNATIVE DEFINITION OF SWITCHING<sup>1)</sup> – CONTINUOUS VARIABLES

Variable	Label	Switched last year		
		Switcher <sup>o)</sup>	Non-switcher	P-value <sup>p)</sup>
		Mean	Mean	
A7	Premium	35.9724	54.0153	0.0138
A8	Drug cost	54.4442	53.0999	0.9076
A9	# meds	4.1313	4.2208	0.8169
B1	Age	74.7041	76.2961	0.0803
B8	Health status <sup>a)</sup>	2.7400	2.6667	0.5281
A12	Satisfaction <sup>b)</sup>	5.2323	5.4276	0.3191
A32a	Drug plan <sup>c)</sup>	4.4787	3.8367	0.0251
A32b	Medicare <sup>d)</sup>	4.2857	3.8652	0.1566
A32c	SHIP <sup>e)</sup>	3.0247	2.2562	0.0151
A33	Current plan <sup>f)</sup>	5.5800	4.8926	0.0005
A34	Alternative plan <sup>g)</sup>	4.6061	3.6122	<.0001
needs	Needs <sup>h)</sup>	12.6531	11.7333	0.0002
ability	Ability <sup>i)</sup>	3.6040	2.9744	0.0135
risk	Perceived risk <sup>j)</sup>	18.6771	18.6831	0.9940
level_info	Level of information <sup>k)</sup>	10.1717	8.5241	<.0001
motiv	Motivation <sup>l)</sup>	15.9479	13.5915	<.0001
opp	Opportunity <sup>m)</sup>	5.8763	6.1736	0.4879
self_eff	Self-efficacy <sup>n)</sup>	9.3608	8.7793	0.1537

- a) Higher number in self-rated health indicates poor health condition. Scale ranges from 1 to 5.
- b) Higher number in satisfaction indicates higher satisfaction. Scale ranges from 1 to 7.
- c) Higher number in Drug plan indicates reading larger amount of information received from insurer. Scale ranges from 1 to 7.
- d) Higher number in Medicare indicates reading larger amount of information received from Medicare. Scale ranges from 1 to 7.
- e) Higher number in SHIP indicates reading larger amount of information received from Medicare. Scale ranges from 1 to 7.

- f) Higher number in Current plan indicates higher understanding of information about current plan. Scale ranges from 1 to 7.
- g) Higher number in Alternative plan indicates higher understanding of information about alternative plans. Scale ranges from 1 to 7.
- h) Higher number in needs indicates higher perception of importance of plan choice. Scale ranges from 2 to 14.
- i) Higher number in ability indicates higher ability scores, which ranges from 0 to 6.
- j) Higher number in perceived risk indicates higher concern about how plan works. Scale ranges from 4 to 28.
- k) Higher number in level of info indicates higher understanding of plan information. Scale ranges from 2 to 14.
- l) Higher number in motivation indicates higher interest in plan information processing. Scale ranges from 3 to 21.
- m) Higher number in opportunity indicates higher complexity/difficulty. Scale ranges from 2 to 14.
- n) Higher number in self-efficacy indicates higher confidence. Scale ranges from 2 to 14.
- o) Switchers represent Part D beneficiaries who had ever switched their plans whereas non-switchers represent those who had never switched plans.
- p) P-value was calculated from chi-square test statistics.

## APPENDIX P. CHARACTERISTICS OF SURVEY RESPONDENTS (N=477)

Item	N (%)
Total responses	477
Mean age	76.1 (Min. 63- Max. 98)
<65	2 (0.42)
65-74	224 (46.96)
75-84	161 (33.75)
85-94	72 (15.09)
95<	2 (0.42)
Gender	
Female	264 (55.35)
Male	201 (42.14)
Living status	
Live alone	137 (28.72)
Live with spouse	299 (62.68)
Others	28 (5.87)
Highest education level	
Less than high school	34 (7.13)
High school graduate	250 (52.41)
College graduate	91 (19.08)
Graduate or professional school	84 (17.61)
Income	
Less than \$15,000	46 (9.64)
\$15,000 - \$34,999	155 (32.49)
\$35,000 - \$54,999	95 (19.92)
\$55,000 or more	137 (28.72)
Mean self-rated health status	2.7 (1-5)
Excellent	42 (8.81)
Very good	149 (31.24)
Good	186 (38.99)
Fair	81 (16.98)
Poor	13 (2.73)
Mean number of medications	4.4 (0-20)
0	42 (8.81)
0-5	233 (48.85)
6-10	115 (24.11)
11<	15 (3.14)

Items	N (%)
Total responses	477
Prescription drug insurance	
Have	431 (90.36)
Do not have	39 (8.18)
Low income subsidy	
Receive	32 (6.71)
Do not receive	436 (91.4)
Enrolled year	
< 2006	55 (11.53)
2006	168 (35.22)
2006 - 2012	126 (26.42)
2013	14 (2.94)
Types of prescription drug insurance	
Medicare Advantage Prescription Drug Plans	152 (31.87)
Prescription Drug Plans	231 (48.43)
Don't know	23 (4.82)
Mean premium, \$	51.9 (Min. 0 – Max. 539.1)
0	55 (11.53)
0-50	219 (45.91)
50-100	21 (4.4)
100-150	11 (2.31)
150<	30 (6.29)
Mean drug cost for one-month supply	74 (Min. 0 – Max. 4000)
0	70 (14.68)
0-10	50 (10.48)
10-20	39 (8.18)
20-50	91 (19.08)
50<	99 (20.76)
Plan switched last year	
Yes	69 (14.47)
No	321 (67.30)
Number of plan switching	
None	266 (55.77)
Once	69 (14.47)
Twice	36 (7.55)
Three times or more	32 (6.71)

## REFERENCES

- Abaluck, J. T., & Gruber, J. (2009). *Choice inconsistencies among the elderly: evidence from plan choice in the Medicare Part D program* (Working Paper 14759).
- Anderson, R. E., & Jolson, M. A. (1980). Technical wording in advertising: Implications for market segmentation. *The Journal of Marketing*, 44(1), 57-66.
- Arbuckle, J. L. (1996). Full information estimation in the presence of incomplete data *Advanced Structural Equation Modeling: Issues and Techniques* (pp. 243–277). Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.
- Awang, Z., Ahmad, J. H., & Zin, N. M. (2010). Modeling job satisfaction and work commitment among lecturers: a case of UiTM Kelantan. *Journal of Statistical Modeling and Analytics*, 1(2), 45-59.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall Inc.
- Batra, R., & Ray, M. L. (1986). Situational effects of advertising repetition: The moderating influence of motivation, ability, and opportunity to respond. *Journal of Consumer Research*, 12(4), 432-445.
- Bauer, R. A. (1960). *Consumer behavior as risk taking*. Paper presented at the the 43rd Conference of the American Marketing Association, American Marketing Association, Chicago.
- Beaulieu, N. D. (2002). Quality information and consumer health plan choices. *Journal of Health Economics*, 21(1), 43-63.
- Benyamini, Y., Leventhal, E. A., & Leventhal, H. (2000). Gender Differences in Processing Information for Making Self-Assessments of Health. *Psychosomatic Medicine*, 62, 354–364.
- Bloch, P. H., & Richins, M. L. (1983). A theoretical model for the study of product importance perceptions. *The Journal of Marketing*, 47(3), 69-81.
- Buchmueller, T. C., & Feldstein, P. J. (1997). The effect of price on switching among health plans. *Journal of Health Economics*, 16(2), 231-247.
- Burnham, T. A., Frels, J. K., & Mahajan, V. (2003). Consumer switching costs: a typology, antecedents, and consequences. *Journal of the Academy of Marketing Science*, 31(2), 109-126.
- Centers for Medicare & Medicaid Services. (2012). Chapter 14: Medicare Part D *Medicare & Medicaid statistical supplement*.

- Chaffee, S. H., & Roser, C. (1986). Involvement and the consistency of knowledge, attitudes, and behaviors. *Communication Research*, 13(3), 373-399.
- Cubanski, J., & Neuman, P. (2007). Status report on Medicare Part D enrollment in 2006: analysis of plan-specific market share and coverage. *Health Affairs*, 26(1), w1-w12.
- Cummings, J. R., Rice, T., & Hanoch, Y. (2009). Who thinks that Part D is too complicated? Survey results on the Medicare prescription drug benefit. *Medical Care Research and Review*, 66(1), 97-115.
- Cutler, D. M., & Reber, S. J. (1998). Paying for health insurance: The trade-off between competition and adverse selection. *The Quarterly Journal of Economics*, 113(2), 433-466.
- Dholakia, U. M. (2001). A motivational process model of product involvement and consumer risk perception. *European Journal of Marketing*, 35(11/12), 1340-1360.
- Dillman, D. A. (1991). The Design and Administration of Surveys *Annu. Rev. Sociol.*, 17, 225-249.
- Dulio, A., Perry, M., & Cubanski, J. (2007). Voices of beneficiaries: attitudes toward Medicare Part D open enrollment for 2008: Henry, J. Kaiser Family Foundation.
- Enders, C. K., & Bandalos, D. L. (2001). The Relative Performance of Full Information Maximum Likelihood Estimation for Missing Data in Structural Equation Models. *Structural Equation Modeling*, 8(3), 430-457.
- Ericson, K. M. M. (2012). *Consumer Inertia and Firm Pricing in the Medicare Part D Prescription Drug Insurance Exchange*. (Working Paper 18359).
- Esteves-Sorenson, C., & Perretti, F. (2012). Micro-costs: Inertia in Television Viewing\*. *The Economic Journal*, 122(563), 867-902.
- Festinger, L. (1957). *A theory of cognitive dissonance*: Row, Peterson and Company.
- Finucane, M. L., Alhakami, A., Slovic, P., & Johnson, S. M. (2000). The Affect Heuristic in Judgments of Risks and Benefits. *Journal of Behavioral Decision Making*, 13, 1-17.
- Gemünden, H. G. (1985). Perceived risk and information search. A systematic meta-analysis of the empirical evidence. *International Journal of Research in Marketing*, 2(2), 79-100.
- Goldman, D., Leibowitz, A., & Robalino, D. (2004). Employee responses to health insurance premium increases. *The American Journal of Managed Care*, 10(1), 41-47.
- Gruen, T. W., Osmonbekov, T., & Czaplewski, A. J. (2005). How e-communities extend the concept of exchange in marketing: An application of the motivation, opportunity, ability (MOA) theory. *Marketing Theory*, 5(1), 33-49.
- Gu, F., & Wu, W. (2011). *Using SAS® PROC TCALIS for Multigroup Structural Equation Modeling with Mean Structures*. Paper presented at the SAS Global Forum 2011.

- Han, J., Ko, D., & Urmie, J. M. (2014). The Role of Satisfaction and Switching Costs in Medicare Part D Choices. *Research in Social & Administrative Pharmacy, 10*(2), 398-407.
- Hayes, C., & Hutchison, L. C. (2013). Development and Evaluation of a Student-Led Medicare Part D Planning Clinic. *Consult Pharm, 28*, 237-242.
- Heiss, F., Leive, A., McFadden, D., & Winter, J. (2012). Plan Selection in Medicare Part D: Evidence from administrative Data.
- Heiss, F., McFadden, D., & Winter, J. (2006). Who failed to enroll in Medicare Part D, and why? Early results. *Health Affairs, 25*(5), w344-w354.
- Heiss, F., McFadden, D., & Winter, J. (2007). *Mind the gap! Consumer perceptions and choices of Medicare Part D prescription drug plans*. (Working Paper 13627).
- Hendriks, M., De Jong, J. D., Van Den Brink-Muinen, A., & Groenewegen, P. P. (2010). The intention to switch health insurer and actual switching behaviour: are there differences between groups of people? *Health Expectations, 13*(2), 195-207.
- Henry J. Kaiser Family Foundation. (2006). Voices of Beneficiaries: Early Experiences with the Medicare Drug Benefit *The Medicare Drug Benefit*: Henry, J. Kaiser Family Foundation.
- Henry J. Kaiser Family Foundation. (2009). Distribution of Medicare Beneficiaries by Eligibility Category *State Health Facts*. Henry J. Kaiser Family Foundation.
- Henry J. Kaiser Family Foundation. (2012a). The Medicare prescription drug benefit - Fact sheet: Henry J. Kaiser Family Foundation.
- Henry J. Kaiser Family Foundation. (2012b). Senior's knowledge and experience with Medicare's open enrollment period and choosing a plan - Key findings from the Kaiser Family Foundation 2012 National Survey of Seniors *Kaiser Family Foundation Medicare Policy*.
- Hoadley, J., Cubanski, J., Hargrave, E., Summer, L., & Huang, J. (2012). Medicare Part D a first look at Part D plan offerings in 2013: Henry, J. Kaiser Family Foundation.
- Hoadley, J., Hargrave, E., & Merrell, K. (2006). Benefit design and formularies of Medicare drug plans: a comparison of 2006 and 2007 offerings *The Medicare Drug Benefit*: Henry, J. Kaiser Family Foundation.
- Hoadley, J., Hargrave, E., Summer, L., Cubanski, J., & Neuman, T. (2013). To switch or not to switch: are Medicare beneficiaries switching drug plans to save money? *Issue Brief*: The Henry J. Kaiser Family Foundation.
- Hoadley, J., Summer, L., Hargrave, E., Cubanski, J., & Neuman, T. (2012). Analysis of Medicare prescription drug plans in 2012 and key trends since 2006 *Medicare Policy Issue Brief*: Henry, J. Kaiser Family Foundation.



- Hu, L.-t., & Bentler, P. M. (1995). Evaluating model fit *Structural equation modeling: Issues, concepts, and applications* (pp. 76-99). Newbury Park, CA: Sage
- Huang, M. H., & Yu, S. (1999). Are consumers inherently or situationally brand loyal?—A set intercorrelation account for conscious brand loyalty and nonconscious inertia. *Psychology and Marketing*, 16(6), 523-544.
- Jacoby, J., & Chestnut, R. W. (1978). *Brand loyalty measurement and management*: Wiley New York.
- Jacoby, J., & Kaplan, L. B. (1972). *The Components of Perceived Risk*. Paper presented at the the Third Annual Conference of the Association for Consumer Research, Chicago, IL.
- Jick, T. D. (1979). Mixing Qualitative and Quantitative Methods: Triangulation in Action. *Administrative Science Quarterly*, 24, 602-611.
- John, D. R., & Cole, C. A. (1986). Age differences in information processing: Understanding deficits in young and elderly consumers. *Journal of Consumer Research*, 13, 297-315.
- Joreskog, K. G. (1993). Testing structural equation models *Testing structural equation models* (pp. 294-316). Newbury Park, CA: Sage.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica: Journal of the Econometric Society*, 263.
- Ketcham, J. D., Lucarelli, C., Miravete, E. J., & Roebuck, C. (2012). Sinking, Swimming, or Learning to Swim in Medicare Part D. *American Economic Review*, 102(6), 2639-2673.
- Ketcham, J. D., & Simon, K. (2008). *Medicare Part D's effects on elderly drug costs and utilization*. (Working Paper 14326).
- Kling, J. R., Mullainathan, S., Shafir, E., Vermeulen, L., & Wrobel, M. (2011). *Comparison friction: Experimental evidence from Medicare drug plans*. (Working Paper 17410).
- Kurbanoglu, S. S., Akkoyunlu, B., & Umay, A. (2006). Developing the information literacy self-efficacy scale. *Journal of Documentation*, 62(6), 730-743.
- Kurlander, J. E., Kerr, E. A., Krein, S., Heisler, M., & Piette, J. D. (2009). Cost-Related Nonadherence to Medications Among Patients With Diabetes and Chronic Pain Factors beyond finances. *Diabetes Care*, 32(12), 2143-2148.
- LaBarbera, P., & MacLachlan, J. (1979). Time-compressed speech in radio advertising. *The Journal of Marketing*, 43, 30-36.
- Lako, C. J., Rosenau, P., & Daw, C. (2011). Switching health insurance plans: results from a health survey. *Health Care Analysis*, 19(4), 312-328.
- Larsen, R. (2011). Missing Data Imputation versus Full Information Maximum Likelihood with Second-Level Dependencies. *Structural Equation Modeling*, 18, 649-662.

- Lichtenberg, F. R., & Sun, S. X. (2007). The impact of Medicare Part D on prescription drug use by the elderly. *Health Affairs*, 26(6), 1735-1744.
- Loewenstein, G., & Lerner, J. S. (2003). The role of affect in decision making *Handbook of Affective Sciences* (pp. 619-642): Oxford University Press.
- MacInnis, D. J., Moorman, C., & Jaworski, B. J. (1991). Enhancing and measuring consumers' motivation, opportunity, and ability to process brand information from ads. *The Journal of Marketing*, 55, 32-53.
- MacKenzie, S. B., Lutz, R. J., & Belch, G. E. (1986). The role of attitude toward the ad as a mediator of advertising effectiveness: A test of competing explanations. *Journal of Marketing Research*, 23(2), 130-143.
- MacInnis, D. J., & Jaworski, B. J. (1989). Information processing from advertisements: Toward an integrative framework. *The Journal of Marketing*, 53, 1-23.
- Madden, J. M., Graves, A. J., Zhang, F., Adams, A. S., Briesacher, B. A., Ross-Degnan, D., . . . Adler, G. S. (2008). Cost-related medication nonadherence and spending on basic needs following implementation of Medicare Part D. *The Journal of the American Medical Association*, 299(16), 1922-1928.
- Madrian, B. C., & Shea, D. F. (2000). *The power of suggestion: Inertia in 401 (k) participation and savings behavior*. (Working Paper 7682).
- McWilliams, J. M., Afendulis, C. C., McGuire, T. G., & Landon, B. E. (2011). Complex Medicare Advantage choices may overwhelm seniors—especially those with impaired decision making. *Health Affairs*, 30(9), 1786-1794.
- Mitchell, E. S. (1986). Multiple triangulation: A methodology for nursing science. *Advances in Nursing Science*, 8(3), 18-26.
- Mitchell, V.-W. (1999). Consumer perceived risk: conceptualisations and models. *European Journal of Marketing*, 33(1/2), 163-195.
- Mittal, B. (1989). Measuring purchase-decision involvement. *Psychology and Marketing*, 6(2), 147-162.
- Moorman, C. (1990). The effects of stimulus and consumer characteristics on the utilization of nutrition information. *Journal of Consumer Research*, 17(3), 362-374.
- Neuman, P., & Cubanski, J. (2009). Medicare Part D update—lessons learned and unfinished business. *New England Journal of Medicine*, 361(4), 406-414.
- Nunnally, J. C. (1978). *Psychometric theory* (Second edition ed.). New York: McGraw-Hill.
- O'Donoghue, T., & Rabin, M. (2001). Choice and procrastination. *The Quarterly Journal of Economics*, 116(1), 121-160.

- Park, C. W., & McClung, G. W. (1986). The effect of TV program involvement on involvement with commercials. *Advances in Consumer Research*, 13(1), 544-548.
- Park, C. W., & Mittal, B. (1985). A theory of involvement in consumer behavior: Problems and issues. In J. N. Sheth (Ed.), *Research in Consumer Behavior I* (Vol. 1, pp. 201-231). Greenwich, CT: JAI Press.
- Patel, R. A., Lipton, H. L., Cutler, T. W., Smith, A. R., Tsunoda, S. M., & Stebbins, M. R. (2009). Cost Minimization of Medicare Part D Prescription Drug Plan Expenditures. *Am J Manag Care*, 15(8), 545-553.
- Petty, R. E., & Cacioppo, J. T. (1988). Communication and persuasion: Central and peripheral routes to attitude change. *The Public Opinion Quarterly*, 52(2), 262-265.
- Ranaweera, C., & Prabhu, J. (2003). The influence of satisfaction, trust and switching barriers on customer retention in a continuous purchasing setting. *International Journal of Service Industry Management*, 14(4), 374-395.
- Rimal, R. N., Flora, J. A., & Schooler, C. (1999). Achieving improvements in overall health orientation effects of campaign exposure, information seeking, and health media use. *Communication Research*, 26(3), 322-348.
- Royalty, A. B., & Solomon, N. (1999). Health plan choice: price elasticities in a managed competition setting. *Journal of Human Resources*, 34(1), 1-41.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, 1(1), 7-59.
- SAS Institute Inc. (2011). SAS/STAT® 9.3 User's Guide. Cary, NC: SAS Institute Inc.
- Schneeweiss, S., Patrick, A. R., Pedan, A., Varasteh, L., Levin, R., Liu, N., & Shrank, W. H. (2009). The effect of Medicare Part D coverage on drug use and cost sharing among seniors without prior drug benefits. *Health Affairs*, 28(2), w305-w316.
- Schunk, D. H. (1989). Self-efficacy and achievement behaviors. *Educational Psychology Review*, 1(3), 173-208.
- Siemsen, E., Roth, A. V., & Balasubramanian, S. (2008). How motivation, opportunity, and ability drive knowledge sharing: The constraining-factor model. *Journal of Operations Management*, 26(3), 426-445.
- Sinaiko, A. D., Ross-Degnan, D., Soumerai, S. B., Lieu, T., & Galbraith, A. (2013). The Experience Of Massachusetts Shows That Consumers Will Need Help In Navigating Insurance Exchanges. *Health Affairs*, 32(1), 78-86.
- Slovic, P., Peters, E., Finucane, M. L., & MacGregor, D. G. (2005). Affect, Risk, and Decision Making. *Health Psychology*, 24(4), S35-S40.

- Soumerai, S. B., Pierre-Jacques, M., Zhang, F., Ross-Degnan, D., Adams, A. S., Gurwitz, J., . . . Safran, D. G. (2006). Cost-related medication nonadherence among elderly and disabled medicare beneficiaries: a national survey 1 year before the medicare drug benefit. *Archives of Internal Medicine, 166*(17), 1829-1835.
- Stone, R. N., & Grønhaug, K. (1993). Perceived risk: further considerations for the marketing discipline. *European Journal of Marketing, 27*(3), 39-50.
- Suzuki, S. (2013). *Medicare Part D's competitive design: Do Part D enrollees switch plans?* . Paper presented at the AcademyHealth.
- U.S. Census Bureau. (2012). Population 65 years and over in the United States *American Fact Finder*: U.S. Census Bureau.
- Walsh, M., Fitzgerald, M. P., Gurley-Calvez, T., & Pellillo, A. (2011). Active Versus Passive Choice: Evidence from a Public Health Care Redesign. *Journal of Public Policy & Marketing, 30*(2), 191-202.
- Werner, C. A. (2011). The Older Population: 2010 (U. S. D. o. C. E. a. S. Administration, Trans.) *2010 Census Briefs*: U.S. Census Bureau.
- White, L., & Yanamandram, V. (2004). Why customers stay: reasons and consequences of inertia in financial services. *Managing Service Quality, 14*(2/3), 183-194.
- Yalch, R. F., & Elmore-Yalch, R. (1984). The effect of numbers on the route to persuasion. *Journal of Consumer Research, 11*, 522-527.
- Yin, W., Basu, A., Zhang, J. X., Rabbani, A., Meltzer, D. O., & Alexander, G. C. (2008). The effect of the Medicare Part D prescription benefit on drug utilization and expenditures. *Annals of Internal Medicine, 148*(3), 169-177.
- Yung, Y.-F., & Zhang, W. (2011). *Use of Incomplete Observations in the Analysis of Structural Equation Models: The CALIS Procedure's Full Information*. Paper presented at the SAS Global Forum 2011.
- Zhou, C., & Zhang, Y. (2012). The vast majority of Medicare Part D beneficiaries still don't choose the cheapest plans that meet their medication needs. *Health Affairs, 31*(10), 2259-2265.
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary educational psychology, 25*(1), 82-91.