Beauty Premium, Information Signaling and Job Opportunities of Ex-Prisoners in Labour Market

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จุฬาลงกรณ์มหาวิทยาลัย
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A Dissertation Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy (Economics) in Economics
Common Course
FACULTY OF ECONOMICS
Chulalongkorn University
Academic Year 2020
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ความพิเศษจากความงาม การส่งสัญญาณจากข้อมูล และโอกาสในการมีงานทำของอดีตผู้ต้องขังในตลาดแรงงาน

น.ส.ทักษอร ภุชงค์ประเวศ

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาเศรษฐศาสตรดุษฎีบัณฑิต
สาขาวิชาเศรษฐศาสตร์ ไม่สังกัดภาควิชา/เทียบเท่า
คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2563
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title	Beauty Premium, Information Signaling and Job Opportunities of Ex-Prisoners in Labour Market
By	Miss Taksaorn Phuchongpravech
Field of Study	Economics
Thesis Advisor	Assistant Professor THANEE CHAIWAT, Ph.D.

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ทักษอร ภุชงค์ประเวศ : ความพิเศษจากความงาม การส่งสัญญาณจากข้อมูล และโอกาสในการมีงานทำของอดีตผู้ต้องขังในตลาดแรงงาน. (Beauty Premium, Information Signaling and Job Opportunities of Ex-Prisoners in Labour Market) อ.ที่ปรึกษาหลัก : ผศ. ดร.ธานี ชัยวัฒน์

วิทยานิพนธ์นี้ศึกษาผลกระทบของปัจจัยในการกลับเข้าสู่ตลาดแรงงานของอดีตนักโทษ ซึ่งแบ่งออกเป็น 3 การศึกษา การศึกษาที่ 1 ประเมินผลความพิเศษของความงามจากการศัลยกรรมในอดีตนักโทษชาย ภายใต้สภาพแวดล้อมที่มีความไม่สมมาตรของข้อมูล นั่นคือนายจ้างไม่รับรู้ประวัติอาชญากรรมของผู้สมัครงาน โดยใช้วิธีการศึกษาการทดลองแบบทางเลือก ซึ่งความงามจากการศัลยกรรมเป็นสัญญาณที่ถูกส่งให้กับนายจ้าง 400 คน ผลการศึกษาพบว่าความงามจากการศัลยกรรมมีความเกี่ยวข้องกับการเพิ่มโอกาสการจ้างงานถึง 3.05 เท่าในแรงงานระดับบริษัท และ 1.54 เท่าในแรงงานระดับธุรกิจขนาดเล็กตามลำดับ

การศึกษาที่ 2 สำรวจการเลือกปฏิบัติต่อผู้มีประวัติอาชญากรรม โดยการทดลองนี้รวมสัญญาณของความงามและประวัติอาชญากรรมเข้าด้วยกัน และทำการทดลองแบบทางเลือกกับนายจ้างจำนวน 408 คน ผลการศึกษาพบว่าการมีประวัติอาชญากรรมส่งผลให้โอกาสการจ้างงานลดลงถึง 82.8% ในแรงงานระดับบริษัท และ 51% ในแรงงานระดับธุรกิจขนาดเล็ก ซึ่งผลการทดลองบ่งบอกถึงทัศนคติด้านลบที่ตลาดแรงงานไทยมีต่ออดีตนักโทษ

การศึกษาที่ 3 เป็นงานที่ยกระดับการส่งสัญญาณข้อมูลซึ่งใช้เทคนิคการส่งสัญญาณในตลาดแรงงาน โดยทำการส่งสัญญาณที่เป็นทั้งด้านลบและบวก และตรวจสอบผลกระทบ ผลการศึกษากับนายจ้างจำนวน 53 คนพบว่า เมื่อมีข้อมูลที่สมบูรณ์มากขึ้น กลุ่มนักโทษที่มีคุณสมบัติสูงจะสามารถแยกตนออกจากกับดักของรอยด่างจากประวัติอาชญากรรมได้ นั่นคือประวัติอาชญากรรมที่ไม่รุนแรง ใบรับรองคุณสมบัติการทำงาน และทักษะความพร้อมในการทำงาน เหล่านี้ เป็นสัญญาณเพื่อให้นายจ้างสามารถจำแนกอดีตนักโทษผู้สมัครงานชั้นดีได้และเพิ่มโอกาสการจ้างงานแก่พวกเขาในที่สุด วิทยานิพนธ์ชิ้นนี้ชี้ให้เห็นถึงนัยสำคัญของความพิเศษจากความงาม และการเลือกปฏิบัติต่อผู้มีประวัติอาชญากรรมในอดีตนักโทษชายและกลุ่มคนทั่วไปในตลาดแรงงานไทย

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สาขาวิชา เศรษฐศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2563 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

5985910329 : MAJOR ECONOMICS
KEYWORD: Beauty premium, Information signaling, Prisoner discrimination, Prisoner employment, Labour market

Taksaorn Phuchongpravech : Beauty Premium, Information Signaling and Job Opportunities of Ex-Prisoners in Labour Market. Advisor: Asst. Prof. THANEE CHAIWAT, Ph.D.

This thesis studies the impact of factors influencing ex-prisoners' labour market re-entry. It is separated into three studies. The first study evaluates the effect of beauty premiums from cosmetic surgery on male ex-prisoners under asymmetric information settings where employers are unaware of candidates' criminal history. Using a Choice Experiment approach (CEs), the beauty from cosmetic surgery performs as the signal submitted to 400 employers. The results show that the beauty from cosmetic surgery associates with the increase of possibility of candidates in the experiments being chosen by 3.05 and 1.54 times, in the formal and informal sector, respectively.

The second study investigates criminal history discrimination in an open-record setting. It combines both the signal of beauty and criminal history in the CEs to examine their impacts. We conducted the CEs with 408 employers and the results show that a criminal history provides labour penalty in the experiments: decreasing ex-prisoners' job opportunities by 82.8% and 51%, in the formal and informal sector, respectively. It indicates the strong stereotype towards ex-prisoners in the Thai labour market.

The third study applies to a higher level of information signaling by using Job Market Signaling technique in CEs. It submitted more signals of both negative and positive ones to test for their impacts. We conducted the CEs with 53 employers. And the results reveal that: with more perfect information, highly qualified-ex-prisoners can distinguish themselves from the criminal history stigma. That is, signals of the non-violent crime, the certificate of qualification for employment, and the work-readiness skills allow employers to identify suitable ex-prisoner candidates. This thesis points out the significance of beauty premium and criminal history discrimination among male ex-prisoners and non-prisoners in the Thai labour market.

Field of Study:	Economics	Student's Signature .....
Academic Year:	2020	Advisor's Signature .....

ACKNOWLEDGEMENTS

I want to express my deep sense of thanks and gratitude to my advisor: Asst. Prof. Thanee Chaiwat guides and supports me during the long journey. And who softly pushes me to learn new things and gives me the freedom to conduct this research. And this is great since it sequentially allows me to equip myself with new knowledge and skills. Also, it is my privilege to thanks the chairman and committees of the thesis: Assoc. Prof. Sothitorn Mallikamas, Asst.Prof. Gullinee Mutakalin, Asst.Prof. Peera Tangtammarak, and Lect. Jennifer Chavanovanich. All of whom is an important part of making the thesis becomes more completed.

I also share my best appreciation for the supports from the Department of Probation and the newly-released prisoners: who kindly participated in the study and be the key element to allow me to research on such a fresh topic. Also, I express my deep appreciation for the assist from the Research Centre for Social and Business Development: who professionally helped me distribute the experiments of the thesis.

Above ground, I am indebted to my family to support me in everything I do, especially my mother, who understand me and encourage me through the pathway.

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CHAPTER 1

INTRODUCTION

1.1 Background and Non-Technical Summary

Even though prisoners' discrimination has been in academics interest for decades, it has not been widely recognised in Thailand. Until recent articles: Thai ex-prisoners have been referred to as the *new-poor-people* due to a very low possibility of getting employed (Thaireform, 2017). The TDRI reported that from 2013 to 2019, the prisoners' failed to re-enter the labour market, they were reports of the recidivism rates of 15%, 25%, and 33% in the first three years after released, respectively, among 140,000 ex-prisoners attempting to find employment (TDRI, 2019; Thaireform, 2017). Moreover, the Department of Corrections reported no significant improvement in the recidivism rates since the percentages have been moving around 15% (from 2013 to 2019)–for ex-prisoners who came back to recidivate within the first year after release (Corrections, 2020b).

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The recidivism statistics above imply prisoners' failure in seeking employment since academics suggested it played a significant role in decreasing the recidivism rate (Siwach, 2018). Meanwhile, those statistics imply the limitations of current policies for yielding a substantial alleviation. We find evidence for such implications in the increasing number of prisoners and employers participating in the reintegration programmed: where such an increase did not contribute to a substantial decrease in the recidivism rates (Corrections, 2020b; Rehabilitation, 2020b). Moreover, therer was reports that the Thai prisoner population has now reached 354,905 by July 2019, increasing from 182,032 in 2008 (Corrections, 2020c). And there is an increasing

number of employers access to criminal information in the recent decade (Division, 2019). It raises two concerns that, first, there will be a more substantial number of people ending up with stain histories. Second, more people may end up being discriminated against for their employment opportunities. These address an urge to alleviate such penalisation. However, they are multiple causes of such a predicament. Some of those can be prisoners' *ability* to reintegrate into society, the stigma from their *criminal record* or the stereotype towards them, and prisoners' *physical appearance*. In the non-prisoner population, physical appearance was statistically proven to be significant in the labour market worldwide. Whereas in the prisoner population, beauty was suggested to associate with a decrease in the recidivism rates.

According to what has been elaborated above, this thesis aims to investigate the prisoners' inequality of labour market re-entry by focusing on discovering the potential size of discrimination and factors that may increase the re-entry success rate. To achieve this aim, we use the beauty premium and information signaling strategy as the main pieces of equipment to *rebrand* ex-prisoners and experimentally release them in the real labour market: for both the formal and informal sector. The unit of study of the thesis is the newly-released Thai male prisoners (the subject of the experiment). The main methodology is the choice experiment (CEs). In the CEs, the employers (the respondents), in both the formal and informal labour sectors, are presented with the two job candidates (two alternatives) who differ in terms of physical attractiveness (beauty) and other characteristics such as criminal record information and qualifications. Rather than asking the employers straightly, the CEs help us to investigate employer's behaviour since it investigates how employers perceive/evaluate each employment's factor and make the hiring decision.

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The thesis is divided into three studies (chapter 2-4). Chapter 2–*Beauty premium through cosmetic surgery for prisoners: Choice experiment with asymmetric information* recognises the existence of labour market discrimination towards physical attractiveness. Since the economics of beauty literature explicitly showed that, in the non-prisoners, beautiful people enjoyed the beauty premium in both the labour and marriage market, it implies the significance of beauty to associate with individuals' income, labour opportunity, and success. Therefore, in this chapter, beauty is drawn into the analysis in the prisoner population.

Chapter 2 explains how discrimination in the labour market originates from the physical appearance perspective. The objective is to investigate that if the beauty premium through (simulated) cosmetic surgery can manifest in the labour market for this minority group, how will the labour market response. And how effective is cosmetic surgery? The asymmetric information was applied in the CEs. In CEs, we simulate the hiring process that the employers (the respondents) were unable to or uninterested in access the job candidates' criminal record information. In this chapter, we use facial attractiveness to infer productivity–as the literature suggested beauty was an observable characteristic used to estimate productivity. The results show that when the criminal records are unrevealed, the cosmetic surgery that increases ex-prisoners' facial attractiveness significantly increases their job opportunities and employers' willingness to pay in both the formal and informal labour sectors. This study demonstrates the possible feedback from the labour market–in which cosmetic surgery may function as an aid for reintegration.

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However, it might have been insensible if we omit the criminal record factor which was widely investigated in the prisoner employment literature and proven to be

one of the major barriers to labour market re-entry. Besides, we recognise the current labour market situation in Thailand, as in recent decades, the business sector has been increasingly checking the criminal record information of their potential employees. Thus, Chapter 3–*Barriers to prisoners' re-entry into formal and informal labour market* integrates the criminal history variable into the model. The objective is to investigate the impact of both the criminal record and beauty and demonstrate the possible size of the labour market discrimination towards a person with a criminal history.

Since the respondents (employers) are informed that prisoner job candidates having a criminal record were imprisoned, we can demonstrate how the labour market perceives imprisoned-person. More importantly, we want to see if cosmetic surgery (still) can perform as an aid for reintegration–increasing the ex-prisoners job opportunities when the criminal history record corporates the hiring decision. In this chapter, while beauty is an observable characteristic implying productivity, the criminal record is an observable characteristic used to predict the likelihood of future criminality and current productivity. The results from CEs show that when the employers five access to criminal records, the job opportunities of the group of a job candidate having the criminal record decrease significantly. It implies a strong stereotype towards individuals with a criminal record or the formerly imprisoned individuals in Thai society–or at least in the labour market. Meanwhile, when we compare this result with the first study, cosmetic surgery yields significantly fewer beauty premiums.

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While both two chapters send the signals of beauty and criminal record information, Chapter 4–*Finding the effective* 'signal' *for improving the success rate of prisoners labour market re-entry* maximises the use of signaling strategy. In the CEs, we submit both positive and negative signals of hard and soft skills that can be

beneficial to both parties, such as type of offence, certificate of qualification for employment, basic work readiness skill, and physical attractiveness to communicate candidates' skills. In the CEs of chapter takes inspiration from prisoner employment literature that integrated the information signaling strategy to alleviate criminal record discrimination. We are also motivated by the current policy in Thailand, for as far as we know, it lacks explicit information signaling policy. Thus, our objective is to scrutinise how could the signals be best amplified–by which they ultimately increase the success of re-entry with the minimum impact of the criminal history record. We find that this chapter has this minority group filled with hope as it provides the revolutionary technique of the ex-prisoners information signaling. It can increase the re-entry success rate in a more fairness approach since both the employers and prisoners job candidates can enjoy the advantage of more perfect-information.

This thesis contributes academically when each chapter integrates new perspectives to the existing studies. For example, we use cosmetic surgery simulation to investigate its premium within the same individual, while literature could not extract this precise effect. Moreover, we use prisoners as subjects in our experiments to contribute to the literature that rarely investigate the beauty premiums in this population. Not to mention the signaling strategy of ex-prisoners for the labour market in Chapter 4 that adds the CEs technique into the related literature–from which still requires more investigation in such perspective. However, in-detailed contributions of each chapter would be elaborated again in each study.

The thesis contributes to society by offering information that can be useful for both the Thai prisoners and those who are less likely to pass the employment gate. Prisoners can consider this piece of information to prepare themselves to be more fit

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with the labour market. For example, they can prepare the appearance to be more presentable before applying for jobs. They can acquire additional skills or presentable certificates to alleviate discrimination. Besides, related policymakers could use our findings to add refinement to the current policy to improve the ex-prisoners ability to reintegrate. Finally, Chapter 5 furnishes the comprehensive summary and discussion of the thesis. It includes policy implications which policymakers in Thailand and other countries that share the interchangeable social value. They can take it to consider for improving the re-entry success rate of this minority group. The thesis is closed with the Appendix and Reference, wherein the Appendix comprises all informative tables, figures, questionnaire (CEs) examples for each study, and clogit regression results from R-programme.

1.2 Definition

Beauty (or Physical Attractiveness)

The word ‘Beauty’ and ‘Physical attractiveness’ are commonly and interchangeably used among economist of beauty. *‘Beauty’* is defined as a characteristic of a person’s appearance and also called *physical attractiveness*– a degree to which a person’s physical features are considered aesthetically pleasing or beautiful. It is the quality or aggregate of quality in a person that gives pleasure to the senses or pleasurably exalts the mind or spirit (Hamermesh, 2011; Marriam-Webster). While the definition of *‘beauty/physical attractiveness’* is hard to be found in academic papers, the definition of physical attractiveness was defined as the agreement from *social consensus* such as the *rating scale* of physical attractiveness level from the member of the society. (Feingold, 1992; Hamermesh, 2011)

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Beauty Premiums

In the economics literature, the *'beauty premium'* refers to the economics returns to beauty to more attractive people. The statistics showed that returns to beauty came in terms of higher earnings, occupational success, happiness, a favourable spouse, and less propensity to engage in crime. In the labour market, the beauty premium was reported worldwide in many professions, for both where the beauty is agreed to be more and less significant. Also, the beauty premiums were demonstrated to manifest in occupations such as lawyer, politician, instructor, borrower, waiter, and prostitute.

Basic Work Readiness Skill

Refer to Obatusin, Ritter-Williams, and Antonopoulos (2019), the basic- work readiness skill was a skill identifying a person' readiness for the job, such as being educated, job-ready, showing up on time, and prepared for the interview or the job. According to Obatusin et al. (2019), their interviews with the employers revealed that employers perceived general ex-offenders were not work-ready due to the absence of such skill. In other non-academic sources, this skill was categorised as a soft skill which also represented communication and interpersonal skills.

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Certificate of Relief

It is also known as 'Certificate of recovery' or 'Certificate of qualification for employment' (CQE). As far as we know, it is believed that such a certificate has not yet been invented in Thailand. According to Leasure and Andersen (2020), such a certificate aimed to assist ex-offenders in re-entry by showing rehabilitation, displace automatic licensing bars, and protect employers from negligent hiring claims. It was first used in 2012 in Ohio. However, according to its effectiveness in Sahl and Gallagher (2016 in Leasure & Anderson, 2020), it was reported 48% of ex-offenders

perceived it to offer no difference, 25% did not use it, and 42% agreed of its effectiveness. Then, it is concluded that such a certificate was effective for some ex-offenders. Also, there was a lacking of the employer's awareness and understanding of its function. Nevertheless, Leasure and Andersen (2020)'s experiments showed that the CQE substantially increased job opportunities for Whites and moderately increased it for African-American ex-offenders.

Ex-offenders

According to an online dictionary (Law-Insider), ex-offender means a person convicted of a felony or a misdemeanour offence punishable by imprisonment. Ex-offender is a person charged with a felony offence or a misdemeanour offence can be punished by imprisonment but imposed a term of probation by a state court without a finding of guilt. And ex-offender does not include a person whose record has been expunged. Thus, the term ex-prisoner is different from ex-offenders in that the ex-prisoners are a person who is found guilty and had been imprisoned for a period of time, whereas some ex-offenders are not found guilty.

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Ex-prisoner

Ex-prisoner (or former prisoner or ex-convict or inmate) means a person found guilty of a criminal offence and *served a sentence of imprisonment*. In this thesis, the term will be used herein: since we focus on investigating ex-prisoner discrimination and try to alleviate the stigma. However, in the related literature, we will maintain the term used by the author of each study. For example, some studies used the terms 'ex-convicts' to refer to the ex-prisoners, and some focused on examination ex-offenders: the person offended and have a criminal record. (Collins-Dictionary; "Encyclopedia 'convict'," 2020).

Formal vs Informal Labour Market

According to the definition of Informal Employment given by NSO (2018) in their Informal Employment Survey, 2018, it says that an informal labourer is a person employed without protection or social security from work like formal employment. On average, the informally employed-labourers have lower educational attainment and wage compared to the formally employed-labourers. According to NSO (2018) the majority, 90.3% of the informally employed labourers have no to high school educational attainment. Informally employed labourers posits themselves in the agriculture and service industry. To make a clear distinction between the formal and the informal labour market of the thesis. We posit that the formal sector (the company level) comprises companies perceived to offer social security, higher wage, and longer hiring terms (e.g., well-known companies or international franchise food businesses). Whereas the informal sector (the local or very small business level) comprises the local business presumed to have no social security from work and offer lower wage (e.g., food pop up in night market and front of the university, local restaurants, and barbershops)

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Hard Skill Signal

Reich (2017) investigated employers' perception of hiring ex-prisoners. Reich (2017) mentioned the type of desistance signal: signal of coming to an end of committing a crime that was divided into two types: hard skill signal and soft skill signal. Both of which represent desistance signals when ex-offenders re-enter the labour market. Hard skill is refers to *formal or technical competencies,* such as specific job skills (Moss & Tilly, 1996). Thus, it can be the signal of desistance through completion of skill training, employment programme, a recommendation from programme facilitators, job

placement agencies, and former employers. Also, it includes criminal history record, certificate of relief or certificate of qualification for employment, or government document of rehabilitation.

Physical Appearance

According to the online dictionary (Marriam-Webster), the 'physical appearance' is defined as the way one looks. Also, it is defined as the outward phenotype or looks of human beings that comprise attributes considered significant for physical attractiveness. It includes skin tone, body shape, hair colour, body hair, sexual organs, moles, eye colour, and other organs. The measurement of physical appearance is more straightforward than physical attractiveness.

Signaling (Job Market Signaling)

The signaling in this thesis refers to the action that the employees intrinsically send unalterable and alterable characteristics to employers. While unalterable characteristic includes race and sex, the alterable one includes physical appearance, education, experience, and criminal information. We followed Spence (1978)'s theory on Job Market Signaling. In that the hiring process, the employers would explore any observable signals such as education level, education institution, working experience, gender, age, and criminal history of the job candidate to preliminary estimate subjective productivity and make the hiring decision.

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Soft Skill Signal

According to research on soft skills regarding employment, it showed that soft skill is less tangible but more highly value in the labour market than hard skills. According to Heckman and Kautz (2012) and Moss and Tilly (1996): soft skills defined as skills, abilities, and traits that pertain to personality, attitude, and behaviour rather than to

formal or technical knowledge. It can comprise personality traits, goals, interpersonal skills, dressing appropriately, motivation to change, reliability, punctuality, teamwork, and willingness to learn. Besides, Moss and Tilly (1996) showed that soft or social skills were becoming increasingly significant in the highly competitive market: in which many managers viewed Black men to have a deficiency in such skills. Also, it was a factor that employers constantly identified as the most significant hiring criterion for entry-level jobs.

In this thesis–the 'physical attractiveness' and 'basic work readiness skill' are categorised as soft skills. Because firstly, beauty is not considered a hard skill as it is not formal or technical knowledge. Instead, beauty is the subjective quality in a person that can be measured objectively by the rating practice. It could be categorised as a skill since literature suggested beauty is perceived to associate with a person's personality traits and productivity estimate: both are considered integral in the labour market (Dion, Berscheid, & Walster, 1972; Mobius & Rosenblat, 2006). Second, as mentioned before, the basic work readiness skill is a skill that identifies a person is educated, job-ready, and prepared for the interview or the job (Obatusin et al., 2019). It represents the readiness subjectively manifested in a person rather than being the hard skill such as skill from training and education.

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CHAPTER 2

BEAUTY PREMIUM THROUGH COSMETIC SURGERY FOR PRISONERS: CHOICE EXPERIMENT WITH ASYMMETRIC INFORMATION

2.1 Motivation

Besides the labour market discrimination regarding the stained history and low productivity-related characteristics, scholars addressed other interesting issues that facial defects and the low physical attractiveness in prisoners could develop an inferiority complex, caused social rejection, and made employment difficult. (Kurtzberg, Safar, & Mandell, 1969; Lewison, 1965; Spira, Chizen, Gerow, & Hardy, 1966). This issue motivated plastic surgeons and scholars to examine the rehabilitation quality of plastic/cosmetic surgery in inmates in many State prison systems. Their results showed that decreases in recidivism rates of the cosmetic surgery group, compared to baseline statistics (Freedman, Warren, Cunningham, & Blackwell, 1988; Spira et al., 1966).

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This so-called ‘beauty premium and penalty’ phenomena are not new. A large literature has reported the significance of beauty (physical attractiveness) in the non-prisoner population, especially in the labour market. Such studies have presented statistics regarding the importance of beauty, demonstrating that attractive people tended to earn more job opportunities and incomes, succeeded earlier, reported a greater sense of happiness, and had less propensity to engage in criminal activities than unattractive individuals. (Hamermesh & Abrevaya, 2013; Hamermesh & Biddle, 1993; Mocan & Tekin, 2010)

The literature on the beauty premium empirically showed that beauty was economically and criminologically significant. But as far as we know, it rarely addressed the reverse perspective that beauty could also be purchased. In return, the purchaser is in more advantageous positions since the greater beauty premium manifests. Unfortunately, only a few studies have examined how people acquire beauty to enjoy more premium, particularly in a prisoner population. Not to mention that the literature has not previously compared the beauty premium between the formal and informal labour markets where beauty might manifest differently among the two sectors.

As in recent decades, 'beauty' is no longer limited to inheritance or genetics and is no longer considered the unalterable variable. Thus, this chapter contributes to the literature by investigating the investment side of beauty in ex-prisoners: a minority group that increasingly faces difficulties in labour-market re-entry. Moreover, they were rarely drawn into the analysis of the economics of beauty perspective. It is the first to integrates the literature on the beauty premium and cosmetic surgery in prisoners to investigate the change in beauty premium from 'initial beauty' to 'improved beauty' of the same individual in both the formal and informal labour sectors. To the best of our knowledge, this represents one of the first attempts toward the studies of such a subject given that most studies cannot compare this precise effect.

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This chapter is organised as follows. Section 2 reviews the current literature on the beauty premium for the non-prisoner population, which includes both non-experimental and experimental studies. It also explores the studies of the relationship between beauty and crime, followed by empirical studies on the impact of cosmetic surgery in the non-prisoner and the prisoner population. Section 3 describes the

theoretical framework considering the choice experiment and Akerlof (1978)'s original theory of the labour market with asymmetric information. Section 4 focuses on preparing subjects for the experiment. Section 5 elaborates on the intricacy of constructing the choice experiment design. The data collection process is described in Section 6 and the Section 7 explains the model estimation using conditional logit theory. Section 8 presents the choice experiment results and analysis. Finally, Section 9 concludes and discusses the policy implication of the current study

2.2 Related Literature

2.2.1 The Physical Attractiveness Stereotype and the Economic Returns to Beauty

Dion et al. (1972), Dipboye, Fromkin, and Wiback (1975) and Dipboye, Arvey, and Terpstra (1977) were amongst the first who raised interest among scholars in the role and power of physical attractiveness (also called 'beauty'). After conducting the experiments to examine the perceptions toward attractive individuals, the results showed that attractive individuals were perceived to be more sociable, desirable, successful, and were likely to achieve more prestigious occupations than their unattractive counterparts. It explicitly demonstrated the first guideline of how beauty is rationalised and perceived. Subsequent studies such as that of Feingold (1992) and Langlois et al. (2000) supported the earlier works by suggesting a significant correlation between physical attractiveness and basic personality trait. They showed that physically attractive individuals: both children and adults were perceived to be more dominant, intelligent, mentally healthy, socially skilled, exhibit more positive behaviour, and treated more positively.

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The pioneering economics study of Hamermesh and Biddle (1993) combined the workers' beauty rating scores: 5-point scale assessment[1] with their incomes to measure the impact of beauty on earnings. They demonstrated that other things being equal, the more physically attractive workers, both genders, received higher wages than the average-looking and below-average-looking workers. Apart from Hamermesh and Biddle (1993)'s study, a large number of economic studies on the impact of beauty adopted a relatively similar approach and produced interchangeable results.

They emphasized the impact of 'beauty premiums' that occur worldwide. In occupations where physical appearance and attractiveness is crucial–such as workers in British, America, German, Indonesia, and Taiwan (Fletcher, 2009; Harper, 2000; Oreffice & Quintana-Domeque, 2016; Sohn, 2015; Tao, 2014), lawyers in America (Biddle & Hamermesh, 1998), sale executives in the Netherlands (Pfann, Biddle, Hamermesh, & Bosman, 2000), political candidates in Northern and Western Europe and Australia (Berggren, Jordahl, & Poutvaara, 2010; King & Leigh, 2009), commercial sex workers in Mexico (Arunachalam & Shah, 2012), and restaurant servers in Virginia (Parrett, 2015). The beauty premium also manifested in professions where looks are not considered as integral, such as academic professors (Babin, Hussey, Nikolsko-Rzhevskyy, & Taylor, 2020; Hamermesh & Parker, 2005) and borrowers (Ravina, 2008). Besides, the beauty premium served as an incentive for the more attractive women as they statistically reported having a spouse whose potential earning is higher (Hamermesh & Biddle, 1993; Lee & Ryu, 2012).

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[1] 1 is homely/ugly, 3 is average looking, and 5 is strikingly handsome/beautiful (Hamermesh & Biddle, 1994).

Borland and Leigh (2014) and Scholz and Sicinski (2014) added to the literature that the beauty effect might have an enduring quality across a period of time. Borland and Leigh (2014) showed the consistency of beauty premiums where Australian workers benefited from being beautiful as there had been a consistent return–throughout the 1980s and 2000s–to beauty on their hourly wage and household income hourly wages. Scholz and Sicinski (2014) lengthy examined the effect of labour market return to male's beauty from their younger years to their early 50s and illustrated. Despite controlling for IQ, high school experience, confidence, personality, and family background, the wage premium was still enduringly presented in the early 50s of the attractive male respondents.

2.2.2 The Experimental Study on Beauty and the Relationship between Beauty and Crime

While beauty promised desirable traits and happiness (Hamermesh & Abrevaya, 2013), its obverse offered the probability of stigma. Using the interviews approach to gather beauty score and criminal activities data, Mocan and Tekin (2010) showed that being very attractive reduced a young adult's (aged 18 to 26) propensity to engage in criminal activities. Being unattractive increased it for several crimes: ranging from burglary to selling drugs. They drew the interpretation that unattractive-young-students were isolated from their teachers and their peers, and this could influence their ability of adolescent's human capital formation that is significant when they enter the labour market. Nevertheless, to extract how beauty premiums manifest, Mobius and Rosenblat (2006) conducted the *maze-solving task* lab experiment on undergraduate and graduate students. The lab experiment sessions consisted of participants assigned as employer

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and employee groups. The experiments in which the employers were asked to estimate the productivities of employees' maze-solving task and assign their wages.

The results showed that the attractive ones were paid more among employees having equal ability to solve the maze. It implies the beauty itself does not increase a person's productivity but increase productivity's estimates instead. Later, Bóo, Rossi, and Urzúa (2013) and Ruffle and Shtudiner (2015) underlined Mobius and Rosenblat (2006)'s results by conducting field experiments to further analysed the actual hiring process in multiple occupations. In their studies, a large number of fictitious resumes were manipulated and sent to employment ads to examine the impact of beauty on the likelihood of a callback. Congruent with the former studies, Bóo et al. (2013) showed that the attractive workers received 36% more callback and being contacted sooner. Meanwhile, Ruffle and Shtudiner (2015) also demonstrated that almost double the number of callbacks was returned to attractive applicants.

Out of the labour market, Berggren et al. (2010) and King and Leigh (2009) scrutinised beauty premiums of the political candidates in Finland and Australia, respectively. They examined the correlation between beauty and electoral success– based on the assumption that good-looking politicians would receive more votes. The respondents were presented with the candidates' campaign photos. Aligning with the logical expectation, the beautiful politician received more votes in both studies. In Berggren et al. (2010), an increase in a measure of beauty associated with an increase of 20% and 17% in the number of votes for average non-incumbent parliament candidates and municipal election, respectively. Likewise, King and Leigh (2009) showed that beautiful candidates had more possibility to be elected with one standard

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deviation increase in beauty and such an increase associated with a 1.5 to 2 percentage point increase in vote share.

2.2.3 Purchasing Beauty and Cosmetic Surgery in Non-Prisoner and Prisoner Population

Since beauty is no longer a non-alterable characteristic, academic started to consider the causation of the beauty premium. Hamermesh, Meng, and Zhang (2002) suggested the failure of literature to investigate the causation line of beauty premium when workers' looks could stem from individuals' effort to enhance their beauty. They merged the labour market information with beauty rating scores, household expenditure, and female spending on beauty-enhancing goods and services. It is to investigate the investment side of beauty. The result showed that beauty increased women's earnings when clothing and cosmetics expenditures provided a positive marginal impact on women's perceived-beauty. Moreover, such purchases paid back less than 15% of additional units of expenditure in a present of higher incomes.

Recently, Póvoa, Pech, Viacava, and Schwartz (2020) conducted a trust game experiment to examine the effect of makeup on facial trustworthiness. Both men and women were separated into two groups: the group with and without makeup. The makeovers were done by one professional makeup artist. The result showed that wearing makeup increased perceived attractiveness and perceived trustworthiness: leading trustors to make more transfers to female trustees in the trust game. The makeup premium showed the gender difference when men trustors transferred more to female trustees with makeup. Even though the study shows the existence of beauty premiums from wearing makeup, the reservation occurs since the individual's facial appearance

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from makeup can change whenever people apply their makeup. Thus, the consistency of the makeup premium appears to vary by an individual's skill.

As mentioned above, most of the studies on beauty premiums has been found to not mention the alterable quality of the variable ‘beauty’ (Arunachalam & Shah, 2012; Hamermesh & Biddle, 1993; Hamermesh & Parker, 2005; King & Leigh, 2009; Mobius & Rosenblat, 2006; Mocan & Tekin, 2010; Pfann et al., 2000; Ravina, 2008; Ruffle & Shtudiner, 2015). As far as we know, Lee and Ryu (2012) were the first to scrutinise the labour market return to plastic surgery in the *non-prisoner population.* They merged the income from the dating service data set with the beauty scores from the surgery inquirer data sets to calculate the beauty premium. The result showed that plastic surgery increased the surgery inquirers’ facial attractiveness. They found that the increase in beauty associated with the monetary benefits both in the labour and the marriage market where the additional incomes received from marrying a richer spouse.

In the *prisoner population*, several studies have investigated the impact of cosmetic/plastic surgery on prisoners and suggested it as a tool to facilitate prisoners’ rehabilitation. Some studies raised concern that people with deformity were unlikely to adjust to an environment successfully. Such failure was claimed to lead to criminal-behaviour. Thus, when the deformity is cured, the person shall no longer be motivated to engage in criminal activities. Although some studies suggested no significant difference in recidivism between the cosmetic surgical groups and the control groups (Schuring & Dodge Jr, 1967), seminal studies reported a larger decrease in recidivism rates among prisoners who received cosmetic surgery compared to those who did not. They further addressed the removal of such defects helped prisoners to re-enter society

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more confidently. Sequentially, it resulted in less inclination of prisoners to go back to crime (Freedman et al., 1988; Lewison, 1965; Spira et al., 1966).

2.3 Theoretical Framework

This study uses **choice experiments (CEs)** and Akerlof (1978)'s original theory of the labour market with asymmetric information to answer the research question. CEs apply the Conditional Logit Model and McFadden (1973)'s Random Utility Model. It is the model where the attribute of the goods and the respondent's characteristics are analysed. The individual's preference can be explained by the utility function that comprises the deterministic element and the stochastic element that is random.

In a CE, respondents (employers) are presented with a series of alternatives (two prisoner job candidates), varying in respect of attributes and levels. The respondents are required to choose their most preferred candidate by including price/cost (salary) as one of the attributes of the good (labourer). The *trade-offs* individuals are willing to make between good attributes or *willingness to pay* (WTP) can be indirectly retrieved from an individual's choice. (Bateman et al., 2002; Hanley, Mourato, & Wright, 2001; Louviere, Hensher, & Swait, 2000)

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The chosen alternative is expressed as:

$$U_{ig} > max_{h\,Ci,\ h \neq g}\, U_{ih}, \qquad (1)$$

$$U_{ig} = V_{ig}(X_{ig}) + eig = bX_{ig} + e_{ig} \qquad (2)$$

In equation (1) and (2), U_{ig} represents the utility that is rationally maximised and $U_{ig} \neq U_{ih}$. The terms $V_{ig}(X_{ig})$ represents the deterministic element, while e_{ig} represents the stochastic element. The assumption lies that each individual will

maximise their utility and gains some utility from each attribute. The probability that a respondent (employer) prefers option g (prisoner job candidate g) over option h (prisoner job candidate h) indicates the probability that the utility related with option g is greater than that in option h, as expressed in equation (3). That is, the individual (i) will choose candidate g over candidate h if $U_{ig} > U_{ih}$. Therefore, the chosen alternative is expressed as:

$$P[(U_{ig} > U_{ih}) \forall h \neq g] = P[V_{ig} - V_{ih}) > (eih - eig)]. \quad (2)$$

When the parameter estimates have been acquired, the marginal willingness to pay (MWTP): the indicative amount of money employers are willing to pay for a particular qualification and characteristic of prisoner job candidate can be calculated using formulas based on demand theory as demonstrated in equation (3) and (4). Wherein equation (3), V^0 denotes to the utility of the initial state and V^1 denotes to the utility of alternative state. The coefficient b_y contributes to the marginal utility of income and the coefficient of the cost attribute. In equation (4), the equation (3) was reduced where b_c is coefficient of any attributes. (Hanley et al., 2001)

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$$WTP = b_y^{-1} ln \left\{ \frac{\sum_i \exp(V_i^1)}{\sum_i \exp(V_i^0)} \right\}, \quad (3)$$

$$WTP = \frac{-b_c}{b_y} . \quad (4)$$

According to Akerlof (1978)'s original theory of the labour market with **asymmetric information**, due to limit access to information, employers are likely to use statistics such as *race* as a proxy for a potential employee's productivity. Such information was used to assess the candidate's education, socio-economic background, and capability. The current study modifies Akerlof (1978)'s theory by applying the non-

disclosure of criminal history record: employees know more about their state of nature than their potential employers and employers do not have access to this information. While a proxy in Akerlof (1978) can also be a *race or good schooling*, the current paper equates all of these productivity-related characteristics and use *facial beauty* as a proxy for potential employee's productivity.

However, the non-disclosure setting of one's criminal record in the current study may not be falsely pre-supposed as some individuals may be motivated to manipulate the market mechanism in their favour by resorting to lying. In particular, it can occur when market mechanism does not give individuals sufficient incentive to truthfully reveal the possessed private information (Hurwicz, 1972 in Azariadis, 1983, p. 157). However, one might be concerned about the potential effect of this concept as employers may suffer from the unpleasant behaviours of some ex-prisoners who resort to lying their history. According to Akerlof (1978)'s concept of *the cost of dishonesty* in the **lemons model**: sellers who offer inferior goods can lead to the discharge of such a market. Consequently, ex-prisoner who perform below expectations will suffer from the cost of dishonesty by being degraded or suspended from the company.

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Finally, it might be argued that using the asymmetric concept in the experiment does not make the difference in terms of implementing it in the non-prisoner population. What this means is that, in the non-disclosure setting, the respondents might automatically presume ex-prisoners in the experiment to be non-prisoners. As past studies suggested a relationship between criminality and physical appearance where facial proportion and structure conceivably a reliable signal of unethical and aggressive behaviour (Carre, McCormick, & Mondloch, 2009; Haselhuhn & Wong, 2012; Lombroso, 1918 in Bull, 1982, p. 6; Stillman, Maner, & Baumeister, 2010)

The investigation had been made whether an individual can distinguish between the face of the criminal and the non-criminal by having the participant distinguish between facial photos of the two group: holding gender, race, age, attractiveness, and emotional expression. Their results showed that the individual could identify the ‘face of criminals’ and, to some extent, could identify which type of crime such particular photographed individual had committed: implying that stereotyping criminality could base on the facial appearance (Thornton, 1939; Valla, Ceci, & Williams, 2011).

2.4 Unit of Study

2.4.1 Subject Preparation: Generating the Before and After Cosmetic Surgical Faces

When the Research Ethics Review Committee for Research Involving Human, Research Participants, Health Sciences Group, Chulalongkorn University accepted the using of prisoner’s facial photos in the study, the subject preparation came in three steps. Firstly, 27 ex-prisoners who were released for no longer than six months were asked to volunteer for having their photos used in the experiments. And the requirement for probation officers to recruit the volunteers are in this scenario:

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- They had not been released for longer than six months,
- The recruitment is randomisation,
- There is a variety of types of criminal offenses among the volunteers.

Secondly, after ruling out the volunteer whose aged more than 45 and who are attractive (subjects who were rated above three from a five-point scale[2] by six males and six females), the recruited 18 male ex-prisoners aged between 20-45 were simulated for cosmetic surgery by the graphic designer. Adobe Photoshop and other related applications were used to manipulate the *after* cosmetic surgical faces to ameliorate ex-prisoners' deficiencies in pulchritude. All simulated procedures referred to the most common face and head procedures in Thailand from ISAPS 2017 statistics (ISAPS, 2018).

The combination of *rhinoplasty, eyelid surgery, facial contouring (fat-grafting face), facelift-brow lift, and lips shaping,* were simulated to each male prisoner. The manipulations were ended when the subject's beauty rating score by the 12 adults reached more than three from the five-point scale. Conclusively, the experiment used 36 faces as job candidates: 18 before cosmetic surgical simulated photos and 18 after cosmetic surgical simulated photos. These processes allowed us to investigate the within-individual cosmetic surgery premium while Lee and Ryu (2012) could not scrutinise this precise effect.

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2.4.2 Manipulation of the Job Candidate's Profiles

Modifying Bóo et al. (2013)'s and Ruffle and Shtudiner (2015)'s method, we generated CEs where job candidates represented alternatives in the choice set. The CEs includes such positions that beauty is agreed to be more significant. The reason being, if we want a detectable result of the beauty premium from cosmetic surgery in the data sets, it is

[2] The same scale as in Hamermesh and Biddle (1994). The scale 1 is homely/ugly, three is average looking, and five is strikingly handsome/beautiful.

best to test its effect in the occupations/positions wherein 'beauty' has a significant role. While *proxies* of productivity regarding Akerlof (1978)'s can be *race* and *good schooling*, we equate all productivity-related characteristics and used *facial beauty* as a proxy for job candidate's productivity (Mobius & Rosenblat, 2006) in an attempt to disclose the *beauty premium* from the CEs. This is a common approach in the literature when we want to test for the labour market returns to beauty. Thus, all productivity-related characteristics held equivalent, where the main difference between workers is the level of physical attractiveness. Thus, in every choice set of our experiments, the inequality is set in the attached photos of job prisoner candidates having different levels of facial attractiveness.

2.5 Choice Experimental Design

2.5.1 Attribute-level Identification and Description

Since Mobius and Rosenblat (2006) showed that beauty was a factor influencing *productivity's estimate*, the respondents (employers) in our experiments are posited to estimate the candidate's productivity and hire their most preferred one. The salary is the cost attribute that helps us identify the size of the goods' attributes evaluation. Therefore, *cosmetic surgery*, *head-shoulder profile photo of the prisoner*, and *salary* are set as the three attributes in the CEs. To simplify this, considering the subjects simulated for cosmetic surgery or otherwise, the facial photos of the subjects are attached for the criteria. Together with the salary stated in the choice set, we can examine how the employer values each attribute and respond to the CEs. The lists of attribute names and their respective levels are shown in Table 1 as follows.

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Table 1 : Attribute and their Levels

Attributes	Levels	Variable name	Description
Cosmetic surgery	Yes No	Surgery No surgery	Cosmetic simulation by graphic designer
Head-shoulder photo of male ex-prisoner	18 levels (18 prisoners)	Mr. A–Mr. R (Prisoner A–R)	Eighteen prisoners perform as the job candidates
Salary	15,000 (12,000, for Formal sector) 12,000 (9,000, for Informal sector)	Salary	The salary levels of candidates were adapted from The Informal Employment Survey 2018 (NSO, 2018)

2.5.2 Choice Set Construction

Following instruction in Aizaki (2012), we use function **library(survival)** and **rotation.design** in package **support.CEs** in R programme Version 1.2.1335 to generate the CEs design. Firstly, we generated the two-alternatives and four sub-blocks *half factorial design* that comprises 36 choice sets out of *full factorial* 2 x 18 x 2 = 72, considering *orthogonality* and *level balance.* Applying half-design for large size of full factorial can decrease the respondents' work and does not decrease the effectiveness of the CEs since Louviere et al. (2000) suggested the main effects and two-way interaction account for 70-90 % and 5-15 % of explained variance, respectively. To generate our design using function **rotation.design**, all combinations of attributes and their respective levels in Table 1 are assigned to the argument **attribute.names** in list format. The number of alternatives per choice set is defined by argument **nalternatives**. In our

experiments, it is set to be 2. Then, we used the argument **nblocks** to assign the number of blocks that divides CEs into sets of questionnaires. For our design, we created the four subblocks CEs.

However, it depends on the researcher's discretion on how large is the CE design should be. The most important factor the researcher consider is the number of respondents and their burden. The greater number of the respondents, the larger the size of the CEs can be. That is, it comprises more choice sets, but it also creates more burden on respondents. Also, it is important to consider the respondent task that should be limited as a large number of choice sets may create a psychological burden on them. Secondly, we applied the **shifting method** wherein the second alternative was created by adding one constant level to each attribute of the first alternative.

For example, refers to Table 1, if the first alternative shows levels combination of Yes: the candidate underwent cosmetic surgery simulation, Mr. A as prisoner job candidate, and the salary of 15,000 baht. Applying the **shifting method**, the second alternative of this choice set composed of No: the candidate did not undergo cosmetic surgery simulation, Mr. B as prisoner job candidate, and the salary of 12,000 baht. Thus, in a particular choice set that comprises two alternatives (two candidates), only one is attached with a photo of a job candidate who underwent cosmetic surgery simulation.

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Table 2 : Choice Experiment Design

Choice set	Block	Alternative 1	Alternative 2	Design code
1	1	292	1(10)1	*Cosmetic Surgery*
2	1	1(11)1	2(12)2	*(1st column)*
3	1	2(11)2	1(12)1	1 – Yes
4	1	281	192	2 – No
5	1	162	271	*Prisoner's head-shoulder*
6	1	182	291	*Photo (2nd column*)
7	1	1(14)2	2(15)1	1 – Mr. A
8	1	2(15)2	1(16)1	2 – Mr. B
9	1	1(12)2	2(13)1	3 – Mr. C
10	2	1(13)1	2(14)2	4 – Mr. D
11	2	2(17)2	1(18)1	5 – Mr. E
12	2	2(16)1	1(17)2	6 – Mr. F
13	2	2(13)2	1(14)1	7 – Mr. G
14	2	111	222	8 – Mr. H
15	2	252	161	9 – Mr. I
16	2	2(14)1	1(15)2	10 – Mr. J
17	2	2(12)1	1(13)2	11 – Mr. K
18	2	261	172	12 – Mr. L
19	3	272	181	13 – Mr. M
20	3	1(10)2	2(11)1	14 – Mr. N
21	3	171	282	15 – Mr. O
22	3	122	231	16 – Mr. P
23	3	221	132	17 – Mr.Q
24	3	212	121	18 – Mr.R
25	3	1(17)1	2(18)2	*Salary (3rd column)*
26	3	1(18)2	211	1 15,000 baht/month
27	3	1(15)1	2(16)2	(12,000 for informal
28	4	131	242	sector)
29	4	241	152	2 12,000 bath/month
30	4	151	262	(9,000 for informal
31	4	191	2(10)2	sector)
32	4	2(18)1	112	
33	4	2(10)1	1(11)2	
34	4	1(16)2	2(17)1	
35	4	232	141	
36	4	142	251	

In doing so, the impacts of the beauty premium from cosmetic surgery are more effectively extracted. It also limits the respondents' confusion of having the same level

of the same attribute repeated in a choice set when the **shifting method** is not applied. It is to achieve *zero overlaps* where the same attribute level did not repeat within a choice set. Lastly, the design was evaluated. And it met the *orthogonality*, *level balance*, and *zero overlaps*: the three out of four criteria to evaluate the effectiveness of the design (determined in Huber and Zwerina (1996)). And the choice set design is elaborated in Table 2 as follows.

Table 2 shows all combination used in the experiments, where 36 choice sets were divided into four subblocks, thereby nine choice sets (questions) per block. The design codes in Table 2 are to indicate the code used for each level of each attribute. The first alternative of every choice sets was generated by **rotation.design**–whereas the second alternative was created according to the **shifting method**. For example, as the first alternative of choice set number 1 indicates the combination of 292, the second alternative was then shifted from alternative 1 to be 1(10)1. Eighteen prisoners were assigned as Mr. A to Mr. R by order from the youngest to the oldest. It was done to avoid a large age gap between the two candidates in a choice set where age can be the proxy of working experience.

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Using the shifting method also helps us to minimize the age gap between the two candidates within a choice set as much as possible. Without shifting, many choice sets can have prisoner job candidates who come from a different generation. For example, Prisoner A. (24 years old) may have to compete with Prisoner M. (35 years old). Finally, the combinations in Table 2 were used to construct the choice sets in the questionnaire as Figure 1. To extract the beauty premium from experiments as much as possible, the CEs comprise occupations/positions that physical appearance is integral to the job–such as sales, marketing, advertisement, and customer service-related

officers. With this technique, cosmetic surgery is expected to maximise the labour market return in the experiments. As in the literature, we manipulated that both job candidates equally have their best profile for their skills and qualifications. It is to make the candidates in the experiments appealing to the respondent and make hiring decision more easily.

Figure 1 : Example of Choice Sets of Experiments in the Formal Sector

If you are hiring a customer-relations officer aged between 25 and 35 and you are having this scenario: two candidates, both 27, high school graduates, having related experiences, computer skills, and English proficiency. Whom would you like to hire regarding their qualifications and salary?

(Note: Photo of candidate A. and B. represent 2 attributes: Head-to-shoulder photo of prisoners and cosmetic surgery)	 Candidate A.	 Candidate B.
Salary	12,000 THB (397 USD)	15,000 THB (495USD)
I choose	☐	☐

Remarks: (1) As this may contribute to a delicate issue, disclosing the real faces of the prisoners was omitted in the written material. However, the actual experiments showed photos without eye-closing tabs. (2) For the experiment in the informal sector, the professions (e.g., local store salesperson, local restaurant waiter) were modified to be congruent with the Thai informal labour market. And the salary levels were 9,000 and 12,000 baht, respectively.

The choice set in Figure 1 is constructed from the choice set number 1 in Table 2, the alternative 1–in which is prisoner job candidate (Mr. I) who did not undergo cosmetic surgical simulation and has salary level attached for 12,000 baht. The alternative 2 is

prisoner job candidate (Mr. J) who underwent cosmetic surgical simulation and had attached salary level of 15,000 baht.

Besides the literature gap from which we raised the issue that the literature rarely addressed the reverse perspective of beauty premiums, such past studies counted on a few beauty raters: most of whom were not the actual beauty-premium givers. It implies that such beauty rating scores were presumed as universal and applicable in labour, marriage, and educational markets (Hamermesh & Biddle, 1993; Hamermesh & Parker, 2005; King & Leigh, 2009; Pfann et al., 2000; Scholz & Sicinski, 2014). Another reservation exists in Ravina (2008), where photos in the study were obtained by having borrowers to upload them upon applying for loans online.

The photos, all of which did not necessarily contribute to the actual facial attractiveness since it can be that some senders had edited their photo to be more attractive. Not to mention that some particular studies used inexperienced participants to assess workers' productivity and assign their wages (Mobius & Rosenblat, 2006). Moreover, when the studies had the beauty rating implemented at the process of the interview, the process could be contaminated by the interviewees' current condition, and sensitive matters in their conservations: resulting in distortion or inaccuracy of the interviewees' beauty scores (Arunachalam & Shah, 2012; Borland & Leigh, 2014; Mocan & Tekin, 2010).

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Therefore, it may have been more illustrative to broaden the size and diversity to the former rating practice by having the 400 experienced employers from many industries, rate the candidates' beauty for four choice sets in the last section of each questionnaire. This so-called 'manipulation check' then certifies that the beauty premium specifically emanates from the perceived attractiveness of prisoner job

candidates chosen by such employers. Since an increase of perceived attractiveness in individuals might also increase their perceived trustworthiness (Póvoa et al., 2020), this process asks each respondent to rate subjects in a choice set for their 'beauty' and 'trustworthiness' scores. The resulting beauty score shall confirm whether the employer deciding to hire a cosmetic surgery candidate with a higher beauty score is a manifestation of the beauty premium.

Figure 2 : Example of Manipulation Checks

Regarding the candidate's age, how much would you rate his facial attractiveness and trustworthiness on the scale of 1 to 5. (1 is unattractive/untrustworthy, 3 is moderate, and 5 is strikingly attractive/highly trustworthy)

	 Candidate A. Age 27	 Candidate B. Age 27
Beauty score		
Trustworthiness score		

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Figure 2 represents an example of the manipulation checks where two candidates were rated for their perceived attractiveness and perceived trustworthiness. The manipulation check is more contributive when we want to examine the beauty premium from a unique group such as ex-prisoners whose looks can appeal as more alarming compared to other groups. Their increase of facial attractiveness can increase both the beauty and trustworthiness rating scores. Thus, upon the construction of the respondent data set,

we use such manipulations to recheck that there is the manifestation of beauty premiums instead of trust premiums in our respondent data

2.6 Data

2.6.1 Sample

The number of the respondent in this chapter is (N) = 400. Thus 400 experiments (questionnaires) were randomly conducted with 400 respondents (employers) in private businesses in Bangkok and the surrounding areas. Using purposive sampling: a respondent must be the person responsible for making the hiring decision. The data sets compose 200 sets of responses from private business owners/recruiters: approximately 200 organisations for the formal sector and 200 sets of responses from local/family business owners: 204 local/small businesses for the informal labour sector. And the private sector was chosen for this study since, in many cases, the non-private businesses were often found to be unlikely to welcome prisoners into their organisations.

We categorise the labour sector into two types: the formal sector and the informal sector. The jobs in the formal sector in this thesis are posited to comprise entry-level positions in well-known companies, or the companies that are assumed to provide higher wage and have a longer hiring term, compared to the informal sector. For example, the entry-level positions in which beauty is agreed to be more integral such as marketing officer, salesperson, and customer service officer. The jobs in the informal sector are posited to comprise the service-related position in local/small businesses. The businesses which usually provide lower wage and shorter hiring term: compared to the informal sector. The positions are restaurant waiter, salesperson of

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pop-up stores in the night market. All of which is presumed that beauty is integral to the job.

2.6.2 Data Sets Construction

Then, the respondent data sets: the formal and informal labour sector data sets for the function **clogit ( )** were constructed based on Aizaki and Nishimura (2008)'s method. According to Table 2, they are nine questions per blocks, and each question comprises two alternatives. Thus, to construct the data for the first respondent, it comprises 3 x 9 = 27 rows: each of the three rows comes from the two alternatives and none of these options in a choice set. And the first two rows denote the data related to the two candidates, respectively. Wherein the experiments the respondents are forced to choose between the two. Thus, the value of none of these options is thoroughly inputted zero.

Before inputting respondent data above, we need to create the very first row of the data set identifying attributes names, their respective level, and response from respondents. Column A is STR: a stratification variable to identify each combination of respondents and questions. For instance, STR for the first ten respondents answering nine questions each is 1009 (= 100 x 10 + 9). Column B is RES: a dummy variable taking the value of 1 if such an alternative is chosen. Column C is ASC: the alternative specific constant, taking the value of 1 for the two alternatives, and 0 for none of these options. Column D to column AB contain variables in the conditional logit model such as surgery, no surgery, Mr. A to Mr. R, salary, male, female, age, and experience. All of which is the dummy variables.

For example, the column surgery taking the value of 1 if the candidate has gone to cosmetic surgery, and 0 otherwise. According to alternative 1 in the first choice set

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which has a combination of 292. The constant value of 1 is inputted in the column No surgery, Mr. I, and lower salary level, respectively. Wherein other columns are inputted the zero value. Conclusively, each data set: the formal sector data set and the informal sector data set, both separately comprises 3 x 9 x 200 = 5400 rows. And these two sets of data are then used for conditional logit regression in R-programme using package **support.CEs**. And the steps for executing the CLM regression is described in the next section.

Finally, after constructing the data set, the summary statistics of respondents for both sectors are demonstrated in Table 3. Our data set for both sectors, the majority of respondents aged between 31-40 with the mean ages of 39 in the formal sector and 41 in the informal sector, respectively. For gender, the majority were female respondents who contributed 67.5% in the formal and 59% in the informal sector, respectively. The average hiring experience of employers in experiments for both sectors was ten years approximately.

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Table 3 : Summary Statistics of Respondents' Characteristics

	Formal sector		Informal sector	
Variable	**N**	**%**	**N**	**%**
Age (years)				
<21	0	0	0	0
21-30	32	16	45	22.5
31-40	90	45	64	32
41-50	64	32	49	24.5
51-60	13	6.5	24	12
>60	1	0.5	18	9
Total	20	100	200	100
Mean age	39.2	-	41.5	-
Gender				
Male	65	32.5	82	41
Female	135	67.5	118	59
Total	200	100	200	100
Hiring experience (year)				
<5	47	23.5	56	28
5-10	77	38.5	82	41
11-15	35	17.5	21	10.5
16-20	25	12.5	21	10.5
>20	16	8	20	10
Total	200	100	200	100
Mean	10.2	-	10.31	

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2.7 Model Estimation

The models were estimated using the function **clogit** and **library(survival)** in the package **support.CEs** in R progarmme, according to the **conditional logit model**

(CLM). We followed method developed by Aizaki (2012) and Aizaki and Nishimura (2008). And the fundamental utility function is given by:

$$V_{in} = ASC_i + B_{Surgery}Surgery_{in} + B_{Prisoner\,(i)}Prisoner(i)_{in} + B_{Salary}\,Salary_{in}, \quad (5)$$

The V_{in} signifies the representative element of utility for prisoner job candidate (i), (i= A, B,…,R); *ASC* refers to an alternative specific constant; $Surgery_{in}$ represents a dummy variable taking value of 1 if the prisoner has gone through cosmetic surgery, and 0 otherwise; and $Prisoner(i)_{in}$ represents a dummy variable for each prisoner. For example, $Prisoner(A)_{in}$, takes a value of 1 if it is prisoner A and 0 otherwise. In addition, $Salary_{in}$: the continuous variable that denotes the salary set for prisoner job candidate. Finally, $B_{Surgery}$, $B_{Prisoner\,(i)}$ and B_{Salary} are coefficients associated with $Surgery_{in}$, $Prisoner(i)_{in}$ and $Salary_{in}$, respectively.

According to the CLM, one level of each of dummy coded attribute was set as the based variable except for *salary.* The based variables were set as follow:

Attribute	***Based Variable***
Cosmetic Surgery	No Surgery
Prisoner	Prisoner A.

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The CLM results are shown in Model 1 to Model4. Where Model 1 shows the results of the formal labour sector, Model 2 shows the results of the informal labour sector. Model 3 and 4 demonstrate the additional models where respondents characteristics integrate. To execute conditional logit the regression, we firstly attach the package **support.CEs** and the **library (survival)**. Then respondent data set of each sector are separately imported to R-programme. After the package read the data and the

based variables of all non-monetary attributes of the model are set. The output from function **clogit ( )** is assigned to the object **clogout 1** for the first model and **clogout 2** for the second model, respectively (See more in Aizaki (2012)). Finally, the marginal willingness to pay (MWTP) for each non-monetary attribute is estimated by the function **mwtp** introduced in Aizaki (2012). And Tables 4 and 5 show the MWTP values for the formal and the informal sectors, respectively.

2.8 Results and Analysis

Model 1 : Basic Model in the Formal Sector

	coef	**exp(coef)**	**se(coef)**	**z**	**p**
ASC	24.99	7.160e+10	1.146e+03	0.022	0.983
Surgery	1.399	4.049	0.077	18.146	<2e–16***
Salary	–3.814	0.021	0.257	–14.855	<2e–16***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Likelihood ratio test= 2305 on 20 df, p=<2e–16
Number of choices = 5400, number of events= 1800, number of respondents = 200
Rho-squared = 0.5828995
Adjusted rho-squared = 0.5727857
Akaike information criterion (AIC) = 1689.634
Bayesian information criterion (BIC) = 1799.545
Number of coefficients = 20
Log likelihood at start = –1977.502
Log likelihood at convergence = –824.8172

Table 4 : Marginal Willingness to Pay in the Formal Sector

	MWTP	**2.5%**	**97.5%**
Surgery	0.3667	0.3293	0.4118

Method proposed by Krinsky and Robb (1986)
Remark: As we are interested in the coefficients and MWTP values of the cosmetic surgical group compared with the non-surgical group. Thus, the coefficients and MWTP values for Prisoner A. to Prisoner R. stated in Table 2. will not be showed within the written thesis.

Model 2 : Basic Model in the Informal Sector

	coef	exp(coef)	se(coef)	z	p
ASC	23.09	1.062e+10	1.124e+03	0.021	0.984
Surgery	0.931	2.536	0.0595	15.649	< 2e–16***
Salary	–2.762	0.063	0.198	–13.938	< 2e–16***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Likelihood ratio test=1993 on 20 df, p=< 2.2e–16
Number of choices = 5400, number of events= 1800, number of respondents = 200
Rho-squared = 0.5039613
Adjusted rho-squared = 0.4938476
Akaike information criterion (AIC) = 2001.835
Bayesian information criterion (BIC) = 2111.746
Number of coefficients = 20
Log likelihood at start = –1977.502
Log likelihood at convergence = –980.9175

Table 5 : Marginal Willingness to Pay in the Informal Sector

	MWTP	2.5%	97.5%
Surgery	0.3370	0.2888	0.3957

Method proposed by Krinsky and Robb (1986)

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Model 1 and Model 2 are regression results from equation (5), relative to the 'no surgery', the *surgery* variables for both the formal and the informal sectors are positively significant 0.1%: increasing the possibility of cosmetic surgical candidates being chosen by 3.05 times and 1.54 times, respectively. It can be concluded that most of the respondents preferred the cosmetic surgical candidates to the non-surgical candidates and the beauty premium acquired from cosmetic surgery had manifested. The conclusion is supported by the higher beauty rating scores than the trustworthiness rating scores in the manipulation checks at the end of each experiment: confirming the manifestation of the beauty premiums.

Concerning the beauty premium concept, we draw interpretations that most employers in both the formal and the informal sectors might evaluate the cosmetic surgical candidates as more productive compared to the non-surgical candidates. We interpret that the beauty acquired from cosmetic surgery *does not* increase the candidate's productivity but rather increase the candidate's productivity estimate (or expectation). It is congruent with Mobius and Rosenblat (2006)'s experiments as they suggested that physical attractiveness increased the productivity estimates. These imply that, in the asymmetric information setting where prisoner job candidates unopen their criminal history records, cosmetic surgery which enhances physical attractiveness also produce a greater beauty premium in the prisoners in both the formal and the informal sectors.

If we can compare the odds ratios between the two models, the odds ratios or the increase in utility of *surgery* variable in the formal sector is larger than that of the informal sector. It implies that beauty may be more important in the formal sector than in the informal sector. Such phenomenal is congruent with the interpretation drawn in Biddle and Hamermesh (1998)'s study since they showed that attractive lawyers not only earned more but also started their private law business faster. They concluded that the beauty premiums might not only impact the employers alone. But it might also influence customers, judges, and juries. Thus, we draw the interpretation of our results that the employers in the formal sector may expect for the long-term effect of the beauty premiums: compared to employers in the informal sector.

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That is, beauty can create a good relationship between co-workers, suppliers, partners, and customers. At this point, we may notice that beauty may not only increase the productivity estimate, but it actually hides *some sort of productivity* that the

customers expect in the long term. Thus, to discover the beauty premium and interpret that it simply manifests the discrimination in the labour market as attractive individuals perceived as more productive but not virtually more productive may not an absolute conclusion. Since our results of both the formal and informal sectors demonstrate a hint of the reason why when other related characteristics held equivalent, the employers are more likely to select the more attractive candidate.

Compared with the non-surgical groups, *salary* variables are significantly negative at the 0.1% significance level for both the formal and informal sectors. It met the logical expectation as the employers usually negatively respond to a higher level of the salary and prefer to pay the lower amount. The MWTPs in Table 4 and 5 show that, compared to the non-surgical group, on average, the employers have the willingness to pay an extra 3,667 baht (121 USD) and 3,370 baht (111 USD) to the surgical groups in both the formal and informal sectors, respectively. This implies that cosmetic surgery not only increases job opportunities to the cosmetic surgical group but also provides additional incomes.

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Finally, we followed Aizaki (2012) and Aizaki and Nishimura (2008) to conduct the additional models–in which respondents' characteristics are considered. We cooperated variables *surgery:female, surgery:age, surgery:experience, salary:female, salary:age,* and *salary:experience* into equation (5) and ran the regression for both the formal and the informal sectors. These are the co-variables that represent the effect of respondents' characteristics on their evaluation of the *surgery* and *salary* variables. All of the interaction terms above were statistically tested in Model 3 and 4. Models in which the main interests and the respondents' characteristics were drawn into the analysis.

Model 3 : Additional Model of Interaction with Respondents' Characteristics in the Formal Sector

	coef	exp(coef)	se(coef)	z	p
ASC	25.04	7.493e+10	1.130e+03	0.022	0.982
Surgery	1.138	3.112	0.461	2.472	0.013*
Surgery:Female	0.395	1.485	0.148	2.657	0.008**
Surgery:Age	0.010	1.010	0.014	0.766	0.443
Surgery:Experience	–0.039	0.916	0.015	–2.665	0.008**
Salary	–2.668	0.069	1.534	–1.739	0.081
Salary:Female	0.028	1.028	0.496	0.057	0.955
Salary:Age	–0.027	0.973	0.454	0.057	0.546
Salary:Experience	–0.012	0.986	0.049	–0.238	0.882

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Likelihood ratio test=2335 on 26 df, p=< 2.2e–16
Number of choices = 5400, number of events= 1800, number of respondents = 200
Rho-squared = 0.59029
Adjusted rho-squared = 0.5771421
Akaike information criterion (AIC) = 1672.405
Bayesian information criterion (BIC) = 1815.289
Number of coefficients = 26
Log likelihood at start = –1977.502
Log likelihood at convergence = –810.2025

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Model 4 : Additional Model of Interaction with Respondents' Characteristics in the Informal Sector

	coef	exp(coef)	se(coef)	z	p
ASC	23.15	1.129e+10	0.001	0.021	0.984
Surgery	1.12	3.042	0.237	4.698	2.63e–06***
Surgery:Female	0.246	1.279	0.120	0.206	0.040*
Surgery:Age	–0.007	0.993	0.006	–1.247	0.212
Surgery:Experience	–0.0006	0.999	0.088	–0.071	0.944
Salary	–4.182	0.015	0.790	–5.922	1.21e–07***
Salary:Female	0.183	1.200	0.340	0.457	0.648
Salary:Age	–0.034	1.05	0.020	1.70	0.087
Salary:Experience	–0.013	0.987	0.030	–0.450	0.653

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Likelihood ratio test=2335 on 26 df, p=< 2.2e–16
Number of choices = 5400, number of events= 1800, number of respondents = 200
Rho-squared = 0.5068116
Adjusted rho-squared = 0.4936637
Akaike information criterion (AIC) = 2002.562
Bayesian information criterion (BIC) = 2145.446
Number of coefficients = 26
Log likelihood at start = –1977.502
Log likelihood at convergence = –975.281

In Model 3 and Model 4, the female employers’ preferences towards cosmetic surgical groups are more positively significant than that of male employers at the 0.05% level in the formal sector and 1 % significant level in the informal sectors, respectively. It suggests that the employers’ gender in the data sets had a significant effect on their evaluations of the facial attractiveness of male job candidates. It implies that female employers in our data sets may have better abilities to distinguish between attractive and unattractive male candidates. Also, it can be interpreted that compared to that male employers, female employers are more likely to *value* and *give importance* to the male candidate’s beauty than that male employers.

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Therefore, this effect can reverse for beauty premiums in female candidates since male employers may have more ability to distinguish between attractive and unattractive female candidates than female employers. Also, it can be that male employers are drawn to have attention to female candidates than female employers, while the female employers may manifest the jealousy penalty rather than the beauty premiums to the attractive female candidates. However, the employers’ age and experience in the informal sector have no significant impact on their evaluation of cosmetic surgery, whereas there is a negatively significant impact of employers’

experience on their evaluation of cosmetic surgery in the formal sector at a 0.05% significance level. Also, it implies that while age has no impact on the evaluation of candidates' beauty, experience increases their ability to obstruct the manifestation of the beauty premium. Thus, the result reveal that the more experience the employers in our data set to have, the less beauty premium manifest in the experiments. In this case, as other productivity-related characteristics were held equivalent in the experiments, we draw the interpretation that highly experienced employers might posit more value in the objective factor hold inequivalent, that is, the salary level.

2.9 Conclusion and Discussion

This chapter investigates how much the cosmetic surgery premium manifest in the ideal world–wherein ex-prisoners' potential employers are uninterested or unable to access their criminal information during the employment process. Using choice experiments helps us to investigate within an individual effect of cosmetic surgery in no time. We demonstrate the positive impact of cosmetic surgery that increases beauty and associate with the increase of job opportunities and incomes of the Thai male prisoners. The results of the CEs are congruent with those of Lee and Ryu (2012) that cosmetic surgery in the non-prisoner population increased subjects' facial attractiveness, job opportunities, and incomes, respectively. Also, the findings support the concept of the beauty premium in the economics literature that more attractive workers are more economically successful.

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However, our results may not precisely portray the outcome in the case of the female ex-prisoners. But we preliminary expect that: it would be the smaller size of beauty premiums in female ex-prisoners as some previous studies showed that the male

labourers enjoyed more beauty premiums, compared to the female labourers, (e.g., Hamermesh & Parker, 2005). It is expectable if the patriarchy system operated–men hold primary power and predominated. That is, men usually perceived to be more productive than women. And it is perceived that there is more leader quality in men. Also, some study mentioned the *jealousy penalty* where it was suggested that the female HR in the data set could create discrimination towards attractive female labourers (e.g., Ruffle & Shtudiner, 2015).

More importantly, we add on the new piece of knowledge where the reverse perspective for how workers achieve their physical attractiveness to enjoy more beauty premiums is under-researched. We also magnify the beauty premium concept that beauty is no longer an *unchangeable variable*. Even though the MWTPs show that the returns cannot cover the cosmetic surgery cost in the short run as in Lee and Ryu (2012), the positive impact of having a greater ability to reintegrate into society, being accepted, having more self-satisfaction, and having less propensity to recidivate should also be considered (Klassen, Jenkinson, Fitzpatrick, & Goodacre, 1996; Rankin, Borah, Perry, & Wey, 1998).

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However, limitations exist where the cosmetic surgery in these asymmetric experiments might mislead the potential employers if an individual's feature can predict one's criminality. However, by observing our ex-prisoners childhood photos, before-imprisoning photos, and after-imprisoning photos, we found that many of them have a slightly degraded in beauty between childhood photos and before-imprisoning photos. Furthermore, there is a large degraded physical attractiveness between before-imprisoning photos and after-imprisoning photos. Many of them further expressed their uneasiness and low self-esteem due to their change in physical appearance acquired

from imprisoning and pointed out unreadiness for seeking employment without further explanation. Thus, this phenomenal raised question of whether criminality comes from the genetic physical features or developed through an individual's environment affecting their minds. Therefore, affecting their behaviour in transforming their bodies.

Prisoners' bodies seem to be continuously degraded. As the photographs we collected from 27 newly released prisoners showed some pieces of evidence where these ex-prisoners were marked with tattoos, scars, rotten teeth, and ageing signs acquired in prison. This evidence, even small in number, may not be weak since literature also suggested the prison system could be a cause of poor dental health when rotten teeth and toothless suggested to be the predictor of self-esteem. Also, female ex-prisoners expressed that having their lost teeth with a scarce resource after release, allowed people such as employers to label and discriminate them from those female bodies that *fitter* to the employment. Also, it was claimed to impose the unequal treatment that consequently led to the unequal outcome (Moran, 2012, 2014).

Moreover, Mocan and Tekin (2010) statistically exhibited evidence of how the 'becoming criminal' originated from the experience they had in their younger years. They demonstrated the larger propensity of criminal activities in the un-attractive children and suggested that treatments from people around them influenced how they became criminals. The study has shown statistics that being attractive reduces young adult's propensity to engage in criminal activities while being unattractive increases it. The explanation has been drawn that this minority group were isolated by their teachers and peers for their low physical attractiveness during school-age. All of whom physical attractiveness suggested to associate with peer relations and academic competence (Hamermesh & Parker, 2005; Lerner, Delaney, Hess, Jovanovic, & Eye, 1990). These

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resulted in a decrease in the ability to accumulate their human capital in school-age. And the low human capital then led to the difficulty to enter the legal labour market and sequentially resulted in more inclination to gain money illegally by burglary and theft. Therefore, this requires a reconsideration of whether a criminal is precisely genetically created. Or it could be the case that society expected a certain type of face to commit a certain type of crime (R. H. C. Bull & Green, 1980).

Finally, we do not suggest that cosmetic surgery is necessary for all prisoners. But it can be important for some facial deformity prisoners and prisoners having a large degraded in facial attractive acquired from imprisoning. In this chapter, we aim to demonstrate that beauty in prisoners cannot be ignored when it comes to employment. Therefore, policymakers who are boosting employment opportunity for this group can adapt this knowledge: to improve the success rate of re-entry. For example, a cheaper physical appearance improvement programme can be implemented for all releasing prisoners. For that, applying makeup, grooming, and dressing appropriately was also proved to create the beauty premium in the labour market (Hamermesh et al., 2002; Póvoa et al., 2020).

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CHAPTER 3

BARRIERS TO PRISONERS' RE-ENTRY INTO FORMAL AND INFORMAL LABOUR MARKET

3.1 Motivation

It's been decades that academics have been investigating the impact of criminal history records: documenting it as the main barrier to prisoners' labour market re-entry while they additionally posited that secured employment is a significant element of prisoners' reintegration. Other than investigating the employers' perspective, the ex-prisoners themselves also revealed the experience of the negative impact of criminal history records on their employment opportunities. (Chui & Cheng, 2013; Decker, Ortiz, Spohn, & Hedberg, 2015; Kim & Loury, 2018; Pager, 2003; Pager, Western, & Sugie, 2009; Visher, Debus-Sherrill, & Yahner, 2011).

However, other academics argued that the close-records policy might cause statistical discrimination against the vulnerable demographic group (e.g., African-Americans), whereas the open-records policy might increase the re-entry success rate and wage of the no criminal history individuals, which may ultimately increase the average market wage where ex-convicts can free ride these premiums (Bushway, 2004; Holzer, Raphael, & Stoll, 2006; Solinas-Saunders, Stacer, & Guy, 2015). Despite the literature arguing whether to expunge or seal the record, the debates continue with no absolute solution while the ex-prisoners increasingly face the challenge of re-entering the labour market. As in recent decades, statistics showed the increase of employers' access to criminal information from 19,364 in 2007 to 61,310 times in 2018 (Division, 2019).

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Given that the literature exhibited the significance of beauty premiums and criminal records discrimination, in this chapter, we aim to examine the labour market impacts of both factors within a hiring decision. The information in these experiments is less asymmetric and more realistic compared to Chapter 2. In this chapter, we reveal the criminal history of job candidates in the experiments. Also, we communicated to the respondents that a person having a criminal record was an ex-prisoner. To alleviate criminal-record discrimination, we use the beauty premium concept instead of the close-record policy. It based on the literature showing that cosmetic surgery in prisoners decreased their recidivism rates and the recidivism rates related to employment opportunities. Owing to the experiments, we can observe how the employers evaluate and make hiring decision when both the beauty and the criminal record rival within one match.

This chapter contributes to the literature by scrutinising the labour market outcome of ex-prisoners from a broader perspective. It contributes to society by demonstrating how ex-prisoners in Thailand are perceived or stereotyped by their potential employers. The chapter is organised as follows: Section 2: Related Literature elaborating former studying of employment discrimination where the main theme focusses on the impact of the criminal history records. Section 3: Unit of Study that explains how to prepare subjects for the experiment. Section 4: Choice Experimental Design. Section 5: Data, Modeling Strategy. Section 6: Results and Analysis. And section 7: Conclusion and Discussion.

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3.2 Related Literature

3.2.1 The Significance of the Open-Records

Non-Experimental Studies

To investigate the impact of criminal history records, some academic referred to the statistical discrimination model pioneered by Arrow (1971) and Phelps (1972) that under the imperfect information, the employers used the statistical experience or sociological beliefs to infer job candidate's productivity. With this theory, Bushway (2004) used the LAC report card which measured record access from the Legal Action Center (LAC) in 2004 and the average wage and employment data from 2000 and 2001 from the Current Population Survey (CPS). To analyse the correlation between a criminal record access and the employment outcome between Black and White men age 19-60. The result showed no strong and insignificant correlation that accessing criminal records decreased wage difference between Black and White wages and led to less employment for Blacks relative to Whites.

The statistical discrimination model was then found in Holzer et al. (2006), all of whom estimated the impact of the employer commenced criminal history checks when employing African American. Using establishment-level data, they found that employers who accessed criminal records were more likely to hire African American, for both black men and black women. Their results also showed a strong positive impact of criminal history check for employers who were unfavourable to employing ex-offenders. The same direction was found to occur in other stigmatized groups who possess gaps in their employment history. Therewithal, they suggested when employers did not access to criminal history, they used race, gaps in employment history, and other

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discerned associated with criminality to predict the former felony conviction. Thereby discriminated statistically against job candidates perceived to belong to such a group.

Experimental Studies

From the experimental perspective, as far as we know, it seems that the experimental studies on discrimination in society and the labour market originally started from the racial disparity perspective. In discrimination based on racial disparity, Bendick, Jackson, and Reinoso (1994) investigated racial discrimination in America where matched pairs of minority and nonminority were used to measure employers' responses to the personal characteristic of job seekers–of whom their fictitious resumes were manipulated and sent to job posts. They found that African Americans were more than 20% treated less favourably than equally qualified nonminority. Subsequently, academics started to bring the former methodology to implement in more dimensions of discrimination such as race and criminal history.

For the discrimination based on race and criminal history perspective, 'ban the box policy' was hypothetically implemented in Solinas-Saunders et al. (2015) who supported Bushway (2004)'s and Holzer et al. (2006)'s arguments that close-records policy could cause statistical discrimination against the vulnerable demographic group (e.g., black men, individual with a criminal record). Their objective is to investigate whether to apply open or close record policy wherein their study assumed 'prisoners' as 'low productivity workers'. The methodology and unit of subjects resembled Bendick et al. (1994) where there was the competition of black and white job seeker in the experiment. They exhibited that when criminal information was closed, *race* became a proxy for a criminal conviction.

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Thus, the employers who were not informed of the applicant's true status would be willing to offer lower wages to black applicants. The authors concluded that open-records policy might cause adverse selection: forcing high productivity workers to sort themselves in markets where they can distinguish themselves–while employers end up hiring lower productivity workers. Nevertheless, when the former studies addressed that the open-records policy might be a promising way to alleviate criminal record discrimination, others argued it differently that such policy produces labour penalty to this minority group. And all of whom have a criminal record was labelled as less-qualified or unreliable. Thereby, they suffered as a consequence.

3.2.2 The Significance of Close-Records

Experimental Studies

In experimental studies, an approach of fictitious matched-pairs resumes was used to investigate the impact of criminal history records and race. First, Pager (2003) investigated the consequence of incarceration for the employment opportunities of Blacks and Whites in Milwaukee. Using the experimental audit approach–in which the matched-pair of individuals applied for an entry-level job such as waitstaff, service, cashier, and clerical. Four college testers age 23 were divided into two groups: two Blacks and two Whites. One of each was randomly assigned for drug conviction history, while all of them were equally profiled as highly competitive applicants for entry-level jobs. Approximately 300 applicants were released to the labour market. The results demonstrated a decrease in the likelihood of callback by 50% for white and 64.29% for black job applicants. Thus, they suggested a criminal record was a crucial barrier to employment with the significant effect of racial disparities

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Later, Pager et al. (2009) conducted a similar approach of field experiments throughout New York City. They recruited twenty-two to 26 years-old testers in terms of their matches in verbal skills, interaction style, and physical attractiveness. As in the above study, they divided four college testers into two groups: two Blacks and two Whites–one of each was randomly assigned for drug conviction history and were profiled as high-school graduates with consistent employment for entry-level jobs. Two hundred and fifty applications were tested. The results suggested that despite white and black applicants being equally qualified, black applicants received 50% less call back. Being an ex-offender reduced employment opportunities by 29% for Whites and 40% for Blacks. It demonstrated larger stigmatization in people of colour. Moreover, criminal history records had a significantly stronger-negative impact, particularly for blacks. Besides, black and Latino applicants with clean history were treated no better than white felon just released from prison.

Using the similar approach, Baert and Verhofstadt (2015), Decker et al. (2015), Agan and Starr (2017), and Ahmed and Lång (2017) further conducted field experiments in a larger scale to investigate the criminal records discrimination on the Belgian, American, and Swedish labour market for a variety of occupations. Sequentially, they documented the empirical evidence supporting previous studies that race, ethnicity, and criminal history remained crucial barriers to prevent the success of labour-market re-entry. For example, Baert and Verhofstadt (2015)'s results emphasized the criminal record discrimination as a major barrier to former juvenile delinquents' transitions in Belgian: providing labour penalty of 22.36% less call back compared to those without a criminal record. Decker et al. (2015) added to the literature that neither race nor criminal records (the three years of prison terms for drug offence)

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affected employment outcomes in the online application. Whereas both of which had a significant impact on the person-application analysis. Being Black and Hispanic received 21% and 15% less employment outcome, respectively in the southwestern city–while on average, being ex-prisoners were 22% less likely to receive a callback.

However, discrimination toward criminal record does not only occur in Western countries but also in Asian's where Chui and Cheng (2013) evidenced discrimination through the eyes of the ex-prisoners in Hong Kong. They conducted qualitative semi-structured in-depth interviews with 16 formerly incarcerated Hong Kong Chinese young men whose mean age of 21.6 and had been convicted for offences related to offences such as theft, drugs, wounding, and sexual. The results showed ex-prisoners difficulty finding legitimate employment and reports of being discriminated against, especially by prospective employers. Despite the government promotion of equal treatment for rehabilitated people, there still ongoing discrimination as they reported a strong sense of perceived discrimination and the feeling that society inspected them as potential threats. Moreover, the author further addressed this discrimination in capitalist Hong Kong was a great challenge where the social safety net (SSN) was not as healthy as in other Western countries.

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With all that has been elaborated, the related literature on discriminations towards criminal history records found to manifest in Western and Asian countries showing that this discrimination seems to be universal. And the regions do not give exemptions of discrimination to those who have a criminal record. Thus, this chapter corporate a criminal record as one additional factor in the experiment. It is more realistic and less naive since the criminal record check in Thailand is increasing every year. Also, we will see that if cosmetic surgery is as much as effective as in the first chapter.

3.3 Unit of Study

3.3.1 Subject Preparation

We use the same set of the 36 before and after cosmetic surgical photos that we manipulated in Chapter 2, topic 2.4 Unit of Study

3.3.2 Manipulation of the Job Candidate's Profiles

The subjects (prisoner job candidates) of the experiment were held equivalent for education level, work experience, computer skill, and English competency. *Facial beauty* is a proxy for a job candidate's productivity. It is expected to signal personality and potential competency. Having a criminal history record signals the status of having been incarcerated where its impact is expected to depend on the perception and stereotype the employer preliminary has.

3.4 Choice Experimental Design

As same as Chapter 2, this study employs Choice Experiment (CEs) technique to investigate the labour market impact of criminal history records and physical attractiveness. The CEs design follows the same process as in topic 2.5 Choice Experimental Design in Chapter 2.

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3.4.1 Attribute-level Identification and Description

While field experiments in Pager et al. (2009) used matched-pairs fictitious resumes that differed in candidates' race and criminal background, we conduct CEs–in which two job prisoner candidates represent two options in each choice set differing in terms of *facial beauty* and *criminal background*. Both of the factors were separately investigated in the literature and shown to have a significant impact on the job

opportunity, income, and recidivism rates. Using such two factors in one study adds to the literature that paid a lot of attention to the impact of the race (or skin colour) and a criminal record–which is more informative for the Western perspective. Wherein the Asian perspective, racism appears to not be an as significant problem as of Western. Thus, we consider that 'beauty' can be a good substitute for 'race' for this study as it seems to be more important in the Asian environment.

Table 6 : Attribute and their Levels

Attributes	**Levels**	**Variable name**	**Description**
Cosmetic surgery	Yes No	Surgery No surgery	The same set of cosmetic simulation as in Chapter 2.
Criminal history records	Yes No	Crime No crime	Whether candidate has served time in prison or not?
Head-shoulder photo of male ex-prisoner	18 levels (18 prisoners)	Mr. A–Mr. R (Prisoner A-R)	Eighteen prisoners as in Chapter 2 perform as the job candidates
Salary	15,000 (12,000, for Formal sector) 12,000 (9,000, for Informal sector)	Salary	The salary levels of candidates were adapted from The Informal Employment Survey (NSO, 2018)

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This study investigates the effect of facial beauty acquired from cosmetic surgery on labour market outcomes in the open records setting–where the ex-prisoners expose their criminal history or the employers have access to this information. The *cosmetic surgery, head-shoulder photos of male ex-prisoners, criminal history records, and salary* are the three main attributes. All of the attribute names and their respective levels are demonstrated in Table 6.

3.4.2 Choice Set Construction

As same as Chapter 2, in this study, each matched-pair of candidates in each choice set have productivity-related characteristics held equivalents such as sex, age, education level, and experience. The main differences are such that *cosmetic surgery, criminal history records, and salaries*. If we apply *full factorial designs*, it will end up with 2 x 2 x 2 x 18 = 144 combinations. Thus, we were motivated to reduce the size and implement the *half factorial design* where only the main effects were drawn into analysed. Consequently, with *half factorial design*, the 72 choice sets: each of two alternatives, were randomly generated. Next, we instructed the **CEs.package** to divide 72 choice sets into six sub-blocks to limit the respondents' task. Resulting in six versions of questionnaires with 12 choice sets each (plus four manipulation checks)–in which 18 prisoner job candidates were randomly matched-pair and randomly assigned for: cosmetic surgery, criminal history records, and salary, receptively.

Then, the **shifting method** was applied wherein the second alternative, all attributes were added for one constant level to create **the shifting design**. For example, refers to Table 6, if the first alternative shows levels combination of Yes: the candidate underwent Cosmetic surgery simulation, Yes: the candidate has a criminal history, A: Mr. A, and salary of 15,000 baht. Applying the shifting method, the second alternative of this choice set comprises No, No, B, and 12,000 baht. Thus, in a particular choice set composed of 2 alternatives (2 candidates), one was attached with a photo of a job candidate who underwent cosmetic surgery simulation. The same approach was applied to criminal history records and salary attributes. In doing so, the beauty premium from cosmetic surgery and penalties from criminal records are more effectively extracted as

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the shifting method limited the confusion to the respondent of having the same level of the same attribute repeated in a choice set.

As same as Chapter 2, the design was evaluated according to Huber and Zwerina (1996). Also, this design met the *orthogonality*, *level balance*, and *zero overlaps* criteria–all of whom required for the effective design. After that, the six versions of the questionnaires were used in both the formal and informal sectors. In the experiments, the 18 ex-prisoners perform agents to investigate the labour market impacts of cosmetic surgery and criminal history records. Thus, each prisoner will be investigated whether his job opportunities and incomes decrease or increase according to those qualities. (The combinations of all choice sets were elaborated in the Appendix: Table 15: Choice Experimental Design in Chapter 3)

Figure 3 : Example of Choice Sets of Experiment in the Formal Sector

In case you are recruiting a new officer for a salesperson with a requirement of age between 25 and 35 and you are having this scenario: 2 candidates: both 30, high school graduates, and having related experiences, computer skills, and English proficiency. Whom would you like to hire taking into consideration of their qualifications and numeration?

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	 Candidate A.	 Candidate B
Criminal history records	No	Yes
Salary	12,000 THB (396 USD)	15,000 THB (496 USD)
I choose	☐	☐

Remark: For the experiment in the informal sector, the occupations/positions and salary level were adjusted to suit the statistics of employment in the informal labour sector.

Figure 3 shows how the choice sets look like in questionnaires for these experiments. Employers will be presented with a variety of prisoner job candidates in a questionnaire and required to hire only one candidate in each matched pair for 12 choice sets. To illustrate this, if the employer hires candidate B, this implies that the employer evaluates candidate B as more productive, although he has a criminal history and is attached with a higher salary. Moreover, in the case that the respondent rates candidate B as more attractive than candidate A and the trustworthiness scores of both candidates is lower than their beauty rating scores in a so-called manipulation check. These imply that the beauty premium manifests, the hiring decision mainly comes from attractiveness rather than trustworthiness, and 'beauty' has more impact than the criminal history records factor. Finally, as same as Chapter 2, the four manipulation checks are conducted at the end of each questionnaire to certify that they are the manifestation of beauty premiums in our choice experiments. See the example of manipulation checks in Figure 4 as follows.

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Figure 4 : Example of Manipulation Checks

The assessment choice set 1: With respect to candidate's age, how many score would you rate the person's facial attractiveness and trustworthiness on the scale of 1 to 5. (1 is unattractive/untrustworthy, 3 is moderate, and 5 is strikingly attractive/highly trustworthy)

	 Candidate A. Age 30	 Candidate B. Age 30
Beauty score		
Trustworthiness score		

3.5 Data

CE respondent and administration of surveys

The number of the respondent in this chapter is (N) = 408, thus 408 experiments (questionnaires) were randomly conducted with 408 respondents (employers) in private businesses in Bangkok and the surrounding areas. As in Chapter 2, we use purposive sampling that a respondent must be the person responsible for making the hiring decision. This chapter's data sets comprise 204 sets of responses from private business owners/recruiters: approximately 204 organisations in the formal sector, and 204 sets of responses from local business owners: 204 local/small businesses in the informal labour sector. Moreover, even though this study focuses on the occupation in which beauty is agreed to be significant, we were able to collect 408 sets of responses of employers from various industries, such as food, transport, manufacturing, telecommunication, electronics, and hospitality.

Finally, the respondent data sets from both the formal and informal labour sectors were separately constructed following Aizaki and Nishimura (2008) and analysed in R-programme using the **clogit** function (Aizaki, 2012) considering the Conditional Logit Theory. The summary statistics of respondent's characteristics shows that, in these data sets, the majority of the respondents are female: contributing for 59.8% and 52% in the formal and informal sector, respectively. The mean ages of respondents are 29 and 43 years in the formal and the informal sector, respectively. The mean working experiences are 11 and 10 years in the formal sector and informal sector, respectively

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Table 7 : Summary Statistics of Respondents' Characteristics

	Formal sector		Informal sector	
Variable	**N**	**%**	**N**	**%**
Age (years)				
<21	0	0	2	0.98
21-30	18	8.82	35	17.16
31-40	89	43.63	64	31.37
41-50	76	37.25	42	20.59
51-60	20	9.80	32	15.69
>60	1	0.5	29	14.21
Total	204	100	204	100
Mean age	29.5	-	43.5	-
Gender				
Male	82	40.2	98	48
Female	122	59.8	106	52
Total	204	100	204	100
Working experience (year)				
<5	43	21.08		
5-10	72	35.29		
11-15	35	17.16		
16-20	33	16.17		
>20	21	10.3		
Total	204	100	204	100
Mean	11.07	-	10.2	-

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3.6 Results and Analysis

The theoretical framework is the same as topic 2.3 Theoretical Framework in Chapter 2. Adopting modeling strategy above with a systematic component of the utility

supporting an implementation of choice experiment (Aizaki, 2012; Aizaki & Nishimura, 2008), the basic utility specification V_{ij} is expressed as:

$$V_{ij} = ASC_i + B_{Surgery}Surgery_{ij} + B_{Prisoner\,(i)}Prisoner(i)_{ij} + B_{Crime}\,Crime_{ij} + B_{Salary}\,Salary_{ij} \quad (6)$$

where V_{ij} refers to an element of utility for the prisoner (i), (i = alphabet A to R); ASC denotes an alternative specific constant; $Surgery_{ij}$ is a dummy variable taking a value of 1 if the prisoner has undergone cosmetic surgery simulation, and 0 otherwise; $Prisoner(i)_{ij}$ is a dummy variable for each prisoner, for instance, $Prisoner(A)_{ij}$ taking a value of 1 if it is prisoner A, and 0 otherwise. $B_{Crime}\,Crime_{ij}$ is a dummy variable indicating if the candidate has a criminal record. And $Salary_{ij}$ represents the salary variable, the salary set for each candidate in each alternative. Conclusively, $B_{Surgery}$, $B_{Prisoner\,(i)}$, B_{Crime}, and B_{Salary} are coefficients corresponding with $Surgery_{ij}$, $Prisoner(i)_{ij}$, $Crime_{ij}$, and $Salary_{ij}$, respectively. The salary variable: the continuous variable is used to calculate the marginal willingness to pay of the respondents for the surgery and non-surgery groups. Finally, in the CLM model, one level of each dummy coded attribute was set as the based variable except for variable salary.

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The based variables of the basic models were set as follows:

Attribute	**Based variable**
Cosmetic Surgery	No surgery
Criminal history records	No crime
Head-to-shoulder photo of prisoner	Mr. A. (Prisoner A.)

Finally, after executing function **clogit** in the **survival package** in R-programme, the regression results of basic models regarding equation (6) for the formal and informal sectors are as follows where exp(coef) contributes to odd ratios or the increase of utility of each attribute compared with based variables. Model 5 and 6 show the experiment results for the formal and the informal sector, respectively. And the function **mwtp** calculated the MWTPs for attributes/levels and confidence interval (Krinsky & Robb, 1986) as shown in Table 8 and 9, respectively.

Model 5 : The Basic Model in the Formal Sector

	coef	**exp(coef)**	**se(coef)**	**z**	**p**
ASC	24.98	7.076e+10	1.035e+03	0.024	0.981
Surgery	0.562	1.754	0.059	9.486	< 2e–16***
Crime	–1.761	0.172	0.066	–26.486	< 2e–16***
Salary	–2.478	0.084	0.206	–12.036	< 2e–16***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Likelihood ratio test=3319 on 21 df, p=< 2.2e–16
Number of choices = 7344, number of events= 2448, number of respondents = 204
Rho-squared = 0.6169897
Adjusted rho-squared = 0.6091813
Akaike information criterion (AIC) = 2102.138
Bayesian information criterion (BIC) = 2224.002
Number of coefficients = 21
Log likelihood at start = –2689.403
Log likelihood at convergence = –1030.069

Table 8 : Marginal Willingness to Pay in the Formal Sector

	MWTP	**2.5%**	**97.5%**
Surgery	0.2267	0.1748	0.2895
Crime	–0.7104	–0.8331	–0.6185

Method proposed by Krinsky and Robb (1986)

Model 6 : The Basic Model in the Informal Sector

	coef	exp(coef)	se(coef)	z	p
ASC	22.78	7.803e+09	0.0948	0.024	0.981
Surgery	0.559	1.750	0.046	12.013	< 2e–16***
Crime	–0.714	0.490	0.047	–15.184	< 2e–16***
Salary	–1.855	0.156	0.155	–11.927	< 2e–16***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Likelihood ratio test=2555 on 21 df, p=< 2.2e–16
Number of choices = 7344, number of events= 2448, number of respondents = 204
Rho-squared = 0.4750043
Adjusted rho-squared = 0.4671959
Akaike information criterion (AIC) = 2865.85
Bayesian information criterion (BIC) = 2987.714
Number of coefficients = 21
Log likelihood at start = –2689.403
Log likelihood at convergence = –1411.925

Table 9 : Marginal Willingness to Pay in the Informal Sector

	MWTP	2.5%	97.5%
Surgery	0.3016	0.2420	0.3754
Crime	–0.3848	–0.4683	–0.3186

Method proposed by Krinsky and Robb (1986)

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Equation (6) produces Model 5 and 6 which represent results for the formal and the informal labour sector correspondingly. Relative to the 'no surgery', the variables 'surgery' is positively significant at a 0.1% significance level in both sectors. In the formal sector, cosmetic surgery has a slightly more positive impact than that in the informal sector as it increases the possibility of cosmetic surgical candidates being chosen by 75.4%. These indicate that, from the experiments, most employers in both sectors preferred cosmetic surgery candidates (more attractive candidates) to non-surgery candidates. Moreover, relative to 'no crime', the variables 'crime' in both

sectors have negative coefficients with a 0.1% significance level. These imply that relative to having no criminal history records, having criminal history records offered the labour penalty in the experiments: decreasing the possibility of candidates with criminal histories (or ex-prisoners) by 82.8% and 51% in the formal and the informal sector, respectively. The results imply a strong negative perception toward ex-prisoners or people with criminal records in Thai society, or least in the formal and informal labour markets. However, the variables 'salary' is negatively significant at a 1% significance level in both sectors, wherein the formal sector, the coefficient is larger.

If we compare Model 5 with Model 6, they are approximately similar in size of the impact of cosmetic surgery. However, the interesting issue lies in the criminal record perspective. That is, the labour penalty in the formal sector is higher than that in the informal sector. We interpret that the employers in the formal sector are more serious or careful about hiring ex-prisoner candidates or candidates with a criminal history. It may come for two reasons. Firstly, in the highly competitive labour market nowadays, employers have a large number of choice available. The 12,000 and 15,000 baht salary rates can be considered too expensive for hiring prisoner while the newly undergrad candidates are willing to receive such wages. Secondly, they were employers' concerns that ex-prisoners or people with a criminal history may cause the problem to the companies.

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Thus, some of them regularly avoid hiring ex-prisoners by default. Thus, the two reasons above enforce employers to be more likely to choose candidates in experiments that have no criminal history. Another interpretation for the employers' choice in the informal sector is that the employers in this sector might find the criminal record (or ex-prisoners) less intimidating. The reason behind this may spring from the

more experience and engagement they have with ex-prisoners. These may lead to a decrease in impact from the media–of whom the daily report the ill-favour side of crimes can result in strong stereotyping to prisoners. Thereby, the criminal discrimination was less manifested compared to that of the formal sector. Besides, it can be that the nature of the informal sector itself allows employers to stop hiring their risky employees in not time. Thereby, fewer concerns from hiring ex-prisoners.

The MWTPs values for both sectors in Table 8 and 9 show that employers in the experiments have the willingness to pay an additional of 2,267 (78 USD) and 3,016 baht (100 USD) to the cosmetic surgery groups in the formal and the informal sector, respectively. While beauty increase employers' willingness to pay for cosmetic surgical candidates, the criminal history records reduced the ex-criminal candidates' potential earnings by 7,104 baht (235 USD) and 3,848 baht (127 USD) in the formal and the informal sector, respectively. It is congruent with the interpretation above that most employers in the formal sectors avoided hiring ex-prisoner candidate with such salary rates while they are a larger number of potential employers in the market.

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However, when we used 'surgery', 'crime', and 'Mr. A' as the based variables, the results show that the 'no surgery' variables are negatively significant at 0.1% in both sectors. When comparing these results from the basic Model 5 and 6, it is explicitly observed that cosmetic surgery can perform as an aid for labour market re-entry to prisoners. The 'no crime' variables are positively significant at 0.1%: increasing the possibility of no criminal record candidates being chosen by 4.8 times and 1.04 times in the formal and informal sector, respectively. These imply that most respondents in the experiments preferred job candidates with no criminal history records relative to the candidates with criminal history records.

Finally, as in Chapter 2, the additional models were conducted to investigate the impact of the respondents' characteristics on their evaluation of each attribute by adding new variable to equation (6), such as $Surgery_{ij}Female$ and $Crime_{ij}Female$ $Female$ is a dummy variable taking a value of 1 if the respondent is female, and 0 otherwise. The interaction between two variables in formula is calculated by using the operation *Surgery:Female* and *Crime:Female*, accordingly. Thus, the respondent characteristics such as gender, age, and experience interacted with the variables 'surgery' and 'crime' to investigate its impact on the respondent evaluation of candidates with cosmetic surgery and candidates with criminal history records.

Model 7 : Additional Model of Interaction with Respondents' Characteristics in the Formal Sector

	coef	**exp(coef)**	**se(coef)**	**z**	**p**
ASC	25.69	1.439e+11	9.685e+02	0.027	0.979
Surgery	1.755	5.783	0.422	4.163	3.14e–05***
Crime	–2.303	0.1	0.440	–5.235	1.65e–07***
Surgery:Female	–0.0006	0.999	0.123	–0.005	0.996
Surgery:Age	–0.027	0.9730	0.012	–2.258	0.024*
Surgery:Experience	–0.005	0.995	0.012	–0.372	0.710
Crime:Female	0.183	1.200	0.134	1.365	0.172
Crime:Age	0.008	1.008	0.013	0.613	0.710
Crime:Experience	0.005	1.005	0.014	0.340	0.734
Salary	–0.871	0.419	1.367	–0.367	0.524
Salary:Female	–0.443	0.642	0.425	–1.042	0.297
Salary:Age	–0.007	0.993	0.039	–0.174	0.862
Salary:Experience	–0.096	0.909	0.044	–2.152	0.031*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

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Likelihood ratio test=3358 on 30 df, p=< 2.2e–16
Number of choices= 7344, number of events= 2448, number of respondents = 204
Rho-squared = 0.6242718
Adjusted rho-squared = 0.6131169
Akaike information criterion (AIC) = 2080.969
Bayesian information criterion (BIC) = 2255.06
Number of coefficients = 30
Log likelihood at start = –2689.403
Log likelihood at convergence = –1010.485

Model 8 : Additional Model of Interaction with Respondents' Characteristics in the Informal Sector

	coef	**exp(coef)**	**se(coef)**	**z**	**p**
ASC	22.91	8.863e+09	9.478e+02	0.024	0.981
Surgery	0.642	1.900	0.188	3.412	0.001***
Crime	–1.343	0.261	0.091	–7.045	1.58e–12***
Surgery:Female	0.0807	1.084	0.096	0.837	0.403
Surgery:Age	–0.003	0.997	0.005	–0.706	0.480
Surgery:Experience	0.003	1.003	0.007	0.368	0.713
Crime:Female	0.072	1.074	0.097	0.737	0.461
Crime:Age	0.021	1.021	0.005	4.493	7.02e–06***
Crime:Experience	–0.04	0.968	0.007	–4.446	8.01e–6***
Salary	–0.621	0.537	0.627	–0.991	0.322
Salary:Female	–0.040	0.961	0.322	–0.123	0.902
Salary:Age	–0.037	0.964	0.015	–2.383	0.017*
Salary:Experience	0.039	10.39	0.024	1.590	0.112

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Likelihood ratio test=2594 on 30 df, p=< 2.2e–16
Number of choices= 7344, number of events= 2448, number of respondents = 204
Rho-squared = 0.4821964
Adjusted rho-squared = 0.4710415
Akaike information criterion (AIC) = 2845.165
Bayesian information criterion (BIC) = 3019.256
Number of coefficients = 30
Log likelihood at start = –2689.403
Log likelihood at convergence = –1392.583

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Model 7 and 8 show that, by gender, there is no significant effect on the evaluation of the variable ‘surgery’ for both sectors, indicating that the respondents’ gender in the data sets had no significant impact on their valuation of the cosmetic surgery. Moreover, respondents’ gender also had no significant impact on the evaluation of the variable ‘crime’ for both sectors, implying that the stereotypes towards criminal history records presumably belong to the individuals’ interpretation rather than gender difference. When respondents’ age interacted with variables ‘crime’ and ‘surgery’, there is a negative impact of respondents’ age on the evaluation of variable ‘surgery’: decreasing possibility of cosmetic surgical candidates being chosen by 2.7% at 1% significance level in the formal sector, while the respondents’ age had no significant impact on the evaluation of variable ‘surgery’ in the informal sector.

While the respondents’ age had no significant effect on the evaluation of the variable ‘crime’ in the formal sector, it had a positive impact in the informal sector: the increasing possibility of candidates with criminal records or ex-prisoners being chosen by 2.1% at 0.1% significance level. It implies that the older the respondents in the informal sector data set, the more preferable the respondents evaluate candidates with criminal history records. We interpret that with the increasing of age which reflects the increase of life experience, being ex-prisoners or people with criminal history does not manifest as strong as the stereotype compared to younger people possessing less life experience. It implies that older people perceive ex-prisoners as less dangerous and more welcome. However, when the respondents’ working experience interacted in the model, there is no significant impact on the evaluation of variable ‘surgery’ and ‘crime’ in the formal sector. Wherein the informal sector, the respondents’ working experience

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had a negative impact on the variable ‘crime’ at 0.1% significance level: decreasing job opportunity by 3.2%.

3.7 Conclusion Discussion

This chapter analyses the impact of the criminal record and physical attractiveness on job opportunities and incomes in both the formal and the informal sectors of Thai ex-prisoners. We conducted the experiments and found that physical appearance was strongly significant for some types of jobs such as a salesperson, marketing officer, and customer service officer: all of which requires interpersonal interaction. Moreover, the results show no significant discrimination among industries. Thus, prisoner discrimination might not industry-focused, but rather profession-focused. To simplify this, while beauty and imprisoning have a significant impact on the labour market return to ex-prisoners in professions used in the experiments, they might have less penalty in occupations and positions in which employees and customers have no in-person interaction.

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The results support the finding in the literature concerning criminal record discrimination and add the beauty premium perspective into such mainstream literature that usually focuses on the impact of race and criminal records. While the literature usually provided knowledge from a Western perspective, we contribute by demonstrating the labour market discrimination to ex-prisoners from the Asian perspective. Our findings show the potential size of criminal records (or imprisoning) discrimination in Thailand. Besides, we show that, to some degree, cosmetic surgery can alleviate criminal records discrimination. For that, in some choice sets, the employers in the experiments show their willingness to hire the more attractive

candidate attached with a criminal record. It implies that, even though there is a strong stereotype towards criminal records, some group of people might find it less alarming. The implication can be drawn that such individuals might have had a good experience with the ex-prisoners. Thereby such social bond or interaction decreases the level of unwelcomeness.

To make social contribution and policy implication. We begin that the experiments show the stereotype towards ex-prisoners where the information about them is mostly absorbed from the media such as daily reports, TV programmes, and movies. Media who regularly portrays the alarming features of prisoners and unintentionally manifest negative stereotype. Eschholz (2002) and Young and Powell (2015) also suggested that crime-related-programme increased individual's fear of crime which may lead to discrimination against minorities (e.g., African-Americans and ex-prisoners). Thus, the media can consider these findings to be an echo of the facts. For as much as possible, their reports reflect the actual statistics and eventually decrease the gaps between stereotype and reality. Together with the media, the policymakers could consider about word society use to call prisoners. According to the statistics, non-violent criminals contribute to the majority 78% of the prisoner population. Unfortunately, they are forced to share the same stereotype of the minority-violent group. It also requires the reconsideration of categorising and rename the prisoners to precisely signal it regarding types of crime. In doing so, the majority-non-violent prisoners may have less burden of discrimination and further take less effort of re-integration.

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As same as in Chapter 2, the limitation exists as we use computer software to simulate cosmetic surgery facial photos, and we use only male ex-prisoners as subjects.

However, the cosmetic surgical simulation seemed to be as effective since the results are congruent with the former studies regarding actual cosmetic surgery performed in prisoners as such studies showed a decrease in the recidivism rates in the cosmetic surgery group due to successive reintegration (Freedman et al., 1988; Spira et al., 1966). Moreover, if we conduct the experiments for female ex-prisoners, the result may come out differently. As in Chapter 2, we made asumption that the beauty premiums for female ex-prisoners could fall to the patriarchy system where men dominate more beauty premiums than women.

However, in the case of a criminal record in women, we cannot predict confidently since there is no previous evidence. However, being female ex-prisoners may seem less intimidated than male ex-prisoners. Thus, criminal record discrimination in female can be less than that in male. And this may not a weak assumption since the recidivism statistic in 2012 shows substantially fewer female ex-prisoners recidivate: compared to that male ex-prisoners, for one year, two years, and three years follow up period (Corrections, 2021). Since experiments let us know how Thai employers perceive ex-prisoners in general, and statistics of accessing criminal record show that such discrimination seems to continue, it is interesting to further research whether the *more* perfect-information can alleviate this discrimination. Thus, in the next chapter, we will integrate more information into experiments to examine whether such a combination of signals can be a promising strategy that increases the equality to ex-prisoners for labour market re-entry.

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CHAPTER 4

FINDING THE EFFECTIVE *"SIGNAL"* FOR IMPROVING SUCCESS RATE OF PRISONERS LABOUR MARKET RE-ENTRY

4.1 Motivation

While academics have been suggesting that finding legitimate employment is a significant step for ex-prisoners reintegration, many of them were found to be unsuccessful in re-entering through the evidence of the recidivism rates and self-reports. Regarding the large labour penalty of the criminal record, academics conducted surveys and interviews employers' attitude to discover factors influencing them in hiring ex-prisoners. The results addressed a greater need to encourage job growth in the ex-prisoners labour market where a range of programme and policy suggestions for supporting employment introduced. (Albright & Denq, 1996; Atkin & Armstrong, 2013; Giguere & Dundes, 2002; Kuhn, 2019; Obatusin et al., 2019; Reich, 2017)

The experimental studies have been investigating the criminal record penalty. They sent fictitious resumes to apply for a job to explore the role and the impact of types of criminal offence. To demonstrate which type of crime greatly affected employers' decisions. Thanks to their audit experiments, the employers' attitudes were investigated while their self-preservation was more difficult to achieve than a straight forward survey. (Cerda, Stenstrom, & Curtis, 2015; Uggen, Vuolo, Lageson, Ruhland, & Whitham, 2014). More interestingly, academics recently started to integrate the signaling strategy to uncover the promising method to abate such labelling stigma from a criminal record. They further suggested that additional information such as the signal of criminal desistance can play a significant role. They found that low-risk prisoner job

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candidates can use the signal to let employers identify them as more employable than high-risk candidates (Bloom, 2012; Bushway & Apel, 2012). It opens channels of improving the success rate of re-entry and minimises the negative impact of criminal history. Unfortunately, research on a signaling perspective is very few and has not adequately incorporated factors that may influence an individual's choice.

Therefore, this chapter contributes to the literature by conducting the choice experiments: integrating a variety of signals: both positive and negative ones that an ex-prisoner can deliver to their potential employer in the earliest stage of employment. It is a significant step to uncover any of those signals that can widen the employment gate: alleviating the stigma of a criminal record that only lumps together ex-prisoners who desisted with those who did not. And it's only fair when an employer can access a criminal record while the ex-prisoners also have an opportunity to send signals that are in their advantage. Using such an approach, the results are expected to offer the most accurate assessment in hiring ex-prisoners.

Besides, it is more precise when the CEs helps us to observe employers' behaviours in hiring decision. Rather than asking them straightly where individuals can hide their actual opinion and response in a self-image-protective way. The study contributes to the literature in the perspective of investigating a broader set of signals in the experiments. Also, it provides policy implication where the related organisation can prepare the prisoners to fit with the demand of the gatekeepers to employment. This chapter is organised as follows: Section 2: Related Literature that elaborates the former examination of the finer elements influencing prisoner employment. It includes the current study that added the signaling framework into prisoner employment literature. Section 3: explains the theoretical framework of job market signaling, Section 4: the

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CEs design, Section 5: Data, Section 6: Results and Analysis, and Section 7: Conclusion and Discussion.

4.2 Related Literature

4.2.1 Survey-Based and Experimental Studies: Finding Factors Influencing Prisoner Employment

To alleviate stigmatization in prisoner employment, first, we need to comprehend how potential employers think. Albright and Denq (1996) investigated 83 employers' attitude toward hiring ex-offenders in a professional (or skilled job) in Houston and Dallas. Using the Likert-type scale response to scenario statements, they identified that 46% of employers in the study were neutral about hiring ex-offenders, where the education, training, the no-relation with a crime to the job, and government incentive increased their willingness to hire ranging from 10% to 38%. It imply that the more information the employer received, the more opportunity the ex-offenders would have. In the entry-level job perspective, Giguere and Dundes (2002) surveyed 62 managers and business owners in suburban areas surrounding Baltimore and Maryland to investigating their attitude toward hiring ex-convicts for positions in restaurants and small stores.

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Firstly, the finding suggested that ex-convicts' people skill was employers' greatest concern, while the customers' and co-workers' discomfort, training, time to adjust, turnover, and fear of victimization categorised as minor concerns. Secondly, the offences of murder, robbery, rape, and child abuse contributed to 23-61% of employers to avoid hiring ex-convict. Whereas marijuana, traffic violation and other drug offences were out of employers' attention in a hiring situation. Lastly, '*the more contact, the less*

concern' phrase seemed to be the best strategy to fight against the stigma, since the non-business-related contacts employers had with the ex-convicts created the grater familiarity among them and consequently dismissed negative stereotype about this population. Therefore, it eliminated employers' fear of being victimized.

From the experiment perspective, Uggen et al. (2014) magnified employers' perception by conducting audit-experiments to examine the impact of low-level crime in an entry-level job. Close to 300 applications of the matched-pairs of young African-American and White men were sent to apply at 150 job sites. All testers were male college students assigned for characteristics of a high-school education, steady employment in a service industry and labour positions, and no special training or certifications. One in each matched-pair reported a disorderly conduct arrest with no conviction. In their experiments, the criminal information was revealed during the application stage, and the script of answers to employers' questions was given to the fictitious applicants.

The script acquired from a focus group with men who had prior experience conveying their criminal records. According to their results, racial discrimination was not new but, the three mechanisms to eliminate the prisoners' stigma were since the additional interviews with 48 employers showed that the discretion and authority of the former case was one mechanism to predict how far the ex-convict job candidate could go. Owing to the absence of information that resorted to statistical discrimination, the employers' experience of judge would lead to neglect of low-level offence if the applicant expressed other redeemable qualities such as honesty.

The other two mechanisms were the calibration of the severity and recency of offence and a deeply held presumption of innocence since the more seriousness of crime

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decreased their willingness to hire, while the more belief in innocence increased it. Adding on to Uggen et al. (2014)'s study, Reich (2017) conducted a web-based survey on 367 employers from Toowoomba to investigate the relationship between employer's belief in redeemability and employment outcome. Using vignette descriptions, respondents were required to rate for agreement with the scenario statements. Their results suggested that in the impression formation stage, desistance signals and belief in redeemability positively-significantly related to employers' willingness to hire. Even though the individual's qualifications (hard skills) and characteristics (soft skills) during the employment process could objectively signal the individual's desistance of crime, it did not abolish the initial belief the employers held about the capacity of offenders to desist.

Demonstrating more dimensions from that of Uggen et al. (2014), Cerda et al. (2015) conducted 121 online experiments to investigate barriers influencing successful re-entry. Using the manipulation of two types of offences (non-violence, violence) x two levels of qualification (high, low) among hypothetical job applicants to test for the rating scale of employers' degrees of willingness to hire for cashier position. They found that being the violent offender significantly decreased employability rating while having higher work qualification increased it. Moreover, being non-violent, non-serious, and non-sex offender with higher work qualification increased the employability rating scores since it increased the perception of basic skills, thinking skills, personal qualities that led to and the employers' less concern.

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Meanwhile, the higher work qualification had no impact on employability among violent offenders. It is an interesting point as Albright and Denq (1996)'s showed the same impact of violent offence for dissuading employers' willingness to

hire. However, they suggested that this effect indicated an absence of comprehending the nature of the offender since the studies showed that parole murderers had significant success after release (Atkinson, Fenster, & Blumberg, 1976 in Albright & Denq, 1996, p. 133). On the contrary, drug and property offenders were reported to have higher recidivism and unemployment rates (Pownall, 1971 in Albright & Denq, 1996, p. 133).

In the perspective of employers' characteristics and histories, Atkin and Armstrong (2013) conducted a telephone survey and follow-up telephone contacts with a random of 720 business: both individual and franchise who commonly employed ex-offenders in 12 Texas zip-codes. They found that the respondents' willingness to hire did not fluctuate by the concentration of parolees but the conviction offence. Moreover, employers' age had a significantly negative impact on their willingness to hire, while their history of being arrested and a history of hiring ex-offenders had a significantly positive impact on hiring ex-offenders. Moreover, the African American employers were more incline to hire ex-offenders who had committed a violent crime while the previously arrested employers gauged towards those who had committed a drug crime. We interpret that people possessing the same histories perceived themselves belong to one group, thereby, more willing to support each other. As same as the African American employers who perceived the violence as less unemployable than perception from another group. It is crucial to investigate if such phenomenal stemmed from group bias or reality as the gap between them can exhibit how far the prisoner stigma has developed.

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4.2.2 The Signaling Perspective for Ex-Prisoners

Bushway and Apel (2012) applied Spence (1978)'s remarkable signaling theory to analyse the effectiveness of employment-based reentry programme in improving ex-prisoners. The programme focused on shaping the deficiency of soft skill (e.g. the ability to show up on time). Their assumption stated that–under asymmetric information where only desisters know who they are. The programme completion may serve as a strong signal for employers to identify credibly desisters–among those wo committed the same level of crime. Using the statistics from evaluations at the Manpower Demonstration Research Corporation (MCRD) wherein the majority of programme's participants were aged around 30, low-educated, low-experienced, and had an average of imprisonment for about five years.

The results showed that the programme completers from the Center for Employment Opportunities (CEO) reduced probabilities of conviction and reincarceration by 122% and 11%, respectively, compared to the non-completers. Thereby, suggested being the programme completer represented the good signal of criminal desistance that led to the reduction of reincarceration. However, Bloom (2012) further suggested that the employment-based re-entry programme could contribute more efficiently if the programme assisters effectively promote it to society and send a precise signal. To make sure the employers would perceive the completion of the programme as a sizable advantage.

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The prior studies made contribution to the prisoner employment perspective by discovering factors that were critical to employers' hiring decision. However, as far as we know, such seminal studies mostly focused on survey-based methodology. Moreover, the research on signaling perspective for improving prisoners' re-entry was

limited. Therefore, this chapter conducts the CEs to investigate the influence of the factors (or signals) in hiring decisions. We adopted the fundamentally Spence (1978)'s Job Market Signaling theory and Young and Powell (2015)'s theoretical model of hiring ex-prisoners to create the CEs for this study. It is one of the few studies to experimentally investigate the impacts of the signals–for improving the employment opportunities of ex-prisoners in the Thai labour market.

4.3 Theoretical framework

4.3.1 Job Market Signaling

Spence (1978) regarded hiring as an investment under uncertainty in the labour market–in which the employers use observable characteristics to subjectively assess the job candidate's productivity–to preliminary distinguish between the productive and unproductive job candidates. Fundamentally, the applicant signaling is categorised into two types: the *unalterable signals* such as race and sex, and *alterable signals* such as education and training can be altered through the investment of time, money, and effort. In theory, job candidates can manipulate both signals and transmit them to the employers–at the earliest stage of employment. By logic, the individuals will select the combination of signals–which maximises the difference between their offered wages and signaling costs. In this thesis, the unalterable signals are a criminal offence, age, and sex of prisoner job candidate. The alterable signals are physical attractiveness, basic work readiness skill, and certificate of employment. Theoretically, signaling costs can comprise money, time, and effort. However, all signals above will be detailed again in the Section 4.4 Choice Experiment Design.

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Figure 5 : Information Feedback in Job Market

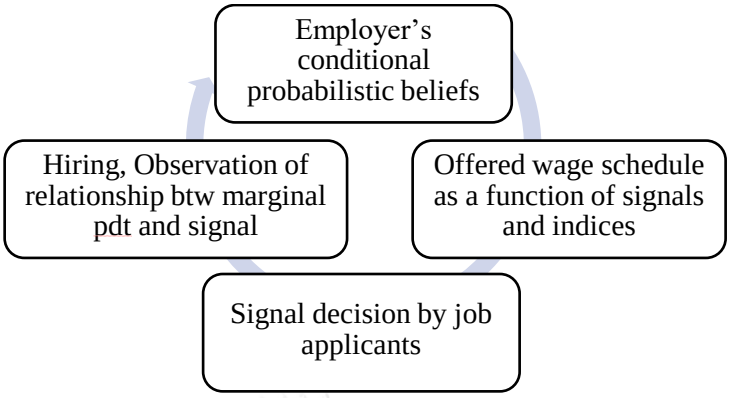

Figure 5 explains the job market signaling cycle that reaches the equilibrium when the employer's conditional probabilistic belief being self-confirmed. And the offered wage being scheduled. In this loop, the employers' conditional probabilistic belief expected to change due to the new information (signals) sent by the job candidate. The loop reaches its stationary state when the signals are confirmed by the employer. Then the offered wage is regenerated. Theoretically, the feedback loop repeats whenever the new signals arrive. Thus, according to this framework, it is expected that the individual's labour market success rate of entry and their wage can change over time, subject to the manipulation of signals by job candidates. For example, a job candidate sends the signal of committing a non-violence crime, having a good personality, work readiness skill, and certificates to adjust the employer's preliminary belief about prisoners. Thereby change their hiring decision accordingly.

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4.3.2 The Theoretical Model of Hiring Ex-Prisoners

Young and Powell (2015) proposed the model demonstrating the linkage between criminal history stigmatisation and the perception of warmth (friendliness and

trustworthiness) and competence (ability and skill) affecting decision in hiring ex-offenders. In their model, the hiring managers' perceptions of warmth and competence are firstly influenced by the ex-offender characteristics of the offence (seriousness and recency) and the ex-offenders characteristics (race, ethnicity, sex, and social class). Blue-collar offences (or street crimes) such as street crimes are perceived unpreferable to white-collar offences (e.g., deception or breaches of trust). In between this stage and the final decision stage, the hiring decision is also affected by the organisational factors (diversity and culture) and the characteristic of the hiring managers: of whom the demographic similarity with prisoners, exposure to prisoners, concern, and political orientation similarity had with ex-prisoners influence their hiring decision. The process of impression formation through warmth and competence includes whether the ex-offender job candidates fit the job and whether there is the availability of government incentives.

4.4 Choice Experimental Design

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This chapter integrates Spence (1978)'s Job Market Signaling, Young and Powell (2015)'s warm and competence framework, and Reich (2017)'s hard and soft skills approach to create experiment design. The signaling of *hard skill* and *soft skill* are the main agents delivering warmth and competence of prisoner job candidates to regenerate the feedback loop that expected to change in employer probabilistic belief and lead to a better chance for prisoner's employment.

Table 10 : Attributes and their Levels

Attributes	Levels	Variable names	Description
Cosmetic surgery	Yes No	Surgery No surgery	Th cosmetic simulation: the same set of simulation as in Chapter 2 and 3.
Head-shoulder photo	10 levels (prisoners)	Mr. A–Mr. J (Prisoner A–J)	Ten prisoners out of 18 prisoners subject from Chapter 2 and 3.
Certificate of qualification for employment	Yes No	Certificate No certificate	Certificate of Employment that certifies their work qualifications and behaviours. *(Inspired from Western policy)*
Types of offence	Drug Property Property with violence Body assault	Drug Prop Propvio Assault	Offences against narcotics legislation Offences against property without violence Offences against property with violence Body assault in this study exclude murder and sexual assault.
Work readiness skill	Yes No	Skill No skill	Work readiness skill such as transition, job search, thinking, and interpersonal and communication skills?
Salary	9,000 14,000	Salary	The salary level was adjusted from pilot studies.

Table 10 shows the attributes and their respective levels of this study where the combination of positive and negative signals of both types of skills, is sent to the employers in the experiment. It is only fair when the employers can access to job candidates' criminal history. The prisoners can also manipulate their human capital information and other positive signals to alleviate the stereotype the employers may have toward them. In Table 10, cosmetic surgery is considered the soft skill

representing the warmth (friendliness and trustworthiness) and competence (ability and skill). While the certificate of qualification for employment (Leasure & Andersen, 2020), type of offence (Albright & Denq, 1996; Cerda et al., 2015; Kuhn, 2019), and the basic work readiness skill (Obatusin et al., 2019) represent hard skill which also reflects both warmth and competence: signaling the criminal desistance, redeemability, ability, and trustworthiness. We use cosmetic surgical photos we created in the Chapter 2. In this study photos of ten ex-prisoners were used in CEs. The ex-prisoners' profiles were manipulated following concept of Chapter 2 and 3.

Figure 6 : Example of Choice Sets in the Formal Sector

In case you are recruiting a new officer for a salesperson with a requirement of age between 25 and 35 and you are having this scenario: 2 candidates: both 29, high school graduates, and having related experiences, computer skills, and English proficiency. Whom would you like to hire taking into consideration of their qualifications and numeration?

	 Candidate A.	 Candidate B.
Certificate of qualification for employment	No	Yes
Types of offence	Body assault	Drug
Work readiness skill	Yes	No
Salary	9,000 THB (297 USD)	14,000 THB (463USD)
I choose	☐	☐

In Figure 6, soft skill signals comprise the prisoner job candidates' facial appearance– from which competency, personality, and reliability can be *expected*. And hard skill

signals compose of types of offence, certificate of qualification for employment, and the basic work readiness skill of each prisoner job candidate can be the predictor of an individual's future behaviour and potential productivity. As same as Chapter 2 and 3, the design was then evaluated and achieved the *orthogonality*, *level balance,* and *zero overlaps* identified by Huber and Zwerina (1996). The combinations of all choice sets were elaborated in the Appendix: Table 17: Choice Experimental Design of Chapter 4.

4.5 Data

The number of the respondent in this chapter is (N) = 52, thus 52 experiments (questionnaires) were randomly conducted with 52 respondents in private businesses in Bangkok and the surrounding areas. As in Chapter 2 and 3, we use purposive sampling: a respondent must be the person responsible for making the hiring decision. Then, the respondent data sets from both the formal and informal labour sectors were separately constructed following Aizaki and Nishimura (2008) and analysed in R-programme using the **clogit** function (Aizaki, 2012). (See how to construct the data set in subtopic 2.6.2 Data Set Construction in Chapter 2 and how to run clogit regression in topic 2.7 Model Estimation in Chapter 2)

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4.6 Results and Analysis

The model specification:

$$V_{ij} = ASC_i + B_{Sur}Surgery_{ij} + B_{Pri\,(i)}Prisoner(i)_{ij} + B_{Cer\,(i)}Certificate_{ij} + B_{Off}\ Type\ of\ Offence_{ij} + B_{Skill}\ Skill_{ij} + B_{Sal}\ Salary_{ij} \qquad (7)$$

where V_{ij} refers to an element of utility for the prisoner (i), (i = alphabet A to J); ASC denotes an alternative specific constant; $Surgery_{ij}$ is a dummy variable taking a value of 1 if the prisoner has undergone cosmetic surgery simulation, and 0 otherwise; $Prisoner(i)_{ij}$ is a dummy variable for each prisoner, for instance, $Prisoner(A)_{ij}$ taking a value of 1 if it is prisoner A, and 0 otherwise. $B_{Cer}\ Certificate_{ij}$ is a dummy variable taking value of 1 if the prisoner has Certificate of qualification for employment, and 0 otherwise. $B_{Off}\ Type\ of\ Offence_{ij}$ is a dummy variable for each level of the type of offence's attribute, for instance, $Type\ of\ Offence(drug)_{ij}$ taking value of 1 if the prisoner committed drug related crimes, and 0 otherwise. $B_{Skill}\ Skill_{ij}$ is a dummy variable taking value of 1 if the prisoner has the basic work readiness skill, and 0 otherwise.

Finally, the $Salary_{ij}$ represents the salary variable, the salary set for each candidate in each alternative. Conclusively, $B_{Surgery}$, $B_{Prisoner\,(i)}$, B_{Crime}, and B_{Salary} are coefficients corresponding with $Surgery_{ij}$, $Prisoner(i)_{ij}$, $Certificate_{ij}$, $Type\ of\ Offence_{ij}$, $Skill_{ij}$ and $Salary_{ij}$, respectively. The salary variable: the continuous variable is used to calculate the marginal willingness to pay of the respondents for the surgery and non-surgery groups. Finally, in the CLM model, one level of each dummy coded attribute was set as the based variable except for variable salary. The based variables of the first basic model were set as follows:

Attribute	**Based variable**
Cosmetic Surgery	No surgery
Type of offence	Drug (or Assault)
Head-to-shoulder photo of prisoner	Mr. A. (Prisoner A.)

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Model 9 : The Basic Model with Based Variable: Drug or Assault

	coef	exp(coef)	se(coef)	z	p
ASC	20.63	9.069e+08	2.072e+03	0.010	0.9921
Surgery	0.2568	1.293	0.1062	2.418	0.01563*
Certificate	0.4545	1.575	0.1067	4.257	2.07e-05***
Prop	0.5652	1.760	0.1712	3.300	0.0010***
Propvio	–0.8440	0.4300	0.1782	–4.736	2.19e-06***
Skill	0.8378	2.311	0.1094	7.658	1.89e-14***
Salary	–0.7435	0.4755	0.2150	–3.458	0.0005***

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Likelihood ratio test = 580.4 on 16 df, p = <2.2e–16
Number of choices =1560, number of events = 520, number of respondents = 52
Rho-squared = 0.5080146
Adjusted rho-squared = 0.4800072
Akaike information criterion (AIC) = 594.1213
Bayesian information criterion (BIC) = 662.1826
Number of coefficients = 16
Log likelihood at start = –571.2784
Log likelihood at convergence = –281.0607

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Model 9 represents the basic model in two respects. First, when the variable ‘drug’ is the based variable and the variable ‘assault’ is omitted from the model to eliminate the multicollinearity problem between the two variables (drug and assault). Second, when the variable ‘assault’ is the based variable and variable ‘drug’ is cut out from the model. The variables ‘assault’ and ‘drug’ were omitted in those two models since they are found to be correlated. The explanation could be that drug criminals are mostly broadcasted with violence issues that could lead the employers in the experiment to find it difficult to differentiate between the two offences and perceived them to be related.

In Model 9, all parameters are at least highly significant at a 1% significant level. Compared to the non-cosmetic surgery group, employers preferred the cosmetic surgery group to the non-cosmetic surgery group. Cosmetic surgery increases the possibility of cosmetic surgical candidates being chosen by 29.3% at a 1% significant level. As well as a certificate of employment and work readiness skill: both of which increase the possibility of candidates being chosen by 57.5% and 1.31 time, respectively, relative to the group without certificate and group without work readiness skill. From a criminal offence perspective, property without violence offence increases the possibility of ex-prisoners being chosen by 76%, while a property with violence offence decreases it by 57%, relative to the drug (or assault).

Table 11 : Marginal Willingness to Pay (Based Variable: Drug/Assault)

	MWTP	**2.5%**	**97.5%**
Surgery	0.3455	0.0637	0.9653
Certificate	0.6113	0.2926	1.4185
Prop	0.7602	0.2798	1.9038
Propvio	–1.1352	–2.5903	–0.5993
Skill	1.1269	0.6805	2.5396

Method proposed by Krinsky & Robb (1986)

Table 11 shows that, on average, employers have the willingness to pay an additional of 3,455 (114 USD), 6,113 (202 USD), and 11,269 (372 USD) baht to the prisoner job candidates having cosmetic surgery, certificate of employment, and work readiness skill, respectively, compared to candidates without cosmetic surgery, certificate of employment, and work readiness skill. From a criminal offence perspective, compared to the candidates committing drug or assault offence, the employers have willing to pay

an additional 7,602 baht (251 USD) to the candidates committing the property without violence offence and willing to offer less of 11,352 baht (375 USD) to the candidates committing property with violence offence.

Model 10 : The Basic Model with Based Variable: Property

	coef	**exp(coef)**	**se(coef)**	**z**	**p**
ASC	21.15	1.532e+09	2.086e+03	0.010	0.9919
Surgery	0.2608	1.298	0.1068	2.442	0.0146*
Certificate	0.4595	1.583	0.1073	4.280	1.87e–05***
Drug	–0.6081	0.5444	0.1792	–3.394	0.0007***
Propvio	–1.352	0.2587	0.2012	–6.721	1.80e–11***
Assault	–0.4602	0.6311	0.2121	–2.170	0.0300*
Skill	0.8399	2.316	0.1096	7.665	1.78e–14***
Salary	–0.7445	0.4750	0.2152	–3.459	0.0005***

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Likelihood ratio test= 581.1 on 17 df, p=<2.2e–16
Number of choices =1560, number of events = 520, number of respondents = 52
Rho-squared = 0.5086351
Adjusted rho-squared = 0.4788773
Akaike information criterion (AIC) = 595.4123
Bayesian information criterion (BIC) = 667.7273
Number of coefficients = 17
Log likelihood at start = –571.2784
Log likelihood at convergence = –280.7061

Table 12 : Marginal Willingness to Pay (Based Variable: Property)

	MWTP	**2.5%**	**97.5%**
Surgery	0.3504	0.0724	0.9783
Certificate	0.6172	0.3042	1.5045
Drug	–0.8168	–2.1507	–0.3184
Propvio	–1.8161	–4.1884	–1.0627
Assault	–0.6182	–1.7462	–0.0496
Skill	1.1282	1.1282	2.6442

Method proposed by Krinsky and Robb (1986)

Model 11 : The Basic Model with Based Variable: Property with Violence

	coef	exp(coef)	se(coef)	z	p
ASC	19.80	3.964e+08	2.086e+03	0.009	0.9924
Surgery	0.2608	1.298	0.1068	2.442	0.0146*
Certificate	0.4595	1.583	0.1073	4.280	1.87e-05***
Drug	0.7439	2.104	0.2142	3.473	0.0005***
Prop	1.352	3.865	0.2012	6.721	1.80e-11***
Assault	0.8918	2.440	0.1880	4.744	2.09e-06***
Skill	0.8399	2.316	0.1096	7.665	1.78e-14***
Salary	–0.7445	0.4750	0.2152	–3.459	0.0005***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Likelihood ratio test= 581.1 on 17 df, p=<2.2e–16
Number of choices =1560, number of events = 520, number of respondents = 52
Rho-squared = 0.5086351
Adjusted rho-squared = 0.4788773
Akaike information criterion (AIC) = 595.4123
Bayesian information criterion (BIC) = 667.7273
Number of coefficients = 17
Log likelihood at start = –571.2784
Log likelihood at convergence = –280.7061

Table 13 : Marginal Willingness to Pay (Based Variable: Propvio)

	MWTP	2.5%	97.5%
Surgery	0.3504	0.0703	1.0151
Certificate	0.6172	0.3017	1.5070
Drug	0.9992	0.3975	2.4396
Prop	1.8160	1.0650	4.2191
Assault	1.1979	0.6324	2.7959
Skill	1.1282	0.6770	2.653

Method proposed by Krinsky and Robb (1986)

In Model 10 and 11, all parameters are at least highly significant at a 1% significant level. Model 10 shows that compared to the candidates with property without violence,

the employers in the experiment evaluate the candidates with a history of the property with violence, drug, and body assault to be less preferable, respectively. Being more attractive from cosmetic surgery, having the certificate of employment, and work readiness skill enhance job opportunity: increasing the possibility of candidates being chosen by 29.8%, 58.3%, and 1.32 times, respectively, relative to the group without cosmetic surgery, certificate, and work readiness skill. Finally, Model 11 shows that compared to the candidates with property with violence, the employers prefer candidates with a drug, body assault, and property without violence increase the possibility of being chosen by 1.1, 1.44, and 2.86 times, respectively. Model 11 reveals that employers are least willing to hire candidates who committed property with violence crime, while Model 10 reveals that the employers evaluate the prisoner job candidates who committed property without violence to be most employable among all.

4.7 Conclusion and Discussion

When we add more signals of hard and soft skills into our experiments in this chapter, the labour penalties from the criminal offences are varied from that of the experiments which only reveal whether the candidate has the criminal records. Also, we know that the beauty, certificate of employment, and basic work readiness skill positively contribute to the ex-prisoners' employment opportunities in the experiments. This tells that the employers' probabilistic belief can change due to the more perfect- information given. It also implies that such signaling technique may be a promising way for improving prisoners' success rate of re-entry in Thailand. The obvious case would be that the higher qualified ex-prisoners can use this strategy to *distinguish themselves* and get out from the trap of the prisoner stigma.

Even though the 53 employers in the experiments may not represent the whole employer population. To some extent, they are a significant group that signals how the employers may perceive and consequently evaluate those types of criminal in Thai society. In this study, the results show that most employers, most to least preferred candidates who committed: property without violence offence, drug and body assault, and property with violence, respectively. It is congruent with former studies that statistically showed that most employers had a stronger position against hiring candidates with a history of violent offences (Albright & Denq, 1996; Cerda et al., 2015; Kuhn, 2019). Even though the sample size is rather small, it does ring the bell to both the current violent-inmates and the policymakers to beware of such effect. And to figure out what can be done to relieve such penalties before the released or the job search.

Whereas Bushway and Apel (2012) and Valentine and Redcross (2015) used employment-based re-entry and transitional job programmes to signal for the criminal desistance, we use ‘certificate of the qualification for employment’ and ‘basic work readiness skill’ to signal the criminal desistance and trustworthiness. Both of which are expected to generate the perception of warmth and competence and sequentially adjust the employers’ probabilistic belief during the hiring decision. Congruent with Leasure and Andersen (2020) and Obatusin et al. (2019), the experiments show that certificates issued by the government and basic work readiness skills play a significant role in alleviating prisoners discrimination.

To make policy recommendation, we took a look at the Thailand’s current policy related to this chapter. However, according to the recent interviews with the senior probation officer, the certificate of relief (or certificate of government) has not

been invented and it was not known of. Nonetheless, he mentioned the certificate currently issued to released prisoners in Thailand upon the release called ‘the innocent certificate’. Its significance is to certify that a particular prisoner has already served time in prison and now is formally released. Also, it is the document for returning prisoners’ belongings that were formerly seized upon arrival.

Moreover, refer to the information given by the Bureau of Rehabilitation, the explicit programme considered being closest to the training of basic work readiness skill is ‘Enhancing Capacity of Body and Mind’ which is mostly provided by religious leaders (Rehabilitation, 2020a). Referring to the result of this chapter, it spotlights the requirement of the related organisation to consider providing the solid certificates which precisely certify employment. The explicit soft skill training programme providing the know-how such as transitioning, job searching, thinking, interpersonal interacting, and communicating shall be provided. To make ex-prisoners more fit to the employers’ demand.

Finally, our findings are compelling for further investigation on a larger scale for discovering the empowering statistics supporting the implementation of the signaling strategy. Second, in addition to all signals in our experiments, more factors should be added to portray all possible key elements influencing employers’ beliefs. The larger scale of investigation which produces a more significant result. It is expected to be the pioneering policy to cope with prisoner discrimination in Thailand. And consequently, bring them back to the legal labour market more effectively.

CHAPTER 5

CONCLUSION AND POLICY IMPLICATION

This thesis is encouraged by the inequality problem in Thai society– particularly in the prisoner population. Pieces of evidence further motivate us to focus on investigating discrimination against this population. Firstly, the recent articles referred to ex-prisoners in Thailand as the *new-poor-people* due to low chance in the labour market. Secondly, discrimination is getting worse when in the recent decade–it was report of the increasing statistics of business sectors' access to criminal record information. Thirdly, the rehabilitation programmes in Thailand cannot significantly reintegrate the released prisoners into the labour market–as reflected in the nonsignificant improvement of the recidivism rates. These issues motivate us to research with the ultimate objective to increase ex-prisoners' equality for labour market re-entry. The deeper motivation came from the presumption that the individual inadvertently become a criminal because the life goal of growing up becoming a criminal is quite an irrational and insensible objective of a general human being.

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We consider that before one become a criminal and further discriminated against, the inequality could have developed since the day one was born. For example, the child born in a poor neighbourhood–both in terms of economic and criminality density–is likely to have more difficulty accumulating his human capital and have more exposure to criminality. Valentine and Redcross (2015) supported this assumption as they suggested that the former prisoners occupied a disadvantage in the labour market through their *preceding incarceration characteristics* and *succeeding incarcerated characteristic*s. When we compare the non-prisoner to prisoner population before

incarceration–the later ones were most likely to have a human capital deficiency such as low education attainment (Ewert & Wildhagen, 2011; Harlow, 2003 in Valentine & Redcross, 2015, p. 2). It may not be a weak conclusion as the 27 volunteer ex-prisoners also appear to have an average level of high-school for education attainment.

Aside from the social status factors, inequality can purely stem from the individual's ***physical appearance***. As mentioned before, the low physical attractiveness in school-age had an impact on human capital formation. As the unattractive children were isolated from their peers and initially evaluated as low productive by their teachers, processing low human capital led to more propensity to engage in criminal activities (Mocan & Tekin, 2010). When out of prison–this deficiency in pulchritude accumulates through the degrade of physical attractiveness acquired from imprisoning, such as tattoos, rotten teeth, a stressful facial expression that develops the old and fierce looks–all of which results in the unwelcomeness from the society, especially the labour market. The deficiency also accumulates through the ***criminal records*** as identification of being incarcerated–for that such labelling can send the signal of being harmful, unreliable, and unproductive, however, good news arrived when recent research incorporated the ***signaling strategy*** to alleviate such stigmatization.

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Considering the three main factors mentioned above, the thesis divides into three studies to examine their influences on ex-prisoners' labour market outcome in Thailand. To investigate whether the treatments input in each study will increase the labour market outcome to ex-prisoners. Again, we conclude that the methodology the three studies share is the ***choice experiment (CEs)***. The subjects of the experiments of the thesis were Thai male ex-prisoners age between 20 to 45–all of whom required to be released no more than six months upon their photos collection. They all had average

or below-average looks for the sake of cosmetic surgical simulation. The investigation begins with Chapter 2–*Beauty premium through cosmetic surgery for prisoners: choice experiment with asymmetric information*–in which CEs cooperates with asymmetric information. The employers are unable to or uninterested in accessing job candidate's criminality. To investigate whether it can increase the job opportunity in the experiments. We used cosmetic surgery as the manipulator (factor). The motivation stems from seminal findings in the literature that showed the significance of beauty in the labour and criminal markets–in which more attractive people statistically gain more beauty premiums by having more job opportunity, income, success, and less probability to engage in crime.

Moreover, beauty through cosmetic surgery was reported to yield more income in the non-prisoner population and fewer recidivism rates in the prisoner population. In the prisoner population, cosmetic surgery is suggested to represent an aid of rehabilitation–by which it increases: self-esteem, the ability to blend in community, and the ability to gain employment. In this study, we conduct 200 choice experiments in the formal sector and 200 choice experiments in the informal sector in Bangkok and surrounding areas (Total N = 400). We find that when the criminal history of the prisoner job candidates is unknown or unmined–cosmetic surgery could be one aid of reintegration.

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Cosmetic surgery increased beauty, and such an increase in beauty increased the possibility of cosmetic surgical candidates in the experiments being chosen by 3.05 and 1.54 times, respectively, at a 0.1% significant level. It can be explained that the beauty premiums from cosmetic surgery manifested in the experiments. The attractive candidates were evaluated as more productive or *expected* to be more (or further)

productive, although other productivity-related characteristics held equivalent. Besides the impact of physical attractiveness, we also find the impact of employers' working experience and gender difference in the data set. Where the more working experience, the fewer beauty premiums manifested. We interpret that such employers might input higher value in the objective factor such as the salary level: the other thing held inequivalent in the experiments. Female respondents differently evaluated cosmetic surgical male candidates from male respondents. This reveals that the gender of ex-prisoner candidates and the employers had an impact on employment opportunities.

For academic contribution, we can investigate the before-after cosmetic surgery effect within the same individual, whereas the existing study could not compare this precise effect. This study brings back the issue of 'cosmetic surgery in a prisoner' into the academic field as it appears to have been untouched for decades. We shed light on the importance of beauty in prisoners, while the literature has been substantially explored the significance of beauty in the non-prisoner population. This chapter contributes socially and offers policy recommendation by demonstrating the significance of beauty premiums in Thailand's prisoner population and implying that the prisoners can use the beauty premium technique to make themselves more presentable in the labour market. However, we *do not* precisely suggest that cosmetic surgery is *necessary* but suggest that prisoners' *physical appearance* is inevitably significant in a current highly competitive environment. The findings also serve as the knowledge to the Thai policymakers to develop their rehabilitation programmes. For example, the physical appearance enhancing programme could be implemented with less cost, while it still serves as an aid for re-entry.

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As mentioned before, we also underlined the impact of criminal records on prisoners' employment, when statistics show the rising trend of business sector access to such records. Unfortunately, even though economists and criminologists have been debating about the 'expunge or seal' such record. As far as we know, it seems to have no final solution to conclude which policy is best to be implemented, but obviously, the literature showed that a prison record and low physical attractiveness are the main barriers penalizing labour market outcome. As we know from Chapter 2 that cosmetic surgery can increase the ex-prisoners' labour market outcome in the experiments, we incorporated it into Chapter 3–*Barriers to prisoners' re-entry into formal and informal labour market*–in which we conducted 204 choice experiments in the formal sector and 204 choice experiments in the informal sector in Bangkok and surrounding areas (Total N = 408). Wherein this study, employers are required to make a hiring decision for a prisoner job candidate who differs in terms of beauty and criminal history.

Cosmetic surgery and criminal records are manipulators (factors). Wherein this setting, the employers had to make an evaluation between beauty and criminal record. From our results, if we can compare them with the basic models in Chapter 2, we can see that cosmetic surgery undoubtedly performed significantly less effective in this chapter. In the experiments, the criminal record ostensibly delivered the stronger (negative) signal: decreasing the possibility of candidates with criminal histories (or ex-prisoners) by 82.8% and 51% in the formal and informal sector, respectively, at a 0.1% significant level. Cosmetic surgery increased the possibility of cosmetic surgical candidates being chosen by 75.4% and 75% in the formal and informal sector, respectively, at a 0.1% significant level. Moreover, the increase in age resulted in the decreasing of criminal history discrimination. Implying the more life experience in

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older people facilitate them to have more ability to make a judgement according to experience rather than stereotype shared in society.

We learn from this chapter that Thai society (or at least the labour market) holds strong negative stereotype about the prisoner population–while we notice that the knowledge and information regarding this population are very limited and one-sided propagated by movies, a daily report of crimes, and crime-related TV programme. We also concern that such a strong stereotype towards ex-prisoners may not align with statistics as the non-violent criminals contributed at least 78% (Corrections, 2020a). To simplify this, the experiments in this chapter unopen types of crime. Unfortunately, many respondents' comments imply that they presume candidates attached with a criminal record as dangerous as if they have had committed a violent crime. That is, unknowing the type of offences only lumps together all the prisoners in the unemployable basket, which all of whom presumed to be dangerous.

For social contribution and policy recommendation, we firstly suggest that it is crucial to consider whether the media's mass messages exaggerate the facts. Secondly, while the expunge or seal issue has not yet solved the prisoner discrimination worldwide, we propose to policymakers to consider reforming the way all prisoners are identically called 'prisoner'. It may seem minor but can be significant if we think about using *the same word calling different individuals who* may have different behaviours (e.g., non-violent convict v sex offender). Changing how different types of prisoners are called might be one of the inexpensive policies which may yield significant results, however, this study provides an academic contribution by adding a fresh perspective to the literature–by incorporating beauty premiums through cosmetic surgery to increase

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ex-prisoners job opportunities, while most literature emphasis on racial and criminal records discrimination in the Western perspective.

From the first study, we know that the beauty premiums worked most effectively when employers were unable or unmind to access the criminal records. When the more perfect-information integrated into the hiring decision (in the second study), cosmetic surgery performed significantly less effective. Since literature showed that it hasn't yet concluded on the expunging or sealing criminal record policy, some academics introduced the signaling strategy. They showed that signaling of the criminal desistance performed as the identification of good prisoner job candidates. As a result, such a signal increased the employment rate and indirectly decreased the recidivism rates for this minority group (Bushway & Apel, 2012). However, research on a signaling perspective is very few and has not adequately incorporated factors that may influence an individual's choice, the current policy of using an effective signaling strategy for prisoner employment has not yet been a notable phenomenal in prisoner employment in Thailand.

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In Chapter 4–*Finding the effective* 'signal' *for improving the success rate of prisoners labour market re-entry* integrates factors that mostly influence employers' decision into the CEs. This chapter signal both the disadvantage and advantage qualification and investigate their size of impact measured by the odds ratios or the increase of utility. We highlight the significance of effective signaling of individual attributes in an attempt to adjust the employers' preliminary belief. To regenerate new probabilistic belief that justifies the labour opportunity the good prisoners should have, we conducted the 53 choice experiments with 53 employers in Bangkok and surrounding areas. In the experiments, we signal for prisoner job candidates' severity

of criminal records through the type of offence. We signal for hard skills through the certificate of employment and basic work readiness skill. We signal trustworthiness, personality, and competence through beauty from cosmetic surgery. This chapter uses most manipulators among all as it includes cosmetic surgery, types of offences, certificate of employment, and basic work readiness skill: all of which identified in the literature that the employers highly gave importance to.

We find that when the more perfect-information integrated, the whole situation gets better, in terms that the highly qualified ex-prisoners in the experiments can get out of the prisoner stigma. This chapter reveals the types of offence that signal the violence-level, the property without violence increases ex-prisoners job opportunity in the experiments by 76% with a 0.1% significant level, relative to drug or assault offence. Whereas the criminal record variable in Chapter 3 contributes to the labour penalty–decreasing ex-prisoners job opportunities in the experiments by 51% to 83%, at 0.1% significant level, respectively in both labour sectors. Meanwhile, the other signals such as a certificate of qualification for employment, work readiness skill, and cosmetic surgery also offers the labour premiums–by significantly increasing job opportunities and incomes to ex-prisoner candidates possessing those qualities in the experiments.

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In this setting, we perceive that both the employers and ex-prisoners take the best advantage. For that, the employer can access the criminal record and the ex-prisoners can send the desistance signals and good qualifications–through hard skills and soft skills to offset the preliminary discrimination. The chapter makes an academic contribution when it is among the few studies which experimentally investigate the job market signaling technique in prisoner employment. Our results lead to policy

recommendation that, other than the current policy of skill training and sending prisoners to work in agreed businesses (Rehabilitation, 2020b). We should further statistically explore the potentially important factors influencing prisoner employment in Thailand. It is for policymakers to prepare them to be matched for employers' needs before the release–while those qualifications can be used as *effective signal*s to help them re-enter the employment gate. Also, the prisoners with better qualification could use this technique to distinguish themselves to let employers identify them as reliable prisoner job candidate. Meanwhile, those who are more fragile (e.g., violent criminals, less skill/education ex-prisoners) can prepare themselves before release. For example, they can improve the other alterable characteristics to offset the other disadvantage characteristics and sequentially increase their chance for employment.

However, despite the academic contribution of the thesis, some limitations exist. First, using only male prisoners as subjects may not best imply the labour market outcome for the female prisoners, we make a preliminary prediction that due to the previous evidence which literature showed the larger size of beauty premiums in men than in women. The patriarchy system we interpreted to operate might also posit in the experiments if they were the female ex-prisoner candidates. That is, it could lead to the smaller size of beauty premiums in female ex-prisoners with the additional impact of female jealousy from employers of the same gender. Moreover, we also predict the smaller size of criminal record discrimination in the female. That is, we assume the male ex-prisoners may be perceived to be more violent than female ex-prisoners. Such an assumption is supported by recent recidivism statistics showing the substantially smaller number of female ex-prisoners to recidivate.

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Second, even though using cosmetic surgical simulation helps us to investigate the before-after impact of cosmetic surgery on the same group of individuals, it raises reservation to the study as it is not the real operation. Nevertheless, such methods help us met the purpose of the thesis. First, using male prisoner as subjects of the experiments helps us to demonstrate the prisoner's discrimination in Thailand for many aspects. For example, the beauty premiums/penalties in Chapter 2 and the criminal history discrimination in Chapter 3. Second, the simulation of cosmetic surgery allows us to show how could these discriminations be alleviated. For example, to implement of the physical appearance improvement programme.

Finally, we propose society to acknowledge the importance of employment for the prisoner population. Because being employed can lead to multiple mechanisms to decrease the recidivism rate. First, having to donate the majority of time for work can reduce time to think about going back to crime or to connect with others involving crime (Warr, 1998 in Valentine & Redcross, 2015, p. 3). Second, the income from work can increase the ex-prisoners' self-love and social bonds in the family. The legitimate income–even though does not significantly contribute to family's–may increase trustworthiness, stability, and criminal desistance. Which then increase welcomeness from their apart families owing to the imprisonment. While the social bonds developed with coworkers, employers, family, and community may lead to less propensity to recidivate (Sampson & Laub, 1995 in Valentine & Redcross, 2015, p. 3; Tripodi, 2010). All elaborated not only be beneficial to ex-prisoners, but also the society for having fewer criminals. Thereby, contribute to more efficient use of human resource and less externality from criminality.

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APPENDIX A : ADDITIONAL TABLES

Table 14 : Prediction of Choice in Model 1 (Model 2 in Parenthesis)

Attributes	Variable	Exp(coef)	Probability
Cosmetic surgery	Yes	4.049 (2.536)	80% (72%)
	No	1(1)	20% (28%)
Head-to-shoulder photo of prisoner	A	1(1)	3.56% (4.85%)
	B	0.309 (0.367)	1.10% (1.78%)
	C	0.539 (1.325)	1.92% (6.43%)
	D	0.715 (1.079)	2.55% (5.23%)
	E	0.397 (1.159)	1.42% (5.62%)
	F	0.890 (1.355)	3.17% (6.57%)
	G	1.776 (2.334)	6.34% (11.32%)
	H	2.259 (1.422)	8.06% (6.89%)
	I	0.969 (1.527)	3.46% (7.41%)
	J	1.090 (1.521)	3.89% (7.38%)
	K	1.905 (1.014)	6.8% (4.92%)
	L	1.256 (0.672)	4.48% (3.26%)
	M	1.235 (0.991)	4.41% (4.81%)
	N	2.111 (0.987)	7.53% (4.79%)
	O	2.077 (1.106)	7.41% (5.36%)
	P	5.386 (0.936)	19.22% (4.54%)
	Q	2.312 (0.731)	8.25% (3.54%)
	R	1.801 (1.092)	6.43% (5.3%)

Table 15 : Choice Experiment Design of Chapter 3

Choice set	Block	Alternative 1	Alternative 2	Design code
1	1	1(10)22	2(11)11	*Cosmetic Surgery*
2	1	1812	2921	*(1st column)*
3	1	1522	2611	1 – Yes
4	1	2(14)12	1(15)21	2 – No
5	1	2122	1211	*Prisoner's head-shoulder*
6	1	1(16)22	1(17)11	*photo (2nd column*)
7	1	1222	1311	1 – Mr. A
8	1	2612	1721	2 – Mr. B
9	1	2(12)22	1(13)11	3 – Mr. C
10	1	1411	2522	4 – Mr. D
11	1	2(18)11	1122	5 – Mr. E
12	1	1711	2822	6 – Mr. F
13	2	1811	2922	7 – Mr. G
14	2	2(12)22	1(13)11	8 – Mr. H
15	2	1(12)11	2(13)22	9 – Mr. I
16	2	1411	2522	10 – Mr. J
17	2	2(11)22	1(12)11	11 – Mr. K
18	2	2312	1421	12 – Mr. L
19	2	1(17)21	2(18)12	13 – Mr. M
20	2	2511	1622	14 – Mr. N
21	2	2(10)11	1(11)22	15 – Mr. O
22	2	2821	1912	16 – Mr. P
23	2	1(11)22	2(12)11	17 – Mr. Q
24	2	1(17)21	2(18)12	18 – Mr. R

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Table 15 : Choice Experiment Design of Chapter 3 (Con't)

Choice set	Block	Alternative 1	Alternative 2	Design code
25	3	1(14)12	2(15)21	*Criminal history record*
26	3	2(17)12	1(18)21	*(2nd column)*
27	3	1(16)22	2(17)11	1 – Yes
28	3	2722	1811	2 – No
29	3	1(14)21	2(15)12	*Salary (4th column)*
30	3	1(18)22	2111	Formal sector
31	3	2221	1312	1 – 15,000 baht/month
32	3	2(13)11	1(14)22	2 – 12,000 baht/month
33	3	1612	2721	Informal sector
34	3	2822	1911	1 – 12,000 baht/month
35	3	2(17)12	1(18)21	2 – 9,000 baht/month
36	3	1321	2412	
37	4	1521	2612	
38	4	1(15)21	2(16)12	
39	4	1(18)12	2121	
40	4	2(15)21	1(16)12	
41	4	2(16)11	1(17)22	
42	4	1912	2(10)21	
43	4	1712	2821	
44	4	1(10)12	2(11)21	
45	4	1(12)11	2(13)22	
46	4	2621	1712	
47	4	2(16)11	1(17)22	
48	4	2(15)12	1(16)21	

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Table 15 : Choice Experiment Design of Chapter 3 (Con't)

Choice set	Block	Alternative 1	Alternative 2	Design code
49	5	2211	1322	
50	5	2(13)22	1(14)11	
51	5	2112	1221	
52	5	1(11)11	2(12)22	
53	5	1(15)12	2(16)21	
54	5	2321	1412	
55	5	1312	2421	
56	5	1111	2222	
57	5	2712	1821	
58	5	2512	1621	
59	5	1(13)22	2(14)11	
60	5	2422	1511	
61	6	2(14)21	1(15)12	
62	6	1621	2712	
63	6	1(13)11	2(14)22	
64	6	2(11)11	1(12)22	
65	6	1121	2212	
66	6	2(18)21	1112	
67	6	2911	1(10)22	
68	6	2(10)21	1(11)12	
69	6	1212	2321	
70	6	1922	2(10)11	
71	6	2921	1(10)12	
72	6	2422	1511	

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Table 16 : Prediction of Choice in Model 5 (Model 6 in Parenthesis)

Attributes	Variable	Exp(coef)	Probability
Cosmetic surgery	Yes	1.754 (1.750)	64% (64%)
	No	1 (1)	36% (36%)
Crime Record	Yes	0.172 (0.49)	54% (54%)
	No	1 (1)	46% (46%)
Head-to-shoulder photo of prisoner	A	1 (1)	7.1% (5.38%)
	B	0.492 (0.482)	3.5% (2.59%)
	C	0.537 (0.634)	3.81% (3.4%)
	D	0.436 (0.737)	3.1% (3.96%)
	E	0.236 (0.66)	1.7% (3.55%)
	F	0.67 (0.81)	4.75% (4.35%)
	G	0.977 (1.04)	6.93% (5.6%)
	H	1.808 (1.96)	12.82% (10.54%)
	I	0.936 (1.01)	6.64% (5.43%)
	J	0.635 (0.78)	4.5% (4.19%)
	K	1.061 (1.16)	7.5% (6.24%)
	L	0.639 (0.845)	4.5% (4.54%)
	M	0.585 (1.093)	4.15% (5.88%)
	N	0.514 (1.283)	3.64% (6.9%)
	O	0.692 (1.312)	4.91% (7.05%)
	P	0.97 (1.574)	6.9% (8.46%)
	Q	1.087 (1.208)	7.7% (6.5%)
	R	0.825 (1.012)	5.85% (4.44%)

Table 17 : Choice Experiment Design of Chapter 4

Choice set	Block	Alternative 1	Alternative 2	Design code
1	1	212412	121121	*Cosmetic Surgery*
2	1	111221	222312	*(1st column)*
3	1	291111	1(10)2222	1 – Yes
4	1	2(10)2411	111122	2 – No
5	1	132211	141322	*Prisoner's head-shoulder*
6	1	262111	171222	*Photo (2nd column*)
7	1	291211	1(10)2322	1 – Mr. A
8	1	251421	162111	2 – Mr. B
9	1	221112	132221	3 – Mr. C
10	1	141122	252211	4 – Mr. D
11	2	1(10)2122	111211	5 – Mr. E
12	2	192322	2(10)1411	6 – Mr. F
13	2	182421	291112	7 – Mr. G
14	2	141412	252121	8 – Mr. H
15	2	242311	151422	9 – Mr. I
16	2	172121	281212	10 – Mr. J
17	2	182312	291421	*Certificate of qualification*
18	2	121211	232322	*for employment*
19	2	192412	1(10)1121	*(3rd column)*
20	2	242222	151311	1 – Yes
21	3	281212	192321	2 – No
22	3	1(10)1222	212311	
23	3	252321	161412	

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Table 17 : Choice Experiment Design of Chapter 4 (Con't)

Choice set	Block	Alternative 1	Alternative 2	Design code
24	3	171412	282121	*Types of offences*
25	3	161421	272112	*(4th column)*
26	3	212122	121211	1 – Drug
27	3	222422	131111	2 – Property without
28	3	231322	142411	Violence
29	3	132111	141222	3 – Property with
30	3	231422	142111	Violence
31	4	262212	171321	4 – Body assault
32	4	122321	231412	*Work readiness skill*
33	4	272212	181321	*(5th column)*
34	4	271312	182421	1 – Yes
35	4	152212	261321	2 – No
36	4	111311	222422	*Salary (6th column)*
37	4	281121	192212	1 – 14,000 baht/month
38	4	161322	272411	2 – 9,000 baht/month
39	4	151112	262221	
40	4	2(10)1311	112422	

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APPENDIX B : EXAMPLE OF QUESTIONNAIRES

Example of questionnaire in Chapter 2

Questionnaire for the experiment in the *formal* sector (block 1)

แบบสอบถาม

เรื่อง การศึกษาปัจจัยที่มีผลต่อการจ้างงานของนายจ้าง

วัตถุประสงค์ แบบสอบถามนี้จัดทำขึ้นเพื่อเก็บรวบรวมข้อมูลสำหรับการศึกษาค้นคว้าอิสระเพื่อการศึกษาของนักศึกษาระดับปริญญาเอก คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย โดยข้อมูลในการตอบแบบสอบถามจะนำไปใช้ประโยชน์เพื่อการศึกษาเท่านั้น ทั้งนี้ ผู้วิจัยขอขอบพระคุณผู้ตอบแบบสอบถามเป็นอย่างยิ่ง ที่สละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

คำชี้แจง

1. กรุณาทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมที่ท่านเลือกและเติมข้อความหรือตัวเลขลงในช่องว่างที่มีให้
2. แบบสอบถามมีทั้งหมด 2 ส่วน ดังนี้

   ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

   ส่วนที่ 2 ข้อมูลประกอบการตอบแบบสอบถาม

   ส่วนที่ 3 แบบสอบถามการทดลองแบบทางเลือกการจ้างงานของนายจ้าง

   ส่วนที่ 4 แบบสอบถามการประเมินปัจจัยอื่นๆ จากนายจ้าง
3. ข้อมูลที่ได้รับจากผู้ตอบแบบสอบถามจะถูกเก็บเป็นความลับ

ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

เพศ ☐ ชาย ☐ หญิง อายุ _____ ปี

ระดับการศึกษา: ☐ มัธยมปลาย/ปวช. หรือต่ำกว่า ☐ ปริญญาตรีหรือเทียบเท่า

☐ ปริญญาโท ☐ ปริญญาเอก

ตำแหน่งงานหรือหน้าที่รับผิดชอบของท่านในปัจจุบัน_____

สังกัด : ☐ บริษัทเอกชน ☐ หน่วยงานราชการ

ประเภทอุตสาหกรรม : ระบุ_____ (เช่น อุตสาหกรรมการผลิต หรือ การบริการ เป็นต้นฯ)

ท่านมีประสบการณ์ในหน้าที่รับผิดชอบดังกล่าวข้างต้น เป็นระยะเวลา_____ปี

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ส่วนที่ 2 ข้อมูลประกอบการตอบแบบสอบถาม

เมื่อท่านต้องการคัดเลือกบุคลากรใหม่ โปรดเรียงลำดับของคุณสมบัติของผู้สมัครตามความสำคัญ โดยใส่หมายเลขลงในช่องว่าง ตามลำดับความสำคัญ 1, 2, 3,…..(จนครบ 9-10 ลำดับ)

_____ เพศ _____ อายุ _____ ระดับการศึกษา _____ ประสบการณ์ในการทำงาน

_____ ทักษะด้านภาษาอังกฤษ _____ ทักษะการใช้คอมพิวเตอร์หรือเครื่องมือเฉพาะทาง

_____ ทักษะการสื่อสารและมนุษยสัมพันธ์ _____ บุคลิกภาพ

_____ การบริหารจัดการและการทำงานเป็นทีม _____ อื่นๆ โปรดระบุ _____

ส่วนที่ 3 แบบสอบถามการทดลองแบบทางเลือกการจ้างงานของนายจ้าง

- สมมติว่าท่านความต้องการคัดเลือกบุคลากรใหม่เข้าทำงาน
- โดยใช้ข้อมูลจากรูปถ่ายของผู้สมัคร อายุ ระดับการศึกษา ประสบการณ์ในการทำงาน และเงินเดือนที่คาดหวัง
- ให้ท่านเลือกจ้างผู้สมัคร 1 คน โดยทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมใต้ผู้สมัครที่ท่านเลือก

<u>ตัวอย่าง</u> ในกรณีที่ท่านกำลังคัดสรรทรัพยากร ตำแหน่ง<u>เจ้าหน้าที่ประชาสัมพันธ์ฝ่ายขาย</u> ที่มีอายุ 22-25 จบการศึกษาระดับมัธยมที่ 6 และมีประสบการณ์ทำงาน ท่านจะเลือกบุคคลใด หาก ผู้สมัคร ก. อายุ 24 ปี และผู้สมัคร ข. อายุ 25 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน 3 ปี ความสามารถคอมพิวเตอร์พื้นฐาน ท่านจะเลือกจ้างบุคคลใด

	 รูปถ่ายผู้สมัคร ก.	 รูปถ่ายผู้สมัคร ข.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☑	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		ไม่เลือกเพราะ..... (ถ้าจ้าง) จะเต็มใจจ่าย .....

สมมติว่าท่านเลือกใส่เครื่องหมาย √ ในช่องสี่เหลี่ยมใต้ผู้สมัคร ก. หมายความว่า ท่านเต็มใจจะจ้างผู้สมัคร ก. ในระดับเงินเดือน 12,000 บาทต่อเดือน ตามคุณสมบัติดังกล่าว

กรุณาทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมใต้ผู้สมัครที่ท่านเลือกเพียง 1 ช่อง

สมมติว่าท่านกำลังมีความต้องการคัดเลือกบุคลากรใหม่เข้าทำงาน ในระดับมัธยมศึกษา ท่านจะเลือกจ้างบุคคลใด

ชุดทางเลือกที่ 1 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานต้อนรับโรงแรม ที่มีอายุ 23-30 ปี หากผู้สมัคร ก. และผู้สมัคร ข. อายุ 27 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ก.	 ผู้สมัคร ข.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 2 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่ประสานงานและการตลาด ที่ที่มีอายุ 25-35 ปี หากผู้สมัคร ค. และผู้สมัคร ง. อายุ 30 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ค.	 ผู้สมัคร ง.
เงินเดือนที่คาดหวัง	15,000 บาท	12,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

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ชุดทางเลือกที่ 3 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่บริหารพื้นที่ขาย ที่มีอายุ 25-35 ปี หากผู้สมัคร จ. และผู้สมัคร ช. อายุ 30 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐาน และภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร จ.	 ผู้สมัคร ช.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 4 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานเชียร์สินค้า ที่มีอายุ 25-35 ปี หากผู้สมัคร ธ. และผู้สมัคร น. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ธ.	 ผู้สมัคร น.
เงินเดือนที่คาดหวัง	15,000 บาท	12,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 5 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานขายและดูแลลูกค้าประจำสาขาใหญ่ ที่มีอายุ 25-35 ปี หากผู้สมัคร บ. อายุ 29 ปี และผู้สมัคร ป. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร บ.	 ผู้สมัคร ป.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 6 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานเสนอขายประกันรถยนต์ ที่มีอายุ 24-35 ปี ท่านจะเลือกบุคคลใด หากผู้สมัคร ผ. และผู้สมัคร ก. อายุ 27 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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	 ผู้สมัคร ผ.	 ผู้สมัคร ก.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 7 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่ประชาสัมพันธ์ฝ่ายขาย ที่มีอายุ 25-40 ปี หากผู้สมัคร ฝ.และผู้สมัคร พ. อายุ 40 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ฝ.	 ผู้สมัคร พ.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 8 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่ฝ่ายลูกค้าสัมพันธ์ ที่มีอายุ 25-40 ปี หากผู้สมัคร พ. และผู้สมัคร ฟ. อายุ 40 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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CHULALONGKORN UNIVERSITY

	 ผู้สมัคร พ.	 ผู้สมัคร ฟ.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 9 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่บริการหลังการขาย ที่ที่มีอายุ 25-35 ปี หากผู้สมัคร ซ. และผู้สมัคร ม. อายุ 30 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ซ.	 ผู้สมัคร ม.
เงินเดือนที่คาดหวัง	12,000 บาท	15,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ส่วนที่ 4 แบบสอบถามการประเมินบุคลิกภาพของผู้สมัคร

ยกตัวอย่าง หากเทียบกับอายุของผู้สมัคร ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5

โดยคะแนนหน้าตาเท่ากับ 1 หมายถึง หน้าตาดีน้อยที่สุด 3 หมายถึง หน้าตาดีปานกลาง 5 หมายถึง หน้าตาดีมากที่สุด และคะแนนความน่าไว้ใจเท่ากับ 1 หมายถึง ไม่ไว้ใจ 3 หมายถึง ไว้ใจปานกลาง 5 หมายถึง น่าไว้ใจมากที่สุด

	 นาย ก. อายุ 25	 นาย ข. อายุ 30
คะแนนหน้าตา	5	4
คะแนนความน่าไว้ใจ	4	4

จากตัวอย่างข้างต้นหมายความว่า เมื่อเทียบกันกับคนวัย 25 ท่านให้คะแนนหน้าตานาย ก. เต็ม 5 คะแนน และคะแนนความน่าไว้ใจที่ 4 คะแนน และ เมื่อเทียบกันกับคนวัย 30 ท่านให้คะแนนหน้าตานาย ข. 4 คะแนน และคะแนนความน่าไว้ใจที่ 4 คะแนน

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แบบประเมินข้อที่ 1. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

	 นาย ก. อายุ 27	 นาย ข. อายุ 27
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

แบบประเมินข้อที่ 2. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

	 นาย ฝ. อายุ 40	 นาย พ. อายุ 40
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

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แบบประเมินข้อที่ 3. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

	 นาย ค. อายุ 30	 นาย ง. อายุ 30
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

แบบประเมินข้อที่ 4. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

	 นาย บ. อายุ 29	 นาย ป. อายุ 28
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

Remark: The questionnaires used for the experiments in the informal labour sector remains the same as in the formal sector above. However, the differences are that the positions/occupations used for experiments in the informal sectors were local business work. Such as, waiter in local restaurant, food-services-salesperson in night market, salesperson in local gift shop, and hair dresser. And the salaries were adjusted lower than that of the formal sector by 3,000 baht as described in Table 2: Choice Experiment Design.

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Example of questionnaire in Chapter 3

Questionnaire for the experiment in the *informal* sector (block 4)

แบบสอบถาม

เรื่อง การศึกษาปัจจัยที่มีผลต่อการจ้างงานของนายจ้าง

วัตถุประสงค์ แบบสอบถามนี้จัดทำขึ้นเพื่อเก็บรวบรวมข้อมูลสำหรับการศึกษาค้นคว้าอิสระเพื่อการศึกษาของนักศึกษาระดับปริญญาเอก คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย โดยข้อมูลในการตอบแบบสอบถามจะนำไปใช้ประโยชน์เพื่อการศึกษาเท่านั้น ทั้งนี้ ผู้วิจัยขอขอบพระคุณผู้ตอบแบบสอบถามเป็นอย่างยิ่ง ที่สละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

คำชี้แจง

4. กรุณาทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมที่ท่านเลือกและเติมข้อความหรือตัวเลขลงในช่องว่างที่มีให้
5. แบบสอบถามมีทั้งหมด 2 ส่วน ดังนี้

   ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

   ส่วนที่ 2 ข้อมูลประกอบการตอบแบบสอบถาม

   ส่วนที่ 3 แบบสอบถามการทดลองแบบทางเลือกการจ้างงานของนายจ้าง

   ส่วนที่ 4 แบบสอบถามการประเมินปัจจัยอื่นๆ จากนายจ้าง
6. ข้อมูลที่ได้รับจากผู้ตอบแบบสอบถามจะถูกเก็บเป็นความลับ

ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

เพศ ☐ ชาย ☐ หญิง อายุ ____ ปี

ระดับการศึกษา:☐ มัธยมปลาย/ปวช.หรือต่ำกว่า ☐ปริญญาตรีหรือเทียบเท่า☐ปริญญาโท☐ ปริญญาเอก

ตำแหน่งงานหรือหน้าที่รับผิดชอบของท่านในปัจจุบัน_____

ประเภทกิจการ : ☐ กิจการค้าขาย ☐ กิจการด้านบริการ เช่น อาหาร เครื่องดื่ม ☐ อื่นๆ โปรดระบุ.....

ท่านมีประสบการณ์ในหน้าที่รับผิดชอบดังกล่าวข้างต้น เป็นระยะเวลา_____ปี

ส่วนที่ 2 ข้อมูลประกอบการตอบแบบสอบถาม

เมื่อท่านต้องการคัดเลือกบุคลากรใหม่ โปรดเรียงลำดับของคุณสมบัติของผู้สมัครตามความสำคัญ โดยใส่หมายเลขลงในช่องว่าง ตามลำดับความสำคัญ 1, 2, 3,…..(จนครบ 9-10 ลำดับ)

_____ เพศ _____ อายุ _____ ระดับการศึกษา _____ ประสบการณ์ในการทำงาน

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_____ ทักษะด้านภาษาอังกฤษ _____ ทักษะการใช้คอมพิวเตอร์หรือเครื่องมือเฉพาะทาง

_____ ทักษะการสื่อสารและมนุษยสัมพันธ์ _____ บุคลิกภาพ _____ การบริหารจัดการและการทำงานเป็นทีม _____ อื่นๆ โปรดระบุ _____

ส่วนที่ 3 แบบสอบถามการทดลองแบบทางเลือกการจ้างงานของนายจ้าง

- สมมติว่าท่านความต้องการคัดเลือกบุคลากรใหม่เข้าทำงาน
- โดยใช้ข้อมูลจากรูปถ่ายของผู้สมัคร อายุ ระดับการศึกษา ประสบการณ์ในการทำงานและเงินเดือนที่คาดหวัง
- ให้ท่านเลือกจ้างผู้สมัคร 1 คน โดยทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมใต้ผู้สมัครที่ท่านเลือก

ตัวอย่าง ในกรณีที่ท่านกำลังคัดสรรบุคลากร ตำแหน่งพนักงานขายอาหาร ร้านยายอิ่ม ที่มีอายุ 22-25 จบการศึกษาระดับมัธยมที่ 6 และมีประสบการณ์ทำงาน ท่านจะเลือกบุคคลใด หาก ผู้สมัคร ก. อายุ 24 ปี และผู้สมัคร ข. อายุ 25 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน 3 ปี ความสามารถคอมพิวเตอร์พื้นฐาน ท่านจะเลือกจ้างบุคคลใด

	 รูปถ่ายผู้สมัคร ก.	 รูปถ่ายผู้สมัคร ข.
ประวัติอาชญากรรม	ไม่มี	มี
เงินเดือนที่คาดหวัง	9,000 บาท	12,000 บาท
ท่านตัดสินใจเลือกจ้าง	☑	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		ไม่เลือกเพราะ..... (ถ้าจ้าง) จะเต็มใจจ่าย .....

สมมติว่าท่านเลือกใส่เครื่องหมาย √ ในช่องสี่เหลี่ยมใต้ผู้สมัคร ก. หมายความว่า ท่านเต็มใจจะจ้างผู้สมัคร ก. ในระดับเงินเดือน 9,000 บาทต่อเดือน ตามคุณสมบัติดังกล่าว

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กรุณาทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมใต้ผู้สมัครที่ท่านเลือกเพียง 1 ช่อง

สมมติว่าท่านกำลังมีความต้องการคัดเลือกบุคลากรใหม่เข้าทำงาน ในระดับมัธยมศึกษา ท่านจะเลือกจ้างบุคคลใด

ชุดทางเลือกที่ 1 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานแนะนำสินค้า ร้านสูทหน้าตลาดกลางเมือง ที่มีอายุ 25-35 ปี หากผู้สมัคร ก. และผู้สมัคร ข. อายุ 32 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ก.	 ผู้สมัคร ข.
ประวัติอาชญากรรม	ไม่มี	มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 2 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่ง พนักงานเสิร์ฟและต้อนรับลูกค้า ร้านครัวแม่มะลิ ที่มีอายุ 25-40 ปี หากผู้สมัคร ค. อายุ 37 และผู้สมัคร ง. อายุ 40 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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	 ผู้สมัคร ค.	 ผู้สมัคร ง.
ประวัติอาชญากรรม	ไม่มี	มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 3 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งพนักงานขายร้านเสื้อผ้า หน้ามหาวิทยาลัย ที่มีอายุ 25-35 ปี หากผู้สมัคร จ. และผู้สมัคร ช. อายุ 32 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐาน และภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร จ.	 ผู้สมัคร ช.
ประวัติอาชญากรรม	มี	ไม่มี
เงินเดือนที่คาดหวัง	9,000 บาท	12,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 4 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานขายร้านเครื่องประดับตลาดหัวมุม ที่มีอายุ 25-45 ปี หากผู้สมัคร ธ. และผู้สมัคร น. อายุ 40 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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	 ผู้สมัคร ธ.	 ผู้สมัคร น.
ประวัติอาชญากรรม	ไม่มี	มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 5 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งพนักงานขายร้านกุ้งยกถัง ตลาดรถไฟ ที่มีอายุ 25-45 ปี หากผู้สมัคร ง. และผู้สมัคร บ. อายุ 40 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ง.	 ผู้สมัคร บ.
ประวัติอาชญากรรม	มี	ไม่มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 6 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งพนักงาน part time ออกบูธและเชียร์ขายสินค้า ที่มีอายุ 24-30 ปี ท่านจะเลือกบุคคลใด หากผู้สมัคร ผ. อายุ 26 และผู้สมัคร ฝ. อายุ 27 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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	 ผู้สมัคร ผ.	 ผู้สมัคร ฝ.
ประวัติอาชญากรรม	มี	ไม่มี
เงินเดือนที่คาดหวัง	9,000 บาท	12,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 7 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งพนักงานขายร้านคอกเทลและน้ำปั่น ตลาดหัวมุม ที่มีอายุ 25-30 ปี หากผู้สมัคร ป. และผู้สมัคร พ. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ป.	 ผู้สมัคร พ.
ประวัติอาชญากรรม	ไม่มี	มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 8 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานขายเครื่องใช้ไฟฟ้าร้านหน้าตลาดกลาง ที่มีอายุ 25-40 ปี หากผู้สมัคร ม. และผู้สมัคร ย. อายุ 31 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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	 ผู้สมัคร ม.	 ผู้สมัคร ย.
ประวัติอาชญากรรม	มี	ไม่มี
เงินเดือนที่คาดหวัง	9,000 บาท	12,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 9 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งพนักงานขายร้านโดนัทแฟนฉัน หน้ามหาวิทยาลัยที่มีอายุ 25-35 ปี หากผู้สมัคร ร. และผู้สมัคร ล. อายุ 33 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ร.	 ผู้สมัคร ล.
ประวัติอาชญากรรม	มี	ไม่มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 10 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งพนักงานขายเครป หน้าโรงเรียน ที่มีอายุ 25-35 ปี หากผู้สมัคร ข. อายุ 32 และผู้สมัคร ป. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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	 ผู้สมัคร ข.	 ผู้สมัคร ป.
ประวัติอาชญากรรม	ไม่มี	มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 11 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งช่างจัดแต่งทรงผม ร้านมายแฮร์ ที่มีอายุ 25-35 ปี หากผู้สมัคร ง. และผู้สมัคร บ. อายุ 40 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ง.	 ผู้สมัคร บ.
ประวัติอาชญากรรม	มี	ไม่มี
เงินเดือนที่คาดหวัง	12,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ชุดทางเลือกที่ 12 ในกรณีที่ท่านกำลังคัดสรรบุคลากรตำแหน่งพนักงานเชียร์และเสริฟอาหาร ร้านชาบูลุงอ้วนหน้าโรงเรียน ที่มีอายุ 25-35 ปี หากผู้สมัคร ธ. และผู้สมัคร น. อายุ 40 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

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	 ผู้สมัคร ธ.	 ผู้สมัคร น.
ประวัติอาชญากรรม	มี	ไม่มี
เงินเดือนที่คาดหวัง	9,000 บาท	12,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐
(ถ้ามี) ระบุเหตุผลถึงผู้สมัครที่ท่านไม่ได้เลือกและเงินเดือนที่เต็มใจจ่าย		

ส่วนที่ 4 แบบสอบถามการประเมินบุคลิกภาพของผู้สมัคร

<u>ยกตัวอย่าง</u> หากเทียบกับอายุของผู้สมัคร ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5

โดย<u>คะแนนหน้าตา</u>เท่ากับ 1 หมายถึง หน้าตาดีน้อยที่สุด 3 หมายถึง หน้าตาดีปานกลาง 5 หมายถึง หน้าตาดีมากที่สุด และ<u>คะแนนความน่าไว้ใจ</u>เท่ากับ 1 หมายถึง ไม่ไว้ใจ 3 หมายถึง ไว้ใจปานกลาง 5 หมายถึง น่าไว้ใจมากที่สุด

	 นาย ก. อายุ 25	 นาย ข. อายุ 30
คะแนนหน้าตา	5	4
คะแนนความน่าไว้ใจ	4	4

จากตัวอย่างข้างต้นหมายความว่า เมื่อเทียบกันกับคนวัย 25 ท่านให้คะแนนหน้าตานาย ก. เต็ม 5 คะแนน และคะแนนความน่าไว้ใจที่ 4 คะแนน และ เมื่อเทียบกันกับคนวัย 30 ท่านให้คะแนนหน้าตานาย ข. 4 คะแนน และคะแนนความน่าไว้ใจที่ 4 คะแนน

แบบประเมินข้อที่ 1. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

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	 นาย จ. อายุ 32	 นาย ช. อายุ 32
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

แบบประเมินข้อที่ 2. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

	 นาย ค. อายุ 37	 นาย ง. อายุ 40
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

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แบบประเมินข้อที่ 3. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

	 นาย ร. อายุ 33	 นาย ล. อายุ 33
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

แบบประเมินข้อที่ 4. หากเทียบกับอายุของผู้สมัครแต่ละคน ท่านให้คะแนนหน้าตา (ดี) และความไว้วางใจที่มีต่อบุคคลดังต่อไปนี้ที่เท่าไร ในคะแนนระหว่าง 1-5 โดย 5 คือสูงที่สุด และ 1 คือต่ำที่สุด

	 นาย ผ. อายุ 26	 นาย ฝ. อายุ 27
คะแนนหน้าตา		
คะแนนความน่าไว้ใจ		

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Example of questionnaire in Chapter 4 (block 1)

แบบสอบถาม

เรื่อง การศึกษาปัจจัยที่มีผลต่อการจ้างงานของนายจ้าง

วัตถุประสงค์ แบบสอบถามนี้จัดทำขึ้นเพื่อเก็บรวบรวมข้อมูลสำหรับการศึกษาค้นคว้าอิสระเพื่อการศึกษาของนักศึกษาระดับปริญญาเอก คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย โดยข้อมูลในการตอบแบบสอบถามจะนำไปใช้ประโยชน์เพื่อการศึกษาเท่านั้น ทั้งนี้ ผู้วิจัยขอขอบพระคุณผู้ตอบแบบสอบถามเป็นอย่างยิ่ง ที่สละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

คำชี้แจง

1. กรุณาทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมที่ท่านเลือกและเติมข้อความหรือตัวเลขลงในช่องว่างที่มีให้
2. แบบสอบถามมีทั้งหมด 2 ส่วน ดังนี้
   ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลประกอบการตอบแบบสอบถาม
   ส่วนที่ 3 แบบสอบถามการทดลองแบบทางเลือกการจ้างงานของนายจ้าง
   ส่วนที่ 4 แบบสอบถามการประเมินปัจจัยอื่นๆ จากนายจ้าง
3. ข้อมูลที่ได้รับจากผู้ตอบแบบสอบถามจะถูกเก็บเป็นความลับ

ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

เพศ ☐ชาย ☐หญิง อายุ_____ปี

ระดับการศึกษา:☐มัธยมปลาย/ปวช. หรือต่ำกว่า☐ปริญญาตรีหรือเทียบเท่า☐ปริญญาโท☐ปริญญาเอก

ตำแหน่งงานหรือหน้าที่รับผิดชอบของท่านในปัจจุบัน_____

สังกัด : ☐ บริษัทเอกชน ☐ หน่วยงานราชการ

ประเภทอุตสาหกรรม : ระบุ_____ (เช่น อุตสาหกรรมการผลิต หรือ การบริการ เป็นต้นฯ)

ท่านมีประสบการณ์ในหน้าที่รับผิดชอบดังกล่าวข้างต้น เป็นระยะเวลา_____ปี

ส่วนที่ 2 ข้อมูลประกอบการตอบแบบสอบถาม

เมื่อท่านต้องการคัดเลือกบุคลากรใหม่ โปรดเรียงลำดับของคุณสมบัติของผู้สมัครตามความสำคัญ โดยใส่หมายเลขลงในช่องว่าง ตามลำดับความสำคัญ 1, 2, 3,…..(จนครบ 9-10 ลำดับ)

_____ เพศ _____ อายุ _____ ระดับการศึกษา _____ ประสบการณ์ในการทำงาน

_____ ทักษะด้านภาษาอังกฤษ _____ ทักษะการใช้คอมพิวเตอร์หรือเครื่องมือเฉพาะทาง

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_____ ทักษะการสื่อสารและมนุษยสัมพันธ์ _____ บุคลิกภาพ _____ การบริหารจัดการและการทำงานเป็นทีม

_____ อื่นๆ โปรดระบุ _____

ส่วนที่ 3 แบบสอบถามการทดลองแบบทางเลือกการจ้างงานของนายจ้าง

- สมมติว่าท่านความต้องการคัดเลือกบุคลากรใหม่เข้าทำงาน
- โดยใช้ข้อมูลจากรูปถ่ายของผู้สมัคร อายุ ระดับการศึกษา ประสบการณ์ในการทำงานและเงินเดือนที่คาดหวัง
- ให้ท่านเลือกจ้างผู้สมัคร 1 คน โดยทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมใต้ผู้สมัครที่ท่านเลือก

ตัวอย่าง ในกรณีที่ท่านกำลังคัดสรรทรัพยากร ตำแหน่งเจ้าหน้าที่ประชาสัมพันธ์ฝ่ายขาย ที่มีอายุ 22-25 จบการศึกษาระดับมัธยมที่ 6 และมีประสบการณ์ทำงาน ท่านจะเลือกบุคคลใด หาก ผู้สมัคร ก. อายุ 24 ปี และผู้สมัคร ข. อายุ 25 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน 3 ปี ความสามารถคอมพิวเตอร์พื้นฐาน ท่านจะเลือกจ้างบุคคลใด

	 รูปถ่ายผู้สมัคร ก.	 รูปถ่ายผู้สมัคร ข.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	ไม่มีใบรับรอง	มีใบรับรองคุณสมบัติจากภาครัฐ
ประวัติอาชญากรรม	ความผิดเกี่ยวกับร่างกาย	ความผิดเกี่ยวกับยาเสพติด
ทักษะขั้นพื้นฐานและความพร้อมในงาน	มีทักษะและความพร้อม	ไม่มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	9,000 บาท	14,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☑

สมมติว่าท่านเลือกใส่เครื่องหมาย √ ในช่องสี่เหลี่ยมใต้ผู้สมัคร ก. หมายความว่า ท่านเต็มใจจะจ้างผู้สมัคร ข. ในระดับเงินเดือน 14,000 บาทต่อเดือน ตามคุณสมบัติดังกล่าว

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กรุณาทำเครื่องหมาย √ ลงในช่องสี่เหลี่ยมใต้ผู้สมัครที่ท่านเลือกเพียง 1 ช่อง

สมมติว่าท่านกำลังต้องการคัดเลือกบุคลากรใหม่เข้าทำงาน <u>ในระดับมัธยมศึกษา</u> ท่านจะเลือกจ้างบุคคลใด

ชุดทางเลือกที่ 1 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่ง<u>เจ้าหน้าที่ประสานงานและการตลาด</u> ที่มีอายุ 25-35 ปี หากผู้สมัคร ก. และผู้สมัคร ข. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ก.	 ผู้สมัคร ข.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	ไม่มีใบรับรอง	มีใบรับรองคุณสมบัติจากภาครัฐ
ประวัติอาชญากรรม	ความผิดเกี่ยวกับร่างกาย	ความผิดเกี่ยวกับยาเสพติด
ทักษะขั้นพื้นฐานและความพร้อมในงาน	มีทักษะและความพร้อม	ไม่มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	9,000 บาท	14,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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ชุดทางเลือกที่ 2 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานต้อนรับโรงแรม ที่มีอายุ 25-35 ปี หากผู้สมัคร ค. อายุ 29 และผู้สมัคร ง อายุ 30 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ค.	 ผู้สมัคร ง.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	มีใบรับรองคุณสมบัติจากภาครัฐ	ไม่มีใบรับรอง
ประวัติอาชญากรรม	ความผิดเกี่ยวกับทรัพย์ (ไม่มีความรุนแรง)	ความผิดเกี่ยวกับทรัพย์ (มีความรุนแรง)
ทักษะขั้นพื้นฐานและความพร้อมในงาน	ไม่มีทักษะและความพร้อม	มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	14,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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ชุดทางเลือกที่ 3 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่ง<u>เจ้าหน้าที่บริหารพื้นที่ขาย</u> ที่มีอายุ 25-35 ปี หากผู้สมัคร จ. และผู้สมัคร ช. อายุ 33 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ 5 ปี ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐาน และภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร จ.	 ผู้สมัคร ช.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	มีใบรับรองคุณสมบัติจากภาครัฐ	ไม่มีใบรับรอง
ประวัติอาชญากรรม	ความผิดเกี่ยวกับยาเสพติด	ความผิดเกี่ยวกับทรัพย์ (ไม่มีความรุนแรง)
ทักษะขั้นพื้นฐานและความพร้อมในงาน	มีทักษะและความพร้อม	ไม่มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	14,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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ชุดทางเลือกที่ 4 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานเชียร์สินค้า ที่มีอายุ 25-35 ปี หากผู้สมัคร น. อายุ 33 และผู้สมัคร ค. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร น.	 ผู้สมัคร ค.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน(Certificate of qualification for employment)	ไม่มีใบรับรอง	มีใบรับรองคุณสมบัติจากภาครัฐ
ประวัติอาชญากรรม	ความผิดเกี่ยวกับร่างกาย	ความผิดเกี่ยวกับยาเสพติด
ทักษะขั้นพื้นฐานและความพร้อมในงาน	มีทักษะและความพร้อม	ไม่มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	14,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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ชุดทางเลือกที่ 5 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งพนักงานขายและดูแลลูกค้าประจำสาขาใหญ่ ที่มีอายุ 25-35 ปี หากผู้สมัคร ป. และผู้สมัคร ผ. อายุ 30 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ป.	 ผู้สมัคร ผ.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน(Certificate of qualification for employment)	ไม่มีใบรับรอง	มีใบรับรองคุณสมบัติจากภาครัฐ
ประวัติอาชญากรรม	ความผิดเกี่ยวกับทรัพย์ (ไม่มีความรุนแรง)	ความผิดเกี่ยวกับทรัพย์ (มีความรุนแรง)
ทักษะขั้นพื้นฐานและความพร้อมในงาน	มีทักษะและความพร้อม	ไม่มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	14,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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ชุดทางเลือกที่ 6 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่แคชเชียร์และบริการลูกค้า ที่มีอายุ 24-40 ปี ท่านจะเลือกบุคคลใด หากผู้สมัคร ฝ. และผู้สมัคร พ. อายุ 32 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ฝ.	 ผู้สมัคร พ.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน(Certificate of qualification for employment)	ไม่มีใบรับรอง	มีใบรับรองคุณสมบัติจากภาครัฐ
ประวัติอาชญากรรม	ความผิดเกี่ยวกับยาเสพติด	ความผิดเกี่ยวกับทรัพย์ (ไม่มีความรุนแรง)
ทักษะขั้นพื้นฐานและความพร้อมในงาน	มีทักษะและความพร้อม	ไม่มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	14,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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ชุดทางเลือกที่ 7 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่ง<u>เจ้าหน้าที่ประชาสัมพันธ์ฝ่ายขาย</u> ที่มีอายุ 25-40 ปี หากผู้สมัคร จ. และผู้สมัคร ช. อายุ 33 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร จ.	 ผู้สมัคร ช.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	มีใบรับรองคุณสมบัติจากภาครัฐ	ไม่มีใบรับรอง
ประวัติอาชญากรรม	ความผิดเกี่ยวกับทรัพย์ (ไม่มีความรุนแรง)	ความผิดเกี่ยวกับทรัพย์ (มีความรุนแรง)
ทักษะขั้นพื้นฐานและความพร้อมในงาน	ไม่มีทักษะและความพร้อม	มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	14,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

จุฬาลงกรณ์มหาวิทยาลัย
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ชุดทางเลือกที่ 8 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่ฝ่ายลูกค้าสัมพันธ์ ที่มีอายุ 25-35 ปี หากผู้สมัคร ม. และผู้สมัคร ย. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ม.	 ผู้สมัคร ย.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	มีใบรับรองคุณสมบัติจากภาครัฐ	ไม่มีใบรับรอง
ประวัติอาชญากรรม	ความผิดเกี่ยวกับร่างกาย	ความผิดเกี่ยวกับยาเสพติด
ทักษะขั้นพื้นฐานและความพร้อมในงาน	ไม่มีทักษะและความพร้อม	มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	14,000 บาท	9,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

จุฬาลงกรณ์มหาวิทยาลัย
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ชุดทางเลือกที่ 9 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่บริการหลังการขาย ที่มีอายุ 25-35 ปี หากผู้สมัคร ง. และผู้สมัคร ป. อายุ 30 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ง.	 ผู้สมัคร ป.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	มีใบรับรองคุณสมบัติจากภาครัฐ	ไม่มีใบรับรอง
ประวัติอาชญากรรม	ความผิดเกี่ยวกับยาเสพติด	ความผิดเกี่ยวกับทรัพย์ (ไม่มีความรุนแรง)
ทักษะขั้นพื้นฐานและความพร้อมในงาน	มีทักษะและความพร้อม	ไม่มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	9,000 บาท	14,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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ชุดทางเลือกที่ 10 ในกรณีที่ท่านกำลังคัดสรรทรัพยากรใหม่เข้าองค์กรตำแหน่งเจ้าหน้าที่ฝ่ายโฆษณา ที่มีอายุ 25-35 ปี หากผู้สมัคร ว. และผู้สมัคร ม. อายุ 28 ปี ทั้งคู่จบการศึกษาระดับมัธยมที่ 6 มีประสบการณ์ทำงาน มีความสามารถคอมพิวเตอร์พื้นฐานและภาษาอังกฤษ ท่านจะเลือกจ้างบุคคลใด

	 ผู้สมัคร ว.	 ผู้สมัคร ม.
ใบรับรองคุณสมบัติสำหรับการจ้างงาน (Certificate of qualification for employment)	มีใบรับรองคุณสมบัติจากภาครัฐ	ไม่มีใบรับรอง
ประวัติอาชญากรรม	ความผิดเกี่ยวกับยาเสพติด	ความผิดเกี่ยวกับทรัพย์ (ไม่มีความรุนแรง)
ทักษะขั้นพื้นฐานและความพร้อมในงาน	ไม่มีทักษะและความพร้อม	มีทักษะและความพร้อม
เงินเดือนที่คาดหวัง	9,000 บาท	14,000 บาท
ท่านตัดสินใจเลือกจ้าง	☐	☐

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APPENDIX C : REGRESSION RESULTS

Regression for Chapter 2

Basic Model in the *Formal* Labour Sector: Clogit with based variable "Nosurgery" and "Mr. A"

```
              coef  exp(coef)   se(coef)       z        p
ASC      2.499e+01  7.160e+10  1.146e+03   0.022 0.982599
Surgery  1.399e+00  4.049e+00  7.707e-02  18.146  < 2e-16***
B       -1.176e+00  3.086e-01  2.320e-01  -5.067 4.04e-07***
C       -6.175e-01  5.393e-01  4.172e-01  -1.480 0.138867
D       -3.357e-01  7.148e-01  4.527e-01  -0.741 0.458413
E       -9.240e-01  3.969e-01  5.332e-01  -1.733 0.083075
F       -1.168e-01  8.897e-01  5.556e-01  -0.210 0.833444
G        5.743e-01  1.776e+00  6.099e-01   0.942 0.346409
H        8.147e-01  2.259e+00  6.204e-01   1.313 0.189117
I       -3.117e-02  9.693e-01  6.316e-01  -0.049 0.960636
J        8.638e-02  1.090e+00  6.349e-01   0.136 0.891773
K        6.446e-01  1.905e+00  6.411e-01   1.006 0.314645
L        2.279e-01  1.256e+00  6.375e-01   0.358 0.720693
M        2.114e-01  1.235e+00  6.105e-01   0.346 0.729063
N        7.472e-01  2.111e+00  5.981e-01   1.249 0.211503
O        7.308e-01  2.077e+00  5.376e-01   1.359 0.174067
P        1.684e+00  5.386e+00  5.097e-01   3.303 0.000955***
Q        8.380e-01  2.312e+00  3.991e-01   2.100 0.035758*
R        5.883e-01  1.801e+00  3.553e-01   1.656 0.097725
Salary  -3.814e+00  2.206e-02  2.568e-01 -14.855  < 2e-16***

Likelihood ratio test=2305  on 20 df, p=< 2.2e-16
n= 5400, number of events= 1800
> clogout8$loglik
[1] -1977.5021  -824.8172
> #Goodness of fit
> gofm(clogout8)
Rho-squared = 0.5828995
Adjusted rho-squared = 0.5727857
Akaike information criterion (AIC) = 1689.634
Bayesian information criterion (BIC) = 1799.545
Number of coefficients = 20
Log likelihood at start = -1977.502
Log likelihood at convergence = -824.8172
```

Marginal Willingness to Pay

```
             MWTP      2.5%     97.5%
Surgery  0.366665  0.329322  0.411847
B       -0.308249 -0.444862 -0.187212
C       -0.161890 -0.389835  0.053797
D       -0.088011 -0.330278  0.144507
E       -0.242260 -0.525246  0.031149
F       -0.030634 -0.315023  0.250182
G        0.150566 -0.165855  0.453579
H        0.213613 -0.107101  0.525505
I       -0.008173 -0.331984  0.310600
J        0.022647 -0.304326  0.346889
```

```
K        0.169005 -0.158281  0.498173
L        0.059759 -0.272827  0.379250
M        0.055437 -0.256313  0.360279
N        0.195918 -0.107092  0.494617
O        0.191596 -0.085071  0.463778
P        0.441490  0.182845  0.699005
Q        0.219705  0.012131  0.422470
R        0.154249 -0.032518  0.332225

method = Krinsky and Robb
```

Basic Model in the *Informal* Labour Sector: Clogit with based variable "Nosurgery" and "Mr. A"

```
              coef  exp(coef)   se(coef)       z        p
ASC      2.309e+01  1.062e+10  1.124e+03   0.021   0.9836
Surgery  9.307e-01  2.536e+00  5.947e-02  15.649  < 2e-16***
B       -1.002e+00  3.670e-01  2.204e-01  -4.548 5.43e-06***
C        2.815e-01  1.325e+00  3.344e-01   0.842   0.3998
D        7.599e-02  1.079e+00  3.758e-01   0.202   0.8398
E        1.472e-01  1.159e+00  4.369e-01   0.337   0.7361
F        3.037e-01  1.355e+00  4.597e-01   0.661   0.5088
G        8.475e-01  2.334e+00  4.961e-01   1.708   0.0876
H        3.521e-01  1.422e+00  5.081e-01   0.693   0.4883
I        4.234e-01  1.527e+00  5.219e-01   0.811   0.4172
J        4.191e-01  1.521e+00  5.241e-01   0.800   0.4240
K        1.422e-02  1.014e+00  5.180e-01   0.027   0.9781
L       -3.968e-01  6.725e-01  5.117e-01  -0.775   0.4381
M       -8.636e-03  9.914e-01  4.928e-01  -0.018   0.9860
N       -1.292e-02  9.872e-01  4.772e-01  -0.027   0.9784
O        5.833e-02  1.060e+00  4.350e-01   0.134   0.8933
P       -6.643e-02  9.357e-01  4.063e-01  -0.163   0.8701
Q       -3.137e-01  7.307e-01  3.288e-01  -0.954   0.3400
R        8.830e-02  1.092e+00  2.721e-01   0.325   0.7455
Salary  -2.762e+00  6.317e-02  1.982e-01 -13.938  < 2e-16***

Likelihood ratio test=1993  on 20 df, p=< 2.2e-16
n= 5400, number of events= 1800
> clogout8$loglik
[1] -1977.5021  -980.9175
> #Goodness of fit
> gofm(clogout8)

Rho-squared = 0.5039613
Adjusted rho-squared = 0.4938476
Akaike information criterion (AIC) = 2001.835
Bayesian information criterion (BIC) = 2111.746
Number of coefficients = 20
Log likelihood at start = -1977.502
Log likelihood at convergence = -980.9175
```

Marginal Willingness to Pay

```
             MWTP      2.5%     97.5%
Surgery  0.336967  0.288788  0.395726
B       -0.362963 -0.533055 -0.203615
C        0.101929 -0.135660  0.337135
D        0.027515 -0.245500  0.295694
E        0.053315 -0.251574  0.362130
F        0.109959 -0.210966  0.436421
G        0.306844 -0.043621  0.652613
H        0.127492 -0.233769  0.476142
I        0.153292 -0.220943  0.516213
J        0.151739 -0.220106  0.521066
K        0.005147 -0.358524  0.369796
L       -0.143655 -0.504669  0.216825
M       -0.003127 -0.363743  0.342635
N       -0.004679 -0.341743  0.328836
O        0.021121 -0.290454  0.323738
P       -0.024051 -0.317620  0.265893
Q       -0.113597 -0.349466  0.117319
R        0.031972 -0.161499  0.227692

method = Krinsky and Robb
```

Additional Model of Interaction with Respondents' Characteristics in the *Formal* Sector

```
                      coef  exp(coef)   se(coef)      z        p
ASC              2.504e+01  7.493e+10  1.130e+03  0.022 0.982318
Surgery          1.138e+00  3.122e+00  4.606e-01  2.472 0.013444*
B               -1.072e+00  3.423e-01  2.343e-01 -4.574 4.78e-06**
*
C               -5.252e-01  5.915e-01  4.074e-01 -1.289 0.197389
D               -2.259e-01  7.978e-01  4.452e-01 -0.507 0.611820
E               -7.576e-01  4.688e-01  5.293e-01 -1.431 0.152342
F               -5.065e-04  9.995e-01  5.530e-01 -0.001 0.999269
G                7.941e-01  2.212e+00  6.129e-01  1.295 0.195150
H                1.053e+00  2.865e+00  6.243e-01  1.686 0.091755
I                1.855e-01  1.204e+00  6.368e-01  0.291 0.770854
J                1.853e-01  1.204e+00  6.398e-01  0.290 0.772056
K                7.066e-01  2.027e+00  6.464e-01  1.093 0.274352
L                2.843e-01  1.329e+00  6.431e-01  0.442 0.658499
M                3.341e-01  1.397e+00  6.156e-01  0.543 0.587365
N                9.081e-01  2.480e+00  6.032e-01  1.505 0.132230
O                9.579e-01  2.606e+00  5.402e-01  1.773 0.076200
P                1.787e+00  5.970e+00  5.100e-01  3.503 0.000459**
*
Q                9.214e-01  2.513e+00  3.964e-01  2.324 0.020103*
R                5.580e-01  1.747e+00  3.498e-01  1.595 0.110654
Salary          -2.668e+00  6.940e-02  1.534e+00 -1.739 0.081994
Surgery:Female   3.952e-01  1.485e+00  1.487e-01  2.657 0.007873**
Surgery:Age      1.043e-02  1.010e+00  1.361e-02  0.766 0.443498
Surgery:Exper   -3.898e-02  9.618e-01  1.462e-02 -2.666 0.007680**
Salary:Female    2.804e-02  1.028e+00  4.956e-01  0.057 0.954891
Salary:Age      -2.737e-02  9.730e-01  4.536e-02 -0.603 0.546177
Salary:Exper    -1.161e-02  9.885e-01  4.880e-02 -0.238 0.811909

Likelihood ratio test=2335  on 26 df, p=< 2.2e-16
n= 5400, number of events= 1800
> Clogout2$loglik
```

```
[1] -1977.5021  -810.2025
> #Goodness of fit
> gofm(Clogout2)
Rho-squared = 0.59029
Adjusted rho-squared = 0.5771421
Akaike information criterion (AIC) = 1672.405
Bayesian information criterion (BIC) = 1815.289
Number of coefficients = 26
Log likelihood at start = -1977.502
Log likelihood at convergence = -810.2025
```

Marginal Willingness to Pay

	MWTP	2.5%	97.5%
Surgery	0.4267184	-0.7848444	2.3131296
B	-0.4017894	-3.2827477	1.5631460
C	-0.1968431	-1.7760279	0.7087279
D	-0.0846809	-1.1662440	0.6634698
E	-0.2839571	-2.6837773	0.9759448
F	-0.0001899	-1.1301684	1.0638291
G	0.2976402	-0.9957281	2.5742003
H	0.3945693	-1.4167771	3.1673886
I	0.0695216	-1.0662309	1.4122451
J	0.0694730	-0.9870621	1.4928145
K	0.2648416	-1.0884716	2.3300775
L	0.1065467	-0.9602397	1.4933698
M	0.1252120	-0.9298948	1.5515172
N	0.3403723	-1.0948561	2.7529143
O	0.3590376	-1.1424711	2.7230042
P	0.6697424	-2.4723873	5.1163500
Q	0.3453794	-1.2173567	2.7049890
R	0.2091566	-0.6442692	1.7358251
Surgery:Female	0.1481326	-0.6796442	1.3137725
Surgery:Age	0.0039080	-0.0329363	0.0642260
Surgery:Exper	-0.0146122	-0.1411411	0.0700562
Salary:Female	0.0105087	-1.1062580	0.9164669
Salary:Age	-0.0102604	-0.2731457	0.1857347
Salary:Exper	-0.0043529	-0.0816511	0.1111528

method = Krinsky and Robb

Additional Model of Interaction with Respondents' Characteristics in the *Informal* Sector

	coef	exp(coef)	se(coef)	z	p
ASC	2.315e+01	1.129e+10	1.118e+03	0.021	0.9835
Surgery	1.112e+00	3.042e+00	2.368e-01	4.698	2.63e-06**
*					
B	-1.014e+00	3.628e-01	2.223e-01	-4.560	5.12e-06**
*					
C	3.252e-01	1.384e+00	3.406e-01	0.955	0.3396
D	1.178e-01	1.125e+00	3.817e-01	0.309	0.7576
E	1.931e-01	1.213e+00	4.459e-01	0.433	0.6650
F	3.660e-01	1.442e+00	4.667e-01	0.784	0.4329
G	8.718e-01	2.391e+00	5.005e-01	1.742	0.0815
H	3.732e-01	1.452e+00	5.124e-01	0.728	0.4664
I	4.398e-01	1.552e+00	5.255e-01	0.837	0.4027

```
J               4.571e-01  1.579e+00  5.270e-01  0.867   0.3857
K               1.022e-02  1.010e+00  5.201e-01  0.020   0.9843
L              -4.036e-01  6.679e-01  5.137e-01 -0.786   0.4320
M              -4.816e-02  9.530e-01  4.958e-01 -0.097   0.9226
N              -5.302e-02  9.484e-01  4.805e-01 -0.110   0.9121
O              -2.273e-03  9.977e-01  4.414e-01 -0.005   0.9959
P              -1.167e-01  8.898e-01  4.124e-01 -0.283   0.7772
Q              -2.975e-01  7.426e-01  3.354e-01 -0.887   0.3750
R               1.117e-01  1.118e+00  2.801e-01  0.399   0.6901
Salary         -4.182e+00  1.526e-02  7.903e-01 -5.292 1.21e-07**
*
Surgery:Female  2.464e-01  1.279e+00  1.199e-01  2.055   0.0399*
Surgery:Age    -7.454e-03  9.926e-01  5.978e-03 -1.247   0.2124
Surgery:Exper  -6.249e-04  9.994e-01  8.815e-03 -0.071   0.9435
Salary:Female   1.827e-01  1.200e+00  3.997e-01  0.457   0.6475
Salary:Age      3.405e-02  1.035e+00  1.992e-02  1.710   0.0873
Salary:Exper   -1.323e-02  9.869e-01  2.939e-02 -0.450   0.6526

Likelihood ratio test=2004  on 26 df, p=< 2.2e-16
n= 5400, number of events= 1800
> clogout13$loglik
[1] -1977.502  -975.281
> #Goodness of fit
> gofm(clogout13)
Rho-squared = 0.5068116
Adjusted rho-squared = 0.4936637
Akaike information criterion (AIC) = 2002.562
Bayesian information criterion (BIC) = 2145.446
Number of coefficients = 26
Log likelihood at start = -1977.502
Log likelihood at convergence = -975.281
```

Marginal Willingness to Pay

```
                      MWTP       2.5%      97.5%
Surgery          0.2659763  0.1552353  0.4368323
B               -0.2424034 -0.4442189 -0.1278744
C                0.0777634 -0.0915511  0.2487890
D                0.0281655 -0.1714781  0.2090899
E                0.0461685 -0.1781956  0.2643367
F                0.0875188 -0.1410092  0.3260319
G                0.2084529 -0.0236526  0.4973089
H                0.0892387 -0.1558656  0.3518281
I                0.1051544 -0.1446299  0.3836081
J                0.1092838 -0.1419983  0.3893902
K                0.0024443 -0.2576989  0.2609948
L               -0.0965063 -0.3699227  0.1529477
M               -0.0115154 -0.2629261  0.2309518
N               -0.0126762 -0.2584037  0.2203425
O               -0.0005435 -0.2240505  0.2155408
P               -0.0279099 -0.2400972  0.1737455
Q               -0.0711408 -0.2564036  0.0886426
R                0.0267001 -0.1098598  0.1689372
Surgery:Female   0.0589195  0.0027042  0.1393069
Surgery:Age     -0.0017823 -0.0047562  0.0011667
Surgery:Exper   -0.0001494 -0.0046107  0.0041261
Salary:Female    0.0436858 -0.1812847  0.2124857
```

```
Salary:Age      0.0081419 -0.0016519  0.0138700
Salary:Exper   -0.0031632 -0.0167704  0.0122298

method = Krinsky and Robb
```

Regression for Chapter 3

Basic Model in the *Formal* Sector: Clogit with Based Variable "Nosurgery", Nocrime, and "Mr. A"

```
              coef  exp(coef)   se(coef)       z        p
ASC      2.498e+01  7.076e+10  1.035e+03   0.024 0.980748
Surgery  5.619e-01  1.754e+00  5.924e-02   9.486  < 2e-16***
Crime   -1.761e+00  1.719e-01  6.648e-02 -26.486  < 2e-16***
B       -7.091e-01  4.921e-01  2.321e-01  -3.056 0.002245**
C       -6.218e-01  5.370e-01  3.143e-01  -1.978 0.047910*
D       -8.291e-01  4.365e-01  3.598e-01  -2.305 0.021190*
E       -1.443e+00  2.363e-01  4.184e-01  -3.448 0.000565***
F       -4.000e-01  6.704e-01  4.618e-01  -0.866 0.386481
G       -2.336e-02  9.769e-01  4.815e-01  -0.049 0.961312
H        5.919e-01  1.808e+00  5.040e-01   1.174 0.240204
I       -6.629e-02  9.359e-01  5.172e-01  -0.128 0.898022
J       -4.540e-01  6.351e-01  5.276e-01  -0.860 0.389557
K        5.884e-02  1.061e+00  5.335e-01   0.110 0.912179
L       -4.472e-01  6.394e-01  5.332e-01  -0.839 0.401618
M       -5.368e-01  5.846e-01  5.237e-01  -1.025 0.305378
N       -6.659e-01  5.138e-01  4.961e-01  -1.342 0.179528
O       -3.678e-01  6.923e-01  4.795e-01  -0.767 0.443089
P       -3.049e-02  9.700e-01  4.595e-01  -0.066 0.947093
Q        8.381e-02  1.087e+00  3.089e-01   0.271 0.786161
R       -1.926e-01  8.248e-01  2.244e-01  -0.858 0.390698
Salary  -2.478e+00  8.388e-02  2.059e-01 -12.036  < 2e-16***

Likelihood ratio test=3319  on 21 df, p=< 2.2e-16
n= 7344, number of events= 2448
> clogout11$loglik
[1] -2689.403 -1030.069
> #Goodness of fit
> gofm(clogout11)
Rho-squared = 0.6169897
Adjusted rho-squared = 0.6091813
Akaike information criterion (AIC) = 2102.138
Bayesian information criterion (BIC) = 2224.002
Number of coefficients = 21
Log likelihood at start = -2689.403
Log likelihood at convergence = -1030.069
```

Marginal Willingness to Pay

```
             MWTP      2.5%     97.5%
Surgery  0.226736  0.174857  0.289467
Crime   -0.710434 -0.833148 -0.618495
B       -0.286120 -0.481072 -0.103053
C       -0.250882 -0.510288 -0.005044
D       -0.334533 -0.637387 -0.051163
E       -0.582068 -0.935006 -0.255865
F       -0.161381 -0.531737  0.199752
G       -0.009425 -0.389215  0.373683
```

```
H        0.238845 -0.154533  0.647877
I       -0.026747 -0.435177  0.382006
J       -0.183184 -0.606264  0.228444
K        0.023743 -0.399620  0.446235
L       -0.180437 -0.604031  0.232606
M       -0.216604 -0.631544  0.198790
N       -0.268680 -0.661915  0.122035
O       -0.148400 -0.522425  0.233992
P       -0.012304 -0.373584  0.349306
Q        0.033818 -0.212130  0.279663
R       -0.077726 -0.256465  0.099122

method = Krinsky and Robb
```

Basic Model in the *Informal* Sector: Clogit with Based Variable "Nosurgery", Nocrime, and "Mr. A"

```
               coef  exp(coef)   se(coef)       z        p
ASC       2.278e+01  7.803e+09  9.481e+02   0.024   0.9808
Surgery   5.595e-01  1.750e+00  4.658e-02  12.013  < 2e-16***
Crime    -7.139e-01  4.897e-01  4.702e-02 -15.184  < 2e-16***
B        -7.303e-01  4.818e-01  1.859e-01  -3.928 8.56e-05***
C        -4.553e-01  6.342e-01  2.627e-01  -1.733   0.0830
D        -3.050e-01  7.371e-01  3.040e-01  -1.003   0.3157
E        -4.149e-01  6.604e-01  3.370e-01  -1.231   0.2184
F        -2.111e-01  8.097e-01  3.693e-01  -0.572   0.5676
G         3.577e-02  1.036e+00  3.871e-01   0.092   0.9264
H         6.727e-01  1.960e+00  4.015e-01   1.676   0.0938
I         6.782e-03  1.007e+00  4.106e-01   0.017   0.9868
J        -2.516e-01  7.776e-01  4.157e-01  -0.605   0.5450
K         1.476e-01  1.159e+00  4.152e-01   0.356   0.7222
L        -1.686e-01  8.448e-01  4.078e-01  -0.414   0.6792
M         8.866e-02  1.093e+00  3.973e-01   0.223   0.8234
N         2.488e-01  1.283e+00  3.773e-01   0.660   0.5095
O         2.712e-01  1.312e+00  3.569e-01   0.760   0.4472
P         4.537e-01  1.574e+00  3.307e-01   1.372   0.1702
Q         1.892e-01  1.208e+00  2.578e-01   0.734   0.4630
R         1.221e-02  1.012e+00  1.962e-01   0.062   0.9504
Salary   -1.855e+00  1.564e-01  1.555e-01 -11.927  < 2e-16***

Likelihood ratio test=2555  on 21 df, p=< 2.2e-16
n= 7344, number of events= 2448
> clogout11$loglik
[1] -2689.403 -1411.925
> #Goodness of fit
> gofm(clogout11)
Rho-squared = 0.4750043
Adjusted rho-squared = 0.4671959
Akaike information criterion (AIC) = 2865.85
Bayesian information criterion (BIC) = 2987.714
Number of coefficients = 21
Log likelihood at start = -2689.403
Log likelihood at convergence = -1411.925
```

Marginal Willingness to Pay

```
             MWTP      2.5%     97.5%
Surgery  0.301585  0.241998  0.375439
Crime   -0.384810 -0.468330 -0.318587
B       -0.393645 -0.613362 -0.193810
C       -0.245420 -0.536410  0.032430
D       -0.164391 -0.496455  0.159461
E       -0.223609 -0.592973  0.130084
```

```
F       -0.113775 -0.513930  0.271265
G        0.019280 -0.390562  0.422519
H        0.362580 -0.056487  0.794214
I        0.003656 -0.424831  0.434056
J       -0.135607 -0.583075  0.298400
K        0.079567 -0.360689  0.517189
L       -0.090892 -0.522680  0.335665
M        0.047791 -0.371058  0.472343
N        0.134127 -0.263629  0.534261
O        0.146202 -0.230267  0.524240
P        0.244532 -0.103969  0.601688
Q        0.101997 -0.173461  0.389190
R        0.006581 -0.198557  0.220550

method = Krinsky and Robb
```

Additional Model of Interaction with Respondents' \Characteristics in the *Formal* Sector

```
                     coef  exp(coef)   se(coef)      z        p
ASC              2.569e+01  1.439e+11  9.685e+02  0.027 0.978837
Surgery          1.755e+00  5.783e+00  4.215e-01  4.163 3.14e-05**
*
Crime           -2.303e+00  9.998e-02  4.399e-01 -5.235 1.65e-07**
*
B               -7.018e-01  4.957e-01  2.372e-01 -2.959 0.003085**
C               -6.300e-01  5.326e-01  3.203e-01 -1.967 0.049227*
D               -8.920e-01  4.098e-01  3.671e-01 -2.430 0.015110*
E               -1.396e+00  2.476e-01  4.237e-01 -3.295 0.000984**
*
F               -4.738e-01  6.226e-01  4.675e-01 -1.014 0.310795
G               -1.137e-01  8.925e-01  4.898e-01 -0.232 0.816401
H                4.205e-01  1.523e+00  5.130e-01  0.820 0.412407
I               -2.008e-01  8.181e-01  5.292e-01 -0.379 0.704378
J               -5.497e-01  5.771e-01  5.386e-01 -1.021 0.307443
K                1.651e-02  1.017e+00  5.446e-01  0.030 0.975814
L               -5.947e-01  5.517e-01  5.421e-01 -1.097 0.272659
M               -7.541e-01  4.704e-01  5.346e-01 -1.411 0.158382
N               -8.378e-01  4.327e-01  5.088e-01 -1.647 0.099639
O               -5.332e-01  5.867e-01  4.934e-01 -1.081 0.279841
P               -2.182e-01  8.040e-01  4.763e-01 -0.458 0.646916
Q               -6.959e-02  9.328e-01  3.246e-01 -0.214 0.830234
R               -2.480e-01  7.804e-01  2.286e-01 -1.085 0.278070
Salary          -8.706e-01  4.187e-01  1.367e+00 -0.637 0.524152
Surgery:Female  -5.662e-04  9.994e-01  1.228e-01 -0.005 0.996321
Surgery:Age     -2.741e-02  9.730e-01  1.214e-02 -2.258 0.023953*
Surgery:Exper   -4.625e-03  9.954e-01  1.243e-02 -0.372 0.709862
Crime:Female     1.827e-01  1.200e+00  1.338e-01  1.365 0.172332
Crime:Age        7.666e-03  1.008e+00  1.251e-02  0.613 0.540095
Crime:Exper      4.644e-03  1.005e+00  1.367e-02  0.340 0.734017
Salary:Female   -4.433e-01  6.419e-01  4.253e-01 -1.042 0.297248
Salary:Age      -6.882e-03  9.931e-01  3.950e-02 -0.174 0.861685
Salary:Exper    -9.560e-02  9.088e-01  4.442e-02 -2.152 0.031381*

Likelihood ratio test=3358  on 30 df, p=< 2.2e-16
n= 7344, number of events= 2448
> clogout16$loglik
```

```
[1] -2689.403 -1010.485
> #Goodness of fit
> gofm(clogout16)
Rho-squared = 0.6242718
Adjusted rho-squared = 0.6131169
Akaike information criterion (AIC) = 2080.969
Bayesian information criterion (BIC) = 2255.06
Number of coefficients = 30
Log likelihood at start = -2689.403
Log likelihood at convergence = -1010.485
```

Marginal Willingness to Pay

	MWTP	2.5%	97.5%
Surgery	2.0156311	-15.5284784	15.2490971
B	-0.8061425	-6.3135879	6.7587876
C	-0.7236033	-5.7858342	6.1719229
D	-1.0245467	-8.2400066	8.4781783
E	-1.6034500	-12.7636278	12.9241901
F	-0.5442321	-5.0338679	5.0208725
G	-0.1306079	-3.8243817	3.8866980
H	0.4829503	-5.2122541	4.9703366
I	-0.2306337	-4.2243457	4.2279494
J	-0.6313979	-5.7267973	6.0529426
K	0.0189635	-4.2406955	3.7104989
L	-0.6830796	-6.4099058	6.4742240
M	-0.8661944	-7.2525496	7.7232718
N	-0.9622695	-7.7062893	8.4136746
O	-0.6124476	-5.5498556	6.2452506
P	-0.2506163	-3.9637225	4.1798489
Q	-0.0799345	-2.4505674	2.5552270
R	-0.2848064	-2.5796038	2.8186989
Surgery:Female	-0.0006504	-0.9098158	0.8962939
Surgery:Age	-0.0314870	-0.2420823	0.2471535
Surgery:Exper	-0.0053127	-0.0940964	0.1078484
Crime:Female	0.2098137	-1.7037346	1.5934064
Crime:Age	0.0088057	-0.1039421	0.0962123
Crime:Exper	0.0053345	-0.1104034	0.1049510
Salary:Female	-0.5092262	-4.9597028	5.1288387
Salary:Age	-0.0079046	-0.2487682	0.3079286
Salary:Exper	-0.1098086	-0.7617391	0.7738589

method = Krinsky and Robb

Additional Model of Interaction with Respondents' Characteristics in the *Informal* Sector

	coef	exp(coef)	se(coef)	z	p
ASC	2.291e+01	8.863e+09	9.478e+02	0.024	0.980721
Surgery	6.421e-01	1.900e+00	1.882e-01	3.412	0.000644**
*					
Crime	-1.343e+00	2.612e-01	1.906e-01	-7.045	1.85e-12**
*					
B	-7.746e-01	4.609e-01	1.879e-01	-4.122	3.75e-05**
*					
C	-5.127e-01	5.989e-01	2.662e-01	-1.926	0.054141
D	-3.948e-01	6.738e-01	3.085e-01	-1.280	0.200707
E	-4.843e-01	6.161e-01	3.414e-01	-1.418	0.156095
F	-3.297e-01	7.192e-01	3.747e-01	-0.880	0.378964
G	-8.579e-02	9.178e-01	3.938e-01	-0.218	0.827560
H	5.336e-01	1.705e+00	4.090e-01	1.305	0.192033

```
I              -1.141e-01  8.922e-01  4.183e-01 -0.273 0.785057
J              -3.573e-01  6.996e-01  4.226e-01 -0.846 0.397822
K               6.649e-02  1.069e+00  4.217e-01  0.158 0.874724
L              -2.399e-01  7.867e-01  4.130e-01 -0.581 0.561375
M               1.096e-02  1.011e+00  4.021e-01  0.027 0.978258
N               1.553e-01  1.168e+00  3.814e-01  0.407 0.683936
O               1.777e-01  1.195e+00  3.609e-01  0.492 0.622373
P               3.428e-01  1.409e+00  3.347e-01  1.024 0.305675
Q               9.498e-02  1.100e+00  2.628e-01  0.361 0.717773
R              -7.830e-03  9.922e-01  1.987e-01 -0.039 0.968560
Salary         -6.215e-01  5.371e-01  6.272e-01 -0.991 0.321763
Surgery:Female  8.069e-02  1.084e+00  9.640e-02  0.837 0.402604
Surgery:Age    -3.275e-03  9.967e-01  4.640e-03 -0.706 0.480332
Surgery:Exper   2.675e-03  1.003e+00  7.267e-03  0.368 0.712784
Crime:Female    7.172e-02  1.074e+00  9.735e-02  0.737 0.461323
Crime:Age       2.107e-02  1.021e+00  4.690e-03  4.493 7.02e-06**
*
Crime:Exper    -3.292e-02  9.676e-01  7.374e-03 -4.465 8.01e-06**
*
Salary:Female  -3.960e-02  9.612e-01  3.223e-01 -0.123 0.902220
Salary:Age     -3.705e-02  9.636e-01  1.555e-02 -2.383 0.017160*
Salary:Exper    3.864e-02  1.039e+00  2.431e-02  1.590 0.111903

Likelihood ratio test=2594  on 30 df, p=< 2.2e-16
n= 7344, number of events= 2448
> clogout16$loglik
[1] -2689.403 -1392.583
> #Goodness of fit
> gofm(clogout16)
Rho-squared = 0.4821964
Adjusted rho-squared = 0.4710415
Akaike information criterion (AIC) = 2845.165
Bayesian information criterion (BIC) = 3019.256
Number of coefficients = 30
Log likelihood at start = -2689.403
Log likelihood at convergence = -1392.583
```

Marginal Willingness to Pay

```
                    MWTP       2.5%      97.5%
Surgery         1.033114 -10.115817   9.641591
Crime          -2.160332 -20.163362  20.558237
B              -1.246318 -11.940878  11.984212
C              -0.824883  -8.337728   7.756913
D              -0.635198  -6.565490   5.996563
E              -0.779213  -7.578661   7.897357
F              -0.530432  -6.640466   6.015432
G              -0.138035  -5.038455   4.763243
H               0.858510  -9.044650   9.105125
I              -0.183584  -5.542401   5.141160
J              -0.574883  -7.146956   6.348707
K               0.106979  -5.039927   5.284680
L              -0.385955  -5.914034   5.587662
M               0.017634  -4.847587   4.769251
O               0.285982  -5.134154   4.398860
P               0.551637  -5.882729   5.675340
Q               0.152823  -3.428785   3.283964
```

```
R               -0.012599  -2.565684   2.486237
Surgery:Female   0.129826  -1.516628   1.675520
Surgery:Age     -0.005269  -0.072176   0.064628
Surgery:Exper    0.004304  -0.094100   0.101226
Crime:Female     0.115394  -1.405723   1.468611
Crime:Age        0.033908  -0.313375   0.322801
Crime:Exper     -0.052976  -0.508702   0.512057
Salary:Female   -0.063713  -3.955087   4.334781
Salary:Age      -0.059621  -0.781463   0.808564
Salary:Exper     0.062175  -0.708386   0.733512

method = Krinsky and Robb
```

Regression for Chapter 4

The Basic Model with Based Variable: Drug or Assault

```
              coef  exp(coef)   se(coef)      z        p
ASC      2.063e+01  9.069e+08  2.072e+03  0.010 0.992059
Surgery  2.568e-01  1.293e+00  1.062e-01  2.418 0.015626*
Cer      4.545e-01  1.575e+00  1.067e-01  4.257 2.07e-05***
Prop     5.652e-01  1.760e+00  1.712e-01  3.300 0.000965***
Propvio -8.440e-01  4.300e-01  1.782e-01 -4.736 2.19e-06***
Skill    8.378e-01  2.311e+00  1.094e-01  7.658 1.89e-14***
B        1.487e-01  1.160e+00  2.962e-01  0.502 0.615542
C        3.329e-02  1.034e+00  4.315e-01  0.077 0.938496
D        1.341e-01  1.143e+00  4.826e-01  0.278 0.781149
E        1.018e-01  1.107e+00  5.125e-01  0.199 0.842607
F        6.015e-01  1.825e+00  5.348e-01  1.125 0.260733
G        1.784e-01  1.195e+00  5.202e-01  0.343 0.731590
H        2.407e-01  1.272e+00  4.821e-01  0.499 0.617610
I        3.444e-01  1.411e+00  3.987e-01  0.864 0.387696
J        3.623e-01  1.437e+00  2.985e-01  1.214 0.224817
Salary  -7.435e-01  4.755e-01  2.150e-01 -3.458 0.000544***

Likelihood ratio test=580.4  on 16 df, p=< 2.2e-16
n= 1560, number of events= 520
> clogout4$loglik
[1] -571.2784 -281.0607
> #Goodness of fit
> gofm(clogout4)
Rho-squared = 0.5080146
Adjusted rho-squared = 0.4800072
Akaike information criterion (AIC) = 594.1213
Bayesian information criterion (BIC) = 662.1826
Number of coefficients = 16
Log likelihood at start = -571.2784
Log likelihood at convergence = -281.0607
```

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Marginal Willingness to Pay

```
            MWTP     2.5%    97.5%
Surgery  0.34547  0.06373  0.96528
Cer      0.61131  0.29261  1.41851
Prop     0.76020  0.27977  1.90385
```

```
Propvio -1.13522 -2.59035 -0.59927
Skill    1.12687  0.68052  2.53959
B        0.20007 -0.62115  1.31102
C        0.04478 -1.35158  1.34203
D        0.18034 -1.30040  1.72140
E        0.13689 -1.50617  1.70289
F        0.80906 -0.69157  2.64314
G        0.24001 -1.39726  1.85774
H        0.32375 -1.15110  1.86609
I        0.46326 -0.66521  1.86415
J        0.48736 -0.34610  1.64239

method = Krinsky and Robb
```

The Basic Model with Based Variable: Property

```
              coef  exp(coef)   se(coef)      z        p
ASC      2.115e+01  1.532e+09  2.086e+03  0.010 0.991910
Surgery  2.608e-01  1.298e+00  1.068e-01  2.442 0.014594*
Cer      4.595e-01  1.583e+00  1.073e-01  4.280 1.87e-05***
Drug    -6.081e-01  5.444e-01  1.792e-01 -3.394 0.000689***
Propvio -1.352e+00  2.587e-01  2.012e-01 -6.721 1.80e-11***
Assault -4.602e-01  6.311e-01  2.121e-01 -2.170 0.029996*
Skill    8.399e-01  2.316e+00  1.096e-01  7.665 1.78e-14***
B        1.534e-01  1.166e+00  2.978e-01  0.515 0.606432
C        5.199e-02  1.053e+00  4.299e-01  0.121 0.903752
D        1.597e-01  1.173e+00  4.818e-01  0.331 0.740334
E        1.122e-01  1.119e+00  5.121e-01  0.219 0.826535
F        6.196e-01  1.858e+00  5.353e-01  1.158 0.247064
G        2.056e-01  1.228e+00  5.219e-01  0.394 0.693545
H        2.458e-01  1.279e+00  4.815e-01  0.510 0.609730
I        3.464e-01  1.414e+00  4.007e-01  0.864 0.387349
J        3.559e-01  1.427e+00  2.987e-01  1.191 0.233509
Salary  -7.445e-01  4.750e-01  2.152e-01 -3.459 0.000542***

Likelihood ratio test=581.1  on 17 df, p=< 2.2e-16
n= 1560, number of events= 520
> clogout2$loglik
[1] -571.2784 -280.7061
> #Goodness of fit
> gofm(clogout2)
Rho-squared = 0.5086351
Adjusted rho-squared = 0.4788773
Akaike information criterion (AIC) = 595.4123
Bayesian information criterion (BIC) = 667.7273
Number of coefficients = 17
Log likelihood at start = -571.2784
Log likelihood at convergence = -280.7061
```

Marginal Willingness to Pay

```
            MWTP     2.5%    97.5%
Surgery  0.35036  0.07241  0.97828
Cer      0.61716  0.30418  1.50449
Drug    -0.81684 -2.15066 -0.31844
Propvio -1.81607 -4.18836 -1.06275
```

```
Assault -0.61816 -1.74620 -0.04961
Skill    1.12824  0.68312  2.64421
B        0.20607 -0.64288  1.31334
C        0.06983 -1.36045  1.43308
D        0.21448 -1.27723  1.74202
E        0.15075 -1.47327  1.66997
F        0.83226 -0.67103  2.78285
G        0.27623 -1.37136  1.92971
H        0.33016 -1.15500  1.91661
I        0.46524 -0.70039  1.88796
J        0.47802 -0.34567  1.62552

method = Krinsky and Robb
```

The Basic Model with Based Variable: Propvio

```
              coef   exp(coef)  se(coef)       z        p
ASC      1.980e+01  3.964e+08  2.086e+03  0.009 0.992427
Surgery  2.608e-01  1.298e+00  1.068e-01  2.442 0.014594*
Cer      4.595e-01  1.583e+00  1.073e-01  4.280 1.87e-05***
Drug     7.439e-01  2.104e+00  2.142e-01  3.473 0.000514***
Prop     1.352e+00  3.865e+00  2.012e-01  6.721 1.80e-11***
Assault  8.918e-01  2.440e+00  1.880e-01  4.744 2.09e-06***
Skill    8.399e-01  2.316e+00  1.096e-01  7.665 1.78e-14***
B        1.534e-01  1.166e+00  2.978e-01  0.515 0.606432
C        5.199e-02  1.053e+00  4.299e-01  0.121 0.903752
D        1.597e-01  1.173e+00  4.818e-01  0.331 0.740334
E        1.122e-01  1.119e+00  5.121e-01  0.219 0.826535
F        6.196e-01  1.858e+00  5.353e-01  1.158 0.247064
G        2.056e-01  1.228e+00  5.219e-01  0.394 0.693545
H        2.458e-01  1.279e+00  4.815e-01  0.510 0.609730
I        3.464e-01  1.414e+00  4.007e-01  0.864 0.387349
J        3.559e-01  1.427e+00  2.987e-01  1.191 0.233509
Salary  -7.445e-01  4.750e-01  2.152e-01 -3.459 0.000542***

Likelihood ratio test=581.1  on 17 df, p=< 2.2e-16
n= 1560, number of events= 520
> clogout3$loglik
[1] -571.2784 -280.7061
> #Goodness of fit
> gofm(clogout3)
Rho-squared = 0.5086351
Adjusted rho-squared = 0.4788773
Akaike information criterion (AIC) = 595.4123
Bayesian information criterion (BIC) = 667.7273
Number of coefficients = 17
Log likelihood at start = -571.2784
Log likelihood at convergence = -280.7061
```

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Marginal Willingness to Pay

```
            MWTP     2.5%    97.5%
Surgery  0.35036  0.07034  1.01513
Cer      0.61716  0.30171  1.50700
Drug     0.99923  0.39753  2.43960
Prop     1.81607  1.06503  4.21912
```

```
Assault  1.19791  0.63239  2.79595
Skill    1.12824  0.67700  2.65328
B        0.20607 -0.63282  1.32896
C        0.06983 -1.34116  1.42374
D        0.21448 -1.28247  1.74769
E        0.15075 -1.50835  1.76910
F        0.83226 -0.67592  2.81237
G        0.27623 -1.38979  1.94401
H        0.33016 -1.17487  1.90498
I        0.46524 -0.70867  1.85239
J        0.47802 -0.34871  1.60292
method = Krinsky and Robb
```


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