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RESEARCH PAPER

Valuing Men's Preferences Regarding Military Service Using the Discrete Choice Experiment

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Abstract

The main concern of this research is to examine military service from the perspective of individual preferences. The study aims to determine the most important factors affecting individual utility in military service by evaluating preferences regarding attributes of military service in Iran using a discrete choice experiment. Location, department, type, salary, and period of service (length) are the attributes of military service under the conditions in Iran. The results of the model indicate that the location of service was the most important attribute for individuals, followed by type, salary, length, and department. The individuals in question were willing to pay up to 570 USD to serve in their own city and 174 USD to serve for three months less. The results indicate that the most effective measure in reducing the disutility of military service is to avoid moving people from the city of residence for service. The results also showed that experiencing military service will not affect preferences regarding the ranking of attributes.

Keywords: conscription, discrete choice experiment, draft, iran, military service.
JEL Classification: C50, C90, J18, J48, K20.

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Introduction

Military service is an important part of the lives of young men in many countries. From an economic point of view, military service can be considered as a type of tax that is imposed on individuals (usually male citizens of countries) instead of on goods. So, it is evident that this tax is supposed to have a significant economic impact on the lives of individuals. Accordingly, the study of various dimensions of military service has been considered by economists since the 1960s (the works of Hansen and Weisbrod (1967) and Fisher (1969) are two examples of early studies). Besides that, as Fize and Sidois (2020) have claimed, there have been signs of increasing attention on military service worldwide in recent years. Lithuania and Ukraine, for example, revived their military service in 2015, and in France, Emmanuel Macron (the current president) proposed reviving a new form of compulsory military service as one of his campaign promises[1].

As mentioned, economic researchers have studied various aspects of military service. However, the comparison of two alternative models—namely conscription and the all-volunteer force—has been considered by economists more than by scholars in other fields. As Bauer et al. (2012) point out, a significant number of economic studies regard the all-volunteer force as the superior option due to the structural inefficiencies and potential long-term costs associated with conscription. Nevertheless, the reason for the persistence of conscription despite these drawbacks is its lower immediate cost compared to a volunteer system. They argue that this explains why various forms of conscription are still practiced across large parts of South America, Africa, and Asia, whereas countries that have adopted the all-volunteer force, such as those in North America and Western Europe, remain the exception.

Apart from comparing conscription and the all-volunteer system, the more recent literature in the field examines a variety of aspects of military service. For example, Poutvaara and Wagener (2007) considered military service as a tool for intergenerational transmission. They believed that intergenerational transfers can partly explain the persistence and political attractiveness of conscription despite all its inefficiencies. The research by Torun and Tumen (2016) explored the effects of compulsory military service exemption on education and the labor market in Turkey. They concluded that continuing education at higher levels is partly driven by the postponement of military service. Torun (2019) also studied

[1]. "[...] re-establishing a compulsory national service is absolutely necessary, not only to teach citizens how to adapt to the [terrorist] threat, but also to strengthen national cohesion." Emmanuel Macron, April 18, 2017.

the effect of military service on labor force participation and used the abolition of conscription in Spain as a case study. He concluded that the abolition of compulsory military service increased the participation of teenagers in the labor market compared to those in their twenties and reduced their unemployment rate. He also stated that the labor market participation of teenagers in Turkey (which has compulsory military service) is lower than in countries like Peru and Argentina, even though the labor force participation rate of men in their twenties is relatively similar between Turkey and these countries. On the other hand, Hou et al. (2020), by examining the case of China, found that military service can significantly increase the off-farm employment and income of rural men. They stated that the increase in income is due to the improvement of access to urban job positions and the growth of human capital accumulation. Meanwhile, Lyk-Jensen (2018), by examining the Danish draft lottery, concluded that although military service disrupts continuing education at the age of 25, it has not had an impact on unemployment on average. Several studies have been done on the impact of conscription on education and the labor market, such as the studies by Bauer et al. (2012), Grenet et al. (2011), and Card and Cardoso (2012) for Germany, Britain, and Portugal, respectively.

One of the different approaches in the literature that looks at military service as regulation is how military service is considered in terms of implementation costs. Specifically, the study by Mulligan and Shleifer (2005) addresses this issue. They pointed out that countries that tend to employ broad regulation across many sectors also use compulsory military service more than other countries. The capacity of conscription to absorb fiscal expenditure shocks is another issue addressed in studies such as Siu (2008). He argued that in the event of a large, unusual expenditure shock, conscription can absorb the shock by providing the government with inexpensive labor, thereby reducing tax distortions. Finally, Fize and Sidois (2020) explored the effect of compulsory military service on voter turnout and political preferences, identifying a positive and significant effect on turnout. The same issue, namely the effect of military service on electoral engagement, is also studied in the United States by Leal and Teigen (2018). They concluded that military service increases the probability of voting; in particular, the increase is greatest among those with the lowest levels of education. In another study, Cáceres-Delpiano et al. (2021) studied the effect of conscription (in the form of a lottery in which conscripts are randomly assigned to different regions to serve) on national identity and participation in elections in Spain. The results show that for those with a weaker national

identity, serving in other areas (other than the area of residence) significantly strengthens national identity and the likelihood of voting.

Another related issue is the impact of military expenditure—typically higher under a voluntary system—on economic growth. This has been studied extensively, especially in the Middle East. For instance, Mowlaei and Golkhandan (2015) studied the impact of military expenditure on economic growth in oil-exporting and non-oil-exporting countries. They concluded that military spending has a negative effect on growth in Middle Eastern countries, an effect that is more pronounced in oil-exporting ones.

As noted, a significant portion of economic studies on military service has focused on comparing the two alternatives, conscription and the all-volunteer system, while the newer literature in this field examines the effects of military service on labor market outcomes and education. In general, most economic studies in this field are either theoretical or based on statistical data analysis.

On the other hand, military service policy has a lot to do with men's lives. Therefore, men's preferences in this regard are highly important. However, studies that assess preferences using an experimental approach have been somewhat neglected (at least according to the authors' search results). More precisely, the lack of empirical micro-studies in this subject is noticeable. To be more precise, this research has studied military service with a novel approach. The approach considers military service from the perspective of individual preferences. This approach evaluates individual preferences toward specific attributes of military service, which can then inform policymaking in this area. In other words, the economic valuation of military service attributes based on individual preferences, in addition to enabling a more accurate assessment of the costs and benefits of military service, will allow policymakers to measure the social and economic consequences of their decisions. Discrete choice experiment (DCE) can be an appropriate tool for this study.

In a DCE, the attributes affecting individual preferences regarding the subject are first identified. In the case of military service, these attributes include items such as length of service, location, type of service, salary paid, and so on. In the next step, levels of attributes are identified and individuals are asked to state their preferences by choosing alternatives designed by the researcher that will be combinations of different levels of the attributes. The stated choices enable the researcher to quantitatively extract preferences for each of the attributes as well as the willingness to pay for each of them.

The literature on discrete choice experiments is primarily focused on fields such as environmental economics and health economics. But the application of these models in more diverse areas such as military service is novel.

In addition to the novelty of the preference assessment approach, there is another reason for using the approach, and that is the limitation in accessing official data in this field. One of the most significant limitations in studying military service in Iran is the lack of official and reliable data. There is no statistical data limitation in DCE because this approach uses stated preferences instead of revealed preferences (this will be explained in section 3). In the realm of economic research, the situation is even more limited, as this appears to be one of the first studies to examine military service in Iran from an economic perspective.

Furthermore, as social debates about military service in Iran have intensified in recent years, there is a growing need for quantitative studies that can provide policymakers with a more accurate assessment of the costs and benefits of their decisions (Compulsory Military Service (CMS) has been in place in Iran since 1925, but the system and its social drawbacks have been widely debated in recent years). For example, in recent years, the Islamic Consultative Assembly (Parliament) has aimed to reduce the disutility of military service by increasing soldiers' salaries through annual budget laws. However, the question arises whether salary is indeed the most important factor or if other factors play a greater role. Studies that could provide answers to such questions are lacking. In other words, identifying the primary factor contributing to the disutility of military service remains an unresolved issue in Iran, yet it is necessary for effective policymaking in this field.

To be more precise, in this paper, we are looking for answers to the following questions:

• Among the attributes of military service in Iran, which attribute is the most important and which is the least important for men?
• Which of the military departments is more popular for military service?
• How much are men willing to pay to serve in their hometown?
• How much are men willing to pay for one less month of service?
• How much are men willing to pay to serve in their preferred military department?

The remainder of this paper is structured into six sections: Section 2 describes the setting of military service in Iran, Section 3 explains the methodology, Section 4 deals with the survey experiment, Section 5 presents the

results of the experiment, Section 6 is discussion and finally, Section 7 concludes the paper.

Military Service in Iran

Iran's Military Service Law was first enacted in 1925. After the Islamic Revolution (1979), the Law on Military Service was amended in 1984 and 2011. According to the law (Article 2), all males aged 18 are liable for military service. The enjoyment of certain rights, such as employment in government institutions and obtaining loans from state-owned banks, is contingent upon completion of military service.

The law provides three types of exemptions (Chapter 4 of the Military Service Law): educational exemptions (students are exempt from military service as long as they continue their education), medical exemptions, and substitution exemptions. The latter applies to individuals who are the only son in the family and whose father is unable to manage his own affairs, or in other cases where the individual is the sole caretaker for family member(s), provided there are no other male children in the family.

In Iran, the length of service varies from 18 to 24 months, depending on the type of service. In general, there are four types of military service in Iran: 1) service in conflict zones (security areas) lasting 18 months; 2) service in deprived regions with harsh weather conditions (these regions include many border and less developed areas; the list is published annually by the Military Service Organization) for 19 months; 3) regular service, which entails serving in the armed forces and security units in standard regions for 21 months; and 4) "Prescript" service, which involves serving in civilian agencies, for a duration of 24 months.

More details regarding the fourth type are warranted. According to the law (Article 66), the armed forces are obligated to allocate a number of conscripts to the government upon request from government agencies. These requests can be for relief, production, agricultural, educational, research, health, or medical purposes, provided that military readiness is not compromised. It is important to note that all conscripts assigned to government agencies must complete requisite military training courses before commencing their civilian service. It should be noted that historically, the length of service also depended on the conscript's level of education, with individuals holding higher degrees serving fewer months. This provision was repealed in 2011. Currently, service duration is reduced by 3 months per child for conscripts who are fathers.

In Iran, the majority of conscripts serve in one of three main military organizations: the Army, the Islamic Revolutionary Guard Corps (IRGC), or the Law Enforcement Force (Police). A smaller number serve in the Ministry of Defense and public agency protection units. As previously noted, another group serves in civilian agencies under the 'Prescript' system.

According to the law (Article 49), a conscript's salary should be between 60% and 90% of the minimum salary for regular armed forces staff. However, in practice, the salaries paid are often lower than this statutory minimum; for example, in 2020, the average conscript salary was 4.8 million Rials (approximately 114 USD), whereas the national minimum wage for employees that year was about 25 million Rials (approximately 595 USD). Nevertheless, the government's proposed budget bill for 2021 raised this figure to 13.5 million Rials (approximately 320 USD).

The most significant general change in Iran's military service policy over the past few decades has been the introduction of monetary payments (a form of tax) in exchange for exemption. A more recent variant of this is the 'absenteeism penalty'. The possibility of obtaining an exemption through payment was first introduced between 1998 and 2001. This option was reintroduced between 2015 and 2018. The key difference in this later phase was that only conscripts who had been in absentia for eight years or more (meaning they had failed to report for service despite being eligible) could obtain an exemption by paying an 'absenteeism penalty'. The fine in this recent phase ranged from 100 to 500 million Rials (approximately 2,900 to 14,500 USD), depending on the individual's level of education. For context, the minimum wage in 2015 was about 9 million Rials (approximately 260 USD). However, this exemption came with restrictions: individuals who obtained an exemption through this penalty were barred from running for parliament or city councils, and from holding managerial positions in government agencies.[1]

Methods and Materials

In general, when a market exists for a commodity, valuation through revealed preferences is feasible. In the absence of a market, revealed preferences are replaced by stated preferences. When using stated preferences, individuals are asked to express their preferences under the specific conditions presented to them.

[1]. It should be noted that the setting described in this section is related to the end of 2020 (the time of this research).

In this study, a discrete choice experiment (DCE) approach is employed, utilizing specifically the conditional logit model. The theoretical foundation of this model can be effectively explained through the random utility framework. This method assumes the existence of a latent variable representing an individual's utility derived from choosing one of the available alternatives. This latent utility can be specified as a function of either individual characteristics or the attributes of the alternatives (as explanatory variables), with each specification leading to a different type of discrete choice model.

If the random utility is a function of alternative attributes, the conditional logit model is applicable (It should be noted that in this case, the probit function is also applicable, but due to the extreme computational complexity that in many cases makes it impossible to estimate, the logit function, in terms of a limiting hypothesis (IIA hypothesis, which will be referred to later) is used). Accordingly, this model estimates separate parameters for each attribute. In this case, we have:

$$U_{ij} = X'_{ij}\beta + \varepsilon_{ij} \;\Rightarrow\; P_{ij} = P(y_i = j) = P\left(\left(X'_{ij} - X'_{ik}\right)\beta > \varepsilon_{ik} - \varepsilon_{ij}\right) \;;\; for\ any\ k \neq j \quad (1)$$

where U_{ij} is the utility of person i from choosing alternative j, which is a latent variable; X_{ij} represents attributes vector; and P_{ij} stands for the probability that the ith individual chooses the jth alternative. Here, we need two assumptions about the error term ε_{ij}: the first assumption is the independence of individual choice[1] (meaning that the choice of each individual will not be affected by the choice of others) and the second assumption is the independence of irrelevant alternatives (IIA). Using this assumption means that in the comparison between the two alternatives, the other alternatives are irrelevant. A well-known example used by Cameron and Trivedi (2009) is the choice between the three alternatives of car, red bus, and blue bus for transportation. Hypothesis IIA states that the blue bus is irrelevant when comparing a car and a red bus. However, we expect that the addition of the blue bus will affect the choice. Therefore, in some cases, the invalidity of the assumption is evident. However, there are methods to relax the assumption that will be addressed. The two assumptions can be satisfied by the assumptions of the IID on the error terms with extreme value distribution[2]. McFadden (1973) proved that under these assumptions, the probability P_{ij} follows the logit function, specified as follows:

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[1]. $cov\left(\varepsilon_{ij}\,.\,\varepsilon_{ik}\right) = 0 \;\; for\ i \neq j\ and\ all\ \ j\&k = 1.\ldots.m$

[2]. $F(t) = \exp\left(-\exp(-t)\right)$

$$P(y_i = j) = \frac{e^{X'_{ij}\beta}}{\sum_{k=1}^{M} e^{X'_{ik}\beta}} \quad ; \quad j.k = 1; \dots; M \tag{2}$$

By obtaining the probabilities, it will be possible to form the likelihood function. The likelihood function will be as follows:

$$\ln L = \sum_{i=1}^{n}\sum_{j=1}^{m} Y_{ij} \log P_{ij} = \sum_{i=1}^{n}\left(\sum_{j=1}^{m} Y_{ij} X'_{ij}\beta - \log \sum_{k=1}^{m} e^{X'_{ik}\beta}\right) \tag{3}$$

where Y_{ij} is 1 if $Y_i = j$ and zero if $Y_i \neq j$. In this model, the coefficients are not directly interpretable and the marginal effects, odd ratios, or uptake rates can be used to analyze the results. The important output of these models is the willingness to pay for each of the attributes so that if there is a monetary attribute in the model, the willingness to pay for all the attributes can be calculated from the following formula:

$$WTP_j = -\beta_j \Big/ \beta_{monetary\ attribute} \tag{4}$$

However, another important assumption in this model is the homogeneity of individual preferences, meaning that all individuals have the same preferences for the attributes. The solution to relax this assumption is to use a logit model with random parameters (or mixed logit). In this model, all parameters are assumed to have a certain distribution (for example, normal), thus, an average and a standard deviation is calculated for each parameter (under these conditions, the IIA assumption is not required). This means the heterogeneity of individual preferences. In this case, the random utility model would be as follows:

$$U_{ij} = X'_{ij}\beta_i + \varepsilon_{ij} \ ; \ U_{ij} = X'_{ij}\beta + X'_{ij}v_i + \varepsilon_{ij} \ ; \ \beta_i = \beta + v_i \ ; \ v_i \sim N(0.\Sigma_\beta) \tag{5}$$

Where β is the average of the parameter derived from the preferences and β_i is the parameter specific to each individual.

Survey Experiment

To perform the discrete choice experiment, the attributes of the military service and their levels must first be specified. These attributes are the geographical location of service, department, type of service, length of service, and monthly salary (in fact, according to Section 2, these attributes are all the attributes of military service in Iran). The attributes and their levels, according to what was mentioned in Section 2, are specified in Table 1. The salary levels chosen were significantly higher than those currently practiced. There are two reasons for this. First, attribute levels must be selected in such a way that makes a significant difference for individuals; if the salary levels are chosen according to the current

condition, due to the low amounts, the alternatives would not be significantly different to individuals in this regard. Second, in the discrete choice experiment, there is no need to match the attribute levels with their levels in reality, because in the experiment, the respondents state their preferences subject to the situation assumed for them (subject to the hypothetical conditions). However, as mentioned in Section 2, the government has proposed a significant increase in the salaries of conscripts in its proposed budget bill for 2021, which is closer to the amounts provided for the survey.

Table 1. Attributes and Their Levels

Attribute	Length	Location	Department	Type	Salary
Levels	18 (1)	City of residence (1)	Civilian agencies (1)	Prescript (1)	10 million Rials
	21 (2)	The neighboring province of residence (2)	IRGC (2)	Normal regions (2)	20 million Rials
	24 (3)	A distant province (3)	Army (3)	Deprived regions (3)	30 million Rials
			Police (4)	Security areas (4)	

Source: Research finding.
Note: The numbers in parentheses are the codes assigned to the levels in the model. Length is in months. One million Rials is about 24 USD.

Considering the attributes and their levels, 432 alternatives can be created by combining different levels of attributes, which need to be limited. There are several criteria for extracting optimal alternatives; we used the I-optimality criterion to extract them.

At first glance, it seems that the "Location" and "Type" will be highly correlated because both are related to the type of place (three of the four levels of the "Type" of service are related to the type of place), but in fact, each of these two attributes focuses on different dimensions of the military service in Iran. For example, military service in a distant province can take up any of the three types of normal, deprived or security regions, or service in a neighboring province can take on any of the three types of prescripts, or serve in normal or deprived regions. On the other hand, some of the combinations that could have been problematic were eliminated (because they were unlikely to occur). For example, service in security areas was only combined with service in distant provinces.

By extracting the optimal alternatives and also discarding the unusable alternatives (for example, the prescript is only compatible with civilian agencies), 32 alternatives were used in the survey, which we set into 16 choice sets. It should be noted that the choice sets have been arranged in two alternatives to facilitate comparison for respondents and make the answers more accurate. Moreover, in each survey, four choice sets were randomly presented. For example, respondents were asked four questions such as the following (in the appendix, all 16 choice sets with the number of their responses are presented):
"Which of the following two conditions do you prefer for military service?

1. Location: The neighboring province of residence/ Department: IRGC/Type: Deprived regions/Length: 24 months/Salary: 30 million Rials
2. Location: A distant province/ Department: Police/Type: Normal regions/Length: 18 months/Salary: 30 million Rials"

Results

The population of the study was all Iranian male citizens aged 18 to 50 (those who are subject to military service by law). The experiment was conducted in November and December 2020, with the respondents filling out questionnaires online. Using data extracted from a sample of 449 respondents, the model was estimated with 3262 observations (in 1631 choice sets, given that not all individuals answered all 4 choice sets). The average age of the respondents was 28.7 years (with a minimum of 18 and a maximum of 50 years). Other general characteristics of the respondents are presented in Table 2.

Table 2. Respondent Characteristics

Characteristic	Levels	Percentage	Characteristic	Levels	Percentage
Marital status	Single	56	Occupational status	Full-time employee	45
	Married	44		Part-time employee	28
Level of education	High school	0.7		Unemployed	27
	Diploma[1]	7	Military service condition	Subjected	42
	Bachelor	29		Exempted	19
	Master	43		Conscript	9
	PhD	19		Finished	30
Province	Tehran	60	Monthly	Less than 25	14

[1]. secondary school certificate

	(capital)		household income		
	Other provinces	40		Between 25 and 50	29
Educational status	Student	55		Between 50 and 70	25
	Nonstudent	45		More than 70	32

Source: Research finding.
Note: Incomes are in million Rials (one million Rials is about 24 USD).

It is worth noting that in conditional logit models, the attributes are entered into the model as variables. The general characteristics of respondents are not considered as control variables. It is also necessary to mention that when estimating the model, the levels for each attribute were coded according to what is shown in Table 1.

The results of estimating the conditional logit and the mixed logit model (MLX) are presented in Table 3. As can be seen from the results, all the coefficients of both models are quite significant. As expected, the sign of the salary coefficient is positive, indicating that an increase in salary increases individual utility and, consequently, the probability of choosing the alternative. The negative coefficient of the department indicates that respondents prefer to serve in civilian agencies over the military ones (serving in government organizations might improve an individual's future career prospects, and in some cases even allow them to stay with the same organization), to serve in the IRGC over the army, and to serve in the army over the police. Preferring the IRGC over the army could be due to the IRGC's better welfare facilities for soldiers. However, the IRGC and army are preferred over the police since working in the police is tough because soldiers in the police are directly involved in crime, whereas the IRGC and army are not necessarily. It can be concluded that the determination of salaries according to the department in which the person serves (so that the salaries of soldiers in the police are determined higher than in the army and the IRGC) is more optimal.

The coefficient sign related to the type of service also indicates the fact that prescript is the most favored type of military service (a predictable outcome, because presidial service is usually more difficult than civilian service). Furthermore, as we expected, respondents prefer to serve in normal regions rather than deprived regions, and to serve in deprived regions rather than security areas.

The significance of standard deviation related to the location of service and the department in MLX indicates the heterogeneity of preferences of the two

attributes. This means that individuals with different characteristics have different preferences regarding these two attributes. However, individual preferences regarding the type and the length of service are homogeneous.

Table 3. The Results of Conditional and Mixed Logit Model

	Clogit			MXL		
	Coef	**WTP**	**Uptake rate**	**Coef**	**SD**	**WTP**
Location	-0.935***	20,194,384	44%	-2.028***	2.237**	24,492,754
	(0.089)			(0.674)	(1.058)	
Department	-0.236***	5,097,192	12%	-0.330***	1.193*	3,985,507
	(0.042)			(0.102)	(0.720)	
Type	-0.504***	10,885,529	25%	-1.079**	0.027	13,031,401
	(0.125)			(0.459)	(1.360)	
Length	-0.266***	5,745,140	13%	-0.609***	0.126	7,355,072
	(0.049)			(0.228)	(0.989)	
Salary	0.463***		23%	0.828***		
	(0.048)			(0.252)		
Log Likelihood	-1038.05			-1030.35		
Prob > chi2	0.0000			0.0104		
Observations	3262			3262		

Source: Research finding.

Note: The symbols *, **, and *** indicate significance at the level of 10, 5, and 1 percent, respectively. The numbers in parentheses are the standard deviation of the estimated values. Willingness to pay is in Rials. One million Rials is about 24 USD.

Direct interpretation of coefficients in these models has little practical relevance, and the analysis of WTPs and Uptake rates is what matters. Therefore, we will focus on these two.

Although the coefficients of the two models are different, the values of willingness to pay calculated from the coefficients of the two models are exactly the same in terms of ranking and are not practically different. The comparison of willingness to pay values indicates the relative importance of attributes for individuals. The results show that the most important attribute for individuals is the location of service, followed by the type of service, length, and department.

One thing to note about the WTP values is that they represent the average of the WTP. In other words, it is natural to expect that the willingness to pay to serve in a neighboring province rather than a distant province would be different from the willingness to pay to serve in a city of residence rather than a

neighboring province. However, there is only one WTP for "Location", which is the average of the WTP for the various levels of the attribute. The same is true for other attributes except for "Length". For example, the estimated "24 million Rials (570 USD) WTP" for the "Location" attribute means that the respondents would on average be willing to pay 24 million Rials (570 USD) to serve "one distance measure closer to home" (i.e., in the city of residence instead of the neighboring province or the neighboring province instead of a distant province). Similarly, 4 million Rials (95 USD) WTP estimated for " department " means that the respondents would on average be willing to pay 4 million Rials to change from "Police" to "Army" or from "Army" to "IRGC" or from "IRGC" to "Civilian Agency"; and that 13 million Rials (310 USD) WTP for "Type" means that the respondents would on average be willing to pay up to 13 million Rials to change from serving in normal regions (presidial service) to prescript (civilian service) or from serving in deprived regions to normal regions and so on. Finally, the respondents are willing to pay an amount of 7.3 million Rials (174 USD) to serve for three months less.

Another application of the conditional logit model is to calculate Uptake rates. These values indicate the difference between the probability of choosing two alternatives that differ in only one attribute. Table 3 shows the values per attribute. For example, the first row is the difference between the probability of choosing two alternatives that differ only in the location of the service with the other attributes being constant. To be more specific, for example, if the salary rises from 1 to 2 million Rials, the increase in the probability of choosing the alternative is calculated using the following formula (the probability of preferring alternative j over alternative k can be computed using the formula: $P_j = \frac{e^{X'_j\beta}}{\sum e^{X'_k\beta}}$, as mentioned in Section 3):

$$P_{salary=2} - P_{salary=1} = \frac{e^{0.463(2)} - e^{0.463(1)}}{e^{0.463(2)} + e^{0.463(1)}} = 0.23 \quad (6)$$

It is worth mentioning that the rate obtained by comparing salaries of 1 and 2 million Rials is equal to the rate obtained by comparing 2 and 3 million Rials. In other words, changing the location in an alternative from a neighboring province to the city of residence increases the probability of choosing that alternative by 44%. Similarly, if the department changes from the IRGC to the army (or the army to the police and so on), the probability of choosing the alternative is reduced by 12%, and so on for other attributes. The uptake rates show the same ranking of willingness to pay, except that salary is also present in

this ranking. The results show that the location of service is the most important attribute in individual preferences, followed by the type, salary, and length of service. The results also indicate that the department has the least perceived importance in individual preferences for military service.

To get a more accurate view of the WTP values, we can also calculate the WTP for different levels of attributes (instead of the average WTP) by changing the coding of attribute levels in the model. A dummy variable should be assigned to each attribute level for this purpose in a way that for each level, we have a two-state variable. For instance, for the first level of the "Location" attribute, we will have a variable dichotomized between 1=in the city of residence and 0=outside the city of residence (In the previous case, we had a variable for each attribute that takes the value of 1= in the city of residence, 2=neighboring province, and 3=a distant province). For other levels, variables are created in the same way. We must set one level as the base (default) and estimate the coefficients for all other levels of the attribute. The coefficients are then interpreted as compared with the base level. Table 4 shows the model estimation results for the case where the levels of the "Location" and "Type" are coded as described ("city of residence" and "prescript" are considered as base levels for "Location" and "Type" respectively). The results of the estimation in this way also show the same ranking as before, so that the highest WTP is related to the "Location", followed by the "Type", "Length" and "Department". According to the results of the model, the respondents are willing to pay about 16 million Rials (380 USD) to serve in the city of residence rather than the neighboring province and that they are willing to pay about 38.5 million Rials (916 USD) to serve in the city of residence rather than a distant province (WTP for a two-level change from a distant province to the city of residence). Similarly, the respondents are willing to pay about 15.7 million Rials (375 USD) to serve in the form of prescript rather than to serve in the form of presidial in normal regions; they are willing to pay about 28.5 million Rials (680 USD) to serve in the form of prescript rather than to serve in the form of presidial in deprived regions (WTP for a two-level change); and they are willing to pay about 32.7 million Rials (780 USD) to serve in the form of prescript rather than to serve in the form of presidial in security areas (WTP for a three-level change).

These results demonstrate that an effective and low-cost way to reduce the disutility of military service can be serving individuals in their own cities. Increasing the prevalence of prescript can also have a significant impact on reducing the disutility of military service.

Table 4. The Results of Conditional Logit Model

	Coefficient	Standard error	WTP
Location_ Neiboring province	- 0.812***	0.240	16,079,208
Location_ Distant province	- 1.943***	0.293	38,475,248
Type_ Normal regions	- 0.797**	0.364	15,782,178
Type_ Deprived regions	- 1.440***	0.451	28,514,851
Type_ Security areas	- 1.654***	0.558	32,752,475
Department	- 0.204***	0.062	4,039,604
Length	- 0.292***	0.061	5,782,178
Salary	0.505***	0.076	
Log Likelihood	- 1033.55		
Prob > chi2	0.0000		

Source: Research finding.

Note: The symbols *, **, and *** indicate significance at the level of 10, 5, and 1 percent, respectively. Willingness to pay is in Rials. One million Rials is about 24 USD.

The presentation of model estimation results for different subgroups of respondents is another notable finding. Table 4 shows the results of the model estimation (coefficients of conditional logit) of military service conditions of individuals. The results show homogeneity of preferences across different subgroups; that is, the ranking of attributes in terms of importance is the same for all subgroups. It is important to note that this 'sameness' refers to the identical ranking of attributes, not to identical preference strengths for each attribute. This result indicates that experiencing military service will not affect preferences regarding the ranking of attributes. The average of WTPs for conscripts and subjected ones is higher than other subgroups—probably because they feel more exposed to military service.

Table 5. The Coefficients of Clogit Model for Different Subgroups of Respondents

	Subjected		Exempted		Conscript		Finished	
	Coef	**WTP**	**Coef**	**WTP**	**Coef**	**WTP**	**Coef**	**WTP**
Location	- 0.98***	24.5	- 0.79***	15.2	- 1.55***	22.1	- 0.85***	17.7
Department	- 0.26***	6.5	- 0.07	-	- 0.45***	6.4	- 0.26***	5.4
Type	- 0.62***	15.5	- 0.71***	13.6	- 0.36	-	- 0.32	-
Length	- 0.24***	6	- 0.38***	7.3	- 0.44**	6.3	- 0.22**	4.6
Salary	0.40***		0.52		0.70***		0.48***	
Log likelihood	- 430.3		- 206.8		- 78.5		- 310.8	
Prob > chi2	0.000		0.000		0.000		0.000	
Observations	1340		654		288		980	

Source: Research finding.

Note: The symbols *, **, and *** indicate significance at the level of 10, 5, and 1 percent, respectively. Willingness to pay is in million Rials. One million Rials is about 24 USD.

Discussion

We wanted to know which attribute of military service is the most important and which is the least important from the perspective of men's preferences. The results showed that the location of service is the most important attribute in individual preferences. In other words, men strongly prefer to serve in their city of residence. The separation of the model results for different subgroups of respondents also showed that the importance of location is greater for men who have not yet experienced military service. This result can somehow be related to the result of González Chapela (2021). His study focuses on the relationship between conscription and labor migration in France. He concludes that the willingness to migrate for work is significantly lower among those waiting to be called up for military service. He also concludes that French men with higher socioeconomic status are more inclined to migrate for work after experiencing military service.

However, the nature of the military service is such that it may require moving men from the city of residence to another location. In Chapela's study, the imminent prospect of military service prevents men from migrating to find a better job. However, in our study, various local ties and dependencies (such as job or family commitments) have caused men to strongly desire to serve in their city of residence.

On the other hand, the lower willingness to serve in the city of residence among people who have passed the military can be related to the results of Lee

(2012). By examining the case of the American Civil War and the probability of veterans' migration between 1860 and 1880, he concludes that the probability of veterans' migration is significantly higher than that of non-veterans. He states that higher geographic mobility of veterans is related to experiencing migration to a region other than their home region during their military service. Lee notes, however, that military service itself reduces economic mobility because it prevents the accumulation of civilian skills during service.

The type of service was the second most important attribute in terms of men's preferences. Respondents prefer to serve in normal regions rather than deprived regions; and to serve in deprived regions rather than security areas.

The results also indicate that the department in which the person serves has the least importance in individual preferences for military service. Respondents prefer to serve in the IRGC over the army, and to serve in the army over the police. However, the IRGC and army are preferred over the police since working in the police is tough because soldiers in the police are directly involved in crime, whereas the IRGC and army are not necessarily. As a result, the determination of salaries so that the salaries of soldiers in the police are determined higher than in the army and the IRGC, is more optimal.

Finally, the results showed that experiencing military service will not affect preferences regarding the ranking of attributes.

Conclusion

Military service is an important part of the lives of young men in many countries, and it has a significant economic impact on their lives. In Iran, according to the law, all males at the age of 18 are subjected to military service. In this research, a novel approach was adopted in the study of military service. This approach was used to explore military service from the perspective of individual preferences. This approach was adopted for two reasons, first, the limitation of access to official data in this field in Iran (there is no statistical data limitation because this approach uses stated preferences instead of revealed preferences) and second, the lack of studies that identify the most important cause of disutility in military service (policy makers in Iran have focused mainly on increasing salaries to reduce disutility of military service in recent years, without knowing whether salaries are the most important factor or not). Therefore, the study aimed to evaluate individual preferences regarding military service attributes to determine the most important factors affecting the utility of individuals in military service. Finally, the discrete choice experiment was used for the purpose. Under the

conditions in Iran, the military service attributes are location, department, type, length of service, and monthly salary. The results of the model, estimated using 3262 observations (in 1631 choice sets), show that the most important attribute for individuals is the location of service, followed by the type, salary, and length of service. The results also indicate that the department was the least important attribute influencing the choice of individuals. Examination of the absolute size of willingness to pay indicates that individuals are willing to pay up to 24 million Rials (570 USD) to serve in their own city. They are also willing to pay up to 13 million and 4 million Rials (310 and 95 USD), respectively, to serve in their preferred type and department. Finally, they are willing to pay about 7.3 million Rials (174 USD) to serve for three months less. These results demonstrate that the most effective measure in reducing the disutility of military service is to avoid moving people from the city of residence for service. Increasing the prevalence of prescript can also have a significant impact on reducing the disutility of military service. Another significant result was that people's preferences regarding the attributes of military service are the same among different subgroups of respondents (subgroups according to the status of military service). This result indicates that experiencing military service will not affect preferences regarding the ranking of attributes. It was also recommended (from men's preferences regarding the department) that the salaries of soldiers in the police can be set higher than the salaries of soldiers in the army and IRGC.

The most important limitation of research in the field of military service in Iran is access to official data. In other words, the lack of quantitative research in this field is quite evident and many of the studies that have been conducted on the topic of military service are descriptive and qualitative studies. Therefore, conducting quantitative research with official data remains as a potential field of study in this field.

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References

Bauer, T. K., Bender, S., Paloyo, A. R., & Schmidt, C. M. (2012). Evaluating the labor-market effects of compulsory military service. *European Economic Review*, *56*(4), 814-829. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0014292112000207.

Cáceres-Delpiano, J., De Moragas, A. I., Facchini, G., & González, I. (2021). Intergroup contact and nation building: Evidence from military service in Spain. *Journal of Public Economics, 201*, 104477. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0047272721001134.

Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics Using Stata*. College Station, TX: Stata Press.

Card, D., & Cardoso, A. R. (2012). Can compulsory military service raise civilian wages? Evidence from the peacetime draft in Portugal. *American Economic Journal: Applied Economics, 4*(4), 57-93. Retrieved from https://www.aeaweb.org/articles?id=10.1257/app.4.4.57.

Fisher, A. C. (1969). The Cost of the Draft and the Cost of Ending the Draft. *The American Economic Review, 59*(3), 239-254. Retrieved from https://www.jstor.org/stable/1808954.

Fize, E., & Louis-Sidois, C. (2020). Military service and political behavior: Evidence from France. *European Economic Review*, *122*, 103364. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0014292119302259.

González Chapela, J. (2021). Evaluating the Internal Labor Migration Effects of Compulsory Peacetime Conscription. *Defence and Peace Economics*, *32*(4), 489-506. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/10242694.2019.1660475.

Grenet, J., Hart, R. A., & Roberts, J. E. (2011). Above and beyond the call. Long-term real earnings effects of British male military conscription in the post-war years. *Labour Economics*, *18*(2), 194-204. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0927537110000977.

Hansen, W. L., & Weisbrod, B. A. (1967). Economics of the military draft. *The Quarterly Journal of Economics*, *81*(3), 395-421. Retrieved from https://academic.oup.com/qje/article-abstract/81/3/395/1884844.

Hou, B., Liu, H., & Wang, S. X. (2020). Returns to military service in off-farm wage employment: Evidence from rural China. *China Economic Review*, *59*, 101361. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S1043951X19301221.

Leal, D. L., & Teigen, J. M. (2018). Military service and political participation in the United States: Institutional experience and the vote. *Electoral Studies*, *53*, 99-110. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0261379417300586.

Lee, C. (2012). Military service and economic mobility: Evidence from the American civil war. *Explorations in Economic History*, *49*(3), 367-379. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0014498312000046.

Lyk-Jensen, S. V. (2018). Does peacetime military service affect crime? New evidence from Denmark's conscription lotteries. *Labour Economics*, *52*, 245-262. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0927537116303608.

McFadden, D. (1973). Conditional logit analysis of qualitative choice behavior. In P. Zarembka (Ed.), *Frontiers in Econometrics*. New York: Academic Press.

Mowlaei, M., & Golkhandan, A. (2015). Dynamic analysis of the impact of military expenditure on economic growth in oil and non-oil countries in the Middle East. *Iranian Economic Review*, *19*(2), 238-250. Retrieved from https://ier.ut.ac.ir/article_56081.html.

Mulligan, C. B., & Shleifer, A. (2005). Conscription as regulation. *American Law and Economics Review*, *7*(1), 85-111. Retrieved from https://academic.oup.com/aler/article-abstract/7/1/85/118092.

Poutvaara, P., & Wagener, A. (2007). To draft or not to draft? Inefficiency, generational incidence, and political economy of military conscription. *European Journal of Political Economy*, *23*(4), 975-987. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0176268007000262.

Siu, H. E. (2008). The fiscal role of conscription in the US World War II effort. *Journal of Monetary Economics*, *55*(6), 1094-1112. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0304393208000986.

Torun, H. (2019). Ex-ante labor market effects of compulsory military service. *Journal of Comparative Economics*, *47*(1), 90-110. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0147596718306115.

Torun, H., & Tumen, S. (2016). The effects of compulsory military service exemption on education and labor market outcomes: Evidence from a natural experiment. *Economics of Education Review*, *54*, 16-35. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0272775716303326.

Appendix

Table I. Choice Sets and Their Responses

Choice sets	Alternatives	Responses
1	Location: The neighboring province of residence/ Department: IRGC/ Type: Deprived regions/ Length: 24 months/ Salary: 30 million Rials	58
	Location: A distant province/ Department: Police/ Type: normal regions/ Length: 18 months/ Salary: 30 million Rials	40
2	Location: The neighboring province of residence/ Department: Army/ Type: Deprived regions/ Length: 21 months/ Salary: 10 million Rials	68
	Location: A distant province/ Department: IRGC/ Type: normal regions/ Length: 24 months/ Salary: 10 million Rials	43
3	Location: City of residence/ Department: Police/ Type: normal regions/ Length: 18 months/ Salary: 30 million Rials	73
	Location: City of residence/ Department: Civilian agencies/ Type: Prescript/ Length: 24 months/ Salary: 0	33
4	Location: City of residence/ Department: IRGC/ Type: normal regions/ Length: 24 months/ Salary: 30 million Rials	56
	Location: City of residence/ Department: Army/ Type: normal regions/ Length: 21 months/ Salary: 20 million Rials	38
5	Location: A distant province/ Department: Army/ Type: Deprived regions/ Length: 18 months/ Salary: 10 million Rials	39
	Location: The neighboring province of residence/ Department: Police/ Type: Deprived regions/ Length: 24 months/ Salary: 20 million Rials	66
6	Location: The neighboring province of residence/ Department: Police/ Type: Deprived regions/ Length: 18 months/ Salary: 30 million Rials	71
	Location: A distant province/ Department: Police/ Type: normal regions/ Length: 24 months/ Salary: 30 million Rials	22
7	Location: A distant province/ Department: IRGC/ Type: Security areas/ Length: 18 months/ Salary: 10 million Rials	37
	Location: A distant province/ Department: IRGC/ Type: Security areas/ Length: 24 months/ Salary: 30 million Rials	50
8	Location: The neighboring province of residence/ Department: Police/ Type: normal regions/ Length: 24 months/ Salary: 10 million Rials	82
	Location: A distant province/ Department: Police/ Type: Deprived regions/ Length: 18 months/ Salary: 20 million Rials	26
9	Location: City of residence/ Department: Police/ Type: normal regions/ Length: 24 months/ Salary: 20 million Rials	72
	Location: The neighboring province of residence/	33

	Department: Civilian agencies/ Type: Prescript/ Length: 24 months/ Salary: 0	
10	Location: The neighboring province of residence/ Department: IRGC/ Type: normal regions/ Length: 18 months/ Salary: 30 million Rials	69
	Location: City of residence/ Department: Police/ Type: normal regions/ Length: 21 months/ Salary: 10 million Rials	34
11	Location: City of residence/ Department: Army/ Type: normal regions/ Length: 18 months/ Salary: 10 million Rials	75
	Location: A distant province/ Department: Civilian agencies/ Type: Prescript/ Length: 24 months/ Salary: 10 million Rials	34
12	Location: City of residence/ Department: Army/ Type: normal regions/ Length: 24 months/ Salary: 10 million Rials	55
	Location: A distant province/ Department: Army/ Type: normal regions/ Length: 18 months/ Salary: 30 million Rials	42
13	Location: The neighboring province of residence/ Department: Army/ Type: normal regions/ Length: 24 months/ Salary: 30 million Rials	54
	Location: The neighboring province of residence/ Department: IRGC/ Type: normal regions/ Length: 21 months/ Salary: 20 million Rials	53
14	Location: The neighboring province of residence/ Department: Army/ Type: Deprived regions/ Length: 18 months/ Salary: 20 million Rials	72
	Location: A distant province/ Department: Army/ Type: normal regions/ Length: 24 months/ Salary: 30 million Rials	25
15	Location: A distant province/ Department: Police/ Type: Deprived regions/ Length: 24 months/ Salary: 10 million Rials	19
	Location: A distant province/ Department: Army/ Type: Deprived regions/ Length: 24 months/ Salary: 30 million Rials	94
16	Location: A distant province/ Department: Police/ Type: Security areas/ Length: 18 months/ Salary: 30 million Rials	41
	Location: A distant province/ Department: IRGC/ Type: Deprived regions/ Length: 21 months/ Salary: 30 million Rials	57

Source: Research finding.