

Articles

# Comparing the Values of Medal Success in International Sports Events and Exemption From Active Military Duty for Korean Athletes Using the Contingent Valuation Method

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All non-disabled Korean men have a duty to serve in the military as the country enforces conscription by the constitution. However, as an exception, some artists and athletes get exemption from active military duty service. The exemption from active military duty for distinguished artists and athletes is implemented under the ‘Military exemption program for artistic and athletic personnel’. It was first introduced in 1973 to recognize their contribution to enhancing national reputation and spreading Korean culture and to foster and retain excellent talents (Military Manpower Administration, 2021). To qualify for the military exemption, artistic personnel must win first place in five domestic contests or first or second place in 37 international contests in 119 fields. Athletic personnel must win any medal in the Olympic Games or a gold medal in the Asian Games. Qualifying athletic personnel do four weeks of basic military training and engage in sports as athletes or coaches for 34 months instead of serving in the military.

Recently, the K-pop group Beyond the Scene (BTS) received a nomination for the 63rd and 64th Grammy Awards, thus becoming the first Asians to be nominated and the first Koreans to perform solo at the Awards. In doing so, the group was recognized by the world’s record industry, further confirming their growing influence and popularity. As Such, Korean Wave, which is called another miracle of the Han River, shows the international leap of the Korean cultural industry (J. Kim, 2016). However, behind their global fame, there is a lingering sentiment of apprehension about the timing of fulfilling their military duties. The concern stems from the fact that the BTS members’ military service will create an interruption in their music career, and they may not regain their current popularity.

By contrast, Heung-Min Son, starting for the Premier League team Tottenham Hotspur, earned exemption from military service when the national team won the gold medal at the 2018 Jakarta-Palembang Asian Games. His exemption allows him to perform as an athlete without any disruption. Whether or not Son would win the gold medal in 2018 was of great interest to the Korean people and the English Football League. His exemption from active mili-

tary duty was covered by major media outlets in the United Kingdom. As in the cases of Heung-Min Son (Tottenham Hotspur, EPL), Ji-Sung Park (former Manchester United FC player, EPL), and Hyun-Jin Ryu (Toronto Bluejays, MLB), the military exemption program for athletes made it possible for Korean players to advance into the overseas league. It has contributed significantly to the continuous development of Korean sports by preventing the absence of prominent players due to active military duty (H. J. Lee, 2017).

As K-pop artists such as BTS gain global popularity, people continue to question the fairness of the practice that awards exemption from active military duty to extraordinary athletes as well as to classical and traditional musicians with exemplary achievements in international competitions. The system of exemption from active military duty is criticized for not reflecting the value of and people’s interest in popular culture and art. The issue turned into a social agenda as BTS, who topped the Billboard charts as Korean performers, was compared with athletes who were awarded the military exemption. In response to public opinion, the Ministry of Defense of Korea announced the revised “Military Service Act” on December 22nd, 2020, by allowing “distinguished male pop-culture artists” to postpone their mandatory military duties. The revised Act stipulates that a pop-culture artist can defer the compulsory military service until the age of 30 if he is recognized to have greatly enhanced national prestige and recommended for continuous engagement in pop-culture art by the Minister of Culture, Sports and Tourism (Ministry of National Defense, 2020). A recent survey conducted in 2022 asked about granting an exemption from military service to pop-culture artists such as BTS. Approximately 60% of respondents agreed (Kaufman, 2022). Also, a revised bill to allow alternative services to pop-culture artists has been proposed; however, no agreement has been reached yet (Jie, 2021; Kaufman, 2022).

Meanwhile, the exemption from active military duty for athletes has not received sufficient public support. According to a survey conducted by the Ministry of National Defense of 2,000 adult men and women in 2019, 55.6% of the

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respondents recognized that the exemption system was appropriate, only at a level that barely secured the majority. Also, 49.4% of the respondents said that the number of competitions for military exemption should be reduced (Ministry of National Defense, 2019).

In the past five years (2016-2020), a total of 132 artistic and athletic personnel fulfilled the qualification criteria in their respective fields. Of these, 89 were artistic personnel and 43 were athletic personnel (two from Summer Olympic Games, 34 from Summer Asian Games, six from Winter Olympic Games, and one from Winter Asian Games) (Military Manpower Administration, 2020). Among the beneficiaries of the exemption program, the number of athletic personnel is less than half the number of artistic personnel. Nonetheless, there is ongoing criticism of the unfairness and invalidity of the exemption for national athletes who are frequently exposed to the public and the press.

Prior to the 2018 Jakarta-Palembang Asian Games, the Korean baseball team faced the criticism that there may have been an illegitimate selection of some baseball players for military exemption. When the team became beneficiaries of the military exemption program by winning the gold medal, people signed a national petition to revoke the privilege of undeserving players. The national baseball team manager attended the national audit to clear the suspicion of illegitimacy in the national team selection (Yoo, 2018a, 2018b). Since then, the public's doubts about the validity of the system have been growing, as it has been reported that Korea is the only country among the 13 OECD countries with a conscription system that provides a military exemption to athletes due to the promotion of national prestige (JTBC, 2018).

As such, granting exemption from active military duty on the grounds of raising the country's profile and spreading its culture must be scrutinized for the fairness of the privilege. Most of all, it should be backed by social consensus. After implementing the system of exemption from active military duty for nearly a half-century, we need a process to examine whether people's voices are reflected. When the public does not perceive the necessity or the validity of the exemption granted to athletes from the active military duty imposed on all non-disabled Korean men (Han, 2019b), controversies will continue to break out each time there is an international sports event, increasing the negative public discourse. The Ministry of Culture, Sports and Tourism implemented the recommendations of a task force in 2018 to improve the exemption system. However, they ended up repeating the improvement measures from the perspective of experts in the field. This shows a failure of the system, which is unable to meet people's expectations because of a lack of empirical research reflecting the general public's perception and consensus on the military exemption.

Studies on the exemption for athletes from active military duty have been conducted by Korean experts in the field and have mainly covered scholarly discussions on common topics such as securing the rationality and equity of the military service system (Hwang, 2016; H. J. Lee, 2017), the problems with the system of exemption from ac-

tive military duty and improvement measures (D. Kim & Sung, 2015; H. Kim et al., 2017; Kwon et al., 2019; Son, 2011), and the political implications of exemption from active military duty (Han, 2019a, 2019b). In the meantime, scholars from other countries such as Canada, Austria, Finland, Germany, Netherlands, UK, and Japan have estimated the perceived value of their national teams' medal success in international sports events and provided insights for implementing policy concerning the country's national teams (Frick & Wicker, 2017; Funahashi et al., 2020; Funahashi & Mano, 2015; Humphreys et al., 2018; Wicker, Hallmann, et al., 2012; Wicker, Prinz, et al., 2012).

For the exemption system for Korean athletes to reflect the sociocultural reality and to reach public consensus, it is essential to survey people's perceived values concerning the system and implement measures based on the findings. Furthermore, we need criteria and metrics to evaluate the legitimacy and fairness of the revised bill in accordance with popular social belief. From this perspective, it is imperative to establish a procedure to derive the people's perceived value of the medal achievements at international sports events and the perceived value of exemption from active military duty as the reward for these medals.

The contingent valuation method (CVM) can be used to derive the value of medal achievement at international sports events and the value of the military exemption. Contingent valuation is a method for estimating the monetary value of nonmarket goods, such as the benefit of public services, that do not have trade values (Cameron, 1992; Mitchell & Carson, 1989). First, a researcher creates a hypothetical market where the nonmarket goods are traded, and then asks the respondents about their willingness to pay (WTP) for the goods available for a certain price at the market. Based on the derived results, the monetary value of the goods is determined (Hanemann, 1984, 1994; Smith, 1993). The CVM was used to estimate the value of medal success in international sports events, which was also used by the aforementioned studies conducted in other countries. In Korea, it was also used to estimate the value of sports arenas and sports welfare services as public goods in the field of sports (W. J. Cho, 2015; J. Lee et al., 2018; Shin & Han, 2016), the economic value of sports events (J. L. Lee & Kim, 2016; Park, 2008), and for the valuation of university sports centers and athletic clubs (Cha et al., 2015; H.-Y. Cho et al., 2018).

In particular, the following studies used CVM to examine the perception of the sports policy and its effects: 1) the value of achievements in international sports events according to the elite sports policies of each country (Frick & Wicker, 2017; Funahashi et al., 2020; Funahashi & Mano, 2015; Humphreys et al., 2018; Wicker, Hallmann, et al., 2012; Wicker, Prinz, et al., 2012), 2) the tangible and intangible benefit of hosting mega sports events (Atkinson et al., 2008; Wicker & Coates, 2018), and 3) the intention to financially support the sports team by residents (Wicker et al., 2016). According to these studies, the taxpayers seem to positively perceive the necessity of investment for success in international sports events and hosting sports events. However, generating such support (i.e., more likely to show

WTP) depends on how well the governing organization can deliver the tangible and intangible benefits from the investment (Atkinson et al., 2008; Frick & Wicker, 2017; Funahashi et al., 2020; Funahashi & Mano, 2015), especially their contribution to how those investments have led to sporting success (Humphreys et al., 2018; Wicker et al., 2012). In addition, the transparency and credibility of sports organizations play an important role in eliciting support for the related policies (Funahashi et al., 2020; Wicker & Coates, 2018).

In a similar vein, the criteria for fairness of the system of exemption from active military duty can be established through the process of estimating the monetary value of the pre-requisite for exemption from active military duty (i.e., Olympic Games medals of any color, Asian Games gold medals). At this point in time, the general public is demanding transparency of a credible process and procedure rather than outcome-driven nationalistic goals to raise the country's profile. Thus, the degree of privilege that the people will approve of and understand can be determined by estimating the market value of medal success in international sports events. In addition, we can examine whether the current benefits of the system of exemption from active military duty offered to national athletes are justifiable based on their medal success in an international sports event. In doing so, we can determine why people consider the current system unfair.

## Research method

### The contingent valuation method (CVM)

Contingent valuation is an analysis method for calculating the monetary value of nonmarket goods that are either incomplete in form or have no existing market where actual goods are traded. To analyze the market value of nonmarket goods through CVM, individual respondents are asked about their WTP for a certain good. In this process, the phase of creating a hypothetical scenario and setting the prices is crucial for creating a CVM questionnaire survey (Mitchell & Carson, 1989).

### structure of a CVM questionnaire

In this study, we used double-bounded dichotomous choice (DBDC) as a survey approach to estimate the value of medal success in an international sports event and the value of exemption from active military duty for athletes. The DBDC approach was designed to improve the efficiency of the WTP estimation (Hanemann et al., 1991). It asks each respondent a second dichotomous choice question based on the first response about the WTP. If the respondent accepts the first price by selecting "yes," the respondent is asked again if they are willing to pay a higher price than the first value. By contrast, if the respondent turns down the first value by selecting "no," the respondent is asked again if they are willing to pay a lower price than the first value. In doing so, the final WTP is estimated (Hanemann et al., 1991).

### design of the payment vehicle and hypothetical scenarios

Medal success in international sports events and the benefit of exemption from active military duty for athletes are nonmarket goods that are not traded in a market. Thus, it is necessary to create a hypothetical situation and set up a payment vehicle that can represent the value of the nonmarket goods in monetary units. A hypothetical scenario should reflect the value of the goods concerned and should be easy for the respondents to understand (Mitchell & Carson, 1989).

We constructed the scenarios and the payment vehicles as follows: 1) the cost and expenses for operation and training for the national athletes to achieve medals in the Olympic Games and gold medals in the Asian Games have to be met through contributions; 2) the budget for operating and maintaining the current system of exemption from active military duty for athletes has to be met through contributions. Under the hypothetical condition that the donation should be given once a year for the next five years, we asked each respondent about their intention to pay. We also asked each respondent to explain their reasons for their acceptance or rejection of payment so that we could identify what aspect of the good is valued by the respondent. This study has several reasons for setting the payment vehicle as a donation rather than a tax. First, it was attempted to minimize the possibility of feeling reluctant to respond when a payment vehicle is set as a tax in a field where no actual tax is used. Taxes cover part of the national team operation and training costs, but there is no actual cost for operating the military exemption system for athletes. Second, the purpose of calculating WTP in this study is to compare the values of nonmarket goods, which are medal performance in international sports events and the military exemption for athletes perceived by the public using a monetary value. Therefore, donations were selected as a more practical means for estimating WTP for Olympic medals, gold medals in the Asian Games and athletes' military exemption.

Meanwhile, it is essential to provide sufficient background information about the goods concerned for the respondents to make an informed decision on payment. In this study, we presented information on medal success in international sports events in terms of the total number of medals and the ranking in the most recent Summer Olympic Games (2008, 2012, 2016) and Winter Olympic Games (2010, 2014, 2018) as well as in the most recent Summer Asian Games (2010, 2014, 2018) and Winter Asian Games (2007, 2011, 2017). Regarding the exemption system, we presented the following information: the purpose of introducing the system, the changes in the pre-requisite for exemption from active military duty, specific benefits of exemption, and the beneficiaries of the exemption program. In addition, we provided a debatable issue related to the legitimacy, specificity, and publicity of the military exemption system so that the respondents could form their own views on the system. We also presented a hypothetical situation where the majority refused to donate, resulting

in downsizing the national athlete operation and abolishing the military exemption system. In doing so, we ensured that the respondents could decide on payment from multilateral perspectives. The hypothetical scenarios in this study were reviewed and advised by five experts in the field (one doctorate holder in sports economics, two doctorate holders in sports sociology, and two professors in physical education). The final version was used in the preliminary survey and the main survey.

### ***preliminary survey for establishing the monetary values***

The DBDC approach requires a preliminary survey to establish the monetary values that can show the respondents' level of WTP. We used open-ended questions in our preliminary survey to allow the respondents to write down the donation amount they are willing to pay for each good.

We commissioned an online survey company to conduct the preliminary survey for two days (October 13th-14th, 2020) among 202 adults. Based on the survey findings, we selected a total of six monetary values within a 15-85% range of this WTP for the main survey (Hanemann & Kanninen, 1996; Kanninen, 1993). The suggested donation amounts for medal success in the Olympic Games include 2,000 KRW, 5,000 KRW, 10,000 KRW, 30,000 KRW, 60,000 KRW, and 100,000 KRW. The suggested donation amounts for gold medals in the Asian Games include 1,000 KRW, 3,000 KRW, 5,000 KRW, 10,000 KRW, 30,000 KRW, and 50,000 KRW. The suggested donation amounts for exemption from active military duty of athletes include 1,000 KRW, 2,000 KRW, 5,000 KRW, 10,000 KRW, 30,000 KRW, and 50,000 KRW.

### ***main survey and WTP estimation***

As the population for the main study, we recruited men and women who could make their own financial decisions (20-69). This is because the valuation of medal success in international sports events and the valuation of exemption from active military duty for athletes entail responses about the WTP to the suggested donation amount. As the preliminary survey was carried out by an online survey company, the main survey was also conducted by an online survey company for a week (November 24th-30th, 2020). The questionnaire used DBDC questions including six suggestions for donation amounts for the Olympic Games medals, Asian Games gold medals, and athletes' military exemption. It consisted of questions asking the WTP for each of the Olympic medals, Asian Games gold medals, and athletes' military exemptions with the reasons for payment and refusal of payment. The ratio of gender and age responding to each category's six suggested amounts was made to be evenly distributed, and a total of 651 questionnaire responses were collected.

The collected data was analyzed using SPSS 25.0 version and the R program. WTP can be estimated in terms of mean WTP, median WTP, and truncated mean WTP (Hanemann, 1984). This study selected median WTP as it generates the most conservative estimation (Hanemann, 1989). As for the

distribution of WTP, we applied the log-logistic model. Because the median WTP is the estimate for the sample, the confidence interval to check the accuracy of the valuation was set to 95% using the Krinsky-Robb method (Krinsky & Robb, 1986).

### **Scale for examining covariates**

While checking the validity of the scenario setting and WTP function estimation, it is essential to follow a procedure to examine various factors that can affect the willingness to pay the suggested amount for the good concerned (Cha et al., 2017; Ministry of Culture, Sports and Tourism, 2009; Pyo et al., 2011). In this study, we constructed the questionnaire using the following covariates: respondents' demographics (4 questions), perception of national athletes (4 questions), psychological involvement in the national athletes' competitions (5 questions) (Maeng & Park, 2017), and acceptance of the system of exemption from active military duty for athletes (3 questions) (Huh, 2015).

The results of analyzing the validity and reliability of the survey scale are as shown in [Table 1](#). To verify the validity of the research tool, we used principal components analysis as the factor extraction method and extracted eigenvalues greater than 1. At this time, we used Varimax factor rotation, which is a typical method of orthogonal rotation. Cronbach's  $\alpha$  coefficients for the perception of national athletes, involvement in national athletes' competitions, and acceptance of the system of exemption from active military duty for athletes were .790, .926, and .978, respectively, and were found to be reliable (Nunnally & Bernstein, 1994).

## **Results**

### **Characteristics of study participants**

[Table 2](#) shows the demographic characteristics of the participants in the main survey. The 651 participants are comprised of 60.2% men and 39.8% women. The average age is 40.3. The majority of the participants were found to have a 4-year college degree (65.9%). The average monthly income was 2,605,622 KRW.

### **WTP estimates for medal success in the Olympic Games**

#### ***reasons for accepting or rejecting the payment***

[Table 3](#) shows the respondents' reasons for their WTP and refusal to pay the suggested donation amount for operation costs that Korean national athletes and teams need to earn medals in the Olympic Games. Of the respondents who expressed their intention to pay, the majority of respondents said that Olympic Games medals are necessary for the development of sports in Korea (59.2%), followed by "medal success in the Olympic Games keeps me interested in watching international sports events" (27.9%), and "medal success in the Olympic Games satisfies me personally" (12.9%).

**Table 1. Results of exploratory factor analysis and reliability analysis of research tools**

	Questions	Coefficient	Eigenvalue	Variance	Cumulative	$\alpha$
Perception	National athletes are important for national interest.	.875	2.614	65.349	65.349	.790
	National athletes are self-sacrificial for national interest.	.858				
	National athletes represent the country.	.829				
	National athletes enhance the country's image.	.653				
Involvement	I always read articles about national athletes' competitions.	.884	3.853	77.062	77.062	.926
	I enjoy talking about national athletes' competitions.	.882				
	I always watch national athletes' competitions.	.880				
	I make an effort to learn about national athletes' competitions.	.872				
	I have a strong interest in national athletes' competitions.	.871				
Acceptance	I endorse the benefit of military exemption.	.935	2.580	86.012	86.012	.978
	I approve of the benefit of military exemption	.931				
	I consider the benefit of exemption from active military duty to be fitting.	.916				

The reasons for refusing to pay the suggested donation amount include objection and uncertainty such as “Medal success in the Olympic Games cannot be converted to monetary value,” and “I do not know how much to give.” The responses that contain such refusals are removed from the sample before estimating the WTP. In this study, there were 38 protest responses against donating toward medal success in the Olympic Games. Thus, a total of 613 responses were used for estimating WTP. Apart from the protest responses, the reasons for refusing to pay included “Medal success in the Olympic Games does not matter to me” (49.2%), which was very close to 50 %.

#### ***the response rate for each suggested amount***

Table 4 shows the rate of “Yes” and “No” responses for the suggested amount, which is the criterion for indicating WTP for medal success in the Olympic Games. The rate of “Yes” responses to the first and second questions is the highest for the lowest donation amount (2,000 KRW) at 37.9%. As the suggested amount increases, the rate decreases. For the highest suggested donation amount (100,000 KRW), only 3.9% of the respondents indicated a WTP for both amounts. Likewise, the rate of “No” responses to the first and second questions is the lowest for the smallest donation amount at 31.6%. As the suggested amount increases, the rate of “No” to both amounts also increases.

#### ***results of WTP estimation***

Table 5 and Table 6 show the results of analyzing the responses to the DBDC questions using a log-logistic model to estimate the willingness to give the suggested donation for medal success in the Olympic Games. First of all, the model is significant because the log-likelihood function (LLF) of the model is -700.955 at  $\chi^2(6)=63.133(p<.001)$ , which indicates the fitness of the model. In addition, the model is economically feasible because the probability of WTP decreases as the suggested amount of donation for medal success in the Olympic Games increases ( $t=-17.124, p<.001$ ).

The result of examining the effect of respondents' demographic variables and covariates on WTP showed that women are willing to pay higher amounts than men are ( $t=4.158, p<.01$ ). Respondents with a more positive perception of national athletes ( $t=3.372, p<.001$ ) and respondents with a deeper involvement in national athletes' competitions ( $t=4.594, p<.001$ ) are more willing to pay the suggested donation amount for medal success in the Olympic Games. The amount that respondents are willing to donate annually for the next five years for medal success in the Olympic Games is estimated to be 4,737.4 KRW per person.

**Table 2. Demographic characteristics of study participants**

Variables	Classification	Frequency (n)	Percent (%)	Population <sup>a</sup>
Gender	Male	392	60.2	51.1
	Female	259	39.8	48.9
Age	20-29	160	24.6	18.8
	30-39	155	23.8	19.5
	40-49	158	24.3	22.2
	50-69	178	27.3	39.5
Education	High School	83	12.7	NA
	Undergraduate	66	10.1	
	College graduate	429	65.9	
	Graduate school	73	11.2	
Monthly income (Including allowance)	Below 1million KRW	169	26.0	NA
	1-2million KRW	74	11.4	
	2-3million KRW	154	23.7	
	3-4million KRW	109	16.7	
	4-5million KRW	49	7.5	
	Over 5million KRW	96	14.7	
Total		651	100	

<sup>a</sup> Adult between 20s to 60s in 2019 (Korean Statistical Information Service, 2019)

**Table 3. Willingness to give donation for medal success in the Olympic Games and reasons for refusal**

Category	Classification	Frequency (%)	Protest response
Reason to pay	Medal success in the Olympic Games keeps me interested in watching high level international sports events	128(27.9)	
	Medal success in the Olympic Games satisfies me personally.	59(12.9)	
	Olympic medals are necessary for development of sports in Korea.	271(59.2)	
Reason to refuse	Medal success in the Olympic Games cannot be converted to monetary value.	30(15.5)	○
	I do not know how much to give.	8(4.1)	○
	I do not have sufficient financial stability to donate.	54(28.0)	
	The suggested amount is too high.	6(3.1)	
	Medal success in the Olympic Games does not matter to me.	95(49.2)	

**Table 4. Response rate of willingness to pay each suggested donation amount for Olympic medal performance (after removing 38 protest responses)**

Suggested amount in KRW	Response type, n (%)				Sum
	NN	NY	YN	YY	
2,000	30(31.6)	14(14.7)	15(15.8)	36(37.9)	95
5,000	44(44.9)	9(9.2)	22(22.4)	23(23.5)	98
10,000	58(54.7)	10(9.4)	20(18.9)	18(17.0)	106
30,000	64(61.5)	7(6.7)	23(22.1)	10(9.6)	104
60,000	66(61.7)	18(16.8)	13(12.1)	10(9.3)	107
100,000	75(72.8)	11(10.7)	13(12.6)	4(3.9)	103
Sum	337(55.0)	69(11.3)	106(17.3)	101(16.5)	613

Note: N(No), Y(Yes) for suggested amount

**Table 5. Results of analyzing the model of WTP toward donations for medal success in the Olympic Games**

Variable	B	S.E	t
(Constant)	3.3074862	0.7954213	4.158***
Gender	-0.5414573	0.1789667	-3.026**
Age	-0.0063518	0.0074601	-0.851
Education	-0.0078193	0.1111546	-0.070
Income	0.0006278	0.0004706	1.334
Perception	0.5122836	0.1519156	3.372***
Involvement	0.5436088	0.1183195	4.594***
Suggested amount	-0.7831506	0.0457342	-17.124***
obs		613	
$\chi^2(6)$		63.133***	
LLF		-700.955	

p<.01\*\*, p<.001\*\*\*

**Table 6. Estimation of WTP for medal success in the Olympic Games, gold medals in the Asian Games, and the military exemption system (Unit: KRW)**

Category	Method	WTP	95% confidence interval	
			Lower limit	Upper limit
Olympic Games medals		4737.4	3695.7	5866.5
Asian Games gold medals	Median	3410.5	2640.2	4462.3
System of exemption from active military duty		1117.5	766.5	1576.6

### Estimation of WTP for gold medals in the Asian Games

#### reasons for accepting or rejecting the payment

Table 7 shows the reasons for paying and refusing to give the suggested donation to cover the costs of Korean national athletes' gold medals in the Asian Games. Similar to the WTP responses for medal success in the Olympic Games, the majority of the respondents mentioned that gold medals in the Asian Games are necessary for the development of sports in Korea (61.2%). Other reasons included "Gold medals in the Asian Games keep me interested in watching high-level international sports events" (23.5%) and "Gold medals in the Asian Games satisfy me personally" (13.0%).

Of the responses indicating refusal to pay, 38 protest responses (17.8%) were removed, and a total of 613 responses were used for WTP estimation. Besides the protest responses, "Gold medals in the Asian Games do not matter to me" (53.1%) was the dominant reason for refusal.

#### the response rate for each suggested amount

Table 8 shows the rate of "Yes" or "No" responses for the suggested amount, which is the criterion for indicating the WTP for gold medals in the Asian Games. The rate of "Yes" responses to the first and second questions is the highest for the lowest donation amount (1,000 KRW) at 48.4%. As the suggested amount increases, the rate decreases. For the

highest suggested donation amount (50,000 KRW), 8.7% of the respondents indicated the WTP in both amounts. Likewise, the rate of "No" responses to the first and second questions is lowest at the smallest amount and the rate of "No" responses to both amounts increases as the suggested amount increases.

#### results of WTP estimation

Table 6 and Table 9 show the results of analyzing the responses to the DBDC questions using a log-logistic model to estimate the willingness to give the suggested donation for gold medals in the Asian Games. We found the model to be significant because the LLF of the model is -682.614 at  $\chi^2(6)=81.971(p<.001)$ , which indicates the fitness of the model. In addition, the model is economically feasible because the probability of the WTP is low when the suggested donation for gold medals in the Asian Games is high ( $t=-15.267, p<.001$ ), and the probability of the WTP is high when the respondent's income is high ( $t=2.296, p<.05$ ).

The WTP estimation toward the Asian Games gold medals showed that women are willing to pay a higher amount than men ( $t=-3.709, p<.001$ ). Meanwhile, respondents who have a more positive perception of national athletes ( $t=4.745, p<.001$ ) and respondents who have a deeper involvement in national athletes' competitions ( $t=4.378, p<.001$ ) were more willing to pay the suggested donation for gold medals in the Asian Games. In addition, the donation that the respondents are willing to pay annually for the

**Table 7. Willingness to give donation for gold medals in the Asian Games and reasons for refusal**

Category	Classification	Frequency (%)	Protest response
Reason to pay	Gold medals in the Asian Games keep me interested in watching the high level international sports events.	113(23.5)	
	Gold medals in the Asian Games Olympic satisfy me personally.	57(13.0)	
	Gold medals in the Asian Games are necessary for development of sports in Korea.	268(61.2)	
Reason to refuse	Gold medals in the Asian Games cannot be converted to monetary value.	28(13.1)	○
	I do not know how much to give.	10(4.7)	○
	I do not have financial stability to give donation.	58(27.2)	
	The suggested amount is too high.	4(1.9)	
	Gold medals in the Asian Games do not matter to me.	113(53.1)	

**Table 8. Response rate of willingness to pay each suggested donation amount for gold medals in the Asian Games (after removing 38 protest responses)**

Suggested amount in KRW	Response type, n (%)				Sum
	NN	NY	YN	YY	
1,000	26(27.4)	2(2.1)	21(22.1)	46(48.4)	95
3,000	41(42.3)	10(10.3)	18(18.6)	28(28.9)	97
5,000	60(56.6)	7(6.6)	8(7.5)	31(29.2)	106
10,000	45(43.4)	9(8.7)	21(20.2)	29(27.9)	104
30,000	63(58.9)	12(11.2)	13(12.1)	19(17.8)	107
50,000	73(70.2)	8(7.7)	14(13.5)	9(8.7)	104
Sum	308(50.2)	48(7.8)	95(15.5)	162(26.4)	613

**Table 9. Results of analyzing the model of WTP toward donations for Asian Games gold medals**

Variable	B	S.E	t
(Constant)	1.8206527	0.7552923	2.411*
Gender	-0.6516857	0.1757273	-3.709***
Age	-0.0115102	0.0073375	-1.569
Education	-0.0250225	0.1093774	-0.229
Income	0.0009989	0.0004351	2.296*
Perception	0.7010368	0.1477549	4.745***
Involvement	0.5005718	0.1143472	4.378***
Suggested amount	-0.6791462	0.0444856	-15.267***
obs		613	
$\chi^2(6)$		81.971***	
LLF		-682.614	

$p < .05^*$ ,  $p < .001^{***}$

next five years for gold medals in the Asian Games is estimated at 3,410.5 KRW per person.

### Estimating WTP toward the system of exemption from active military duty for athletes

#### reasons for accepting or rejecting the payment

Table 10 shows the respondents' reasons for their WTP and refusal to pay the suggested donation amount toward the necessary expenses for operating the system of military



**Table 10. Willingness to give donations to maintain the military exemption system for athletes and reasons for refusal**

Category	Classification	Frequency (%)	Protest response
Reason to pay	Exemption from active military duty for athletes allows me to keep watching high level international sports events.	99(30.7)	
	Exemption from active military duty for athletes satisfies me personally.	40(12.4)	
	Exemption from military duty is necessary for development of sports in Korea.	183(56.8)	
Reason to refuse	The system of exemption from active military duty for athletes cannot be converted to monetary value.	67(20.4)	○
	I do not know how much to give.	13(4.0)	○
	I do not have sufficient financial stability to donate.	56(17.0)	
	The suggested amount is too high.	2(0.6)	
	The system of exemption from active military duty for athletes does not matter to me.	191(58.1)	

exemption that is granted to Korean national athletes and teams who have earned medals of any color in the Olympic Games and gold medals in the Asian Games. Similar to the WTP responses for medal success in the Olympic Games and gold medals in the Asian Games, the majority of the respondents mentioned that “Exemption from military duty is necessary for the development of sports in Korea” (56.8%). Other reasons included “Exemption from active military duty for athletes allows me to keep watching high-level international sports events” (30.7%) and “Exemption from active military duty for athletes satisfies me personally” (12.4%).

Of the responses indicating the refusal to pay, 80 protest responses (24.4%) were removed, and a total of 571 responses were used for WTP estimation. Besides the protest responses, “The system of exemption from active military duty for athletes does not matter to me” (58.1%) was the dominant reason for refusal.

#### ***the response rate for each suggested amount***

Table 11 shows the rate of “Yes” and “No” responses for the suggested amount, indicating the WTP the donation for the cost of operating the exemption system. The rate of “Yes” responses to the first and second questions is the highest for the lowest donation amount (1,000 KRW) at 29.7%. As the suggested amount increases, the response rate decreases, and the number of respondents who were willing to pay the highest suggested donation amount (50,000 KRW) was the lowest (9.9%). By contrast, the rate of “No” responses to both the first and second questions for maintaining the exemption system is lowest (50.5%) when the suggested donation is the smallest, and highest (73.6%) when the suggested donation is the greatest. In addition, it is notable that the majority of the respondents refused to pay either of the two (60.4%) and that only 39.6% of the respondents were willing to pay at least one of the two suggested amounts.

#### ***results of WTP estimation***

Table 6 and Table 12 show the results of analyzing the responses to the DBDC questions using a log-logistic model to estimate the willingness to give the suggested donation for maintaining the exemption system for athletes. We found the model to be significant because the LLF of the model was  $-579.507$  at  $\chi^2(6)=109.512(p<.001)$ , which indicates the fitness of the model. In addition, we also found the model to be economically feasible because the WTP probability is low when the suggested donation amount for the military exemption system is high ( $t=-13.998$ ,  $p<.001$ ), and the WTP probability is high when the income level of the respondents is high ( $t=1.653$ ,  $p<.10$ ).

The estimation of the WTP donations toward the exemption from active military duty showed that gender ( $t=-1.185$ ,  $p>.10$ ), age ( $t=-0.180$ ,  $p>.10$ ), and education ( $t=-0.424$ ,  $p>.10$ ) do not influence the WTP for maintaining the exemption system. Meanwhile, respondents who have a more positive perception of national athletes ( $t=2.763$ ,  $p<.01$ ) and those who have a deeper involvement in national athletes’ competitions ( $t=3.983$ ,  $p<.01$ ) are more willing to pay the suggested donation for maintaining the exemption system. In addition, respondents who have a greater acceptance of the exemption from active military duty for athletes ( $t=5.167$ ,  $p<.001$ ) are more likely to give the suggested donation for maintaining the exemption system. The estimated WTP per person is 1,117.5 KRW, which is the donation amount that the respondents were willing to pay annually for the next 5 years to maintain the exemption system for athletes who earned medals in international sports events.

#### **Discussion**

Professional athletes have a comparatively short career, and the 2-year break from their careers for military duty is burdensome to them and the team they belong to. Military duty is a sensitive issue; therefore, exemption from active military duty for athletes must be granted based on consensus and social fairness. While there have been national pe-

**Table 11. Response rate of willingness to give the suggested donation toward the military exemption system for athletes (after removing 80 protest responses)**

Suggested amount in KRW	Response type, n (%)				Sum
	NN	NY	YN	YY	
1,000	46(50.5)	4(4.4)	14(15.4)	27(29.7)	91
2,000	46(47.9)	12(12.5)	13(13.5)	25(26.0)	96
5,000	60(62.5)	8(8.3)	12(12.5)	16(16.7)	96
10,000	56(58.3)	6(6.3)	18(18.8)	16(16.7)	96
30,000	70(69.3)	10(9.9)	11(10.9)	10(9.9)	101
50,000	67(73.6)	7(7.7)	8(8.8)	9(9.9)	91
Sum	345(60.4)	47(8.2)	76(13.3)	103(18.7)	571

**Table 12. Results of analyzing the model of WTP for donations to maintain the military exemption system**

Variable	B	S.E	t
(Constant)	-0.3657190	0.8602488	-0.425
Gender	-0.2277676	0.1922004	-1.185
Age	-0.0014499	0.0080507	-0.180
Education	-0.0499615	0.1177835	-0.424
Income	0.0007775	0.0004705	1.653*
Perception	0.5286351	0.1913549	2.763**
Involvement	0.5924459	0.1487294	3.983***
Acceptance	1.4672778	0.2839844	5.167***
Suggested amount	-0.6365460	0.0454734	-13.998***
obs		571	
$\chi^2(6)$		109.512***	
LLF		-579.507	

$p < .10$ \*,  $p < .05$ \*,  $p < .01$ \*\*\*,  $p < .001$ \*\*\*

titions to abolish the military exemption program for athletic personnel, we cannot find any studies that can help decide whether the benefit of the exemption system is in line with popular social beliefs and provide guidelines on the degree to which the system can be improved. For this reason, we have used the CVM to estimate the perceived monetary value of the prerequisites for exemption from active military duty for athletes (Olympic Games medals and Asian Games gold medals) and the monetary value of the exemption system. In doing so, we have attempted to understand the cause of the controversies surrounding the system.

The CVM-based estimation of the monetary value of Olympic Games medals, Asian Games gold medals, and the system of exemption from active military duty showed that an average respondent was willing to donate 4,737.4 KRW (4.26 USD) once a year toward medal success in the Olympic

Games, 3,410.5 KRW (3.07 USD) for Asian Games gold medals, and 1,117.5 KRW (1.01 USD) for the system of exemption from active military duty.<sup>1</sup> When applying this to the entire adult population between 20 and 69 years of age (37,424,923 people as of 2019), which is a parameter of WTP estimation, the total annual donation is estimated to be 177,296,830,220 KRW (159.73 million USD) for medal success in the Olympic Games, 127,637,699,892 KRW (114.99 million USD) for Asian Games gold medals, and 41,822,351,453 KRW (37.68 million USD) for exemption from active military duty for athletes.<sup>2</sup>

This shows that the perceived value of national athletes' medal success in international sports events outweighs the perceived value of the exemption from active military duty for athletes. In terms of the estimated WTP from this study, the value of the exemption system is not even close to a quarter of the value of medal success in the Olympic Games

1 1 USD = 1,110 KRW

2 1 USD = 1,110 KRW

and is equivalent to a third of the value of Asian Games gold medals. When examining the reasons for WTP toward these three categories, we found that the respondents prioritized the need for developing sports in Korea. Thus, it can be interpreted that Korean people have a higher regard for the feasibility and significance of continuous growth of overall sports fields through medal success in international sports events than through the system of exemption from active military duty despite all three of these categories contributing to the development of sports in Korea. In other words, this indicates that people tend to prioritize the direct factors for medal success, such as operating the national team and training the national athletes, rather than an exemption from mandatory duty.

In addition, the value of the national athletes' medal success represents the culmination of collaborative medal efforts put forth by both female and male athletes; thus, the value is general and inclusive. By contrast, the exemption from active military duty applies only to athletes, particularly to those few who participate in certain popular events with an opportunity to earn medals. This may be why people have a lower regard for military exemption than for the medal success of national athletes as a whole.

A more positive perception of national athletes and a higher level of psychological involvement in national athletes' competitions led to a higher WTP toward medal success in the Olympic Games, Asian Games gold medals, and the system of exemption from active military duty for athletes. This finding matches the previous study report that the public views the athlete's privilege of the system of exemption from active military duty favorably when they have high regard for national athletes and deep psychological involvement in national athletes' competitions (Maeng & Park, 2017). When the public's perception of national athletes is positive, they are more likely to approve exemption from active military duty as a reward for the athlete's sacrifice and contribution to raising the country's profile and empowering the country and will ultimately validate the ongoing implementation of the exemption system. Meanwhile, the desire to continue to watch international sports events was also one of the main reasons for WTP toward the three categories as follows: 27.9% for Olympic Games medals; 23.5% for Asian Games gold medals; and 30.7% for the system of exemption from active military duty for athletes. In other words, when the public has a higher level of psychological involvement in national athletes' competitions, they are more likely to prioritize watching international sports events and ultimately express their WTP toward medal success in the Olympic and Asian Games as well as toward military exemption. In particular, the comparatively higher percentage of WTP toward the exemption system may be because of the opportunity for Korean fans to watch the overseas leagues that Korean athletes such as Heung-Min Son and Hyun-jin Ryu are actively participating in.

At the center of the ongoing controversy about the system of exemption from active military duty for athletes is the distorted reality of degrading international sports events as a means for military exemption, instead of exemption from active military duty being a reward for ex-

cellent performance in international sports events. In this vein, it is no wonder that there is strong criticism for treating medal success in international sports events (which is highly esteemed by the public) as a means to gain the benefit of exemption from active military duty (which is less valued than medal success). When examining the acceptance of the exemption system as a covariate for the WTP using dichotomous choice questions, we found that 63.9% of the respondents indicated their acceptance of all three categories and 22.9% indicated no acceptance of any categories. The respondents who showed acceptance of two or more categories among the three categories accounted for 71.6% of all respondents. This implies that the public generally approves of the exemption from active military duty for athletes and considers the benefit to be appropriate. Another example that can support this interpretation is the contrasting public responses to the benefit of the exemption system. While the public demanded the revocation of the benefit from the national baseball team who earned the gold medal in the 2018 Jakarta-Palembang Asian Games, they advocated strongly for offering the benefit to the national soccer team who reached the semi-finals in the U-20 FIFA World Cup in 2019. This shows that the public is not necessarily concerned about the validity of the system but resents those who take advantage of it.

Therefore, it is imperative to implement improvement measures that can prevent abuse of highly valued medal success in international sports events for gaining the benefit of exemption from active military duty, which is valued less. Because the public is already well aware of the need for the military exemption system to develop sports in Korea, a national consensus can be formed through careful monitoring of the exemption system to ensure that it is not abused to evade or avoid military duty. There have been numerous cases of evading military duty through unusual tactics such as self-inflicted injuries, extreme weight loss or weight gain (D. Kim & Sung, 2015; H. Kim et al., 2017; H. J. Lee, 2017), or selecting athletes who have not completed military service for the national team (Han, 2019a; H. J. Lee & Han, 2019) because the window of military enlistment overlaps the professional prime phase for athletes. Therefore, in addition to a partial amendment of the Military Service Act, adjusting the service period by allowing athletes to serve in the military after their retirement or diversifying the field of military service can reduce the burden on athletes and improve the efficiency of military service.

## Conclusion and suggestions

This study is significant in that it estimated abstract concepts (such as the value of medal success in international sports events and the value of exemption from active military duty as a reward) in monetary units and quantitatively compared the values. The respondents considered Olympic Games medals, Asian Games gold medals, and the system of exemption from active military duty worth the annual donations of 4,737.4 KRW (4.26 USD), 3,410.5 KRW (3.07 USD), and 1,117.5 KRW (1.01 USD), respectively. This shows that the public values medal success in an international sports event more highly than exemption from active

military duty for athletes. This reflects the ironic yet critical reality implied in expressions such as “steroid-like military exemption” or “legitimate exemption from active military duty broker” while referring to athletes as beneficiaries of the exemption system.

These monetary value estimates can be used as baseline data for policymaking to manage and improve the system of exemption from active military duty and can contribute to re-examining the legitimacy of and societal need for the system. In future discussions on revising the requirements for military exemption, one can determine whether or not a particular requirement is acceptable in the eyes of the public by estimating the monetary value of the requirement. For example, suppose lawmakers aim to add a new requirement for a military exemption to pre-existing requirements such as Olympic Games medals and Asian Games gold medals. In that case, they can determine its suitability by estimating and comparing the monetary value of the pre-existing requirements and the value of the new requirement. This method can be used to discover other sports events and achievements that the public values highly, such as the 2019 U-20 FIFA World Cup achievement,

but are not included among the requirements. Thus, it can be used as a reference point and provide direction for revising the requirements for exemption from active military duty.

Also, although this study is limited to Korea-specific policy, the method of this study can be applied to sports policy in other countries. Furthermore, it can be used not only in sports policy but also in other fields. For instance, it can be used in various cases where it is desired to determine whether exemption from any duty can be justified in terms of social norms.

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