

ECONOMIC VALUATION OF POLICE RESPONSE DURING PANDEMIC

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Abstract

This paper attempts to determine the economic value of police response amid the pandemic using the Willingness to Accept (WTA) approach to approximate the work-leisure labor supply dynamics. The revealed preference for a higher income through contingent amount of a public good of providing public safety will help understand on the decision faced by the police in rendering public service in the middle of public health crisis.

The police force as the primary driver of community public safety had been working as front liner in enforcing the health protocols to curb the spread of the pandemic. With 1560 police officers as participants, the study found out that the WTA amounting to P20000 which denotes additional income does not lead to leisure, instead, more hours dedicated to public safety. The economic value of police response amid pandemic amounted to Php220-M. Another interesting result that the WTA is influenced by stress related to COVID19 response, and not by effective police response and public trust. The police officers are driven by the non-monetary currency in the performance of their duties; higher public trust compensates them more than higher compensatory income during this time of the pandemic.

Keywords: Willingness to Accept, Police Response, Public Trust

INTRODUCTION

Background of the study

The coronavirus pandemic has altered the lives of the global communities affecting families, businesses, industries and the government. It has claimed millions of lives as it infected hundred millions of lives across the globe. It halted the growth of many countries, put to a stop the many travels and the busy ports in many countries. The COVID19 forced the governments of so many nations to issue lockdowns to prevent the spread of the virus in the population. When the government issued lockdowns, it turns into its law enforcement agencies to execute the legal orders to put individuals into their homes, prevent them from roaming around, sifting with chronic specificity those who can be allowed to go out due to necessity, and those who cannot due to their health fragility in susceptibility to contract the virus. The police expanded their roles from the regular enforcement of the laws to enforcement of minimum health protocols that are passed unto them making them the front liners. They enforce the wearing of face mask of the population, enforced curfews, established checkpoints to minimize movement of people. Very recently, they become part of the innovation to allow movement in high-risk areas in multiple places which better now known as bubbles. Reports also reveal that police die due to the virus, although not that celebrated as those coming from the other sector. The police deaths and virus contraction come as data, a component information of the whole COVID19 infection.

Manning the checkpoints, checking on the passersby, and at some instance accosting individuals who violated the health protocols also expose the police officers to the risk of contracting the virus which are unseen, and whose manifests are beyond the abilities and trainings of the police officers. The police as front liners face greater risk of getting the virus as they are expected to be outside enforcing the laws, given that is the nature of their job. It is a common knowledge that though there are supports from the government to anyone infected with the virus, it is also interesting to understand the value of work amid the pandemic.

Statement of the problem

This study attempted to determine the statistical value of work using the revealed preference model of microeconomics in obtaining imputed value of police response during the pandemic. This study was guided by the objective of determining the economic value of police response in the middle of the pandemic. In order to address the objective, the following were pursued.

1. Determine the level of effectiveness of the police response during pandemic;
2. Determine the perceived public trust level of the public on the police response;
3. Obtain the economic value of police response using the Willingness to Accept through revealed preference approach;
4. Determine variables that significantly explain the economic value of police response during the pandemic.

Hypothesis

This study employed the following hypotheses:

1. There is no statistical difference in the perceived efficiency and effectiveness of the police
2. There are no variables that statistically determine the economic value of police response amid pandemic.

LITERATURE REVIEW

Over the course of time, the science of putting value on products without price has improved. Mendelsohn & Omlstead (2009) made reassuring revelation that for the last forty years the valuation technique of environmental amenities keeps on improving to include climate change impacts, damages to environment due to hazardous wastes and chemicals, the value of air pollution and impacts to ecosystem. Meanwhile, they also admitted that there is the need to link economics, physical science and the nature to effectively measure nonuse values remain lacking. The need to link the economics to the nonuse values is also akin to relating economics to services that have no market value, very prominently, the services rendered by the front liners during the pandemic.

An application of revealed preference theory was applied in a study of Beenstock, Goldin and Haitovsky (1997) in examining the investment behavior on uninterrupted power supplies to determine the cost of electricity outages in the business and general condition of society in Israel. Studies like this indicate the usability of behavioral choices of individuals in a market. The electricity market bears observable data that can support a theoretical behavior. In the instance when there is no market, such that the product is readily consumable by the individual, in the case of public goods, the theory of optimal public expenditure is hard to value needed in regulatory policies and resource allocation in the public sector (Hori, 1975; Cherchye, De Rock and Vermeulen, 2011; Bateman & Kling, 2020). The use of revealed preference using contingent valuation were employed in nonmarket products such as wildlife sanctuaries (Tamayo, 2020), ecosystem (Sardana, 2019) climate change mitigations (Winden, Jamelske & Tvinnereim, 2018). On this note, it is also important to determine services which do not have market but are society identifiable such as public services. It is common to readily attribute salary as direct measurement for public services, however, at the instance when civic servants render services more than defined in their job description, not covered as a task of their function, how measurement of value is made to impute effective pricing of economic activity. The study of Cherchye and colleagues (2011) takes interesting contribution to the revealed analysis theory when they introduced the identifiability question which suggests that a differentiable approach to emphasize identifiability which considers the demand function value for a continuous range of price-income combinations for a determinable exclusive goods. Their study employed a methodology that allows for data consistency with the unique collective consumption models with rational behavior for feasible income shares consistent with revealed preference approach. The study shall follow similar track given that a revealed preference technique is employed among the pandemic frontliners and imputing valuation of the police response in measuring rational behavior to render service of identifiable group by evoking value through income sharing hereto referred as the health hazard pay.

THEORETICAL FRAMEWORK

This paper largely takes advantage of the theory of maximization revealing agent's weak order governing comparisons of preference which assumes a demand function that for continuous range of price-income combinations as introduced by Afriat (1967). This means that the collective consumption model that allows private consumption of goods are publicly provided. In the instance of this study, the benefit of effective and efficient police response which is a publicly provided by the law enforces but such public good is brought to scarcity resulting from the limited mobility and interaction due to COVID19 as a matter of health protocol enforced by them.

CONCEPTUAL FRAMEWORK

This study employed the conceptual paradigm as a guide in the conduct of this study

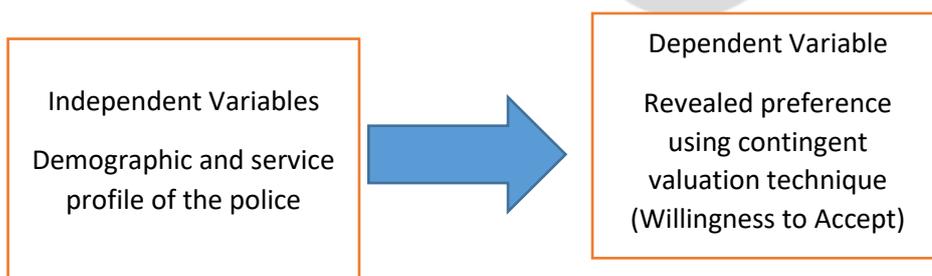


Fig. 1 Conceptual framework of the study showing relationships of the chosen variable

As presented above, the dependent variable, which is the contingent value of the police response during the pandemic, which will be determined using the Contingent Valuation (CV) employing the Willingness to Accept (WTA) technique will be regressed using the demographic and service profiles of the respondents.

METHOD

The study employed a quantitative approach in research. An online survey was conducted among the police officers in Police Regional Office 11 including the Regional Headquarters, Provincial Police Offices, City Police and the National Support Units. The online google form was used in order to avoid direct contact with the respondents to avoid risk of exposures during the pandemic. The revealed preference approach was employed to obtain the economic value using contingent valuation (CV) by asking the police of their WTA estimates of the public safety services that they provide during the pandemic. This was done by asking how much amount are they willing to receive as additional compensation while doing duty amid the pandemic. The amount is an in-income additional amount which would represent the increase in wage leading to higher income in an ordinary labor market setup. The amount to be imputed is considered consistent with the behavioral theory of the revealed preference theory. The health hazard pay measures is the approximation of the police response to the pandemic which is assumed to be used to pay expenses in boosting protection against the virus while the police performs duty. It is assumed that the revealed amount shall cover expenses for PPE, vitamins, and other purchases relative to the mentioned scaling up effort to protect oneself.

Data gathering

The online survey was conducted on May 3-19, 2021 and gathered a total of 1560 respondents which is 14.15% of the Police Regional Office population. The data gathering technique included the use of google forms which will be distribute to the personnel of Police Regional Office through the Regional Police Strategy Unit. The assumption of randomness is not given premium effect because the response through google is beyond the control of the researcher, depends heavily on the willingness of the police officers to join the study.

Statistical analysis

The study shall employ descriptive analysis to provide feature of the data converted in a readable tables or figures. In addition, contingent valuation technique using Tobit analysis shall be utilized on the collected data to determine validity of the revealed preference model of economics leading to economic valuation of police response. The Contingent Valuation to measure economic value was employed by directly asking the WTA values. The hierarchical regression was a fitting technique as some variables were used as control variables in obtaining the determinants of the Willingness to Accept (WTA).

ANALYSIS

As presented in table 1, most of the respondents aged 36-42 years old (33.91%) and 29-35 years old (31.60%) while a portion are in their 20's (9.87%) while some 5% belong to ages 50-56 years old. A huge majority of them are married (73.14%) followed by those who are still single (24.49%) while the widow and widower comprise a small margin (1.22%) as well as those who are separated (1.03%). Most of them are in service for 5-10 years (42.24%) or with 11-20 years (41.60%) while some 11.99% had 21-30 years of service. A quarter of the respondents (30.06%) holds a rank of Staff Sergeant, 19.55% holds Master Sergeant rank, while 4 colonels (0.26%) and 31 lieutenant colonels joined the survey. The last two police ranks are usually members of the Command Group as heads of departments, police offices or units. Most of them have 1 to 2 dependents (49.74%), while some have 3 to 4 dependents (34.81%), some 5% have more than 5 dependents in their household.

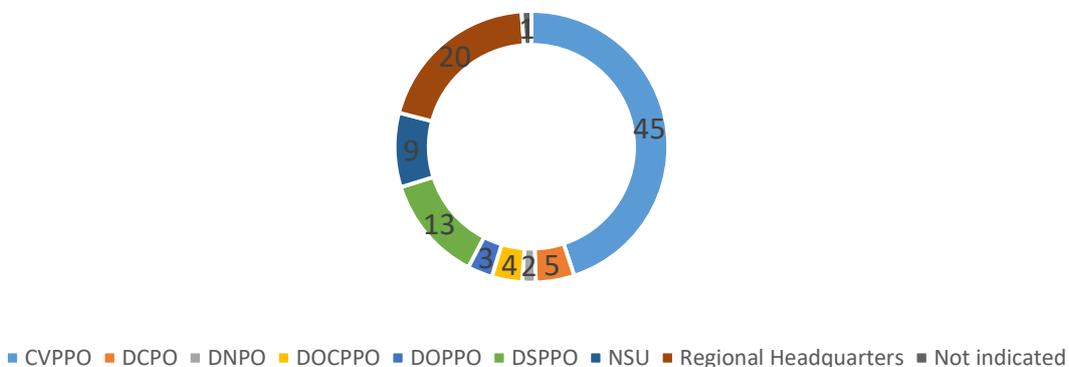
Table 1
Profile of Respondents

Variable	Category	f	%
Age	20-28	154	9.87
	29-35	493	31.60
	36-42	529	33.91
	43-49	306	19.62
	50-56	78	5.00
	Total	1560	100.00
Civil Status	Category	f	%
	Single	382	24.49
	Married	1141	73.14
	Widow/er	19	1.22
	Separated	16	1.03

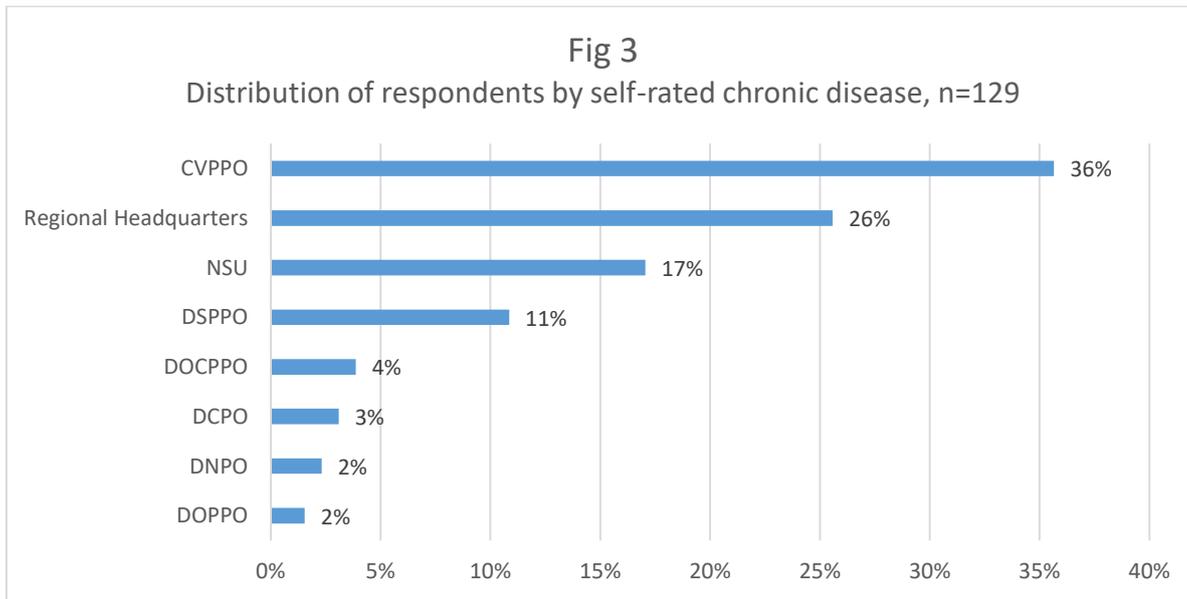
	Not indicated	2	0.13	
	Total	1560	100	
	Category	f	%	
Years in service	5-10 years	659	42.24	
	11-20 years	649	41.60	
	21-30 years	187	11.99	
	Not indicated	65	4.17	
	System	1560	100.00	
	Category	f	%	
Police Rank	Patrolman/woman	213	13.65	
	Corporal	267	17.12	
	Staff Sergenat	469	30.06	
	Master Sergeant	305	19.55	
	Executive Master Sergeant	78	5.00	
	Lieutenant	63	4.04	
	Captain	67	4.29	
	Major	26	1.67	
	Lieutenant Colonel	31	1.99	
	Colonel	4	0.26	
	Not indicated	37	2.37	
	Total	1560	100.00	
		Category	f	%
	Number of dependents	0 dependents	147	9.42
1 to 2 dependents		776	49.74	
1 to 2 dependents		1	0.06	
3 to 4 dependents		543	34.81	
5 and more depend		79	5.06	
Not indicated		14	0.90	
Total		1560	100.00	

As presented in figure 2, forty-five percent of the respondents are from the CVPPO or currently Davao Oro Police Office, 20% are respondents assigned at the Regional Headquarters, some 13% of the total respondents are from Davao del Sur Police Provincial Office. Meanwhile 9% are from National Support Units like the Regional Medical and Dental Service, Internal Affairs Service and other units assigned at the region but also directly reporting to Camp Crame. Some 5% are respondents currently assigned at the Davao City Police Office, 4% are coming from Davao Occidental Police Provincial Office, 3% are coming from Davao Oriental Provincial Office, and 2% are from the Davao del Norte Police Office. From this distribution, majority of the respondents are coming from the Davao Oro Provincial Police Office.

Fig 2. Distribution of respondents by police office assignment, %

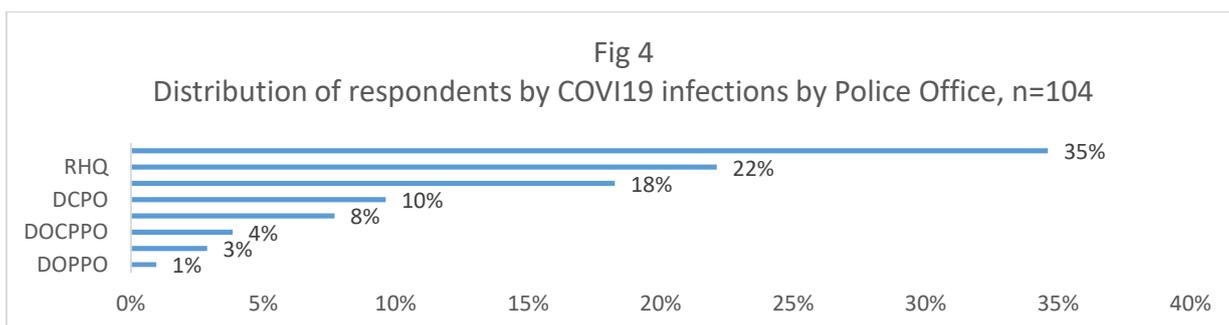


The police officers whether or not they have chronic disease, of the total 129 (8%) of the total respondents revealed having chronic disease which may include cancer, heart disease, diabetes which left unattended will lead to death or disability. For this study, chronic diseases are that sickness which need ongoing and immediate medical attention happening for more than a year. Of the 129 with chronic disease, 36% of them are found in the CVPPO or now the Davao Oro Provincial Police Station, while the other 26% are assigned in the Regional Headquarters, 17% are National Support Units (NSUs). Some 11% of the police officers from Davao del Sur Provincial Police Office have chronic disease, while other Police Offices posted lower rates of police officers with chronic disease like Davao Occidental (DOCPPPO) with 4%, Davao City (DCPO) 3%, Davao del Norte (DNPPPO) and Davao Oriental with 2% each. This goes to show that the high response rate of the Davao Oro (CVPPO) revealed wider scope for context of the profile of their police officers, in this context, they have the highest number with chronic disease as compared with others.



The respondents were asked whether or not they have been infected with COVID19 virus while doing their functions including manning of checkpoints, enforcing lockdowns, enforcement of health and safety protocols, and law enforcement functions. A total of 104 respondents revealed that they were infected with COVID19 while performing their duties, expectedly, most of them hailed from Davao de Oro (35%), some 22% are assigned at the Regional Headquarters, 18% are NSUs who hold office at the Regional Headquarters compound. While 10% of those who were infected come from DCPO, while 8% are from Davao del Sur, Davao Occidental with 4%, Davao del Norte with 3% and Davao Oriental with 1%. Davao de Oro (CVPPO) is a border area between Davao Region and Caraga Region and when the lockdown was lifted and travel was allowed, the Davao de Oro Province installed a halfway house where those who are coming to Davao Region passing through the province have to observe the mandatory quarantine. This setup, at the start could have caused the COVID19 infection of the police because they are the frontline in receiving the vehicles entering the province. The police check the vehicles and the travelers' documents to ensure compliance to the health protocol. The police expose themselves to COVID19.

The Camp Sgt. Quintin Mercialdo which houses the Regional Office and the National Support Units intermittently declared localized lockdowns due to COVID19 since 2020. The Regional Office also established packets lockdown, where buildings with staff reported to be COVID19 positive are put on hard lockdown. No one can go out nor join the building. This happened for almost six months not on summer of 2021, a full lockdown of the whole region was implemented to curb the spread of the virus. Of the 129 who revealed having chronic disease, 25 of them reported to have contracted the virus while responding to their work as police officers.



The police are asked of their level of stress in the middle of the pandemic. The respondents were asked to indicate their stress level on a range of 1 to 5, with 5 as very high stress level in relation to work, and 1 as very low. On the whole, the stress level is reported as 2.7 which is considered as moderate stress level at work during the pandemic. Further disaggregation of the stress level by Police Office would reveal that the police manifesting moderate stress level during the pandemic are those who are assigned at the Regional Headquarters (2.9, moderate stress) and the Davao Oriental (2.9, moderate stress). The police assigned at the NSU also reveal moderate stress level (2.8) and the Davao del Norte Police Office (2.7). Police with low stress level are found in Davao Oro (2.6) and Davao City Police Office (2.5). The police officers manifesting moderate stress amid the fear and uncertainty in the fight against the unseen enemy, the COVID19 virus, the police may have put to good use their training and discipline. Although the COVID19 places additional strain on the many functions of the police who have no direct knowledge nor immediate full training on health protocol, yet the whole force demonstrated resilience and adaptability in the operational context and re-configuration of deployment of warm bodies. Manning the checkpoint exposes the police officers to greater danger of contracting the disease, however, the moderate stress level only dictates that the pandemic could be one of the events in the society where the police have been preparing for in their authority as public safety officers, which is a digression from the regular impression that police are unto the limited role of law enforcement. The discipline and the chain of command principle aided the organization in ensuring order among the ranks and is being reflected in their day-to-day function doing the necessary and effective acts of policing and community relations.

Table 2
Level of stress by Police Office

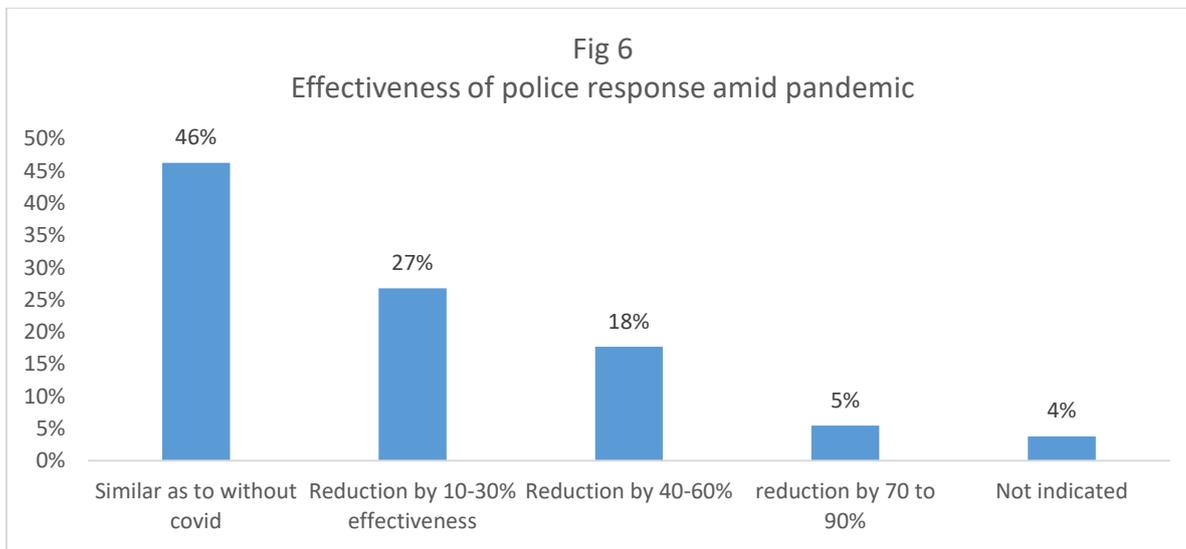
Police Office	Mean	Description
DCPO	2.5	Low
CVPPO	2.6	Low
DOPPO	2.6	Low
DNPO	2.7	Moderate
DSPPO	2.7	Moderate
NSU	2.8	Moderate
DOCPPO	2.9	Moderate
RHQ	2.9	Moderate

However, a closer look on the stress dimensions of the police, it was found out that the worry of the police is when they bring the virus to their homes infecting family members. As presented in table 3, the police posted high stress level on the account that they are the reason why a family member contracts the disease. They maintain moderate stress level when the thought of being infected with COVID19 while performing their work. Low stress was noted when asked about of their work and the stress associated with it, the weighted average is only 2.68

Table 3. Dimensions of police stress

Dimensions of police stress	Average	Description
Work-related stress	2.68	Low stress level
Worried of contracting COVID due to work	3.17	Moderate stress level
Worried family is infected when I get infected	3.68	High stress level

As presented in figure 5, most of the police officers guaranteed that their manner of response, the expected effectiveness and efficiency of police response is similar to pre-COVID19 period, accounting for 46% of the total respondents. While 27 in 100 police officers revealed that their police response reduced in terms of effectiveness and efficiency by 10-30% due to the COVID19, while 18 in 100 expressed that effectiveness of police response went down by 40-60%. To push further, 5 in 100 said that the effectiveness of police response went down by 70-90%.



However, when investigating on the level of police office, all of the police offices fall within the category of 10-30% reduction in police effectiveness due to pandemic. Of this league, Davao del Norte posted better weighed average at 3.08 while Davao Oriental with 3.26 weighted average is considered to be relatively higher than the rest.

Table 4
Level of police response effectiveness amid COVID19

Police Office	Mean	Description
CVPPO	3.14	Reduction by 10-30% effectiveness
DCPO	3.16	Reduction by 10-30% effectiveness
DNPO	3.08	Reduction by 10-30% effectiveness
DOCPPPO	3.33	Reduction by 10-30% effectiveness
DOPPO	3.26	Reduction by 10-30% effectiveness
DSPPO	3.21	Reduction by 10-30% effectiveness
NSU	3.20	Reduction by 10-30% effectiveness
RHQ	3.22	Reduction by 10-30% effectiveness

The trust on the police is also measured. Trust on the police means that the public generates accountability on the police on their effort to enforce the law consistent with the intention of ensuring and preserving public safety, such that in return the public partners with the police or extends support to the police in the performance of the latter's function. As presented in table 5, the Police Regional Office 11 obtained a trust rating of 86%. Among the police offices, DCPO obtained 90% trust rating. Davao Occidental obtained 88%, Davao de Oro (CVPPO), Davao Oriental, Regional Headquarters obtained 86% each. While Davao del Norte and the National Support Units obtained 84% trust rating.

Table 5
Level of trust per police office

Police Office	Rating	Description
CVPPO	86	Very High
DCPO	90	Very High
DNPO	84	High
DOCPPPO	88	Very High
DOPPO	86	Very High
DSPPO	86	Very High
NSU	84	High
RHQ	86	Very High
Overall	86	Very High

The statistical relationship between police response, police trust and the work-related stress were tested using Pearson r correlation. The intention is cursory on the function of effectiveness of police response leading to trust, of which trust, serves as the currency of the public servant in the performance of their duties, in this case, the police officers. Suggestively, the police work for the purpose of earning the trust of the public, as to the private sector works for the purpose of profit or income. Thus it serves that the bottom life for private sector is profit, for the public, it is public trust.

In addition, these two social variables are tested to determine correlation with work-related taking on the assumption that high trust leads to better work performance, and in an expanding society, better work performance will mean doing more and exerting more effort to manage and sustain the trust of the public. Doing more and gaining public trust in the middle of the pandemic are context of relationship needing particular attention. During pandemic, frontliners face the risk of contracting the virus, the physical distancing, regular handwashing are events that deviates from the assumed tasks of the police. Theirs is physical agility and endurance, not much of maintaining hygiene. They enforce the law with expected symbol of community relations, as what is expected in the women and children's desk. Police officers in this section are expected to show care and protection among the victims of domestic violence, and these expectedly are usually carried with regular care and empathy. The training on empathy of the police through their community relations manifest in direct involvement, participation and engagement with the community they serve. Hence, police work effectiveness, earning trust are expected to be halted by the COVID19 causing stress among the officers. As presented in table 6, stress due to COVID19 showed no statistical relations with effectiveness of police response and police trust. On the other hand, effective police response is correlated with police trust.

Table 6
Correlation test of variables

Variables	Stress due to COVID19	Police Response	Trust on Police
Stress due to COVID	1.00	0.02 0.49 1476	-0.02 0.51 1504
Police Response	0.02 0.49 1476	1.00	0.51
Trust on police	0.51 1504	-0.21 0.00* 1498	1.00

Faced with threat of the pandemic's infection in addition to regular tasks and roles, the police are being asked how much are they Willing to Accept (WTA) to improve their police effectiveness during the pandemic. The use of WTA in this study is a simulation of the concept of labor market where the police officers are considered as sellers of additional hour extended for work above the regular eight hours' work. The significance of this simulation is to be able to elucidate the portion of time in rendering police work that has reached the point of overtime as in the private work. In the public safety where the police belong to, there is no definition of work time, as every time is a period of rendering public safety service hence, it blurs the limits of work-leisure time distribution that is fundamental in rendering work hours to earn wages that is the foundation of labor market analysis. As presented in table 6, the Willingness to Accept (WTA) for COVID19 response ranges from as low as Php50 daily allowance to as high as Php3,000,000 compensatory amount given once moment a police officer is hit by the virus. The average Willingness to Accept (WTA) amount is P20,0025 (stdev 11946), and the mode is Php10,000. Thus, taken by the average, the police are willing to receive an additional monthly compensation of P20,000 on top of their regular salary as payment for their additional time to render services during pandemic with the same vigor and enthusiasm as pre-pandemic.

Table 7
Willingness to Accept for COVID19 Response

Category	Amount (Php)
Minimum	50
Maximum	3000000
Mode	10000
Mean	20025
StDev	11946

Taking the Willingness to Accept to the level of the police office, it was found that Davao de Oro police officers are willing to receive P26,212 monthly compensations for their duty hours during pandemic, Davao del Norte police reveal they are willing to receive P22,444. The police officers coming from NSU, DCPO, Davao Oriental, Davao del Sur and those assigned at the Regional Headquarters are willing to accept between P13000 to Php18000 as compensatory amount for services facing the risk of contracting the virus. It is noteworthy that the police officers from Davao Oriental.

Table 8
Willingness to Accept Additional Amount to Support Response Amid Pandemic

Police Office	Weighted amount (in Php)
CVPPO	26212
DCPO	15647
DNPPO	22444
DOCPPPO	5387
DOPPO	15360
DSPPO	14026
NSU	18187
RHQ	13355

The hierarchical regression was implemented to identify the determinants of the Willingness to Pay. The determinants of reveals the prompters of the expanded role valuation of the police officers as they perform direct and expected duties during the pandemic.

Table 9
Hierarchical regression on WTA for Effective Police Response using stepwise approach

Model	Variables	Coeff	Std. Error	t	Sig.	R-square	Adusted R-square	Std Error of Estimate
Model 1	Constant	-2606	12127	-	0.83	0.68%	0.52%	121832
	Stress level due to COVID19	8735	4209	2.07	0.04			
Model 2	Constant	-	36635	-	0.39	1.02%	0.55%	121813
	Stress Level due to COVID19	31205	4226	2.20	0.03			
	Police Trust	7929	7121	1.11	0.27			
	Police Response Amid COVID19	-3672	5363	0.68	0.49			

Dependent Variable: WTA

The hierarchical regression is appropriate as the police response and trust are considered as control variables. This indicates that they can deviate effects of some chosen explanatory variables or can enhance effect on the WTA value. As presented in table 9, two models were developed. The first model includes stress level as the significant variable, and second model include stress found to be statistically significant, in addition to the inclusion of the control variables which turned out to be not statistically significant. However, the goodness-of-fit improve which can be attributable to the effects of the variables added to the equation.

DISCUSSION

In economics, the concept of utility is not limited on acquiring products through purchase, people also obtain utility from leisure time. In this paper, leisure time is any other time spent not on work. The utility-maximization on how many hours spent on work is similar to the process of constraints and maximization in purchasing goods and services. The preference approach in determining the quantity of leisure time follows the labor-leisure budget constraint, as such when wages shift, the labor supply curve also moves. The labor supply determinants include taxation and subsidy, in the form of hazard pay for hours of work that requires intensified focus and attention which De Vries (1994) which will lead to suppression of leisure leads to self-exploitation. In fact, intensive work and willingness to supply labor are evaluated on the dimensions of occupational choice, hours of work on the job, and the intensity of work. Kool and Botvinick in a 2014 study pointed out that the preference for daily activities can either be mentally demanding which they call as cognitive labor and undemanding activities but also unproductive which they describe as cognitive leisure. The trade-of takes on the fulcrum of choosing between mentally demanding and undemanding, productive and unproductive. Putting compensation on hours rendered creates impact on the number of hours supplied (Bonn, Kempe & Schneider, 2002).

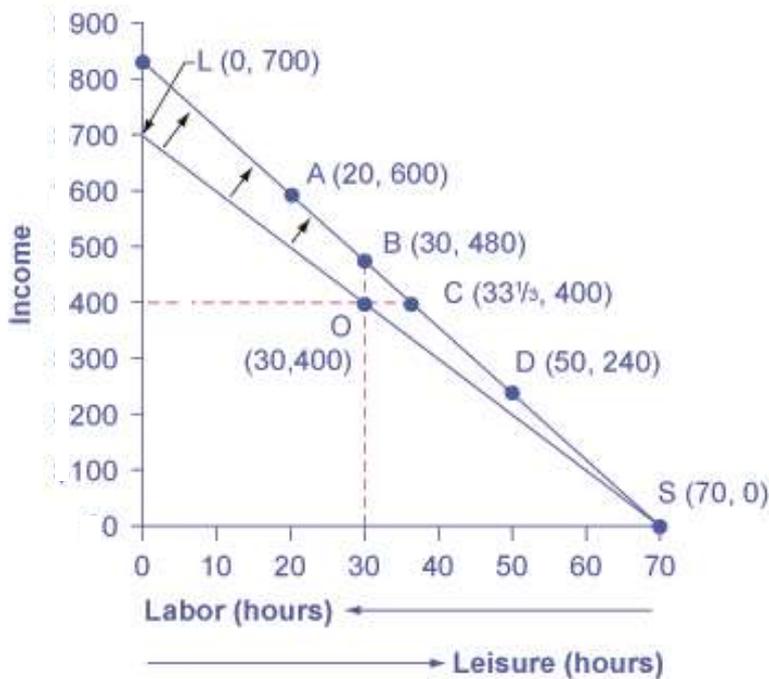


Fig 6 (lifted online for illustration. Wage increase and utility maximization (lifted online). With increases in wage, the budget line shifts outward pivot on income. The individual's choice is Point O, which lies at the lower budget line. Given the wage increase, an individual may supply less labor and more leisure (Point D), or more work and less leisure (Point A), or maintaining leisure hours to earn higher income (Point B) or maintaining fixed income and convert labor to leisure (Point C). This condition leads to three common decisions on labor supply given wage increase: higher wages leading to more hours worked; higher wages leading to nearly the same hours worked; higher wages leading to fewer hours worked.

Very clearly, the increase or decrease in hours for work or for leisure is affected by the wage and ultimately, income of the individual. In-income subsidies or subsidies that is placed on work tend to reduce hours supplied for labor as discovered by Boon and colleagues (2002) among German workers, while taxes bear similar effect yet extends into contributing the size of the informal labor market. The workings of labor market show that a wage increase which demonstrates the potential effect of on-top income in support to demanding work during the pandemic. The labor market is limited in putting value on hours dedicated for public service especially in public safety as ensuring public safety is not contained in a regular working hour period, it is an all-time work and thus the workers securing public safety ensure that primary elements of making the community safe and secure are evident and reliable. These elements include governance credibility, effectiveness of response, and community relations. The functions of the police can be divided into two categories as soft policing and hard policing. The soft policing focuses on the persuasive mode of social control in relation to the demand of public (Innes, 2005) which are largely non-coercive policing involving community engagement, negotiate order and employ situated knowledge (Wooff, 2017). Meantime, hard policing means that the police instill fear among delinquents and violators of the law. They enforce the law, takes on them the dark side of crime fighting, to catch and prevent criminals. It is fighting violence with violence (Seigel, 2018). Measuring the wage value of non-market services, particularly the police service choosing to do expected policing method to win to their side the community, and improve community relations, is simulated using the Willingness-To-Accept (WTA) which serves as the nominal wage increase which denotes that outward shift of the labor supply curve (Fig 6) pivoting on the leisure. The imputed economic value of hours dedicated to ensuring public safety during the pandemic, ensuring effective response and gaining the trust of the public, is seen as a representative of a dynamic effect in this sector which behavior is similar to that in the regular labor market. Following the findings of Bonin (2002), an in-work subsidy maintains interesting effect on the supply of labor. The police, unlike other occupation, have their working hours for manning check-points (Vicente, et al., 2020), intelligence gathering and police presence (Santander, et al., 2018), persuasive social control through community engagement (Rosenbaum & Lawrence, 2017), law enforcement (Atun et al., 2019), crime prevention (Gatpandam & Ambat, 2017), and disaster response as evident in Tacloban City post-Yolanda (Yee, 2018). The supply of hours for work is represented by the two related variables that relate to civic servant performance, the public trust and the effectiveness of response. With statistical correlation, it is confirmed that public trust and perceived effectiveness of police response are reinforcing variables in the performance of public service. The average amount of the WTA, Php20,000 per month of full duty, as economic value of the risk associated with police response during the pandemic is lower than the monthly compensation of the lowest-rank police officer who receives a base pay of Php29,000. Police officers receive training in the above police functions, but not in health-related response that besought the whole nation by the COVID19 pandemic, except with its Health Service Department. The lack or absence of training in response to the pandemic limits the police to effectively respond to the global health challenge. As such, the officers experience anxiety and stress level nowhere exhibited in performance of their police duty. The police stress level amid pandemic showed statistical effect on the amount of the WTA. The higher the stress, the higher is the WTA. In addition, employing public trust and self-rated police effectiveness as control variables improved the model however, showed no statistical evidence to influence the WTA which represents a simulation of

wage increase resulting from performing duties amid pandemic. Largely, the police response continues to be public service driven by the intention to gain the public trust through effective response across multiple facets of police roles during pandemic. Perhaps, the statistical influence of the police stress on the WTA bears on the intention to utilize additional money for hospitalization when the officer or family member contracts the disease due to the nature of work of the police officer. The economic value of police labor supply amounting to P20,000 per police officer is a revealed preference and uncorrelated with the police mission of serving and ensuring the community as safer place to live, work and do business, if possible, amid the pandemic. The economic value of public safety through the WTA amounted to Php220 Million. It may tend that an additional in-income compensation will lead to more hours of work among the police officers while the country is battling the pandemic, the additional income earned as represented by the WTA will not be used for leisure. The revealed preference using WTA provide an accidental finding on the choice of the police to supply more hours with the objective of nurturing the trust of the public through demonstrated effective police force. However, as they supply more hours to work, the police experience anxiety and stress that will hinder them to perform their duty well. The work-leisure approach in the study pointed out that the demanding police work is associated with anxiety and stress that is not part of the limiting dimensions of work and leisure model in predicting labor supply dynamics that are ordinary in the labor market.

CONCLUSIONS

The use of the WTA to measure the labor market supply dynamics showing the choice faced by an individual when income increases due to wage increase is simulated in this study. The economic value of police response represents the wage increase which, using the labor market predictive analysis, will lead to more work less leisure, or less work more leisure. The intention is to determine the imputed value on the non-market goods of public safety which is being provided by the police officers. The average WTA of Php20,000 which is the measure of economic value of police response is considered as in-work income was found to be influenced by the level of stress of police officers due to pandemic largely linked on the thought that they or their families are infected by the COVID19 due to their work. Interestingly, the public trust and the effectiveness of police response showed no statistical influence on the WTA which signifies that any compensatory amount maintains lower impact on the decision to deliver effective police response during pandemic as compared to the impact of the trust of the public on the motivation of the police. The high level of trust comes as a currency in the non-market value of public service, and as a reaction to the high trust, police renders highly effective services during pandemic.

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