

Impoverishment and Patients' "Willingness" and "Ability" to Pay for Improving the Quality of Health Care in Palestine: an Assessment Using the Contingent Valuation Method.*

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Abstract: (*No. of word = 129*)

This paper examines the impact of impoverishment on patients' preferences with respect to improving the quality of delivered care, by focusing on the sudden impoverishment experience that has gripped the Occupied Palestinian Territories since the beginning of the second Palestinian Uprising of September 2000. Using contingent valuation, two random samples of patients revealed their preferences for improving a set of quality attributes, prior and after the occurrence of this crisis situation. Impoverishment does not seem to affect patients' preferences toward some essential quality attributes, like "drug availability". However, preferences toward "luxury" quality attributes, e.g., "waiting time", suffered from income-independent adverse impoverishment effects. We conclude that impoverishment might affect the ability of certain groups of patients, notably women, villagers and the elderly, to express adequately their preferences toward improved-quality services.

Keywords: poverty, contingent valuation, willingness to pay, quality improvement, Intifada, Palestine.

1. Introduction:

The early 80s' international economic crisis substantially aggravated the unfavorable economic trends in many developing countries [1], and signaled the severe deterioration of the economic stability of several middle- and low-income countries [2]. Under the pressure of this economic crisis, many countries responded by implementing stabilization and structural adjustment programs [3], which were proposed, and subsequently demanded, by international organizations such as the World Bank [4] and the International Monetary Fund [5]. Structural adjustment programs obliged these countries to restrict their social public expenditures, including health care budgets [6], with a risk of compromising the provision of good quality services. Various financial alternatives, mainly based on challenging the demand side of health care markets, were promoted to counter-balance the reduction in public resources [7]. The strategy that attracted policy- and decision-makers' most attention consisted of introducing, or elevating, utilization charges; i.e., user fees, paid by the patients at the point of consumption – this is commonly known as *cost recovery policy* [8, 9]. These additional private financial

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resources were to be used – at least in theory – to improve the quality of delivered care [10, 11]. Proponents of this approach usually argue that patients are *willing* and *able* to pay for health care services, and evidence in support of this assumption was generally derived from surveys dealing with attitudes toward seeking for health care [12-14] as well as behaviors toward health expenditures [15, 16]. Under comparable circumstances, similar policies, based on the increase of household out of pocket spending for health care through user fees, are being considered for implementation by health care providers in the Occupied Palestinian Territories (OPT).

Pricing decisions, however, have proven to be a difficult area of decision-making for health care providers who may legitimately fear that increased fees will cripple demand and create barriers to access for poor clients [17]. Moreover, actual experiences in cost recovery demonstrate that without visible and immediate improvements in the quality of care, user fees implementation will cause service utilization to drop [1, 18]. Hence, planning user fees on the basis of patients' *preferences* vis-à-vis improving the quality of health care is being increasingly considered as a way to assist in informing policymakers about the potential social consequences of pricing policies, and as a result, allowing for the establishment of socially acceptable and financially sustainable quality improvements [19]. Conventional economic theory provides a useful framework for assessing the consumer's *strength of preferences* for a certain commodity, including its measurement through monetary units [20].

Different direct and indirect, real and hypothetical, techniques have been developed to assess patients' *willingness to pay* (WTP) values for various types of health commodities [21]; and the most commonly used is the *contingent valuation* (CV) [22]. Although CV has been mainly developed and applied within areas of public transport [23, 24] and environment [25, 26], it is being increasingly used in the context of health care [27, 28]. As defined by Klose [29], the CV method is a hypothetical survey technique used to directly assess the maximum amount of money the respondent would be willing to pay to benefit from an increased quantity of a defined health care good or service. "*Because the elicited WTP values are contingent upon the particular hypothetical market described to the respondents, this approach came to be called the contingent valuation*" [22, p. 2].

Although there is no mechanistic relationship between both approaches, it must be acknowledged that the current interest for CV surveys for health care in developing countries has been facilitated by the issues and debates raised by the implementation of cost recovery policies [30]. A usual assumption of CV is that individuals who declare they are *willing* to pay a certain price should, somehow, be *able* to do so [31]. The relationship between WTP and *ability to pay* (ATP), however, remains a matter of debate. Some economists argue that the two notions should be strongly distinguished: "*WTP is not synonymous with ATP, because health expenditures may impose considerable costs on household consumption and investment patterns, and may start a process of asset depletion and impoverishment*" [31, p. 220]. In other words, if a patient expresses a WTP for a service, and even, if she/he goes further to pay for it in the real world, such stated and revealed behaviors may not be automatically interpreted as a proof of *affordability*. Indeed, payments might be made at considerable social costs obliging the patient to give

up essential consumption, such as education, just to be able to acquire the service. That is, complex factors are usually associated with patients' decisions in demanding health care, so much so, that their real and stated behaviors vis-à-vis a particular health service are structured and modified by their realities and experiences in such ways that their preferences for a particular service and its affordability do not necessarily correspond to each other.

In this paper, we attempt to complement the above reasoning and argue that an absence of stated (or revealed) WTP value may not always be interpreted as a *lack of preferences*, or as considering that the value of the good is nil for the individual. Indeed, when confronted with a severe social and/or economic exogenous shock, individuals may start a process of re-prioritization of what is important and what is not, leading them to underestimate issues in which they were expressing relative interest. Using data on patients' WTP values, elicited through CV, before and after a severe impoverishment period, we attempt to assess how the latter affects patients' preferences with respect to improving the quality of delivered care. We argue that under poverty conditions, individuals may cease to express a WTP for certain aspects of health care for which they were attaching considerable importance before conditions of poverty set in – an attitude that *nevertheless* cannot be exclusively attributed to a pure income-reduction effect. Indeed, impoverishment may have an effect on the *nature* and/or the *strength* of patients' preferences vis-à-vis improving health care. By the *nature* of preferences we refer to quality attributes that the patients are interested in ameliorating – this shall be manifested by stating positive WTP values. The *intensity* of preferences involves the extent to which patients “desire” the improvement, as reflected by the magnitude of stated WTP values.

The paper aims to provide policymakers with a quite innovative type of information related to the type of quality improvements that may better guarantee a successful implementation of financially sustainable, socially acceptable, and equitable cost recovery policies – yet, under varied economic environments. It makes use of the sudden and severe impoverishment that has been experienced by the Palestinian population following the explosion of the second *Intifada* (Uprising) in September 2000, the subsequent tight closures, and more recently, the re-invasion of Palestinian-controlled lands by the Israeli army beginning on 29 March 2002. This unfortunately constitutes a *de facto* prerequisite for a quasi experimental analysis. A general description of the Palestinian health care system and of the Palestinian impoverishment experience is presented in the following section. The third section presents the CV questionnaire about potential improvements in primary health care (PHC) that was surveyed before and after the occurrence of this crisis situation. It also details the econometric and statistical analyses used. Results are presented and discussed in the fourth and fifth sections, and are followed by concluding remarks and some recommendations for policymaking.

2. Background:

The Palestinian health care system is a complex one. Years of colonization and military occupation have shaped its capacity and defined its main actors [32]. Four principal health care providers, including, a recently “born” Palestinian Ministry of Health (PMOH), a group of Palestinian Non-Governmental Organizations (PNGO), the United

Nations Relief and Works Agency which takes care of Palestinian refugees (UNRWA), and a private sector [33] serve approximately 3.6 million Palestinians living in the West Bank and Gaza Strip [34]. Following the signature of the Oslo peace agreements and the subsequent creation of a PMOH, international donations – previously the main sources of funding for many private-not-for-profit local providers – became for the most part centrally managed by the PMOH. In order to improve and develop the previously neglected health care infrastructure, the PMOH has decided to use a significant share of international funds for creating new health facilities. The other providers were consequently asked to limit their access to international donations and to ensure a significant part of their financing by themselves. However, this proved to be a difficult task to accomplish, especially given that most of the PNGOs had been providing their services free of charge or with very limited users' financial contributions for many years during the occupation period (1967 till 1993). The restrictions in access to international funding has led a number of PNGOs to reduce their activities and eventually to shut down their operations in some instances [33, p. 19].

A potential solution for compensating the reduction in external funding was to involve patients in the financing process by mobilizing private resources. Some PNGOs had already been using similar financial policies to assure efficient utilization of health care services and to prohibit service abuse. Similar financial policies were also envisaged by the PMOH as a way to guarantee future financial sustainability and self-sufficiency. Indeed, implementing cost recovery schemes was listed as one of the strategic objectives in the Palestinian National Health Plan [35, p. 28]. Our study was initially designed as a way to provide managers of public and private-not-for profit PHC providers with complementary information concerning the level and structure of user fees that should be used, based on an assessment of the value of potential quality improvements in their medical services from the users' perspective.

Following the signature of the peace agreement between the Palestinian Liberation Organization and the Government of Israel, and the establishment of the Palestinian National Authority and its quasi state structures, the Palestinian economy went into a difficult – however, full of promise – period of recovery. This was witnessed by the growth of major macroeconomic indicators; e.g., the Gross Domestic Product (GDP). From mid-1996 to mid-1999, the real GDP per capita increased by 6%. Meanwhile, the Palestinian real Gross National Income¹ (GNI) per capita increased by 15% [adapted from [36]]. This period of economic growth was however abruptly interrupted with the beginning of the second Intifada in September 2000 and the subsequent imposition of a tight closure, siege and curfew conditions on the OPT [37]. More recently, incursions of the OPT by the Israeli army aggravated the conditions even further. After more than two years of closure, siege, and curfew conditions, the real per capita income dropped to half of its September 2000 level; and the percentage of the Palestinian population living under the poverty line of US\$2 per day rose from 21%, on the eve of the Intifada, up to 60% by December 2002 [36]. It is important to mention here that a strong correlation was demonstrated between the decline in per capita income and the closure of the OPT [37]. In this paper we use this sudden and severe impoverishment socioeconomic exogenous

¹ GNI = GDP + remittances from abroad.

shock to assess the impact of the above environmental and economic changes, mainly impoverishment, on patients' preferences with regard to improving the quality of delivered medical care.

3. Materials and methods:

A CV questionnaire was prepared, tested and administered by pre-trained interviewers on two independent random samples of patients seeking care in two urban, governmental and non-governmental (NGO) PHC centers situated in the Ramallah district (OPT). Respondents were recruited during July-August 2001 and March 2003; i.e., nine and twenty-nine months, respectively, from the beginning of the second Palestinian Intifada – hereafter, we shall refer to the two study phases as *early-* and *late-uprising* studies. Indeed, the *late-uprising* study was preceded by a year of critical impoverishment period, mainly induced by incursions of Palestinian controlled-lands and the subsequent tight closure of the OPT. Respondents were randomly selected amongst patients who just had a medical consultation. Any adult patient exiting from a doctor's examination room was eligible to take part in the study. When the medical prescription implied to acquire drugs, the interview took place after the patient had passed by through the local pharmacy of the center.

3.1. Contingent valuation:

Following some introductory information on CV, in general, and on its use in assessing health care quality improvement, respondents were requested to value specified enhancements in the quality of delivered PHC, using four pre-selected quality attributes; e.g., *geographical proximity*, *waiting time*, *doctor-patient relationship* (DPR), and *drug availability*². For this purpose, respondents were first questioned about their perceptions of the current status of each of the attributes using ordinal and *Likert-scaling* techniques³ (see Appendix A for the corresponding measurement scales). Respondents were subsequently asked to assess a transition from the *status quo* level of each of the quality attributes, as perceived by them, to the "optimal" state on the corresponding measurement scale, using a *decomposed valuation scenario* [39] and a *payment card* elicitation technique [22, 40]. In contrast to a *holistic valuation scenario* where a commodity is valued as a whole, using a decomposed valuation scenario implies that components of the commodity are valued separately. In a payment card elicitation technique, respondents are asked to reveal their maximum WTP values by selecting it from a list of monetary values presented to them on a card aside. For each specified quality improvement, respondents were asked about the highest extra user fee they would be willing to pay, at

² In the *early-uprising* study, respondents were also asked to assess improvements over: *staff attitude*, *meeting the same doctor* and *chance of recovery* quality attributes. The three most frequently cited attributes as the most important for the patients to be improved were included in the *late-uprising* study. The *waiting time* attribute was included in the due to changes in the waiting time patterns induced by an obvious reduction in the number of visiting-patients following the *Intifada*; for details see [38]

³ The *Likert-scaling* technique consist in asking respondents to state whether they "Strongly Disagree", "Disagree", "Undecided", "Agree" or "Strongly Agree" with each item's contents. Answers are then coded from 1 to 5 and a DPR-score is calculated by taking the average of respondents' answers.

every new coming medical visit, to benefit from the specified improvement – the valuation process and the WTP questions are presented in Appendix B; the questionnaire instrument is available at: <http://www.geocities.com/awadmataria/CVquestionnaire.pdf>.

Respondents perceive the *status quo* level of each of the attributes differently, however, the “optimal” proposed states were the same for all the respondents; e.g., a “Very Close” PHC center, a “Not Long at All” waiting time, being able to stay sufficient time and receive enough and clear information from the doctor, and being able to always find “All” the prescribed treatment(s) in the center. This implied that different respondents valued different amplitudes of quality improvements depending on their own current situations. Consequently, WTP results can be used to ascertain the validity and sensitivity to scope of the CV instrument; i.e., the aptitude of the method to discriminate between the values of different degrees of the commodity being assessed.

Finally, individual demographic and socioeconomic characteristics; including, gender, age, education (number of formal schooling-years completed), marital status, living zone, employment status and household monthly income, were collected. For more details about the questionnaire construction and the validity testing of stated WTP values, including, construct and internal validity, see [38]. WTP values were assessed in New Israeli Shekel (NIS). During the *early-* and *late-uprising* studies, 1 US\$ was equivalent to 4.20 and 4.75 NIS, respectively. Therefore, to adjust for NIS depreciation, patients’ WTP values from the *late-uprising* study were reduced by a coefficient of 0.884.

3.2. Analysis:

Uni-, bi- and multivariate analyses were conducted on the separate, and a pooled, sample(s) from the *early-* and *late-uprising* studies. We first ran univariate analyses on each of the four stated WTP values to assess the distribution of patients’ answers with respect to the different proposed quality improvements. We also calculated the percentage of respondents not willing to pay for each improvement(s); those are identified as the *non-contributors*. A significant variation in the number of contributors – those stating positive WTP values – between the *early-* and *late-uprising* studies, may be interpreted as a variation in the *nature* of patients’ preferences. Moreover, a significant variation in the magnitude of WTP values may be interpreted as a variation in the patients’ *strength* of preferences. The bivariate analyses involved comparing stated WTP values according to respondents’ demographic and socioeconomic characteristics. To detect the existence of an impoverishment effect(s), the bivariate analysis was stratified by study phase and Pearson chi-square test was used when statistical significance was desired.

Tobit regression analysis for limited dependent variables [41] was used to detect factors independently associated with patients’ stated WTP values. This was preferred to the more commonly used multi-linear ordinary least square (OLS) regression which fails to account for the qualitative differences between limit observations (with WTP = 0) and non-limit ones (with WTP > 0). Using OLS estimator when a considerable proportion of the observations for the dependent variable are limited “at zero” may lead to erroneous estimation of the marginal effects of any independent variable on WTP values [42]. Tobit

regression was carried out for WTP values given for improvement of each quality attribute, as the dependent variables. Explanatory variables introduced in each model included individuals' assessment of quality attributes' *status quo* level and a set of respondents' demographic and socioeconomic characteristics. Each of the Tobit regression analyses was followed by the Ramsey RESET test to assess eventual misspecification of residuals⁴ [43].

In order to detect the existence, the nature and the intensity of any impoverishment effect on patients' preferences with respect to improving the quality of delivered care, a binary variable indicating the phase of the study; i.e., *early-* or *late-uprising*, was also introduced into the model⁵. This was followed by an assessment of all possible interactions between, on the one hand, the study phase, and on the other hand, respondents' demographic and socioeconomic characteristics, and the level of quality improvements. This was repeated with a stepwise selection procedure – variables were included and excluded from the model based on a likelihood ratio test and at significance levels of 0.10 and 0.20, respectively. The interaction terms allow us to understand the factors whose effects on WTP varied following impoverishment. Descriptive analyses were conducted using the computer software SPSS release 9 for Windows; and econometric analyses were carried out using Stata release 7.0 for Windows.

4. Results:

4.1. Sample characteristics:

An equal number of respondents were interviewed during the two study-phases (352 and 353 individuals, respectively, accepted to participate). The response rate was significantly higher in the *late-uprising* study (78%) compared to the *early-uprising* phase (61%). This might be due to the continuous increase in the unemployment level following the *Intifada*, and the reduction in the number of respondents frequenting urban PHC centers coming from distant areas – due to continuous closures and difficulties in transportation – who are usually in hurry to go back home. Overall, 54.5% of the sample was recruited in the governmental PHC center and 45.5% in the NGO PHC center. In 80.4% of the cases, the respondent was the patient her/himself, while in the remaining cases, mainly where the consulting patient was a child, the accompanying person answered the questions. The majority of respondents were middle-aged, married housewives living in rural zones. Most of the patients had some form of health care insurance coverage (81.5%), for the most part by a governmental insurance scheme (>95%). More than half of respondents received the service free of charge – these included almost all patients coming to the governmental PHC (>98%), and 14.4% of patients coming to the NGO PHC center. Respondents' demographic and socioeconomic characteristics as well as respondents'

⁴ The test is based on augmented regression including squares, cubics and quadratics of the fitted values. The auxiliary augmented model is: $y = X\beta + \alpha_1\hat{y}^2 + \alpha_2\hat{y}^3 + \alpha_3\hat{y}^4 + \varepsilon$. The test of specification error is then a joint test of $\alpha_1 = \alpha_2 = \alpha_3 = 0$. H_0 : There is no misspecification; H_1 : There is a misspecification.

⁵ The major changes in the study environment in the late-uprising phase consist in the severe economic crisis and the increase of the poverty level. However, other features are also considerable and are susceptible to play a role in influencing patients' preferences. These include the tight closure of the OPT through installation of checkpoints all around the cities and between villages leading to extremely difficult circulation conditions.

perceptions of the service's quality *status quo* level are summarized in Table 1 – the results are also stratified between the two study phases.

Table 1: *Status quo* quality perceptions and respondents' socioeconomic and demographic characteristics

	All sample N (%) / Mean (\pm S.D.)	Early-uprising N (%) / Mean (\pm S.D.)	Late-uprising N (%) / Mean (\pm S.D.)
<i>Geographical proximity</i>			
Very Far	297 (42.4%)	142 (40.8%)	155 (43.9%)
Far	144 (20.5%)	72 (20.7%)	72 (20.4%)
Average	165 (23.5%)	97 (27.9%)	68 (19.3%)
Close or Very Close	95 (13.6%)	37 (10.6%)	58 (16.4%)
<i>Waiting time</i>			
Very Long	130 (18.6%)	70 (20.0%)	60 (17.1%)
Long	108 (15.4%)	58 (16.6%)	50 (14.3%)
Average	176 (25.1%)	86 (24.6%)	90 (25.7%)
Not Long	135 (19.3%)	71 (20.3%)	64 (18.3%)
Not Long at All	151 (214.6%)	65 (18.6%)	86 (24.6%)
DPR (Score: [1 , 5])	3.36 (\pm 1.16)	3.00 (\pm 1.20)	3.72 (\pm 1.00)
<i>Drug availability</i>			
All	484 (74.6%)	251 (76.3%)	233 (72.8%)
Some	128 (19.7%)	49 (14.9%)	79 (24.7%)
None	37 (5.7%)	29 (8.8%)	8 (2.5%)
Gender (Female)	498 (71.0%)	251 (72.1%)	247 (70.0%)
Age (years)	38.6 (\pm 15.3)	36.2 (\pm 13.9)	41.0 (\pm 16.1)
Education (Formal schooling years)	9.1 (\pm 4.7)	9.2 (\pm 4.6)	9.1 (\pm 4.7)
Marital status (Married)	563 (80.3%)	277 (79.6%)	286 (81.0%)
Employment (Direct money-earner [♣])	237 (33.9%)	108 (31.1%)	129 (36.5%)
<i>Living zone</i>			
% City	174 (28.8%)	60 (17.2%)	114 (32.3%)
% Village	488 (69.6%)	270 (77.6%)	218 (61.8%)
% Refugee-camp	39 (5.6%)	18 (5.2%)	21 (6.0%)
<i>Reason for the medical visit</i>			
% Chronic disease & condition	218 (30.9%)	83 (23.6%)	135 (38.2%)
% Acute inf. & common illnesses	401 (56.9%)	226 (64.2%)	175 (49.6%)
% Pregnancy	50 (7.1%)	15 (4.3%)	35 (9.9%)
% Emergency	8 (1.1%)	7 (2.0%)	1 (0.3%)
% Others	28 (4.0%)	21 (6%)	7 (2.%)
Insurance status (Insured)	571 (81.5%)	263 (75.6%)	308 (87.3%)
User Fee co-payment (Free)	421 (60.1%)	188 (54.0%)	233 (66.0%)
<i>Household monthly Income (NIS)</i>			
≤ 1000 NIS [♠]	86 (25.3%)	118 (33.7%)	204 (29.6%)
]1000 – 2000] NIS	133 (39.1%)	128 (36.6%)	261 (37.8%)
]2000 – 3000] NIS	66 (19.4%)	68 (19.4%)	134 (19.4%)
]3000 – 4000] NIS	28 (8.2%)	25 (7.1%)	53 (7.7%)
]4000 – 5000] NIS	15 (4.4%)	7 (2.0%)	22 (3.2%)
> 5000 NIS	12 (3.5%)	4 (1.1%)	16 (2.3%)
Brut sample size (Response rate)	> 5000	578 (60.9%)	453 (77.9%)
Sample size (net)	705	352	353

♣ The category of “Direct money-earners” includes: independents (ex., shopkeepers, traders, etc.), employees (governmental and non-governmental) and workers. “Not direct money-earners” includes housewives, unemployed, retired and others.

♠ NIS = New Israeli Shekel. During the *early*- and *late-uprising* studies, 1 US\$ was equivalent to 4.20 and 4.75 NIS, respectively.

4.2. Quality perception:

More than 60% of respondents reported that the PHC center they were attending at the time of the interview was located “Very Far” or “Far” from their homes, with no significant differences between the early- and late-*Intifada* studies ($p = 0.441$). One-third of respondents reported that they waited “Very Long” or “Long” before meeting the doctor, and more frequently in the *early-uprising* study. However, the difference in responses between the two periods was not significant ($p = 0.151$). A significant difference ($p < 0.0005$) was detected in the patients’ assessment of the *Doctor-patient relationship* (a higher DPR-score signifies that the patient is more satisfied), with respondents seeming to be more satisfied by the doctors’ practice in the *late-uprising* period. More respondents were able to find their prescribed medications in the pharmacy of the center in the *late-uprising* phase ($p = 0.001$).

4.3. Willingness to pay values:

Patients’ WTP values for improving each of the four quality attributes are summarized in Table 2. The results suggest that the improvement attracting the patients the most, in both study phases, is having a closer PHC center to their domicile. In contrast, the least attractive attribute, in the *early-uprising* study, was found to be the reduction in the *waiting time* before meeting the doctor; and the *DPR* in the *late-uprising* study. For the four quality attributes, patients’ WTP values had significantly diminished in the *late-uprising* study in comparison to the *early-uprising* study; the reduction was significant at 5% level for three of the attributes and at 10% level for the waiting time attribute.

Table 2: Patients’ stated WTP values stratified by study phase

Quality attribute	WTP (All)	WTP Early-uprising	WTP Late-uprising	p-value
	Mean (\pm S.D.)	Mean (\pm S.D.)	Mean (\pm S.D.)	
Geog. proximity	8.24 (\pm 13.92)	9.52 (\pm 16.93)	6.98 (\pm 9.97)	0.016
Waiting time	4.04 (\pm 7.25)	4.51 (\pm 8.77)	3.58 (\pm 5.29)	0.088
DPR	5.17 (\pm 11.73)	7.55 (\pm 15.32)	2.74 (\pm 5.27)	<0.0005
Drug availability	5.80 (\pm 8.77)	6.64 (\pm 10.13)	4.95 (\pm 7.07)	0.013

In order to assess variations in the *nature* of patients’ preferences, we examined the number of patients who declared being willing to pay to benefit from the specified improvements (the number of contributors). A significant reduction in the number of late phase compared to early phase contributors was noticed for the *geographical proximity* and the *DPR* attributes. No significant reduction in the number of respondents stating positive WTP values was detected for the *waiting time* and *drug availability* attributes. Nevertheless, this particular result does not take into consideration the variations in the sample demographic and socioeconomic characteristics nor the amplitude of quality improvements proposed to the respondent in exchange of the user fee increase. This was considered in the multivariate analyses below⁶.

⁶ Results of bivariate analyses are not reported here. Indeed, it was difficult to make a primary selection of a set of independent variables to be included in the four multivariate regressions, based on the results of the bivariate analyses, thus the whole list of independent variables was included in the multivariate analyses.

Table 3: Factors associated with stated WTP values (Tobit regression analysis).

Independent variable	Geog. proximity (WTP♣)	Waiting time (WTP♣)	DPR* (WTP♣)	Drug availability (WTP♣)
	<i>B</i> (<i>B</i> SE)	<i>B</i> (<i>B</i> SE)	<i>B</i> (<i>B</i> SE)	<i>B</i> (<i>B</i> SE)
Constant	-3.977 (6.282)	1.102 (4.230)	17.179 (5.315)***	4.785 (3.790)
<i>Geographical proximity</i>				
Very Far	10.487 (2.644)***	-	-	-
Far	8.049 (2.784)***	-	-	-
Average	8.384 (2.652)***	-	-	-
Close & Very Close	Reference group	-	-	-
<i>Waiting time</i>				
Very Long	-	6.311 (1.574)***	-	-
Long	-	4.339 (1.617)***	-	-
Average	-	1.494 (1.473)	-	-
Not Long	-	1.661 (1.515)	-	-
Not Long at All	-	Reference group	-	-
<i>Doctor-patient relationship</i>				
DPR-Score	-	-	-3.865 (0.571)***	-
<i>Drug availability</i>				
None	-	-	-	3.483 (2.017)*
Some	-	-	-	-0.272 (1.203)
All	-	-	-	Reference group
<i>Gender</i>				
Female	-4.694 (2.040)**	-1.105 (1.399)	-1.020 (1.760)	-1.410 (1.304)
Male	Reference group	Reference group	Reference group	Reference group
<i>Age (years)</i>	-0.095 (0.067)	-0.100 (0.048)**	-0.080 (0.058)	-0.032 (0.043)
<i>Education (Schooling years)</i>	-0.022 (0.195)	0.032 (0.133)	-0.169 (0.167)	0.151 (0.126)
<i>Health Status</i>	0.390 (0.616)	-0.500 (0.423)	-0.910 (0.532)*	-0.303 (0.405)
<i>Monthly income (NIS)</i>	1.028 (0.329)***	0.654 (0.220)***	0.909 (0.277)***	0.365 (0.214)*
<i>Marital Status</i>				
Married	Reference group	Reference group	Reference group	Reference group
Not married	-0.811 (1.772)	-0.907 (1.225)	0.950 (1.486)	0.360 (1.136)
<i>Employment status</i>				
Direct money-earner	Reference group	Reference group	Reference group	Reference group
Not direct money-earner	-0.173 (1.859)	-0.981 (1.268)	-1.678 (1.596)	-0.279 (1.211)
<i>Living zone</i>				
Village	4.989 (1.978)**	-0.451 (1.222)	0.196 (1.532)	0.225 (1.151)
Refugee-camp	2.597 (3.509)	-0.618 (2.335)	1.328 (2.871)	0.767 (2.196)
City	Reference group	Reference group	Reference group	Reference group
<i>Reason of the visit</i>				
Acute or common illness	-4.086 (1.855)**	-0.560 (1.288)	-0.689 (1.617)	-0.997 (1.175)
Chronic disease/condition	Reference group	Reference group	Reference group	Reference group
<i>Provider</i>				
NGO	5.034 (1.666)***	2.794 (1.137)**	3.304 (1.569)**	-0.747 (1.156)
Public	Reference group	Reference group	Reference group	Reference group
No. of observations	590	589	585	546
No. of censored observations♥	135	259	253	141
Log likelihood	-2005.13	-1408.93	-1486.06	-1629.72
Probability > χ^2	<0.00005	<0.00005	<0.00005	0.0636
RESET Ramsy's test (Pb.>F)	0.729	0.588	0.148	0.671

Notes: *B* = coefficient, SE *B* = standard error of the coefficient. * = $P < 0.10$; ** = $P < 0.05$; *** = $P < 0.01$.

♣: DPR score; range [1, 5]. ♥: No. of censored observations = No. of observations with WTP value = 0.

♠: WTP values are assessed in New Israeli Shekel (NIS). The value of the NIS during the *early-uprising* study (1 US\$ = 4.20 NIS) was taken as the value of reference. WTP values in the *late-uprising* study (1 US\$ = 4.75 NIS) were reduced by a coefficient of 0.884, to adjust for the NIS depreciation.

4.4. Factors associated with stated WTP values:

The four Tobit regression analyses (Table 3) suggest the existence of a strong and a highly significant association between stated WTP values for the different quality improvements and the amplitude of the corresponding amelioration. Respondents living “Very Far” from the center were willing to pay more than those living “Far” or at an “Average” distance, to benefit from a “Close” or a “Very Close” PHC center⁷. Similarly, being those benefiting the most from reducing the waiting time before meeting the doctor to minimum, patients currently waiting “Very Long” or “Long” before meeting the doctor were willing to pay the highest user fee increments to benefit from a “Not Long at All” waiting time. The results also suggest that when the respondent is less satisfied from her/his relationship with the doctor, as assessed by the calculated DPR-score, she/he was willing to pay more to spend longer time with the doctor to benefit from more information about her/his medical problem and the prescribed treatments ($p < 0.01$). Finally, patients who did not find any of their prescribed medications in the center were willing to pay more than those who found “Some” or “All” of their medications, to be always able to find them in the pharmacy of the center’s ($p < 0.10$).

In general, females were willing to pay less than males to benefit from the different proposed quality improvements; however, this was only significant for the *geographical proximity* attribute ($p < 0.05$). In the local context, females usually have less control over household resources, which may explain their lower stated WTP values. Similarly, elderly patients were willing to pay less than younger patients for the various quality improvements; however, this was only significant for the *waiting time* attribute ($p < 0.05$). Given that the elderly may well use the opportunity of a visit to the PHC center to socialize and meet people, especially in periods where curfew, closures and siege could only have exacerbate their isolation, their lack of interest for reducing waiting time may be understandable. No significant differences were detected between the WTP values stated by respondents with different marital status. Neither the level of education of the patient nor her/his employment status appeared to play a role on the magnitude of stated WTP values. Direct money-earners (independents, employees, workers, etc.) – again those who usually control household income – had a tendency to declare higher WTP values compared to non-direct money-earners (housewives, students, unemployed, etc.).

The living zone of the patient played a role only on her/his stated WTP value for the *geographical proximity* attribute. Respondents living in rural zones declared higher WTP values to have a closer PHC center available to them. Respondents with higher income were willing to pay more to benefit from improvements over the four quality attributes. This was significant at the 1% level for three of the attributes, and at the 10% level for the *drug availability* attribute (i.e., even the poorest respondents were willing to pay substantial amounts to benefit from improvements over this attribute). In general,

⁷ Estimated regression coefficients from the Tobit model can be manipulated to express the marginal effects of the corresponding independent variables on stated WTP values [44, 45]. Indeed, two effects can be decomposed: (1) an effect representing an increase (or decrease) in the WTP values stated by respondents whose WTP is greater than zero, and (2) an effect representing a change in the probability of stating a positive WTP value by respondents who declare they are not willing to pay for the improvement. Results of such decomposition are not presented in this paper and for an example the reader is referred to [38].

respondents coming to the center for an acute or common illness were willing to pay less than those more frequently come to the center due to a chronic condition – this was only significant for the *geographical proximity* attribute ($p < 0.01$). One should note here that patients in the acute/common illness category usually have a better mobility capacity than those with chronic diseases. Finally, patients recruited from the NGO PHC center were willing to pay more to improve the *geographical proximity*, *waiting time* and *DPR* attributes ($p < 0.01-0.05$), compared to those attending PMOH facilities. Differences between the two groups were not clear for the *drug availability* attribute. Drugs' prices in NGO PHC are usually set at 10% above their cost price; consequently, paying an extra user fee to have all the prescribed medications be available in the NGO PHC local pharmacy would raise the cost of medications to a level close to prices in private pharmacies. Hence, although patients in NGO PHC center appeared to be more interested in improving quality, this was not the case for the *drug availability* attribute.

4.5. Impoverishment effect:

When a binary variable was introduced into the model to indicate whether the respondent was recruited during the *early-* or *late-uprising* study, to assess impoverishment impact on WTP values, a negative effect proved to be statistically significant with regard to the *geographical proximity* ($p < 0.05$) and *waiting time* ($p < 0.10$) attributes – results are adjusted for the quality variables and the respondents' demographic and socioeconomic characteristics. A likelihood ratio test suggested that a model with all the possible interaction terms between study phase and quality level variables and demographic and socioeconomic variables explain the best the distribution of the stated WTP values. Therefore, the latter was retained as the model of choice and the analysis was repeated using a stepwise selection procedure (p -value for inclusion and exclusion = 0.10 and 0.20, respectively).

The negative pure impoverishment effect on the *geographical proximity* and *waiting time* attributes remained significant in the stepwise Tobit regression analyses ($p = 0.015$ and 0.017 , respectively), which would indicate a real variation in patients' preferences with respect to these two quality-attributes following the impoverishment shock. In other words, the reduction in patients' WTP values was not only due to an income reduction effect but also due to a change *per se* in patients' assessment of the value (importance) of these two attributes for them. On the reverse, no significant associations were found between impoverishment and patients' stated WTP values for improvements over the *DPR* and the *drug availability* attributes.

Variables with significant interaction terms, following a stepwise Tobit regression, are presented in Table 4. Results suggest that women's WTP values for improving the *waiting time*, *DPR* and *drug availability* attributes were more negatively affected by impoverishment than men's WTP values ($p < 0.01 - 0.05$). Consequently, an equivalent general increase in user fees would penalize females more than males, even if the user fee increments were accompanied by equivalent quality improvements. Elderly patients were willing to pay more in the second study phase to have a "Very Close" PHC center; this was significant at 5% level. Certainly, elderly patients represent a category of the

population particularly affected by, and highly sensitive to, the difficult circulation conditions in the OPT caused by curfews, checkpoints and closures.

Table 4: Factors significantly associated with the study phase variable (stepwise Tobit regression analysis).

Variable X Study phase	Geog. proximity (WTP)	Waiting time (WTP)	DPR (WTP)	Drug availability (WTP)
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Waiting “Very Long”	-	-5.369**	-	-
Finding “Some” drugs	-	-	-	-3.674*
Female	-	-3.313**	-8.264***	-2.788**
Age (years)	0.273**	-	-	-
Education (Schooling years)	0.635*	-	-0.300**	-0.386**
Health Status	-	1.849**	-	-
Monthly income (NIS)	-	-	-	0.488*
Not married	7.140**	-	-	-
Not direct money-earner	5.412*	-	5.811**	-
Village dweller	-8.629***	-	-	2.692*
Suffer from “Acute” condition	9.256**	4.446*	-	-
Recruited in the NGO PHC	-	3.846**	-	-

Notes: *B* = coefficient, * = $P < 0.10$; ** = $P < 0.05$; *** = $P < 0.01$.

In the pooled sample, patients living in rural zone were willing to pay more than patients living in urban zone to benefit from closer PHC center ($p < 0.01$); however, in the *late-uprising* study, and in comparison to the *early-uprising* study, villagers’ WTP values were strongly negatively affected ($p < 0.01$). An opposite effect was demonstrated with respect to WTP values to improve *drug availability* – villagers were willing to pay more for this attribute in the *late-uprising* study compared to the early phase ($p < 0.01$). Respondents suffering from an acute condition or visiting the center due to a common illness had a tendency to be willing to pay more, in the second study phase compared to the first, to have a closer PHC center where they wait much less time before meeting the doctor – this was significant at 5 and 10% levels, respectively. The results suggest that patients with higher income levels tended to be willing to pay even more in the second study phase compared to the first phase, to always have all their prescribed medications in the center. Being more educated in the second study phase had a negative effect on patients’ WTP values for improving the *DPR* and the *drug availability* attributes, and a positive effect on the *geographical proximity* attribute. Respondents of the category of non-direct money-earners (housewives, unemployed, etc.) were willing to pay more in the *late-uprising* study compared to the early phase to have a closer PHC center and a better *DPR* ($p < 0.05$). Indeed, those are the ones who move the least and cross checkpoints infrequently (to access work, etc). Thus, probably to avoid any un-necessary and risky displacements for the purpose of seeking health care, they were willing to pay more in the *late-uprising* study to benefit from a close PHC center and a good *DPR*. Respondents coming to the NGO PHC center were willing to pay more in order to wait less before meeting the doctor in the late phase compared to the early one ($p < 0.05$). Patients with low perceived health status were willing to pay more in the *late-uprising* study phase compared to the early one to reduce waiting time. Finally, respondents who were waiting “Very Long” before meeting the doctor, and those who were only able to find some of their prescribed medications in the center, were willing to pay less in the

second study phase, compared to the first, to have each of the corresponding quality attributes improve. The former group seem to be willing to somehow withstand the “Very Long” waiting period in order not to pay more for the service; and the latter seem to have accepted the available quality level – even when non optimal – also in order to avoid extra payments.

5. Discussion:

In this paper we addressed the question of the impact of an adverse variation in patients’ ATP on their preferences vis-à-vis improving the quality of delivered care. The sudden and severe impoverishment experience that gripped the OPT following the explosion of the second Palestinian *Intifada* and the subsequent quasi-permanent closures of the Palestinian lands was used as a quasi-experimental context. A strong relationship was demonstrated between impoverishment and modifications in patients’ preferences. The results suggest that the value of improvements in secondary, or relative “luxury”, quality attributes, e.g., *geographical proximity* and *waiting time*, seem to have been the most negatively affected by the substantial decrease in patients’ incomes. However, patients’ preferences for essential tangible quality attributes, e.g., *drug availability* and *doctor-patient relationship*, appeared not to have been affected by patients’ impoverishment.

The most important result of our multivariate regression analyses was however that variations in patients’ preferences with respect to secondary quality attributes could not be fully explained by the decrease in patients’ ATP. A negative impoverishment effect remained significant even after adjusting for patients’ demographic and socioeconomic characteristics including income, and thus, adjusting for the loss of available income between the two periods of observation. This clearly suggests that an impoverishment shock, as the one related to the crisis situation created by the *Intifada*, may have a multidimensional effect that goes beyond a simple product of cash reduction, and extend to an alter in the structure of individual preferences itself. We first discuss this multidimensional impoverishment impact and its association with patients’ demographic and socioeconomic characteristics. Following, we attempt to develop the analysis further and provide arguments about how CV results should be interpreted in the light of our study. We conclude by discussing the implications of our results on public policy decisions with regard to financing health care services in developing countries, in general, and in the context of the OPT in particular.

Impoverishment by itself seems to have multidimensional consequences that might promote modifications in patients’ perceptions and preferences, resulting in a re-adjustment of individual and family expenditure prioritization schemes. When confronted with severe impoverishment conditions, patients tend to discount certain health care quality aspects for which they were attaching more importance before impoverishment conditions set in. It appears that, under impoverishment conditions, certain groups of patients downplay and adapt their expectations to the most basic quality components, and consequently, tend to weaken their ability to fully express their desires and preferences. This multidimensional impact of an impoverishment shock could be compared to what has been advanced by Amartya Sen’s concept of “capabilities” [46]. Sen’s notion is an attempt to go beyond conventional “welfarist” approaches by taking into account the

inability of certain groups of people to “desire”, and consequently, to “express” all their preferences in an adequate manner. The above analysis suggests that with the severe impoverishment shock that had hit the OPT, patients might have started to adapt their expectations and behaviors and limit their preferences. It should be mentioned that this may not only concern shocks related to political crisis and war situations but other types of events like major epidemics, the HIV/AIDS epidemic in some sub-Saharan countries being a typical example.

Russell [31] argued that, being willing, and able, to pay for the commodity does not automatically imply being able to *afford* the latter, mainly because the social opportunity cost of the payment may be too high to be socially acceptable. In a similar vein, we attempt to complement Russell’s argument using Sen’s theory about the inability of certain groups of individuals to manage to desire adequately [46], to advance that an absence of WTP may not always be interpreted as an absence of value for the individual. The main message of our paper can be formulated as follows: *“not being willing to pay for a commodity does not automatically imply the absence of preferences for the latter. This is because, under certain conditions, patients experience a change in their perceptions of what is achievable and what is not, and adapt their expectations to the realities and constraints of their lives. As a result, they might become no longer able to express all their preferences in an adequate manner, given particular life conditions.”*

Our results suggest that the consequences of impoverishment affected primarily the most vulnerable groups within the population, e.g., women, the elderly and village dwellers. WTP values stated by these subgroups of individuals were those most negatively affected by impoverishment. Women in the local context usually have little control on household resources, perhaps explaining their higher sensitivity to impoverishment conditions. As for elderly patients, it is important to note that in Palestine, the absence of social security benefits and safety nets translate into a *de facto* arrangement where older people by necessity must rely on family financial resources as well as social assistance and support for survival. In this particular instance, it seems that the elderly have re-prioritized access as more important than even the cost of service by exhibiting significantly higher WTP values than other groups in the *late-uprising* study phase, in order to benefit from a PHC center located closer to their domicile. This is probably due to the impossibility of travel conditions, especially for the elderly, often requiring travel on dirt paths and walking substantial distances (siege and closures) under the fear of being stopped or shot at with tear gas, sound bombs, rubber bullets, and even sometimes, live ones.

Villagers were especially hard hit by the sharply deteriorating political conditions, forced joblessness and prolonged unemployment – many lost their jobs (in nearby Palestinian cities or in Israel) and access to the land that they till to live [47]. This had significantly reduced their WTP values for improving quality attributes like the *geographical proximity* of the PHC center. However, villagers were also especially affected by road closures and siege, resulting with almost total isolation and sudden lack of access to basic services. These circumstances, and especially the problem of inaccessibility to health services which are located in cities and town centers, ironically, but understandably, explain why villagers in this study reported higher WTP values in the second study phase

compared to the first for improving the *drug availability* quality attribute. Having experienced this severe lack of access to basic health care, these villagers were willing to pay more than what they were willing to pay previously in order to ensure that their medications are always available at the PHC center and thus not have to face having to visit the center again or look for these medications elsewhere in these trying times.

Finally, patients with lower school qualifications were also more negatively affected by impoverishment conditions. This is manifested in their most basic prioritization of the quality improvements that were proposed to accompany the user fee increase, downplayed to the minimal level of being willing to pay more just to have drugs available at the PHC center or to be able to meet the doctor for a sufficient time.

Contingent valuation studies have been mainly developed and applied in the context of publicly financed health care systems of developed countries, and with the purpose of contributing to the monetary valuation of health gains for cost-benefit analysis (CBA) of alternative programs. It is of utmost importance to interpret CV results with caution [48], mainly when applications are to be extended from economic calculus (a normative perspective) to attain positive economic objectives; e.g., demand assessment and price elasticity estimation [19]. Even in the context of CBA, it has been argued that WTP values should be weighted if patients' preferences are proven to be not equivalently distributed amongst the poor and the rich [20]. In the context of demand assessment for pricing purposes, it has been often argued that proper integration of the issues of payments' *affordability* must be taken into account. *Affordability* is usually defined as a variant of ATP requiring certain external value judgments about income distribution [49]. If something is "unaffordable" to poor people this might mean they should not purchase it even if they choose to! The argument is that it will reduce the income they have available to spend on other goods and services the evaluator considers socially more valuable [49]. Our study strongly suggests that in addition to affordability, individual *capabilities to desire adequately* and express preferences should also be taken into account while interpreting WTP data. In particular, as shown by the impact of the *Intifada* on the Palestinian population, the process of impoverishment may affect capabilities to express of certain vulnerable groups quite differently than the rest of the population

Our study shows that under severe impoverishment conditions, patients' WTP values for improving the quality of delivered care diminish steeply. Given that quality improvement is known to be an unavoidable dimension in determining patients' reaction to price variation [1], using complementary financing mechanisms based on mobilizing private resources (e.g., cost recovery policies) under exacerbated poverty conditions, shall critically penalize health care users, and mainly the most vulnerable amongst them. Other financing mechanisms based on more efficient allocation of public resources amongst the different public sectors should be promoted as an alternative to assure equitable health care utilization.

6. Conclusion:

Impoverishment might catalyze a series of income-independent modifications in patients' preferences vis-à-vis improving the quality of delivered care, especially, with respect to

some secondary quality improvements. Being unwilling to pay for a commodity should not be spontaneously, and “naively”, interpreted as an evidence of a lack of preferences for the former. Under severe impoverishment conditions, particular groups of patients might accommodate their realities and adapt their preferences to the extent that they become unable to express them adequately. Indeed, although some patients might express preferences for certain aspects of quality improvements, and be willing to pay a substantially extra amount of money to benefit from them under relatively “favorable” economic circumstances, patients might be forced to adapt their preferences in a process that takes into consideration what is achievable in the face of other essential priorities if “unfavorable” economic conditions set in. Our study suggests that under severe impoverishment shocks, the use of direct cost recovery mechanisms, and the introduction of user fees, as complementary means of financing health care, should be minimized if social welfare is to be promoted. We conclude that contrary to some *a priori* beliefs that they are exclusively an *ad hoc* tool to legitimate cost recovery policies and reduction in public delivery of health care, CV studies may indeed be carried out in a more “value-neutral” approach. Such approach implies a clear awareness that CV provides policymakers with valuable information about health care values, from the users’ perspective, which are sensitive to the economic and social environment. This should assist in activating rigorous, and continuous, planning of health care financing which explicitly takes into consideration these variations in the social and economic environments, equity and the social welfare of the population.

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Appendix

(A) Selected quality attributes and their corresponding measurement scales.

<i>Attribute</i>	<i>Measurement scale</i>
1. Geographical proximity	Very far, Far, Average, Close, Very close.
2. Waiting time	Very long, Long, Average, Not long, Not long at all.
3. Doctor-patient relationship (DPR): being able to discuss her/his problem with the doctor and receive sufficient information about her/his health state and the prescribed treatment(s)	Multi-item <i>Likert</i> scaling; range: [1,5] (continuous). <i>Items</i> : 1. I stayed sufficient time with the doctor. 2. The doctor explained to me my health problem. 3. The doctor explained to me how to use the prescribed treatment. 4. The doctor explained to me what I should do to prevent (or not to complicate) my health problem in the future. 5. The information was clear and sufficient.
4. Drug availability: being able to purchase the prescribed treatment(s) at the center	All, Some of them, None.

(B) The four partial WTP valuation questions:

<p>Would you be willing to pay any amount of money (even small amounts like 1, 2, 3 or 4 NIS) more than what you already pay in order to ...</p>	<p>◆ benefit from a PHC center similar to this one and located “<i>Very close</i>” to your home? ◆ wait a period you estimate “<i>Not long at all</i>” before meeting the doctor ? ◆ be able to stay sufficient time with the doctor to discuss with him your health problem, receive sufficient and clear information about your disease and the prescribed treatment(s)? ◆ be able to find the prescribed treatment(s) “<i>always</i>” available in the center?</p>	<p>◆ Yes→</p>	<p>What is the maximum amount of money that you would be willing to pay, extra to what you currently pay, in order to ...</p>	<p>◆ have a PHC center “<i>Very close</i>” to your home; ◆ have a PHC center with a “Waiting time” that you estimate as “<i>Not long at all</i>”; ◆ be able to stay sufficient time with the doctor to discuss with him your health problem, receive sufficient and clear information about your disease and the prescribed treatment(s); ◆ be able to find the prescribed treatment(s) “<i>always</i>” available in the center;</p>	<p>knowing that this extra amount of money will be paid at every coming visit?→</p>	<p>Payment Card</p>
		<p>◆ No→</p>	<p>Why?</p>			

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